



FINAL PROJECT REPORT

– Template –

Please send this report ELECTRONICALLY to the Central Management Unit (CMU) as well as a copy to the National Contact Persons (NCPs) of the coordinator and project partners

The coordinator of the project must submit this report within 60 calendar days after the final date of the project, on behalf of the consortium.

***If you have any additional question,
please contact the AAL CMU at CMU@aal-europe.eu,
or your NCP (see details on www.aal-europe.eu/aal-ncp)***

Report date	10/02/2016
-------------	------------

PUBLISHABLE PROJECT INFORMATION (TO BE USED BY AALJP)

1A. PROJECT	
Project full title	Networked InfraStructure for Innovative home Care Solutions
Project acronym	NITICS
Project No.	AAL-2012-5-255 (see list on www.aal-europe.eu)
Project Website	http://nitics.eu/
Project duration	- Starting date: 01/05/2013 - Termination date: 31/07/2015 (then extended to 30 November 2015)
Coordinator's name and details	Full name: Angelo Consoli E-mail address: angelo.consoli@eclexys.com * Telephone number: +4191600000* <i>* Both e-mail address and tel. number must be provided.</i>

1B. PROJECT PARTNERS					
No.	PARTNER ORGANISATION NAME	PARTNER ORG. ACRONYM	TYPE*	PROJECT COSTS: PUBLIC GRANT IN EURO	PROJECT COSTS: PARTNER OWN CONTRIBUTION IN EURO
1 (coord.)	ECLEXYS Sagl	EXYS	SME	415'000.00	475'000.00
2	SSW, Knowledge Society Association	SSWK	END USER	169'500.00	33'900.00
3	CITST	CITST	END USER/SME	156'100.00	39'025.00
4	Warsaw University of Technology	WUT	Research	131'408.33	0.00
5	Siemens	SIE	Industry	339'191.00	182'641.00
6	MKS Electronic Systems Ltd.	MKS	END USER	76'809.24	29'134.s53
7	Camera-Contact	CCC	SME	-	-
8	SAPHYRION Sagl	SPH	Research	415'000.00	430'000.00
9	Eeleo	ELE	SME	105'000.00	129'000.00
*Please select one of these options: SMEs, Large, END USER, RTD, other					

1C. PUBLISHABLE PROJECT RESULTS SUMMARY (1 PAGE)

The NITICS project built a flexible platform integrating a set of basic and task oriented services: localization of personal objects; localization and movement pattern analysis of elderly and disabled people inside their homes. With integrated body sensors and environmental captors it supports primary users as well as caregivers, family members, and others involved in assisting the person (secondary users). This multimedia platform support their active social life, ease, stimulate and support their daily activities enabling the elderly persons to create, participate and continue their social activities not only via an Internet connection.. The localization technology is not used only to track and trace the assisted individual, but also gather objects' location and predict the user's position. It also detects unpredicted or abnormal behaviour, lack of movement or erratic behavior. It triggers actions by care providers in case of a need. NITICS solution helps carers to intervene in case of need, in a timely manner and provide the needed help, taking into account preferences of care providers as well as family and end-users.

The main subsystems of the NITICS project are presented: 1) application services allowing the interconnection between the different NITICS actors as well as data exchange and statistical behavioural analysis. It is in charge of continuously monitor elderlies and alert caretakers whenever an event happens, depending on its criticality level; 2) Local NITICS Subsystem (LNS): an indoor embedded networking platform targeted to interface health sensors, home and environment sensors and home automation systems. It is in charge of continuously gather data and its transmission to the framework; 3) Nomadic NITICS Subsystem (NNS): a portable device which gathers information from sensors and transmits it to the NITICS framework through mobile networking communication systems; 4) Monitor and Control Subsystem (MCS): caretakers and specialized personnel are allowed to monitor the health and environment parameters of elderly people by logging into the NITICS framework support system. Due to the wide variety of scenarios and data to be monitored, coming either from health as well as environment sensors, a modular scalable approach has been adopted. The main platform's tasks are related to the services that the platform offers to the end-user: Falling down detector, Home health monitoring, Reminders, Safety check, Automatic door lock, Social in-door localization game. All the above aspects have been taken into consideration by the end-user organizations in the context of acceptability by the elderly, functionality, costs, etc.

