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CAMEI
**Coordination Actions in the scientific era
of Medical Education Informatics for
fostering IT skills for healthcare
workforce in the EU and USA**

D2.1 White Paper

**It includes recommendation policies on Medical Education Informatics for healthcare
workforce in the EU and USA and cooperation opportunities**

EXECUTIVE SUMMARY

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Author(s)	<i>Nabil Zary (KI), Panagiotis Bamidis (AUTH), Stathis Konstantinidis (NORUT), Vicente Traver (UPVLC)</i>



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Setting the scene

This document, called D2.1 'White Paper on IT skills for healthcare workforce in the EU and USA and cooperation opportunities' is the first major result of the CAMEI project, that aims to coordinate research activities and policies towards the development of renewed educational material and programs, to boost new trends for acquiring new knowledge in respect of the implementation of eHealth systems in practice, foster transnational access to research infrastructures from both EU and USA partners and establish a network of best practices in Medical Education Informatics.

Therefore, this document presents a complete overview about the state of the art about IT skills education for the healthcare workforce in the EU and USA, paying specific attention to the socio economic factors, making a specific analysis about the current educational programmes from different perspectives (technologies, users, IT skills, policies, supporting organizations...)

As European and US society ages, healthcare and related social services are becoming increasingly important. In Europe, this growing demand for services, provided by the public sector in many Member States, is creating unprecedented pressures on health and social care systems. According to the OECD, the healthcare sector employs almost 10% of the total workforce and corresponds to almost 9% of gross domestic product (GDP) in the European Union. Moreover, health expenditure is increasing at a faster rate than the GDP, with an estimation to rise in OECD countries up to the 16% of GDP in 2020.

With this framework, the situation is challenging, as the system won't be sustainable unless the appropriate changes at all levels to how healthcare is delivered and how resources are employed are made.

The problem

Addressing IT skills for healthcare workforce is seen as an important element of achieving greater social inclusion as identified in EU and National policy areas. Therefore, **the sector needs an adequate workforce both in numbers and with the right skills and competences**. However, nowadays Europe and the US are facing skills shortages in healthcare positions such as nurses, medical specialists, and health technicians, especially in certain countries

Most governments, social partners and professional bodies are working towards improving education and training for healthcare workers. As healthcare workers - especially medical specialists, but also many nursing and technical professionals - need many years of training before they are fully qualified, investment in training is critical for developing high-quality health services. Development of training usually goes hand-in-hand with development of job classification and qualification systems.

Physicians, nurses and other professionals interact with patients every day, and ICT, especially the internet, can enhance the communication processes among them, providing timely information to patients about disease prevention, health promotion, as well as treatment of diseases. ICT skills are: access to health science information, management of health information and knowledge, generation and dissemination of health knowledge. **The development of these new ICT skills requires digital literate people.**

To deal with that, EU and the US are aware about the amount of teachers with a vast knowledge and expertise in the field as well as there exists awareness and willingness from stakeholders to participate in those e-learning initiatives and provide feedback for improvement through multidisciplinary teams for continuing professional development (CPD) or life-long learning (LLL).

However, most of the e-learning programmes are focused on specific topics without a global approach, and contents are heterogeneous and need periodic update at IT skills demands are changing very fast. The fact that quality stamps are not widely available on all aspects of IT training for healthcare does not help to deal with this challenge.

Coping with that is even more complex when the country factor appears: multiple stakeholders, different requested skills for the same professional groups, various courses and platforms attempting the same goal without a clear winner, or different accreditation systems.

Therefore, it is commonly agreed that establishing accreditation standards that require competencies in IT skills for healthcare workforce, and related areas will help facilitate inter-professional education among health care providers. Contents are already available and what is needed is assessment to make personalised education based on existing/previous modules. Content curation could be effectively and efficiently utilised to quickly produce and/or expand IT skills related material at all levels. Open Education becomes more widely accepted as the norm; it will prove very useful in the time course with respect to EU-US related activities in healthcare IT skill provision.

The recommendations and the outcomes

This whitepaper identifies some key recommendations about how USA organisations and communities can cooperate with EU organisations in order to empower sharing, reuse, repurposing and creation of educational material applied in different context and promote renewal of programmes.

Technology standards, strategic R&D, and educational activities are the three main areas where investment focus should happen.

