Project LLI-1 **Joint competence center for smart elderly care social services development**,
Joint smart social services

REPORT of INVESTIGATION
on partners' institutional capacities and cooperation possibilities

In current economic and social conditions in both Latvia and Lithuania, only one out of five older people self-reported as having good health and many older people manage their own health and wellbeing. They rely mostly on primary healthcare services with occasional use of hospital services for emergency or planned treatments including elective surgery. However, as people age, they are more likely to access healthcare and take advantage of the technological and medical advances designed to improve their daily lives. With the increasing number of elderly people, these services will no longer be available on a regular basis.

Healthcare organizations in both cooperating regions are experiencing significant demand for emergency and other hospital e-services by older people with complex health needs also in remote regions. Older people with complex health needs due to multiple medical, social, cognitive and physical issues tend to have more visits to general practitioners and tend to use hospitals more frequently and for longer periods and are prescribed more medications. This takes time and sometimes lack of real-time detection is essential to their lives. That is why these elderly people often take longer to recover from an illness or injury resulting in the need for real-time e-health services. Reduced access to general practice and other primary health care services in many parts of the cooperating cross-border regions contribute to a well-described trend where people who don't need to be admitted to hospitals seek treatment through hospital emergency services that are constantly occupied by other emergency calls. As demand for suitable community and aged care services grows, and their inclusion in the daily social lives increases with each year, there will be increased need for care services that ensure the safe and smooth transition between health services and community and e-services.

With the majority of older people having a preference to remain in their own home as they age, there is increased need for community services and increased reliance on family and carers as their fragility increases. The key challenge is to deliver person-centred health care for older people that maximises their inclusion into the daily lives of their relatives and other social activities and to reduce avoidable hospital admissions and provide quality safe coordinated care. Older people with low socioeconomic status and unmet health and wellbeing needs are likely to experience earlier the effects of ageing. That is why the project is intended to salsify the eco-social factors that separate these people and diminish this separation on the e-services level. Older people value their independence and having choices and the respect of society, all of which can be undermined by increased frailty associated with ageing linked to poor health and or disability. This is particularly challenging for people with long-

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standing disabilities and those who age prematurely from other causes. If left unsolved, this situation might also result in a growth in the number of older people developing complex health needs and requiring significant interventions and support from health, community and aged care services in order to maintain their quality of life and an independent lifestyle.

In time older people will need varying service responses and differing supports to stay well at home for as long as possible whilst adapting to age related changes with assistance as and when required, to have access to relevant, understandable, quality health information, to have timely access to primary health care services, to have timely access to health services for single acute episodes and or ongoing management of chronic conditions in the primary health care. The proposed e-services will help in aiding the medical personnel on the true condition and diagnosis. These developed project changes will ensure that older people have access to the best available health care in hospitals, health care centres, at homes and through an integrated team of primary care and specialist health practitioners and family carers. The project is aimed to support the key directions outlined in the EU regulations: to support older people to take the best care of their health, to strengthen the preventative and restorative focus of health services to better meet needs of older people to establish coordinated specialist e-health services to ensure high quality health care for older people with complex needs, to support informal care. The relationship between e-health service providers and older people should be supported to promote health, maximise independence and minimise functional decline.

Partners working together started fulltime **cooperation possibilities** in the field of development of new ways to stimulate elderly people activities and social life, by accumulating enough research material from surveys and initial analysis of current developments in care homes (see figure 1 for Partners common photo).

Fig. 1. LLI-1 project partners.

