D7.2: Exploitation Strategy

Abstract: This deliverable provides a document that presents the exploitation strategy including: (i) individual exploitation plans, (ii) market needs, (iii) plan of driving a joint exploitation. This is realized through the Osterwalder Business Canvas, an in-depth SWOT analysis, stakeholder analysis and other important marketing instruments.
### The sustAGE Consortium

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<tr>
<td>AI</td>
<td>Artificial Intelligence</td>
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<tr>
<td>CAGR</td>
<td>Compound Annual Growth Rate</td>
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<td>DB</td>
<td>Database</td>
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<td>GDP</td>
<td>Growth Domestic Product</td>
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<td>GNSS</td>
<td>Global Navigation Satellite System</td>
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<td>HCI</td>
<td>Human-Computer Interaction</td>
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<td>HR</td>
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<td>ICT</td>
<td>Information &amp; Communications Technology</td>
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<td>IoT</td>
<td>Internet of Things</td>
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<td>ISV</td>
<td>Independent Software Vendor</td>
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<td>IPR</td>
<td>Intellectual Property Right</td>
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<tr>
<td>KPI</td>
<td>Key Performance Indicator</td>
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<td>M</td>
<td>Month</td>
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<tr>
<td>OCB</td>
<td>Organizational Citizenship Behaviour</td>
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<tr>
<td>OEM</td>
<td>Original Equipment Manufacturer</td>
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<td>OHS</td>
<td>Occupational Health and Safety</td>
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<tr>
<td>OSH</td>
<td>Occupational Safety and Health</td>
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<tr>
<td>PaaS</td>
<td>Platform as a Service</td>
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<tr>
<td>PU</td>
<td>Public</td>
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<td>SaaS</td>
<td>Software as a Service</td>
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<tr>
<td>SME</td>
<td>Small and medium-sized Enterprises</td>
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<td>SW</td>
<td>Software</td>
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<tr>
<td>TRL</td>
<td>Technology Readiness Level</td>
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Executive Summary
This deliverable describes a strategy for the exploitation of the sustAGE project results. By describing a range of exploitation actions, this deliverable is pushing exploitation scheduled within this project in order to capitalize on knowledge and to bring the value generated to both open market (business perspective) and society (societal perspective). It emphasizes its market focus by considering activities related to techno-economic, technical project management, technical workshops, and the sustAGE project and programme level. The Exploitation Strategy has been developed in order to ensure that sustAGE project results will be fully identified in order to be individually and collectively exploited by sustAGE project partners. To measure the effectiveness of the exploitation strategy, available tools and solutions will be assessed in order to capture the base line of the sustAGE exploitation strategy. From this baseline, external and internal opportunities for innovations are constantly monitored in the business areas of manufacturing, transportation & logistics on a quarterly basis.
The exploitation plan will describe the actions to undertake in order to guarantee the continuation of the sustAGE project well beyond the end of the project duration. By ensuring that the project results will be used by companies in the automotive and port-logistics & transportation sector and potentially other domains, the consortium will stimulate the continuity and transfer of outputs to other initiatives (e.g., RADAR-CNS, HUMANS, INNOKAT, etc.). Exploitation if realized through marketing tools like the Osterwalder Business Canvas or the SWOT Analysis.
The ultimate project goal however is to potentially allow external stakeholders to benefit from outputs obtained through sustAGE. This deliverable is continuously updated within the course of the development of the project’s tool development, use case assessment, and the overall exploitation strategy.
1 Introduction

1.1 Purpose of the Exploitation Strategy
Exploitation is responsible for ensuring use of the project results during and after the project duration. The exploitation plan will describe the activities needed to be done in order to reach out to the target groups via mainstreaming mechanisms as well as persuading them to use and adopt the results to guarantee the continuation of sustAGE after conclusion.

1.2 Intended Readership
The exploitation strategy is of type PU (public). It is aimed at the European Commission, the sustAGE Project Officer, the partners involved in the sustAGE Consortium, beneficiaries of other Horizon 2020-funded projects, and the general public.

1.3 Relationship with other sustAGE Deliverables
The exploitation strategy can be considered as a fundamental part of the sustAGE project as it is related to almost every workpackage within the project. In this sense, the exploitation strategy is strongly related to innovation management which captures innovations developed within the project. It is related to WP2 in a sense as the exploitation task depends on outputs from other tasks (e.g., requirements developed from framework specifications or mental training specifications as an input to search for suitable markets, industry domains where the solution could be commercialized). The exploitation strategy depends on WP5 as it uses the ICT ecosystem and the architecture developed here to identify related costs, involved resources but also technologies as part of the sustAGE solution. This deliverable is related WP6 as it takes requests from real-life experiments and the system evaluation as the business value which is driving the exploitation of the sustAGE solution. This deliverable eventually also related to WP7 as it delivers valuable output to be used in dissemination activities through the project website or thorough other external as well as partner-internal channels.
2 Aims of Project Exploitation

The sustAGE solution aims to support older adults of age 55 and beyond with respect to their work ability, well-being and employability by developing and validating an intelligent and adaptive system for high-quality work life and successful ageing, jointly considering the individual characteristics of mental and physical health and the key aspects of the working and living environment to provide real-life recommendations.

