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Developing qualification profiles for jobs in Ambient-Assisted Living

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Executive Summary

Background

Demographic change and the resulting increasing demand for geriatric care on the one hand, and the increasing individualisation of society on the other hand, is a big challenge most European countries are facing. In order to cope with this challenge, concepts of ambient-assisted living (AAL) have been developed in several European countries during the last decade and include concepts, products and services aiming at connecting technology and social needs with the goal to increase quality and length of independent living for elderly. Ever since ambient assisted living is not only an issue of technological research and development, but also a rapidly growing economic sector creating new jobs.

The complexity of all the useful innovations in the field of AAL need professionals who know how to incorporate, install, service, and use those devices. At the time the project started, no specific further vocational trainings were available in European countries related to the use and development of ambient-assisted living systems and tools. Thus, it was high time to build a bridge between the technical developments and the actual use in the everyday living of the elderly who choose to stay at home rather than moving into nursing homes. To meet the job market needs driven by AAL technologies, the new job roles in this sector as well as the new knowledge, skills and competences needed for these had to be identified. In this process, the CompAAL project scrutinised the five most relevant new AAL Job Roles emerging and evolving around AAL technologies and drafted detailed profiles on knowledge, skills and competences required in these job roles. On the basis of the profiles, which documented the current job market needs in the field, Training Guidelines were elaborated, which shall support training organisations in developing ECVET-based training curricula for these AAL Job Roles. The project outcomes were complemented by an XML-based ontology of the AAL Job Roles, which makes them machine-readable, and thus electronically usable within databases of Job Agencies, Job Centres, and other employment services.

Objectives and links to other projects

Members of the e-Jobs-Observatory, a European stakeholder network, fostering the harmonisation, standardisation and improvement of qualifications for e-Jobs at European level since 2009, initiated the CompAAL project. According to the LLP Programme Priority “New Skills for New Jobs”, the project’s main objective was to identify the emerging jobs in the field of AAL and the relating competence needs. As the AAL sector is driven by innovation in ICT and thus continuously evolving, it has been suffering from a lack of appropriately trained professionals recently. On the basis of the newly identified and described AAL Job Role Profiles, the project developed Training Guidelines for those AAL Jobs which will help VET providers

innovating and improving their training offer in order to meet the skills needs on the AAL job market.

The project consortium consisting of 11 partners from 8 European countries has been accumulating experience in developing qualification profiles for professions in the ICT sector in several previous projects. In developing the AAL Specialist Profiles, the consortium made use of a generic methodology, firstly developed within the LLP project EQF Code (2008) and since then continuously further refined. This methodology facilitates the definition of job role profiles (based on learning outcomes) in compatibility with the e-Competence Framework, the EQF and the principles of ECVET. So the Profiles developed within CompAAL are not a stand-alone product, but are in line with standardisation and harmonisation attempts at European level of ICT skills (CEN WS on eSkills). Up to now, around 25 e-Job Role Profiles are available at the e-Jobs-Observatory platform www.e-jobs-observatory.com in the same standard as the CompAAL profiles. Other projects are currently working on the definition of further 10 Job Role Profiles in line with these, so that soon there will be 35 e-Job Roles defined in a standardised and thus, transparent and comparable way.

The Job Roles identified and mapped in the field of ambient-assisted living include, all knowledge, skills and competences regarding the technological developments in this sector, complementing traditional Job Roles in the Health care and elderly care sector. The project has made available a set of 4-5 qualification profiles to the stakeholders in order to move forward the actual professional use and application of the innovations presented in the field of ambient-assisted living in the previous decade. On this basis, training guidelines have been developed that facilitate the adoption of these by vocational training institutions offering specialised qualifications to professionals in the related fields of AAL such as architects, geriatric staff, nurses, medical staff, IT specialists and technicians as well as professionals in medical engineering.

By creating these new qualification profiles in a new economic sector (new skills for new jobs), training in this field has been newly structured and thus improved. Additionally, the set up of harmonised qualifications at European level in a relatively new field of employment has been fostered from scratch. This will also facilitate the professional mobility of specialists in ambient-assisted living jobs among the participating member states.