During the first common partners meeting partners started developing ideas on the creation of the proposed new network proposed in the beginning of the project. It was

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decided that the network will include social car homes, scientist working on common problems with the care homes and students, whom in later time will be taught new ways of information and knowledge accumulation to help solve difficult engineering and software development problems, as well as working with people and developing social skills. During this new developing stage, a new Joint Competence Center will be developed as the end of the project and will work as a common platform – a common coopering network of professionals. The created center will contribute to the overall project objective – it will be created Joint competence center for smart elderly care social services development. This will mark the first step toward the development of the cooperation network in the Latvia-Lithuania cooperation programme (regions). Such cooperation possibilities will not only influence the young generation to address the problem of the aging society with a greater understanding, but also provide insight on the current situation and promote development of new ways on the improvement of current problems in this sector. This will allow to improve the overall accessibility and efficiency of the new generation of smart social services and their efficient adoption.

This network will include the following actors:

- Klaipeda City Care Home;
- Klaipeda University;
- Local Authority Ventspils Digital Center;
- Ventspils City Social Services

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Speaking about Institutional Capacities, both Care homes provide high quality services, which need to be technologically improved in order to suit the EU regulations and the aging society needs. Further research on Ventspils partner capacity Remarks from Klaipeda City Care Home and vision are provided below.

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A. Project partners institutional capacities description

Municipal institution Ventspils City Social Services is an institution of Ventspils City Council. Ventspils City Social Services as a local authority carries out activities aimed to ensure that all inhabitants of Ventspils in need are provided with social assistance and social services. In accordance with the rules governing work in the social sphere, the main task of the Social Services is to provide social assistance and social services to the community of Ventspils. Inhabitants of Ventspils having faced difficult circumstances have the right to receive social services and social assistance. Social workers are mainly working with individuals, families, groups and communities, helping them to identify, solve or at least reduce their social problems using the resources of the individual (family) and also involving other support systems. Specialists of Social Services provide inhabitants of Ventspils with advice about the possibilities of obtaining the status of an underprivileged or low-income family (person), benefits from the local government and social services to satisfy appropriate needs of an individual. Inhabitants of Ventspils have an opportunity to get 40 different social benefits and 12 different social services. Social services and social assistance are ensured by:

- Social services Unit;
- Support Unit for families with children;
- Social Assistance Unit.

The aim of the Social Services (see Fig. 2) Unit is to provide social services according to the person's needs. Social Services Unit does organize and provide social services for adults and people with disabilities to improve their quality of life, meeting their basic needs. Support Unit for families with children does provide professional support and assistance to restore their social functioning and to overcome social problems. Social work with family and children includes the assessment of the individual situation, determination of problems, development of cooperation plan, creation of an inter-institutional team, attraction of other services and evaluation of the result. Social work with families and children is aimed at solving various social problems - addiction, violence, divorce, death of a family member, long-term relationship problems in the family, conflicts, child behaviour problems, hoboing, non-attendance of school, etc. In cooperation with other specialists and organizations, social workers form a network of social resources, prepare the necessary documents for the placement of children in rehabilitation institutions (in cases of violence, dependence of psychoactive substances, parental care issues and severe health problems). Also, taking part in the assessment of social risks by providing opinion to the Orphan's Court on the process of the renewal or withdrawal of care rights.

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Fig. 2. Ventspils City Social Services

Social Assistance Unit evaluates family (persons) material resources (income, property) and possible involvement in solving their problems. Based on that family (person) can receive the status of an underprivileged or low-income family (person), allowance of guaranteed minimum income (GMI), housing benefit and other social benefits provided by the Municipality of Ventspils.   For elderly people and people with disabilities Ventspils City Social Services provides the opportunity to receive long and short term social care and rehabilitation in Ventspils Social Care House "Selga". Services provided:

- Catering, based on the client's state of health;
- Social rehabilitation and integration based on client's physical abilities;
- Medical care and medical therapy, physical rehabilitation;
- Special events at the Center and outside;
- Mental care, according to the person's beliefs;
- Helping clients to solve their individual social and legal issues.

