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## Miraculous-Life

### Miraculous-Life for Elderly Independent Living

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## Abbreviations

<i>Abbrev.</i>	<i>Description</i>
AAL	Ambient Assisted Living
CA	Consortium Agreement
GA	Grant Agreement
ICT	Information and Communication Technology
DoW	Description of Work
VSP	Virtual Support Partner



## Executive Summary

The objective of project Miraculous-Life is to attract both commercial and industrial interest in the project's technology and results at a European and an international level through an exploitation plan. The initial exploitation plan has been described together with the partner exploitation plans.

The market will be explored in the two pilot countries. For each country a list of organizations that may be interested in making use of the project outcome will be prepared. We will also investigate what the possibilities for funding for example by insurance companies can be.

The exploitation results for the pilot countries will be used as a starting point for the European-level exploitation.

Regarding contribution to standards, two approaches will be followed: i) contribute in improving existing standards that are under development and ii) monitoring existing and ongoing work in standardisation bodies and organisations with a special focus on interoperability, virtual characters, Human-Computer-Interaction based on emotions and behaviour analysis.

# 1 About this Document

## 1.1 Role of the deliverable

Main aim of this deliverable is to describe the exploitation and standardization strategy and plan. It describes the initial exploitation strategy for the project outcomes and deployment plans as was stated in the DoW as well as the individual plans of the partners. Furthermore, the project will be exploring the markets for exploitation for the pilot countries first, which will be used as a base for exploring the markets for exploitation at EU-level. Finally, it offers an outline for the standardization related matters, by offering a place for listing the existing and upcoming standards for the various topics during the project and the activities for standardization.

## 1.2 Relationship to other Miraculous-Life deliverables

The deliverable is related to the following Miraculous-Life deliverables:

**Table 1: Related Miraculous Life Deliverables**

<i>Del</i>	<i>Relation</i>
<b>D6.5</b>	<b>Overall system evaluation and initial deployment:</b> initial deployment report by consolidating the findings of the pilot operation of the services. The initial deployment report will allow for a near- and mid-term perspective of the Miraculous-Life outcome and give support for an outlook for the long-term and on a very-large-scale usability of the overall Miraculous-Life system. New evaluation approaches will be used during the pilots investigating whether an innovative ICT based daily home activity support system can result in reduce demand for use of care services and consequent care cost savings leveraging thus economic opportunities. The deployment plan will comprise the cornerstone for the commencement of the exploitation plan in WP7.
<b>D7.2</b>	<b>Dissemination strategy and plan:</b> identification of target groups for dissemination activities, which might be also interested in the Miraculous-Life results in terms of commercial exploitation.
<b>D7.4</b>	<p><b>Business Strategy:</b> presents the Miraculous-Life outcomes that are likely to be exploited and a market analysis for their future commercialization.</p> <p><b>Business cases:</b> containing different exploitation strategies for the two pilot countries, as examples for exploitation in similar countries throughout the EU.</p> <p><b>Setting up marketing strategies:</b> Based on the exploration of the markets in the two pilot countries and the business cases, we will define marketing strategies for the exploitation of the project outcome for each of these countries.</p> <p><b>Exploring European-level exploitation:</b> a high-level analysis of the similarities between markets in the EU countries will be performed, and it will be defined what possibilities there are to adapt the specific business cases from the two pilot countries to other EU countries.</p>

### **1.3 Structure of this document**

This version of the document describes mainly the current available information with regard to the exploitation plans in Chapter 2. Chapter 3 offers an outline to detail the plan and to create stakeholder lists for the identified two levels, pilot EU countries.

Chapter 4 describes the standardization plans and offers an outline for describing them during the project and in next version of this deliverable.

Version b of the document will describe the exploitation results for the two pilot countries, i.e. market analysis results.

There is a strong connection with deliverable D7.4, and an arbitrary split has been made in the deliverables, see above what has been defined for D7.4, mainly to fit it in the total project plan.