S

Data security represents a very important aspect in developing the NITICS platform. Being a platform which can be accessed by users from a web interface it is necessary to take into account the platform's security aspects. Mechanisms for offering secure services, for protecting system data, and to assure the end user privacy are implemented and used on the platform. The data privacy is assured through authentication mechanism and encryption. To assure authentication, authorization and session management for NITICS platform was used JBOSS server's security domain. The security domain generates a token based on the pair username and password or the pair user email and password. This token is generated for users after the successful authentication and based on this is created user's authorization and session management.

NITICS has identified preferred customers and potential beneficiaries. An exploitation model was also developed, based on a SWOT analysis and using an AAL canvas. The NITICS partners are seeking for exploitation opportunities of the NITICS platform with stakeholders who believe in the NITICS product to propose concrete solution to improve significantly the quality of life of elderly.

CONFIDENTIAL PART OF THE REPORT

2. DELIVERABLES SUBMITTED AND MILESTONES ACHIEVED DURING THE PROJECT

In this section, please provide details in case your project deviated from the Description of Work (work plan) with respect to delivery dates, achievement of milestones or changes in planned outputs; please indicate whether and to whom (AAL NFA/NCP) the changes have been communicated.

Has the project been finalised in line with the Description of Work?

YES ☒

NO ☐

PARTLY ☐

IN CASE OF DEVIATION, PLEASE EXPLAIN:

Has the project achieved its expected results as described in the Description of Work?

YES ☒

NO ☐

PARTLY ☐

IN CASE OF DEVIATION, PLEASE EXPLAIN:

3 A. PROJECT RESULTS - SCIENTIFIC/TECHNICAL PROJECT RESULTS

Provide a summary of the confidential results, including:

- The progress per work-package
- The performance of the project consortium (added value of cooperation, added value and performance of each partner etc.)
- Scientific/technical achievements during the course of the project
- End-user services developed during the course of the project
- Other confidential information

- **The progress per work-package:** The technical activities of the NITICS project are in line with the project drawn objectives that were originally planned. The set of technical objectives for the project workpackages, such as detailed specification of the NITICS system architecture, the investigation of the use-cases, the NITICS platform development are fully achieved.
- **The performance of the project consortium (added value of cooperation, added value and performance of each partner etc.):** The NITICS consortium consists of nine organizations from five countries with complementary profiles (research, industry, SMEs and end-users) and expertise. The approach of cooperation between the NITICS partners was performed in order to maximize the likelihood of the project success and to fully reach its originally planned objectives. As such, an agreed set of common operating cooperation procedures to allow a successful cooperative working between the partners was defined at the beginning of the NITICS project and all the project consortium partners were requested to follow them. This approach allowed guaranteeing an excellent quality of the performed work, leading to reach the NITICS objectives. These cooperation procedures were applied to all internal and external results and deliverables in order to emphasize the joint responsibility of all project partners at all levels of project activities. In addition, in order to reach good cooperation between the NITICS consortium partners, regular technical coordinating activities and discussions, in the form of audio conferences, project meetings and information exchange were permanently undertaken.

All the above ingredients allowed performing a fruitful cooperation between the NITICS partners leading to a good performance of the project consortium and the achievement of the objectives that were originally planned for this project.

- Scientific/technical achievements during the course of the project:

The main use-cases on which the NITICS platform development focused are: health monitoring, home monitoring, falling down detector, reminders and indoor mobility pattern. The NITICS system is composed of four subsystems: NITICS Core Subsystem (NCS), Local NITICS Subsystem (LNS), Nomadic NITICS Subsystem (NNS) and Monitoring and Control Subsystem (MCS). NCC and MCS are referred as a NITICS framework. The communication protocol was specified and implemented in order to support the communication between the different NITICS subsystems. The protocol defined structures for different telegram types for transporting the data. Each user after authentication (based on his associated role) has access to certain services based on the automatic associated permissions. The permissions are customizable at role level and at user level. A set of OSGi plug-ins were integrated into NITICS platform in order to lead to an extendable platform. Application developers can extend NITICS platform functionalities developing and deploying this plug-ins. The finalized prototype is accessible to all the project partners by using the web component: <http://niticssrv.eclexys.com:8080/nitics/login/>

With reference to the evaluation of elderly persons mobility and behaviour, the following main goals were reached within the NITICS project:

- development of the system for elderly persons movement parameters recording, the system consists of the tag worn by the person and three nodes. Movement parameters measured by MEMS sensors located in the tag are sent to recording nodes. The tag includes an accelerometer, an atmospheric pressure sensor, a magnetometer and a gyroscope.
- development of models and algorithms intended for mobility and behaviour analysis (i.e. gait analysis, elderly person activity investigation, room occupancy measurement),
- development of the ultra wideband positioning system. The system hardware (anchor nodes and tags) and software were designed and produced by WUT. The system allows for determination of elderly person location. Moreover it delivers data that can be used for monitored person mobility and behaviour analysis,
- development of enhanced positioning algorithms based on Extended Kalman Filter,
- development of falling down detection algorithm. The algorithm was tested with a rescue manikin. A special test arrangement was prepared in order to carry out falling down detector tests.
- End-user services developed during the course of the project: The NITICS project has developed the following services for primary users:
 - Ehealth services which include recording, transmitting storing visualization and automated analysis of health data. These are coupled with alerts for abnormal health parameters, alerts which are sent to both primary and designated secondary users.
 - Home monitoring services which include services in which the home environment is monitored and receive alerts/alarms for the following: temperature, water, smoke, movement, open/closed windows and doors. Additionally, these services include remotely operable electric plugs which also report energy consumption.
 - Fall detection and alerting services.
 - Indoor positioning services which can be used to detect abnormal user behavior, e.g. not visiting the kitchen for several days.
 - Reminders and alerts services. These services can be coupled with any of the above in order to complement their functionalities.

- Ehealth services

The NITICS project has developed the following services for secondary users:

- Ehealth services in which the caregiver can: create individual profiles for the caretaker including personalization of acceptable health parameters, follow the caregivers health parameter history remotely, receive alerts in case of abnormal health values.
- Home monitoring services in which the caregiver can remotely check that the home environment of the caretaker is within comfort limits or receive alerts in case of fire, flooding, etc. The caregiver can also switch on/off remotely various home appliances or light.
- Fall detection and alerting.
- Reminder services in which the caregiver can input in the caretaker calendar various events for which the caretaker will receive a reminder, e.g. taking of medication.
- Other confidential information: -.

S

3 B. PROJECT RESULTS – BUSINESS MODELS & INDICATORS

Please insert here a short summary of the **business model** selected for your product/service (max. ½ page). If not explained in the publishable summary section, please describe:

- What **product/service** will you offer?
- What main problem(s) does it solve or what **benefits** does it provide to the customer?
- What is the **added value** of your product/service versus that of competitors and/or compared to existing solutions on the market? What is your **unique selling proposition**?
- How will the product be sold? Who will **provide** products/services?

NITICS ended up with five products (server platform, fixed gateway, mobile gateway, the fall detection system and an indoor localization system). NITICS developed and confirmed compatibility to a list of devices belonging to two distinct categories: for health monitoring and for home monitoring (environment). The devices could be combined into a basic or an extended system to support six different services: fall detection, home monitoring, reminders, safety check, automatic door lock and a social indoor localization games. The services were developed from the five selected use cases: health monitoring, home monitoring, reminders, fall detection and indoor mobility pattern. As exploitable outcomes the consortium considers the following solutions: (a) networked infrastructure to collect data and send them to the centralized server; (b) server offering data storage and these functionalities; (c) several interfaces to third party infrastructures and (d) indoor localization system.

The market analysis revealed that the niche markets targeted by the NITICS products are in the area of telecare and telemedicine and the home automation, predominantly in the sector of healthcare. The market is already well covered by potential competitors - traditional players e.g. Tunstall and new actors with their mobile solutions e.g. Qualcomm, Foracare and Eeleo. In the market analysis, NITICS positions itself into four groups of care services: well-being, healthcare, home-care and combined solutions. The **added value** of the NITICS product/service versus that of competitors can be summarized in its unique features: simplicity of use by its end-users, incorporation of mechanisms for offering secure services, for protecting system data, and to ensure end user privacy, coverage of services dealing jointly with telecare and the home automation,

product modularity, scalability, expendability to support future functionalities and services, cost-effectiveness...

Furthermore, from the pilots that were performed using the NITICS solution in the end-user countries, it was concluded that there is a big acceptability of the NITICS system by the elderly who participated in them. As such, the **unique selling proposition** of the NITICS product can be expressed as a **balanced offer of good performance (in terms of elderly care), matched set of services and cost effective solution**.