New solutions identified within the project will show the main benefits for the ageing workforce, namely better working conditions, improved occupational safety and health, optimized workforce productivity etc. Indeed, the technological outputs of the project not only will become beneficial for the advancement of individual partners but will also constitute a positive external benefit for Europe. This output is especially supposed to be a person-centred smart solution, aiming to support the employment and later retirement of older adults from work as it is targeted by the EU. This is expected to add a valuable contribution to realize the concept of “sustainable work” for EU industries.

In order to reach this goal and for successfully transferring the project’s results, a wide exploitation campaign is planned during the sustAGE project. Exploitation of sustAGE results will be an ongoing activity through the project.

The sustAGE project will produce innovative research with scientific and social results spread as widely as possible. The project results will be published via the consortium’s networks. Effective intra-project communication among partners is a key enabler for successful collaborative projects. Communication includes physical meetings to guarantee in-depth knowledge and ideas exchange, integration between work packages and overall alignment and progress monitoring. Hence, a collaborative tool for exchanging and storing relevant data around sustAGE has been established within the consortium in form of a knowledge repository, including information like inventory of sites, contacts, key players and gurus, similar initiatives, consultancy or access to finance.

The objective of exploitation is to develop an effective way to exploit the project results within and if possible beyond the life of the project. The sustAGE strategy will focus on the following objectives:

- To define business scenarios considering the specificities of each partner in the consortium in terms of commercial positioning and products/services already offered.
- To define a legal framework for exploitation by identifying the items that could be exploitable by each partner. This includes the regulation of IPR issues, taking into account the contribution among the partners in each exploitable output. Each individually exploitable asset will be checked for an IPR claim from partner-side. Moreover, referring to potential exploitable bundles, every partner will check the possibilities for a licensing model.

This deliverable serves as an outline for the exploitation plan and highlights opportunities and possibilities that will be updated during the duration of the sustAGE project, as more deliverables will become available. The sustAGE exploitation strategy will carry out the following actions that are listed below:

- Analyse sustAGE tangible and intangible assets and define project value proposition.
- Identify sustAGE stakeholders/target groups and the possible business areas that could be interested in the delivery of the sustAGE solutions to the market. Define which will be the ways to approach them and if possible engage them in sustAGE activities.
• Perform an initial market survey and show the potential arising from the exploitation of the project solutions. Focus on business areas of sustAGE.

• Identify the market competition landscape and the relevant competitors.

• Analyse external factors that could affect sustAGE deployment as well as the competitive advantages, by elaborating on the identified strengths, weaknesses, opportunities and threats (SWOT) from exploiting such a solution.

• Pave the way to the generation of sustAGE business scenarios that will be the basis of sustAGE joint exploitation activities – the methodology is described and a draft version of sustAGE Business Model Canvas has been produced. Business scenarios will ensure project long term sustainability even after the end of the European Commission funding.

• Partner joint and individual exploitation opportunities have been drafted in order to facilitate the creation of the aforementioned sustAGE business model scenarios.

• Intellectual Property rights analysis is included to investigate how sustAGE will be offered as an open source solution.

• To promote and raise awareness about the project’s contents, developments and results in association with “Scientific dissemination and knowledge transfer” (Task 7.1) and “Communication strategy for large scale awareness” (Task 7.2).

• To harmonize exploitation activities of the partners for a more efficient and effective communication.
### 3 Exploitation Strategy – 1st Iteration
Within the DoA of the sustAGE project, the consortium proposed an exploitation process that will be revised and updated twice during the project execution. Namely, the three versions of the exploitation strategy/plan will be communicated at months 6, 18 and 36.

The exploitation plan will be elaborated and continuously updated, aiming at maximizing the exploitation levels of the project. Three main Pillars will guide sustAGE exploitation activities, as it was already presented in the Description of Action:

1. **Define a Value Proposition and Project Business Statements**

   sustAGE’s value proposition will support the exploitation of the overall solution by defining target markets, customers, but also help in shaping the sustAGE solution. The solution envisioned by the consortium strives to sustain the efficiency of the elderly workforce in order to increase productivity, enable people to remain productive while reducing stress and physical overload. Through its application labour safety – simultaneously to raising older-workers health and well-being – significantly increased. From a business perspective the solution provides an effective HR and workforce management system to participating organisations and companies. Through temporal reasoning and analytics, personalized tasks are recommended by the system, job recommendations can be personalized based on workforce capabilities and roles of the work force. Multidisciplinary measures allow an individual assessment of workers using controls of individual “footprints” based on which recommendations will be given by the system.