## 2 Exploitation outcomes

Miraculous-Life main exploitation outcomes will be the overall Miraculous-Life system VSP (Virtual Support Partner). The VSP will provide implicit daily activities support which is based on behaviour and emotional understanding and appropriate respond exhibiting distinctive emotions, deliver in a human like way simulating in essence the interaction with a real life partner.

Specifically, the VSP fuses together user's facial expressions, voice intonation, gestures and other contextual information of the user's environment and provides intelligent responses and delivery of services through an Avatar-based interface exhibiting empathic respond through face emotions and voice intonations. Through an intelligent dialogue, and the use of different ICT services for elder home daily activities support and safety, the VSP stimulates and motivates the elder to act.

Besides the overall Miraculous-Life system the outcome is also other components or tools including:

- Multi-modal emotion based avatar adaptive interface with intelligent dialogue; Users' emotional state is recorded from different modalities: facial, body gestures and voice intonations.
- Safety tool allowing for safety services provision considering elder behaviour recognition and environmental context analysis at home.
- A matching set of Care & Wellness, Guidance and Educational & Leisure services that can be personalized to the elder daily activity needs as he/she age;
- Co-Net tool allowing care collaboration and also intelligent data dispatching and sharing to both the elderly and formal and informal carers.

Commercial exploitation of research results of Miraculous-Life will be worked out within the first two years of the project progress and agreed by all partners. Overall the exploitation of the Miraculous-Life results will be carried out among three lines:

- Exploitation of Miraculous-Life overall System;
- Exploitation of Miraculous-Life other components, as stated above, and constituent technologies;
- Exploitation of Miraculous-Life concepts to enhance academic curricula.

Each of the exploitation lines will be described in more detail in next paragraphs.

### 2.1 Exploitation of Miraculous-Life overall system

A primary interest of the consortium partners, and of the three project's industrial partners in particular, is to investigate the possible exploitation of the results as a coherent system, for the provisioning of the services implemented in the final project pilot. For this Miraculous-Life has planned the following measures to increase the likelihood of market uptake of project results:

***Development of two prototypes:*** In the time frame of the project two prototypes. The first prototype, to be provided at month 8, will mainly include initial work carried out in the different technical WPs and provide for selected functionality giving emphasis to uncover

unexpected risks. The second prototype, to be provided in month 24, will provide the system version to be used and validated in the two planned large scale trials from month 26, for six months. The overall approach outline here will guarantee that prototypes are operational very early in the project (albeit with limited functionality) and continue to improve and acquire advanced functionality during the project lifetime.

***Trials operation:*** Two system trials will be carried out in two realistic end user environments in the Netherlands and Switzerland for evaluation and assessment of system's functionalities regarding user acceptance and technical viability of the Miraculous-Life solution (c.f. WP6). The two trials will be carried out by two large sized elderly care organizations (ORBIS and MRPS) having a long term expertise in the carrying out of research and introducing technologies in their elderly care processes. Especially ORBIS has been coordinating other research technological initiatives and is a pioneer in introducing state of the art technologies in care. ORBIS will lead WP6. The two trials are representing two well selected cases, where elderly people can live with the greatest possible independence and activity in their own homes. The end users will be involved in the project from the very beginning guaranteeing thus a better take up of the project outcome. In the trials a total number of 200 users will be involved for the duration of 6 months, starting in month 26 of the project.

***Overall system evaluation results:*** An evaluation and assessment of Miraculous-Life will be carried out considering its social, economic and psychological dimensions (c.f. WP7). This will be done by i) analysing and reporting on the experiences and evaluation results of the two pilots. ii) producing a Miraculous-Life system initial deployment report by consolidating the findings of the pilot operation of the services.

***Demonstration of European wide exploitability:*** All components of the system (software, as well as hardware) will be designed to meet the requirements of an international market. Basically, flexibility will be achieved by i) taking user and organizational needs into account, already in an early stage of the project; ii) exploiting standard technology software and hardware that is available on the market as far as possible and iii) integrating appropriate technology into the developments that support easy customization and adaptation without the need of purchasing special development tools or systems iv) multiple languages, especially Dutch and French at the beginning. This is especially important for those parts that are exposed to the end user and specifically the pilot countries.

