EUROPEAN EDUCATION AND CULTURE EXECUTIVE AGENCY (EACEA)

EACEA.A – Erasmus+, EU Solidarity Corps
A.2 – Skills and Innovation

AMENDMENT No AMD-101196580-2

Project: 101196580 — SmartStart

The parties agree to amend the Agreement as follows ('**Amendment**'):

1 . Change of Annex 1

Annex 1 is changed and replaced by the Annex 1 attached to this Amendment.

2. Change of Annex 2

The estimated budget in **Annex 2** is changed.

This implies the **following changes** to the Agreement:

- **Annex 2** is changed and replaced by the Annex 2 attached to this Amendment.
- The table on maximum grant amount and total estimated eligible costs and contributions in the **Data Sheet** is updated.

All other provisions of the Agreement and its Annexes remain unchanged.

This Amendment **enters into force** on the day of the last signature.

This Amendment **takes effect** on the date(s) mentioned in the amendment clause(s) (or — if no date was chosen — on the same date the Amendment enters into force).

Please inform the other members of your consortium (if any) of this Amendment.

SIGNATURES

For the coordinator

Stefanie Sauerbrey with ECAS id n003c9ze signed in the Participant Portal on 25/08/2025 at 11:07:58 (transaction id SigId-2670-WoVviEer4Ad3kDeqD0i1FPCYk16zGjDCv46jayJ6f7K9zcxILb0H7xt37yzugwWzgYioW4fZcHyOdKwemPGImCy-jpJZscgsw0KiU6W2ItI2Oy-bOyhoWzqKuQcGWwMpgezpRVGETZzbv5sVOpSY89tiCgVp1fMuzlfC8SiexvzLGssjE3PkPqTv9ZjJBUlYKN9ZkX). Timestamp by third party at 2025.08.25 11:08:42 CEST

For the granting authority

Signed by Manuela ALFE with ECAS id alfemma as an authorised representative on 09-09-2025 03:55:08 (transaction id SigId-17291-1piKT6wWDX4E939MryVyzOHVjEfzvV8JlPr32mCU63hDMaTspAHqYazzb7cswdRoym4VWtRWFSc9dXKrlqvWyya-R2zIpfT8xjM4irqDme64tu-qTuJ2drJMjTZxmbkTdpPnPjzIla8qjUGqg65X5vvGqTIb5lmRhvOfANVTgiK26h4iLD3aPgFnkmzckezlcsedu0) 2025.09.09 03:55:11 CEST

Done in English

Enclosures: Grant Agreement Data Sheet
Grant Agreement Annex 1
Grant Agreement Annex 2

ANNEX 1

Erasmus+ (ERASMUS+)

Description of the action (DoA)

Part A

Part B

DESCRIPTION OF THE ACTION (PART A)

COVER PAGE

Part A of the Description of the Action (DoA) must be completed directly on the Portal Grant Preparation screens.

PROJECT *Grant Preparation (General Information screen) — Enter the info.*	
Project number:	101196580
Project name:	SmartStart ERASMUS+ Teacher Academy
Project acronym:	SmartStart
Call:	ERASMUS-EDU-2024-PEX-TEACH-ACA
Topic:	ERASMUS-EDU-2024-PEX-TEACH-ACA
Type of action:	ERASMUS-LS
Service:	EACEA/A/02
Project starting date:	1 April 2025
Project duration:	36 months

TABLE OF CONTENTS

PROJECT SUMMARY

Project summary

Grant Preparation (General Information screen) — Provide an overall description of your project (including context and overall objectives, planned activities and main achievements, and expected results and impacts (on target groups, change procedures, capacities, innovation etc)). This summary should give readers a clear idea of what your project is about.

Use the project summary from your proposal.

The SmartStart Teacher Academy aims to establish an international teacher training program that empowers teachers and teacher students to integrate AI-based digital media into everyday classroom practice, support-ing individualised learning and enhancing pedagogical methods. To address language barriers, an AI-based translation tool will be developed to facilitate professional exchange and support multilingual classrooms. The curriculum will be based on a comprehensive discussion and analysis of the needs, challenges, opportunities, and issues related to AI-based applications and digital media in primary schools, conducted by an expert pan-el representing all relevant perspectives and supported by a thorough scientific literature review. SmartStart Teacher Training includes both teachers and teacher students, fostering learning and collaboration among novice and experienced educators through mentoring and peer-to-peer learning. The program comprises two integrated phases. The first phase is an online course that provides international participants with foundational knowledge on the technological, pedagogical, and didactic aspects of AI and digital media in primary schools. The second phase is practical and takes place in cooperating project schools using ERASMUS+ mobility programs. This training concept applies theoretical knowledge to the classroom in a co-creative and reflective manner, utilising the Deeper Learning approach. Scientific studies will evaluate the professional development of the trained teachers, informing the continuous improvement of the training program, which will be integrat-ed into the curricula of participating universities and teacher training institutions. The online course will be accessible through eTwinning, supporting primary school teachers across Europe in addressing the chal-lenges of AI and digital media in their daily work.

LIST OF PARTICIPANTS

PARTICIPANTS

Grant Preparation (Beneficiaries screen) — Enter the info.

Number	Role	Short name	Legal name	Country	PIC
1	COO	KUEI	KATHOLISCHE UNIVERSITAT EICHSTATT-INGOLSTADT	DE	997154666
2	BEN	KAU	KARLSTADS UNIVERSITET	SE	999874837
3	BEN	UKEN	UNIWERSYTET KOMISJI EDUKACJI NARODOWEJ W KRAKOWIE	PL	968438495
4	BEN	WSB	AKADEMIA WSB	PL	949671032
5	BEN	UAM	UNIWERSYTET IM. ADAMA MICKIEWICZA WPOZNANIU	PL	999886865
6	BEN	UP	UNIVERSIDADE DO PORTO	PT	999894916
7	BEN	URV	UNIVERSITAT ROVIRA I VIRGILI	ES	999880560
8	BEN	SIG	FUNDACION SIGLO22	ES	941069848
9	BEN	TU	TRNAVSKA UNIVERZITA V TRNAVE	SK	994330026
10	BEN	NLA	NLA HOGSKOLEN AS	NO	891084002
11	BEN	IN	Indícia, n.o.	SK	890696002

PARTICIPANTS

Grant Preparation (Beneficiaries screen) — Enter the info.

Number	Role	Short name	Legal name	Country	PIC
12	BEN	HSMW	HOCHSCHULE MITTWEIDA (FH)	DE	998994853
13	BEN	ISSR	STOCKHOLMS STAD	SE	996559183
14	BEN	ANP	ASSOCIACAO NACIONAL DE PROFESSORES	PT	901404802

LIST OF WORK PACKAGES

Work packages

Grant Preparation (Work Packages screen) — Enter the info.

Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
WP1	Theoretical Framework	6 - UP	32.00	1	21	D1.1 – Expert Key Strategy Paper D1.2 – Systematic Literature Report
WP2	AI-Based Translation Tool and Portfolio of AI-Based Applications and Digital Media	11 - IN	45.00	1	21	D2.1 – Translation Tool “Babylon” D2.2 – Portfolio AI-Based Applications and Digital Media
WP3	Curriculum and Online Course Development	8 - SIG	26.00	1	36	D3.1 – Curriculum Document D3.2 – Final Version of Online Course on LMS
WP4	SmartStart Teacher Training – Organisation and Infrastructure	9 - TU	35.00	4	36	D4.1 – Final Version of Handbook for Organisation and Implementation of the SmartStart Teacher Training Programme
WP5	Research	3 - UKEN	30.00	7	36	D5.1 – Comprehensive Final Research Report
WP6	Implementation	2 - KAU	40.00	4	36	D6.1 – Teachers’ Network Establishment D6.2 – Outcome Maintenance Strategy
WP7	Dissemination and Outreach	7 - URV	21.00	1	36	D7.1 – Project Website D7.2 – Dissemination Strategy Document
WP8	Project Management and Organisation	1 - KUEI	61.00	1	36	D8.1 – Project Management Plan including Risk Management

Work package WP1 – Theoretical Framework

Work Package Number	WP1	Lead Beneficiary	6 - UP
Work Package Name	Theoretical Framework		
Start Month	1	End Month	21

Objectives
In WP1 the SmartStart Teacher Academy establishes an Expert Panel comprising representatives from all relevant fields to combine their expertise and perspectives. This group includes stakeholders from teacher training universities, scientists, AI experts, psychologists, educators, school leaders, parents, representatives of professional teacher training institutions, teacher associations, and policymakers. The Expert Panel's task is to develop the theoretical foundation of the SmartStart Teacher Academy. They are expected to share insights, innovative practices, provide analysis of existing educational challenges that AI could address, and explore how AI can be meaningfully implemented in primary school classrooms. The Expert Panel's perspectives will be summarised in a Key Strategy Paper. This paper is aimed to create a holistic view on the implementation of AI and digital media in primary schools and will inform and create the frame and foundation for the activities of the following work packages of the SmartStart project. The Expert's Panel approach will be complemented by a comprehensive literature review in WP2, exploring the state-of-the art of research and didactical implementation of AI and digital media in primary school environments by using academic databases such as EBSCOhost, Scopus, Web of Science, ProQuest Education Database, Google Scholar, JSTOR, ERIC, and IEEE Xplore. The Systematic Review Chart (SRC) includes various types of sources such as theoretical papers, empirical studies, case studies, and central policy papers of the EU and participating countries to identify the impact of AI and digital media on education (teaching practices, student outcomes, policy development etc.). The objective is to compare findings across different studies to identify common themes and divergent viewpoints on digital transformation in primary school education. The review summarises the key findings, implications for practice and teacher training in a report.

Description
T1.1 Establish an Expert Panel Form an Expert Panel comprising representatives from teacher training universities, scientists, AI experts, psychologists, educators, school leaders, parents, professional teacher training institutions, teacher associations, and policymakers. T1.2 Develop Theoretical Foundation 1.2.1 Task the Expert Panel with developing the theoretical foundation of the SmartStart Teacher Academy. 1.2.2 Ensure the panel shares insights, innovative practices, and requirements regarding implementation of AI in primary schools across all relevant areas. 1.2.3 Have the Expert Panel provide analysis of existing educational challenges that AI could address. 1.2.4 Task the Expert Panel with exploring how AI can be meaningfully implemented in primary school classrooms T1.3 Create Key Strategy Paper Summarise the Expert Panel's perspectives in a Key Strategy Paper to provide a holistic view on the implementation of AI and digital media in primary schools. T1.4 Conduct Comprehensive Systematic Literature Review (SRC) Explore state-of-the-art research and didactical implementation of AI and digital media in primary school environments.

Work package WP2 – AI-Based Translation Tool and Portfolio of AI-Based Applications and Digital Media

Work Package Number	WP2	Lead Beneficiary	11 - IN
Work Package Name	AI-Based Translation Tool and Portfolio of AI-Based Applications and Digital Media		
Start Month	1	End Month	21

Objectives

WP2 focuses on three main tasks: (1) Development and implementation of an AI-powered language tool for accurate real-time translations to remove language barriers and foster deeper collaboration among teachers and teacher students from different linguistic backgrounds in the SmartStart project. (2) Application and evaluation of the translation tool in multilingual classrooms to provide real-time translations of instructions and learning materials, ensuring that students understand lessons in their native languages. (3) Creation of a portfolio offering a comprehensive overview of AI-enabled digital learning resources, including instructional videos, informative content, and lesson plans to support teachers effectively.

Description
T2.1 Development and Implementation of an AI-Powered Language Tool 2.1.1 Identify, select and customise suitable AIbased translation tools ensuring support for all European languages and dialects. 2.1.2 Develop the prototype "Babylon" translation tool with real-time translation capabilities for both 2.1.2 Develop the prototype "Babylon" translation tool with real-time translation capabilities for both spoken and written communication formats. Implement robust privacy and security protocols to protect user data and ensure compliance with relevant regulations. Run pilot tests. 2.1.3 Implement the AI translation tools across all partner platforms, ensuring integration into emails, project documents, and live conversations. 2.1.4 Develop comprehensive training materials, including tutorials, lesson plans, and user guides. Conduct training sessions for all project members to ensure proficiency in using the new tools. 2.1.5 Provide regular software updates and improvements based on user feedback and technological advancements. T2.2 Application and Evaluation in Multilingual Classrooms 2.2.1 Conduct pilot tests with selected partner schools and classes to gather feedback and refine the tool. 2.2.2 Provide similar but cost-effective translation tools to partner schools for extensive testing (approximately 30 units per class). 2.2.3 Create and deliver evaluation report. T2.3 Development of a Comprehensive Portfolio of AI-Enabled Digital Learning Resources Develop a portfolio offering a comprehensive overview of ca. 25 AI-enabled digital learning resources, including instructional videos, informative content, and lesson plans.

Work package WP3 – Curriculum and Online Course Development

Work Package Number	WP3	**Lead Beneficiary**	8 - SIG
Work Package Name	Curriculum and Online Course Development		
Start Month	1	**End Month**	36

Objectives
WP3 has two main objectives: (1) Develop a comprehensive curriculum for the SmartStart Teacher Training programme, focusing on Technological Pedagogical Content Knowledge (TPACK), defining essential competencies and theoretical knowledge related to the implementation of AI and digital media in education, encompassing basic models, research findings, data requirements, and ethical considerations to ensure effective integration into teaching practices. (2) Based on the developed curriculum, a didactically structured modular online course will be created which covers a wide range of topics, including AI tools, digital media, adaptive learning systems, automated grading tools, virtual tutors, educational software, and ethical considerations and incorporates theoretical knowledge, didactical models, instructional strategies, and pedagogical guidelines tailored to the unique conditions of primary school students.

Description
T3.1 Curriculum Development Develop a comprehensive curriculum that includes essential competencies and theoretical knowledge related to AI and digital media in education and covers basic models, research findings, data requirements,and ethical considerations.

T3.2 Online Course Creation
Prepare a didactically structured modular online course based on the developed curriculum which will include learning units on AI tools, digital media, adaptive learning systems, and ethical considerations, designed to be flexible for individual or group engagement.

T3.3 Learning Management System (LMS) Development
Develop a Moodle-based LMS tailored to the SmartStart project to support the modular online course to manage learners, monitor progress, facilitate communication, and provide tools for collaboration and interactive learning. Available in national languages of project partners and English.

T3.4 Publish Online Course on the SmartStart LMS
Content and didactic structure of the online class inserted in LMS.

T3.5 Evaluation of Online Course
Revise online course according to feedback after pilot rounds of teacher training.

T3.6 Prepare Online Course for Launching in eTwinning
Adapt online course to requirements of eTwinning platform and integration.

Work package WP4 – SmartStart Teacher Training – Organisation and Infrastructure

Work Package Number	WP4	**Lead Beneficiary**	9 - TU
Work Package Name	SmartStart Teacher Training – Organisation and Infrastructure		
Start Month	4	**End Month**	36

Objectives
WP4 has two leaders: TU and UAM WP4 has two main objectives: (1) Develop the structure and organisation of the training programme by creating a coherent approach to structuring, organizing, and delivering the SmartStart teacher training programme including the necessary infrastructure for online courses and integrating them into universities' teacher training courses. (2) Develop a concept for implementing the practical phase in cooperation with participating project schools and integrate the training into relevant national systems as a further training programme for teachers and run two pilot sessions of the training and revise the organisational structure based on evaluation feedback.

Description
T4.1 Infrastructure Development for Online Courses Develop the infrastructure required to deliver online courses, ensuring they are integrated into universities' existing teacher training courses. T4.2 Practical Phase Implementation Develop a concept, infrastructure and measures for implementation of the practical phase of training in cooperation with participating project schools. T4.3 Execution and Evaluation of Pilot Smart-Start Teacher Training Sessions Run two sessions of the two-stage teacher training programme (M16-30), analyse feedback, and revise the organisational structure based on the evaluation results.

Work package WP5 – Research

Work Package Number	WP5	**Lead Beneficiary**	3 - UKEN
Work Package Name	Research		

Start Month	7	End Month	36

Objectives
WP5 has two leaders: UKEN + WSB WP5 aims to conduct two research studies (quantitative and qualitative) to investigate and enhance the professional competencies of (prospective) teachers in integrating AI and digital tools into their classrooms. This involves assessing current competencies, evaluating training program effectiveness, understanding variability in competency development, and identifying beneficial experiences for teachers. The success of the SmartStart project will be evaluated by the improvement in teachers' professional competencies in using AI and digital tools, measured by the percentage increase in competency scores from pre-test to post-test assessments. Main objectives: (1) Investigate the development of teachers' professional competencies (knowledge, beliefs, motivational orientations) in handling AI and digital tools. (2) Determine the effectiveness of initial and in-service training programs in enhancing these competencies. (3) Collect qualitative data on teachers' experiences and insights to understand what aspects of training benefit them the most.

Description
T5.1 Development of Research Framework for Study 1 (Quantitative) and Study 2 (Qualitative) 5.1.1 Develop a detailed research framework that outlines the objectives, questions, methods, and tools for the evaluation of the project. 5.1.2 Design and validate tools for data collection, including surveys, interviews, observation protocols, and digital analytics. T5.2 Intervention Implementation (Quantitative Study) Conduct a quasi-experimental intervention study with an experimental group and a control group. 5.2.1 Implement the SmartStart training for the experimental group and ensure control group receives standard training. 5.2.2 Conduct two measurement points (pre and post). 5.2.3 Training completion reports. 5.2.4 Comparative analysis of pre- and post-intervention data (Report). T5.3 Interview Study (Qualitative Study) 5.3.1 Conduct in-depth interviews with a sample of teachers to gather detailed insights. 5.3.2 Develop interview guidelines. 5.3.3. Conduct and transcribe interviews. 5.3.4 Analyse interview data using qualitative content analysis (Report). T5.4 Presentation of Results 5.4.1 Presentations on two conferences. 5.4.2 Deliver two publications in peer-reviewed journals.

Work package WP6 – Implementation

Work Package Number	WP6	Lead Beneficiary	2 - KAU
Work Package Name	Implementation		
Start Month	4	End Month	36

Objectives
WP6 has two leaders: KAU + NLA The overall objectives of WP6 are to embed the project's AI-based tools and training modules within educational institutions, establish a supportive network of trained teachers, influence educational policies, maintain digital resources, and ensure the project's sustainability through continuous support and collaboration with similar initiatives.

Description

T6.1 Institutional Embedding
6.1.1 Collaborate with teacher training centres and universities to integrate AI-based tools and training modules into their programs.
6.1.2 Develop strategies for incorporating project resources into educational curricula.
6.1.3 Monitor and support the implementation process within educational institutions.

T6.2 Teachers' Network
6.2.1 Establish a network of trained teachers to serve as teaching champions or masters.
6.2.2 Facilitate peer support and mentoring among the trained teachers.
6.2.3 Encourage the continuous development and refinement of training concepts.

T6.3 Policy Integration
6.3.1 Share project results and recommendations with educational policymakers.
6.3.2 Present findings at educational forums, conferences, and through policy briefs.
6.3.3 Advocate for the integration of AI literacy and tools into broader curricula.

T6.4 Digital Open Hub
6.4.1 Maintain and update the project's digital resources, including training materials and best practices.
6.4.2 Ensure continuous access to digital resources for educators.
6.4.3 Explore scalability through partnerships with other educational initiatives.

T6.5 Projects Synergy
6.5.1 Pursue collaborations with similar EUfunded projects and educational organisations.
6.5.2 Engage in joint dissemination activities, such as conferences and workshops.
6.5.3 Share and exchange resources, findings, and best practices with similar projects.

T6.6 Outcome Maintenance
6.6.1 Implement regular updates and upkeep of digital platforms.
6.6.2 Conduct ongoing monitoring and evaluation of the integrated AI tools and training programs.
6.6.3 Secure additional funding or grants for sustaining project activities and platform maintenance.
6.6.4 Establish a dedicated team or assign roles within existing institutions for project oversight.
6.6.5 Ensure access to technical support for maintaining and updating digital platforms and resources.

Work package WP7 – Dissemination and Outreach

Work Package Number	WP7	**Lead Beneficiary**	7 - URV
Work Package Name	Dissemination and Outreach		
Start Month	1	**End Month**	36

Objectives
WP7 has two leaders: URV + KUEI The main objectives of WP7 are to disseminate research results to a broad audience and a wide range of stakeholders, inspire further research projects, advance teacher training transformation, and stimulate discussion and action on AI and digital media use in education. The project aims to provide actionable recommendations for implementing AI and digital media in primary schools and directly inform teacher trainers, educators and policymakers of the findings.

Description
T7.1 Development of a Comprehensive Dissemination Strategy Formulate a plan to target key stakeholders, outline effective communication methods, and ensure the project's messages are clear, impactful, and reach the intended recipients. This strategy will guide all dissemination activities, maintaining coherence and consistency. T7.2 Project Promotion and Public Engagement 7.2.1 Develop a corporate design for the project, with a link to EU standards. 7.2.2 Design and launch the SmartStart project's website.

7.2.3 Develop and distribute a variety of promotional materials such as brochures, infographics, newsletters, and press releases to effectivelycommunicate the project's purpose, progress, and achievements.
7.2.4 Utilise social media platforms and the project website to regularly update the public and stakeholders about project activities, outcomes, and opportunities for engagement.
7.2.5 Organise a capstone conference at the beginning and at the end of the project in Eichstaett or Tarragona to showcase the results, gather feedback, and discuss future directions with stakeholders and the public.

T7.3 Workshops, Conferences, and Academic Engagements
7.3.1 Plan and execute several workshops, webinars and conferences, also beyond the SmartStart Teacher Academy project`s summits, to foster networking, share findings, and discuss the implications of AI technologies in education with a broader educational community.
7.3.2 Prepare academic papers for publication in peer-reviewed journals and presentations for educational conferences to ensure the academic rigour and credibility of the project's outcomes are well recognized.
7.3.3 Present at major educational conferences such as the International Society for Technology in Education (ISTE) conference, the European Conference on Educational Research (ECER), the American Educational Research Association (AERA) Annual Meeting, the Society for Information Technology and Teacher Education (SITE) International Conference, and the British Educational Research Association (BERA) Conference to reach a global audience of primary educators and researchers.

Work package WP8 – Project Management and Organisation

Work Package Number	WP8	**Lead Beneficiary**	1 - KUEI
Work Package Name	Project Management and Organisation		
Start Month	1	**End Month**	36

Objectives
The primary objective of WP8 is to ensure effective management and coordination of all SmartStart Teacher Academy activities, partners, and resources throughout the project duration. This will ensure that the SmartStart Teacher Academy project objectives are met on time, within budget, and to the highest quality standards.

Description
T8.1 Project Coordination and Leadership 8.1.1 Establishment of Project Governance: Set up a governance structure including a steering committee and project management office to oversee project implementation. 8.1.2 Regular Coordination Meetings: Conduct monthly online meetings and semi-annual hybrid or face-to-face meetings to ensure all partners are aligned and project milestones are on track. T8.2 Financial Management 8.2.1 Budget Allocation and Monitoring: Develop and implement a budget plan that details the allocation of funds to different activities and partners, including regular monitoring and reporting of budget status. 8.2.2 Financial Reporting and Audits: Prepare annual financial reports and coordinate audits to comply with ERASMUS + funding rules and regulations. T8.3 Risk Management 8.3.1 Risk Assessment: Identify potential risks to project execution, including financial, operational, and strategic risks. 8.3.2 Risk Mitigation Strategies: Develop and implement strategies to mitigate identified risks, including contingency plans. T8.4 Reporting and Documentation 8.4.1 Progress Reporting: Prepare semi-annual progress reports detailing the achievements, issues encountered, and the steps taken to address them. 8.4.2 Final Project Report: Compile a comprehensive final report that summarises the project outcomes, impact, and lessons learned. T8.5 Evaluation Management 8.5.1 Development of Evaluation Criteria and Methods (Evaluation Strategy): Establish specific, measurable criteria that

align with the project's objectives, covering governance, financial management, risk management, and the effectiveness of training (research-based evaluation) and further education measures.
8.5.2 Initial Data Collection and Baseline Assessment: Gather initial data on the project environment, resources, and stakeholder expectations.
8.5.3 Ongoing Evaluation and Monitoring
-Regular Internal Evaluations: Continuously track project activities against the established criteria. Conduct formal reviews every six months to assess progress, identify issues, and make necessary adjustments.
-Evaluation of Training and Further Education Measures: Gather feedback from participants through surveys and interviews continuously. Analyse the feedback.
-Evaluation of Collaboration in Working Groups: Regularly observe the dynamics and performance of working groups. Collect input from group members about their experiences and satisfaction.
-External Evaluations: Engage qualified external experts to provide an unbiased assessment of the project. Conduct a comprehensive evaluation at the midpoint of the project.
-Continuous Improvement: Incorporate feedback and recommendations of the SmartStart Expert Panel into project planning and implementation.
-Adjust strategies and activities based on evaluation findings to enhance project effectiveness.

STAFF EFFORT

Staff effort per participant

Grant Preparation (Work packages - Effort screen) — Enter the info.

Participant	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	Total Person-Months
1 - KUEI	2.00	5.00	2.00	2.00	2.00	2.00	10.00	43.00	68.00
2 - KAU	2.00		1.00	2.00	2.00	9.00		1.00	17.00
3 - UKEN	1.00		2.00	2.00	10.00	5.00		1.00	21.00
4 - WSB	1.00				12.00			1.00	14.00
5 - UAM	1.00	2.00	2.00	9.00				1.00	15.00
6 - UP	18.00		2.00	2.00		2.00	2.00	7.00	33.00
7 - URV	1.00		1.00		1.00	1.00	6.00	1.00	11.00
8 - SIG	1.00		15.00	2.00		2.00	2.00	1.00	23.00
9 - TU	1.00	2.00		16.00	2.00	1.00	1.00	1.00	24.00
10 - NLA	1.00	1.00	1.00		1.00	15.00		1.00	20.00
11 - IN	1.00	15.00						1.00	17.00
12 - HSMW	1.00	20.00						1.00	22.00
13 - ISSR						1.00			1.00
14 - ANP	1.00					2.00		1.00	4.00
Total Person-Months	32.00	45.00	26.00	35.00	30.00	40.00	21.00	61.00	290.00

LIST OF DELIVERABLES

Deliverables

Grant Preparation (Deliverables screen) — Enter the info.