2. **Assist and complement the technical development with the business perspective**

   In order to guarantee that sustAGE is providing business value, the consortium will make analysis from the business cases and will identify the potential business KPI’s important for the use cases. Each identified Business KPI will be defined precisely in order to guarantee a solution-development that will provide specific business-value for companies. By doing so, the consortium intends to ensure that sustAGE outcomes will be exploitable from a commercial and business-relevant perspective. Exploitation decisions will be guiding project development in the most promising direction in terms of exploitation opportunities. Market will be continuously analysed and partners will be educated on what are the latest business requirements of sustAGE stakeholders (e.g. industry, occupational specialists and health care professionals), users (older adults at work) and technology providers (e.g. IoT and HCI experts). Market analysis will focus on first and for most ensuring that sustAGE is positioned in the leading areas of nowadays and secondly to identify which are the missing desirable and usable offerings that should focus on elaborating.

3. **Ensure quickly reaction to market needs**

   Exploitation activities should ensure that sustAGE will be able to quickly react to the requirements of the market. There is a need not only for continuously monitoring the market but also for creating the mechanisms for quickly adopting the new trends and demand as well.

4. **Long term sustainability and potential commercialization**
Exploitation activities will also describe how project will continue to evolve beyond its official duration. To that end, a joint exploitation plan will be drafted (WP7, task 7.3) including a detailed profiling of sustAGE partners to put forward competencies as a whole. The ultimate goal should be the release of the “sustAGE innovation ecosystem” to third-party companies that will rely on the sustAGE technologies.

The purpose of the first version of exploitation strategy is to identify and list up the exploitation actions that are necessary to be realized in order to reach the exploitation targets. These actions are listed in Section 3.2 and 3.4. Technical outputs that can already be foreseen to become exploitable assets at this early stage of the project are shown in Section 3.3. In Section 3.4, individual partner exploitation is outlined.

The second version of the exploitation plan (M18) will present detailed information about the exploitation that will be followed by each partner in association with the detailed outline of strengths, weaknesses, opportunities and threats. Moreover, a list of identified business values of the sustAGE solution is supposed to be presented for the general EU industries as well as for the two use-case industry domains manufacturing and transportation & logistics. Several potential business opportunities that will be identified by the consortium will be listed up in order to exploit the sustAGE solution in a commercial way. A market analysis (c.f., Section 3.2.2) is foreseen to be presented, providing a review of the latest developments and forecasts related to the aging labour force especially for the two use case sectors manufacturing and transportation & logistics, but also for the health & care sector since sustAGE is supposed to provide healthcare services. Additionally, an overview of competing technologies will be presented. In addition to this, the 2nd version in M18 will report on exploitation workshops organized by the consortium to identify common exploitation ground among partners. In this context also business scenarios will be developed along with a joint exploitation strategy to identify key exploitable results and business values of a joint exploitation strategy.

In the final version of the exploitation strategy, the final data from the exploitation will be released.

### 3.1 Exploitation Programme and Timeline

To deliver an innovative product onto the market and thus ensure projects viability, sustAGE consortium will follow Deloittes Fast Track programme to Innovation, an intensive program, which has been used many times extensively and has a proven track record. The program facilitates innovative activities, reduces time-to-market and investment in commercializing new ideas, reduces uncertainty and improves chances of obtaining sustainable revenues from an innovative idea. It brings an innovative idea to life and work according predefined phases that lead to a concrete business model and a go to market plan. It includes eight phases: (i) analysis of market insights and business requirements; (ii) definition of projects value proposition; (iii) business requirements validation; (iv) elucidation of business model/scenarios; (v) identification and exploration of open issues; (vi) post-project partnership planning; (vii) consolidation; (viii) go-to-market. The following definition of each phase can also be found in the DoW:

**Phase 1: Market insights and business requirements (Initial draft at proposal phase Revised M1):** sustAGE consortium will utilize three different models to get in-depth knowledge of the market, namely the Market insight model, which instructs the team to begin with listing market trends that are specific to their proposition, the Client insight model,
which helps in better understanding the needs of the target groups and the Competition insight model, which helps the team determine the whitespaces and translate to differentiation when plotted against competitors with offerings in the same space.

**Phase 2: Explore the project activities and derive a value proposition (Initial draft at proposal phase Revised M6):** By applying common techniques from the business management literature, the objectives of the project will be analysed for the value they create, to whom and by whom. Strong statement(s) will be compiled that will represent the flow of value in the project. The initial draft of the value proposition is depicted as part of the Business Canvas in Section 3.2.4.