Based on the current status and maturity level of the system components, a series of activities aiming at improving certain sub-systems and at preparing the market approach strategy have been defined. The investment required for these activities was also estimated.

NITICS has identified preferred customers and potential beneficiaries. An exploitation model was also developed, based on a SWOT analysis and using an AAL canvas. Pricing models is based on three components: (a) costs of the infrastructure, sensors, gateway(s); (b) monthly fee and (c) pay per use with a minimum cost coverage for each measurement data aggregated at the NITICS server. Prices are also suggested within the Financial and Sustainability plan chapter. The expected NITICS product ROI was set as reasonably optimistic.

Mainly the NITICS product will be sold according to the following models:

- Direct sales to customers (end users, care takers, care givers, associations offering and managing a e-Health and/or social service).
- Technically oriented partners like service providers and infrastructure suppliers.

The NITICS exit strategy is based on a Memorandum of Understanding that the consortium prepared to clarify their future joint work towards exploitation of the NITICS products and their commitments within that. In the document, the signees express their commitment in pursuing the roadmap undertaken during the project duration and to create and maintain business opportunities based on the NITICS outcomes. The document is in the process of signing by the NITICS partners.

Please answer the questions below, if possible:

What is the **targeted range of manufacturing/service costs** per product/service unit (€, € per month etc.)?

The services consists of :

- Server framework including connectivity: 1'500 EUR/Month
- Service infrastructure (personnel costs): 10'000 EUR/Month
- Marketing and sales: 1'500 EUR / Month

The costs of sensors/devices varies depending on the number of devices:

- purchased by the customer (Option 1): costs 0 EUR/Month
- purchased by NITICS and leased (Option 2): 50 – 600 EUR/Month

What is the **estimated size of the targeted market** in Europe for your product/service (in €)?

This aspect is under investigation. Market size is difficult to estimate as many sources give different numbers that need to me validated.

In your business model, **who will pay** for the product/service (you can tick more than one box):

- ☒ End user (older person) ☐ Informal carers ☒ Formal care providers ☒ Public subsidies
☒ Insurance ☐ Other (add if necessary) ☐ not yet decided

In your business model, **who will take the decision about purchase** of the product/service (you can tick more than one box):

- ☒ End user (older person) ☒ Informal carers/family ☒ Formal care providers ☐ Public subsidies
☐ Insurance ☐ Other (add if necessary) ☐ not yet

decided	
At what stage of development are you with your product/service (e.g. research, pilot, real life trial etc.)?	The service has been tested in the frame of real life trials campaigns in 3 Countries. The technology readiness level of some components is good; the server side needs to be optimized and a detailed plan was prepared already; a few less critical components still need to be engineered to a product level.
When will your product/service be ready for market ?	December 2016
What type of further research/development is necessary to finalize the product (technical, adoption, market research etc.)?	Some components need improvement: - Refactoring of some code components - Industrialization of some system components
What further investments are necessary to launch product on the market?	65'000 – 75'000 kEUR
Which is the expected turnover to be generated by your product/service in 2-3 years?	• 368 kEUR (Option 1) : see Table 5 of Deliverable D6.1 for further explanations, • 1'145 kEUR (Option 2) : see Table 6 of Deliverable D6.1 for further explanations.
<i>Please insert here any other information related to the business model, such as:</i> - <i>what is the targeted market niche?</i> - <i>do you need certification for your product/service before gaining access to the market?</i> - <i>what type of certification and from who?</i> - <i>do you need to perform reliability testing?</i> - <i>Any other information</i> NITICS ended up with five sub-systems (server platform, fixed gateway, mobile gateway, the fall detection system and an indoor localization system); some of them may be offered on the market as an independent product. The market analysis revealed that the niche markets targeted by the NITICS products are in the area of telecare and telemedicine, predominantly in the sector of healthcare, with four groups of care services: well-being, healthcare, home-care and combined solutions. The market healthcare is already well covered by potential competitors, but the novelty of the NITICS service resides in the combination of health data with environmental data to get to a new dimension of the well-being and home-care, which combines these 2 basically different sources of information opening new services. Regarding possible certification activities of the system components: - Due to the nature of the service, the NITICS software modules do not require certification - The server and the majority of the NITICS hardware is already certified for the use targeted by the NITICS service - EXYS already did a pre-certification campaign for its newly developed Gateway. It passed. - The fall detector and the indoor localization infrastructure are the result of research activities and as such need their product status is at the stage of pre-series. Additional engineering efforts are required to productize these sub-systems, integrating them in the NITICS overall system. Preliminary reliability tests of the newly designed hardware have been carried out in the laboratory of a research partner (WUT). All other system components have been tested during many weeks and months of operation and also used efficiently during the project pilots; their reliability was checked and no encountered issues have been corrected. The NITICS system is requiring some optimization but would be ready for a serious test campaign with an early adopter company/association/user-group.	