The labels used mean:

Public — fully open (⚠ automatically posted online)
Sensitive — limited under the conditions of the Grant Agreement
EU classified —RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision 2015/444

Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D1.1	Expert Key Strategy Paper	WP1	6 - UP	R — Document, report	PU - Public	12
D1.2	Systematic Literature Report	WP1	6 - UP	R — Document, report	PU - Public	21
D2.1	Translation Tool “Babylon”	WP2	1 - KUEI	DEM — Demonstrator, pilot, prototype	PU - Public	15
D2.2	Portfolio AI-Based Applications and Digital Media	WP2	11 - IN	R — Document, report	PU - Public	21
D3.1	Curriculum Document	WP3	8 - SIG	R — Document, report	PU - Public	12
D3.2	Final Version of Online Course on LMS	WP3	8 - SIG	DEC —Websites, patent filings, videos, etc	SEN - Sensitive	36
D4.1	Final Version of Handbook for Organisation and Implementation of the SmartStart Teacher Training Programme	WP4	5 - UAM	R — Document, report	PU - Public	36
D5.1	Comprehensive Final Research Report	WP5	3 - UKEN	R — Document, report	PU - Public	36
D6.1	Teachers’ Network Establishment	WP6	2 - KAU	R — Document, report	PU - Public	12
D6.2	Outcome Maintenance Strategy	WP6	1 - KUEI	R — Document, report	PU - Public	30
D7.1	Project Website	WP7	7 - URV	DEC —Websites, patent filings, videos, etc	PU - Public	3

Deliverables

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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D7.2	Dissemination Strategy Document	WP7	7 - URV	R — Document, report	SEN - Sensitive	6
D8.1	Project Management Plan including Risk Management	WP8	1 - KUEI	R — Document, report	SEN - Sensitive	2

Deliverable D1.1 – Expert Key Strategy Paper

Deliverable Number	D1.1	Lead Beneficiary	6 - UP
Deliverable Name	Expert Key Strategy Paper		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	12	Work Package No	WP1

Description
Pdf; English, Swedish, Norwegian, Slovakian, German, Spanish, Portuguese, Polish

Deliverable D1.2 – Systematic Literature Report

Deliverable Number	D1.2	Lead Beneficiary	6 - UP
Deliverable Name	Systematic Literature Report		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	21	Work Package No	WP1

Description
Pdf; English, Swedish, Norwegian, Slovakian, German, Spanish, Portuguese, Polish

Deliverable D2.1 – Translation Tool “Babylon”

Deliverable Number	D2.1	Lead Beneficiary	1 - KUEI
Deliverable Name	Translation Tool “Babylon”		
Type	DEM — Demonstrator, pilot, prototype	Dissemination Level	PU - Public
Due Date (month)	15	Work Package No	WP2

Description
Technical device

Deliverable D2.2 – Portfolio AI-Based Applications and Digital Media

Deliverable Number	D2.2	Lead Beneficiary	11 - IN
Deliverable Name	Portfolio AI-Based Applications and Digital Media		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	21	Work Package No	WP2

Description
Pdf; English, Swedish, Norwegian, Slovakian, German, Spanish, Portuguese, Polish

Deliverable D3.1 – Curriculum Document

Deliverable Number	D3.1	Lead Beneficiary	8 - SIG
Deliverable Name	Curriculum Document		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	12	Work Package No	WP3

Description
Pdf; English, Swedish, Norwegian, Slovakian, German, Spanish, Portuguese, Polish

Deliverable D3.2 – Final Version of Online Course on LMS

Deliverable Number	D3.2	Lead Beneficiary	8 - SIG
Deliverable Name	Final Version of Online Course on LMS		
Type	DEC —Websites, patent filings, videos, etc	Dissemination Level	SEN - Sensitive
Due Date (month)	36	Work Package No	WP3

Description
Website; English, Swedish, Norwegian, Slovakian, German, Spanish, Portuguese, Polish

Deliverable D4.1 – Final Version of Handbook for Organisation and Implementation of the SmartStart Teacher Training Programme

Deliverable Number	D4.1	Lead Beneficiary	5 - UAM
Deliverable Name	Final Version of Handbook for Organisation and Implementation of the SmartStart Teacher Training Programme		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	36	Work Package No	WP4

Description
Pdf; English, Swedish, Norwegian, Slovakian, German, Spanish, Portuguese, Polish

Deliverable D5.1 – Comprehensive Final Research Report

Deliverable Number	D5.1	Lead Beneficiary	3 - UKEN
Deliverable Name	Comprehensive Final Research Report		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	36	Work Package No	WP5

Description
Pdf; English, Swedish, Norwegian, Slovakian, German, Spanish, Portuguese, Polish

Deliverable D6.1 – Teachers' Network Establishment

Deliverable Number	D6.1	Lead Beneficiary	2 - KAU
Deliverable Name	Teachers' Network Establishment		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	12	Work Package No	WP6

Description
Report on the establishment and activities of the teacher network - English

Deliverable D6.2 – Outcome Maintenance Strategy

Deliverable Number	D6.2	Lead Beneficiary	1 - KUEI
Deliverable Name	Outcome Maintenance Strategy		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	30	Work Package No	WP6

Description
Report on the establishment and activities of the teacher network - English Strategy for sustaining project outcomes beyond EU funding - English

Deliverable D7.1 – Project Website

Deliverable Number	D7.1	Lead Beneficiary	7 - URV
Deliverable Name	Project Website		
Type	DEC —Websites, patent filings, videos, etc	Dissemination Level	PU - Public
Due Date (month)	3	Work Package No	WP7

Description
Website; English, Swedish, Norwegian, Slovakian, German, Spanish, Portuguese, Polish

Deliverable D7.2 – Dissemination Strategy Document

Deliverable Number	D7.2	Lead Beneficiary	7 - URV
Deliverable Name	Dissemination Strategy Document		
Type	R — Document, report	Dissemination Level	SEN - Sensitive
Due Date (month)	6	Work Package No	WP7

Description
Pdf; English, Swedish, Norwegian, Slovakian, German, Spanish, Portuguese, Polish

Deliverable D8.1 – Project Management Plan including Risk Management

Deliverable Number	D8.1	**Lead Beneficiary**	1 - KUEI
Deliverable Name	Project Management Plan including Risk Management		
Type	R — Document, report	**Dissemination Level**	SEN - Sensitive
Due Date (month)	2	**Work Package No**	WP8

Description
A detailed plan outlining project management procedures and exact guidelines and a risk management plan. Pdf; English, Swedish, Norwegian, Slovakian, German, Spanish, Portuguese, Polish

LIST OF MILESTONES

Milestones

Grant Preparation (Milestones screen) — Enter the info.

Milestone No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
1	Finalisation of Expert Key Strategy Paper	WP1	6 - UP	Delivery	12
2	Finalisation of Systematic Literature Report	WP1	6 - UP	Delivery	21
3	Finalisation Translation Tool Development	WP2	1 - KUEI	Delivery of Prototype	9
4	Finalisation Pilot Testing of Babylon Tool in Schools	WP2	1 - KUEI	Delivery of Evaluation Report	15
5	Finalisation of Portfolio	WP2	11 - IN	Delivery of Portfolio	21
6	Curriculum Document	WP3	8 - SIG	Delivery	12
7	Finalisation of preliminary Handbook for Organisation and Implementation of the SmartStart Teacher Training Programme	WP4	5 - UAM	Delivery	18
8	Finalisation of Study 1	WP5	3 - UKEN	Delivery of report	33
9	Finalisation of Study 2	WP5	3 - UKEN	Delivery of report	33
10	Institutional Embedding Initiated	WP6	2 - KAU	Initial integration of project resources in educational institutions	3
11	Teachers' Network Operational	WP6	2 - KAU	List of trained teachers, network activities reports, and feedback from participants	9
12	Policy Recommendations Delivered	WP6	2 - KAU	Copies of policy briefs, conference presentations, and confirmation of receipt by policymakers	15
13	Digital Hub Online and Accessible	WP6	2 - KAU	Online access statistics, user feedback, and regular updates documented on the digital platform	21
14	Collaborative Activities Launched	WP6	2 - KAU	Memoranda of Understanding (MoUs) with	27

Milestones

Grant Preparation (Milestones screen) — Enter the info.

Milestone No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
				partner projects, joint event reports, and shared resources documentation	
15	Maintenance Plan in Place	WP6	2 - KAU	Maintenance strategy document, funding or grant proposals submitted, and technical support agreements	33
16	Launch of Project Website and Social Media Accounts	WP7	7 - URV	Visibility	3
17	Final Capstone Conference in Eichstaett or Tarragona	WP7	7 - URV	Final conference to showcase the results, gather feedback, and discuss future directions with stakeholders and the public.	36
18	SmartStart Project Kick-off Meeting	WP8	1 - KUEI	Sign-off Documents: Formal approvals confirming that milestones and deliverables have been reviewed and accepted.	1
19	Governance Structure	WP8	1 - KUEI	Milestone Reports	1
20	Mid-term Project Review	WP8	1 - KUEI	Meeting Minutes and Progress Reviews	18
21	Final conference	WP8	1 - KUEI	Inspection and Test Reports; Final report	36

LIST OF CRITICAL RISKS

Critical risks & risk management strategy

Grant Preparation (Critical Risks screen) — Enter the info.

Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
1	Delay in WP task completion	WP3, WP8, WP4, WP2, WP5, WP6, WP1, WP7	Regularly scheduled meetings, reports and WP updates.
2	Inaccurate translations	WP2	Comprehensive trial, pilot, continuous improvement strategy of the project tool Babylon. Country participants to check translations.
3	Training package and curriculum materials are too difficult or irrelevant to teachers	WP3	Inclusion of teacher training organisations in the WP. Piloting phase with teachers.
4	Insufficient participants in the teacher training packages	WP4	Identified participants in several teacher training institutions, partnership with schools and teacher networks. Scheduling of in-service training at times where teachers are more likely to be available e.g. summer/winter breaks.
5	Lack of interest in the AI topic amongst teachers and student teachers	WP5	Information which connects digitalisation to national school curricula, motivation of eTwinning and pedagogical benefits in project information.
6	Participant dropout	WP4, WP5, WP6	Facilitators tailor sessions to participants' pre-existing knowledge where possible, highlight project benefits and opportunities e.g. project conference.
7	Teacher and student teacher participants do not complete evaluations, provide practical examples etc.	WP8, WP4, WP5, WP6, WP7	Inclusion of evaluation and narrative sharing tasks within the timetabled training sessions.
8	Insufficient engagement of schools	WP5	Several schools have already been recruited at concept stage; others will be more easily recruited when it is clear what support is offered. Schools receive digital resources paid for by the project and participate in teacher training activities.
9	Lack of teacher engagement with eTwinning opportunities and European Schoolnet platform.	WP6	Project information which promotes benefits and opportunities
10	Website functionality and accessibility limitations	WP8, WP6	Subcontracting IT specialists who ensure that the website functions and is accessible to multiple devices. Online translations embedded in project/European languages.

Critical risks & risk management strategy

Grant Preparation (Critical Risks screen) — Enter the info.

Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
11	High cost of dissemination and other strategies, e.g. brochure layout and design, conference costs	WP7	Sufficient and careful budget allocated for key project strategies. Regular budget updates.
12	Challenges coordinating communication between all participants.	WP8	Regular and agreed-upon meeting routines, led by KUEI. English as lingua franca for use in meetings and project documentation.
13	Ethical risks, data protection risks, GDPR risks	WP8, WP7	Clear project guidelines and ethical considerations documented in project management plan, communication of project requirements to all partners. KUEI development of project information letters, consent forms etc. Connection to local ethical review where appropriate. Secure database established for storage of research data.

ADMINISTRATIVE FORMS (PART A)

Part A of the Application Form must be filled out directly in the Portal Submission System screens.

TECHNICAL DESCRIPTION (PART B)

COVER PAGE

Part B of the Application Form must be downloaded from the Portal Submission System, completed and then assembled and re-uploaded as PDF in the system. Page 1 with the grey IMPORTANT NOTICE box should be deleted before uploading.

***Note:** Please read carefully the conditions set out in the Call document/Programme Guide (for open calls: published on the Portal).Pay particular attention to the award criteria; they explain how the application will be evaluated.*

PROJECT	
Project name:	SmartStart ERASMUS+ Teacher Academy
Project acronym:	SmartStart
Coordinator contact:	Barbara Lenzgeiger, Catholic University of Eichstaett-Ingolstadt

TABLE OF CONTENTS

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#@PRJ-SUM-PS@# [This document is tagged. Do not delete the tags; they are needed for the processing.]

PROJECT SUMMARY

Project summary *(in English)*

The *SmartStart* Teacher Academy aims to establish an international teacher training program that empowers teachers and teacher students to integrate AI-based digital media into everyday classroom practice, supporting individualised learning and enhancing pedagogical methods. To address language barriers, an AI-based translation tool will be developed to facilitate professional exchange and support multilingual classrooms. The curriculum will be based on a comprehensive discussion and analysis of the needs, challenges, opportunities, and issues related to AI-based applications and digital media in primary schools, conducted by an expert panel representing all relevant perspectives and supported by a thorough scientific literature review. *SmartStart* Teacher Training includes both teachers and teacher students, fostering learning and collaboration among novice and experienced educators through mentoring and peer-to-peer learning. The program comprises two integrated phases. The first phase is an online course that provides international participants with foundational knowledge on the technological, pedagogical, and didactic aspects of AI and digital media in primary schools. The second phase is practical and takes place in cooperating project schools using ERASMUS+ mobility programs. This training concept applies theoretical knowledge to the classroom in a co-creative and reflective manner, utilising the Deeper Learning approach. Scientific studies will evaluate the professional development of the trained teachers, informing the continuous improvement of the training program, which will be integrated into the curricula of participating universities and teacher training institutions. The online course will be accessible through eTwinning, supporting primary school teachers across Europe in addressing the challenges of AI and digital media in their daily work.

#§PRJ-SUM-PS§# #@REL-EVA-RE@# #@PRJ-OBJ-PO@#

1. RELEVANCE

1.1 Background and general objectives

Background and general objectives

Please address all guiding points presented in the Call document/Programme Guide under the award criterion 'Relevance'.

Describe the background and rationale of the project.

How is the project relevant to the scope of the call? How does the project address the general objectives of the call? What is the project's contribution to the priorities of the call (if applicable)?

The strategic initiative to establish European Teacher Academies under the Erasmus+ programme represents a transformative step towards improving teacher education across Europe. These academies are designed to develop a European and international perspective in teacher education, closely aligned with the objectives of the European Education Area and the 4th and 17th Goal for Sustainable Development Quality Education (SDG 4) and Partnerships for the Goals (SDG 17). Teacher Academies are aimed not only to emphasise the importance of multilingualism, language awareness and cultural diversity, but also adapt teacher education to EU education policy priorities. One of the main objectives of the Erasmus+ Teacher Academies is to contribute to the improvement of teacher education policies and practices across Europe. This should be achieved by establishing robust networks and communities of practice involving different stakeholders such as initial teacher education providers, continuing professional development providers, teacher associations and ministries, and by developing and testing effective, accessible and transferable professional learning strategies and programmes.

Creating a sustainable European Teacher Network: The *SmartStart* Teacher Academy addresses this objective by establishing a sustainable collaborative network between teacher education providers in seven geographically balanced European countries (Germany, Norway, Poland, Portugal, Spain, Slovakia and Sweden), including relevant actors at local and regional level. With a particular focus on the realistic possibilities of implementing AI-based applications and digital learning environments in primary school classrooms, the *SmartStart* Teacher Academy will be designed to ensure a direct impact on the quality of teacher education and to inform and influence teacher education policies at both European and national level, in order to prepare European teacher education for the digital transformation.

Primary school teachers play a crucial role in enabling children to explore their world and lay the foundation for successful learning in secondary school and later life. They bear significant responsibility for basic education (Einsiedler, 2014; Lohrmann et al., 2022), supporting school students in developing subject-specific skills while also nurturing their personal growth (Beelmann, 2019). However, recent research indicates that this foundational work is not reaching all children. The latest IQB Edu-

cation Trend and PIRLS study reveal a worrying decline in student skills (Stanat et al., 2022; McElvany et al., 2023). Additionally, findings on personality development in primary school children show significant individual differences and increasing challenges, particularly in the psychosocial domain, exacerbated by the COVID-19 pandemic (Meyer & Elting, 2022; Schwippert et al., 2020; Schneider et al., 2022). Social transformation processes, such as digitalisation, increasing heterogeneity, and rising extremism, present ongoing challenges that the education system must address at various levels. These challenges necessitate incorporating new strategies into teacher training. The primary sector is particularly vulnerable, as many countries are expected to face a severe teacher shortage by the mid-2030s (Institut der deutschen Wirtschaft, 2022; Klemm, 2022; KM Bayern, 2023; Statista, 2023).

To overcome the difficulties currently facing teacher training across Europe, it is vital to implement new strategies. Bringing together teacher training actors from various European countries allows for the benefit of diverse perspectives when seeking solutions and adapting teacher training to contemporary and future needs. Discussing these issues in an international context is particularly beneficial, as it can lead to the establishment of robust European networks for teacher training. This collaborative approach enables the creation of a comprehensive and unified framework for addressing teacher training challenges across the continent.

Ongoing research, collaboration among educators, technologists, and policymakers, and robust teacher training programs will be key to harnessing the full potential of AI and digital media in education. Against this background, the *SmartStart* Teacher Academy aims to create a strong international network for teacher training and professional development. The use of AI will develop rapidly in the near future, and *SmartStart*'s mission is to provide the necessary knowledge, to explore the possibilities and limitations of the didactic use of AI and digital media in primary schools, and to provide a model with which teachers and student teachers can prepare themselves for future developments in the field of AI and digital media.

The *SmartStart* Teacher Academy network consists of 9 teacher training institutions of seven European countries: Karlstad University (Sweden), NLA University Oslo/Bergen (Norway), UKEN University of the National Education Commission Krakow (Poland), WSB University, Dąbrowa Górnicza (Poland), Adam Mickiewicz University Poznań (Poland), University of Porto (Portugal), University of Rovira i Virgili, Tarragona (Spain), University of Trnava (Slovakia) and Catholic University Eichstaett-Ingolstadt (Germany). All partner universities are committed to establish and provide together a sustainable programme for initial teacher training as well as professional teacher training which has the potential to enhance the implementation of AI based applications and digital media in primary schools by supporting teachers and teacher students' digital competences. The two-stage programme combines online learning by providing modules and a practical phase taking place at project partner schools fostering international mobility of teachers and teacher students and internalisation in teacher training. Each partner university will nominate at least one associated project school as indicated in the list of LOIsThe International School of the Stockholm Region (ISSR) will represent the project schools and act as consortium partner. The experienced and renowned INDICIA from Slovakia and the Spanish Fundación SIGLO22 will be consortium partner representing professional teacher training institutions. Representatives of the Associação Nacional de Professores (ANP) will also contribute their perspective as a teachers' association. In this way, a stable and sustainable international network of teacher training institutions and associated schools will be created, which can competently fulfil the tasks of the *SmartStart* Teacher Academy and make a long-term and lasting contribution to European initial and in-service teacher training. The evaluated strategies and tools will be permanently integrated into the curricula of participating institutions and shared across Europe via eTwinning.

Enhancing the internationalisation of teacher education: *SmartStart* aims to enhance the European dimension and internationalisation of teacher education through innovative and practical collaborations with teachers and teacher students from seven European countries. The project focuses on developing and testing innovative mobility models — virtual, physical, and blended formats — within initial teacher education and continuing professional development. *SmartStart* is trying to rethink international collaboration by developing and applying an AI-powered translation tool that enables simultaneous translation into different languages. Not having to rely solely on English as a lingua franca allows for a deeper exchange of experiences and high-level international collaboration, as teachers and student teachers from different countries can learn with and from each other. This tool will help overcome language barriers, fostering a deeper understanding and integration of diverse pedagogies and experiences, allowing participants to learn from each other in new and meaningful ways.

Innovative potential and methodology: The *SmartStart* project will use innovative methods such as Design-Based Thinking and the pedagogical approach of Deeper Learning to bring together the perspectives of relevant stakeholders and to ensure continuous expert input and feedback to maintain the quality of the project outcome. An expert panel will bring together all the perspectives relevant to the project and, based on an extensive literature review, will develop a key policy paper that will discuss and explain the guidelines for curriculum content, the pedagogical and didactic use of AI and digital media in primary schools, the ethical implications, the technical requirements and, addressed to school administrators and policy makers, the legal conditions.

The main innovation of *SmartStart* lies in its approach to evaluating and integrating the rapidly evolving range of AI-based educational applications and digital media and adapting them to the pedagogical and didactic needs of primary schools. To achieve this, a comprehensive content base for the teacher training curriculum will be developed, covering both theoretical and media pedagogical aspects, as well as specific (AI-based) digital applications. These applications will be thoroughly analysed, tested and evaluated for their potential use in educational settings. The results will be summarised in a portfolio that will provide a toolbox. For the tested tools, motivational learning videos with an AI-based language switching option will be developed that are suitable for school practice and the corresponding didactic considerations. The learning units to be developed for a modular online course will be based on this, but will also include theoretical pedagogical knowledge, as primary school teachers need a basic understanding of AI concepts such as machine learning and its applications in education, as well as digital media literacy, including the use of different digital tools and ethical considerations. Teachers should be able to integrate these technologies into their teaching through instructional design and personalised learning strategies.

Teachers also need to understand the ethical implications and privacy issues associated with AI and digital media. Continuous professional development and collaboration with peers are essential to keep up with advances in these areas.

Developing a two-stage education and training model: The results of the described activities will lay the foundation for a two-stage education and training model that integrates both pre-service and in-service teacher training. The first stage involves a module-based online class, enabling international groups of teachers and student teachers to collaborate and gain in-depth expertise in teaching with AI and digital media. In the second phase, the knowledge acquired through this study program will be applied in practice. Leveraging the ERASMUS+ mobility programs (e.g., BIP, school staff mobility activities), practical phases will be organised at participating project schools. Here, teachers and student teachers will develop didactic arrangements and lesson plans based on their acquired knowledge and apply them in real classrooms. Teachers and student teachers will work together, bringing diverse perspectives and learning from each other, enriching the educational experience for all participants. This allows experienced teachers to learn from and with each other and to share their experience. Student teachers also benefit, as the experienced teachers act as mentors and can support them at an early stage in their career.

Evaluation and research: All parts of the *SmartStart* training programme will be continuously evaluated, adapted and revised. An evaluation strategy will ensure that all necessary requirements for the effective and practical implementation of AI and digital media in primary classrooms are met. In addition, the two-stage training model, portfolio, toolbox, videos and online learning modules will be evaluated to ensure that the outcomes of the project meet the highest quality standards. Both the teachers' experiences and the impact on their professional development will be assessed through two comprehensive scientific studies using both qualitative and quantitative methods.

Dissemination and outreach: Several steps will be taken to make *SmartStart* sustainable. Firstly, the two-stage training programme will be incorporated and integrated into existing teaching programmes and curricula at participating universities and through teacher training and further education institutions. Secondly, the training content developed in the Teacher Academy will be made available throughout Europe. The materials and learning units developed for the online courses, including the AI and digital tools portfolio and learning videos, will be published and promoted through eTwinning and European Schoolnet to reach teachers and student teachers across Europe. To overcome potential language barriers, the videos will use state-of-the-art AI-based tools that allow direct translation into different languages. Text-based materials will be made available in all European languages using innovative translation tools.

European added value: The *SmartStart* Teacher Academy offers significant benefits at multiple levels. Research shows significant differences in the use of digital tools in schools across Europe, with variations in both frequency and type (PIRLS 2023; ICLS 2018). By fostering international collaboration through joint training programmes, teachers and student teachers will be exposed to different methodologies, ideas and perspectives to complement national training programmes. The value of this project goes beyond individual benefits; it also enhances institutional and systemic capacities. Experts from participating countries and institutions are working together to develop strategies for integrating AI and digital technologies into education. This collaboration provides unique insights into educational practices in different countries, allowing stakeholders in teacher education and training to learn from international experiences. In addition, the inclusion of representatives from governmental institutions in the expert panel provides a broader background for addressing institutional challenges related to AI and digital media. To disseminate these innovative concepts widely, the project uses platforms such as eTwinning, School Education Gateway and the European School Education Platform to ensure wide accessibility and impact.

Addressing the horizontal priorities of ERASMUS+: The project aligns with the ERASMUS+ programme's horizontal priority of supporting teachers and students in digital transformation. In an era of rapid technological advancements, integrating digital technologies, especially AI-based applications, into education is essential. The Digital Education Action Plan (2021) strategically prioritises cultivating a high-performing digital education ecosystem. The *SmartStart* Teacher Academy promotes the development of digital skills among teachers and student teachers, preparing them for a digitally transformed educational landscape that leverages technology for teaching, learning, assessment, and engagement. *SmartStart* aims to build educators' capacity to understand and exploit the opportunities presented by digital technologies. A critical aspect of this project is the development of modern digital pedagogy and didactics, enhancing educators' expertise in utilising digital tools. Training teachers in the effective use of digital tools, including accessible and assistive technologies, is crucial to ensuring all students benefit from digital education.

By focusing on building a robust digital education ecosystem, improving digital pedagogy and promoting inclusive access to digital tools, *SmartStart* not only aligns with the strategic priorities of the Digital Education Action Plan (2021), but also contributes significantly to the *horizontal priority of inclusion and diversity*. This concerted effort will ensure that an effective transition to digital education can take place successfully in primary school, ultimately enriching the learning experience and outcomes for school students of all backgrounds. In today's rapidly evolving digital world, access to digital education and tools is increasingly essential. However, to truly reap the benefits of these advances, it is crucial to ensure that digital education systems are inclusive and responsive to all school students, especially those with fewer opportunities. This includes children and students with disabilities or special needs, those with migrant backgrounds, those living in rural and remote areas, and those facing challenges related to gender inequality, socio-economic difficulties or other forms of discrimination. The digital divide - the gap between those who have access to modern information and communication technologies and those who do not - is a significant barrier to education.