**Phase 3: Business requirements validation (M12-M18):** During the period M12-M18 of the project a survey to test market readiness of the first results of the project will be performed. Hereby results will be validated by sustAGE stakeholders (older adult workers, industries, trainers and occupational specialists, employers and the industry and ultimately, EU citizens). Surveys will be executed during sustAGE plenary meetings. Each partner that organizes a plenary meeting after M12, will be responsible to organize a session related to business requirements validation, evaluation of sustAGE business vision and scenarios, etc. The survey will be conducted during Exploitation Workshops and consist of questionnaires related to focus groups and open discussions. The organizer of the meeting should be responsible to bring externals (no more than 4-5 external members of sustAGE target group) to execute the survey.

**Phase 4: Business Scenarios and Models (Initial draft at proposal phase - Revised M18):** Business scenarios are assessed to address business requirements defined in the previous phase. Besides market insight it is also very important to have a good business model to bring the new product successfully to the market. A business model describes the rationale of how an organization creates, delivers, and captures value. For the development of the business model sustAGE consortium will rely on the Business Model Canvas [2] (the most popular tool used to design the operations of a new or refocused business).

**Phase 5: Identify and explore open issues:** In the first iteration, which will conclude in M18, the open issues to be identified cover the description, pros, cons, caveats and assumed viability of the business model. In the second iteration (M18 to M28), key resources, relationships and channels are also examined to complete the business model canvas.

**Phase 6: Plan post-project partnership:** In the first iteration of this phase, partners will be requested to provide their initial impression of the sustAGE business model and explore internally how their individual exploitation plans, motivations, activities and existing partnerships can support it. This iterative phase lasts from M18 to M20. In the second iteration, partners will state which resources and investments they can commit to the project, and which roles they will accept in the post-project sustainability scenario. This phase runs from M28 to M30.

**Phase 7: Consolidation:** In both iterations, this phase includes consolidating all the work and data collected during the period, including individual exploitation plans, joint exploitation leads, business modelling, market data, stakeholder’s feedback and technical results. This step runs from M20 to M24 and from M30 to M32. The output of this activity will be delivered in the final exploitation report (D7.7).
Phase 8: Go to market: The final phase is the development of a sound business plan for the implementation of the solution. The selected business scenario is taken as the baseline for exploitation. The completed business model canvas is taken as to complement sustAGE value proposition with other aspects of the business model and this is then specified using financial projections, IPR agreements and interim results to generate the business plan. This plan is ratified by project partners and any changes to the project and partner roles are implemented to prepare for a transition phase towards the new model. This step runs from M32 to M36. This will be described in the final exploitation report (D7.7). The following timeline illustrates sustAGE exploitation strategy.

Figure 1: sustAGE exploitation timeline

3.2 Actions within the sustAGE Exploitation
The exploitation of sustAGE is considered an ongoing activity throughout the project. The sustAGE consortium aims to identify exploitation benefits for each individual partner. The following are concrete actions that are going to be performed during sustAGE exploitation which are listed in the following subsections:

3.2.1 Perform a SWOT Analysis Identifying the Internal Strengths and Weaknesses of the sustAGE Solution as well as the Opportunities and Threats Faced by sustAGE.

The following SWOT analysis gives a short overview of strengths/ weaknesses and opportunities/ threats the consortium members have identified at this early stage of the project. The SWOT analysis will be further updated in the course of the development of the project’s exploitation.
The following items have been identified:

**Strengths:**
- Integrated framework to improve worker’s health
- Continuous monitoring of health conditions
- Information management by the platform allows measurement and control of individual “footprints”
- Combined knowledge/skill set of the sustAGE Consortium
- Architecture designed by scientists familiar with Big Data handling.
- Design and evaluation of modules for the mental well-being of the user by specialist psychologists
- System exploiting low cost-IoT, integrating heterogeneous devices, adopting open IoT standards.
- Applicability in different industry domains
- Functionalities developed for both real-world indoor and outdoor environments
- Multidisciplinary approach – holistic view on processes and aspects that affect productivity and well-being of older workers.
- Input from practice/industrial domains (Manufacturing + transportations/logistics)
Cognitive stimuli will assist to train various cognitive skills

Multidisciplinary measures to manage the elderly workers, enabling people to remain productive and preserving them from stress or physical overload

Facing of the future aging of the industrial workforce

**Weaknesses:**

- Quality of recommendations by the platform depends on the information quality collected by sensors and algorithms
- Difficult to clearly assess the target market with its market specific recommendations and requirements
- Many different subcomponents to fit together
- Reliance on specialized equipment for collection of specific types of data
- Long time to market – Technology Readiness Level (TRL) 5 is high for research
- Dependency of recommendations based on actual work, working conditions/environment
- Limited resources (time, money, people) for a large-scale validation of the concept prior its release
- Difficult and slow to implement in a big company