## **2.2 Exploitation of Miraculous-Life other components and constituent technologies**

Many aspects of the developed technologies will offer potential exploitation opportunities in the different markets and field of interest of the Miraculous-Life partners and this is expected to be the main form of exploitation of the project results. For these reasons, the Miraculous-Life Consortium intends to pursue an exploitation roadmap composed of three main phases:

1. **Innovation and Technical Evolution assessment:** this phase is focused on the identification of innovative patterns and to the investigation of the value of innovation

itself. These activities will be mainly oriented to understand how and what innovative Miraculous-Life scientific and technological results can be managed, how the consortium can prove the innovation and what are the potentially patentable outputs;

2. **Deployment Plan:** this phase includes a continuative monitoring of the main features of the solutions implemented, of the patentability opportunities and of the business joint opportunities. The continuative monitoring of these matters will be essential for the individuation of business connections, industrial collaborations, academic collaborations, relations with institutional stakeholders, access to venture capitals and evaluation of ad hoc spin-off.
3. **Analysis of possible business development:** this phase, at the end of the project, will investigate which potential for business development exists from the exploitation of the project results, identifying, if possible, different value generation opportunities - for instance we can mention licensing (returning sponsorship to Miraculous-Life partners), spin-off strategies (preserving specific subsets of the generated know-how), joint ventures, royalty policies, industrial collaborations, and so on.

### **2.3 Exploitation of Miraculous-Life concepts to enhance academic curricula**

As stated in the Description of Work: Miraculous-Life is expecting to reinforce strongly the academic and industrial expertise and excellence in multidisciplinary research on ICT for Independent and Active Living as it is employing a synergetic approach involving a multitude of technological research topics and also in bringing together a consortium that is highly interdisciplinary and trans-national (c.f. section 2.3).

The research topics are ranging from: multimodal sensing and processing, immersive human-computer interfaces including animated characters capable of capturing users' emotions and engaging users in active tasks; environmental context extraction and event interpretation, rich descriptions of human activities and emotional state and generation of behaviour models; ICT based services for home daily activities support and safety, social networks involving formal and informal carers facilitating elderly daily care support.

Dissemination of all these topics and related concepts within the academic world will be a key objective and is described in more detail in the Dissemination strategy and plan D7.2.

## 3 Exploitation plans

### 3.1 Initial Exploitation plan and time to market

A detailed initial exploitation plan for the Miraculous-Life results was described in the Description of Work already:

All consortium members, especially the industrial partners, show high interest and commitment on the exploitation of the project results. The consortium will mainly follow four (4) key routes for the exploitation of the project outcome:

- Its use in commercial activities by selling it in the market, integrated into products or services;
- Its use in further research activities, such as research aimed at improving it or embedding it in other products/services.
- Use of the results for direct use in their activities. This is the case of the end user organizations (ORBIS, MRPS) involved in the project. Pending the successful operation of the Miraculous-Life pilot trials, ORBIS and MRPS will expand the current range of services already provided to elders to distribute the services of the system at regional or district level.
- Improvement of knowledge on the AAL subject for further research. This strategy will be adopted by the partners who look to capitalize on the knowledge acquired during the project activities by developing further research on the subject of AAL.

To address the above exploitation objectives, special attention will be given on the development of a solid business strategy, estimating the costs for market deployment (for products and/or services) and describing the overall business model for how to develop business from the results of this project. This will involve a joint effort of all partners towards a common strategy and also the development of partners' individual business plans. The joint strategy will define how to further develop the results of the project in the current product line, how to reach the different end-user groups according to their identified needs, and how to market the final products or services.

Miraculous overall system will result from the joint work of all the partners and they will all define their participation on the future commercial exploitation of it. Different options are open. The first is the creation of a joint venture industry-academic-end users setup, a spin-off company, in which the consortium interested partners will participate and which will have the exclusive licence to the developed knowledge and software (from the participating partners). A second option is that the commercial partners buy a licence from the academic and end user partners for specific products and they take all the responsibility for the commercialisation of the project results. The two options can be implemented in parallel.