Fostering European values, democracy and political participation at an early stage: By focusing on primary schools, *SmartStart* is helping to close the digital gap at an early stage in children's education. Economic hardship can limit a student's access to necessary digital devices and Internet services. *SmartStart* supports providing AI based and digital technology to children from low-income families to ensure that socio-economic status does not determine educational success. In particular, the utilisation of AI-based translation tools is beneficial for children with a migrant background and a lack of knowledge of the respective national language, as it facilitates their integration and inclusion in the classroom and provides them with enhanced

learning opportunities. *SmartStart* helps to ensure that primary school children from all social backgrounds can gain experience with AI-based applications, learn the basics of programming, and begin to critically analyse the benefits and dangers of using digital media (e.g. privacy, fake news, social media and their manipulative algorithms). Additionally, the project connects children's experiences with AI and digital media to the theme of co-determination. By utilising tools that facilitate digital co-determination in schools, children gain the opportunity to actively participate in their school life, thereby learning essential democratic skills such as debating, evaluating, compromising, and negotiating. This approach lays the groundwork for political participation and maturity, which are essential components of a democratic society.

Fostering gender sensitive teaching: *SmartStart* is dedicated to improving gender sensitivity in education. Through the implementation of specific strategies and pedagogical approaches, we actively promote gender equality and develop practical solutions to promote gender-sensitive teaching. Our comprehensive strategy addresses different dimensions of gender inequality in education. This includes ensuring equal participation of all genders in STEM (Science, Technology, Engineering and Mathematics) subjects, eliminating gender bias in educational materials, and creating safe and harassment-free online environments. As a cornerstone of our initiative, *SmartStart* will introduce innovative AI-based and digital technologies in primary schools. This will expose children of all genders to cutting-edge technologies from an early age, fostering not only digital literacy but also equitable engagement in digital education from the outset. *SmartStart* is committed to driving sustainable change in the education landscape. We empower educators to develop and use gender-sensitive teaching methods, especially in the context of AI and digital media in the curriculum. By creating a Europe-wide network of dedicated professionals, *SmartStart* aims to cultivate a long-term, gender-sensitive educational culture that promotes equitable opportunities and inclusivity.

In this way, the establishment of *SmartStart* will be a visionary step forward in creating a coherent, inclusive and high-quality educational framework across Europe by embracing multilingualism and cultural diversity and fostering international cooperation.

1.2 Needs analysis and specific objectives

Needs analysis and specific objectives

Please address the specific conditions/objectives set out in the Call document/ Programme Guide, if applicable.

Describe how the objectives of the project are based on a sound needs analysis in line with the specific objectives of the call. What issue/challenge/gap does the project aim to address?

The objectives should be clear, measureable, realistic and achievable within the duration of the project. For each objective, define appropriate indicators for measuring achievement (including a unit of measurement, baseline value and target value).

(1) Theoretical Foundation of the *SmartStart* Project

To effectively prepare teacher training for the future, particularly in digitalization, collaboration among diverse stakeholders is essential. These stakeholders include teachers, school leaders, AI and digital media experts, policymakers, scientists, psychologists, representatives of teacher associations, and professional teacher training institutions. Each group brings unique perspectives and expertise, contributing to a comprehensive approach to digital transformation in education (OECD, 2023). Research indicates that collaborative professional learning communities (PLCs) enhance teacher efficacy and instructional quality by facilitating the sharing of best practices, innovative teaching strategies, and effective use of digital tools (Miao et al., 2021).

Involving multiple stakeholders fosters an innovation-friendly ecosystem and leads to a more holistic implementation of AI and digital media in schools, addressing various needs and challenges (Mishra & Koehler, 2006). Engaging *educators* ensures that the use of digital media aligns with pedagogical objectives and enhances teaching and learning outcomes. *Teachers* provide essential feedback on how digital tools can support curriculum delivery and student engagement (Harris et al., 2009). They possess practical experience in managing classroom environments, ensuring that AI and digital media are used effectively without disrupting the learning process (Williamson & Eynon, 2020). *School leaders* are responsible for developing a clear vision and strategic plan for the adoption of AI and digital media in schools, aligning with educational goals and policies (Schrum & Levin, 2015). They manage budgets and resources to ensure schools are equipped with necessary technology and infrastructure. Collaboration with *scientists and researchers* is essential for continuous evaluation and enhancement of digital tools in teaching practices. Research-informed approaches ensure digital solutions are effective and scalable (Tammets & Ley, 2023). Researchers play a critical role in developing robust monitoring and evaluation frameworks, ensuring the impact of digital media on teaching and learning is systematically assessed and refined. This ongoing assessment helps identify best practices and areas for improvement, fostering a culture of evidence-based practice in education (Means et al., 2009). Involving *IT and AI professionals* ensures that digital media are technically feasible, scalable, and secure. These experts address infrastructure needs and provide ongoing technical support (Anderson & Dexter, 2005). AI experts bring a deep understanding of AI technologies, including machine learning, natural language processing, and data analytics (Lucking et al., 2016). They ensure AI tools comply with data privacy regulations and implement robust security measures. Continuous *professional development* opportunities enable teachers to stay updated with the latest digital tools and pedagogical approaches, ultimately enhancing the quality of education (Darling-Hammond et al., 2017). *Teacher trainers* provide a robust foundation in educational theory and pedagogy, emphasising practical, hands-on training experiences. Ongoing support and mentorship are essential as teachers implement new technologies. Trainers share best practices and innovative approaches based on the latest research, fostering continuous improvement and adaptation. *Psychologists* offer invaluable expertise in

understanding children's cognitive and emotional development. They ensure that digital content and AI tools are age-appropriate and support cognitive growth without overstimulation. Insights from psychologists help design AI and digital media that promote positive social interactions and emotional well-being (Plowman & McPake, 2013). *Parents* play a critical role in overseeing their child's use of digital media, ensuring it is appropriate and balanced with other activities. Engaging parents fosters a supportive environment for digital media initiatives, enhancing acceptance and effective use of digital tools in education (Livingstone & Blum-Ross, 2020).

By leveraging the collective expertise and perspectives of diverse stakeholders, the integration of AI and digital media in schools can be more effectively planned, executed, and sustained. A collaborative approach leads to richer educational experiences and improved student outcomes. By harnessing the specialised knowledge of each stakeholder group, primary schools can create a well-rounded, effective, and ethical strategy for incorporating these technologies into education.

Special objective 1 (WP1): In WP1 the *SmartStart* Teacher Academy establishes an Expert Panel comprising representatives from all relevant fields to combine their expertise and perspectives. This group includes stakeholders from teacher training universities, scientists, AI experts, psychologists, educators, school leaders, parents, representatives of professional teacher training institutions, teacher associations, and policymakers. The Expert Panel's task is to develop the theoretical foundation of the *SmartStart* Teacher Academy. They are expected to share insights, innovative practices, and requirements across all relevant areas, provide analysis of existing educational challenges that AI could address, and explore how AI can be meaningfully implemented in primary school classrooms. The Expert Panel's perspectives will be summarised in a Key Strategy Paper. This paper is aimed to create a holistic view on the implementation of AI and digital media in primary schools and will inform and create the frame and foundation for the activities of the following work packages of the *SmartStart* project. The Expert's Panel approach will be complemented by a comprehensive literature review in WP2, exploring the state-of-the art of research and didactical implementation of AI and digital media in primary school environments by using academic databases such as EBSCOhost, Scopus, Web of Science, ProQuest Education Database, Google Scholar, JSTOR, ERIC, and IEEE Xplore. The review includes various types of sources such as theoretical papers, empirical studies, case studies, and main policy papers of the EU and participating countries to identify the impact of AI and digital media on education (teaching practices, student outcomes, policy development etc.). The objective is to compare findings across different studies to identify common themes and divergent viewpoints on digital transformation in primary school education. The review summarises the key findings, implications for practice and teacher training in a report.

Indicators measuring achievement: Target value regarding the formation of the Expert Panel is to include at least 3 stakeholders from the following fields: teacher training universities, scientists, AI experts, psychologists, educators, school leaders, parents, representatives of professional teacher training institutions, teacher associations, and policymakers). Subgroups of experts can be created and include more members led by Expert panel members. It needs to be considered that national differences are represented in the panel. The target regarding the number panel meetings is set by the Expert Panel members and the WP leader. The target value regarding the number of sources reviewed is 100, including theoretical papers, empirical studies, case studies, and policy papers, documented in one comprehensive literature review report completed and disseminated within the first year.

(2) Overcome language barriers with an AI-based translation tool

Migrant children often struggle with the language of instruction in their new country. This barrier affects their ability to comprehend lessons, participate in classroom discussions, and complete assignments. Limited proficiency in the host country's language can lead to feelings of isolation and frustration among these students (Alefesha & All-Jamal 2019). The effectiveness of teachers in addressing the linguistic needs of migrant children significantly impacts their learning experience. Teachers with high cultural and linguistic competency are better equipped to support migrant students by implementing inclusive practices and creating a supportive learning environment. Teacher preparation and self-efficacy are crucial in this regard, as they directly influence the ability to meet the linguistic and psychological needs of migrant students (Carr 2013). Integrating migrant students into the school system requires recognizing and valuing their linguistic and cultural backgrounds. Ethnolinguistic inclusion involves not only using the language as a medium of instruction but also as a tool for identity construction and social integration. This process helps in creating an inclusive educational environment that respects and builds upon the diverse linguistic repertoires of migrant children (Roman 2024). Migrant children often face psychological stress due to language barriers, which can affect their mental health and overall well-being. The ability to communicate effectively in the host country's language is essential for their emotional stability and confidence. Schools need to provide adequate support systems to address these challenges, including counselling and peer support programs (Chwastek 2021).

Moreover, in today's multicultural and multilingual European context, the need for effective communication tools that transcend language barriers is more pronounced than ever, particularly in the field of education, and even more so in teacher training issues. A serious problem in international cooperation is the fact that, although English is the lingua franca in most cases, proficiency in it is rarely the same as in the mother tongue, leading to potential loss of information and comprehension difficulties. These linguistic challenges can significantly affect the transfer of knowledge and the quality of communication (Spolsky, 1985; Tenzer et al., 2014; Tenzer et al., 2016; Adanlawo et al., 2021).

Special objective 2 (WP2): *SmartStart* aims to eliminate language barriers and foster collaboration among teachers by facilitating the exchange of ideas and knowledge, particularly in digital teaching and learning. Overcoming language barriers is essential for enhancing professional development and collaborative learning among teachers from various European countries. To achieve this, WP2 will develop and implement an advanced AI language tool designed to provide accurate and nuanced real-time translations in multiple languages. Incorporating this AI-powered translation tool into the teacher training programme will enable educators to discuss topics such as "The Appropriate Use of Artificial Intelligence in Primary Schools" in their native languages. This approach ensures that linguistic nuances, technical terminology, cultural expressions, and colloquialisms are conveyed accurately, which is often lost when using a lingua franca like English. By minimising language

barriers, the AI-based translation tools will enhance the effectiveness and depth of interactions among educators across Europe, fostering a more inclusive, efficient, and collaborative learning environment. The introduction of the translation tool in the *SmartStart* Teacher Academy will revolutionise teacher training in Europe, providing a robust platform for high-quality, nuanced communication.

This in turn will improve educational outcomes for the next generation of primary school students. Teachers can use the translation tool to provide real-time translations of their spoken instructions and explanations. For example, during a lesson, the teacher's speech can be translated and displayed on students' tablets or classroom screens in their native language. This ensures that students understand the content of the lesson, improving their comprehension and participation. Students can be provided with translated versions of textbooks, worksheets and other learning materials. Translation tools can be used to convert these materials into multiple languages, ensuring that all students have access to the same educational content. This enables non-native speakers to follow the curriculum and complete assignments effectively. The translation tool can facilitate communication between teachers and parents who do not speak the local language. Teachers can send translated messages, newsletters and progress reports to parents to keep them informed about their child's education. Improved communication helps parents stay involved in their child's education and supports a collaborative approach to learning. Students can be encouraged to use the translation tool to communicate with their peers. This can be particularly useful during group activities and collaborative projects, promoting inclusivity and peer learning.

Indicators for measuring achievement regarding teacher satisfaction and professional development will be the teacher satisfaction rate with the AI translation tool as measured by surveys. Unit of measurement will be the percentage of positive feedback from teachers, baseline value 0% satisfaction (no prior tool usage) and target value 85% satisfaction rate within the first year of implementation. Measurement of educational outcomes, indicated by improvement in student performance linked to the application of the tool in multilingual classrooms will be included in the teacher feedback. However, this will not be explored in a separate study as it would be beyond the scope of the Teacher Academy.

(3) Provide a portfolio of selected AI-enabled digital learning resources

Research indicates that primary school teachers have seldom utilised digital tools extensively in their classrooms (Oetjen, 2023; Cohen & Hemmerich, 2020; Charlotte Bühler Institute, 2009; TALIS, 2018; Lenzgeiger et al., 2024). Many teachers express feelings of insecurity regarding the integration of digital media and seek more support and guidance to effectively incorporate these technologies (Schmechtig et al., 2020; Quast, 2021; KMK, 2022). Studies have shown that teachers tend to develop their skills most effectively when their interests are acknowledged, they receive professional support, collaborate with colleagues, and gain practical teaching experience (Chai, Teo & Lee, 2009; Wideen, Mayer-Smith & Moon, 1998; Kleickmann, Vehmeyer & Möller, 2010; Brownlee, Purdie & Boulton-Lewis, 2001; Hart, 2002; Skamp & Mueller, 2001; Long & Woolfolk Hoy, 2006). Despite over a decade of intensive research in learning analytics (LA) and artificial intelligence (AI) in education, integrating these technologies into pedagogical practices remains a significant challenge (Kuhl et al., 2019; Tammets & Ley, 2023). There is a notable gap in professional development, training, and support for teachers using advanced technologies (Tammets & Ley, 2023). To use smart tools effectively, teachers need to recognize their relevance, connect them to their professional development, understand their functionalities and pedagogical foundations, and trust their results.

Today there is a wide range of AI based applications that can be applied to classrooms.

Intelligent Tutoring Systems (ITS): AI can significantly address diverse learning needs in primary education through adaptive learning platforms that tailor educational content to individual students' learning styles and paces. For instance, DreamBox Learning, Khanmigo or Carnegie Learning's MATHia platform employ AI algorithms to adjust the difficulty of maths problems based on a student's performance, providing personalised instruction that helps each student progress at their own pace. Learning analytics powered by AI can analyse students' interactions with learning materials, offering insights into their learning behaviours and suggesting personalised interventions. This data-driven approach enables teachers to identify students' strengths and weaknesses, allowing for targeted support and more effective instruction (Starkey, 2020; Xu & Wang, 2019). AI-driven educational platforms such as Knewton and Coursera utilise adaptive learning technologies to personalise content delivery. Knewton's platform analyses students' strengths and weaknesses to provide customised learning experiences that enhance their understanding and retention of material. Coursera's AI-powered recommendations help learners find courses and learning paths that match their interests and goals, improving the overall learning experience. These platforms have been successful in helping students achieve better learning outcomes through personalised and adaptive learning experiences. Research by Xu and Wang (2019) on adaptive learning systems highlights the significant improvements in student engagement and learning outcomes achieved by customising educational content through AI algorithms. Their study found that students using adaptive learning platforms demonstrated higher achievement levels and greater motivation compared to those in traditional classroom settings. Intelligent Tutoring Systems use AI to provide real-time feedback and personalised instruction, improving student performance in subjects like mathematics by offering customised learning experiences that cater to individual needs.

Automation of Routine Tasks: Automating routine administrative tasks such as grading, scheduling, and attendance tracking allows teachers to focus more on instructional activities and student interaction. AI-powered tools like Gradescope can grade assignments and exams quickly and consistently, providing detailed feedback to students. This saves teachers significant time, which can be redirected towards more interactive and personalised teaching activities. Additionally, AI systems can monitor student performance data over time, identifying trends and potential areas for improvement. Predictive analytics can forecast students' future performance and identify those at risk of falling behind, enabling early interventions to address learning gaps (Miao & Holmes, 2018; West et al., 2020).

AI-Powered Educational Games and Virtual Tutors: AI-powered educational games and virtual tutors provide interactive and engaging learning experiences. For instance, AI-enhanced educational games can make learning fun and motivating, helping

students develop critical skills in a playful environment. Virtual tutors, like those offered by Carnegie Learning, provide students with additional support outside of school hours, answering questions and guiding them through challenging concepts. These tools not only enhance student engagement but also offer personalised assistance that can significantly improve learning outcomes (Chen et al., 2020; Carnegie Learning, 2023).

Automation of Administrative Tasks: Miao and Holmes (2018) discuss the role of AI in automating routine administrative tasks, reducing teacher workload, and enabling more efficient classroom management. Their studies indicate that AI-driven automation can lead to substantial time savings for teachers, allowing them to allocate more time to planning and delivering high-quality instruction. For instance, automated attendance systems can track student attendance in real-time, reducing the administrative burden on teachers and improving overall classroom efficiency.

AI-Driven Data Analytics: Studies by West et al. (2020) demonstrate how AI-driven data analytics provide valuable insights into student learning patterns. By analysing large datasets, AI can help educators make informed decisions about instructional strategies and interventions. For example, AI can identify students who are struggling with specific concepts and recommend targeted interventions to address these learning gaps. This data-driven approach enhances the ability of educators to provide personalised support and improve student outcomes. However, ensuring data privacy and security is crucial when implementing AI in education. AI systems must comply with data protection regulations like GDPR to safeguard student information. Schools must implement robust data protection measures to prevent unauthorised access and ensure the confidentiality of student data. Additionally, AI algorithms must be designed to minimise biases that could disadvantage certain groups of students. Ensuring transparency and fairness in AI practices is essential to create an equitable learning environment for all students.

In the context of school development processes where digital media and AI tools are to be implemented in primary schools, school administrators and teachers are often overwhelmed. The range of options is vast and growing. At the same time, there is little experience to draw on. Dealing with research results in everyday school life is not feasible and does not necessarily facilitate pedagogical and didactic decisions in practice. Although AI has the potential to revolutionise primary education by addressing current challenges and enhancing the learning experience, schools and teachers need support to make the right choices in selecting the most appropriate tools. Support is also needed in relation to the skills and competences needed to implement AI in primary classrooms. To facilitate decisions regarding the purchase of technological equipment as well as the implementation of AI-powered application and digital media in primary schools *SmartStart* will provide a comprehensive portfolio.

Special objective 3 (WP2): In addition to developing the AI-based translation tool, WP2 aims to create a comprehensive portfolio of selected AI-enabled digital learning resources. This portfolio will include instructional and informative videos, as well as lesson plans, to help teachers effectively find and apply technology in their classrooms. The goal is to select easy-to-implement applications that are effective without overwhelming teachers with complicated and time-consuming instructions. This approach ensures that teachers can integrate technology seamlessly, enhancing their instructional strategies and improving student learning outcomes.

Indicators for measurement achievement: Target value are at least 25 different AI-based tools and digital learning resources, including a variety of applications such as adaptive learning platforms, intelligent tutoring systems, educational games and robots which allow gaining basic knowledge about robotics and coding. For each device an instructional guide, tutorials, explanation videos and support documents will be developed. At least 50 lesson plans will be developed in WP2. The results will be published in a digital portfolio.

(4) Develop the curriculum and the online course for the *SmartStart* Teacher Training

The main challenge for teaching is balancing several complex tasks: designing student-centred lessons, integrating technology, interacting with AI, monitoring student progress, and making informed decisions (Tammets & Ley, 2023). This requires understanding a variety of concepts, implementing them in practice, drawing on educational theories, and considering the unique needs of individual students. AI and digital media can play a crucial role in teacher training and professional development by supporting adaptive teaching and aligning practice with broader competency frameworks. These technologies enhance professional insight by facilitating the integration of theoretical knowledge with practical application, thereby addressing diverse educational needs (Tammets & Ley, 2023; Brownlee, Purdie & Boulton-Lewis, 2001). Furthermore, AI tools can assist teachers in personalising learning experiences, offering real-time feedback, and providing data-driven insights that help in making informed pedagogical decisions (Hart, 2002; Skamp & Mueller, 2001). By leveraging AI and digital media, teacher training programs can better equip educators with the skills needed to navigate the complexities of modern classrooms, ultimately improving educational outcomes for all students.

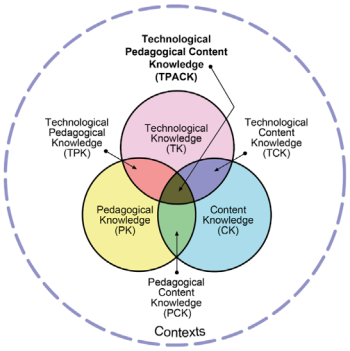

Fig. 1: Reproduced by permission of the publisher, © 2012 by tpack.org

Mishra and Köhler (2006) identified three core areas of teacher knowledge related to the integration of technology in the classroom (see Fig.1). The Technological Pedagogical Content Knowledge (TPACK) framework, typically represented in a Venn diagram, explains the different knowledge domains and their overlap: 1) understanding how to select and use technology to facilitate student learning ('technological knowledge'); 2) pedagogical decision-making and understanding ('pedagogical knowledge'); and 3) specific content knowledge for a given subject or topic area ('content knowledge') (OECD 2023).

Digital teaching competence (Starkey, 2020) involves effectively integrating digital technology into teaching practices, often referred to as 'digital pedagogy' or 'digitally enhanced teaching practices.' This competence is closely aligned with 'technological literacy' within the TPACK framework, which emphasises the intersection of technological, pedagogical, and content knowledge. Effective use of digital tools in education encompasses deploying various media, communication, and computational tools for teaching and learning activities. It also includes developing and utilising digital assessments, managing digital environments appropriately, and supporting students in the critical, ethical, and creative use of ICT for learning (Starkey, 2020). To integrate ICT effectively into classroom practice, teachers must be proficient in using technology in their teaching roles. This involves critically selecting appropriate technologies for specific teaching purposes and facilitating student learning through and with digital tools to achieve targeted learning outcomes. Beyond professional knowledge, motivational orientations and beliefs about using AI and digital media are central to teacher professionalism (Baumert & Kunter, 2011). Teachers' attitudes towards technology significantly impact their willingness and ability to integrate digital tools effectively into their teaching. The diversity of students' abilities, backgrounds, and learning styles in primary school classrooms presents additional challenges. For example, some students may excel in mathematics but struggle with reading comprehension, while others may have special educational needs requiring individualised support. The presence of national language learners adds another layer of complexity, necessitating that teachers adapt their instruction to meet these students' needs.

Special objective 4 (WP3): Based on the Key Strategy Paper developed in WP1 by the Expert Panel and insights from the literature review, WP3 will frame the Technological Pedagogical Content Knowledge (TPACK) for the *SmartStart* Teacher Training programme. A comprehensive curriculum for the first stage of the teacher training will be developed, defining essential competencies and theoretical knowledge related to the implementation of AI and digital media in education. This curriculum will encompass basic models, research findings, data requirements, and ethical considerations to ensure a thorough understanding and effective integration of these technologies into teaching practices.

Indicators for measurement achievement: The results feed into a structured document, the training programme curriculum.

Special objective 5 (WP3): Based on the developed curriculum, WP3 will prepare a didactically structured modular online course. This online course will consist of learning units that comprehensively cover the curriculum topics. These units will address a wide range of subjects, including AI tools, digital media, robots, adaptive learning systems, automated grading tools, and virtual tutors. Additionally, the online course will introduce user-friendly educational software, games, coding apps, AR applications, and VR experiences. Each learning unit will also incorporate theoretical knowledge relevant to AI, coding, algorithms, digital media, and ethical considerations. Furthermore, the course will include didactical models, instructional strategies, and basic pedagogical guidelines focusing on inclusion, diversity, participation, and the unique conditions of primary school students and their learning environments. The learning units are didactically designed to include a variety of materials and activities, such as readings, videos, tasks, discussion questions, tests, motivational and interactive content. These units can be engaged with individually or in groups, offering flexible usage options. A Learning Management System (LMS) tailored to the needs of the *SmartStart* project will be developed to support the modular online course. This LMS will enable the management of learners, monitor their progress, and facilitate communication via chat, email, and video directly within the system. Students will have access to group rooms for discussions and collaboration, the ability to upload files, and tools to organise meetings, fostering an interactive and supportive learning environment. A handbook will describe the concept, content, didactical concept and contain a guide on how to work with the online course.

Indicators for measurement achievement: Target values are the publication of the Online Course Handbook and the launch of the LMS providing the *SmartStart* online course.

(5) Develop the organisation and infrastructure for the two-stage *SmartStart* Teacher Training

There are many online programmes in all European countries where teachers can get information and training on AI and digital media. The topic has also found its way into some teacher training curricula. These range from more theoretical discussions to specific practical teaching suggestions and ideas. As they are usually national in scope, it is not always easy to find materials tailored to the specific needs of primary schools. There are few professional development programmes that combine sound professional development with the opportunity to apply the acquired knowledge directly to classroom practice. The *SmartStart* Teacher Academy aims to remedy this situation.

Research about the professional development of teachers shows that it is crucial to combine a solid theoretical foundation with practical experience to bridge the gap between theory and practice. Theoretical knowledge provides the foundation of educational principles, but practical experience allows teachers to see how these theories are applied in real-world classroom settings. This integration helps teachers understand the relevance of theory and how to adapt it to diverse educational contexts (Zeichner 2010). Furthermore, combining theory and practice encourages reflective practice, where teachers critically analyse their teaching methods and strategies. This reflection supports continuous improvement and professional growth (Schön 1983).

There are pedagogical concepts and models which emphasise the integration of theoretical knowledge with practical application through collaborative, co-creative processes. They aim to prepare teacher candidates not only to understand educational theories but also to effectively apply them in diverse classroom settings. Concepts as the Deeper Learning Approach (Sliwka & Klopsch 2022), Project-Based Learning (PBL) (Thomas 2000), Service Learning (Reinders 2016), Clinical Practice Models with mentor teachers (Darling-Hammond 2014), Collaborative Action Research (Stringer 2013), Design Thinking in Education (Razzuk & Shute 2012), Professional Learning Communities (PLCs) (DuFour et al. 2006), the Japanese Model of Lesson Studies (Lewis & Hurd 2011) or the Reflective Practitioner Model of Donald A. Schön (1983) emphasise collaborative learning, reflective practice, and project-based approaches to ensure that theoretical insights are effectively translated into practical skills.