**Opportunities:**

- Increasing age of work force
- An aging society needs appropriate instruments for labour safety and well-being until age of retirement
- Treatment of elderly workers has a positive effect on company recognition
- A completely new range of applications could be developed around the sustAGE idea
- Massive opportunity to demonstrate the potential of IoT, AI (artificial intelligence) solutions in a real-world setting. Such studies are not frequently undertaken
- Creation of an effective tool for HR management with focus on the elderly workforce.
- Ability to cooperate with major smart device manufacturers to integrate sustAGE into the range of applications offered
- Innovation of digital services at work based on industry-driven scenarios for European industries
- Reusable technology in other domains, e.g. predictive systems, recommender systems, personalised services
- Flexibility and practice-relevant practicability through a template-based structure for tailored industry-client-specific insertion of respective task- and personnel-related data (provided there will be a template structure available)
- Possibility to integrate the system with existing or under development IoT industrial infrastructure

**Threats:**
If no data can be collected due to labour laws or country specific regulations, the solution is obsolete.

Many solutions may work in ‘laboratory’ settings, a major threat will be their ability to work ‘in-the-wild’ settings especially within the industrial setting, where ‘noise’ will be a major confounding factor.

Too many well-being applications on the market already.

Privacy security concerns, cautiousness of people against monitoring and profiling systems.

Uncertain feasibility for in-practice-use due to technical requirements of system architecture for implementation.

Need to integrate the system with existing OHS and HR tools.

### 3.2.2 Identify Target Market Sectors

Identifying the target market is an essential step in the development of a business plan. The results from sustAGE aim to support the employment and to realize later retirement of older adults from work and an optimization of the workforce management. For the effective commercial exploitation of sustAGE the following market sectors have been identified at this early stage of the project as potential end-users to adopt or apply the results of the project, and potentially benefit from the knowledge produced. The identification of relevant market sectors will be extended and further updated as the project goes on.

#### 3.2.2.1 Manufacturing Sector

The shift towards the mass customization manufacturing paradigm requires manufacturers’ extreme production flexibility. In many cases automation is still far from providing reliable solutions at reasonable costs and flexibility is mainly provided by human dexterity and cognition in manual and cognitive tasks. Most EU workers aged 15-64 are employed in Manufacturing (35.6 million) and over the coming decades Europe’s economically active population will include more workers aged 50 and above. Moreover, Manufacturing is one of the sectors (along with Mining and Agriculture) with higher than average incidence rates of occupational diseases. This changing pattern make it more important than ever to focus on reducing the risk of occupational accidents and improving workers’ health, in particular the health of the oldest workers. The European auto industry is a global player, delivering quality ‘Made in Europe’ products around the world, and bringing in a C95.1 billion trade surplus. 12.1 million people (5.6% of the EU workforce) are employed in the automotive sector. The 2.3 million high-skilled jobs in automotive manufacturing represent 7.6% of the EU’s manufacturing employment. Finally, the auto industry is the largest private investor in R&D in Europe, investing over C41.5 billion in R&D; in 2014, about 6,000 patents were granted to the automotive sector by EPO. However, compared to US and Asia the manufacturing productivity is weakest across the Euro area, the need for new organizational tools able to take into account age-related changes in workforce productivity is urgent.\(^1\) In production systems that include both repetitive short-cycle task operations and complex tasks, choosing the best match between task and worker, aiming at the overall system performance should consider on the one hand the job characteristics and on the other hand workers’ abilities and limitations. In order to do so, worker’s profiling, on an individual basis, is necessary.

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\(^1\) sustAGE Grant Agreement Annex I (part A and part B), p. 160
sustAGE will empower the manufacturing industry: the market has the potential to further evolve through the exploitation of a person-centred solution, setting the ground to engage and effectively manage the ageing workforce in these industries, based on the experiment carried by CRF.

3.2.2.2 Transport & Logistic Sector

Transport and mobility are vital to Europe’s internal market and essential to the quality of life of citizens in economic and social terms. As stated in the Transport White Paper, further market opening in transport needs to go hand-in-hand with quality jobs and working conditions because human resources are crucial to an efficient, high-quality transport system. The transport industry employs more than ten million people, accounting for 4.5% of total employment in the EU, and representing 4.6% of gross domestic product (GDP). Europe has the world’s largest shipping fleet, providing employment for three million in related jobs. As in the EU economy as a whole, employment in the transport sector is facing economic and societal challenges, largely arising from demographic changes. Almost 30% of people employed in the transport sector are over 50, and will be retiring in the coming 10 to 15 years. Labour shortages in maritime transport are expected to become an increasing problem in the next 10 to 15 years as the economy and the transport sector return to growth and the number of people retiring from the sector increases. The report on Employment in the EU transport sector highlights that transport is seen as one of the least favourable sectors with regard to working conditions and although work safety and employee wellbeing have increased in the last few decades, further improvements in occupational health and safety are required - especially in maritime- capitalizing on ICT technologies.2

sustAGE will provide a significant boost towards this direction: by providing its person-centred solution in the maritime sector (validated through a pilot with HPA) will enable related industries to exploit technologies to improve occupational health and safety, effectively manage the workforce and create a positive image for employment.

