January 2018
Spotlighting European developments and projects

SPECIAL EDITION
Innovative Public Procurement in Europe

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PHOTO GALLERY CONCLUDING FOUR YEARS OF PROJECT WORK

Grant agreement number: 619231
This project has been funded with support from the European Commission in the context of the Seventh Framework Programme. This publication (communication) reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.
Dear readers!

All over Europe and in fact all over the world, public authorities invest huge amounts of money in public procurement processes to obtain goods, products and services for their clients or citizens.

During these procurement processes, basically, two different approaches could be followed:

- One will be public procurement in relation to solutions, good and products developed in the past and which are therefore already present on the market.
- The other, more future-orientated, public procurement approach https://ec.europa.eu/digital-single-market/en/news/calls-eu-funding-opportunities-pre-commercial-procurement-and-public-procurement-innovative-solutions, approach a first step, research and innovative development processes to address challenges for which there are no solutions currently in existence or where they are not developed or customised enough to meet the procurer's needs.

With this second approach, we speak about the Public Procurement of Innovative solutions (PPI) “when challenges can be addressed by innovative solutions that are nearly or already available in small quantities on the market and that do not need new Research & Development (R&D).” In comparison – or better said: in complementation – to PPI, there is also Pre-Commercial Procurement (PCP), which applies “when there are no near-to-market solutions yet and when new R&D is required.” PCP can thus compare the pros and cons of alternative competing solutions and approaches. This will in turn enable the de-risking of the most promising innovations step-by-step by solution design, prototyping, development and initial product testing.” (for a basic overview of definitions, publications, policies, events, funds and laws in this context, please see https://ec.europa.eu/digital-single-market/en/innovation-procurement).

In any case, the key word within this context is always innovation, which the EU defines as being “the implementation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations, inter alia, with the purpose of helping to solve societal challenges or to support the Europe 2020 strategy for smart, sustainable and inclusive growth.” (Directive 2014/24/EU, article 2 par.1 (22); Directive 2015/24/EU 2 par. 1 (18))

These are the settings and the background within which traditional public procurement processes need to be partly rethought and reassessed. More and more, modern public procurement policy needs to change from being a relatively passively applied tool (which selects goods, products and services available on the market, but which are not very likely to be tailor-made to a procurer's specific needs and demands) to being more of an active instrument for stimulating and steering innovation processes (leading to customised solutions for the benefit of citizens)! If public authorities, at all levels, learn to apply PPI and PCP successfully, then public procurement will become a cornerstone of Europe’s path towards being a knowledge-driven society and an innovative global player within the service sector.

However, despite the wide range of public sector challenges that require the development of innovative solutions, PPI and PCP occur less frequently in Europe than in other developed parts of the world. Although public expenditure represents almost half of the European economy, 20 times less is spent on PPI and PCP in Europe (€2,5Bn/year) than, for example, in the USA ($50Bn/year).
The reasons for this are as manifold as the difficulties in combatting it: There is the lack of awareness amongst both procurers and suppliers about how to optimise the risk-benefit balance of procuring innovation, and often it is unclear how to procure innovation in compliance within legal frameworks. In addition, the fragmentation of public demand in Europe plays a crucial role.

To raise awareness of the ideas of PPI and PCP as well as for motivating procurers and suppliers to actively utilise these tools and processes, the EU began, some 10 years ago, to put them on its political agenda. The result was the Europe 2020 strategy and the Digital Agenda for Europe, targeted at the increased use of PCP and PPI by 2020. Horizon 2020 reinforces co-financing for public procurers around Europe, addressing common challenges by undertaking PCPs or PPIs jointly. New synergies between Horizon 2020 and the Structural Funds (ESIF) have been possible since 2014 onwards for co-financing PCP and PPI projects. (https://ec.europa.eu/digital-single-market/en/news/calls-eu-funding-opportunities-pre-commercial-procurement-and-public-procurement-innovative).

As a result of these efforts it has been possible to enjoy many achievements at the national level; the graph below gives an overview of the PCP and PPI developments achieved in 2016.


Amongst these countries, Sweden is one of Europe’s “model students” when it comes to promoting as well as applying PCP and PPI. Already back in 2007, the public research and innovation centre VINNOVA published a paper about public procurement as a driver for innovation and change for the Swedish public sector, and from 2010 to 2011 it developed the Public Innovation Procurement Support Program (Innovation Procurement initiatives in Sweden; ibid).

Therefore, it is no surprise that many successful PCP and PPI initiatives funded under FP7 and Horizon 2020 are of Swedish origin. One fine example is the IMAILE project (www.imaile.eu), which worked on the development and implementation of Innovative Methods of Award Procedures of ICT learning in Europe (FP7 - 619231). The project is the first PCP project in Europe in the field of education and technology enhanced learning. By enabling dialogue between the supply and demand sides it allows research and innovation to focus on the actual needs of the end users (schools, teachers and students), equipping them with personal learning environments to make classrooms fit for Education 2030.

The following are the key data of the project:

- First PCP project on education at EU level
- Funded Period: February 2014 – January 2018
- Partnership: 10 partners from 7 countries
- Buyers Group: 4 partners from Sweden, Finland, Germany and Spain
- Support organisations PCP, ICT and dissemination

Total budget: € 5.5 Mio.

- Funded by the European Commission (75% by the FP7 programme) and procurers (25%)
- Identified challenge: increased demand for personalised learning in primary and secondary education

The project was coordinated by the Municipality of Halmstad in cooperation with the Alexanderson Institute (both Sweden), the Municipality of Konnevesi and the University of Jyväskylä (Finland), the Ministry of Finance of Saxony-Anhalt and the Otto-von-Guericke University Magdeburg/Faculty of Science (Germany), the City of Viladecans (Spain), the Innov Agency Ltd. (Hungary), INOVA+ (Portugal) and, last but not least, the European Network for Transfer and Exploitation of EU Project Results (Austria).

Now, at the end of its funded period, the IMAILE project group wants to take the opportunity to summarise and present its findings, experiences and main products developed to a wider public. Therefore, this special edition of the Focus Europe magazine has been published with the first part dedicated to providing an insight into our project’s work, achievements and lessons learnt.

This magazine then gives an overview of many other success stories in relation to EU funded PCP and PPI projects, both recent or currently being implemented all over Europe. We would like to invite you to become familiar with the wide range of areas, sectors and approaches in which PCP and PPI can be utilised for the benefit of Europe’s citizens. When professionally applied, both are strong instruments that trigger research and development at almost all levels of public, economic, ecological and social life, leading to new prototypes and solutions that address both current as well as future challenges.

Georg Müllner
Michael Schwaiger
Editors

What a local community says ...

Taking part in the project has been a challenge for our city, particularly in regard to the Pre-commercial Procurement process. However, it has allowed us at the same time, to play an active role in the definition and development of the new generation of Personal Learning Environments (PLE). We are very happy and proud that teachers and students from Viladecans have taken part in the design and testing of the future PLEs. I would like to take this opportunity to thank the 14 teachers and 326 students from Viladecans for their work and involvement.

The Project has also allowed us to get to know and learn from other European education realities, as well as to establish links with education professionals in Sweden, Finland and Germany and thus create a community.

We hope that the IMAILE project helps with taking a step forward towards the education of the future in Viladecans, ensuring personalised learning adapted to the different needs and learning paths of every student as well as to professionals to support them with the new educational challenges.