3 C. PROJECT RESULTS – END USER INDICATORS

In the section below, please provide the information you have gathered during your project on **primary, secondary and tertiary end-users¹** of your product/service. Note that secondary end-users can be formal and informal caregivers (see footnote). For the indicators cited below, please provide information if available; any other qualitative or quantitative information on beneficiaries can be provided instead.

Type of end-user (primary, formal and informal secondary, tertiary end-users)	Primary end-users: elderly persons or persons with disabilities. Secondary users: any informal caregiver as well as formal caregivers. Tertiary end-users: hospitals and clinics, insurance companies, telecom operators
Total number of end-users involved (by type of end-user, gender, etc.)	Laboratory testing: 13 primary users and 6 secondary users; Field trials: 55 primary users and 12 secondary users; Market survey: 70 primary-users, 10 tertiary stakeholders. The age of the primary users was 65+ and there were no gender criteria to be envisaged. Consequently, gender was not recorded.
Average age and age distribution of involved end-users	The average age of the primary users in the field trials was 75. No age was recorded for the secondary users.
Location of end-user (rural, town, large city, etc.)	Users in field trials were located in large cities.
Situation of end-users (single household, family setting, independence, etc.)	Primary users living alone or with one more other inhabitant were selected for the field trials.
Health status (disabilities, mobility, cognitive function, etc.)	Field trials: Some users had minor to moderate mobility problems and some minor cognitive impairment. No user was having major disabilities.
Socio-economic background (education, income class, etc.)	Field trials: users were usually having secondary education and above. Users were generally reporting average and above income class for their country.
Total number of end-users effectively using the AAL solution beyond the project implementation period	Currently, in Romania there are 4 users which use the NITICS health monitoring module.
Any other information	-.
Please describe here the principles applied and procedures followed in handling ethical issues such as ethics towards technology use, to privacy, data management, ethical considerations regarding human-robot interaction, exit strategy, etc.	

1 Definition of end-users in AAL Joint Programme:

- *Primary end-user is the person who is actually using an AAL product or service, a single individual, "the well-being person". This group directly benefits from AAL by increased quality of life.*
- *Secondary end-users are persons or organisations directly being in contact with a primary end-user, such as formal and informal care persons, family members, friends, neighbours, care organisations and their representatives. This group benefits from AAL directly when using AAL products and services (at a primary end-user's home or remote) and indirectly when the care needs of primary end-users are reduced.*
- *Tertiary end-users are such institutions and private or public organisations that are not directly in contact with AAL products and services, but who somehow contribute in organizing, paying or enabling them. This group includes the public sector service organizers, social security systems, insurance companies. Common to these is that their benefit from AAL comes from increased efficiency and effectiveness which result in saving expenses or by not having to increase expenses in the mid and long term.*

Before the tests and field trials an informed consent process was established to ensure that the participants are fully aware of the procedures, benefits and potential risks that may be involved in their participation. The following criteria were taken into consideration during the discussions with the participants: (1) vulnerability of the participants; (2) criticality of the solution/product/service within the daily life of the participants; (3) which aspects of the person's life is impacted (health solutions will have high priority while leisure and entertainment solutions would be considered low priority); (4) frequency of use of the solution/product/service, etc. The informed consensus allowed end-users and caregivers to opt out at any moment during the trial without penalties. Best practices were always employed such that the participants were fully informed of any implications. These best practices were in line with each country's relevant laws and regulations.

Close to the end of the field trials, the end-user organizations have explicitly discussed possible dependencies of users and caretakers as well as alternative solutions such as: the users could decide on keeping some of the devices in use and pay for services only; the user could purchase more devices through the NITICS channels.