3.2.2.3 Health & Care

Healthcare services are related to a huge market and the majority of hi-tech and electronic well-being services are directly or indirectly related to the provision of healthcare support. As healthcare shifts towards patient centred, outcome-based delivery model mHealth will be an important partner in healthcare transformation, leveraging advanced integrated analytics form decision support. The Global market for Healthcare Analytics is poised to reach $29.84 billion by 2022 growing at an estimated CAGR of 27.3% from $8.92 billion in 2017 [5]. The value of the mHealth market in 2013 was $ 2.4 billion and in 2018 forecasted to reach $21.5 billion (Fig. 3) [5].

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2 sustAGE Grant Agreement Annex I (part A and part B), p. 160
Predictive and prescriptive systems are among the highest growing areas during the next five years period, creating particularly interesting prospects for sustAGE solutions. Based on end users, the market growth will be mainly driven by healthcare providers, Healthcare Information Exchanges (HIEs), and accountable care organizations (ACOs) during the next years. Based on geography, U.S. dominates the market. This largest share of the U.S. in the healthcare analytics market is mainly attributed to federal healthcare mandates such as Meaningful Use, ICD-10 implementation, and The Patient Protection and Affordable Care Act (PPACA). These initiatives help to boost the adoption of electronic health records (EHRs) and Healthcare Information Exchange (HIE), thereby boosting the usage of analytics to leverage the generated data. In this context, initiatives like sustAGE represent a strategic initiative for EU industry to seize the opportunity and reduce the risk of being bypassed by its American counterparts. The McKinsey Global Institute estimates that applying big-data strategies to better informed decision making could generate up to $100 billion in value annually across the US health-care system, by optimizing innovation, improving the efficiency of research and clinical trials, and building new tools for physicians, consumers, insurers, and regulators to meet the promise of more individualized approaches. For these reasons, the sustAGE proposal represents an ideal case for EU industry to enter the healthcare-related data analytics market and prove its potential in reducing related costs while at the same time improving quality of life.\(^3\)

\(^3\) sustAGE Grant Agreement Annex I (part A and part B), p. 161

\(^4\) sustAGE Grant Agreement Annex I (part A and part B), p. 161
sustAGE is expected to enhance this specific market segments: to introduce advanced technological approaches supporting self-management care systems for better quality of life for different groups of people thus create value in this domain.

3.2.2.4  **Recommender Systems**

In today’s fast-paced market, it’s important to stay relevant to the marketplace and engage with your customers. Recommendations are a crucial part of the personalized user experience for any digital brand and is widely regarded as the next big step in information retrieval, and the one that will take the lead from search engines in the near future as the preferable way of locating and accessing content. Leading companies, most notably Amazon, YouTube, and Netflix, have definitively demonstrated their value and have radically transformed what customers expect from any digital experience. The utility and RoI of recommendations are unquestionable.

Amazon, for example, directly attributes an estimated 35% of sales to their recommender system. High quality recommendations generated by such systems can transform the user experience from annoying to delightful while also building long term trust and loyalty [4]. Product recommendations have long been an integral part of the online shopping experience. Dynamic Yield analysed data from 50 million shopping transactions and learned that visitors who engage with product recommendations generate 2.8x higher revenue per visitor and 20% greater average order value [3]. Google has introduced the term micro-moments in 2015 to capture the temporal changes in human interests. Since then, the concept of micro-moments has expanded from web search to the real life domain, by suggesting alternative options that may reduce time spent in transportation, new events and places that may provide better entertainment, activities that will improve health and change the way of living.5

By building upon micro-moments and temporal reasoning sustAGE aims to evaluate the MM-TCR module (Micro-moment Temporal Causality and Reasoning module) by FORTH and SAG, forecasted to reach a 75% maturity level within sustAGE. It is envisioned that, by the end of the project, focused negotiations between the two partners will consider the exploitation and relevant IPR with a high potential for commercialization and market reach out.

3.2.2.5  **Mental Training Market**

For years, scientific studies suggested that smarts were mostly heritable and fixed through young adulthood. But some recent studies hint that a segment of smarts, called fluid intelligence - where you use logic and patterns, rather than knowledge, to analyse and solve novel problems can improve with cognitive exercises. Relevant studies has since promised everything from higher IQs to the ability to stay sharp through aging or at least prolong brain function. The emerged industry even boasts that it can help ageing users to maintain their cognitive skill at a competitive level, through game-based training activities. According to a study by SharpBrains, despite the recent economic downturn, the market for brain health software alone grew from $210 million in 2005, to $600 million in 2009, and $1.3 billion in 2013. In 2013, software accounted for an estimated 55% of the total market ($715 million). In its 2015 update, SharpBrains predicted a total of $6.15 billion in yearly sales by the year 2020. Assuming that the proportion of the market represented by software remains constant, cognitive/brain assessment and training software is predicted to have yearly sales of $3.38 billion by 2020. It