SmartStart combines various insights and elements from these approaches and develops a *two-stage teacher training programme* that can be used by both student teachers and teachers in further education and training. The initial phase of the training programme comprises a modular online course, which provides a foundation in theoretical and didactic knowledge regarding the use of AI and digital media in primary school settings. This phase is complemented by a practical phase in designated project schools equipped with necessary technologies, where learned concepts are applied in real-world teaching scenarios. Here, the trainees will be given the opportunity to put into practice the knowledge they have acquired about the technical and didactic requirements and selected AI-based applications suitable for primary schools, and to gain concrete practical experience.

Central to both phases is that teachers and student teachers learn with and from each other, developing and testing concrete learning scenarios together in a co-creative process. In this way, the findings of teacher professionalisation research are directly implemented: experienced teachers act as mentors for novice teachers (Tschannen-Moran & Woolfolk Hoy 2007), peers learn from peers, participants develop innovative solutions together in co-creative processes and reflect on their actions in the context of critical thinking. Working in international groups is facilitated by the AI-based translation tool, which allows complex ideas and contexts to be formulated in the native language and communicated within the group.

The ERASMUS+ Blended Intensive Programme (BIP) and programmes for teacher mobility will be used and combined to implement the two-stage training programme and enable mobility. Each participating university will run at least two sessions of the training programme during one academic year (winter and summer term). In each session 15 student teachers and 15 practising teachers from different countries take part in each course. This means that a total of 360 teachers and 360 student teachers can participate in the training in one year. For the second round of the programme in the summer semester, the evaluation results from the first round will be incorporated so that a revised concept can be used.

The modules of the online course of the first stage will be made available online through eTwinning to interested teachers, teacher trainers and student teachers. They contain the theoretical background regarding the technical and pedagogical requirements, the description and presentation of selected AI applications suitable for primary schools, suggestions for embedding them in learning scenarios and explanatory videos for illustration.

Special objective 6 (WP4): WP4 will develop a coherent approach to the structure, organisation and delivery of the *SmartStart* teacher training programme. To this end, the infrastructure for the online courses organised by the universities must be created. The courses will need to be integrated into the universities' teacher training courses. Secondly, a concept for the implementation of the practical phase will be developed in cooperation with the participating project schools. The training must be integrated into the relevant national systems as a further training programme for teachers. Both phases will be coherently linked. WP4 is also aimed to run two sessions of the two-stage teacher training and revise the organisational structure according to the evaluation feedback.

Indicators for measurement achievement: A concept and a roadmap with information, contacts and responsible persons as well as concrete measures for the organisation and implementation of both the online phase and the practical phase in the participating schools will be developed and published in the form of a handbook. Target value is to reach 360 teachers and 360 student teachers during the two pilot phases of the training programme.

(6) Research on professional development of teachers

The *SmartStart* project aims to investigate and enhance the professional competencies of (prospective) teachers in integrating AI and digital tools into their classrooms. The research seeks to assess current competencies, evaluate the effectiveness of training programs, understand the variability in competency development, and identify beneficial experiences for teachers. The first aspect of the research assesses how well-developed the professional competencies of teachers and prospective teachers are in dealing with AI and digital tools. Professional competencies encompass specialist knowledge, beliefs, and motivational orientations. Specialist knowledge involves understanding AI technologies and digital tools, their functionalities, and their potential applications in educational settings. Teachers need to be familiar with the tools' features and how they can be leveraged to enhance learning (Mishra & Koehler, 2006; Starkey, 2020). Beliefs pertain to teachers' perceptions and attitudes towards using AI and digital tools, which play a crucial role in their willingness to integrate these technologies into their teaching practices (Ertmer, 2005; Venkatesh et al., 2003). Motivational orientations include both intrinsic and extrinsic motivations that drive teachers to incorporate technology into their teaching (Deci & Ryan, 2000; Lipowsky & Rzejak, 2021). The second aspect examines whether structured training programs can improve these professional competencies. This involves implementing comprehensive training programs that include theoretical knowledge, practical applications, and reflective practices. These programs are designed based on evidence from reflective and research-based learning approaches (Lipowsky & Rzejak, 2021; Desimone, 2009). The effectiveness of these programs is measured through pre- and post-intervention assessments to gauge changes in competencies (Guskey, 2000; Showers & Joyce, 1996). The training components include learning diaries, best-practice examples, and trial phases to enhance teachers' sense of efficacy and practical skills (Kratzmann et al., 2020). The third aspect explores the variability in competency development based on different background characteristics. This includes assessing how factors such as country of origin, prior training experiences, age, and gender influence the development of professional competencies (Schunk & Pajares, 2005; Bandura, 1997). The aim is to ensure that training programs are effective across diverse demographic groups, addressing the needs of all teachers (Banks, 2006; Gay, 2018). This involves developing adaptive training interventions that cater to the specific needs of different teacher groups, promoting inclusive and effective professional development (Tomlinson, 2001). The fourth aspect seeks to identify specific experiences that teachers find most beneficial for their professional growth. This includes understanding which hands-on experiences and reflective practices contribute most to competency development (Kolb, 1984; Schön, 1983). It also evaluates the impact of collaborative learning and peer support on professional growth, as learning communities and peer interactions play a significant role in enhancing teaching practices (Wenger, 1998; Vescio et al., 2008). Furthermore, it assesses the role of continuous professional development and mentorship in sustaining and enhancing competencies, as long-term support

systems are crucial for maintaining and building on initial training gains (Darling-Hammond et al., 2017; Joyce & Showers, 2002).

Special objective 7 (WP5): *SmartStart* carries out two research studies to investigate and enhance the professional competencies of (prospective) teachers in integrating AI and digital tools into their classrooms. The studies address four main research questions, aiming to assess current competencies, evaluate the effectiveness of training programs, understand the variability in competency development, and identify beneficial experiences for teachers.

Indicators for measurement achievement: The primary indicator for evaluating the success of the *SmartStart* project is the improvement in teachers' professional competencies in using AI and digital tools. This indicator is measured by the percentage increase in competency scores from pretest to post-test assessments. The unit of measurement is the percentage increase in competency scores. This approach allows for a clear and quantifiable assessment of how much teachers' skills and knowledge have improved due to the training interventions. The baseline value is derived from the average competency score obtained in the pre-test, conducted before the intervention. For example, if the average competency score at the baseline is 50% proficiency, this serves as the reference point for measuring improvement. The target value is set to achieve a 20% increase in the average competency score post-test. Therefore, if the baseline average competency score is 50%, the target post-test competency score would be 70% proficiency. This target reflects the project's goal of significantly enhancing teachers' abilities to integrate AI and digital tools effectively into their teaching practices. By focusing on this indicator, the *SmartStart* project can systematically measure the impact of its training programs and ensure that they are effectively enhancing the professional competencies of (prospective) teachers. This approach not only provides a clear metric for success but also helps in identifying areas that may require additional support or adjustment in the training curriculum.

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1.3 Complementarity with other actions and innovation — European added value

Complementarity with other actions and innovation

Explain how the project builds on the results of past activities carried out in the field, and describe its innovative aspects (if any).

Explain how the activities are complementary to other activities carried out by other organisations (if applicable). Illustrate the trans-national dimension of the project; its impact/interest in the EU area; possibility to use the results in other countries, potential to develop /cross-border cooperation among Programme countries and Partner countries, if applicable, etc.

If your proposal is based on the results of one or more previous or ongoing projects, please provide precise references to these projects.

Previous related projects: The *SmartStart* Teacher Academy builds on the insights and outcomes of several, mostly previous projects. It also builds on the results of past key projects and activities in the field of teacher education and digital learning, particularly those conducted under the Erasmus+ programme and other EU-funded initiatives:

(1) Digital Education Action Plan (2021-2027): The action plan emphasises the importance of fostering a high-performing digital education ecosystem and improving digital skills and competencies. *SmartStart* aligns with these goals by integrating AI-based applications and digital learning environments into primary school classrooms, thus preparing teachers and student teachers for the digital transformation.

(2) TeachUP: The TeachUP project is a European Policy Experimentation co-funded by the European Commission via the Erasmus+ programme running from March 2017 to August 2020. Similar to *SmartStart*, it aims to support policymakers, teacher trainers, training providers and other teacher training stakeholders in finding ways to scale up effectively and efficiently online teacher training.

(3) Digital Teacher Academy: The main aim of this project is to improve pre-service and in-service schoolteachers' practical training in EU countries, reducing professional attrition. Comparable to *SmartStart*, and to achieve this, the project teams are developing a digital platform with a learning community based on reflective practice bringing together providers of initial teacher's education (pre-service education) and continuous professional development for teachers (in-service education).

(4) IDEAL Futures Teacher Academy: The IDEAL Futures Teacher Academy aims to provide a range of professional development activities and a transformative dialogue hub to enable pre-service teachers and in-service teachers in the early years, primary, and post primary sectors to engage in dialogue with policy makers, other educational leaders and the digital tech sector, with a view to leading innovative practices in digital education. Innovation in AI teaching practices and methodology is a genuine objective of the *SmartStart* project also.

(5) Teacher Digital Competences (OECD Digital Education Outlook 2023): Towards an Effective Digital Education Ecosystem. This OECD chapter outlines teacher digital competences and examines different approaches to formalising their development across OECD countries. These competences are a blueprint for the *SmartStart* project. Three main approaches are discussed: 1) setting standards for both teachers and student teachers on digital competences; 2) incentivising continuous professional development on digital competences for educators; and 3) developing a wider ecosystem of support for stakeholders on digital education matters.

Innovation potential: The innovative aspects of the *SmartStart* Teacher Academy include some beyond-state-of the-art issues. Firstly, one of the primary innovations of *SmartStart* is the development and implementation of an AI-powered translation tool. This tool enables real-time, nuanced translations, allowing teachers and student teachers from different linguistic backgrounds to communicate effectively and engage in deeper, more meaningful exchanges. This addresses the challenge of language barriers in international collaboration. The AI-powered translation tool is designed to facilitate seamless communication in

multilingual settings, thereby enhancing international collaboration. This tool supports teachers and student teachers in overcoming the challenges posed by language differences, making it easier to share knowledge, resources, and experiences across borders. By providing real-time, accurate translations, the tool helps maintain the quality of communication and ensures that valuable insights are not lost due to language limitations.

Secondly, *SmartStart* introduces a comprehensive two-stage education and training model that combines a modular structured online course with practical phases in project partner schools. This model facilitates the application of theoretical knowledge in real-world classroom settings, ensuring that teachers and student teachers gain practical experience with AI and digital tools. Thirdly, while many projects target secondary or higher education, *SmartStart* specifically addresses the needs and challenges of primary education. This focus includes developing age-appropriate digital tools and resources, promoting inclusion and diversity, and ensuring that all school students, regardless of their background, can benefit from digital learning. In addition, *SmartStart* takes an innovative approach by focusing on the pedagogically guided integration of AI in primary schools. This involves not just the use of AI tools, but also a thorough consideration of their pedagogical implications and potential to enhance learning. The project aims to develop AI applications that are tailored to the developmental and educational needs of young learners, ensuring that these technologies support and enhance traditional teaching methods rather than replace them. By prioritising a pedagogical framework, *SmartStart* ensures that the introduction of AI in classrooms is done in a way that aligns with educational goals and best practices.

Impact in the EU area (and beyond): The *SmartStart* Teacher Academy brings considerable advantages on multiple levels. By encouraging international collaboration through joint training programs, teachers and student teachers gain exposure to diverse methodologies, ideas, and perspectives often absent in national training contexts. However, this project's impact extends beyond individual benefits to enhance institutional and systemic capacities. Experts from various EU countries and institutions collaborate to develop strategies for integrating AI and digital technologies into education, offering unique insights into educational practices globally. This allows stakeholders in European teacher education and training to benefit from international experiences. Including representatives from governmental institutions in the expert panel provides a comprehensive approach to addressing institutional challenges related to AI and digital media.

Cross border cooperation: The activities of the *SmartStart* Teacher Academy are complementary to other initiatives carried out by various organisations in the field of education and digital learning in Europe and beyond. By partnering with eTwinnings, the School Education Gateway and the European Schoolnet, *SmartStart* ensures that the digital tools, resources, and training modules developed are widely accessible to teachers and student teachers across Europe. This collaboration enhances the reach and impact of the project. *SmartStart* also complements national education policies by providing innovative solutions that can be adapted to different educational contexts. This alignment ensures that the project supports and enhances existing efforts to integrate digital technologies in education.

Transnational dimension: The *SmartStart* Teacher Academy has a strong trans-national dimension, engaging partners from seven European countries (Germany, Norway, Poland, Portugal, Spain, Slovakia, and Sweden). This geographical diversity ensures a broad exchange of ideas, practices, and perspectives, fully enriching the project's outcomes. The impact and interest of *SmartStart* in the EU area include the following aspects: *SmartStart* facilitates cross-border cooperation among programme and partner countries, fostering a collaborative environment where teachers and student teachers can learn from each other's experiences and best practices. This cooperation promotes a sense of European identity and mutual understanding. Then, the results of *SmartStart*, including the AI translation tool, digital learning resources, and training modules, are designed to be scalable and transferable. This means they can be adapted and implemented in various educational contexts across Europe, extending the project's benefits beyond the initial partner countries. Lastly, by involving representatives from governmental institutions in the expert panel, *SmartStart* ensures that its findings and recommendations can inform and influence education policies at both the European and national levels.

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2. QUALITY

2.1 PROJECT DESIGN AND IMPLEMENTATION

2.1.1 Concept and methodology

Concept and methodology

Please address all guiding points presented in the Call document/Programme Guide under the award criterion 'Quality of the project design and implementation'.

Outline the approach and methodology behind the project. Explain why they are the most suitable for achieving the project's objectives.

Based on a network of universities providing teacher training, institutions for professional teacher training and project schools from Germany, Norway, Poland, Slovakia, Spain, Sweden and Portugal, the *Smart Start* Teacher Academy will develop and permanently install a two-stage training and further education programme on the subject of artificial intelligence (AI) and digital media in primary education. *SmartStart* aims to introduce AI-based digital media into European primary schools to enhance teaching and learning. This initiative focuses on developing and implementing user-friendly tools that seamlessly integrate into daily classroom activities. The primary goal is to support individualised learning for students while also easing the pedagogical and administrative tasks of teachers.

The *SmartStart* Teacher Training Programme comprises two stages and leverages ERASMUS+ opportunities, particularly through the Blended Intensive Programme (BIP) and mobility programmes for schools. The first stage features an online phase where each participating university will provide online courses accessible to both students and teachers from the involved countries. Guided by university educators with extensive experience in teacher training, participants will engage in collaborative tasks, discussions, and shared learning experiences. This approach fosters cooperation between teachers and teacher students, ensuring a comprehensive and interactive learning environment. In the second stage, international study groups will convene at one of the project's partner schools. During this phase, students and teachers will apply their theoretical knowledge in practical settings by collaboratively developing specific teaching scenarios and conducting lessons in primary school classrooms, in coordination with the class teachers. Student teachers will gain valuable hands-on experience from seasoned educators, while the teachers will benefit from peer exchanges, learning from one another through a co-constructive process. This approach enhances practical skills and fosters a collaborative learning environment for all participants.

To establish a solid foundation and sustainable organisational structure for the *SmartStart* Teacher Training Programme, the project's work packages outline essential steps and deliver key outcomes. These structured work packages ensure a comprehensive and effective implementation of the training program, supporting its long-term success and sustainability.

To establish a robust theoretical foundation for the *SmartStart* Teacher Training Programme, an Expert Panel comprising specialists from diverse backgrounds will be formed (**WP1**). This panel will include AI experts, teachers, school leaders, representatives of teacher associations, teacher trainers, psychologists, parents, and policymakers. They will clarify requirements and discuss the technical, pedagogical, didactic, and organisational possibilities and limitations of implementation, as well as the ethical implications related to primary schools. The Expert Panel will develop a Key Strategy Paper and conduct comprehensive literature research, providing the framework and basis for WP2 and WP3.

WP2 focuses on two objectives. Firstly, it involves the development and implementation of an AI-based translation tool designed to facilitate subject-specific communication and break down language barriers within European cooperation. This tool will enable in-depth exchanges of professional experiences among consortium partners and enhance communication, cooperation, and shared learning among student teachers and teachers from different European countries participating in the training programme. Additionally, the translation tool will be introduced in primary schools to support the integration and education of children with non-native mother tongues, including those from refugee or migrant backgrounds, from the outset. The second objective of WP2 is to create a comprehensive portfolio of AI-based and digital media applications suitable for primary schools. This portfolio will include technical information, didactic arrangements, explanatory videos, and lesson plans for selected digital applications and materials. This will be based on insights from the Expert Panel in WP1, which will also guide the curriculum and content development for the *SmartStart* training programme to be executed in **WP3.** Additionally, WP3 will involve the development of the curriculum of the *SmartStart* training, the online course for stage 1 and a learning management system (LMS).

WP4 will establish a comprehensive framework for the structure, organisation, and delivery of the *SmartStart* Teacher Training Programme. This involves creating the necessary infrastructure for the online courses provided by the participating universities and ensuring their integration into existing teacher training curricula. Additionally, WP4 will develop a concept for implementing the practical phase in collaboration with the project schools. This phase aims to integrate the training into national systems as an advanced professional development programme for teachers. Both the theoretical online courses and the practical training phases will be seamlessly connected to ensure a cohesive learning experience.

WP5 will conduct two research studies to investigate the experiences of participating students and teachers, aiming to draw conclusions for professional development in the context of innovative approaches to AI and digital media in primary schools. These studies seek to enrich the scientific discussion and provide practical recommendations for enhancing school practices. The research findings will be disseminated through discussion papers and presented at scientific conferences.

WP6 will develop a comprehensive strategy to ensure the permanent and sustainable integration of the *SmartStart* Teacher Training Programme into the curricula of partner universities and national institutions responsible for professional teacher training. This strategy will include detailed plans for curriculum alignment, accreditation processes, resource allocation, and faculty training. Additionally, it will establish long-term partnerships with educational authorities and teacher training institutions to support continuous improvement and adaptation of the programme, ensuring its relevance and effectiveness in preparing teachers to use AI and digital media in primary schools.

WP7 will develop a comprehensive dissemination plan to ensure that teachers across Europe can benefit from the *SmartStart* Teacher Training Programme and its outcomes, including the AI-based translation tool. All relevant papers and the *SmartStart* online course will be published and made available online through platforms such as eTwinning and the European Schoolnet, ensuring wide accessibility and long-term impact. In addition to these online platforms, the dissemination strategy will include a variety of international and national actions. These will leverage social media, academic and professional publications, addressing relevant policy makers, and participation in educational conferences to reach a broader audience. Workshops and webinars will be organised to provide hands-on experience with the tools and resources developed by the project. This multifaceted approach aims to establish a well-rounded dissemination strategy, ensuring that the benefits of the *SmartStart* programme are widely recognized and adopted across Europe.

Throughout the project, all phases will undergo scientific monitoring. **WP8** will develop and implement a comprehensive evaluation strategy besides the management and organisation of the project. The first round of the teacher training program will be assessed for the content of the learning modules and adjusted as needed to better align with practical requirements. Additionally, evaluation results from the practical phase will be used to inform and enhance the second round of the teacher training program.

We envision our *SmartStart* Teacher Academy as a house where a network of collaborators works together under one roof (see Fig.2). It is a home for a community of practice between teacher education providers and researchers, teacher associations, in-service teachers and school leaders, policy makers from the education sector, but also relevant experts for AI-based applications suitable for primary schools as well as special training schools work together.

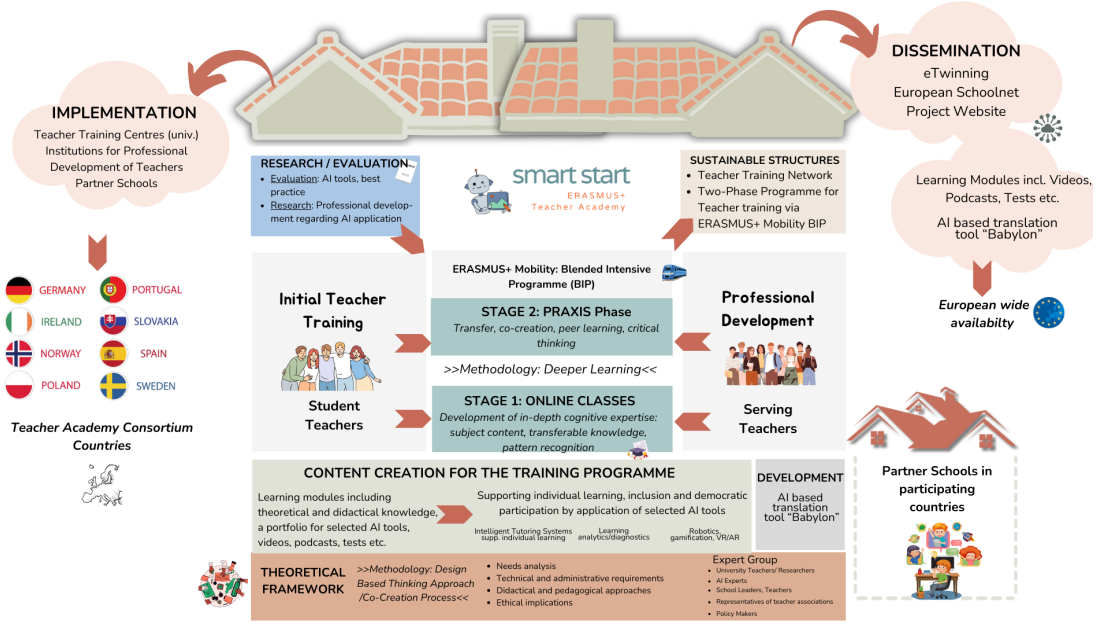

Fig. 2: SmartStart Concept Map

The concept and methodology of the individual tasks and steps of the work packages are explained below.

(1) Theoretical Framework (WP1)

A solid foundation is crucial for effectively integrating digital media in primary schools and teacher training, ensuring the implementation is comprehensive, sustainable, and tailored to young learners and educators. Key tasks for integration include aligning digital media tools with curriculum standards, requiring regular updates and teacher professional development to understand pedagogical benefits. Establishing technological infrastructure is fundamental, necessitating up-to-date hardware, reliable high-speed internet, robust cybersecurity, and dedicated technical support teams. Secure and child-friendly digital platforms are essential to protect student data and privacy. Understanding the needs of educators, parents, and students through surveys and focus groups is vital for effective adoption. Regular communication with parents about digital initiatives and using translation tools for diverse families enhance engagement. Building a supportive community involves transparency, active involvement, and partnerships with local businesses. Creating high-quality digital content involves collaboration with educational experts, continuous evaluation, and ensuring accessibility and equity for all students. Policies related to the ethical use of digital media and compliance with regulations are essential, along with data privacy and cybersecurity protocols. Exploring new digital tools and approaches can enhance education, such as creating innovation labs and professional learning communities for educators to collaborate and share best practices. *Addressing these key tasks and identifying teacher competencies* is crucial for framing a successful training program, enabling teachers to implement digital media and AI tools effectively in primary school classrooms, fostering a dynamic and inclusive learning environment.

The theoretical foundation of the *SmartStart* Teacher Training carried out in WP1 will be developed jointly by relevant stakeholders from different sectors. For this purpose, an Expert Panel will be nominated by the *SmartStart* Teacher Academy Board. It is important that different national perspectives are reflected in the selection of experts and their expertise, particularly with regard to national differences in school systems and policy requirements. This will be achieved through the formation of sub-groups relating to educators and policy makers. The *SmartStart* Expert Panel's task is to co-create a comprehensive and effective strategy for integrating digital media in primary schools, ensuring that both teachers and students benefit from technological advancements in education. In establish a robust foundation for the two stages of the *SmartStart Teacher Training*, it is essential to first discuss and clarify the theoretical and practical requirements for the project. This will facilitate the creation of an effective and successful concept, curriculum as well as a successful implementation.

The multifaceted demands inherent to the fulfilment of the tasks to create a solid foundation for the content and organisation of the *SmartStart Teacher Training* necessitate the deployment of a flexible methodology that enables all stakeholders to contribute their respective expertise. In this regard, we employ the design-based thinking approach during this pivotal phase of the *SmartStart* project. *Design Thinking* is an approach to problem-solving that places emphasis on empathy, collaboration, and experimentation, with the objective of addressing complex problems. It is a widely used approach in project management and product development due to its human-centred focus. The approach originated at the HPI School of Design Thinking (D-School) in Potsdam (Germany), which was established in 2007 as an experimental initiative to offer an alternative educational model. Inspired by the D-School at Stanford University and supported by Hasso Plattner, it promotes interdisciplinary collaboration and creative thinking. The method includes multidisciplinary teams, process heuristics and suitable spaces. Despite initial scepticism, the school developed successfully and achieved relevant results. Nevertheless, the question of a clear

definition and scientific basis for 'design thinking' remained open, and the ambiguity of the term made this task more difficult. Various criticisms and approaches to researching the topic existed, but a standardised definition was difficult to achieve.

The design-based thinking method is characterised by a non-linear process which means that the different stages may be revisited several times as the team gets a deeper insight into the problem and can make iterative improvements along the way. The aim of design thinking is to develop products, services, systems, and experiences that truly reflect what users need and want. In our case, the aim is to identify, adapt and implement AI applications that can be easily integrated into the primary school classroom by teachers, as well as develop learning environments that can be realised realistically and with reasonable effort. The design-based thinking process comprises the following stages, which will be applied to the first phase of the project, which is to establish the foundation of our teacher academy:

(1) The initial stage of the process involves empathising with the individuals for whom the design is intended. This requires understanding their needs, motivations, and challenges through profound engagement, observation, and interaction. Regarding *SmartStart*, it is crucial to define the specific needs, areas of application, and benefits of AI-based educational applications for primary school classrooms to understand how they can support students and teachers.