GISELA NAVARRO,
VILADECANS CITY COUNCILLOR

4th Deputy Mayor, Education, Health and Consumer Affairs Councillor (Spain)

Educational success is a priority for us. We believe that quality education is the basis for society, both now and in the future. We also think that technology and innovation are two key elements for future education. That is why we decided to take part in IMAILE as it deals with two themes that are key for Viladecans: education and innovation.
STEP INTO THE FUTURE THROUGH INNOVATION PROCUREMENT

eafip, DG CNECT, European Commission (EU)

Innovation procurement (IP) occurs when public procurers procure the development or deployment of pioneering, innovative solutions to address specific mid-to-long term public sector needs. It is a tool to provide tax payers with public services of the highest possible quality and efficiency whilst empowering public authorities to obtain innovative solutions customised to their specific needs offering the best value for money.

The European public sector faces significant public interest challenges, including health and ageing, climate change and energy, and resource scarcity. The public sector is also under pressure to modernise internal operations whilst delivering high quality public services.

IP can deliver solutions to these challenges. Impact studies show that IP creates on average of 20% cost savings on public procurement expenditure (which constitutes about one fifth of gross domestic product (GDP) in Europe – or around € 2,400 billion a year). IP is also a way to foster growth and create new jobs, especially amongst smaller innovative companies that are the backbone of the European economy and which are ideally placed to supply these new innovative products and services.

How does innovation procurement work?

Public sector challenges can, in some cases, be addressed by innovative solutions that are nearly or already available in small quantities on the market and which do not need new research and development (R&D). This is when Public Procurement of Innovative solutions (PPI) can be used to get solutions deployed on a large scale. In other cases, public sector challenges require improvements that are so technologically demanding that there are no near-to-the-market solutions yet and new R&D is needed. Pre-Commercial Procurement (PCP) can then be used to compare the pros and cons of alternative competing approaches and to de-risk the most promising innovations step-by-step via solution design, prototyping, development and first product testing, while the risks and benefits are shared between the public and the private sectors.

What is eafip?

In order to increase the uptake of IP instruments and to unleash the innovative power of the European public purse, the European Commission (DG CNECT) launched the eafip initiative in 2015. The name of the initiative, “European Assistance for Innovation Procurement” (in short, eafip) stands true to its name. Through an array of instruments, the initiative - which ran from 2015 to 2017 - focuss on promoting the benefits of IP and offers training and assistance to public procurers with a concrete interest in implementing IP. Through an international competition, 12 public procurers from all over the EU were selected to receive legal assistance in the preparation and implementation of a PCP or PPI procurement from eafip IP lawyers. eafip organised nine workshops and three major events over the project period which were open to public procurers, policy makers and procurement law firms.

The initiative also developed a comprehensive IP Toolkit with specialised modules for policy makers, public procurers and legal professionals that can be downloaded for free from the eafip website.

Key notes
Our traditional European education system practises the “one size fits all” approach, providing a uniform teaching method in class, which assumes that all students learn in the same way, without diversity. In reality, the average EU classroom consists of one teacher educating 23 students, all of whom have different needs, interest and learning abilities.

To reform this method, IMAILE PCP has challenged the market to develop innovative technology to support the increased demand of personalised learning in science, math and technology subjects (STEM) with the following indicators:

• Hypothesis: Save teachers time. Reduced time for teacher planning and student performance assessment in STEM subjects.

• Hypothesis: Full-scale personalised learning approach in primary and secondary education. The Personal Learning Environments (PLEs) has demonstrated a level of satisfaction amongst a minimum of 75% of the test groups and include interactive and easily understood interfaces for all students, from the early school years upwards.

• Hypothesis: Increase motivation in STEM and interest in STEM careers. The PLEs has contributed to an experienced increase of interest amongst the test groups with a minimum satisfactory level of 70%, and include features in the PLE to measure motivation and recommend careers in STEM.

• Hypothesis: Reduce early drop-outs. The support of the PLEs shall exceed the EU target of less than 10% early drop-outs in 2020 and include features to monitor all students and provide early alerts to teachers and parents.

• Requirements on interoperability, open standards and bring your own device (BYOD) practice.

• Comparison of the learning technology development and level of innovation within a PCP compared to the parallel progress of the market.

In 2015, four public sector procurers from Finland, Germany, Spain and Sweden worked in collaboration to launch a Pre-Commercial Procurement (PCP) call for tender of research & development services with such innovations.

In the first project phase seven suppliers from all over EU were awarded Europe’s first PCP framework contracts within the education sector. In the second phase of the PCP project four suppliers were selected to renew their contracts to further develop their concept into prototypes. The two most promising solutions were selected for PCP phase 3 for tests in real classrooms with teachers and students.

The research, development and the tests conducted in real end-user environments, the later in the four procuring countries with over 600 students and 40 teachers participating, resulted by the end of 2017 in two smart and innovative PLEs offering Learning Analytics provided by intelligent tutoring systems to primary and secondary schools that no other solutions available on the market offer. Furthermore, the solutions include gamification, virtual tutor, e-Portfolio and alerts on early drop-outs and features for motivation in STEM subjects and future careers.

Both PLEs are considered to be at Technology Readiness Level (TRL) 7, and are estimated to reach the market within one to two years. Due to the success experienced during IMAILE PCP project from both demand and supply sides, deployment and a Public Procurement of Innovative solutions (PPI) is planned in 2019 within up-coming H2020 project Learntech Accelerator (LEA).
PCP FROM THE PROCURER PERSPECTIVE

Ellinor Wallin, Municipality of Halmstad, Coordinator (Sweden)

Why IMAILE PCP from a procurer’s perspective?

The PCP experienced added value after 4 years to the IMAILE procurers from Sweden, Germany, Spain and Finland and can be summarised in two parts:

• learning about PCP as an innovative method to procure
• procuring research of innovations to improve education according to our needs

Both these dynamic and innovative actions place dialogue between the demand and supply sides in focus.

PCP offers demand and supply side interaction for a smarter future

Implementing a PCP in education has enabled real supply and demand side interaction in our countries and this has generated mutual understanding and interaction, which is fundamental in order to create smart, sustainable, inclusive and knowledge-based growth within Learning Technology 2020 and beyond.

In brief we can state that with dialogue between the supply and demand sides in education we can remove two major barriers to creating a smarter future:

• procurers’ lack of a deeper understanding of learning technology for smart and future orientated purchases of innovations that improve learning in their schools
• suppliers’ lack of a deeper understanding of REAL customer needs when creating attractive innovations for the market

PCP to reform traditional European Education systems in the digital era

The vision of IMAILE www.imaile.eu and Learntech Accelerator –LEA (upcoming H2020 project) is to provide hard evidence and make visible the pedagogical, social and financial benefits that innovative procurement can achieve by challenging the market to develop innovative solutions based upon our actual needs.

The evidence and learnings will hopefully guide more procurers within the education sphere to become drivers of innovation and finally bring our schools into the 21st Century, even if it requires both time and patience, as this illustration highlights.

IMAILE Challenges and benefits

IMAILE procurers have challenged the market to develop smart AI and Learning Analytics systems to support personalised learning in STEM to support the average European class at both primary and secondary school levels.