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5  sustAGE Grant Agreement Annex I (part A and part B), p. 161-162
is estimated that 45% of purchases are made by consumers, for themselves personally or for members of their family. From the 2013 SharpBrains report, adult consumers directly spent about $322 million on digital brainhealth software products, and if these proportions remain constant, direct consumer spending on such products will reach $1.52 billion in 2020.\(^6\)

Clearly, the above highlight a great market potential for the sustAGE work that combines expertise from different areas to develop and assess advanced solutions that may revolutionize the ordinary market, as new cognitive training products and services are requested to become more holistic and consumer/elder-friendly.

### 3.2.3 Identify Potential Intellectual Property Rights and Develop an IPR Management Plan

An IPR Directory will be kept throughout the lifetime of the project, including all IPR contributed by each individual partner to the project which is relevant for achieving the intended goals of the sustAGE project. The IPR Directory will be maintained and continuously updated during projects lifecycle. The final version of the data base will record all IPR foreground and background generated by or provided to the project. The first version of the IPR directory is presented in the table below, listing all background included by the consortium partners at this stage of the project:

<table>
<thead>
<tr>
<th>IPR</th>
<th>Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apama</td>
<td>SAG</td>
</tr>
<tr>
<td>wM Integration Server</td>
<td>SAG</td>
</tr>
<tr>
<td>ARIS</td>
<td>SAG</td>
</tr>
<tr>
<td>MashZone</td>
<td>SAG</td>
</tr>
<tr>
<td>Terracotta</td>
<td>SAG</td>
</tr>
<tr>
<td>Cumulocity</td>
<td>SAG</td>
</tr>
<tr>
<td>Trendminer</td>
<td>SAG</td>
</tr>
<tr>
<td>Build.IO</td>
<td>SAG</td>
</tr>
<tr>
<td>AppForo: framework to create serious games and narrative based learning experiences</td>
<td>IMA</td>
</tr>
<tr>
<td>DOREMI components</td>
<td>IMA</td>
</tr>
<tr>
<td>Rehabilitation games</td>
<td>IMA</td>
</tr>
<tr>
<td>Any background created by the research team of Prof. Petros Patias and owned by AUTH and which is needed to the project, except for any Background excluded in the DoW.</td>
<td>AUTH</td>
</tr>
</tbody>
</table>

### 3.2.4 Develop a Business Model Relying on the Osterwalder Business Model Canvas

A business model canvas will be developed for the overall sustAGE solution, including the fields Value proposition, key partnerships, activities and resources as well as customer segments, customer relationships, channels and cost and revenue structure. A first draft of sustAGE business model canvas is presented in the table below. Note that this business model

\(^6\) sustAGE Grant Agreement Annex I (part A and part B), p. 162
will be more defined as the project goes on since it is difficult to specify details at this early stage of the project.

### Key Partners
- Manufactures of smart devices and sensors
- Application marketers
- Research community

### Key Activities
- Collaborative development of the service.
- Integration of service modules developed and development of different UIs for individuals and organizations

### Value Proposition
- Sustain the efficiency of the older workforce to increase productivity
- Increase labour safety, health and well-being for older workers
- Multidisciplinary measures to manage elderly workers, enabling people to remain productive while reducing stress or physical overload
- Provide solutions to organizations for effective HR and workforce management
- Enable measurement and control of individual “footprints”
- Personalized task/job/role recommendations through temporal reasoning and analytics

### Customer Relationships
- Existing Business relations
- Alliances and strategic partnerships
- Participation in conferences and summits seeking for collaborations and partnerships for service expansion

### Customer Segments
- Manufacturing companies
- Transportation and Logistic sectors

### Key Resources
- Hardware and IoT-Devices
- Technical support for software
- Technical support for hardware
- Consultants and skilled employees

### Channels
- Collaboration with smart device manufactures
- sustAGE Homepage
- Social Media Marketing
- Project Dissemination
- Fares and exhibitions
- Customer networks

### Cost Structure
- Software development and customizing cost
- Software update & technical support costs
- Maintenance
- Licensing fees for proprietary components and software
- Marketing

### Revenue Streams
- Licensing generated through PaaS, SaaS, Cloud-offerings, on premise licensing
- Subscribing fee for continued access to sustAGE platform
- Freemium service for customers with premium features provided under a monthly registration fee
- Yearly fee for companies with ability to purchase bundle licenses for the total of its employees.
- Contract agreements with manufactures to include the service

#### 3.2.5 Perform a Market Trend Analysis
Market trend analysis looks into several trends relevant to the sustAGE solution. As market trends in technology, changes to customer requirements, and solution benefits, they are important be analysed.