In addition independent parts of the developed software are of interest for commercialisation in different markets. For example the Avatar interface consisting of the emotional and dialogue components, Co-Net component, Safety Tool. These parts can be either commercialized by the partners that developed them or taken under license from the industrial partners (Noldus, Zoobe, and Citard) to be included in other products.

Finally the SMEs of the project will be able to develop value added services that will be

proposed to elderly and home care organizations that use the Miraculous-Life products, in the form independent applications (via for example an internet store of the type of the Apple Store).

Partners involved in the development of those products will create common exploitation plans but also individual business plans of how to exploit them. IPR issues (see also section 3.2.3) between partners will be based on agreement rules and terms that will be defined in a Consortium Agreement. The work will be coordinated with the development of the business strategy to ensure that such activities can proceed without hindrances regarding disputes about IPR (e.g. when forming start-ups with jointly owned IPR).

The consortium expects to achieve the initial economic targets by using the pilot demonstrations as portfolio to reach possible clients for the following areas: Elderly people (final costumers); Formal and informal carers (family, friends, neighbours, care organizations); Private and public elderly care organizations (including ORBIS and MRPS); IT providers (SMEs products sellers and service providers); Private or public organizations that contribute to finance or enabling AAL products and services (public sector service organizers, social security systems, insurance companies); Industry players in the market (e.g. telecommunications operator); Developers who want to use the existing platform as a basis and expand it with new services for different target groups.

### ***Time to market for the project overall system***

The next 4-5 years are critical in evolution of the market and adoption of more sophisticated ICT applications tackling the ageing problem. Miraculous-Life will be well placed to benefit from this emerging market by having the first version of the industrial system ready to commercialize 4 to 5 year(s) after the project end. This estimation is based on the fact that the solution will be based on the emergence of mobile tablet devices in the market and that a number of elders are already making use of such devices. It is also foreseeing that in the next years' time more advanced and cost effective mobile devices (i.e. tablets, Kinect) technologies will be provided with high resolution cameras for improved quality.

In order to minimize time to market, Miraculous-Life makes use of a technical phase based approach (c.f. section 2) providing for early in the project deployment of the scheduled pilots (M08 and M24) guaranteeing their successful operation. A successful pilot running is tightly associated with strict requirements regarding timely delivery, dependability and user-friendliness of the deployed technology. The evaluations undertaken in the two pilots will show the effects on the individual and calculations will be made on the cost/benefit of using such a solution. As a result, we will have services, but also evaluations, which give supportive evidence about their usability and applicability, accelerating their take up in the market.

## **3.2 Exploring the market for exploitation in the two pilot countries**

As stated in the DoW, the successful operation of those pilots will pave the way through the on-time exploitation of the project outcome by the participating end user organizations which are both already making use of advance elderly care technologies in their setups.



WP6 will develop a deployment plan as input for the exploitation planning. D6.3 Pilot setup and deployments will be imported input together with D6.5 Overall system evaluation and initial deployment.

As stated for Task 6.4 it will also produce a Miraculous-Life system initial deployment report by consolidating the findings of the pilot operation of the services. The initial deployment report will allow for a near- and mid-term perspective of the Miraculous-Life outcome and give support for an outlook for the long-term and on a very-large-scale usability of the overall Miraculous-Life system. New evaluation approaches will be used during the pilots investigating whether an innovative ICT based daily home activity support system can result in reduce demand for use of care services and consequent care cost savings leveraging thus economic opportunities. The deployment plan will comprise the cornerstone for the commencement of the exploitation plan in WP7.

The market for exploitation of the results of this project will be explored in the period M8 - M24. Normally the following analysis will be conducted:

- Macro environmental analysis with the following topics will be described: political factors, sociocultural factors, technological factors and ethical issues.
- Micro environmental analysis: threat of new entrants, bargaining power of supplier/buyers and threat of substitute products
- Internal environmental analysis: project, physical and human resources and capabilities.