Envisioned Personal Learning Environment (PLE.s) benefits and savings

• Full implementation of personalised learning to finally move away from the ONE SIZE FITS ALL system in schools
• IMAILE STEM PLE: offers time reductions in planning personalised learning for teachers, which allows more one to one time with students in the classroom and staff savings for the school, municipality and region
• IMAILE STEM PLE generates increased STEM motivation due to personalised recommended learning content and tasks, which leads to better student results
• IMAILE STEM PLE contributes to decreasing long term costs of early school leaving (up to 1.5 million per student) through alert systems and communication to teachers and parents in terms of early identification and warnings

Impact of IMAILE

The final result of IMAILE, based upon the lessons learnt, was and will be presented at several events during autumn 2017 in Stockholm, Gothenburg, Halmstad, Budapest, Viladecans and Verling, at the BETT show in January 2018 as well as through our final products:

• IMAILE Guidelines and recommendations of the PCP method and its benefits for learning technology
• IMAILE Showcase and Impact Cases of the innovative STEM PLE solutions

Read more about IMAILE and LEA in upcoming sections and our vision to use innovation procurement to modernise and reform the traditional educational system according to Einstein.

Our Education System

“Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid.”

Albert Einstein

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www.imaile.eu
https://twitter.com/imaileproject
https://www.linkedin.com/groups/6536874/profile

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Big Data. The Internet of Things. Smart classrooms. Interoperability. Machine learning. Automation. Artificial intelligence. Virtual reality. Augmented reality. Block chains. Learning analytics? Technologies in the 21st Century are changing rapidly. Huge global corporations seem to be the front-runners in adopting cutting edge solutions. The often public-funded educational sector is falling behind: How are European companies keeping up with the technology trend game? Do current personalised learning environments (PLE) ensure that educators and learners benefit from all the tools and support that technologies in 2017 can provide?

Next generation learning involves the provision of “anytime, anywhere” and that learning must be tailored to the students’ needs, interests and learning styles. It would be wonderful if the teacher could plan his/her lesson in just 5-10 minutes, by slightly adapting interactive materials that the PLE recommends? What about if marking exams did not take any time at all? The teacher could just bring up the PLE dashboard and immediately see how the class is performing… Would there be a way for technology to help teachers save time as well as to identify students who are having difficulties? Could technology provide help before a situation escalates into someone dropping out of school? What could be the savings for community funds if students were to maintain their motivation towards topics rather than skipping classes…?

The IMAILE project seeks to tackle the societal as well as technical challenges in relation to future learning. At the start of the project, an analysis of the state-of-the-art of PLE was completed to show how current PLEs use trending technologies. The situation was appalling: Personalised learning environments are currently utilising very little in terms of the cutting edge solutions that children already use within their daily lives. There is no PLE on the market that could, for example, abstract the learning data from Pokemon Go. In fact, there is no way of measuring what kind of informal learning is happening outside of physical classrooms/PLEs…

Current PLE solutions have only scratched the surface in their use of learning analytics or big data. Perhaps they can give summaries of ‘user data’ to the teacher. For example: how many minutes did the student take to complete one task…, or how many pages of the pdf did they read…? PLE solutions should be measuring learning instead of user data. The IMAILE project has taken on the challenge of drawing on the research and developing PLE solutions for the future.

Innovation within the field of technology enhanced learning is not a simple task to undertake. One must bring to the table something that teachers and students would find useful and easy-to-use, but also something that would improve their teaching and learning processes from the current state. Vivid dialogue between the supply and demand sides has been the key to the success of this project. However, it is not always easy. Teaching in the 2nd grade in a Finnish primary school in Konnevesi is very far away indeed from 8th graders’ work at Catalan schools in Viladecans for example. But still, the solutions need to be adapted to the requirements of all European learners.

IMAILE boldly tested in four different countries with real life users: teachers, students and parents. The innovative solutions developed are steps towards personalising learning paths and content for each individual learner. They provide assistance to teachers in preparing and marking lessons more easily. They visualise student progress throughout all 9 years of school, providing much needed information, not only to learners, teachers and parents but also to potential future employers.

When you test the solutions of Amigo STEM and Yiptree, I urge you to look deeper behind the user interface. These two systems are taking steps that no others on the market have done to date. It may just look like a website, but what is happening in the background is what really matters. The challenge with assessing technological innovations is that they are rarely something you can just see with your eyes.
IMAILE TESTING APPROACH
Ellinor Wallin, Municipality of Halmstad Coordinator (Sweden)

Outside the schools in Viladecans during the IMAILE test period

For IMAILE PCP, we chose to apply a new approach using real classroom environments for the tests in phase 3, including over 600 students and 45 teachers from primary and secondary schools in the four procuring countries (Finland, Germany, Spain and Sweden).

The selection of the test groups was made by each procurer in their local area or region. Many of the IMAILE test schools had previously been involved in the project, by providing input to a needs analysis for a future STEM PLE. The demography and geography of this approach, combined with a lack of previous experience of such an immense EU test bed within a PCP framework, proved to be a challenge to both the procurers and the suppliers.

In each country the tests were divided into several parts, “sprints”, enabling risk management and close monitoring of the tests according to the following methodology:

1. Start-up phase
2. Installation and pre-testing phase
3. First real testing phase
4. Interim analysis and Data collection phase
5. Second real testing phase
6. Final analysis and data collection phase

The tests were performed over 10 months with dynamic and engaged contributions from the European schools in order to make the PCP test a reality within the limited time period.

In addition to the test groups in primary and secondary schools around Europe, IMAILE also included a test group consisting of students from the Teacher Education programme at Halmstad University, Sweden, to ensure feedback from the perspective of future teachers. Moreover, an EU-expert test panel was engaged to guarantee feedback and test results reaching out beyond the user perspective.

The approach of using real classroom environments for the tests instead of separated test labs is despite being a challenge also a strong recommendation from the IMAILE consortium to upcoming PCP and PPI projects. We have learned that this is an optimal approach that provides suppliers with access to the actual end-users in the environments where the innovations will be used, and at the same time gives the procurers the opportunity to ensure and monitor their investments at the local and regional levels.

Testing in Sweden

What Söndrumsskolan 9th grade say on STEM Personalised learning reflection AMIGO: “The ePortfolio makes me more conscious about how to improve my work”.

What physics teacher Sandra Arvidsson says on saving time in relation to lesson preparation and student performance assessments: “AMIGO helps me save time thanks to the innovative lesson creation tool, that enables me to reuse and share the STEM lessons. The automatic assessment tool and the system alerts reduce the assessment time of assignments and monitoring of each student in a personalised manner.”

Testing in Spain

In the following film you can see an example of how tests were implemented in the Viladecans schools in Spain with testimonials from teachers and students on the IMAILE STEM PLEs:

https://www.youtube.com/watch?v=iL7ym4cb620
Key notes

What a teacher at Escola Teide, Viladecans, Spain, says on the PLE support for students with special needs: “We have a student with Down Syndrome and she has learned a lot using AMIGO STEM PLE.”

Testing in Germany

What Ökumenisches Domgymnasium Magdeburg 10th/11th graders (ages 16-17) say on personalised learning support: “AMIGO helps us to see our weaknesses and strengths.”

Testing in Finland

What a Lapunmäen School 5th grade male student says about increased STEM motivation: “I am choosing the Gold Level because I want to complete ALL the tasks.”

