



ICT for Learning Innovation: from Micro Innovation to Large Scale Adoption



Lifelong
Learning
Programme

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INTRODUCTION

The VISIR - Vision, Scenarios, Insights and Recommendations on how ICT may help making lifelong learning a reality for all – project, supported by the LLP Programme of the European Commission, has mobilised the energies of seven European networks in the period 2012-2014 to foster understanding and networking around ICT, and innovation in European Education and Training. First, we have drafted a [long-term vision](#) on the contribution of ICT for transforming learning, based on twelve domains of change and connected with a number of emerging [trends](#). Then, we have identified and mapped more than 120 [micro-innovation practices](#), typically small-scale cases of high impact and bottom-up nature with innovative applications of ICT for teaching and learning, and we have selected and broadly promoted the [most representative 23 cases](#), spanning from school education to higher education, to informal and corporate learning. The project findings have been discussed and improved through six Knowledge Exchange Seminars and through two mainstreaming [events](#), reaching more than 500 participants and engaging a different range of stakeholders, from policy makers to researchers to grassroots innovators. Finally, along the way we have validated and improved this vision through four [stakeholders consultations](#), collecting more than 7.000 opinions. In the VISIR website (www.visir-network.eu) the proceedings of these events as well as a number of other reports, that inform the content of the present document, can be downloaded.

If one message had to be distilled from the VISIR experience, it is that **successful mainstreaming of ICT-enabled innovation in education strongly depends on grassroots practices uptake and valorisation.**

By collecting and analysing evidence from the work of innovators from all over Europe and by investigating the main barriers and the favourable conditions for mainstreaming bottom-up innovation, we have discovered that, whilst educational systems have responded to policy initiatives that aim to stimulate innovation and promote modernisation, there is some evidence that **institutional education environments are often conservative, slow to change and not supportive to grassroots innovation.** Educational settings are still based on ‘industrial’ models which work in a reproductive rather than transformative and explorative mode, and are too often based on organisational cultures which are hierarchical, segmented, slow in response to external change and based on an ethic of conservatism.

The present publication presents, in a condensed way, the main results and messages of VISIR: readers are invited to check the many links in this booklet to browse our work more in depth on the VISIR website.

PARTNERS

VISIR brings together, under the coordination of the [MENON Network](#), some key associations in the field of education and training: the European Association for Distance Learning ([EADL](#)), the European Distance and E-learning Network ([EDEN](#)), the European Foundation for Management Development ([EFMD](#)), the European Learning Industry Group ([ELIG](#)), the European Interest Group on Creativity and Innovation ([EICI](#)), the European Foundation for Quality in e-Learning ([EFQUEL](#)), as well as [KU Leuven](#).



KU LEUVEN

Building visions is always tricky, especially in areas like education where high turbulence coexists with strong resistances to change. Because of this, VISIR has been working on twelve domains of change, connecting them with the main trends that we have been able to identify in the European Education and Training panorama.

These trends were identified through extensive desk research and brainstorming activities with high-level experts and decision makers in a Vision Building Seminar in Bologna in May 2012. We have analysed how these trends play an influence on each domain of change and are likely to produce new challenges or rather solve existing problems and policy trade-off. During this phase, we went in depth into scrutinising those trends against different learning sectors, countries and dominating rhetoric. To this aim we have used internal consultation relying on the several networks in the consortium which represent many European countries and lifelong learning sectors as well as on key literature and reports on trends in education in Europe, such as those from **IPTS: Institute for Prospective Technological Studies**, **OECD: Organisation for Economic Co-operation and Development**, **EUA: European University Association**, **EFMD: European Foundation for Management Development**, **CRELL: Centre for Research on Education and Lifelong Learning** etc.