The right to receive long-term social care and rehabilitation have people of retirement age and with disabilities (except those with mental disabilities after the age of 18), if the amount of social care services required exceeds the amount of social care service person can receive at home or in the day care institutions, also in cases when this social care service is the most appropriate in a given situation. The right to receive short-term social care and social rehabilitation services:

- Persons, who in accordance with regulatory enactments have reached retirement age and if they need supervision and social care;
- Persons with disabilities, if they need supervision and social care;
- Persons, who due to the social conditions are in a situation of crisis and need the short-term social care.

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Remark from G. Harner (Klaipeda City Care Home),

Demographic forecasts of Lithuania and Latvia show that the aging societies of both countries will lead to a rapid increase in the demand for health services and qualitative changes. In cooperation with representatives of science, care homes and municipality of Lithuania and Latvia, the project was started. Project Interreg V-A Latvia-Lithuania Cross Border Cooperation Project "Joint Center of Excellence for Smart Social Welfare Services for the elderly", Project No. LLI-1 (Joint competence center for smart elderly care social services development). The goal of the project corresponds to the program's priority objective - to improve the accessibility and efficiency of social services. The project aims to develop social care and health care for the elderly, by strengthening disease prevention measures and IT support for developing new publicly available services for people with special needs through the development of e-health services.

The united Latvian and Lithuanian social welfare, information and communication technology specialists will provide a service for the monitoring of human physiological parameters. It will identify and assess the health problems of elderly people, create individual physical activity and nutrition programs that will improve their quality of life, help them stay longer independent and engage in active social activities. The purpose of these decisions is to implement the specific objective 3.1 set out in Priority 3 of the Interreg V-A LATLIT Program, bringing together members of the Latvian and Lithuanian social welfare, science and study communities and allowing the exchange of knowledge and competences.

The project will also promote qualification improvement and further research at the Klaipėda University and other partner organizations in line with the project theme. During the implementation of the project, IT tools developed or purchased will promote a healthier lifestyle in and outside the care home. The quality of healthcare will be improved and more personalized by consumers, which will enable the elderly to improve their health, develop new social skills and increase their ability to maintain social contact with the public. The results of the project will help to overcome social exclusion and increase awareness and ensure long-term public safety. During the project, a social network will be created between care homes, scientists and students. This will be achieved by creating a joint center of excellence. The project partner in Lithuania has become Klaipėda Care Home, whose team is constantly interested in innovations, innovative solutions to human care and strives to implement them promptly in their activities. The office successfully uses the modern call system, which is located in each room of the Cloakroom, where residents are visiting. Equipped with modern computer workstations, the use of smart diapers has been proven to be a great help for the elderly.

Klaipeda City Care Home was one of the first in Lithuania to set up a sensory room, which is very popular among the population. Using the project funds will create

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a methodology for working out the room, which will help to share experience with other similar institutions and, together with other modern means, will allow to constantly monitor the well-being of the elderly. According to Ginter Harner, Director the care of the elderly is no longer confined to maintenance of the elementary functions. "The world is changing so fast that we have to learn to work not only with new technologies, but also with a completely different generation of people. We seek to fundamentally change the concept of care services and are already preparing for those changes that will inevitably come into the realm of custody. The introduction of new technologies into the care and care of the elderly helps to increase their social skills and encourages the learning of new skills, gaining new knowledge, which improves their overall emotional well-being, training memory, helping them not to break away from the outside world, to feel their full members, "- said G.Harner.

Regarding Ventspils Digital Centre (VDC), it was founded in 2003 as an institution of Ventspils City Council. Law basis of VDC is regulation, which regulates work of VDC, depicts its goal, functions, main tasks, structure, duties, rights and responsibility and financial resources. Local authority Ventspils Digital centre thematic competences are:

- to facilitate the involvement of Ventspils municipality, residents and entrepreneurs in the information society and e-Government;
- to work actively in building up the information society and in implementation of e-solutions on local, regional, national and international level;
- to form, support and develop the infrastructure of information and communication technologies.