What a Lapunmäen School 5th grade teacher student says on increased STEM motivation: “Most students found it motivational to be able to choose their own level (Bronze, Silver, and Gold) of assignments.”

IMAILE certificate

IMAILE would like to take the opportunity to send its sincere thanks to all the European schools that were involved in the tests and will award the following thirteen schools with the IMAILE STEM PLE Certification badge as a reward for their outstanding contributions to the project in 2018:

- Sweden, Halmstad municipality: Söndrumsskolan, Jutarumsskolan, Valhallaskolan and Trönningeskolalan
- Finland, Konnevesi municipality: Lapunmäen koulu, Kirkonkylän koulu
- Germany: Magdeburg: Dreisprachige Internationale Grundschule and Ökumenisches Domgymnasium
- Spain, City council of Viladecans: Marta Mata, Sagrada Familia, Teide, Institut Torreroja and Institut Viladecans

What a local community says ...

The PCP instrument enables the development of innovative solutions in dialogue with suppliers and end users, responding to the real needs of the public sector. It allows public authorities to act as innovation agents, buying research and development services that include solution design exploration, prototype development and proof of concept in small test series with end-users. One of the most relevant features of this instrument is that it promotes and opens a continuous communication process between the demand and supply sides, in which public needs and expectations are brought up to the fore.
Learning is an individual process of building your own image of the world around you. This individuality can be supported by using a Personal Learning Environment (PLE) as a learner centered and problem oriented learning platform. However, students need a solid foundation of competencies to use such systems properly. Particularly primary school students have very little previous experience of using IT systems. What competencies they need only became clear during the testing of the PLE prototypes developed during the IMAILE project.

The 47 primary students who participated in the tests in Germany had worked with their computer in school for 3 weeks prior to the actual tests. In addition, only a few of them had experience with regard to working with computers. During the testing most students were very open to using the PLE and experimented with the functionalities.

However, the use of a software product demands a level of interaction which is challenging for users, who are still learning about how to operate a mouse and keyboard. Moreover, students in this age group are (if anything) used to touch controls and inputs. Accordingly, a PLE used on tablets or similar devices is preferable. As well as being required to have a solid understanding of IT systems the students are also required to be far more independent than in traditional lessons.

Both are competencies that cannot be expected of students, particularly at such a young age. That is why adaption to new learning conditions needs to be a high priority for school development as well as a priority at the policy level.

IMAILE is interesting as it addresses very important elements of society that need to be developed, namely education and procurement. Today we can offer our students digital tools, but we do not utilise the educational potential of these tools to a sufficient extent. IMAILE has found new ways of using technical aids in teaching and has also worked with innovative procurement of the results, and this is a very exciting approach.
AMIGO - SMART STEM LEARNING ECOSYSTEM
Holistic and intelligent ecosystem providing the next generation of Personal Learning Environments (PLE) with multiple functions to attract interest towards STEM fields
Raquel Mayordomo and Ignacio Garcia, Edebé - Ediciones Don Bosco Salesianos de la Provincia de Barcelona MYDOCUMENTA - Documenta Creaciones Multimedia Avanzadas SL (Spain)

Through the use of innovative technologies and services, AMIGO delivers a holistic ecosystem providing the next generation of Personal Learning Environments (PLE) in primary and lower secondary education within STEM subjects.

AMIGO contributes to standardising a solution for meeting the challenge faced by European classrooms today: access to personalised learning tools to support teachers and students in reaching STEM goals whilst promoting educational change from teacher-centred learning to a student-centred perspective. AMIGO enhances by adapting learning to each child’s needs and preferences, and increasing teacher time dedicated to supporting this learning by making the evaluation process more efficient. From a societal point of view, AMIGO contributes by preparing children and adolescents for their future professional careers, exploiting in this way the job opportunities that companies create and demand in the 21st Century for activating the economy.

After the work undertaken in Phases 1 and 2 of the PCP, the consortium (composed of two companies EDEBE and MYDOCUMENTA) proposed the development of an extremely rich and functional prototype that is now available at http://www.amigostem.com/ and that is being tested with teachers and students during Phase III of the PCP.

Thanks to the participation in the IMAILE PCP, the AMIGO team has been able to invest in R&D activities to propose their vision on how to solve the identified market needs concerning the challenge proposed and furthermore to test it with real users in different countries. One of the main lessons learnt is the importance of dialogue and gathering requirements from the wide diversity of visions of the identified challenges (students, teachers, school management teams, public administrations, PCP management teams, pedagogic experts and technological experts). In order to synthesise these requirements and project activities a highly-skilled management team has had to be involved during the whole period.

Additionally, the AMIGO consortium has validated the technical and commercial viability of the designed product. We now have a “long term vision” of AMIGO, and we can glimpse into what we want to achieve through working with educational communities to improve this solution even more to address their precise needs.
Almerin Ltd., a Finnish education technology company and a contributor to the IMAILE project has developed YipTree, a personal learning environment to solve several major issues being faced by education. Over 500 students from ten schools in four different countries (Konnevesi-Finland, Sachsen-Anhalt-Germany, Viladecans-Spain and Halmstad-Sweden) tested YipTree in 2017, thus making it possible for us to provide a service based on real pedagogical needs.

Combining artificial intelligence and Finnish pedagogical expertise allowed us to create a new generation of innovations to overcome many of the current issues within the education sector. For example, time-consuming documentation, low interest in STEM subjects and early dropout rates are some of the problems that are currently challenging everyday school life in Europe.

The lack of individual guidance, which is an outcome of time-consuming documentation and teachers having too many routine tasks, together with large class sizes are the most common reasons why learning is usually not being personalised enough to meet the individual needs of students. Typically, pupils study the same materials and they are taught the same way, although they have individual needs. This phenomenon often leads to poor learning results and poor motivation. Through the utilisation of artificial intelligence, YipTree analyses pupils’ learning techniques and skill levels in order to personalise the whole learning path and materials.

YipTree’s various tools reduce teachers’ workload and allow teachers to focus more on supporting their students individually. Progress tools and real-time analytics offer insights and data about students’ learning. YipTree does not only monitor the user’s learning results, but also considers other kind of learning activities, such as social activities, time spent on tasks and general activities within the learning environment. YipTree also notifies the teacher immediately when a pupil has problems or difficulties in relation to learning. In addition, YipTree’s virtual tutor guides pupil through the whole learning path and gives advice and recommendations concerning problematic situations. This feature is a significant solution to the challenge of decreasing early school drop-out. Documentation and continuous evaluation are also facilitated by tests with automatic checking and user-friendly evaluation, allowing the teacher to see the answers of multiple pupils at the same time.

To increase and maintain pupils’ motivation, YipTree has a unique, user-friendly and gamified interface. In addition, teachers can create modern digital learning materials, for example complementary tasks and interactive videos and pictures. The joy in children that we have seen with our own eyes during the testing of YipTree has proven to us that gamification and visuality are vital for this generation of learners.
Key notes

**AMIGO – LESSONS LEARNT DURING THE PCP PROCESS**

Raquel Mayordomo and Ignacio García, Edebé - Ediciones Don Bosco Salesianos de la Provincia de Barcelona
MYDOCUMENTA - Documenta Creaciones Multimedia Avanzadas SL (Spain)

The PCP is a funding mechanism that has enabled us to develop innovative technology that is able to address several educational challenges within one solution. In order to build a successful proposal, please make sure that you read all the market research, challenges and requirements from public procurers not only in the invitation to tender but also in the multiple documentation available from the market research activities undertaken by the consortium. Make sure you can fulfill most of them and be clear with your explanations, indicators and strategy to fulfill them.