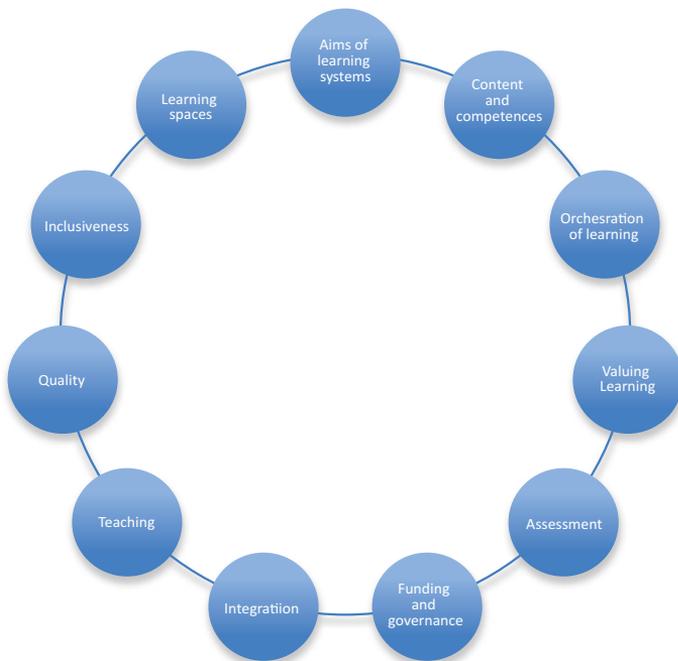


Figure 1: The VISIR domains of change

As a result, the VISIR Vision Report represents first a framework to analyse change and to build visions in the field of ICT for learning. This framework is based on a set of domains of change in learning systems. These are critical areas of transformation through which education systems can be mapped and the contribution of ICT defined. Each domain is described through the most important trends that influence the development of innovative ICT-for-learning application in that domain and through links with the most relevant micro innovation practices mapped by VISIR.

The state of art of ICTs in education and policy trends in Europe in 2014 is not easy to describe, due to the coincidence of transitional factors. This period is characterised by rapid and intensive changes in learning innovation and open educational resources.

In the last few years, the results of several analysis, observatory and foresight activities became available and have been disseminated and debated in conferences and seminars. Most European governments have also commissioned such strategic papers, studies and latest issues of periodic reports. With different perspectives, corporate sector organisations also have been present in the debates with position papers and studies.

The increasing public interest in particular towards the open education related issues such as MOOCs: Massive Open Online Courses also generated countless articles in media, representing inspiring diversity of approaches and opinions.

Changes in technology by integrating different sets of tools in high performance and extraordinary capacity devices were supplemented by the enhanced affordability of the new powerful instruments. This was leading to the rapid spreading of the recent technologies, resulting a never earlier experienced increase of demand and use for them. The changing notion of access, accompanied by increasing volume and improving quality of the digital content, further the profoundly transforming user habits and expectations resulted the re-interpretation of related concepts and have re-positioned the social impact of ICTs in learning.

The above factors initiated a number of paradigm-changing transformations in the past years, with accelerating changes in the period of the last year of VISIR. For this reason, we believe that the VISIR vision is particularly useful in the present „meta-stable point” of the development/change curve of ICT for learning in 2014.

Looking for micro-innovation practices of ICT for learning, we have found a goldmine of real-life and spontaneous ideas and applications where genuine bottom-up innovation is driving the application of ICT teaching and learning practices, which build digital and other key competences.

School

Whilst austerity has been continuously present in the education sector in Europe, the variety of novel products across different disciplines, target groups and educational settings is encouraging. It seems to prove the power of the imaginative use of ICTs as an eventual compensation for the shortage in financial resources, but also to exploit their potential on a wide scale to deepen and enhance the learning experience and improve teaching effectiveness. The access issue is demonstrated by learning solutions for the early and special needs education, in problematic circumstances, such as in [RoboBraille](#), dedicated to visually impaired students. Multimedia rich learning and augmented reality represent an almost unlimited resource of creative solutions: practically every subject and course can be well supported by multimedia and illustrative interactive animations, such as in [Ecologically Intelligent](#) and [PodcASTIng](#). Simulated learning in rich media-simulated environments can well support the motivation of pupils by age-relevant compatible solutions, enhancing their learning experience, such as in [Eco MUVE](#). The usefulness and versatility of the IT tools developed are well demonstrated in the courses combining learning content with inspiring everyday situations. For example, [The Sentinel](#) aims to provide energy saving by putting students in control of the schools energy use. User-generated content is not typical for this age group but few good examples exist, such as [City of Young Researchers](#). Many rich repositories have been created for software, courseware, learning content, with enhanced tagging, search, integration solutions and smart functions, such as [yTeach](#).

Higher Education

Higher education needs to deliver the leaders of tomorrow and also graduates with the competencies and skills required in the professional world, the emphasis lying more and more on transferable skills and a lifelong learning attitude. ICT can support the development of these competencies and stimulate this attitude. Looking for creative ways to use videos in combination with Twitter as a teaching tool? Have a look at the [Scaffolding Learning](#) case, where students are engaged in critical thinking and decision making, by a combination of videoed clinical simulations and social networking. Can we open up our education and involve different stakeholders into the learning process, giving students work experience through virtual mobility? The [International Innovation Lab](#) case shows how students

can increase their intercultural and language competences as well as their teamworking skills by allowing them to participate in virtual work placements. What about facilitating employability through real life working experiences while still at the university? In the [AUTH project](#), computer engineering students are coding within real open source projects as part of their assignments. Like this, they are able to show to future employers their capacity and to learn how coding communities work in real. As a last example, [Japanese Writing System](#) is a simple flash tool to learn the Japanese alphabet developed by a university professor that has doubled the speed of acquisition of reading capacities and that boosts motivation and autonomy compared to paper-based materials.