In 2014 a Ventspils ICT sector development strategy and action plan 2014 - 2020 was confirmed where Local authority Ventspils Digital centre is responsible for:

- activities that render Ventspils city as a smart city;
- promote formation and development of companies in ICT field
- increase ICT industry turnover;
- make Ventspils city as a pilot activities field for different smart cities activities etc.

Considering that Local authority Ventspils Digital centre specializes and do pilot activities in smart cities field, this project is a great complement to our previous activities. Local authority Ventspils Digital centre have a previous experience in e-health field. In 2013 we had a project CeBa Testbed "Acreo national testbed for smart homes and e-health". Acreo Swedish ICT is responsible for the Central Baltic testbed and demonstration facility (CeBa Testbed), a crossborder collaboration project including partners in Latvia (Ventspils Digital Center, VDC) and Estonia (Institute of Baltic Studies, IBS). In the project, services and equipment for the Smart Home, eHealth, eGovernance, eLearning, and service distribution was tested and

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demonstrated by real end users in the CeBa Testbed project. We will use the previous project knowledge, experience and results in order to successfully further develop eHealth solutions.

One of the benefit is to improve health care services and to increase their availability of Ventspils citizens through smart technology. Increased expenditure on public healthcare services due to aging demographics, increasing prevalence of lifestyle illnesses, environmental factors, and so on is a growing concern for many governments. Various efforts to address the increased level of expenditure have been tried and evaluated. Central to many efforts has been the use of ICT technologies, including sensors to deliver new, more affordable models of care in community and home locations. Sensors can monitor the key health indicators of a person directly or indirectly through ambient monitoring of daily patterns. Initial deployments of technologies have been somewhat static and tied to the physical location of the person under observation.

This project aims to develop small, wearable sensors that can monitor a person's vital signs 24/7. An alert will be sent to a clinician when a certain limit is exceeded or when an abnormal event, such as someone collapsing and being unable to get up, is detected. Also system's capability of supporting the delivery of in-home exercise programs to improve strength and balance in older adults and it's capability to provide people with actionable information about their health and the factors influencing it, either positively or negatively, will be evaluated. Ventspils Digital centre will implement a testbed installation of developed sensors in social care home of Ventspils municipality and in social care home in Klaipeda. Results from this testbed evaluation will be made available to both municipalities of Ventspils and Klaipeda and to general public to support shift of public health policies from reactive models of healthcare to preventative ones with a focus on wellness, using smarter healthcare as a means of maintaining quality while reducing delivery costs. Other benefit for Local authority Ventspils Digital centre is to raise our competence in research of ICT field and make Ventspils city as a pilot activities field for different smart cities activities.

B.   COOPERATION POSSIBILITES

Regarding cooperation possibilities, **Klaipeda University** supervised and cooperated with **Klaipeda City Care Home** to purchase equipment needed to upgrade the possibilities of the social services. The following purchases were made - new real-time physiological data collection and localization system, which consists of:

- Data Collection and Storage System Kit (Mobile Data Logger with GPS Localization System);
- Real-time physiological collection of data from the wrist and heart rate belt system kit;
- Real-time image capture system kit;

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- Mobile data collection kit for specific physiological parameters. Open Source Physiological Parameters Microwave Controller System, Glucose Data Smart Reader Transmitter, Glucose Smart Recording Sensor, Microcontroller Platform;

This cooperation between Klaipeda University and Klaipeda City Care Home provided interesting topics during discussions, and some general results followed in the system functionality description with actors in place. Klaipeda University did a research to understand each specific part of the complex monitoring system, to estimate its functionality in terms of:

- Data collection possibilities;
- Programming/coding possibilities (to include new functionalities);
- Development of a common information storage platform with user interface;
- Estimation of the use of the new equipment (frequency of hardware usage and data renewal in the database);
- Estimation of the common cooperation network as a platform for future use.

This equipment will be used to make initial data collection and modeling of new characteristics for the new developed electronic services by using wrist band system and sensor data storage infrastructure hardware kit ensuring remote data collection with functionality control.