(2) The next stage is defining the problem. Information gathered during the empathy phase is synthesised to clearly articulate the problem in a user-centred manner, aligning the project's objectives with the end-users' needs. This includes analysing existing tools, determining the potential for customised new applications, and assessing technical requirements and costs for the *SmartStart Teacher Training*.

(3) The ideation phase follows, encouraging creative solutions without judgement through techniques like brainstorming and mind mapping. With framework conditions clarified, relevant learning content and module scope for the training programme can be defined, along with effective forms regarding the organisation and implementation of the practical phase of the two-stage training concept.

(4) The following prototype stage, where simplified, low-fidelity versions of proposed solutions are created to explore ideas and their real-world functionality with minimal time and resources will be realised in the work packages building on the foundation. The Expert Panel will be involved through the process evaluation providing feedback and ensuring a holistic view on the *SmartStart* project.

(5) This also applies to the next stage of the design-based thinking process, the testing phase. The testing phase involves sharing prototypes with users and stakeholders to gather feedback. Observations and feedback help identify effective and ineffective elements, leading to refinements and potentially new insights. This stage often loops back to previous stages for further iteration. The Expert Panel will be involved into the evaluation of the first run of the teacher training by providing feedback from a wider perspective.

The iterative nature of design thinking necessitates that these stages are not always linear and may be revisited multiple times as the project evolves. The approach places greater value on the process than on the final product, emphasising the importance of learning, adaptation, and innovation throughout the project lifecycle. By placing the end-user at the centre of the process, design thinking ensures that solutions are not only viable and feasible, but also desirable from the user's perspective. This way, design thinking ultimately runs through the entire project to establish an ongoing qualified feedback and internal evaluation process.

The work of the *Smart Start* Expert Panel lays the foundation for all further tasks of the *SmartStart* project. Their efforts involve understanding the needs, motivations, and challenges of the individuals for whom the design is intended. This requires profound engagement, observation, and interaction to gain a comprehensive understanding of the experiences and perspectives of those involved.

The theoretical framework in WP1 also conducts a comprehensive literature review regarding the state-of-the-art of the implementation and use of AI-powered digital tools in primary education and aims to complement the Expert Panel's work and need analysis.

A systematic literature review (SLR) and a scoping review are both methodologies employed to synthesize research, but they have distinct purposes and processes. Understanding these methodologies in detail, along with considerations for combining them, can offer a comprehensive approach to reviewing literature. The systematic literature review is a rigorous method designed to answer specific research questions by identifying, evaluating, and synthesizing all relevant studies on a topic. The process begins with the formulation of a clear research question, often using frameworks like PICO (Population, Intervention, Comparison, Outcome). This is followed by the development of a detailed review protocol that includes predefined inclusion and exclusion criteria to ensure the selection of relevant studies. A comprehensive search of multiple databases is conducted to gather potential studies, after which the studies are screened and selected based on the predefined criteria. The quality of the included studies is assessed using standardised tools, and data is extracted in a systematic manner. Finally, the extracted data is synthesised, often using statistical techniques such as meta-analysis, to provide pooled estimates of effects and answer the research question. The results are presented in a structured format, highlighting the overall findings and their implications.

In contrast, a scoping review is designed to map the existing literature on a broad topic, identifying key concepts, theories, sources, and gaps in the research. The process starts with defining the research question or scope, which is typically broader than that of a systematic review. A comprehensive search across multiple sources is then conducted to capture a wide range of studies relevant to the topic. The selection of studies is based on broad inclusion criteria, allowing for the inclusion of various types of research (qualitative, quantitative, and mixed methods). Data is charted focusing on key concepts, themes,

and patterns rather than detailed quality assessment. The findings are summarized to provide an overview of the existing research landscape, highlighting areas where further research is needed.

Combining systematic and scoping reviews can leverage the strengths of both methodologies, providing a comprehensive and detailed understanding of a research topic. When combining these methodologies, several key considerations must be taken into account. Firstly, clearly defining the scope and objectives is crucial. The combined approach should aim to answer specific research questions while also mapping the broader research landscape. This requires a balance between the detailed, focused nature of the systematic review and the broad, exploratory scope of the scoping review.

The search strategy must be carefully designed to be comprehensive and inclusive, capturing both the specific studies needed for the systematic review and the broader research relevant to the scoping review. Inclusion and exclusion criteria should be explicitly defined, allowing for the integration of diverse types of research. During the screening and selection process, studies should be evaluated not only for their relevance to the specific research question but also for their contribution to understanding the broader context. Quality assessment is another critical consideration. While the systematic review component requires rigorous quality assessment, the scoping review component may include studies of varying quality to provide a comprehensive overview. The synthesis of data should reflect this dual approach, combining detailed statistical analysis with thematic synthesis to present a holistic view of the research topic.

Finally, the presentation of findings should be structured to clearly differentiate between the specific insights gained from the systematic review and the broader patterns identified through the scoping review. This combined approach can offer both depth and breadth, providing valuable insights and guiding future research directions.

(2) *AI-based Translation Tool & Portfolio of AI-based Application & Digital Media (WP2)*

WP2 focuses on two key tasks. The first task is to develop and implement an innovative AI-based translation tool. The second task is to create a comprehensive portfolio of selected AI-enabled digital learning resources. This portfolio will feature instructional and informative videos, as well as lesson plans, designed to help teachers effectively incorporate technology into their classrooms. The aim is to choose applications that are straightforward to implement and effective, without burdening teachers with complex and time-consuming instructions. This approach ensures seamless integration of technology, enhancing teaching strategies and improving student learning outcomes.

This section of the proposal emphasises the integration of advanced AI-based translation tools, such as Vasco Translator V4, to enable multilingual communication among teachers from different linguistic backgrounds across Europe participating in the *SmartStart* Teacher Academy. These tools will enhance understanding and collaboration on complex issues like integrating AI in primary education. The benefits of AI-based translation tools are significant for teacher training and impact several key areas. *Firstly*, AI translation allows participants to receive training in their native languages, which is crucial for understanding and retaining complex and nuanced topics like AI applications in education. Studies indicate that comprehension and retention rates are significantly higher when people learn and communicate in their native language. *Secondly*, facilitating native language communication fosters an inclusive environment that respects and integrates diverse cultural perspectives. This cultural sensitivity is particularly important in educational contexts, where understanding different backgrounds is key to meeting the needs of all students. *Thirdly*, AI-assisted translations can handle idioms and specialised terminology more effectively than human translators, who may not be experts in specific fields such as AI in education. This leads to richer, more accurate discussions without the misunderstandings that often arise from second language communication barriers. *Fourthly*, AI translation tools can serve multiple people simultaneously without the need for separate human translators, making them highly scalable and cost-effective for large-scale training programs. This is essential for pan-European initiatives aimed at training educators and project participants from different European countries. *Fifthly*, these tools provide instant translation, essential for dynamic and interactive training sessions. Real-time translation ensures all participants can participate actively and equally, promoting a more collaborative learning environment. *Sixthly*, technologies like Babylon are continuously updated to accommodate new languages and dialects, which is critical in Europe's linguistically diverse context. Their adaptability also extends to different communication formats, including spoken and written exchanges, supporting a wide range of training activities. *Seventhly*, using AI-based translation tools in educational settings is a pioneering approach that leverages technological innovation to overcome traditional challenges in multilingual communication. This not only demonstrates the potential of AI in education but also sets a precedent for future technological integration in educational methodologies and practices. Such innovation also stimulates technological acceptance and readiness among teachers, crucial for integrating further digital tools and educational technologies in the classroom. The Babylon translation tool is being developed through a joint project involving the Digital Education FoundationAI experts from the University of Applied Sciences Mittweida. The project aims to create a high-quality translation tool supporting professional exchanges across language barriers among project partners, European teachers, and primary school students. The resulting product will be an AI-based real-time translation tool covering all European languages, with the ability to add more languages as required. The software code will be open-source, accessible through download links on the project's homepage, with hardware provided at cost plus a small fee. The hardware, similar to the Vasco V4, will include necessary components like a microphone and speaker, and users can use their own headphones. The development process will actively engage the open-source community for feedback, develop educational materials to help teachers and students use the tool effectively, and ensure an intuitive, user-friendly interface. Scalability, flexibility, privacy, and security measures will be prioritised, along with a system for continuous improvement and technical support. The Vasco Translator V4 will serve as an interim solution, with structurally similar but cheaper tools provided to partner schools. The working title of the translation tool is "Babylon."

The second task in WP2 involves creating a comprehensive portfolio of selected AI-enabled digital learning resources, including a well-organised toolbox. This portfolio will serve as a valuable resource for teachers, offering a variety of tools and materials to enhance their instructional practices. Key components of the portfolio will include: (1) Short, easy-to-follow instructional videos demonstrating how to use various AI tools and digital applications in the classroom. For example, a video

might show how to use an AI-based language translation tool to facilitate communication with non-native speakers or how to integrate an AI-driven educational game to make learning more engaging. (2) Videos that explain the benefits and potential of AI in education, helping teachers understand the value of these tools. These might include expert interviews, case studies, and testimonials from teachers who have successfully implemented AI in their classrooms. (3) Ready-to-use lesson plans that incorporate AI-enabled tools, providing step-by-step instructions on how to execute the lessons. These plans will cover various subjects and grade levels, ensuring that teachers can find relevant materials for their specific needs. For example, a maths lesson plan might include the use of an AI-powered app that provides instant feedback on student problem-solving approaches. (4) A curated list as a toolbox of AI-based applications and digital resources that are user-friendly and effective. Each tool in the toolbox will come with a detailed guide on its functionality, potential classroom applications, and best practices for integration. Examples of tools might include AI-based language learning apps that personalise lessons based on student progress; digital storytelling tools that use AI to help students create and share multimedia stories or interactive science simulations powered by AI to provide virtual lab experiences. The goal of this portfolio is to select and present applications that are straightforward to implement and highly effective, without overwhelming teachers with complex and time-consuming instructions. By providing these resources, the portfolio ensures that teachers can integrate technology seamlessly into their teaching strategies, ultimately improving student learning outcomes.

(3) Curriculum and Online Course Development (WP3)

WP3 consists of three main tasks: (1) Develop of the curriculum for the *SmartStart* teacher training, (2) Design the online course and (3) develop a suitable learning management system (LMS).

Curriculum: As described above, Mishra and Köhler (2006) identified three core areas of teacher knowledge essential for integrating technology in the classroom, encapsulated in the Technological Pedagogical Content Knowledge (TPACK) framework. Typically represented as a Venn diagram, TPACK delineates the overlapping knowledge domains: Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) (OECD 2023). Technological Knowledge (TK) involves understanding how to select and use technology to facilitate student learning. This includes familiarity with various digital tools and resources that can enhance educational experiences. For example, in the context of primary school science teaching, a teacher with strong TK might use interactive weather simulation software such as "PhET Interactive Simulations" or "National Geographic Kids Weather Lab" to help students visualise and understand complex weather patterns (Niess 2005).

Pedagogical Knowledge (PK) refers to the teacher's understanding of pedagogical principles and decision-making processes. It involves knowing the most effective instructional strategies and methods to engage students and foster learning. In the example of teaching weather patterns, a teacher with robust PK would employ hands-on activities, facilitate discussions, and use visual aids to make the learning process more interactive and accessible for young students. Content Knowledge (CK) pertains to the teacher's expertise in a specific subject area. This includes a deep understanding of the subject matter and the ability to convey it effectively to students. For instance, in teaching weather concepts, CK would encompass a thorough knowledge of types of weather, weather patterns, and the water cycle. An integrated example of TPACK in action would be a primary school science teacher using interactive simulations to teach weather patterns. The teacher's TK enables them to navigate and utilise the features of the simulation software effectively. Their CK ensures they accurately convey the intricacies of weather phenomena, while their PK allows them to choose the best instructional methods, such as interactive discussions and visual aids, to ensure young students grasp these complex concepts. By integrating these three knowledge domains, teachers can create a rich, interactive learning experience that enhances student understanding and engagement with the subject matter.

Regarding the curriculum of the teacher training, *SmartStart* aims to clearly outline the specific technological, pedagogical and content knowledge (TPACK) that primary school teachers need to successfully integrate AI and digital media into their teaching and provide them with digital literacy. Teachers need to develop *competencies* in three core areas: (1) with regard to how to select, use, and troubleshoot AI tools and digital resources effectively (*Technological Knowledge*); (2) with regard to the development of strategies for integrating AI and digital media into teaching practices, creating adaptive learning environments, and using them to support differentiated instruction (*Pedagogical Knowledge*) and (3) with regard to the application of AI tools and digital media to teach subject-specific content, ensuring to enhance the learning experience in areas such as mathematics, science, and language arts (*Content Knowledge*).

Two more aspects are crucial to the development of the curriculum for the *SmartStart* Teacher Training programme:

(1) It is necessary to define and describe the *pedagogical guidelines* regarding the specific conditions and needs of primary schools, emphasising inclusion, diversity and participation in the context of AI implementation. Primary schools serve diverse student populations, including students with special needs, students from migrant backgrounds, and students with different abilities and learning styles. The pedagogical guidelines need to address the following conditions: (a) The development of strategies to ensure AI tools and digital media support inclusive education, allowing all students to participate fully regardless of their background or abilities (*Inclusion*). (b) The creation of adaptive and individualised teaching methods that cater to the diverse needs of students. This includes adjusting task difficulty, language level, and learning pace to accommodate individual learning profiles (*Diversity*). (c) The necessity to make AI applications and digital media accessible to all students, providing equitable learning opportunities and minimising disparities in educational outcomes (*Equity and Participati*on).

SmartStart aims to improve primary teachers' digital literacy by developing a training approach tailored to the specific needs of primary school students. This includes promoting inclusion and diversity, enabling participation for all students, and providing individualised support. The training program must specify and define the technological pedagogical content knowledge along the pedagogical and didactic affordances of primary schools. This includes deep technological knowledge of AI applications and digital media as well as the pedagogical knowledge needed to apply them effectively.

(2) The curriculum needs to provide among others relevant knowledge regarding AI, coding and algorithms, digital media, ethical considerations, didactical models and instructional strategies as the theoretical knowledge.

Online Course: The *SmartStart* project develops a two-stage teacher training programme for both students and teachers in further education and training, combining foundational knowledge and practical skills in AI and digital media usage in educational settings. The first stage involves a modular online phase that provides in-depth theoretical and didactic knowledge on using AI and digital resources in primary schools. The second stage is a project-based practical phase conducted in designated project schools equipped with necessary technologies, allowing learners to apply their acquired knowledge in real-world teaching scenarios. This programme emphasises collaborative learning, with experienced teachers mentoring novices, peers learning from each other, and participants developing and testing innovative teaching scenarios together. AI-based translation tools facilitate communication and collaboration in international groups.

Realised through the ERASMUS+ Blended Intensive Programme (BIP), the online phase will be carried out by universities. The practical phase takes place at the associated project schools. The online phase will be delivered as online courses with international groups of 30 participants (students and practising teachers) based on the curriculum developed in WP3. A distribution system will be developed to ensure an equitable allocation of learners from all eight participating countries across the available courses, promoting international balance and diversity. The didactic concept and methodology for the online courses will be based on the IPC Project (www.ipcproject.de) which has been tried and tested at the Catholic University of Eichstaett-Ingolstadt since 2008 (see Ausband & Schultheis, 2010; Schultheis & Hiebl, 2021, Margrain et al. 2020).

Internationalising teacher education has been slow to progress, limited by both academic research and practical applications within the field. Typically, teacher education is highly tailored to local cultural norms and national specifics, which makes it challenging to implement a universal approach to internationalisation. Despite this, the transformative potential of international experiences in teacher education is increasingly recognized, alongside the critical importance of intercultural competences for teachers. This shift is driven by the need to effectively manage diverse classroom environments and prepare students for a multicultural, globalised world. Educational resources and methodologies need to adapt to these global dynamics, acknowledging the growing interconnectedness and its impact on pre-service and continuing teacher training. Against this background the IPC Project was designed in 2008 at the Catholic University of Eichstaett-Ingolstadt (Germany) as an international project with partner universities from seven countries and three continents. The participating international partners view global competencies, global awareness, and global understanding as goals to be developed through transformative learning. Participating student teachers gain professional expertise on relevant topics in teacher education curricula by working together in international groups. Comparing educational systems and policies, teaching and instructional methods, curriculum, and children's activities broadens students' perspectives and fosters cross-cultural understanding. Developing project skills through teamwork, proactive communication in an international group, work planning, scheduling, and problem-solving is also emphasised. Student teachers can enhance their Internet skills by utilising modern information technology and web tools, such as learning platforms like Schoology and Canvas, discussion forums, wikis, Zoom, Padlet, Genially, Adobe Spark, Book Creator, Canva, Doodle, and online survey tools.

Several didactic variations have been developed so far. The IPC Project emerges as a pioneering initiative, breaking new ground by fostering international collaboration among student teachers from diverse cultural backgrounds. It stands out for its commitment to transcending national educational boundaries and encouraging student teachers to think beyond the conventional confines of their educational provinces. By sharing experiences and learning collaboratively with peers from different countries and continents, the project embodies the vision of a global community where collective work and research become the norm. In essence, the IPC Project represents a forward-looking paradigm that bridges the gap between the imperative for internationalising teacher education and the practical constraints faced by students. By fostering intercultural understanding, promoting transformative learning, and embracing the concept of internationalisation@home, the project offers a blueprint for a more inclusive and globally connected teacher education landscape (Schultheis, i.Dr.). The *SmartStart Teacher Training* programme will draw on the experience of the IPC Project regarding the organisation of the online classes and when dealing with organisational problems, language difficulties and didactic issues. The consortium partners from Germany, Poland and Sweden have been working together on the IPC Project for many years.

Learning Management System (LMS): To match with the special needs of the *SmartStart* international online class a tailored learning management system will be developed on Moodle basis and integrates specific features e.g. as translation tools to facilitate communication in discussion forums.

(4) SmartStart Teacher Training Organisation and Infrastructure (WP4)

The phase of theoretical knowledge acquisition provided by the online phase of the *SmartStart* Teacher Training is followed by the second stage focusing on the transfer into school practice. It involves a project-based practical phase carried out in designated project schools that are equipped with the necessary technologies. This phase allows learners to apply their acquired knowledge in real-world teaching scenarios, bridging the gap between theory and practice. This phase will be organised by each of the participating universities in cooperation with their associated partner schools. The praxis phase is accompanied by an academic teacher. There will be at least 16 praxis phases in one semester and 24 during the implementation phase of the *SmartStart* training. Due to the three Polish partner universities Poland will be able to offer more praxis phases. A distribution system will be developed to evenly distribute students from all seven participating countries among the praxis phases offered per semester.

Building on the theoretical foundation acquired in the online course, teachers with teaching experience are ideally placed to work together with colleagues and student teachers to develop application scenarios, learning environments and lesson plans using AI applications. The aim is for teachers and students to use and test AI-based and other digital tools for planning and designing lessons which allow individualised learning support for students, foster inclusion and democratic participation (e.g.

individual tutoring systems, translation tools for migrant children, student assessment). In a communicative and co-constructive process, teachers will design classroom scenarios using AI for teaching and learning in primary schools. Mutual observation, consultation, critical discussion and feedback will help to develop viable options for the productive integration of AI in primary education. This may well lead to only certain approaches being deemed suitable for primary schools and others being discarded.

Learning with and from peers characterises this phase of the project, where the acquired knowledge and skills will be transferred to the real school environment. Trainee teachers will be able to learn from experienced teachers. Teachers can learn together and with their peers by using techniques like the Japanese Lesson Studies (jugyō kenkyū) which is a widespread professional development practice. The Japanese model of teacher-led research known as Lesson Study involves a triad of teachers working together to identify an area for development in their students' learning. Participants engage in collaborative research, planning, teaching and observation of a series of lessons, with ongoing discussion, reflection and expert input used to track and refine their interventions. In a small group, teachers collaborate with one another to discuss learning goals, plan an actual classroom lesson (referred to as a "research lesson"), observe the efficacy of their ideas in a live lesson with students, and then report on the results. This process allows other teachers to benefit from the collective experience and expertise of the group (Fujii, 2016).

The combination of the two stages in the *SmartStart* training programme refers to the *Deeper Learning method* (cf. Sliwka & Klopsch 2022). It is used to provide students and teachers with well-founded competences. Deeper Learning is a pedagogical approach that emphasises the development of critical thinking, problem solving skills and a deeper understanding of content beyond memorisation to prepare learners to apply their knowledge and skills in real world contexts. Several steps provide the learners with the relevant competencies. The process of Deeper learning was specified by the William and Flora Hewlett Foundation in 2010 by identifying a set of educational outcomes (William and Flora Hewlitt Foundation, 2017): (1) Mastery of rigorous academic content; (2) Development of critical thinking and problem-solving skills; (3) The ability to work collaboratively; (4) Effective oral and written communication; (5) Learning how to learn - learning independently and (6) Developing and maintaining an academic mindset.

The basis is to create a solid base of theoretical knowledge, the mastery of core academic content. Students must acquire a deep understanding of the subject matter that enables them to apply what they have learned to new situations or problems. This is the foundation that is laid in the first stage of the *SmartStart* project providing online courses. Here, learners are encouraged to think critically, which includes questioning assumptions, synthesising information, and applying knowledge in various contexts. Another element of the Deeper Learning process is collaboration and purposeful, effective communication with others. The *SmartStart* Teacher Training recognises this with its second stage which consists of a practical phase focusing on learning from and with peers. Working effectively with others is a central part of Deeper Learning and reflects the reality of most modern working environments where collaboration and teamwork are key. This also applies to working in a primary school context. Deeper learning also promotes self-directed learning, which means that learners are encouraged to take initiative and responsibility for their own learning, including the ability to set goals, monitor their own progress and reflect on their learning experiences. Applying this to both in-service teachers and student teachers in the second stage of *SmartStar*t means to build on existing professional experience with the aim to encourage teachers' creativity, ownership and commitment.

For the pre-service teacher students, the independent and self-directed learning with experienced teachers as well as dealing with challenging and innovative topics on the use of artificial intelligence in primary school education will promote positively the development of their professional self as a future teacher. It is crucial for both in-service and pre-service teachers to develop an academic mindset which enables them to believe in their abilities, understand the value of their work and engage in the education of the future generations. Sliwka and Klopsch (2022) particularly emphasise the importance of international education frameworks that include these elements of Deeper Learning. The authors argue that in a globalised world, students need to develop competencies that enable them to handle complex problems, work in multicultural teams, and adapt to rapid changes in the workplace and society. The goal of Deeper Learning, as advocated by Sliwka and Klopsch (2022), is to equip students with the skills necessary to navigate the complexities of modern life, adapt to future challenges, and contribute positively to society. This educational approach is increasingly relevant in a world where traditional educational methods that focus primarily on the acquisition of factual knowledge are seen as insufficient for today's needs. *SmartStart* addresses these needs and enables teachers and student teachers to develop the necessary competences and skills. This will provide the basis for the common education and training of teachers in Europe to better meet the future needs and challenges of our society and a global world.

The *collaboration with partner schools* across Europe is a cornerstone of the *Smart Start* Teacher Academy's strategy to enhance teacher education and professional development, especially with an eye and focus on AI in primary schools. By setting clear prerequisites for partner schools, utilising effective communication tools, carefully selecting teacher multipliers, and meticulously planning mobility actions, *SmartStart* aspires to build a robust network of educators capable of leading and innovating teaching practices in their respective countries. This international partnership will not only elevate the quality of education but also promote understanding and European cooperation between different educational systems in Europe. The following proposal section outlines the necessary prerequisites for partner schools, communication strategies including language tools, recruitment of teacher multipliers, and the execution of mobility actions.

Partner School Prerequisites: Partner schools must meet most of the following criteria to participate. Schools should have a proven track record of high educational standards, ensuring educational excellence. Adequate technological resources are necessary to support digital communication and e-learning, reflecting the need for strong technological infrastructure and will be provided by the *SmartStart* project. Staff should have a competent level of English proficiency to facilitate communication, although additional language support will be provided through tools like the Vasco Translator V4 or the Babylon tool to be developed. Schools must also demonstrate a commitment to collaboration, engaging in long-term projects, including teacher

exchanges and joint educational research. Additionally, schools should represent diverse geographical and cultural backgrounds to enrich the collaboration network.

Communication Strategies: Communication strategies between the participants should be carried out effectively. Tools like the Vasco Translator V4 will be essential in overcoming language barriers, allowing real-time translation of spoken and written communication. English will serve as the lingua franca in the program; however, efforts will be made to accommodate other languages to respect cultural diversities and enhance inclusiveness.

Implementation Strategies: The implementation strategies include several key components. Partner schools will receive training on how to effectively use AI-based translation tools. Continuous technical support and updates will be provided to ensure all participants can communicate effectively without disruptions. Partner schools will also benefit from the *SmartStart* Teacher Training as their teachers can get involved in both stages and can act as multipliers for other teachers in the school or the school district (see below).

Participating Schools: *SmartStart* includes at least one school in every participating country. Fifteen schools have already expressed their interest and confirmed their participation (see list in the Annex). The International School of the Stockholm Region (ISSR) will act as Consortium Partner.

Recruitment Strategies of Teacher Multipliers: Teachers with a strong pedagogical background and a commitment to educational innovation will be selected to act as multipliers, with AI competencies being welcomed. These teachers will participate in the first stage of the *SmartStart* training programme to master new teaching methodologies and AI tools. Post-training, these teachers will implement the learned strategies at their home schools and mentor other teachers, thus disseminating the benefits throughout their educational systems.

Mobility Actions: Mobility actions take advantage of the ERASMUS+ Blended Intensive Programmes (BIP) and ERASMUS+ mobility programmes for schools and follow the related rules. A central element of the BIPs is the mandatory virtual component, which enables content-related preparation, support and follow-up of the short mobility phase. The online courses of the initial stage of the teacher training will be scheduled during the university semesters. The practical stages including the mobility phase will be scheduled during the summer and winter breaks to minimise disruption to regular school activities. Each mobility action will be coordinated by a team comprising members from the hosting school, the *SmartStart* Academy, and local educational authorities to ensure logistical and educational support. Post-mobility action reviews will be conducted to assess the impact and refine future initiatives.