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1. Project Objectives

Although the sheer number of innovations in AAL of the last decade is enormous, these innovations can only be implemented successfully if the labour market disposes of sufficient well-qualified professionals in the field. Currently, companies involved with the implementation of AAL services and products, face a large gap between offer and demand of qualified employees; a gap that is expected to grow even further in the course of the next years, as AAL has been titled a “market of the future”, which is expected to grow to a economic power more than twice its 2006 rates until 2012 (cf. BCC Research 2007: Telemedicine – Opportunities for Medical and Electronic Providers, Wellesley). Although this increase has been anticipated already years ago, further education for people working in the AAL area is still massively lagging behind according to a study published by the German Institute for Innovation and Technology VDI/ VDE-IT in December 2009 (cf. Die Fachkräftesituation in AAL-Tätigkeitsfeldern: Perspektive Aus-und Weiterbildung, Regina Buhr). Therefore, the aforementioned study considers the establishment of AAL specific further education offers as crucial for being able to meet the increasing demand for skilled workers to implement AAL applications nowadays and in the coming years.

Accordingly, the project objectives have been to ensure that the high demand for further education of already highly specialised staff mentioned in the previous section will be met. Organisations and companies operating in AAL should be enabled to fall back onto a harmonised and transparent system of further education for their staff. This should not only strengthen European companies in competing internationally on the rapidly increasing AAL market but also enable European employees in the field to move freely between European countries as content and output of the educational measures are now transparent and valid for all European nations. As demographic change is an equal challenge to all European countries, and the general trend is for elderly people to stay in their homes rather than moving in with their children or into elderly homes, the education of a great number of specialists in AAL disposing over a wide range of qualifications in AAL topics is essential in all countries.

Thus, the concrete aim of the project was to develop a set of 5 defined qualification profiles for specialists in the field of AAL. Based on those newly developed specialist profiles, which were described by knowledge, competences and skills, training guidelines were drafted, which are now supporting training institutions in developing training offers that meet the job market needs in the emerging AAL sector.

2. Project Approach

The methodology for setting-up the 5 AAL specialist profiles followed the approach developed within the previous LdV projects EQF Code and EQF iServe for setting up qualification profiles in ICT-near professions in compliance with EQF and eCF. A further adapted version of the EQF Code methodology was applied for the development of the training guidelines.

For the implementation of the planned work, a work plan (including time schedule) laying down the methodology for the project was developed. All work packages were divided into subtasks and milestones were established, that could be considered also as indicators of achievement (KPIs) on which the actual progress of the project could be measured.

In the 24 months of project duration the following activities were carried out:

WP 1: Analyse competence needs of organisations/ professionals active in the field of AAL in all countries involved in the project

(January 12 - June 12)

The WP involved:

- Setting-up research guidelines and selecting appropriate research tools
- Carrying out a desk research in all 8 countries to specify and collect competence needs in the field of AAL
- Carrying out field research in all 8 countries to complement the findings of the desk research on competence needs in AAL related jobs
- Describing AAL-qualification profiles by learning outcomes per country

Milestone 1 – Draft National qualification profiles per country

Measurable indicator of achievement in all countries: individual country reports, 5 questionnaires per country, profiles descriptions from each country

WP 2 Create European AAL specialist profiles (approx. 4-5 professional specialisations in the field of AAL) in compliance with the principles of EQF/ eCF (Jun- Jan 13)

This work package involved:

- Identification of criteria to select the AAL job roles and profiles that are the most relevant and most common for all 8 partner countries involved into the project
- Integrating the national AAL qualification profiles into European-valid specialist profiles, by identifying the common denominators and core competences
- Aligning the profiles to the frameworks EQF, eCF by following the methodology and the representation standard of the EQF Code/ EQF iServe project
- Creating semantically rich machine readable versions of the AAL specialist profiles

Milestone 2- European AAL specialist profiles classified in the eCF/EQF (Dec 12)

Measurable indicator of achievement: 5 AAL professional profiles described by learning outcomes

Accompanying to the technical work packages, the partnership has been working on the translation of the interim results of the project, dissemination of information about the project and on the interim results, the exploitation of the project results, the quality assurance and the project management.