Local Authority Ventspils Digital Center worked with **Ventspils Social Care House "SELGA"** to estimate the importance of the newly developed smart monitoring system. Each partner made the first steps in clarifying the needs and to plan the strategy for system design. Klaipeda University participated in the cooperation in terms of suggestions.

Partners working together under the guidance of Klaipeda University (LP) investigated institutional capacities of Klaipeda and cooperation possibilities of social care providers, and science and education community members to invest in infrastructure, improve quality of social services, train social services providers, improve accessibility of services and integrate information and communication technologies for eldercare to develop strengthened and efficient public elderly care social services, and developed a common Report to address these questions. This report includes 2 main topics:

1. Each care home institutional capacities;
2. Trends and guidelines for development.

In terms of the Project, elderly care is the fulfilment of the special needs and requirements that are unique to senior citizens, including: assisted living, adult day care, long term care, nursing homes, hospice care. Currently, new innovations in IT promoted the care homes to step forward in the development of new home care initiative. Promoting independence in self-care can provide older adults with the

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capability to maintain independence longer and can leave them with a sense of achievement when they complete a task unaided. Older adults that require assistance with activities of daily living are at a greater risk of losing their independence with self-care tasks as dependent personal behaviours are often met with reinforcement from caregivers. It is important for caregivers to ensure that measures are put into place to preserve and promote function rather than contribute to a decline in status in an older adult that has physical limitations. Caregivers need to be conscious of actions and behaviours that cause older adults to become dependent on them and need to allow older patients to maintain as much independence as possible. Providing information to the older patient on why it is important to perform self-care will allow them to see the benefit in performing self-care independently. If the older adult is able to complete self-care activities on their own, or even if they need supervision, encourage them in their efforts as maintaining independence can provide them with a sense of accomplishment and the ability to maintain independence longer. Because of the wide variety of elderly care found nationally, as well as differentiating cultural perspectives on elderly citizens, cannot to be limited to any one practice. The overall objective of the project is to promoting social inclusion of elderly people in the social activities of the community via provision of modern healthcare e-services, to decrease the effect of economic and social position on the opportunities of the elderly people, to promote active and healthy lifestyle through provision of human specifics oriented e-services and devices. Better understanding the needs of the society may also improve the society lifestyle and improve overall health. The project will address two priority specific objectives: Social inclusion and efficient public services.

During the project, new e-health service will be developed for the needs of the cross-border cooperation regions that will also diminish the impact of exclusion of the senior population from the normal social activities and produce valuable descriptors to impact the Wester Europe healthcare problems as well. The proposed project will shed light on the societal challenges that policy makers will have to face in the future as a result of the new trends. The project will produce long-term projections that will provide an indication of the timing and scale of the e-health challenges that can be expected so as to inform European policy makers about the scale and timing of the challenges they must face now and in the future.

Project specific objective is to develop accessible, efficient social inclusion measures and social healthcare services. The aim of the project corresponds to two main objectives and is specified as provision of e-healthcare public services to diminish social exclusion of elderly people and to promote their social and active life in the cross-border regions communities, thus increasing their inclusion factors and diminishing the effect of economical and health conditions on their lives. Both in Lithuania and Latvia, social inclusion problems and promotion of healthcare alternative services are considered positively and their promotion though regional and International cross-border cooperation is considered as a common challenge by many

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regional development plans that are aimed to enhance the quality of elderly citizens' life through improved e-healthcare services and associated social activities in their daily lives in the communities. Designed e-healthcare services and social inclusion activities will promote their integration in the cross-border regions in a complementary manner to ensure their better accessibility and efficiency to target groups. Project group will perform constant exchange of experience meeting and seminars, public trainings and capacity building activities to improve joint development plans and their dissemination throughout the cross-border regions of the Programme area. E-questioners will be used to include society in the decision-making processes along with the target groups. It will be used as a modern tool to increase the efficiency and transparency of the promoted public e-healthcare services for elderly.

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