Support Structures: Accommodation and logistics arrangements will be made in partnership with local institutions to provide participants with accommodations and necessary amenities. Cultural integration activities will be included to introduce participants to the local culture and social norms, enriching the experience and fostering mutual respect among diverse educational practitioners.

(5) Research (WP5)

The following proposal section outlines the research activities conducted in WP5, focusing on a comprehensive investigation into the professional development of teachers participating in the *SmartStart* Teacher Training Programme. The *SmartStart* project addresses four key research questions through both qualitative and quantitative studies:

(Q1) How well-developed are the professional competencies (specialist knowledge, beliefs, motivational orientations) of (prospective) teachers in dealing with AI and digital tools? (Q2) Can the professional competencies (professional knowledge, beliefs, motivational orientations) of (prospective) teachers be improved through intervention measures (initial and in-service training)? (O3) Are there differences in the development and changeability of professional competencies (professional knowledge, motivational orientations, beliefs) in using AI and digital tools in the classroom, considering various background characteristics (country of origin, training courses attended, age, gender)? (Q4) What experiences do teachers report that particularly benefit the development of their professional competence?

These questions aim to assess and enhance the effectiveness of training programs, ensuring teachers are better equipped to integrate AI and digital tools into their teaching practices.

The first research study will utilise quantitative methods to gather empirical data on the effectiveness of the teacher training programme. Surveys and questionnaires will be distributed to a large sample of participating teachers to measure changes in their technological, pedagogical, and content knowledge (TPACK) over time. Additionally, classroom observations and assessments will be conducted to quantify the impact of the training on student learning outcomes. For example, pre- and post-training assessments might be used to evaluate improvements in teachers' ability to use digital tools effectively and to integrate these tools into their lesson plans. The methodology is described in detail in the following section.

(1) Q1, Q2 and Q3: Teacher professionalism (Quantitative study). To answer research questions 1, 2, and 3, data are collected from a quasi-experimental intervention study using a pre-post design. In this study, two groups—the experimental group (EG) and the control group (CG)—are surveyed at two measurement points: before (pre) and after (post) the intervention, using questionnaires. The intervention involves the completion of both stages of the *SmartStart* teacher training, including an online course and a practical stage at a project school. The training consists of ca. 16 sessions, depending on the personnel capacity of the participating universities. The design of these training courses for the (prospective) teachers in the experimental group is based on research findings in reflective learning (e.g., learning diaries) and research-based learning (e.g., questioning pupils). Previous studies have shown that such approaches can effectively enhance professional skills. Additionally, the training incorporates findings from research on professional development (Lipowsky & Rzejak, 2021; Kratzmann, Sawatzky,

Sachse, 2020). The training includes input, trial, and reflection phases, ensuring practical relevance through videos, best-practice examples, and trial phases. This approach aims to enhance the (prospective) teachers' sense of efficacy. Since the training and professional development programs are implemented differently in various countries, a basic concept will be developed to be included in all training measures. This ensures consistency across different implementations. The (prospective) teachers in the control group participate in training courses that do not focus on international cooperation or the topic of AI/digital tools. When developing the questionnaires, we utilise insights from professional research on digital media. Therefore, instruments from other studies can be adapted and used in modified forms, including those from Schwarzer and Schmitz (1999), Oser and Baeriswyl (2002), Franz (2008), Lange (2010), and Kleickmann et al. (2006). The results will be based on data from approx. N= 480 (experimental group: n= 240 control group: n= 240) (trainee) teachers who take part in the surveys at both measurement times. The sample consists of (prospective) primary school teachers from the participating countries. In the first step, classic test-theoretical item analyses are carried out. The intraclass coefficient (ICC) is calculated in order to be able to make statements about the relationship of the variance between the training and further training units. Structural equation models and regression analyses are used to answer the research questions. The programs SPSS Version 26 (IBM 2019), MPlus Version 5.21 (2002) and RStudio Version 1.4.1103 are used for this purpose. After the evaluation, the survey results on teachers' professional skills are used to revise and improve the training and further education courses, ensuring that these programs are effectively assessed and continuously enhanced.

The second research study, employing qualitative methods, will involve in-depth interviews with participating teachers. This study aims to capture the nuanced experiences and perceptions of teachers as they integrate AI and digital media into their classrooms. For instance, through interviews, teachers might share their thoughts on the ease of using new technologies, their impact on student engagement, and the challenges faced during implementation. The methodology is described in detail in the following section:

(2) Q4: Teacher professionalism (Qualitative study): As part of a qualitative interview study, individual teachers will be asked about their perceptions of the *SmartStart* Teacher Training concept. Building on the findings from the quantitative research, interviews will focus on (prospective) teachers who have particularly benefited from the intervention in terms of their professional skills in using AI and digital tools. Interviews are planned with N = 25 (prospective) teachers from the participating countries. Various topics will be integrated into the guideline-based interviews to obtain a comprehensive understanding of the participants' perceptions and experiences. The following topics and questions will be addressed:

(a) Assessment of training content: How would you rate the content of the training and further training in terms of its relevance and applicability in practice? Which aspects of the programs did you find particularly useful or less useful? - (b) Practical relevance and application: How well can you apply the knowledge gained from the training in your day-to-day teaching? Are there specific situations in which the new skills have been particularly helpful to you? - (c) Challenges and areas for improvement: What challenges did you experience during the training? What suggestions for improvement do you have for future training and development programs? - (d) Long-term effects and sustainability: How do you perceive the long-term impact of the training on your teaching practice? What evidence can you provide of the sustainability of the skills and knowledge gained?

These interviews aim to gather in-depth insights that will help refine and enhance the training programs, ensuring they meet the needs of (prospective) teachers effectively. The interviews will each last approximately 60 minutes. The sessions will be recorded and subsequently transcribed. The data will be analysed using qualitative content analysis (Kuckartz & Rädiker, 2022) with the assistance of the MAXQDA software (VERBI, 2023). The insights gained from the qualitative analyses will be used to revise and enhance the training and further education courses.

By combining qualitative and quantitative approaches, WP5 aims to provide a comprehensive analysis of the professional development experiences of teachers in the *SmartStart* programme. The qualitative study will enrich the research with detailed insights and personal narratives, while the quantitative study will offer measurable evidence of the training's impact. Together, these studies will inform best practices for integrating AI and digital media in primary education and contribute to the ongoing development and refinement of the *SmartStart* Teacher Training Programme.

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2.1.2 Project management, quality assurance and monitoring and evaluation strategy

Project management, quality assurance and monitoring and evaluation strategy

Describe the measures foreseen to ensure that the project implementation is of high quality and completed in time.

Describe the methods to ensure good quality, monitoring, planning and control.

Describe the evaluation methods and indicators (quantitative and qualitative) to monitor and verify the outreach and coverage of the activities and results (including unit of measurement, baseline and target values). The indicators proposed to measure progress should be relevant, realistic and measurable.

(1) Project Management

Management structure: The *SmartStart* Teacher Academy's project management structure is designed to ensure effective governance, diverse representation, and a clear division of responsibilities. The project is overseen by the SmartStart Board, which includes representatives from each partner university, key stakeholders from participating institutions, and the project coordinator. This board is responsible for the overall governance and strategic direction, including approving major decisions such as budget allocations, partnerships, and strategic initiatives. The board meets biannually, with additional meetings scheduled as necessary.

Management Team: Day-to-day management is handled by the *SmartStart* Project Management Team (PMT), which consists of the project coordinator, an assistant coordinator, and representatives from each work package (WPT) team. The PMT ensures that milestones and deliverables are met, coordinates between different WPTs, and reports to the SmartStart Board. The PMT meets monthly to review progress and address any issues that arise.

Expert Panel: To provide expert insights and innovative practices, the *SmartStart* Expert Panel, composed of experts from teacher training universities, scientists, AI specialists, psychologists, educators, school leaders, parents, representatives of professional teacher training institutions, teacher associations, and policymakers, is established. The Expert Panel is nominated by the *SmartStart* Board and ensures a diverse representation of nationalities and expertise. This panel contributes to the theoretical foundation of the training program and develops a key strategy dossier with guidelines, best practices, and implementation strategies.

Internal communication is facilitated by the AI-powered translation tool Babylon, which enables multilingual communication. Regular virtual meetings, collaborative platforms (e.g., MS Teams, Slack), and shared documentation repositories support seamless communication. Weekly updates within work packages, monthly project management meetings, and biannual *SmartStart* Board meetings are scheduled to ensure continuous monitoring and coordination. Decisions are made collaboratively within the work packages and reported to the Project Management Team, with major decisions escalated to the *SmartStart* Board for approval.

(2) Quality Assurance and Monitoring

Quality assurance plan: To maintain high standards throughout the project, a comprehensive quality assurance plan will be developed. This plan outlines standards, procedures, and quality criteria to ensure consistency and reliability across all project activities. Standard Operating Procedures (SOPs) will be established for all key processes, ensuring that every aspect of the project adheres to defined quality standards.

Regular quality reviews and audits will be conducted by an independent quality assurance team to ensure adherence to the quality assurance plan. This team will review processes, outputs, and outcomes to ensure that the project meets its quality objectives. Additionally, a risk management strategy will be in place to proactively identify, assess, and mitigate potential risks, ensuring that the project remains on track and addresses any issues that may arise promptly.

Monitoring strategy: A comprehensive monitoring and evaluation (M&E) strategy will be employed to track and assess the project's progress and impact effectively. This strategy will include both quantitative and qualitative standard evaluation methods. Monitoring methods will involve the preparation of monthly and quarterly progress reports to track the status of activities and milestones. Relevant, realistic, and measurable Key Performance Indicators (KPIs) will be defined to monitor the project's progress, including both output and outcome indicators.

(3) Evaluation Strategy

The evaluation strategy for the *SmartStart* Teacher Academy includes both quantitative and qualitative methods to monitor and verify the outreach and coverage of activities and results.

A baseline study will be conducted at the project's inception to establish initial values for all indicators, at best at ore right before the initial project meeting. It provides benchmarks that can be used to compare with later measurements athe midterm and final conference in Eichstaett.

Mid-term and final evaluations will be performed to assess interim progress and the overall success and impact of the project and will serve to make necessary adjustments throughout all work packages and other project processes.

Quantitative indicators will include the number of Babylon AI tools developed, with a target of one prototype that can be replicated many times, and the number of schools implementing these Babylon AI tools, with a target of at least 20. Additionally, the project aims to train approximately 360 teachers and 360 students, depending on the personnel capacity of the participating universities. The number of cross-border exchanges facilitated will also be tracked, targeting the number of project partners involved.

Qualitative indicators will measure teacher satisfaction with the AI tools, stakeholder engagement and feedback, and the documented effectiveness of AI tools in primary classroom settings, aiming to show improvements in learning outcomes.

Data collection and analysis will be a critical component of the project's evaluation strategy. Online surveys and questionnaires will be administered to teachers, students, and other stakeholders to gather both quantitative and qualitative data. Focus group discussions will be held mostly within the work packages to collect in-depth feedback and insights from stakeholders.

Classroom observations will be conducted to assess the practical application and effectiveness of the AI tools in real-world educational settings. The collected data will be analyzed using statistical and thematic analysis methods to derive meaningful insights and inform decision-making.

Research dissemination: The evaluation strategy also involves research dissemination, which will include surveys, pedagogical documentation, policy document analyses, and interviews. This research aims to answer questions such as how teachers engaged with the AI tools in their classrooms and how they applied learning from international workshops.

Evaluation questions will focus on the value, worth, and usefulness of digital tools and international collaboration, with key discussions within evaluation teams addressing outcomes versus effects, navigating subjectivity, criteria weighting, merit determination, and synthesis methodology.

Experienced evaluation lead: Professor Valerie Margrain (KAU), who has extensive experience in evaluation methodology, will lead the evaluation efforts within Work Package 8. Her approach, informed by notable works in the field, will ensure a thorough and systematic evaluation of the project's impact and success. This comprehensive approach will facilitate continuous improvement and ensure the project's objectives are met effectively.

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2.1.3 Project teams, staff and experts

Project teams and staff

Describe the project teams and how they will work together to implement the project.

List the staff included in the project budget (budget category A) by function/profile (e.g. project manager, senior expert/advisor/researcher, junior expert/advisor/researcher, trainers/teachers, technical personnel, administrative personnel etc — use the same profiles as in the detailed budget table, if any (n/a for prefixed Lump Sum Grants)) and describe briefly their tasks. Provide CVs of all key actors (if required by the Call document/Programme Guide).

Name and function	Organisation	Role/tasks	Professional profile and expertise
Thiago Freires, PhD	University of Porto (UP)	Senior researcher/ Local coordinator WP1	The University of Porto (UP) team, led by **Thiago Freires**, will be responsible for creating the theoretical framework for the *SmartStart* Teacher Academy (**WP1**). Thiago brings a wealth of experience to the project, having actively participated in numerous national and international education projects. He has (co)authored several scientific papers and book chapters on various topics, including the educational trajectories of young people, pedagogical innovation (particularly technology-led practices), narrative methodology, and higher education policies. Additionally, he has been heavily involved in intervention programs aimed at both initial and continuing teacher education. Currently, Thiago leads a project focusing on the trajectories of displaced and low-SES higher education students and is part of several partnerships such as WAY, DITE, and GRADE. He coordinates the IDEAFor (Identity, Democracy, School, Administration, and Training) research community of practice at CIIE and is a member of the Observatory of Life in Schools (OBVIE). Furthermore, Thiago is a lecturer at FPCEUP, where he teaches various levels of tertiary education, covering topics related to school and social justice and multimedia integration in educational practices. The Porto team, led by Thiago, has extensive expertise from previous projects, providing excellent support for establishing the Expert Panel, guiding their work, and conducting a comprehensive literature review. Their broad experience and comprehensive knowledge will be instrumental in the successful implementation and development of the *SmartStart* Teacher Academy. Thiago and his team are supported by numerous other partners (KAU, NLA, UKEN, WSB, UAM, URV, SiG, TU, IN, KUEI, HSM). These partners send experts to the Expert Panel and thus support the development of a solid theoretical knowledge and methodological foundation.
Mária Medová	Indícia Teacher Professional Training Institution Bratislava (IN)	Senior expert /Local coordinator WP2	A team from the Indícia Teacher Professional Training Institution Bratislava (www.indicia.sk/english) (IN) is responsible for **WP2**. IN is a non-profit organisation that has set itself the task of developing best-practice examples for teaching, bringing them closer to teachers and motivating them for new ideas. IN will also carry out these tasks as part of the *SmartStart* project: The aim of this WP is to develop and integrate digital and AI-supported tools (including communication tools). The IN team has the ideal prerequisites for this: Numerous projects have already dealt with digital tools. Best-practice ideas were then passed on to teachers. On behalf of IN, **Mária Medová** will act as the contact person here. Mária is currently managing an Erasmus+ KA220 project Augmented Reality for Schools aimed at making AR far more affordable, accessible and effective for schools. She has significant experience in project and event management, having worked as an Event Manager at the City Library of Piešťany (2018-2023). In this role, she managed many projects and grants designed to educate children, support literacy, foster intellectual growth and curiosity, as well as projects aimed at supporting and further educating teachers. She built and improved relationships with stakeholders, mainly schools and other educational and community organisations. Numerous other partners support Mária Medová and her team: KUEI, UAM, TU, NLA, HSMW. The participating researchers from the partner institutions have all dealt with the topic of digital tools/AI-based tools in elementary school, developed various concepts, familiarized (prospective) teachers with them as part of teacher training, and further training. They are therefore a perfect complement to the IN.
Mariano Sanz	Siglo22 (SIG)	Senior researcher	The curriculum & online course development of the *SmartStart* Teacher Training Program takes place as part of **WP3.** Siglo22 (SIG), a non-profit organisation under the Protectorate of Foundations of the Ministry of Education of Spain, is responsible for

Pietro, Prof. Dr.		/ Local coordinator WP3	this WP. **Mariano Sanz Prieto** is the contact person for the Siglo22 team and is responsible for organising the WP. As telecommunications engineer and PHD in Education he has significant experience working on educational technology. He has worked in several international and national projects in these areas since 1989 (e.g. Generation AI, VRTeacher, IDEAL Future Teacher Academy) and is an expert in eLearning and ICT in education. Mariano has trained teachers around Spain in how to integrate technology in education and how technologies enhance active methodologies (cooperative, multiple intelligences, PBL, flipped classroom, etc.) and has lectured in several online masters with U. Carlos III on the production of eLearning, and the other with U. Pontificia de Comillas, on technologies and methodologies for teachers. Mariano is also working on developing eLearning environments for companies, and how to use them, not only for training, but also for Knowledge Management inside the organisation. He is also an Associate Lecturer at the Autonomous University of Madrid. The Siglo22 team is supported by KUEI, KAU, UKEN, UAM, UP, URV.
Kristína Žoldošová, Prof. Dr.	University of Trnava (TU)	Senior researcher/ Local coordinator WP4	Organisation and Infrastructure of the *SmartStart* Teacher Training (**WP 4**) will be led by the University of Trnava (TU) and co-led by Adam Mickiewicz University Poznań (UAM). Aim of this WP is to implement the two-stage *SmartStart* Teacher Training programme by setting up a robust organisation and infrastructure. **Kristína Žoldošová** will take over the project management on behalf of the TU. Kristina is an associate professor of science teaching at lower secondary level. She currently works at the Faculty of Education at the University of Trnava as a lecturer in the Department of School Pedagogy. She is the main author of the national science curriculum for ISCED 0 and ISCED 1 levels of the education system in Slovakia. She is also very active in providing courses for in-service primary school teachers relevant to her expertise. Due to her many years of experience with training courses for pre-school and primary school teachers and her good contacts with the National Institute for Education and Youngsters, she is ideally suited for the WP 5 lead. She is also very active in providing courses for in-service primary school teachers relevant to her expertise. She also contributes to the *SmartStart* project with her many years of experience in projects dealing with teacher training and further education in elementary school (e.g. ExpEdice, From Domino to Goldberg). Kristina Žoldošová and Anna Basińska are supported by numerous other partners: KAU, UKEN, UP, SIG, KUEI
Anna Basińska, Ass. Prof. Dr.	Adam Mickiewicz University Poznań (UAM)	Senior researcher/ Local coordinator WP4	**Anna Basińska** is associate professor, specialising in preschool, early school, and academic pedagogy, is ideally suited to support **WP 4**. She prepares future teachers for their profession and is a member of Bilingualism Matters @Poznań and the TELL (Techniques for Effective Language Learning) Centre at UAM. As the head of postgraduate studies for teachers, she brings extensive experience in didactics and the use of digital technologies in teaching. Her close collaboration with schools and a teacher training centre in Poznań, along with her involvement in numerous projects such as "E-teacher of Science" and "Tablit," demonstrates her expertise in teacher training and curriculum development. Her role as an internationalization trainer in the SUCTIA, DITE, and ICI projects highlights her ability to lead and organize international educational initiatives. Kristina Žoldošová and Anna Basińska (WP 4) are supported by numerous other partners: KAU, UKEN, UP, SIG, KUEI.
Nataliia Demeshkant, Prof. Dr.	University of the National Education Commission Krakow (UKEN)	Senior researcher/ Local coordinator WP5	**Nataliia Demeshkant** is exceptionally well-suited to support the research (**WP 5**) within the *SmartStart* Project. In her previous research projects, she has already worked on digital and didactic competences of teachers (pre-service and in-service), teachers' attitudes towards sustainable development issues and academic resilience of students (research projects: Education in the Age of Covid-19: Popularization of Scientific Achievements in the Field of Crisis Remote Learning, Digital and Remote Education to Achieve More (DREAM), NETT (Net(t)work for the Development and Exchange of Virtual and Inclusive Sustainability Education, …). These projects reflect her focus on advancing educational practices and teacher competencies and she can build on this experience in her research in the *SmartStart* project. Natalia's extensive research on developing and enhancing teacher training programs, integrating university research with long-term goals for public sustainable consciousness, and fostering tolerance positions her well for the *SmartStart* Project. She has authored numerous scientific articles on teacher competencies, academic resilience, and education for sustainable development. As a University Professor at the Department of Pedagogy at the University of the National Education Commission in Krakow, her expertise lies also in teacher training, innovative teaching and learning techniques, and digital competencies for both teachers and students, so that she is also very familiar with the theoretical background of the research project. In the *SmartStart* Project, she will play a key role in the UKEN-team. Her experience in organizing student exchange programs, preparing instructional materials for teachers about project objectives, and creating curricula focused on developing teachers' competencies will be invaluable for the successful implementation of the *SmartStart* Project.

Sławomir Trusz, Prof. Dr.	WSB University, Dąbrowa Górnicza (WSB)	Senior Researcher, Local coordinator WP5	Nataliia Demeshkant is supported by **Sławomir Trusz** (**WP 5**). He is is highly qualified to co-lead the research component of the *SmartStart* project. With degrees in pedagogy and psychology, and a specialization in the social psychology of education, he brings a wealth of expertise in classroom interpersonal relationships and the impact of teachers' and parents' expectations on student achievement. Currently an associate professor at WSB University in Dąbrowa Górnicza, Poland, he has published over 70 papers on factors influencing academic achievement and has led or participated in several research projects. In the *SmartStart* project, he will work alongside Natalia Demeshkant to conduct evaluation surveys, describe research methodologies, analyse theoretical concepts, validate research tools, and discuss findings. His extensive research experience, including studies on students' mathematics and literacy anxiety, and his numerous publications underscore his capability to effectively contribute to the research goals of the project. Nataliia Demeshkant and Sławomir Trusz (WP 5) are supported by numerous other partners: KAU, NLA, URV, TU, KUEI.
Valerie Margrain, Prof. Dr.	Karlstad University (KAU)	Senior researcher/ Local coordinator WP6	**Valerie Margain** has extensive experience in educational work, teacher education program leadership, course implementation and review, practicum facilitation, and professional development for teachers. She is exceptionally well-suited to co-lead **WP6** of the *SmartStart* project. Valerie Margain has a profound expertise in junior primary school curriculum planning and differentiation for diverse learners. She has led substantive research projects, including those on gifted education and internationalization in teacher education, funded by prominent bodies such as the Swedish Research Council and The Teacher Education Board at Karlstad University. For instance, her leadership in projects like "Educational Provisions for Gifted/Highly Able Students in Inclusive Educational Systems" highlights their capability to integrate innovative educational strategies within mainstream settings. In the *SmartStart* project, will leverage their experience in course implementation, review, and practicum facilitation to ensure the seamless integration of AI-based tools and training modules into educational institutions. Her background in professional development for teachers will be crucial in establishing a supportive network of trained educators. Additionally, her involvement in high-level research projects and policy influence underscores her ability to maintain digital resources and ensure the project's sustainability through continuous support and collaboration with similar initiatives.
Linnéa K. Jermstad, Prof. Dr.	NLA University College Oslo (NLA)	Senior researcher/ Local coordinator WP6	Associate Professor **Linnéa K. Jermstad** is highly qualified to co-lead **WP6**. With a background in pedagogy and extensive experience in teacher education program leadership, course implementation and review, practicum guidance, and professional development for teachers, Linnéa K. Jermstad has a proven track record in quality improvement and development, particularly in the use and implementation of digital tools in both school and higher education settings. Her academic qualifications, including a Master's and Bachelor's in Pedagogy, and expertise in Spanish language and literature, as well as social anthropology, further bolster their credentials. She has been involved in notable research projects, including "Teaching and Learning Theology in Crisis" and "Competence Development, Didactics, and Digital Resources," demonstrating her ability to secure research funding and lead significant initiatives. In her academic service and leadership roles, Jermstad has been instrumental in implementing new teacher education programs, co-authoring reports on AI in education, and leading research groups and university-school partnerships. Her extensive publication record covers topics such as digital learning, interdisciplinary academic collaboration, and pedagogical innovation. Valerie Margrain and Linnéa K. Jermstad (WP 6) are supported by various other partners: SIG, TU, KUEI.
Janaina Minelli de Oliveira Ramos, Ass. Prof. Dr.	University of Rovira i Virgili, Tarragona (URV)	Senior researcher/ Local coordinator WP7	**Janaina Minelli de Oliveira Ramos** is exceptionally well-qualified to co-lead Work **WP7**, which aims to disseminate research results, inspire further research, advance teacher training, and stimulate discussion on AI and digital media in education. Minelli de Oliveira Ramos' scholarly work in social semiotics and education, particularly her focus on multimodal learning and new technologies to enhance critical and democratic teaching practices, aligns perfectly with WP7's objectives. Her experience in disseminating research through both academic and non-academic channels ensures she can reach a broad audience and a wide range of stakeholders. Her research contributions, such as her study on teachers' knowledge of suicide prevention, highlight her ability to address complex issues and provide relevant training initiatives, demonstrating her expertise in creating impactful educational resources and training modules. Having been a member of the ARGET research group and now part of the Social Impact and Education group, Janaina has a robust background in educational research and activism. Her leadership in organizing conferences and round tables in educational contexts shows her capability to inspire discussion and action on critical issues. Janaina's experience with non-profit organizations and various educational institutions has provided her with a deep understanding of how to align personal and professional concerns with broader societal needs. This background is invaluable for

			WP7, as it requires a leader who can effectively communicate research findings, inspire further research projects, and advance teacher training transformations. Alongside the team from Eichstaett, which is represented by Klaudia Schultheis, partners from UP, SIG, TU.
Klaudia Schultheis, Prof. Dr.	Catholic University of Eichstaett-Ingolstadt (KUEI)	Senior researcher/ Project manager WP7 (co-lead) WP8	**Klaudia Schultheis** will manage the *SmartStart* Teacher Academy together with Heiner Böttger and Barbara Lenzgeiger **(WP8)** and cooperate with URV in **WP7**. Klaudia has extensive experience in university teacher education and research on teacher professionalisation and has led the Chair and Team of Primary Education and Primary Teaching since 1998. Her academic work focuses on the globalisation of teacher education and digital technology in the classroom as part of the process of teacher professionalisation. She has built up an international network of teacher educators from three continents and numerous countries who have been running the International Project (IPC) since 2008, in which students from different countries regularly learn together online in international seminars. She has twice received DAAD grants under the PAJAKO programme for projects with Japan. In cooperation with the Grundschule Stammham, she developed the project KidsGoDigital, which was awarded the BLLV prize in 2018, and the project TeachersGoDigital since 2021, both of which focus on digital technology in the classroom. These and other projects, which have had an immense impact on the development of the Grundschule Stammham, will be awarded with the ISI Digital Award or the Stiftung Bildungspakt Bayern e.V. on 19 June 2024. Klaudia was Dean of the Faculty for four years and is currently Vice-Dean. She was the scientific director of a 3-year graduate school funded by the Hanns-Seidel-Foundation and a member of scientific advisory boards of the Bavarian State Government and the Konrad-Adenauer-Foundation. Since 2008, Klaudia has been working as an expert for the European Commission in the past and present EU Framework Programmes Comenius and Eurydice.
Heiner Böttger, Prof. Dr.	Catholic University of Eichstaett-Ingolstadt (KUEI)	Senior researcher/ Project manager WP7 (co-lead) WP8	**Heiner Boettger** is a Professor of English Didactics at the Catholic University of Eichstaett-Ingolstadt. He is responsibly involved in **WP 8**. His present research mainly focuses on language acquisition, neurodidactics, and the preconditions for plurilingualism. Boettger explores what brain processes underlie language development; and what are the jigsaw pieces for acquiring three or more languages. Therefore, Heiner Boettger is significant for the *SmartStart* Teacher Academy project, as he mainly oversees the linguistic and didactical aspects of the AI tool Babylon development, according to his expertise.
Barbara Lenzgeiger, Jun.-Prof.	Catholic University of Eichstaett-Ingolstadt (KUEI)	Junior researcher/ Project manager WP7 (co-lead) WP8	**Barbara Lenzgeiger** is highly suitable for **WP 8** (Management) and the co-lead with URV in **WP7** due to her extensive academic and professional background in education and her focus on integrating digital advancements in human-oriented contexts. Currently, she holds the position of Junior Professor with the designation "For a Human-Oriented Digital Society" at the Catholic University of Eichstaett-Ingolstadt. Her research interests and publications span various critical areas, including the role of digital media in education, political education, and teacher professionalism. Notably, she has contributed to numerous academic books and journals, demonstrating her capability to manage complex projects and collaborate with other scholars. Barbara is being funded by the Joachim Herz Foundation's Didactics Digital program for her project on explanatory videos and eye-tracking in the field of digital learning.