WP 3 Draft training guidelines for AAL qualifications (Feb 13- Jun 13)

This work package involved:

- Drafting learning modules/ units and core learning outcomes for the five AAL professions: AAL Community Manager, AAL Consultant, AAL Maintenance Specialist, AAL Solutions Developer, AAL System Architect.
- Weighting of the learning units according to the principles of ECVET

Milestone 3 - Training guidelines for AAL qualifications in compliance with the principles of ECVET

Measurable indicator of achievement: Document defining learning objectives, learning units and learning outcomes for 5 AAL specialist trainings with suggestions for the implementation of ECVET

WP 4 Evaluation

This work package involved:

- Evaluation of the training guidelines and European specialist profiles by relevant stakeholders
 - Analysis of the feedback and revision of the training guidelines and specialist profiles
 - Revision of the semantically rich machine-readable descriptions of the AAL profiles
- Milestone 4a- Evaluation report and M 4b further improved training guidelines and European specialist profiles

Measurable indicator of achievement:

5-10 questionnaires filled-in per evaluated product per country

Evaluation report summarising the main suggestions for improvement for both products

WP 5 Translations

This work package involved:

Milestone 5.1: European AAL specialist profiles translated into all languages of the project partners

Milestone 5.2: Training guidelines translated into all languages of the project partners

Measurable indicator of achievement: 5 translated specialist profiles in each partner language of the project; training guidelines translated into all seven languages of the project.

3. Project Outcomes & Results

The aging society and demographic change is a problem that affects almost all European member states to a similar extent. Thus research, development, implementation, maintenance and other services in the field of AAL technologies become increasingly important throughout Europe and represent an economic sector with a high potential for growth and for creating new jobs. This has an impact on all European member states. Many of the R&D activities in the field are carried out through the AAL Joint Programme, an initiative that involves 20 EU Member States and 3 associated countries (www.aal-europe.eu). So there is already professional mobility among researchers at European level in the emerging job market of AAL, which calls for comparability and transparency of qualifications.

So far, there have not been any specific educational offers that take in consideration the particular professional challenges AAL technologies, products and services bring about. In most of the project partners' countries, there have neither been specialist qualifications nor further vocational trainings for practitioners in related fields.

However, there is a need for structured offers of further respectively specialised vocational training for a wide range of professionals that are increasingly “affected” by AAL in their daily work. Professionals in various fields need to expand their knowledge in order to become able to meet the requirements for AAL applications in their respective professional field. Such specialised trainings should follow an interdisciplinary approach, integrating technical skills, social and health-related know-how, geriatric care, etc.

By defining specialist qualifications and new skills in the field of AAL and providing training institutions with the necessary guidelines, an innovative set of further qualification measures has been developed and introduced to VET providers. Thus the project has been contributing to reduce the skills shortage and the lack of appropriate further vocational training offers in the field of AAL.

The main innovative outcomes of the CompAAL project are:

- (1) A set of 5 professional profiles in the field of ambient-assisted living defined by learning outcomes and making reference to the eCompetence Framework and the EQF. These professional profiles are: AAL Community Manager, AAL Consultant, AAL Maintenance Specialist, AAL Solutions Developer, AAL System Architect. They are based on the market needs identified by thorough desk and field research in 8 European countries.
- (2) XML-based versions of these job profiles
- (3) Guidelines for training institutions complying to the principles of the ECVET so that they can set up training offers in the field of ambient-assisted living professions accordingly

By these new qualification profiles in a new economic sector (new skills for new jobs), training in this field can be now restructured and thus improved. Additionally,

the set up of harmonised qualifications and vocational trainings at European level in a relatively new field of employment has been fostered from scratch. This is facilitating the professional mobility of specialists in ambient-assisted living jobs among the participating member states.