This mechanism has stretched our research and development performance and has given us the possibility of pilot the solution with a good number of end users and stakeholders during the different phases of the PCP.

Some of the main challenges we have faced, that you may consider for your application, are:

- You only receive a few days’ notice of your involvement in the different phases of the project following the contract signature. Plan your resources carefully and if you need to contract new personnel we recommend you selected them in advance.
- The three phases require lots of research, design and development time. If you work within a consortium, make sure you can begin working together from day one.
- The management of a PCP is complicated, as you must deal with many actors in the process. We recommend seeking professional support with experience in European projects. In our case, we have been supported by Soros Gabinete during the whole project duration.
- Between the different phases there is always a period where the project is frozen, waiting until the evaluation of the project is approved and only then can work with the next phase continue. Our recommendation is to keep working in order to keep the project alive.

One of the major benefits we have identified, in comparison with traditional tenders, is that the PCP has also introduced our solution to public administrations and thus providing possibilities for beginning to sell the first prototypes of the solution we have developed. So the PCP has some advantages over traditional tenders that clearly benefit the provider:

- The PCP process encourages providers to maintain their IPR and to further invest in R&D and product development. It creates a roadmap for the future and business ambition!
- The PCP process boosts access to the procurement market. We are already discussing and attending bilateral meetings with key stakeholders to support the successful commercialisation of our solution.
- The PCP enables sharing risks with procurers and dialogue. During the whole process you have support from the different entities involved in the process and from experts.
- The PCP provides access to pilot testing with end users. One of the main advantages is that you can fine-tune your solution based on field trials!

Our recommendation and wishes to political decision makers is to boost this public procurement (PCP and PPI) to encourage market entry to innovative solutions amongst SMEs.

http://www.amigostem.com
https://twitter.com/amigostem?lang=es

**ALMERIN’S COOPERATION WITH THE IMAILE PCP PROJECT**

Laura Heinänen, Almerin Ltd., (Finland)

Almerin’s CEO, Teemu Laitinen, first heard about IMAILE in 2014 in Milan. As a teacher and a serial entrepreneur in the IT-industry he knows the challenges that start-up companies face and immediately understood the benefits and opportunities that PCP can offer start-ups. Mr Laitinen built a team and set up Almerin Ltd., one of the suppliers to the IMAILE project, just before the start of the project. So IMAILE was not only a significant factor in launching the product but also in establishing an entire company.

Now it has been two years since the project began, and we can definitely state that the IMAILE PCP project has been a unique and significant opportunity with numerous benefits. The whole PCP process has helped us to recognize real challenges that education in Europe is facing, for example low interest in STEM subjects, financial issues, time consuming documentation and early dropout. The whole process and all the project phases have helped us to develop better innovations and solutions to overcome the recognised issues. The project and its motivated and enthusiastic participants have helped and supported us in every phase and pushed us to achieve our goals.

Participation in the project and the merit gathered from it has proven the capability, knowledge and excellence of our team, not only to ourselves but also to other stakeholders, for example to investors and partners. Due to IMAILE and the attention the project has enjoyed in different media, many potential customers and investors have shown great interest in us.

The community and network created by all the participating organisations, such as companies, project administrations, municipalities and schools have provided us with a great environment for innovative product development that is based on the real needs and challenges of teachers and students. The product testing organised together with participating schools provides us with valuable insights about differences in education between different countries and cultures. Although our own team includes pedagogical experts and as a Finnish company we have great pedagogical knowledge, we could not have discovered national differences in education without the multinational testing process. Product testing with teachers and pupils has shown us what functions and features of our service need the most development. On the other hand, testing has also proven to us that there is a real demand for our solution and above all, testing has proven the functionality and value of our product. It has been a great honour to participate in the European IMAILE project and to be involved in shaping the future of education.

One of the major benefits we have identified, in comparison with traditional tenders, is that the PCP has also introduced our solution to public administrations and thus providing possibilities for beginning to sell the first prototypes of the solution we have developed. So the PCP has some advantages over traditional tenders that clearly benefit the provider:

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**AMIGO**
IMAILE LEGACY AND RESULTS
Ellinor Wallin, Municipality of Halmstad
Coordinator (Sweden)

At the end of the journey IMAILE consortium has several results ready to hand-over to other European stakeholders which are presented as four categories in this section:

- Streamlined PCP Guidelines
- IMAILE STEM PLEs YIPTREE and AMIGO
- PCP impact on learning technology
- LEA project to initiate a PPI and proceed with Innovative procurement

Streamlined PCP guidelines

The purpose of gathering all IMAILE data, analysis and results into one joint document is to provide a simplified, streamlined and user-friendly set of guidelines to be used for future PCPs in the area of learning technology including:

- Templates and methodologies for each phase of the PCP project
- PCP specific recommendations for learning technology
- Evidence based advantages of R&D procurement for learning technology using PCP
- Key performance indicators (KPI) adopted for PCP in learning technology

IMAILE Streamlined PCP guidelines can be downloaded from the 15th of February 2018 on http://www.imaile.eu/about/imaile-results/

IMAILE KEY PERFORMANCE INDICATORS (KPI) and actual INNOVATIONS

To create a methodological approach of result collection the following Key Performance Indicator (KPI) system has been used for IMAILE.

By the end of IMAILE all the Performance Bottom line indicators have been fulfilled. The proposed budget of 4.6 million Euro has been spent on R&D, split into allocated percentages for the three project phases (10%, 40% and 50%) to a total of seven suppliers.

The minimum user-perspective exceeded the bottom line of 300 students, as 600 students from four countries were involved, and the R&D percentage of resources spent by the suppliers has been, throughout the project, well above the minimum threshold of 51%, in project phase 3 around 80% for both suppliers.

Additionally, all IMAILE Performance Improvement Indicators, initially described as hypotheses, was confirmed by a European test-bed demography of over 600 students, 40 teachers, one group of 9 teacher education students and, last but not least, one EU “Beyond user perspective” panel consisting of experts in innovative pedagogical, STEM and learning technology.

The performance improvement indicators hypotheses are:

- **Hypothesis: Saving teacher time confirmed.** All test teachers confirm that both PLE solutions demonstrate potential to reduce their lesson planning time and their assessment time through features to reuse and share lesson creation tools as well as automatic evaluation, quick assessment tools and alerts. Note that this potential is available to confident teachers who have already learned how to use the systems.

- **Hypothesis: Full scale personalised learning approach in primary and secondary education confirmed.** 75-80% of the test group’s students experienced satisfaction of more personalized learning paths with content and learning methods suitable particularly to them. The history of learning creation tools demonstrates a constant use in the tests, thus indicating increased reflection upon personal STEM learning by all students involved in the tests. Additionally, the PLEs demonstrate support to students with special needs, such as Downs Syndrome and concentration disorders.