Outside resources (subcontracting, seconded staff, etc)

If you do not have all skills/resources in-house, describe how you intend to get them (contributions of members, partner organisations, subcontracting, etc).

If there is subcontracting, please also complete the table in section 4.

To provide a professional project website for the *SmartStart* Teacher Academy which allows subscription for newsletters and correct data protection the task of website design will be subcontracted to a web designer with an amount of 6000€.

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2.1.4 Cost effectiveness and financial management

Cost effectiveness and financial management *(n/a for prefixed Lump Sum Grants)*

Describe the measures adopted to ensure that the proposed results and objectives will be achieved in the most cost-effective way.

Indicate the arrangements adopted for the financial management of the project and, in particular, how the financial resources will be allocated and managed within the consortium.

⚠ *Do NOT compare and justify the costs of each work package, but summarize briefly why your budget is cost effective.*

Insert text

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2.1.5 Risk management

Critical risks and risk management strategy

Describe critical risks, uncertainties or difficulties related to the implementation of your project, and your measures/strategy for addressing them.

Indicate for each risk (in the description) the impact and the likelihood that the risk will materialise (high, medium, low), even after taking into account the mitigating measures.

***Note:** Uncertainties and unexpected events occur in all organisations, even if very well-run. The risk analysis will help you to predict issues that could delay or hinder project activities. A good risk management strategy is essential for good project management.*

Risk No	Description	Work package No	Proposed risk-mitigation measures
1	Delay in WP task completion	All	Regularly scheduled meetings, reports and WP updates
2	Inaccurate translations	2	Comprehensive trial, pilot, continuous improvement strategy of the project tool Babylon. Country participants to check translations.
3	Training package and curriculum materials are too difficult or irrelevant to teachers	3	Inclusion of teacher training organisations in the WP. Piloting phase with teachers.
4	Insufficient participants in the teacher training packages.	4	Identified participants in several teacher training institutions, partnership with schools and teacher networks. Scheduling of in-service training at times where teachers are more likely to be available e.g. summer/winter breaks
5	Lack of interest in the AI topic amongst teachers and student teachers	4	Information which connects digitalisation to national school curricula, motivation of eTwinning and pedagogical benefits in project information.
6	Participant dropout	4-6	Facilitators tailor sessions to participants' pre-existing knowledge where possible, highlight project benefits and opportunities e.g. project conference
7	Teacher and student teacher participants do not complete evaluations, provide practical examples etc.	4-8	Inclusion of evaluation and narrative sharing tasks within the timetabled training sessions
8	Insufficient engagement of schools	5	Several schools have already been recruited at concept stage; others will be more easily recruited when it is clear what support is offered. Schools receive digital resources paid for by the project and participate in teacher training activities.
9	Lack of teacher engagement with eTwinning opportunities and European Schoolnet platform.	6	Project information which promotes benefits and opportunities
10	Website functionality and accessibility limitations	6, 8	Subcontracting IT specialists who ensure that the website functions and is accessible to multiple devices. Online translations embedded in project/European languages.
11	High cost of dissemination and other strategies, e.g. brochure layout and design, conference costs	7	Sufficient and careful budget allocated for key project strategies. Regular budget updates.
12	Challenges coordinating communication between all participants.	8	Regular and agreed-upon meeting routines, led by KUEI. English as lingua franca for use in meetings and project documentation.
13	Ethical risks, data protection risks, GDPR risks	7-8	Clear project guidelines and ethical considerations documented in project management plan, communication of project requirements to all partners. KUEI development of project information letters,

			consent forms etc. Connection to local ethical review where appropriate. Secure database established for storage of research data.

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2.2 PARTNERSHIP AND COOPERATION ARRANGEMENTS

2.2.1 Consortium set-up

Consortium cooperation and division of roles (if applicable)

Please address all guiding points presented in the Call document/Programme Guide under the award criterion 'Quality of the partnership and the cooperation arrangements'.

Describe the participants (Beneficiaries, Affiliated Entities, Associated Partners and others, if any) and explain how they will work together to implement the project. How will they bring together the necessary expertise? How will they complement each other?

In what way does each of the participants contribute to the project? Show that each has a valid role and adequate resources to fulfil that role.

Each participant in the *SmartStart* project has a valid role, leveraging their specific expertise to contribute to the project's success. The universities and educational institutions bring strong research and theoretical backgrounds, while professional training organisations like Indicia and Fundación SIGLO22 provide practical implementation skills. Collaboration is facilitated through regular meetings, a centralised communication platform, and shared responsibilities across work packages, ensuring a cohesive and complementary approach. By integrating diverse expertise and resources, the consortium ensures that all aspects of the project are covered, from theoretical frameworks to practical applications and dissemination of results.

Karlstad University (KAU), Sweden, serves as the lead for Implementation (WP6). KAU brings expertise in educational research and practical implementation strategies, ensuring the smooth execution of the teacher training programs across schools. Resources include adequate staffing with experts like Valerie Margrain, Anna Lindholm, and Kent Fredholm.NLA University College Oslo (NLA), Norway, acts as co-lead for Implementation (WP6) and participates in WP2. NLA contributes to both the theoretical and practical aspects of AI integration in primary education, supporting the development and implementation of AI tools. The team is led by Linnéa K. Jermstad and Svitlana Holovchuk.

University of the National Education Commission Krakow (UKEN), Poland, can draw on extensive experience of EU projects and research experience and co-leads WP 5 which conducts the research projects of *SmartStart*. UKEN focuses on scientifically evaluating the project's impact and refining approaches based on research findings, with expertise provided by Nataliia Demeshkant and her team. WSB University Dąbrowa Górnicza (WSB), Poland, co-leads WP5 which focuses on research. WSB collaborates with UKEN to ensure rigorous evaluation methods are applied, managed by Sławomir Trusz.

Adam Mickiewicz University Poznań (UAM), Poland, with a team led by Anna Basińska, co-leads the Design and Organisation of Teacher Training (WP4) together with the University of Trnava (TU), Slovakia, with a team led by Kristína Žoldošová. Anna is working in the IPC Project with Klaudia Schultheis since 2010 and provides comprehensive expertise in international teacher training. Kristina adds extensive expertise in curriculum development and more.

University of Porto (UP), Portugal, leads the Development of the Theoretical Framework or the *SmartStart* Project (WP1). UP provides the foundational theoretical aspects to guide the project and contributes to various other WPs. The team includes Thiago Freires and Angelica Monteiro from the Centre for Research and Intervention in Education (CIE) and Clara Vasconcelos from the Department of Science Teaching.

University of Rovira i Virgili (URV), Spain, will co-lead the task of Dissemination and Outreach (WP7) with KUEI. URV is responsible for the online representation of *SmartStart* and sharing the findings and best practices through various channels to maximize the project's visibility and impact, with a team led by Janaina Minelli de Oliveira Ramos who works with an excellent team experienced in educational technology.

Fundación SIGLO22 (SIG), Spain (https://fundacionsiglo22.org/en), leads Content & Curriculum Development (WP3). SIG focuses on creating and refining the training content to ensure it meets educational standards. The team includes Mariano Sanz Prieto and colleagues. Fundación Siglo22 is a non-profit organisation that operates throughout Spain under the Protectorate of Foundations of the Ministry of Education and provides expertise in developing programmes and projects that (1) facilitate the integration of information and communication technologies in the educational system, (2) improve gender equality and the creation of programmes for the improvement of equal opportunities through information and communication technologies and (3) develop programmes and projects related to learning and the creation of shared knowledge networks.

Catholic University of Eichstaett-Ingolstadt (KUEI), Germany, will act as Project Coordinator and leads WP8 (Project Management and Organisation). KUEI oversees the overall project coordination and management, with a team led by Klaudia Schultheis, Heiner Böttger and Barbara Lenzgeiger. KUEI will also participate in WP7 as its tasks are closely connected with WP8.

Indicia Teacher Professional Training (IN), Slovakia, leads the WP2 focusing on the development of the Portfolio of AI-based Applications & Digital Media and the translation tool. IN focuses on identifying and developing AI-based applications and digital media for educational purposes, with a team which can draw on experience with other projects related to the application of AI and digital tools in schools. The Indicia team will be managed by Mària Medová who provides experience in managing an Erasmus+ KA220 project regarding Augmented Reality for Schools. She has significant experience in project and event management. The task which focuses on the development of the translation tool Babylon will be led by KUEI

and supported by AI experts of HSMW. Applied University of Mittweida (HSMW), Germany, provides also expertise regarding WP1. HSMW supports technical aspects and integration of AI tools, with a team that includes Prof. Dr. Christian Roschke and Prof. Dr. Thomas Villmann. Mittweida University of Applied Sciences, in particular the 'Saxon Institute for Computational Intelligence and Machine Learning' (SICIM) and the 'Institute for Computer Science and Media in Research and Transfer' (CSMRT), offers extensive expertise in various areas of artificial intelligence (AI) and machine learning (ML). This expertise covers both theoretical and application-oriented research aspects. These include interpretable AI systems, AI models with limited resources (smart systems AI), decision reliability of AI classification systems and robustness of AI systems. In addition, expertise from the fields of data analytics for interdisciplinary application domains with large data sets, the creation of interactive learning simulations using virtual or augmented reality, process-orientated business and information systems engineering and the use of AI in distributed systems in the field of multimedia information retrieval can also be contributed.

Regular communication between all parties involved will be maintained through monthly teleconferences, quarterly face-to-face meetings, and an online collaborative platform. Decisions will be made based on a majority vote within the Committees (see management), with each partner having one vote. Critical decisions and conflict resolutions that affect the entire consortium will be escalated to the Steering Committee.

The International School of the Stockholm Region (ISSR) is a publically funded English-speaking school founded by the City of Stockholm in response to the growing demand for a truly international education. ISSR is an accredited IB World School, offering three IB programmes; Primary Years Programme (PYP), Middle Years Programme (MYP) and the Diploma Programme (DP). PYP consists of six grade levels, PK/Grade 0 (5–years) to P5/Grade 5 (10–11 years). Students in the PYP learn according to the principles of International Baccalaureate (IB). The PYP offers a transdisciplinary, inquiry-based curriculum that is student-centred and builds on conceptual understanding. It emphasizes on nurturing children to be caring, global citizens who are active participants of a lifelong learning journey. The curriculum in the PYP aims to achieve a balance between the search for meaning and understanding, and the acquisition of skills and knowledge. The transdisciplinary nature of the curriculum explores relevant concepts and issues that integrate the perspectives of multiple disciplines for students to connect new knowledge and achieve a deeper understanding to real-life experiences.

The Portuguese National Teachers' Association (ANP) is a professional, non-union organisation for teachers at all levels and grades of education and teaching (pre-school, primary, secondary and higher education), working in the public or private sector. It was founded in 1985 and declared of Public Utility in 1991 (D.R. no. 228, Series II, of 03/10/1991). Its national headquarters are in Braga, and it has regional sections throughout the country to support teachers.

2.2.2 Consortium management and decision-making

Consortium management and decision-making (if applicable)

Explain the management structures and decision-making mechanisms within the consortium. Describe how decisions will be taken and how regular and effective communication will be ensured. Describe methods to ensure planning and control.

***Note:** The concept (including organisational structure and decision-making mechanisms) must be adapted to the complexity and scale of the project.*

Governance Structure and Legal/Financial Framework: The consortium governance structure includes the following units.

a. Steering Committee: Comprising one representative from each partner, responsible for strategic decisions and oversight of project progress.
b. Project Management Office (PMO): Led by the Lead Partner, responsible for day-to-day management, coordination among partners, and being the main contact point for Erasmus+ National Agency.
c. Work Package Committees: Each work package will have a committee chaired by the work package leader, responsible for specific tasks and deliverables within that package.
d. Ethical Advisory Board: Oversees ethical considerations of any kind, comprises experts in educational ethics, data protection law, and child rights; reviews all project activities and provides guidance to maintain ethical standards. Provides regular ethical reviews and audits to monitor compliance and address any emerging ethical issues.

All consortium members will sign a Consortium Agreement outlining the legal, financial, and administrative terms and conditions. This agreement will ensure that all parties are aware of their rights and obligations and commit to the project's goals.

Decision making mechanisms: The decision-making process within the *SmartStart* Teacher Academy consortium follows a collaborative and consensus-based approach. This process begins at the proposal stage, where working groups suggest actions or changes based on their areas of expertise. These proposals then move to the evaluation stage, where the Project Management Team (PMT) (see 2.1.2) assesses their feasibility and alignment with project objectives. Proposals that pass this initial evaluation are forwarded to the Steering Committee for final approval. Once approved, the PMO coordinates with the relevant working groups to implement the decisions.

To ensure that all consortium members are well-informed and engaged, several communication strategies are employed. The PMT sends out weekly updates via email and maintains an intranet site where all project documentation and updates are stored. Monthly conference calls are held for all members to discuss progress, share insights, and address any immediate concerns. Additionally, an annual face-to-face consortium meeting is held to foster stronger relationships, discuss strategic

issues, and plan for the upcoming year. A structured feedback mechanism allows all members to voice concerns or suggestions at any time, ensuring that issues are addressed promptly and effectively.

The consortium employs rigorous planning and control methods to keep the project on track. An integrated project plan details all tasks, deliverables, and milestones, assigning responsibilities and timelines accordingly. A comprehensive risk management framework identifies potential risks, assesses their impact, and implements mitigation strategies. Key performance indicators (KPIs) are defined for all consortium activities, with regular monitoring to assess progress and take corrective actions as needed. Regular quality assurance checks ensure that all consortium outputs meet the agreed standards and are delivered on time.

This proactive and structured approach to decision-making, communication, and risk management ensures that the *SmartStart* Teacher Academy can adapt to changes and challenges, maintaining project integrity and achieving its objectives. Critical risks, uncertainties, and difficulties have been identified and addressed with specific mitigation measures (see 2.1.5).

Communication network: The communication between the project partners of the *SmartStart* Teacher Academy will be ensured through a systematic and comprehensive communication plan that guarantees all stakeholders are consistently and permanently informed and engaged.

The communication strategy involves various channels and methods to promote effective and regular interaction. (1) Email updates will be sent out weekly, providing progress reports, important announcements, updates on milestones, upcoming meetings, and tasks. (2) An intranet site will serve as a centralised platform for storing all project documentation and updates, accessible to all consortium members at any time. (3) Monthly conference calls will involve all consortium members to discuss progress, share insights, address immediate concerns, and coordinate efforts across different work packages. These calls will be conducted using video conferencing software such as Zoom or Microsoft Teams. (4) An annual face-to-face consortium meeting will be held to strengthen relationships, discuss strategic issues, and plan for the upcoming year. These meetings will rotate among the partner countries to ensure equal participation and engagement. (5) Additionally, a structured feedback mechanism will be implemented, allowing all members to voice concerns or suggestions at any time through regular surveys, suggestion boxes on the intranet, and dedicated feedback sessions during meetings. (6) To formalisze the collaboration, partnership agreements will be established between the project partners. These agreements will outline the roles, responsibilities, financial arrangements, and terms of collaboration, ensuring clarity and mutual understanding among all partners. They include essential components such as the objectives and scope of the project, roles and responsibilities of each partner, financial arrangements, communication and reporting guidelines, risk management provisions, and procedures for dispute resolution.

To ensure the communication strategy is effective, the Project Management Team (PMT) will coordinate all communication activities, ensuring timely and accurate dissemination of information. The project will employ rigorous planning and control methods to maintain progress and address any challenges. By employing a proactive and structured approach to communication, as well as to decision-making and risk management, the *SmartStart* Teacher Academy will be well-equipped to adapt to changes and challenges, maintaining project integrity and achieving its objectives.

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3. IMPACT

3.1 Impact and ambition

Impact and ambition

Please address each guiding points presented in the Call document/Programme Guide under the award criterion 'Impact'.

Define the expected short, medium and long-term effects of the project. Who are the target groups? How will the target groups benefit concretely from the project and what would change for them?

The *SmartStart* Teacher Academy aims to significantly enhance the integration of artificial intelligence (AI) in primary education, providing educators with advanced tools and methodologies to personalise learning and improve student engagement and outcomes. The primary target groups include primary school teachers, school administrators, and educational policymakers across Europe. Secondary beneficiaries encompass students in primary schools who will experience improved and personalised learning environments. The *SmartStart* project aims to establish a transformative impact on primary education by introducing innovative AI-based tools and training for teachers. The effects over time will be significant and multifaceted.

Short term effects: In the short term, immediately following implementation, primary educators and student teachers will experience increased efficiency and effectiveness in teaching through the use of AI tools. For example, teachers will be able to use AI-driven platforms like adaptive learning software that adjusts the difficulty of tasks based on student performance in real-time. Schools will observe a marked improvement in primary student engagement and initial signs of improved learning outcomes. Primary teachers will have access to AI-driven resources that personalise learning experiences, making lessons more engaging and tailored to individual student needs. Virtual tutors, e.g., provide instant feedback and assistance.

Medium term effects: In the medium term, the project aims to establish a robust network of schools across Europe that utilise AI-enhanced teaching methodologies. This network will facilitate the sharing of best practices and innovations, such as AI-powered lesson planning tools that help teachers design more effective and engaging curricula. For example, a school in Portugal might share its success with using AI to track student progress and identify areas where students need additional

support with a school in Sweden. This collaborative network will lead to wider adoption of these methodologies, as evidenced by regular online forums and workshops which provide educators with the opportunity to exchange ideas and strategies.

Long term effects: Most importantly, over the long term, the project will contribute to raising the overall standard of education in Europe, equipping future generations with critical skills and knowledge in a digitally enhanced learning environment. For instance, students who have learned with AI tools in primary school will be better prepared for secondary education and beyond, with strong digital literacy and problem-solving skills. It will also set a benchmark for integrating technology in education globally. This will be demonstrated through international conferences and publications showcasing the success and scalability of the *SmartStart* model. It will be made clear that the integration of AI will foster a culture of continuous improvement and innovation in education, preparing students for the demands of a technologically advanced society.

Target group: The project's ambition is to empower primary educators to seamlessly integrate AI into their teaching practices, thereby enhancing classroom learning experiences and fostering digital literacy. The primary target groups include primary school teachers, school administrators, and educational policymakers across Europe. For example, teachers will receive professional development on how to effectively incorporate AI tools into their classrooms, while school administrators will learn how to support these initiatives within their schools. Secondary beneficiaries encompass students in primary schools who will experience improved and personalised learning environments. Additionally, teacher training institutions and in-service training providers will benefit from updated curricula that incorporate the latest AI tools and methodologies, ensuring that new and current teachers are equipped to use these technologies effectively. For instance, a teacher training college might introduce modules on AI in education, including practical sessions where trainees practice using AI tools in simulated classroom environments.

Concrete benefits: The key impacts expected include enhanced teaching practices, where educators will be better equipped to understand and leverage AI technologies, leading to more engaging and effective lessons tailored to individual primary student needs. Additionally, professional development will have a significant impact, as prospective primary teachers will gain new skills and competencies, improving their professional readiness and confidence in using digital media in education. Through the design-based research approach, the *SmartStar*t project will create a platform for continuous learning, encouraging collaboration between educational experts, scientists, and teacher training institutions. Finally, the use of AI tools will promote an inclusive learning environment by helping primary teachers to identify and support diverse learning needs of their clients. This will ensure that primary education becomes more inclusive, catering to the varied requirements of all students and supporting their individual learning journeys.

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3.2 Communication, dissemination and visibility

Communication, dissemination and visibility of funding

Describe the communication and dissemination activities which are planned in order to promote the activities/results and maximise the impact (to whom, which format, how many, etc.). Clarify how you will reach the target groups, relevant stakeholders, policymakers and the general public and explain the choice of the dissemination channels.

Describe how the visibility of EU funding will be ensured.

The goal of the *SmartStart* Teacher Academy project is to disseminate research results to a wide range of stakeholders, including the scientific community, civil society actors, representatives of professional teacher training institutions, teacher associations, policymakers, and teachers. The findings are intended to inspire further research projects and advance the transformation of teacher training. Additionally, the project aims to stimulate discussion and action regarding the use of AI and digital media within the education sector. Recommendations for implementing AI and digital media will be provided, and teachers will be directly informed about the results.

The communication and dissemination strategy is critical for maximizing the visibility and impact of the *SmartStart* project. The *SmartStart* Dissemination Plan will include key actions include publishing in relevant scientific and praxis-oriented journals, books, and on related websites to promote the project and disseminate its results. All project partners and the schools and institutions related to *SmartStart* will publish relevant information on their websites. A central project website will be developed to publish information on the project, materials, including research findings, best practices, and training guides. This website will provide access to the developed AI tool portfolio and all relevant project outcomes. Social media and podcasts will be integrated into the strategy, with a focus on contacting influencers to disseminate findings widely. The results will be prepared as infographics, explanatory films, and short videos. Active social media channels will be set up for educators to share experiences, ask questions, and find new ideas related to the project. Newsletters will send out to subscribers monthly. Conferences, workshops, and webinars will be attended to disseminate results of the *SmartStart* activities, including scientific conferences like EARLI and ECER. National and international online roundtables and training sessions for teachers, administrative staff, and decision-makers in politics will be organised to disseminate knowledge, share progress, motivate educators to take up the project's results regarding the implementation of AI-powered applications in primary schools. The *SmartStart* project will also utilise platforms like eTwinning and European Schoolnet to reach educators in a wider European context to inform, provide training resources, and offer opportunities for collaboration. This comprehensive strategy aims to maximize the impact of the *SmartStart* Teacher Academy project by making it accessible to a wide range of stakeholders. By utilising both traditional and digital outlets, the project intends to inspire new discussions and ideas on shaping digital transformation in primary school education especially in the context of AI.

Developing and executing a robust dissemination strategy is essential for successfully communicating the *SmartStart* Teacher Academy project's objectives, progress, and outcomes. This strategy targets educators, educational policymakers, academic

institutions, the interested public, industry partners such as Edtech companies, students, and professional teacher associations. The strategy encompasses various tasks within WP7, each designed to maximize the project's reach and impact.

(1) The first task involves developing a comprehensive dissemination strategy. This plan will target key stakeholders and outline methods and channels for effective communication. By identifying relevant audiences and tailoring communication approaches to their needs, the project aims to ensure that its messages are clear, impactful, and reach the intended recipients. The dissemination strategy will serve as a roadmap for all subsequent activities, ensuring coherence and consistency throughout the project's lifecycle.

(2) Creating and distributing promotional materials is another crucial task. These materials, including brochures, infographics, newsletters, and press releases, will effectively communicate the project's purpose, progress, and achievements. Utilizing various formats will cater to different preferences and enhance outreach efforts.

(3) Regular updates on selected social media platforms and the project website are also key components. These online channels will keep the public and stakeholders informed about project activities, outcomes, and opportunities for engagement. Regular social media updates will maintain interest and engagement, while the project website will serve as a central repository for detailed information and resources. This dual approach ensures that information is both accessible and widely distributed.

(4) Organizing workshops and conferences is another significant task. In addition to the three main project's summits (two-day events for kick off and closing) in Eichstaett, several online workshops and conferences with rotating hosts will be planned and executed to foster networking, share findings, and discuss AI technologies' implications in primary education. These events will provide valuable opportunities for stakeholders to engage directly with the project, exchange ideas, and explore collaborative possibilities. They will also serve as platforms for showcasing the project's achievements and gathering feedback from the educational community.

(5) Academic publications and public engagements are essential for ensuring the academic rigor and credibility of the project's outcomes. Preparing academic papers for publication in peer-reviewed journals and presentations for educational conferences will help establish the project's findings within the academic community. These publications and presentations will demonstrate the project's contribution to the field of education and AI technologies/digital media, enhancing its reputation and influence.