### 3.2.1 Stakeholders list

For each country a list of organizations that may be interested in making use of the project outcome will be prepared. We will also investigate what the possibilities for funding for example by insurance companies can be.

**Sources of finance for commercialization.** In case of a successful trial's outcome the first big customers to take up the system are the two participating end-user organizations ORBIS and MRPS. Those two are working close with insurance companies for the provision of elderly homecare. Already ORBIS, through its participation in other innovative research initiatives, has managed to achieve that a 3% (3.5 million Euro for 2013) of the yearly budget allocated from CZ, the biggest Insurance companies in the Netherlands, to ORBIS to be used for carrying out research in the introduction of innovative technologies in elderly care reducing thus care cost in the next years. CZ has already agreed that in case of a successful Miraculous-Life trial a financial plan will be put in place for having the system being commercialized and taken up in the ORBIS homecare provision setup. This can be a starting point of stimulating positively other insurances in other European countries in allocating budget for introducing the system in the elderly care process

## 3.3 Individual exploitation plans

### 3.3.1 AIT

The main interest of AIT is to exploit the project knowledge; follow-up co-financed research activities and also follow up contract research and revenues based on licensing

agreements. Within Miraculous-Life AIT will establish and extend basic components and modules for AAL platforms (especially in the domain of service integration) and will exploit them by applying an open source licensing model to ensure wide usage of the outcomes. The key segments for these exploitation channels are further R&D institutions active in smart home integration and solution providers looking for tools and modules facilitating their work.

AIT will further use its strong links with other projects and activities related to AAL service platforms, like the universAAL and AALuis projects and the related Ambient Assisted Living Open Association (AALOA), to introduce Miraculous-Life concepts and outcomes into their running actions.

Moreover, the developed safety services, making use of the HOMER middleware platform, will be fed into Austrian pilot projects where existing and newly set-up smart homes for elderly will be equipped and powered by AAL solutions by AIT. AIT has recently been selected for funding of a regional pilot, where 50 flats will be equipped in close collaboration with the powerful care organization Arbeitersamariterbund.

Also high-level pattern recognition algorithms and know-how regarding safety services will be enhanced and exploited in further research activities with the goal to exploit them later on a license fee based strategy. AIT will work in strong collaboration with the Miraculous-Life business partners to anchor the AIT developed components and modules in final Miraculous Life (exploitable) products and services.

Furthermore the Miraculous Life outcomes will be used for extensive dissemination in scientific arenas and stakeholder communication. For these activities AIT can fall back on a well composed network of stakeholders in Austria (e.g. AIT has the current presidency of AAL Austria – the most prominent network of AAL stakeholders in Austria including research organizations, companies and user organizations).

### **3.3.2 UniGe**

The exploitation strategy of UniGe for research projects is the future exploitation of the knowledge, and industrial propriety, not only by means of scientific publications, but also by means of the technology transfer to other companies or by commercializing the research results. UniGe having a long term expertise in carrying out research and development in the area of emotions and behaviour analysis and Human-Computer-Interaction, specifically avatar technologies, is interested in the exploitation of the avatar interface by forming together with the other project partners, who were involved in the development of the interface, a spin-off company to promote it in the market.

UniGe will disseminate the Miraculous-Life results through publications in journals and conferences and through several workshops, conferences and winter and summer schools that they organize annually. Prof. Nadia Magnenat-Thalmann is editor-in-chief of two major scientific journals in the field of virtual agent technologies. One is “The Visual Computer: A journal dedicated to reporting on the state-of-the-art of research in the field of graphics, vision, imaging and virtual reality, including applications” and the other is “Computer Animation and Virtual Worlds: The first journal to address the global thematic of Virtual Worlds, Artificial Intelligence and Agent technology”.