3 D. PROJECT RESULTS – OTHER INDICATORS

Patents, which are the direct result of the project work	A Memorandum of Understanding (MoU) was prepared by the NITICS partners, who will continue working together on the basis of the NITICS project outputs. MoU represents a common understanding of the NITICS partners of the post-project relations and describes their role and responsibilities in the exploitation of NITICS solution in its commercializing phase. In the next three months the MoU will be consolidated and signed. Patenting is envisaged by some partners after the MoU signature.
Other Intellectual Property Rights (IPR) resulting from the project work	Regarding foreground knowledge, each party owns the resulting IPR generated by it within the NITICS project.
Collaboration to standards, which are the direct result from the project work	Even though, there weren't tentative from the NITICS consortium partners to go for a proposal of the NITICS concept to the standardization bodies, this issue isn't included in a near future. Standards that can be targeted include the followings: • ANSI X12 (EDI) - transaction protocols used for transmitting patient data. • CEN's TC/251 provides EHR standards in Europe including: - o EN 13606, communication standards for EHR information - o CONTSYS (EN 13940), supports continuity of care record standardization. - o HISA (EN 12967), a services standard for inter-system communication in a clinical information environment. • Continuity of Care Record - ASTM International Continuity of Care Record standard.

	• HL7 - a standardized messaging and text communications protocol between hospital and physician record systems, and between practice management systems. • ISO - ISO TC 215 provides international technical specifications for EHRs. ISO 18308 describes EHR. • The NITICS platform has the potential to contribute to SOA standards like IEEE P1723.
Publications (scientific or other), which are the direct result from the project work (please provide details)	• L. Rusu, B. Cramariuc, D. Benta, M. Mailat, "Implementing BPMN 2.0 Scenarios for AAL@Home Solution" Int. J. Comp. Com. & Control, Vol. 10(2), 2015. • Mihaila, D. Benta, L. Rusu, "Framework for Automated Reporting in EU funded Projects", Comp. Com. & Control, Vol. 9(6), 2014. • L. Rusu, B. Cramariuc, "A Conceptual Approach for Innovative Home Care Solution", J. Appl. Comp. Sci & Math., Vol 8(17), pg 22-26, 2014. • E.S. Lohan, O. Cramariuc, L. Malicki, N.S. Brenčić, B. Cramariuc, "Analytic Hierarchy Process for assessing e-health technologies for elderly indoor mobility analysis", in Proc. 5th EAI International Conference on Wireless Mobile Communication and Healthcare, 2015, accepted for publication. • Badawika, J. Kolakowski, UWB positioning system architecture based on paired anchor nodes, 20th International Conference on Microwaves, Radar, and Wireless Communications, MIKON 2014, Gdansk, June 16-18 2014 • J Kolakowski, Detection of UWB Pulses with Ultra-fast Comparators, 20th International Conference on Microwaves, Radar, and Wireless Communications, MIKON 2014, Gdansk, June 16-18 2014 • Badawika, J. Kolakowski, Application of synchronized pairs of nodes in ultra wideband localization system, National Conference on Radiocommunication Broadcasting and Television, KKRRiT 2014, Warsaw, June 11-13 2014 (in polish) • M. Berezowska, J. Kolakowski, System for elderly persons movement parameters recording, National Conference on Radiocommunication Broadcasting and Television, KKRRiT 2014, Warsaw, June 11-13 2014 (in polish) • R. Michnowski, J. Kolakowski, UWB receiver front-end, National Conference on Radiocommunication Broadcasting and Television, KKRRiT 2014, Warsaw, June 11-13 2014 (in polish) • V. Djaja-Josko, J. Kolakowski, Development of the digital part of ultra wideband positioning receiver, National Conference on Radiocommunication Broadcasting and Television, KKRRiT 2014, Warsaw, June 11-13 2014 (in polish)