Learning at work

Organisations are exploring new approaches for workforce development, enhancing teaching methods, integrating social media, and investing in personalised and adaptive eLearning. The VISIR practices demonstrate how to deal with the challenge of learning new skills in a rapidly changing work ecosystem. [LogiAssist](#) is a mobile and just-in-time learning app for truck drivers to help on international driving regulations, health related information and the handling of dangerous goods. With a real blended learning approach, the [Eversheds](#) law firm has developed a set of online “skills compasses” to support high performance throughout the business, supported by interactive webinars, pod and video cast, discussion forums or blogs. The [MOVE-ON](#) app provides training on practical aspects of property maintenance through students own experiences recorded on smart phone video and then reflected on and discussed. ICT has enabled distance learning techniques to become more mainstream in learning at work: for example, the [LIVETIME](#) initiative delivers bite sized learning on leadership and management to organisations through interactive micro-webinars.

Informal learning

Through ICT learning can take place anytime and anywhere, also beyond the walls (and the websites) of learning institutions. The VISIR cases focusing on informal learning represent a great source of inspiration to boost learning motivation and the capacity to learn of European citizens, and go from very simple ideas to more elaborated informal learning systems. To give a very successful example, [Apps for Good](#) wants to improve students and educators’ skills and confidence, and to build a learning community that can inspire how to face social problem through technology while learning about programming and app development techniques. Two practices can exemplify the many community-driven approaches present in the VISIR database. The first is [Patongo](#), a project started by the Evangelic Church of Germany, with the idea to increase the understanding of good practices in the community through a web-based online platform, including skill sharing, reflection, joint problem solving and good practice repositories. Another example is [FLOQQ](#), an online “marketplace” connecting people who need to learn specific skills with people willing and able to teach them, therefore democratising continuous education by empowering people to learn and teach what really matters to them.

During the three years of VISIR, we believe we have learnt some important lessons, especially from talking to the persons behind each and every innovation. In this section, we present these lessons in the form of simple recommendations of what could be done to let grassroots innovation flourish and to mainstream successful bottom-up ideas.

These recommendations are targeted to the three stakeholders categories that must act to make the change possible: **policy makers, educational leaders and grassroots innovators**, and have been debated and fine-tuned with representatives of these stakeholders along the whole trajectory of VISIR.

RECOMMENDATION TO POLICY MAKERS

Recommendation 1.1: Encourage bottom-up development and consolidate support to grassroots innovation at the EU level

Whilst the Open Education and MOOCs offer large-scale policy options, examples of grassroots micro-innovation demonstrate a huge range of cases providing impact and change. Because of this, **the EU should continue to support and fund grassroots innovation in teaching and learning**, in the frame of its new Erasmus+ and Horizon2020 programmes as well as through the European Structural and Investment Funds. Echoing a recent report on innovation in Europe by NESTA and Lisbon Council¹, VISIR believes that European policy in the field of education and training should include a strong experimental component, trying out new policy tools, allowing such as supporting clusters of innovators, promoting rapid prototyping and awarding high-impact projects by providing sustainable funding mechanisms which go beyond the typical two-years project lifecycle.

Recommendation 1.2: Create open innovation platforms and support grassroots innovation at the national level in all Member States

Member Countries should be consistently supporting innovators and innovation-friendly environments, by working both on tearing down systemic barriers to bottom-up innovation ideas and at recognising and rewarding the work of individual grassroots innovators. Member states – as the EU is doing in the Erasmus+ programme – should implement Open Data and Open Education policies, so to allow innovators to reuse results of previous activities. Echoing the 2014 recommendations for innovation scalability by IPTS², the **development of a ‘culture of innovation’ should be fostered at system level**, removing the fear of change and supporting decision-makers, teachers, and other stakeholders when taking sensible risks and trying new things. Finally, as

1 Lisbon Council (2013). “Plan I(nnovation) for Europe: Delivering Innovation-Led, Digitally-Powered Growth”. <http://www.lisboncouncil.net/publication/publication/99-plan-innovation-for-europe-delivering-innovation-led-digitally-powered-growth.html>

2 Brecko, B. N., Kampylis, P. & Punie, Y. (2014). Mainstreaming ICT-enabled Innovation in Education and Training in Europe: Policy actions for sustainability, scalability and impact at system level. JRC Scientific and Policy Reports. Seville: JRC-IPTS. doi:10.2788/52088.

stated by the European Committee of Regions, **European regions should play a role:** Europe needs pioneering regions to be forerunners in supporting users-driven open and localised innovation (e.g. through Living Labs).