- **Hypothesis: Increased STEM motivation and STEM careers confirmed.** Both PLEs provide visible personalised STEM motivation features for teachers and students. 70-75% of the test students experienced increased STEM motivation using IMAILE PLEs in the four countries thanks to creative content creation and learning reflection tools, badges and leader boards, gamification and intelligent tutoring systems providing recommendations on STEM learning and careers.

- **Hypothesis: Early drop-out reduction confirmed.** Both PLEs provide alerts to detect possible early drop-outs at an early stage with greater potential for teachers and parents to identify and anticipate than with other traditional methods. No other systems currently in use provide reports and alerts to parents. Due to this feature the estimation of the result that the test provides is a possible reduction of 20%. This estimation, added to the European wide study into the annual cost of ESLs of approximately EUR 100 billion (corresponding to 1% of GDP), would make it possible to save EUR 20 billion annually on EU level by using IMAILE PLEs.

- **Requirement on Interoperability and open standards confirmed.** Both PLEs are applicable to BYOD (Bring your own device) and can be used on all devices applying open standards. By being compatible with the xAPI specification, both IMAILE PLEs can collect and use learning data from xAPI compatible environments, software or assignments in order to track the user’s learning even beyond the PLE in informal learning environments (such as serious gaming). If the future learning takes place in distributed learning settings, these PLEs can keep track of the learner’s activities and also notify teachers’ and parents of these achievements and challenges. Both IMAILE solutions are also investigating block chain technology as a promising solution to secure the learning data of European schools.

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Key notes
Key notes

- **Impact on Schools’ savings.** In an IMAILE example in secondary school, where annual costs on software per student were 92.6 Euros, using IMAILE PLEs the savings over the nine years of education for 900 students would equal to savings of 588,060 Euros.

- **Comparison PCP vs. Traditional Software Development Process.** Via the PCP instrument, the suppliers were able to consult the market and experts during the early stages of development, leading to new innovative features and concepts arising directly from the needs of the users, and who were also advised through supply and demand dialogue to know what they could ask for. This makes the PCP an efficient and agile tool in comparison to traditional developments, where software developers often end up with a final product that does not correspond to what the user really wants or needs. The conclusion is that IMAILE PCP has proven to be an efficient tool with the result of introducing several user-led innovations to the European learning technology market.

IMAILE learning technology innovations in detail

The IMAILE PCP wide approach to challenging the market from the demand side based on the procurer’s perspective has resulted in the concrete development of the following innovative features:

**IMAILE Quality of Innovation Levels (1-2)**

In order to assess the quality of the innovations of the PCP project IMAILE has created a system based upon the following levels:

1 = **Emerging innovation** – This was a new concept when IMAILE Challenge Brief was created (2015), but currently most competitors in the field have developed similar concepts OR the maturity of this feature has still not fully fulfilled its potential.

2 = **Innovative feature** – Most competitors in the field do not have a feature like this and, even if they have something similar, they are not using it this way.

Based upon this, IMAILE STEM PLEs are proud to present the following four innovations ready to enter the learning technology market:

- A **Virtual tutor** to save teacher time, motivate students concerning STEM topics, personalise learning and reduce early drop-out.
- A **STEM career recommendation tool** to motivate students concerning STEM topics, personalise learning and reduce early drop-out.
- A **Portably Authoring tool** for motivating students concerning STEM careers and to provide assessment support.
- A **History creation tool** for students to reflect on their learning. This function of the ePortfolio can be taken with the student when they leave school, which could be seen as an additional CV when searching for STEM careers.
IMAILE statements of Performance Quality Indicators

IMAILE performance has increased the understanding of PCP in learning technology at EU level providing the following improved quality in relation to several topics:

**Quality Indicator #1: Hard evidence of PCP as an effective tool to reform learning technology**

IMAILE STEM PLEs brings four innovations to the market, which is hard evidence of PCP as an effective tool to reform learning technology. A PCP speeds up the technical development process and steers the innovation based upon the customer needs and allows early interaction of end-users to give feedback on developed features.

The following four innovations provide specific hard evidence on PCP as effective tool to reform learning technology.

A Virtual tutor that recommends students with problems to perform a task with peer learning from other classmates who have completed the same task.

The Virtual tutor also provides recommendations on future STEM careers based upon completed tasks.

IMAILE statements of Performance Quality Indicators

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The following four innovations provide specific hard evidence on PCP as effective tool to reform learning technology.

A Virtual tutor that recommends students with problems to perform a task with peer learning from other classmates who have completed the same task.

History creation tool is an easy to use content creation tool integrated in the ePortfolio that allows the construction of “histories” where students can include, in a single linear format, multimedia content, text, messages and comments from teachers and other students, their own reflections etc. It is especially designed to help students to reflect on their own learning.

**Quality Indicator #2: Strengthened learning technology dialogue between demand and supply sides at the EU level**

Supply and demand interaction, understanding and dialogue are fundamental concepts for creating sustainable, inclusive and knowledge-based growth within learning technology 2030 and beyond. IMAILE provides evidence that the dialogue is what both the demand and supply sides value as the greatest advantage of the PCP. Recommended tools for successful and strengthened dialogue, apart from the formal assessment of each PCP phase, is a transparent Question & Answer tool, Confidence Criteria Table, Success Criteria Table, formal and informal meetings and, last but not least for a common understanding in a complex process, the Technology Readiness Level (TRL) table that shall be used for visualization of the progress.

**Quality Indicator #3: Improved and customised PCP methods and templates for learning technology**

IMAILE PCP is a pilot project and thus development, implementation, assessment, lessons learned, recommendations and results need to be highlighted and disseminated to make future learning technology innovation procurement efficient and qualitative.

At the project start on 1st of February 2014 only standard PCP documentation, contracts, recommendations and templates existed at EU level. Through the IMAILE project specific PCP Learning technology strategies/methodologies have been developed, implemented and assessed in order to create future recommendations, including progress based upon the gathered and analyzed results from relevant stakeholders in 2018. As indicated on the graph IMAILE and upcoming project LEA are creating giant and unique leaps forward with innovation procurement in learning technology.

**Quality Indicator #4: Gathered recommendations on future PCPs from different stakeholders**

The following summary of performance quality indicators are gathered from interviews and surveys provided by IMAILE procurers, suppliers and learning technology experts.
**PCP Recommendations from procurers to other procurers**

#1 In order to create consistency from user and demand perspective needs assessment groups shall be identified/involved at the local, regional and EU Levels, who will be able to contribute to feedback and tests further on in the PCP process.

#2 In the IPR section of ITT clause of user rights shall be included for future deployment by the procurers, while open standards as minimum requirements shall be included to avoid national legislations and requirements for deployment and purchase.

#3 PCP needs to be monitored at the contract and content level. The contract manager shall monitor the appliance of contracts and Service offers, while the procurers and the technical manager shall monitor the content of the PCP based upon the Challenge Brief.

#4 Dialogue shall be included from Phase 1 using tools like the Success Criteria Table (SCT) and the Confidence Criteria Table (CCT).

#5 Teachers and students shall be motivated with certificates, study visits, peer support and if possible additional funds shall be provided to schools.

**PCP Test recommendations from Technical manager Kati Clements**

#1 For the future testing of PCP/PPI - the test users should be integrated into and committed to the project through a separate budget. In the case of education, we would recommend having a teacher whose workload in their normal teaching is reduced to 80% of his/her working time and then that teacher could use 20% of the working time to test systems and give on-going feedback to the suppliers.