Moreover, the production of XML-based machine readable versions of these profiles is facilitating the reuse of the descriptions, especially in Web 2.0 applications, such as skill request/offer or training request/offer matching applications, semantically rich searching, social content tagging etc

4. Partnerships

The consortium has been accumulating experience in the field of developing qualification profiles for professions in the ICT sector in several previous projects. In developing so-called European specialist profiles, the consortium not only developed a generic methodology which could be adapted in order to create further education profiles for professions in ambient-assisted living, but also became acquainted with the existing qualification frameworks eCF, EQF and ECVET, which build a base for facilitating European-valid skills profiles.

The project partnership involved and represented the interests of the main stakeholders of employment in the field of jobs in ambient-assisted living. The partners were:

1. Institute for Assistance Systems and Qualification, at the SRH University of Applied Sciences in Heidelberg (DE): A research institute very active in national AAL research and in the development of innovative qualifications
2. Euproma GmbH & Co KG: A consultancy for project development and implementation in the ICT-related VET and R&D field.
3. Dekra (DE): The major private vocational training institutions in Germany
4. Hellenic Open University (GR): A university offering distance learning courses, being very active in AAL research and development and interested in offering training in this field:
5. MPS (FR): A major training provider in the Aquitaine region in France, particularly for professions in the social sector and caregivers.
6. EMF (UK): The European Multimedia Associations, representing the interests of several thousands European SMEs from the ICT sector, amongst them a significant number of companies offering AAL technologies and solutions
7. IVSZ (HU): The Hungarian ICT association representing the interests of a large number of Hungarian ICT companies/ respectively companies active in the field of AAL
8. Gaia (ES): The Basque ICT association representing the interests of a large number of Basque ICT companies/ respectively companies active in the field of AAL
9. Milestone (AT): A consultancy that has been active in the field of ICT in Austria since decades, contributing at political level to the development of an Austrian strategy for the digital economy and coordinating an Austrian ICT cluster.
10. Swissmédia (CH): The Swiss Multimedia association representing the interests of a large number of Swiss ICT companies/ respectively companies active in the field of AAL
11. Association Generations (BG): A Bulgarian Association running various projects in the field of intergenerational learning and demographic change.

The competences of the consortium were complemented by an Advisory Board consisting of an expert for VET in the geriatric care sector, a practitioner in the geriatric care sector as well as scientists experienced in the development of AAL technologies, who provide valuable feedback to the project's achievements, and on the other hand, support the dissemination and exploitation of results.

The Advisory Board included the following members:

- Ms Birgit Eberhardt (German gerontologist, health economist, computer scientist for health related topics)
- Mr Péter Hanák (Hungarian member of the biomedical engineering knowledge Centre Budapest which has a long track record in project related to geriatric care)
- Mr Juan Carlos Augusto (UK-based researcher on AAL at the University of Ulster, publishes AAL related books, organiser of the International Conference on Intelligent Conference on Intelligent Environments and a couple of international workshops, disposes over a large network in the AAL research domain)
- Mr Ilias Maglogiannis (Greek researcher and teacher of AAL topics at the University of Central Greece, involved in the organisation of the PETRA conference – the conference on Pervasive Technologies Related to Assistive Environments)
- Ms Idoia Muñoz (Spanish pharmacist, member of the Living Lab of Sports Related Industries in the Basque country)

5. Plans for the Future

Already in the project period, the project partners were taking concrete actions for exploiting the project outcomes and for ensuring their sustainability. One of these actions was the attempt to implement the developed AAL Job Role Profiles and Training Guidelines into concrete training measures. Some of the core partners of the consortium (IAQ, euproma, Dekra, MPS, HOU, EMF and GEN) successfully applied together for a LdV Transfer of Innovation Project, in which a European-valid curriculum for the emerging AAL jobs should be developed and piloted. The engAGent project started in October 2012 and is based on the AAL job role profiles and Training Guidelines developed within the CompAAL project. The curriculum currently being developed within engAGent is turning these CompAAL results into practice, as a concrete training course is being developed on their basis and will be piloted and then offered in four European countries (DE, AT, FR, GR).