Recommendation 1.3: Provide funding support tailored to micro-innovation

Given the current economic crisis affecting Europe often resulting in budget cuts in the field of education, **new options for funding should be investigated**, such as crowdfunding or “micro-funding” for grassroots innovation in teaching and learning. This could complement public funding and at the same time enhance an entrepreneurial spirit in institutions and actors traditionally not akin to entrepreneurship. A mix of large-scale (macro) and small-scale (micro) funding mechanisms to innovate education, training and learning should be in place, which combines material (funding) and immaterial incentives (recognition, respect). **Funding programmes should adopt open approaches**, encouraging the use of Open Source Software (OSS), Open Educational Resource (OER) and Open Educational Practices (OEP), and should aim at taking away bureaucratic burden from innovators.

RECOMMENDATIONS TO EDUCATION LEADERS

Recommendation 2.1: Reward grassroots innovation

As suggested by IPTS in their 2014 recommendations, Education leaders (school-heads, university and VET managers, HR responsible people in companies) should **recognise the role of teachers as agents of change** (rather than objects of change) and should encourage them to take ownership of their innovation. Innovative teachers and trainers should be provided with tangible **recognition and incentives** to implement their innovations, making innovation a leadership priority. Innovative and risky ideas should be rewarded, and never discouraged. Less hierarchical and more peer learning models should be encouraged, engaging the stakeholders in the learning process, and sharing success and failure stories. Recognised innovators, as stated by IPTS in their 2014 recommendations, should be supported (through e.g. formal recognition and informal reputation mechanisms, technical support, pedagogical advice, etc.) and motivated to participate in **professional innovators networks**, sharing and disseminating pedagogical, technological and societal innovations.

Recommendation 2.2: Give teachers the support they need

Teachers training in the use of ICT for learning should be accompanied by “**innovation support**” activities. These refer for example to entrepreneurship skills development, training in boundary crossing (e.g. working with government, companies, etc.), project-based training, to long-term contextualised support instead of ad-hoc short training courses. Technological and pedagogical support should work together; teachers should be trained in their context and without expecting immediate results, as innovative approaches need time to show an impact. There should be a balance between the vision of the leadership, the teacher training, the selection of physical environment and the free choice of tools.

Recommendation 2.3: Transform teachers into innovation managers

Innovation management skills should be fostered among European teachers. Often innovation is considered as “additional work” instead of a way to run the core teaching activities in a more effective way. The time of the teachers implementing innovation should be accounted by education leaders, paying the teachers for the extra time they spend to produce innovative pedagogy but also taking into account the capacity of innovative pedagogy to free system resources. Funding for extracurricular work as well as additional room for innovation should be in place, so to ensure innovation sustainability. Teachers should be supported in understanding the cost of their innovations and in developing step-by-step “business plans”, which evaluate each step and ask funding step-by-step.

RECOMMENDATIONS TO GRASSROOTS INNOVATORS

Recommendation 3.1: Advocate for support showing your results

In order for grassroots innovation to be supported, they must be able to **show significant and evidence-based impact**, possibly on different dimensions such as pedagogy, cost and organisational aspects of education. Feasible and manageable evaluation approaches should be put in place by innovators to measure their impact, possibly using longitudinal studies and meta-analytic approaches. Innovators should not be afraid to fail. The failures, which happened along the way, can be a valuable learning source, and should be also shown to potential supporters in order to demonstrate that the grassroots innovation has been tested in different settings, which did not all work.

Recommendation 3.2: Bet on your learners for scaling up innovation

Learners can be the driving forces for an innovation to scale up. Students will talk about a new learning method, platform or software if they are happy with the experience, therefore innovators should take advantage of students and of all related-stakeholders: alumni, parent boards, student associations, partner schools. Students and learners communities should be engaged in innovation promotion activities, such as events, exhibitions, competitions, social media, etc.

Recommendation 3.3: Be sure the world knows about your innovation

Thanks to the web and to social media, grassroots innovation can be made known to other teachers but also to potential supporters and funders. In describing their work, innovators should create an **emotional connection, which inspires and surprises people**, ensuring the simplicity of the message and using the appropriate messenger: for instance, it is better that a head teacher speaks to other head teachers. Storytelling is the most convincing method to spread the word, coupled with the use of individual testimonials: learner should be let to tell the story their way. Finally, innovators should consider the use of Open Educational Resource (OER) repositories for their projects and ideas, so to ensure re-usability, re-purposing, and integration.





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