#2 The testing users (e.g. teachers) should be hired to do the testing for an entire school year and the use of the system should be integrated into their everyday lives.

#3 The interfaces of software solutions need to be intuitive for teachers/students use to enable more effective testing. Mentoring of the users when they first sign into the system - automatic tutorials that say: “Hello, I see you are a teacher. Would you like to prepare a lesson or grade your students today?”

#4 Due to the rapid development of the market “outside” the PCP there should be a continuous cycle of evaluating the innovations in comparison to the market’s features and updating the goals.

**PCP Recommendations from suppliers to other suppliers**

Some of the main challenges we have faced, that you may consider for your application, are:

#1 You only receive a few days notice of your involvement in the different phases of the project following the contract signature. Plan your resources carefully and if you need to contract new personnel we recommend you selected them in advance.

#2 The three phases require lot of research, design and development time. If you work within a consortium, make sure you can begin working together from day one.

#3 The management of a PCP is complicated, as you must deal with many actors in the process. We recommend seeking professional support with experience in European projects.

#4 Between the different phases there is always a period where the project is frozen, waiting until the evaluation of the project is approved and only then can work with the next phase continue. Our recommendation is to keep working in order to keep the project alive.

**PCP recommendations by EU STEM/ pedagogical expert Björn Sjöden**

#1 Innovation may be assessed at several levels - not only in terms of novel technical features, but also with respect to how scientific principles are considered and deployed in the systems (for example: a system appropriately and purposefully designed to ease students „cognitive load“ in STEM might be more innovative than a system which employs new technical functions without clear relevance to learning).

#2 If testing periods are required/desired, do not underestimate the time need to collect representative (i.e. ecologically valid) data from authentic educational contexts (for example: 7-8 weeks of regular use might be needed for gathering sufficient data for assessing the functions of learning analytics).

#3 There is value to consulting educational technology expertise in the market consultation phase (besides customers and suppliers). This is because the actual potentialities of educational technology, as shown by research, is not yet reflected in present market standards. In effect, both customers and suppliers might in some respects “put the bar too low”. (For example, Teachable Agents is a well-evidenced technology for teaching & learning using digital characters, which yet only exists in university-developed software and is little known among teachers; thus they will not ask for it.).

#4 Ensure that there is a common understanding of key concepts used in the call for tenders and specification of requirements. There are certain terms (cf. “innovation” above) whose meaning would require further clarification in PLEs, such as AI (Artificial Intelligence) and “learning styles”. Such wide and multi-faceted (AI, innovation) and somewhat controversial concepts (learning styles) may carry with them differences in expectations and understandings between customers, suppliers and experts. For example, suppliers could be asked to formulate how they conceive of AI in their system, and the concept of “learning styles” might be abandoned in favour of more specific and less controversial terms (e.g. individual adaptiveness/adaptability).
Quality Indicator #5: Increased awareness of PCP in learning technology at the EU level

To increase the awareness of PCP, especially in relation to learning technology, a number of events about the experiences gained during the IMAILE project were implemented in partner countries and beyond during autumn 2017. Events were aimed at the core target groups of the PCP in the learning technology process: procurers, suppliers, teachers, headmasters, administration staff in schools and other learning technology users. Among the information and dissemination events organised were:

- 4 regional dissemination events in all testing countries – Finland (October 2017), Germany (October 2017), Spain (October 2017) and Sweden (November 2017) each attracting between 70 and 150 participants.
- 1 national final event in Viladecans, Spain (December 2017) with 120 participants.
- Moreover, IMAILE participated with its experiences and results in a number of conferences and exhibitions across Europe, among them the Online Educa Berlin (December 2017) with a keynote to the discussion session “Opportunities and Challenges for Education Start-Ups in the European Market: Understanding Customers’ Needs”, Conference on Innovation Procurement in Tallinn, Estonia (October 2017), Conference organised by the Hungarian Procurement Agency (November 2017), Conference of the National Agency for Public Procurement Sweden (November 2017).
- Final event on BETT London (January 2018).

With these and many other events and awareness raising activities as well as the development of innovative PCP dissemination methodologies it was possible to feed the experiences gained from IMAILE back into the discussion about PCP in learning technologies and how to improve the support of better innovative and customer-oriented learning technology research and development through public procurement.

NIKLAS TIDEKLEV, SWEDISH NATIONAL AGENCY FOR PUBLIC PROCUREMENT
President (Sweden)

What a national authority says ...

Large welfare investments are needed to meet the societal challenges of the future but these resources are found to be lacking in many municipalities. Therefore, it is necessary to create opportunities for innovative companies digitising the public sector the way that IMAILE does. PCP generates development and more efficient working as well as creating savings.
Key notes

BENEFITS EXPERIENCED OF PCP IN LEARNING TECHNOLOGY
Ellinor Wallin, Municipality of Halmstad Coordinator (Sweden)

PCP benefits identified by IMAILE suppliers

IMAILE suppliers during phase 3 recognised several benefits from the PCP process that have created added value for their companies. It should be noted that both suppliers felt that IMAILE is “The most useful European project” they have participated in and the commonly reflected benefits behind this statement concerning software development are:

- the early engagement of end-users in the software development process
- the PCP dialogue at all stages of the software development process
- Learning technology experts (Pedagogical, STEM & technical) consultation resource available throughout the process

Almerin, a Finnish startup, states that the PCP contract has provided R&D resources, access to need analysis and test environments but also highlights market access as well as credibility as top benefits resulting from its participation in the PCP. The credibility consists of proof that there is a market need, proof that their innovation is high-level and that their team is capable. Check out the following link to learn more about PCP from a start-up perspective (Teemu Laitinen, CEO Almerin Ltd.) within learning technology: https://ec.europa.eu/digital-single-market/en/news/companies-talk-about-their-innovation-procurement-experiences

AMIGO, a Spanish consortium of two already established companies, highlights the benefits of working to develop R&D based upon challenges (versus requirements in traditional procurement) in dialogue with the procurers based upon a user-driven methodology that is go-to-market oriented.

Both suppliers also state that the IMAILE outreach and challenge to the market forced them to reach beyond the impossible in their research and development work.

“The IMAILE challenge brief and invitation to tender dared the market to research for the development of one innovative solution capable of accommodating the necessary features and technological developments to respond to a large set of challenges (one solution addressing several challenges). Suppliers agree that the IMAILE call for proposals did contribute to stretching their performance and outreach beyond what seemed to be impossible at first glance. Without this opportunity most of the challenges would not have been addressed and certainly not together in the same research workplan”.

PCP benefits identified by IMAILE Procurers

The procurers also identify the PCP as a tool to change, improve and influence learning technology as a whole in the future and for bringing industry and the European classroom closer to each other, with the procurers in the driving seat of learning technology innovations. By participating in a PCP all procurers experienced that their organisations had gained an increased understanding of the European learning technology market, but also that they had found a useful tool for dialogue in increasing the quality of developed innovations according to users’ needs. One additional statement is that tests with end-users in real classrooms bring the learning technology industry and the technology of the future straight into our classrooms, providing learning and education progress at levels beyond current expectations. PCP has also proven to be an effective tool for managing the digital transformation and innovations within public administrations, and consequently IMAILE was awarded the “most innovative European project” at the VII National Congress on Public Services and Innovation in Spain in 2016.