### 3.3.3 UCY

having a long term expertise in carrying out research and development in the area of collaborative environments and context-aware services in the eHealth and the eInclusion sectors is seen Miraculous-Life as an excellent opportunity which will lead to new research directions especially through the development of the Home Daily ICT services. Such services fit well and will be integrated with other related research outcome the UCY has already managed to bring in the market. Miraculous-Life will also help UCY to consolidate and extend its links with industry giving opportunities for further valorisation of results.

Finally, UCY has experience in working together with the Cyprus IT sector in promoting research outcomes to the healthcare sector (public and private). The UCY is interested in the creation of similar channels for the promotion of the Miraculous-Life outcome. The UCY will play the role of further developing the Miraculous-Life outcome (especially the home-care services which has designed and developed), but also as a consultant to both the IT industry and healthcare service providers regarding the Miraculous-Life concept, services, processes, technologies and overall solution.

The UCY will diffuse the project results via publications and presentations in EU and international, industrial-driven but also academic journals, conferences, workshops, as well as in academic forums. Academic dissemination will also aim to bring technologies, developments and the research carried out in the project to the students via academic courses. Moreover, the NetRL website (<http://www.NetRL.cs.ucy.ac.cy>) will complement the project's main website by posting public dissemination material like leaflets, publications, posters, flyers, reports and presentations.

### 3.3.4 ORBIS

Orbis intends to expand the current range of services provided in their Hoogveld Elderly Living Village to include the Miraculous-Life system in order to provide support for its elderly users at regional or district level. Pending the successful operation of the pilot trials, Orbis will adopt and use the project results in the elder apartment's setup. The organization is interested to participate in a joined setup to be formed by the consortium partners for commercial exploitation of the overall integrated project outcome and its promotion in a wider market. For that ORBIS will work out appropriate strategies tackling a successful collaboration between ORBIS and the insurances, the organization is already working with, so that the insurances recognize a financial benefit from the use of the system in the Hoogveld setup. For example in the last years ORBIS, through its participation in other innovative research initiatives, has managed to achieve that a 3% (3.5 millions Euro for 2013) of the yearly budget allocated from CZ, one of the biggest Insurance companies in the Netherlands, to ORBIS to be used for carrying out research in the use of innovative technologies in elderly care in an effort to care cost paid by CZ in the next years. CZ has already agreed that in case of a successful trial a financial plan will be put in place of having the system being commercialized and taken up in the ORBIS homecare provision setup. This can be a starting point of stimulating positively other insurances in other European countries in allocating budget for introducing the system in the elderly care process.

ORBIS will disseminate the project and its results to the stakeholders and policy makers, organizing on-site visits, open days and press conferences, as well as presenting the project and the concept in different international exhibitions and events. Orbis will also employ its experience on elderly care ethics and organization model, to continuously refine

the final results of the project and contribute to their wide exploitation in Netherlands and in Europe.

### 3.3.5 Fh-IGD

As a non-profit research oriented institution Fh-IGD is firstly interested on generally increase knowledge in up-to-date solutions for a future AAL market in order to support the industry for the breakthrough in this area. Since Fh-IGD is already heavily involved in German and EU founded AAL projects, it plans to make use of the Miraculous-Life results to continuously increase the benefit of AAL solutions. The results of Miraculous-Life will provide Fh-IGD crucial use-case implementations for interacting with the environment and make it even safer to use for elderly people. Fh-IGD is interested in exploiting, together with other interested partners, different technologies developed in Miraculous-Life including the suite of home safety services, making use of Kinect-based technologies considering elder behaviour recognition and environmental context analysis at home.

Fh-IGD will use its strong research networks to disseminate project's results and will also disseminate project results through publications in journals and conferences and through several workshops, and conferences. Fh-IGD will lead the dissemination part of the project and play thus a main role in making the Miraculous-Life concepts and results known international wide.