(6) The project will culminate in a two-day *SmartStart* capstone conference in Eichstaett. This final summit will showcase the results through poster sessions, sample stations, talks, and workshops, gather feedback, and discuss future directions with stakeholders and the public. It will be a significant event for celebrating the project's achievements, reflecting on its journey, and planning the next steps beyond the project's official end. The conference will bring together all key stakeholders, providing a platform for comprehensive discussions and the exchange of ideas about the future of AI in education.

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3.3 Sustainability and continuation

Sustainability, long-term impact and continuation

Describe the follow-up of the project after the EU funding ends. How will the project impact be ensured and sustained?

What will need to be done? Which parts of the project should be continued or maintained? How will this be achieved? Which resources will be necessary to continue the project? How will the results be used?

Are there any possible synergies/complementarities with other (EU funded) activities that can build on the project results?

The *SmartStart* Teacher Academy project is designed with sustainability and long-term continuation in mind.

Institutional embedding: Key strategies include institutional embedding, where the project's AI-based tools and training modules will be integrated into teacher training centres and university programs to ensure their ongoing use and adaptation. This involves collaboration with educational institutions to incorporate the developed resources into their curricula.

Teachers' network: Additionally, a network of teachers trained through the project will serve as teaching champions or masters, providing peer support and continuing to develop and refine the training concepts. These teachers will act as mentors and advocates, helping to sustain the project's impact within their professional communities.

Policy integration: To ensure policy integration, the results and recommendations of the project will be shared with educational policymakers to advocate for the integration of AI literacy and tools in broader curricula. This will involve presenting the findings at educational forums, conferences, and through policy briefs to influence educational standards and practices.

Digital open hub: The project's digital resources, including training materials and best practices, will remain available online, ensuring continuous access and usage by educators, allowing them to revisit and utilise the materials as needed for their professional development. The scalability of the project's concepts will be explored through partnerships with other educational initiatives, enabling expansion and adaptation to different contexts.

Projects Synergy: Collaborations with similar EU-funded projects and educational organisations will be pursued to leverage synergies and complementarities. Follow-up actions after EU funding ends will include continued training and support to ensure that trained educators continue to receive support and updated training materials to keep pace with advancements in AI technology and its applications in education. Synergies with other EU-funded activities will therefore be explored by engaging in collaborative projects with other initiatives focusing on educational innovation and digital transformation, sharing

and exchanging resources, findings, and best practices with similar projects to enhance the collective impact and avoid duplication of efforts, and participating in joint dissemination activities such as conferences and workshops to promote the broader adoption of AI tools in education and highlight the benefits of the *SmartStart* project.

Outcome Maintenance: Maintenance of digital platforms will involve regular updates and upkeep to ensure their usability and relevance. Ongoing monitoring and evaluation will be implemented to assess the impact and effectiveness of the integrated AI tools and training programs, making necessary adjustments as needed. The necessary resources to sustain the project include securing additional funding or grants to support ongoing activities and platform maintenance, establishing a dedicated team or assigning roles within existing institutions to oversee the continuation of project activities and support the teacher network, and ensuring access to technical support for maintaining and updating digital platforms and resources.

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4. WORK PLAN, WORK PACKAGES, ACTIVITIES, RESOURCES AND TIMING

4.1 Work plan

Work plan

Provide a brief description of the overall structure of the work plan (list of work packages or graphical presentation (Pert chart or similar)).

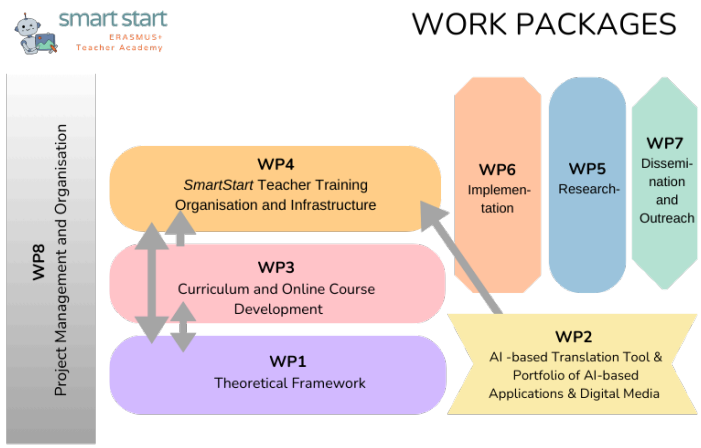

Fig. 3 SmartStart Work Packages

The work plan for the *SmartStart* Teacher Academy project is designed to comprehensively integrate artificial intelligence (AI) into primary education, fostering an innovative and inclusive approach to teacher training and professional development. The structure of the work plan is segmented into 8 work packages (WPs), each dedicated to different aspects of the project to ensure thorough development, implementation, and evaluation. The work packages are interdependent, either building on each other or sharing intersection, starting from foundational theoretical work, through the development and testing of teaching modules, to practical implementation, accompanying research activities, dissemination and final evaluation.

Subcontracting (n/a for prefixed Lump Sum Grants)

Subcontracting

Give details on subcontracted project tasks (if any) and explain the reasons why (as opposed to direct implementation by the Beneficiaries/Affiliated Entities).
Subcontracting — Subcontracting means the implementation of 'action tasks', i.e. specific tasks which are part of the EU grant and are described in Annex 1 of the Grant Agreement.
***Note:** Subcontracting concerns the outsourcing of a part of the project to a party outside the consortium. It is not simply about purchasing goods or services. We normally expect that the participants to have sufficient operational capacity to implement the project activities themselves. Subcontracting should therefore be exceptional.*
Include only subcontracts that comply with the rules (i.e. best value for money and no conflict of interest; no subcontracting of project coordination tasks).

Work Package No	Subcontract No (continuous numbering linked to WP)	Subcontract Name (subcontracted action tasks)	Description (including task number and BEN/AE to which it is linked)	Estimated Costs (EUR)	Justification (why is subcontracting necessary?)	Best-Value-for-Money (how do you intend to ensure it?)
WP2	S2.1	Babylon – Translation-Tool Development	T2.3 KUEI	18,000€	DELETED: The subcontract is no longer necessary as the consortium partner HSMW and KUEI can provide the necessary expertise.	
WP7	S7.2	Website Design	T7.2 KUEI	8,100€	Website needs special features, eg. password-protected member space, which can only be provided by professionals	Active comparison of price-ranges offered by different available providers with reasonable cost-performance ratio
Other issues: *If subcontracting for the project goes beyond 30% of the total eligible costs, give specific reasons.*			Insert text			

Timetable

Timetable (projects of more than 2 years)

Fill in cells in beige to show the duration of activities. Repeat lines/columns as necessary.

Note: *Use actual calendar years and quarters. In the timeline you should indicate the timing of each activity per WP. You may add additional columns if your project is longer than 6 years.*

ACTIVITY	YEAR 1				YEAR 2				YEAR 3			
	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
Task 1.1 - Establish an Expert Panel												
Task 1.2 - Develop Theoretical Foundation												
Task 1.3 - Create Key Strategy Paper												
Task 1.6 - Conduct Comprehensive Systematic Literature Review (SRC)												
Task 2.1 - Development and Implementation of an AI-Powered Language Tool												
Task 2.2 - Application and Evaluation in Multilingual Classrooms												

Task 2.3 - Development of a Comprehensive Portfolio of AI-Enabled Digital Learning Resources												
Task 3.1 - Curriculum Development												
Task 3.2 - Online Course Creation												
Task 3.3 - Learning Management System (LMS) Development												
Task 3.4 - Publish Online Course on the *SmartStart* LMS												
Task 3.5 - Evaluation of Online Course												
Task 3.6 - Prepare Online Course for Launching in eTwinning												
Task 4.1 - Infrastructure Development for Online Courses												
Task 4.2 - Practical Phase Implementation												
Task 4.3 - Execution and Evaluation of Pilot *SmartStart* Teacher Training Sessions												
Task 5.1 - Development of Research Framework for Study 1 (Quantitative) and Study 2 (Qualitative)												
Task 5.2 - Intervention Implementation (Quantitative Study)												
Task 5.3 - Interview Study (Qualitative Study)												
Task 5.4 - Presentation of Results												
Task 6.1 - Institutional Embedding												
Task 6.2 - Teachers' Network												
Task 6.3 - Policy Integration												
Task 6.4 - Digital Open Hub												
Task 6.5 - Projects Synergy												
Task 6.6 - Outcome Maintenance												
Task 7.1 - Development of a Comprehensive Dissemination Strategy												
Task 7.2 - Project Promotion and Public Engagement												
Task 7.3 - Workshops, Conferences, and Academic Engagements												
Task 8.1 - Project Coordination and Leadership												

Task 8.2 - Financial Management												
Task 8.3 - Risk Management												
Task 8.4 - Reporting and Documentation												
Task 8.5 - Evaluation Management												

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5. OTHER

5.1 Ethics

Ethics (if applicable)
If the Call document/Programme Guide contains a section on ethics, describe ethics issues that may arise during the project implementation and the measures you intend to take to solve/avoid them. *Describe how you will ensure gender mainstreaming and children's rights in the project activities.*
The *SmartStart* Teacher Academy project is dedicated to upholding the highest ethical standards throughout its implementation, recognising the sensitivity and impact of introducing AI technologies in primary educational settings. Identified ethical considerations encompass data privacy, consent, inclusivity, and the potential for bias in AI applications. To oversee ethical considerations of any kind, an Ethical Advisory Board will be established, comprising experts in educational ethics, data protection law, and child rights. This board will review all project activities and provide guidance to maintain ethical standards. Regular ethical reviews and audits will be conducted to monitor compliance and address any emerging ethical issues. Strict adherence to GDPR and local data protection laws will safeguard the privacy of all participants, particularly minors, with collected data anonymised and used solely for research and educational improvement purposes. Informed consent will be obtained from all participants, with additional consent from parents or guardians for minors, who retain the right to withdraw from the project at any time without prejudice. Furthermore, all project staff and participants will undergo training on ethical practices related to AI and education, including data protection, informed consent, and bias recognition and mitigation. A transparent feedback and reporting mechanism will be established for stakeholders to voice ethical concerns promptly addressed to maintain high ethical standards. Participants will additionally follow ethical requirements of their individual countries, and if necessary, apply to local ethical review committees for ethical review or approval. One focal point concerns data protection and pupil privacy when teachers share experiences or provide examples. Stringent data protection guidelines and teacher training in digital platform usage ensure adequate protection of personal data. Moreover, emphasis is placed on equal opportunities and inclusion for all students, with teaching materials and methods developed to accommodate diverse learning styles and needs. Gender mainstreaming and children's rights are prioritised through gender-sensitive content, participatory approaches, and equitable opportunities. Additionally, concerns regarding algorithmic bias necessitates the development of training programs to address and mitigate biases within AI algorithms, promoting equity in educational outcomes. Teachers are trained to identify and minimise bias, while transparent and verifiable algorithms are employed. Lastly, ensuring the protection of teachers' professional skills involves handling their data sensitively and adhering strictly to data protection regulations. Project integrity includes consistent attention to project efficiency such as minimising demand on participants' time, ensuring that the project does no harm, and that it contributes benefit. Authorship of publications will be negotiated with the research team, following principles of the Vancouver guidelines.

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5.2 Security

Security
Not applicable.

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6. DECLARATIONS

Double funding	
Information concerning other EU grants for this project ⚠ *Please note that there is a strict prohibition of double funding from the EU budget (except under EU Synergies actions).*	**YES/NO**
We confirm that to our best knowledge neither the project as a whole nor any parts of it have benefitted from any other EU grant *(including EU funding managed by authorities in EU Member States or other funding bodies, e.g. Erasmus, EU Regional Funds, EU Agricultural Funds, etc)*. If NO, explain and provide details.	Yes
We confirm that to our best knowledge neither the project as a whole nor any parts of it are (nor will be) submitted for any other EU grant *(including EU funding managed by authorities in*	Yes

EU Member States or other funding bodies, e.g. Erasmus, EU Regional Funds, EU Agricultural Funds, etc). If NO, explain and provide details.	

Financial support to third parties (if applicable) *If your project requires a higher maximum amount per third party than the threshold amount set in the Call document/Programme Guide, justify and explain why this is necessary in order to fulfil your project's objectives.*
NA

Seal of Excellence (if applicable) *If provided in the Call document, proposals that pass the evaluation but are below the budget threshold (i.e. pass the minimum thresholds but are not ranked high enough to receive funding) will be awarded a Seal of Excellence.* *In this context we may share information about your proposal with other EU or national funding bodies through the Erasmus+ National Agencies.*	
Do you agree that your proposal (including proposal data and documentation) is shared with other EU and national funding bodies to find funding under other schemes?	YES

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ANNEXES

LIST OF ANNEXES

Standard
Detailed budget table/Calculator (annex 1 to Part B)
List of previous projects (annex 4 to Part B)

Special – Other Annexes
List of Letters of Intents and Literature

HISTORY OF CHANGES		
VERSION	PUBLICATION DATE	CHANGE
1.0	06.06.2026	Initial version (new MFF).
2.0		Consolidation, formatting and layout changes. Tags added.

ANNEX 2

ESTIMATED BUDGET (LUMP SUM BREAKDOWN) FOR THE ACTION

	Estimated EU contribution								
	Estimated eligible lump sum contributions (per work package)								Maximum grant amount[1]
	WP1 Theoretical Framework	WP2 AI-Based Translation Tool and Portfolio of AI-Based Applications and Digital Media	WP3 Curriculum and Online Course Development	WP4 SmartStart Teacher Training – Organisation and Infrastructure	WP5 Research	WP6 Implementation	WP7 Dissemination and Outreach	WP8 Project Management and Organisation	
Forms of funding	Lump sum contribution	Lump sum contribution	Lump sum contribution	Lump sum contribution	Lump sum contribution	Lump sum contribution	Lump sum contribution	Lump sum contribution	
	a	b	c	d	e	f	g	h	i = a + b + c + d + e + f + g + h
1 - KUEI	10 242.26	17 430.85	10 242.26	10 242.26	10 242.26	18 802.26	55 210.46	234 285.62	366 698.23
2 - KAU	14 483.52	0.00	7 892.32	12 771.52	12 771.52	59 252.32	0.00	9 210.56	116 381.76
3 - UKEN	4 211.52	0.00	7 121.92	7 121.92	32 065.76	23 112.00	0.00	4 862.08	78 495.20
4 - WSB	4 468.32	0.00	0.00	0.00	37 338.72	0.00	0.00	5 118.88	46 925.92
5 - UAM	4 211.52	7 121.92	7 121.92	29 035.52	0.00	0.00	0.00	4 862.08	52 352.96
6 - UP	81 186.64	0.00	9 880.98	9 880.98	0.00	18 440.97	9 880.98	21 679.40	150 949.95
7 - URV	6 911.58	0.00	6 911.58	0.00	6 911.58	14 170.47	57 682.14	7 562.14	100 149.49
8 - SIG	5 101.76	0.00	73 530.40	8 902.40	0.00	8 902.40	8 902.40	5 752.32	111 091.68
9 - TU	3 869.12	6 437.12	0.00	40 711.36	6 437.12	12 429.12	3 869.12	4 519.68	78 272.64
10 - NLA	5 991.40	5 991.40	5 991.40	0.00	5 991.40	95 601.21	0.00	6 641.96	126 208.77
11 - IN	4 125.92	62 710.56	0.00	0.00	0.00	0.00	0.00	4 776.48	71 612.96
12 - HSMW	8 670.94	103 675.30	0.00	0.00	0.00	0.00	0.00	13 224.85	125 571.09
13 - ISSR	0.00	0.00	0.00	0.00	0.00	36 079.80	0.00	0.00	36 079.80
14 - ANP	4 940.49	0.00	0.00	0.00	0.00	24 022.09	0.00	10 144.97	39 107.55
Σ consortium	158 414.99	203 367.15	128 692.78	118 665.96	111 758.36	310 812.64	135 545.10	332 641.02	1 499 898.00

[1] The 'maximum grant amount' is the maximum grant amount fixed in the grant agreement (on the basis of the sum of the beneficiaries' lump sum shares for the work packages).

DATA SHEET

1. General data

Project summary:

Project summary
The SmartStart Teacher Academy aims to establish an international teacher training program that empowers teachers and teacher students to integrate AI-based digital media into everyday classroom practice, support-ing individualised learning and enhancing pedagogical methods. To address language barriers, an AI-based translation tool will be developed to facilitate professional exchange and support multilingual classrooms. The curriculum will be based on a comprehensive discussion and analysis of the needs, challenges, opportunities, and issues related to AI-based applications and digital media in primary schools, conducted by an expert pan-el representing all relevant perspectives and supported by a thorough scientific literature review. SmartStart Teacher Training includes both teachers and teacher students, fostering learning and collaboration among novice and experienced educators through mentoring and peer-to-peer learning. The program comprises two integrated phases. The first phase is an online course that provides international participants with foundational knowledge on the technological, pedagogical, and didactic aspects of AI and digital media in primary schools. The second phase is practical and takes place in cooperating project schools using ERASMUS+ mobility programs. This training concept applies theoretical knowledge to the classroom in a co-creative and reflective manner, utilising the Deeper Learning approach. Scientific studies will evaluate the professional development of the trained teachers, informing the continuous improvement of the training program, which will be integrat-ed into the curricula of participating universities and teacher training institutions. The online course will be accessible through eTwinning, supporting primary school teachers across Europe in addressing the chal-lenges of AI and digital media in their daily work.

Keywords:

- AI-based educational media, primary school teachers, peer-to-peer learning, teacher professionalisation

Project number: 101196580

Project name: SmartStart ERASMUS+ Teacher Academy

Project acronym: SmartStart

Call: ERASMUS-EDU-2024-PEX-TEACH-ACA

Topic: ERASMUS-EDU-2024-PEX-TEACH-ACA

Type of action: ERASMUS Lump Sum Grants

Granting authority: European Education and Culture Executive Agency

Grant managed through EU Funding & Tenders Portal: Yes (eGrants)

Project starting date:1 April 2025

Project end date: 31 March 2028

Project duration: 36 months

Consortium agreement: Yes

2. Participants

List of participants:

N°	Role	Short name	Legal name	Ctry	PIC	Max grant amount	Entry date	Exit date
1	COO	KUEI	KATHOLISCHE UNIVERSITAT EICHSTATT-INGOLSTADT	DE	997154666	366 698.23		
2	BEN	KAU	KARLSTADS UNIVERSITET	SE	999874837	116 381.76		
3	BEN	UKEN	UNIWERSYTET KOMISJI EDUKACJI NARODOWEJ W KRAKOWIE	PL	968438495	78 495.20		
4	BEN	WSB	AKADEMIA WSB	PL	949671032	46 925.92		

N°	Role	Short name	Legal name	Ctry	PIC	Max grant amount	Entry date	Exit date
5	BEN	UAM	UNIWERSYTET IM. ADAMA MICKIEWICZA WPOZNANIU	PL	999886865	52 352.96		
6	BEN	UP	UNIVERSIDADE DO PORTO	PT	999894916	150 949.95		
7	BEN	URV	UNIVERSITAT ROVIRA I VIRGILI	ES	999880560	100 149.49		
8	BEN	SIG	FUNDACION SIGLO22	ES	941069848	111 091.68		
9	BEN	TU	TRNAVSKA UNIVERZITA V TRNAVE	SK	994330026	78 272.64		
10	BEN	NLA	NLA HOGSKOLEN AS	NO	891084002	126 208.77		
11	BEN	IN	Indícia, n.o.	SK	890696002	71 612.96		
12	BEN	HSMW	HOCHSCHULE MITTWEIDA (FH)	DE	998994853	125 571.09		
13	BEN	ISSR	STOCKHOLMS STAD	SE	996559183	36 079.80		
14	BEN	ANP	ASSOCIACAO NACIONAL DE PROFESSORES	PT	901404802	39 107.55		
Total						1 499 898.00		

Coordinator:

– KATHOLISCHE UNIVERSITAT EICHSTATT-INGOLSTADT (KUEI): from 5 March 2025 to present

3. Grant

Maximum grant amount, total estimated eligible costs and contributions and funding rate:

Maximum grant amount (Annex 2)	Maximum grant amount (award decision)
1 499 898.00	1 499 898.00

Grant form: Lump Sum

Grant mode: Action grant

Budget categories/activity types: Lump sum contributions

Cost eligibility options: n/a

Budget flexibility: No

4. Reporting, payments and recoveries

4.1 Continuous reporting (art 21)

Deliverables: see Funding & Tenders Portal Continuous Reporting tool

4.2 Periodic reporting and payments

Reporting and payment schedule (art 21, 22):

Reporting					Payments	
Reporting periods			Type	Deadline	Type	Deadline (time to pay)
RP No	Month from	Month to				
					Initial prefinancing	30 days from entry into force/ financial guarantee (if required) – whichever is the latest
1	1	18	Additional prefinancing report	60 days after end of reporting period	Additional prefinancing	60 days from receiving additional prefinancing report/ financial guarantee (if required) – whichever is the latest
2	19	36	Periodic report	60 days after end of reporting period	Final payment	90 days from receiving periodic report

Prefinancing payments and guarantees:

Prefinancing payment		Prefinancing guarantee		
Type	Amount	Guarantee amount	Division per participant	
Prefinancing 1 (initial)	599 959.20	n/a	1 - KUEI	n/a
			2 - KAU	n/a
			3 - UKEN	n/a
			4 - WSB	n/a
			5 - UAM	n/a
			6 - UP	n/a
			7 - URV	n/a
			8 - SIG	n/a
			9 - TU	n/a
			10 - NLA	n/a
			11 - IN	n/a
			12 - HSMW	n/a
			13 - ISSR	n/a
			14 - ANP	n/a
Prefinancing 2 (additional)	599 959.20	n/a	1 - KUEI	n/a
			2 - KAU	n/a
			3 - UKEN	n/a
			4 - WSB	n/a
			5 - UAM	n/a
			6 - UP	n/a
			7 - URV	n/a
			8 - SIG	n/a
			9 - TU	n/a
			10 - NLA	n/a

Prefinancing payment		Prefinancing guarantee		
Type	Amount	Guarantee amount	Division per participant	
			11 - IN	n/a
			12 - HSMW	n/a
			13 - ISSR	n/a
			14 - ANP	n/a

Reporting and payment modalities (art 21, 22):

Mutual Insurance Mechanism (MIM): No

Restrictions on distribution of initial prefinancing: The prefinancing may be distributed only if the minimum number of beneficiaries set out in the call condititions (if any) have acceded to the Agreement and only to beneficiaries that have acceded.

Interim payment ceiling (if any): 100% of the maximum grant amount

No-profit rule: n/a

Late payment interest: ECB + 3.5%

Bank account for payments:

DE67721608180009632999 GENODEF1

Conversion into euros: n/a

Reporting language: Language of the Agreement

4.3 Certificates (art 24): n/a

4.4 Recoveries (art 22)

First-line liability for recoveries:

Beneficiary termination: Beneficiary concerned

Final payment: Coordinator

After final payment: Beneficiary concerned

Joint and several liability for enforced recoveries (in case of non-payment):

Limited joint and several liability of other beneficiaries — up to the maximum grant amount of the beneficiary

Joint and several liability of affiliated entities — n/a

5. Consequences of non-compliance, applicable law & dispute settlement forum

Applicable law (art 43):

Standard applicable law regime: EU law + law of Belgium

Dispute settlement forum (art 43):

Standard dispute settlement forum:

EU beneficiaries: EU General Court + EU Court of Justice (on appeal)

Non-EU beneficiaries: Courts of Brussels, Belgium (unless an international agreement provides for the enforceability of EU court judgements)

6. Other

Specific rules (Annex 5): Yes

Standard time-limits after project end:

Confidentiality (for X years after final payment): 5

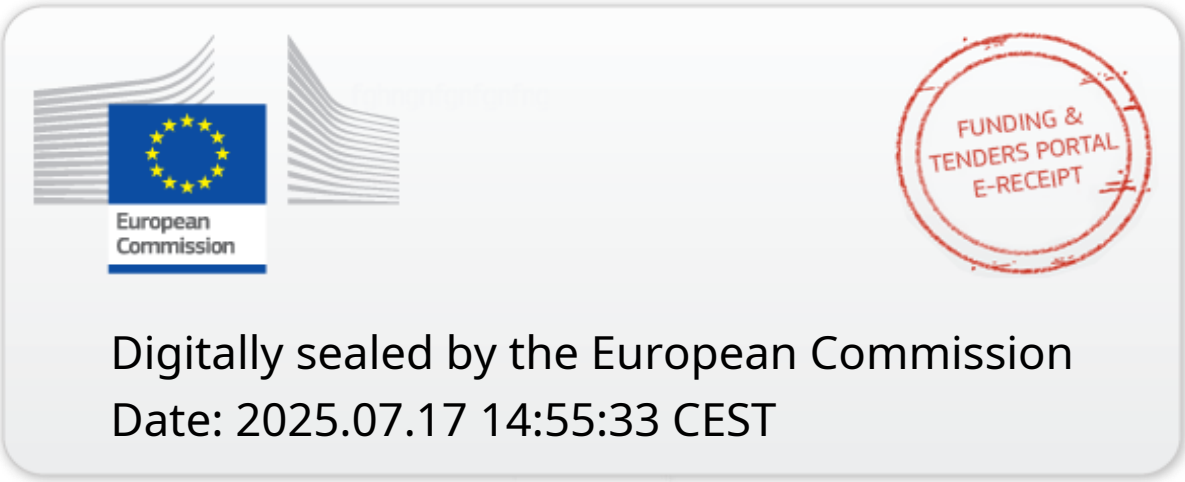
Record-keeping (for X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)

Reviews (up to X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)

Audits (up to X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)

Extension of findings from other grants to this grant (no later than X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)

Impact evaluation (up to X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)



This electronic receipt is a digitally signed version of the document submitted by your organisation. Both the content of the document and a set of metadata have been digitally sealed.

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Any attempt to modify the content will lead to a break of the integrity of the electronic signature, which can be verified at any time by clicking on the eReceipt validation symbol.

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(https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/support/faq)