Synergies were sought with similar or complementary initiatives in the field of ICT jobs such as CEN WS on ICT Skills, Grand Coalition for Digital Jobs, Classification for European Skills, Competences, qualifications and Occupations (ESCO), European Quality Assurance in Vocational Education and Training (EQAVET), EU Skills Panorama. Thus the CompAAL project results will certainly have an influence on the policies and practices developed within these initiatives.

The partner organization EMF is also in contact with Unit B.2 – Vocational Training and Adult Education of the Directorate-General for Education and Culture of the European Commission and the European Vocational Training Organisation (EVTA). The aim is to raise awareness among VET institutions and relevant stakeholders related to Sustainable AAL jobs.

The partner organisation GAIA is also member of the European Network of Living Labs, ENoLL, which has been an important international platform to promote CompAAL outcomes. Within ENoLL there are several living labs working in the AAL field, which represent the target users of the CompAAL products. Moreover, GAIA submitted scientific papers to various conferences, which were accepted. So in the research field there is also awareness and interest in the improvement of qualifications in the field of AAL.

6. Contribution to EU policies

CompAAL developed AAL job profiles based on the sectoral market needs identified at European level. On the basis of these profiles, training guidelines have been elaborated, supporting VET institutions throughout Europe to set-up appropriate VET measures that meet the requirements in the AAL sector. **Thus CompAAL results are helping to improve the quality of VET, facilitate high performance by high-qualified staff, and bring in innovation and a European dimension into VET systems and practices in the AAL sector (LLP Obj-a)**

Professionals working in the field are ICT specialists, as well as geriatric staff, architects and facility managers, who need an innovative trans-disciplinary further vocational training, which combines latest technological know-how with understanding of the living environment of the elderly. **CompAAL results are supporting VET institutions in setting-up such innovative trainings based on the requirements of the AAL sector and thus improve VET quality (LEO-SpObj-b).**

CompAAL has developed training guidelines supporting VET institutions in setting-up innovative VET measures for jobs in the AAL sector (Leo-SpObj-3).

These AAL specific VET measures are building upon full qualifications such as elderly care nurse, ICT specialist, architect, facility manager, etc. (non-tertiary level). As these VET measures are based on market needs identified at European level, they are transferable and in line with the sectoral requirements in all participating countries.

The AAL specialist profiles were described by learning outcomes as defined by the EQF. This facilitates the assessment of learning outcomes acquired through non-formal and informal learning. Moreover, the proposed learning units in the training guidelines are weighted according to the principles of ECVET and the whole AAL qualification is classified to appropriate EQF levels. **Thus transparent AAL qualifications can be created that will promote recognition at European level (LEO-SpObj-4)**

The complexity of all the useful innovations in the field of AAL needs professionals, who know how to install, service, and use those devices. Already now the EU is facing a skills shortage in this fast evolving sector, but no specific further vocational trainings are available in Europe, related to the use and development of AAL systems. **CompAAL results are bridging this gap and are helping VET institutions to respond better to the AAL labour market needs by AAL qualification profiles and training guidelines (Priority 3 of LLP LdV Call 2011: Developing Vocational Skills considering the Labour market needs –New Skills for New Jobs)**

As far as horizontal policies are concerned the project has been contributing to the **awareness of the importance of cultural and linguistic diversity within Europe** CompAAL project has valued the cultural and linguistic diversity by its transnational

approach. The competence needs in the field of AAL were investigated in all European countries involved and national cultural specialties were considered for setting up national and European-valid AAL specialist profiles. In order to promote the linguistic diversity, all project results were translated and localised and thus are available in all seven languages of the participating project partners now.

Besides, CompAAL is complementary with other policies such as the FP7 Research, now Horizon 2020, as well as the AAL Joint Programme. The EU's Research Framework Programme promotes R&D projects in the field of AAL with a focus on ICT. Additionally, DG Information Society set-up a specific programme, the AAL joint programme, in order to foster R&D with different foci in the field of AAL. CompAAL results are complementing the R&D of innovative AAL technologies, by looking at the professional challenges these innovations bring about for the people working in this fast evolving sector and thus improving VET in the area.