### 3.3.6 Noldus

Noldus is both interested in the exploitation of the overall project outcome, together with other partners of the project, and also for other components and constituent technologies that will result from the project. As a technical coordinator of the Netherlands pilot Noldus is interested in supporting the commercialization of the VSP and its operation in both the ORBIS and MRPS setup. Furthermore, Noldus foresees that other technological components of the Miraculous Life project will open the way to a range of new products. Noldus has a track record of successful development of scientific inventions and software into commercially viable products. A small selection of such expected products include:

Generic behaviour measurement, reasoning & control software tool (RT-MMC). The system integration software that connects the sensing software with reasoning engines and triggering of avatar actions. This product will be expanded based on its use in WP3. An updated version RT-MMC tool will be released on the market as a versatile workbench for researchers, engineers and students, and can form the foundation for a wide variety of real-time systems. Noldus Information Technology is keen to invest in such a tool, since it forms a logical development avenue from its current portfolio of measurement tools.

Computer vision tools for people tracking, pose estimation and gesture recognition. This refers to a range of products based on outcomes of WP2. We foresee separate products for automated observation of various aspects of human behaviour and communication, which can serve as input for robotic systems.

Promising project results will be taken, together with other interested project's partners, along a mature and standardized route from prototype to commercial products. Noldus steps to get from research results to successful marketing are 'business as usual': (a) market research among potential buyers to determine functional requirements and acceptable price levels, (b) desk research into existing products and competitive

developments, (c) engineering, to proceed from the research prototypes towards a software application ready for release, including functional and usability testing and (d) marketing communication, sales, distribution and after-sales support.

Furthermore, Noldus aims to promote results in the ICT for Brain, Body & Behaviour (i3B) Living Lab where innovative high-tech companies, knowledge institutions and end-users carry out collaborative research and development of measurement and analysis systems in the areas of brain, cognition, physiology and behaviour. Noldus is a co-founder of the lab.

Noldus will disseminate the project results through demonstrations at conferences and tradeshow (some 50 events per year) and through a broad variety of publications (press releases, web pages, product leaflets, white papers, and newsletters sent to more than 25.000 subscribers). Furthermore, the newly acquired scientific and technical knowledge will be disseminated via tutorials and training courses, which Noldus organizes on average 20 times per year. Noldus is the initiator and organiser of the international Measuring Behaviour conferences ([www.measuringbehaviour.org](http://www.measuringbehaviour.org)). This interdisciplinary biennial event, held for the 8th time in 2012 with over 300 delegates, is entirely focused on methods, techniques and tools for the study of behaviour. Future editions of the conference will serve as a dissemination platform for Miraculous Life project results.

### 3.3.7 Citard

Citard's interest is both in the exploitation of the project's overall outcome, together with the other partners of the consortium, and also in the exploitation of other technological components foreseeing in the project. Citard sees that the exploitation of the project outcome will create new markets opportunities for the company and will strengthen its already existing collaboration with the ORBIS partner. At a national level Citard plans to exploit the project's overall outcome with elder care organizations, the company is already working with, in improving their care processes through innovative technologies. Such organizations include the Melathron, which is the oldest established (1959) privately held care service organization, and also the Cyprus Social Services Center, the biggest public elderly care setup.

Furthermore, Citard is foreseeing that other technological components of the Miraculous-Life project will open the way to a range of new products and also in enhancing existing products. Such products include the following:

- Care Collaborative Network: Citard is expecting to enhance and adapt its already developed Social Network SoCoNet to a care network specifically for elderly care that will provide intelligent sharing system of alerts and information, to both the elderly and formal and informal carers, in the sense of instant communication and mobilization of all kinds of relevant daily activities support services. Citard also foreseeing that the enhanced network can be also integrated in other care telemonitoring systems the company provides for chronic ill people at home, like the DITIS system that is used by the Cyprus Cancer Organization improving thus the quality of needed care collaboration.
- Avatar user interface component: Citard will examine the possibility to enhance the already existing product MELCO that provides for elderly care services, with the avatar based interface improving thus user acceptance of the product over the

ageing process as the elderly will not need a touch screen to interact with the system.

- Citard is further interested in examining the potential of how technologies in the areas of behaviour analysis and emotional understanding can reinforce the usefulness and acceptability of ICT services provided by other systems, reinforcing thus their take up in the market.