- J. Kołakowski, M. Berezowska, K. Radecki, V. Djaja - Joško, R. Michnowski, J. Cichocki, A. Badawika , Ł. Malicki; "System do monitorowania ruchu i zachowań osób starszych", Przegląd Telekomunikacyjny, Rocznik LXXXVIII, Wiadomości Telekomunikacyjne, Rocznik LXXXIV, nr 6/2015 (in polish).
- A. Badawika, J. Kołakowski, UWB positioning system architecture based on paired anchor nodes, 20th International Conference on Microwaves, Radar, and Wireless Communications, MIKON 2014, Gdansk, June 16-18 2014
- J. Kołakowski, Detection of UWB Pulses with Ultra-fast Comparators, 20th International Conference on Microwaves, Radar, and Wireless Communications, MIKON 2014, Gdansk, June 16-18 2014
- A. Badawika, J. Kołakowski, Application of synchronized pairs of nodes in ultra wideband localization system, National Conference on Radiocommunication Broadcasting and Television, KKRRiT 2014, Warsaw, June 11-13 2014 (in polish)
- M. Berezowska, J. Kołakowski, System for elderly persons movement parameters recording, National Conference on Radiocommunication Broadcasting and Television, KKRRiT 2014, Warsaw, June 11-13 2014 (in polish)
- R. Michnowski, J. Kołakowski, UWB receiver front-end, National Conference on Radiocommunication Broadcasting and Television, KKRRiT 2014, Warsaw, June 11-13 2014 (in polish)
- V. Djaja-Josko, J. Kołakowski, Development of the digital part of ultra wideband positioning receiver, National Conference on Radiocommunication Broadcasting and Television, KKRRiT 2014, Warsaw, June 11-13 2014 (in polish)
- J. Kołakowski, M. Berezowska, K. Radecki, V. Djaja - Joško, R. Michnowski, J. Cichocki, A. Badawika , Ł. Malicki; "System do monitorowania ruchu i zachowań osób starszych", Przegląd Telekomunikacyjny, Rocznik LXXXVIII, Wiadomości Telekomunikacyjne, Rocznik LXXXIV, nr 6/2015 (in polish).
- A. Badawika, J. Kołakowski; "Zmodyfikowana metoda lokalizacji nadajnika z wykorzystaniem techniki RSS", Krajowa Konferencja Radiokomunikacji Radiofonii i Telewizji, KKRRiT 2015 (PL), April 8-10, 2015, Lodz, Poland, (in polish)
- M. Berezowska, J. Kołakowski; "Ultraszerokopasmowy system monitorowania ruchu osób starszych", Krajowa Konferencja Radiokomunikacji Radiofonii i Telewizji, KKRRiT 2015 April 8-10, 2015, Lodz, Poland, (in polish)
- M. Kołakowski, R. Michnowski; "Źródło sygnału w ultraszerokopasmowym systemie lokalizacyjnym",

	Krajowa Konferencja Radiokomunikacji Radiofonii i Telewizji, KKRRiT 2015 8-10 kwietnia 2015, Lodz, Poland, (in polish) • V. Djaja-Joško, J. Kołakowski; "Badania dokładności wyznaczania TDOA w ultraszerokopasmowym systemie lokalizacyjnym", Krajowa Konferencja Radiokomunikacji Radiofonii i Telewizji, KKRRiT 2015, 8-10 kwietnia 2015, Lodz, Poland, (in polish) • P. Symonides, R. Michnowski; "Blok przemiany częstotliwości odbiornika UWB na pasmo 6,0 8,5 GHz", Krajowa Konferencja Radiokomunikacji Radiofonii i Telewizji, KKRRiT 2015 8-10 kwietnia 2015, Lodz, Poland, (in polish) • J. Kołakowski, M. Berezowska, A. Badawika, Ł. Malicki; "Wireless system for elderly persons mobility and behaviour investigation" The 8th IEEE International Conference on Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications, IDAACS 2015, September 24-26, 2015, Warsaw, Poland, • J. Kołakowski, V. Djaja-Joško, R. Michnowski, K. Radecki; "UWB wireless system for falling down detection", 23rd Telecommunications Forum TELFOR 2015, November 24-25, 2015, Belgrade, Serbia, • V. Djaja-Joško, J. Kołakowski; "UWB positioning system for elderly persons monitoring" 23rd Telecommunications Forum TELFOR 2015, November 24-25, 2015 Belgrade, Serbia, • I. Stefan, C. L. Aldea and C.-S. Nechifor, On a Web Platform Architecture for Ambient Assisted Living, Journal of Ambient Intelligence and Smart Environments, sent for review, • November 2013; Neja Samar Brenčič - INFORMATION SOCIETY 2013, 16th International multiconference, 7 - 11 October 2013, Jožef Stefan Institute, Ljubljana, Slovenia – Conference on the Demographic challenges "Presentation of the NITICS project"; paper at the conference; article in the Conference Proceedings.
Other dissemination activities	• Radiocommunications Division Seminars on the project topics: • J. Kołakowski; "Wykorzystanie sieci 802.15.4a w ultraszerokopasmowym systemie lokalizacyjnym", 28.05.2014 • A. Badawika; "Wykorzystanie ultraszerokopasmowych interfejsów radiowych w sieciach IEEE 802.15.4a", 21.01.2015, • J. Kołakowski "Ultraszerokopasmowy system lokalizacyjny do badania ruchu i zachowań osób starszych", 16.12.2015, • MSc theses concerning project:

- o K. Borkowski, Opracowanie układu etykiety multilateralnego ultraszerokopasmowego systemu lokalizacyjnego; MSc thesis, Institute of Radioelectronics, Warsaw University of Technology, 2014.
- o M. Berezowska, "Opracowanie układu etykiety systemu lokalizacyjnego UWB/INS", MSc thesis, Institute of Radioelectronics, Warsaw University of Technology, 2015.
- Participation of the NITICS consortium to the AAL FORUM with Presentation and Demonstration of the NITICS platform, Exhibition, Side event, 09/09/2014, Bucharest, Romania.
- Some articles on our Facebook profile and our website were published.
- 10.05.2014 – TV broadcast: How does it work. A. Kolesiński in TVP 2 (Polish National TV Programme 2).
- 13.05.2014 – Presentation at the conference: From Diffusion of Practices to Practices of Diffusion. Workshop on the Circulation of Ideas, Procedures and Regulations in Culture, Law and Economy. I. Zielińska.
- 16.01.2014 Participation in conference AAL-AHA Enablers for Success Conference – in Barcelona.
- 13.11.2013 The Art and Fun of User Integration in AAL in London.
- Participation to the AAL 2014 Forum and Exhibition organized in Bucharest, Romania between 9th and 12th of September 2014.
- Participation at the F3ŽO – Festival for 3rd Age period, Ljubljana, Slovenia, between the 29.09 and 01.10.2014 / Booth stand with demonstration and participation at the round table
- Preparation and printing of NITICS advertisement flyers and poster in Slovenian language.
- Participation and presentation of NITICS project at the Multinational conference "Information Society" of the Institute Jožef Štefan, Ljubljana, Slovenia on the 06th of October 2014
- Publishing of an article on NITICS project and the findings of the Multinational survey on the End users requirements and service concepts in the "Information Society" 2014 conference proceedings, October, 2014.
- MKS (Neja Samar Brenčič, Article at Information Society, 2015, Multinational conference at Jozef Stefan Institute, Ljubljana in the conference proceedings).
- SPH performed dissemination of the NITICS platform in the south part of Switzerland in order to seek for customers that can be interested by its exploitation.

Type and size of audience reached by dissemination activities	From tens to hundreds depending on the attended event.
Technology transfer agreements and/or any other business deals achieved	-
Spin-off/s set up	-
Number of jobs created	EXYS (2), SPH (1), ELE (1) job created

4. FINANCIAL INFORMATION - OTHER COMMENTS

Please check appropriate box:

The financial part of the project ☒ **is in line with (or)** ☐ **deviates from the partner's Grant Agreements & Work Packages plans** (personal efforts, other costs, etc.)?

In case of deviation, please give a short explanation:

- Public grant for the Slovenian partner was reduced for 15,26% (from 90.652,00€ to 76.809,24€) by the Slovenian AAL representative.

Other comments related to financial part of the project: -.

5. AAL JP PROGRAMME

Please comment, using your AAL project experience, on the main advantages and disadvantages of AALJP projects.

The participation in the AAL program and NITICS project has been a very useful experience for the CITST organization. First, in terms of end-user interaction and realizing the main problems and limitations which appear at various ages for elderly people above 65 yrs. We realized that most of our primary users which are above 80 yrs old face a significant barrier in using new ICT technologies and that this barrier is lower for users 65-80 and more even more so for 65-75. We could say that the 75-80 yrs old interval is kind of a grey area in which the acceptability of the technology is greatly dependent on the user's background. CITST has also learned a lot from the multinational dimension of the AAL participation. It has helped in realizing both the similarities and the differences between the end-user participating countries in terms of user perception, economic situation, policies, existing services, etc.