From the technology standards perspective, it is clearly recommended the creation of a **pool of expertise and resources available and reachable** by the whole community that should be reinforced by a **strategic framework for technology standards in healthcare education**.

Concerning the strategic R&D, it is time for a **joint policy and action plan** development where issues as **IT skills for healthcare workforce registry and certification** are a must. Involvement of US partners in the upcoming EC funding calls and vice versa will help to push for a common approach about **accreditation of organizations** that provide education/training.

Use of **Open and Flexible Education** models and initiatives such as Massive Online Open Courses (MOOCs) or Open Education Europe, and the suggestion to develop **regulatory guidelines** about how IT skills programmes are financed, are the key recommendations related to the educational side.

Four target groups have been identified as the main receivers of the outcomes coming from this set of recommendations: EU-US health policy makers, EU-US education policy makers, the healthcare workforce and IT researchers on the health field. Therefore, even list is more detailed in further sections, **EU-US health policy makers** will identify barriers for the mobility of IT skilled healthcare workforce between EU-US and they will primarily get a joint policy and a prioritised action plan. **EU-US education policy makers** will get recognised eHealth/Health IT as speciality, having identified the set of IT competences needed at international level. That will allow recognition of competences beyond frontiers and the creation of a common competency framework. One of the major expected outcomes for the **healthcare workforce** will be the existence of a pool of common shared knowledge and resources easy and ready to use in addition to its involvement the definition of an International accreditation system for Medical Education Informatics programmes. From the IT research perspective, new outcomes are also expected as the development of a framework for a social semantic registry of IT skills for the healthcare workforce or the definition of an strategic framework for technology standards in healthcare education that would allow a **systematic tracking of healthcare workers IT skills achievements, access learning opportunities and measure improvements**

The conclusions

This whitepaper is only the first step, the starting point for a major task where the entire CAMEI consortium and the produced documents are one of the solid bases to go further. Therefore, after reading the whole whitepaper plus the annexes, it can be concluded that:

- **Common challenges and opportunities on providing IT skills for healthcare workforce** have been identified, assessing the cooperation potential among the EU and the US.
- A **benchmark in detail policy priorities of US on IT skills for Healthcare workforce** and research sub-areas with those of EU (i2010, FP7-ICT strategic priorities, Horizon 2020) has been performed to help partners from the other side to be involved in joint related activities.
- **Open Education and the creation of some educational frameworks** have been identified as the means and the guidelines of sharing, re-using, and repurposing technologies of new

educational material and programs for IT-skilled workforce in healthcare applied in the different context, different languages and cultures in the EU and US.

- A prominent **base of cooperation** where mutual benefits can be generated for both regions has been located, identifying key players from the **EU and US**.

This whitepaper ends with a set of references and annexes that can provide the background enough for any reader interested on these subjects, creating awareness about the importance of transnational IT educational programmes for the EU-US healthcare workforce.

Annexes for empowering interested readers

Some Annexes have been attached to this White Paper as they contained useful, valuable, specific and extended information about some topics raised in the White Paper. However, they have been moved as Annexes to keep the focus on the real goal of this document but providing a complementary view for those specially interested on such topics.

Therefore, Annex I includes **an analysis about programmes and opportunities** in order to provide IT skill across EU and US in the healthcare sector, including relevant funding opportunities for EU-US collaboration. Annex II presents the concept of **Open Education and Open Educational repositories** as one of the main valuable conceptual tools that can be used to address the challenge; now, it happens through **Massive Open Online Courses (MOOCs)** but new tools can appear under the umbrella of Open Education. Annex III addresses the **need of a framework for a social semantic registry of IT skills** for the healthcare workforce and how this can improve reuse of existing content and knowledge to create personalised educational material to cover IT skills gaps. Annex IV presents a review done by the consortium, identifying the **major socio-economic factors and trends for IT skills** education for the healthcare workforce in the EU and US whereas the Annex V contains a **set of frameworks/efforts for IT competences** that can be used for the healthcare workforce.

To end, this is a live document that is periodically updated by the CAMEI consortium. Therefore, visit the website <http://www.camei-project.eu/> for updated versions or please, send an e-mail to Dr. Stathis Konstantinidis Stathis.Konstantinidis@norut.no, coordinator of this project to receive updated versions of this document.