Citard will disseminate the project and its results to related stakeholders (elderly care organizations, public sector service organizers, social security systems, and insurance companies) as well as presenting the project and the concept in different international exhibitions, events and conferences. Moreover, Citard as an active partner in the AgeingWell thematic network for the Market uptake of ICT for Ageing Well will promote the Miraculous-Life results to related network members.

### **3.3.8 Zoobe**

Zoobe is interested to exploit the project's outcome in two ways. One is to exploit the overall system outcome with other partners in the project and the other one to exploit other technologies that will be developed in the frame of the project like implement a persistent avatar user interface component that represents services in the area of Ambient Assisted Living. This technology will open the opportunity to initiate business co operations in the growing market of care services for elder persons. The project partners are highly prospective business partners in this respect for products to be developed after the runtime of the project. The developed technology will also enable a wide range of social interaction and messaging applications that are based on real-time talking avatar communication. Together with Zoobe's unique lip-sync speech animation technology this will enable Zoobe to create market-leading communication products.

Furthermore, Zoobe will extend its character animation module to a complete expressive avatar system that is capable of displaying all basic emotions and that can be controlled by a reasoning component. Another main contribution from Zoobe to the project is the implementation of a module for emotion recognition from speech and its adaptation to the target group within the project. The combination of this expressive avatar system and the automatic emotion recognition from speech will be used for fundamental shift to new stage of evolution of Zoobe's messaging service products. This development will evolve to a unique selling point for Zoobe and enhance significantly our market opportunities.

### **3.3.9 MPRS**

MRPS aims to exploit the project's results by expanding the current range of home care services provided to elderly to include the Miraculous-Life system. The project fits well in its care provision program providing for interventions set to enhance the autonomy, dignity, sense of purpose, and identity of the elderly. Furthermore, MRPS together with other partners of the consortium is interested to work out a commercialization plan of the overall project outcome after the project.

MRPS will disseminate the project and its results to stakeholders and policy makers, organizing on-site visits, open days and press conferences, as well as presenting the project and the concept in different national exhibitions and events.



## 4 Standardization strategy

Regarding contribution to standards, two approaches will be followed. On the one hand, the project will contribute in improving existing standards that are under development. On the other hand, it will put significant emphasis on paving the way for standards that are foreseeable in the future by monitoring existing and ongoing work in standardisation bodies and organisations with a special focus on interoperability, virtual characters, Human-Computer-Interaction based on emotions and behaviour analysis. Moreover, the project will work towards standards to ensure that the research activities are aligned with the existing and future trends. The project partners will make use of their already participations in different international standardisation organizations, industry bodies and consortia (like Continua, ALLOA, CEN, IEEE, W3C), to contribute in the different standard activities (*c.f.* 3.1.1g.)

### 4.1 Existing standards

A list of existing standards will be compiled here.

Defined actions which will be under taken will be listed here:

- Like, the Dutch care organization Vilans ([www.vilans.nl](http://www.vilans.nl)), known for its expertise on what's allowed with regard to domotica/home automation and privacy in the care, will be contacted to get more information.

### 4.2 Future trends

A list will be built during the project with the trends we all see or discover should be listed here.

### 4.3 Activities for standardization

And activities for coordinated contribution to relevant standardization for a will be defined in this section.

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## 5 Work breakdown

As stated in the Discription of Work: Noldus will lead the exploitation and business strategy development, and all partners will contribute in their own business development domain and in the overall strategy definition.

The expected contribution of each partner will and should be at least in ratio of what was defined in the resources breakdown for Task 7.2

Noldus, Orbis, Zoobe, Citard, MRPS: 2 PM

AIT, FH-IGD: 1 PM

UniGe, UCY: 0.5 PM

A work breakdown will be created to get clear which partner will lead which subject and which partners will contribute to it (with what). Noldus will make an overview and plans the work breakdown.

The activities described in the previous chaptered will be monitored during the project time line and actions will be taken and communicated using the existing moments for deliberation (e.g. bi-weekly tele conference or consortium meetings).