CNIS 2017 award for most innovative European project

PCP benefits for European schools

The European schools involved in IMAILE announced that being a part of the IMAILE PCP process has increased their European awareness concerning learning technology with a strengthened EU STEM/PLE profile. Furthermore, they have experienced PCP as a democratic process including them as co-developers of future technology according to their needs and input. By enabling innovative industry to enter the classrooms of the youngest EU citizens a dynamic meeting and direct dialogue at an early development stage was facilitated between stakeholders, who together can transform learning technology. PCP has proved to be an effective tool for digitalising European Education, not only from a top down level, but also from a bottom up perspective, with capacity building and dialogue directly to the market.
## Key notes

### PCP project challenges and how to overcome them from a management perspective

Last but not least here are some recommendations on how to overcome specific PCP challenges within a complex European learning technology project.

<table>
<thead>
<tr>
<th>Challenge</th>
<th>How to overcome the challenge</th>
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<tbody>
<tr>
<td>Diversity and heterogeneity of learning technology</td>
<td>Although the European Commission has been making strong efforts to homogenise policies, instruments, practices and procedures etc., education is one area where heterogeneity and diversity among the EU’s 28 countries is still widely visible and noticed, especially when it comes to school curricula, teaching methods, teachers’ skills and technological infrastructures available in schools etc. It is important to have this scenario in mind when working with European joint learning technology procurement and take advantages of lessons learned from the IMAILE and upcoming LEA project.</td>
</tr>
<tr>
<td>Sufficient expertise and skills to form a PCP consortium</td>
<td>The buyers group and its identified need is the core of a PCP but do not forget to include PCP legal experts and technical experts within your consortium to support the process.</td>
</tr>
<tr>
<td>Procurers’ needs are a priority for a dynamic PCP process</td>
<td>Include sufficient time and resources to identify the common needs and challenges as the core baseline of the PCP. Ensure there is a common picture in all procuring countries using workshops and surveys including the end users (schools) before you launch the call.</td>
</tr>
<tr>
<td>Demand and supply side dialogue</td>
<td>Steer the process early and explain your needs over and over again based upon the Challenge Brief (the core Document of the PCP).</td>
</tr>
<tr>
<td>PCP as standalone projects</td>
<td>Use support from the “PCP family ” at EC events, PCP meetings and network with other PCP/PPI projects. Take advantage of the IMAILE Streamlined PCP process and guidelines for learning technology as well the upcoming LEA project. Last but not least, allow the innovation procurement process to take its time.</td>
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For additional information and downloads of IMAILE results and guidelines visit http://www.imaile.eu/about/imaile-results/ and/ or contact Ellinor Wallin Ellinor@euprojektkonsult.se

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### What a regional authority says ...

**ZOLTÁN PAJNA, HAJDÚ-BIHAR COUNTY COUNCIL**

President (Hungary)

We, the Hajdú-Bihar County Council, are highly interested in the IMAILE project and its results. The IMAILE project addresses issues critical to speeding up awareness raising in relation to innovative procurement in the learning technology sector. We believe that these issues have not yet been addressed elsewhere at a European level. Therefore, we highly appreciate the objectives of the IMAILE project and believe that the project will represent a very valuable contribution to the field of learning technology at the European level.
BETT Show and Transfer Workshop  
Conference and Workshop  
Date: 24.-27.01.2018  
Location: BETT London, London Excel, Stand B 457  
Organiser: IMAILE Project  

The BETT Show is one of the largest exhibitions and conferences for innovative learning and education technology. The IMAILE project is proud to be able to contribute to this show with PLE solutions and experiences on innovation procurement. Besides our presence at the BETT Show with a permanent stand, we will offer specific experience transfer workshops at the Novotel, London Excel where the experiences from the project will be presented and discussed in detail. Experience transfer presentations will be held on the 26th January 2018 at 10am, 1pm and 3.30 pm. Admission to the experience transfer workshops is free upon prior registration.

www.imaile.eu  
Email: ellinor@euprojektkonsult.se

OUTLOOK FOR A FOLLOW-UP ACTIVITY:  
THE LEARNTECH ACCELERATOR (LEA) PROJECT  
Ellinor Wallin, Municipality of Halmstad (Sweden)  

Based upon the findings from IMAILE PCP of Innovative STEM/PLE (www.imaile.eu), the project LEARNTECH ACCELERATOR (LEA) will take a quantum leap forward from being one standalone project to developing a critical mass of European procurers within a network (LEA-N) who will:

- Empower LEARNTECH community stakeholders through knowledge transfer in order to remove barriers of innovative procurement.
- Empower LEARNTECH procurers through the development of common demand policies and identification as first customers.
- Strengthen the dialogue between all LEARNTECH stakeholders (focus on demand and supply sides).
- Prepare a PPI of STEM/PLE innovations based upon the challenge of increased demand for personalised learning.
- Prepare a common PCP based upon the needs identified during the project.
- Investigate innovation partnership procedure for flexible procurement.
- Reduce the fragmentation of public sector/demand side within the LEARNTECH sector.
- Speed up awareness raising of PCP/PPI including cross-sectional value chains.

Implementation of these tasks will contribute to SMART, INCLUSIVE AND SUSTAINABLE DEMAND BASED DEVELOPMENT OF LEARNING TECHNOLOGY.

You are welcome to join LEA as an observer organisation and learn more about innovation procurement of learning technology. Contact Ms Kati Clements kati.clements@jyu.fi or Ellinor Wallin ellinor@euprojektkonsult.se for more information.
PHOTO GALLERY
CONCLUDING FOUR YEARS OF PROJECT WORK

All pictures by Ellinor Wallin, Municipality of Halmstad (Sweden)

Meet the IMAILE team in action during the 4 years, a picture says more than thousand words ...

2014

Budapest, need analysis PLE workshop for the procurers using the discussion carousel method.

Finland, PCP and PLE awareness raising event for schools.

2015

Viladecans/Spain, preparing an IMAILE event with citizen dialogue.

2016

Magdeburg / Germany, first face to face meeting between demand and supply side.

2017

March – Luxemburg, outside the DG Connect premises after a successful project review.

May – Berlin, dynamic test interim meeting between the management teams, suppliers and procurers.

September, Finland Konnevesi – IMAILE final project meeting in the “deep forests”.

Photo gallery
Spotlighting European Developments and Projects

Special edition on Innovative Public Procurement

This and previous editions of the Focus Europe Magazine are also available online at:

www.enter-network.eu

For feedback and questions regarding upcoming editions please contact: office@enter-network.eu

IMAILE Partnership:

Halmstad Kommun – Municipality of Halmstad (Sweden)
www.halmstad.se

Ministry of Finance of Saxony-Anhalt (Germany)
www.mf.sachsen-anhalt.de

Innovation Agency Non-profit Ltd. (Hungary)
www.innova.eszakalfold.hu

Ajuntament Viladecans (Spain)
www.viladecans.cat

Municipality of Konnevesi (Finland)
www.peda.net/konnevesi/lukio

INOVA MÀIS (Portugal)
www.inovamais.eu

University of Jyväskylä (Finland)
www.jyu.fi

The Alexanderson Institute (Sweden)
www.alexandersoninstitutet.se

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