#### 3.2.6 Identify a Suitable Licensing Strategy
At this early stage of the project, it is difficult to define a suitable licensing strategy for the sustAGE solution. However, we can already present a list of different licensing strategies that could be possible for sustAGE:

1. **Subscription based models**: through “lock-in” by taking a product or service that is traditionally purchased on an ad hoc basis, and locking-in repeat custom by charging a subscription fee for continued access to the product/service (e.g., Netflix, Apple Music)
2. **Freemium Model**: offering digital sampling, where users pay for a basic service or product with their data, rather than money, and then charging to upgrade to the full offer. Works where marginal cost for extra units and distribution are lower than advertising revenue or the sale of personal data (e.g., Dropbox, Spotify)
3. **A Free Model**: using the paradigm of ‘if-you’re-not-paying-for-the-product-you-are-the-product’ that involves selling personal data or ‘advertising eyeballs’ harvested by offering consumers a ‘free’ product or service that captures their data/attention (e.g., Google, Facebook).

4. **Classical Marketplace Model**: which uses the provision of a digital market place that brings together buyers and sellers directly, in return for a transaction or placement fee or commission (eBay, iTunes, AppStore, etc.)

5. **Access-over-Ownership Model**: providing temporary access to goods and services traditionally only available through purchase. Includes ‘Sharing Economy’ disruptors, which takes a commission from people monetising their assets (home, car, capital) by lending them to ‘borrowers’.

6. **Ecosystem Model**: by selling an interlocking and interdependent suite of products and services that increase in value as more are purchased. Creates consumer dependency (e.g., Apple, Google)

### 3.3 Exploitable Assets

The exploitation deliverables for sustAGE should apportion the exploitable output components. Table 2 shows the first version of assets identified at the early stage of the project that are worth exploiting according to the Description of Work (DoW).

**Table 2: sustAGE exploitable components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
<th>Partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro-moment Temporal Causality and Reasoning module, MM-TCR</td>
<td>Consider associations of past, present, future micro-moments Exploitable in many HCI domains (entertainment, e-marketing, etc.)</td>
<td>FORTH SAG</td>
</tr>
<tr>
<td>Multimodal state and trait recognition module, MSTR</td>
<td>Distil the short-, medium-term states and long-term traits from multiple input modalities Holistic learning to recognize more than one features at a time</td>
<td>UAU</td>
</tr>
<tr>
<td>Indoor/Outdoor positioning system, IOPS</td>
<td>Combine IoT sensors, EU-GNSS and geo-databases to calculate a very accurate position of workers with little to no latency.</td>
<td>AUTH FORTH</td>
</tr>
<tr>
<td>Library for cognitive Stimuli</td>
<td>A library and collection of mini-games for mobile device that assist training of various cognitive skills via cognitive stimuli Exploitable in the Cognitive assessment and training market</td>
<td>IMA UNED IFADO</td>
</tr>
<tr>
<td>Workforce Analytics Module, WfA</td>
<td>A decision support module for working environments Personalized task/job/role suggestions for employees</td>
<td>AEGIS SAG CRF HPA</td>
</tr>
</tbody>
</table>
3.4 Individual Exploitation Plans

Each partner in sustAGE has different expectations from potential ways to benefit from the work and results of the project. Following this, in addition to the common exploitation plan that will be defined during Work Package 7, the second and third version of the exploitation plan will incorporate specific exploitation actions that are considered most appropriate for each individual partner. The following chapter presents first iterations of individual exploitation plans.

3.4.1 Exploitation for Industrial and Applied Research Partners

FORTH, SAG, CRF, IMA, HPA and AEGIS belong to the group of industrial or applied-research partners. In the following, we present for each of these partners a first iteration of strategic exploitation and business plans:

3.4.1.1 FORTH Exploitation

FORTH has adopted an evolving strategy towards promoting the commercial exploitation of R&D results by providing services, licensing specific products to industrial partners, contracting with industrial partners to jointly develop new products, and participating in start-up / spin-off companies and joint ventures. The results of the sustAGE project will be exploited by the established mechanisms of FORTH. Those include the PRAXI network and the Science and Technology Park of Crete (STEP-C). PRAXI Network is an established technology transfer organization with long-standing experience in assisting SMEs and research organisations throughout Greece. The other initiative of FORTH, the Science and Technology Park of Crete (STEP-C), offers, in addition to incubating facilities and services to start-up companies with new and emerging technologies, specialized professional services that are difficult to find under one roof and geared to assisting and guiding companies in various aspects such as transfer of technological advancements into the manufacturing of innovative products and services and unleashing their potential through innovation.

Table 3: FORTH Business Model Canvas

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Proposition</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>sustAGE Partners</td>
<td>Solution and service development</td>
<td>Personalized task/job/role recommendations through temporal reasoning and analytics</td>
<td>Automated services</td>
<td>Companies with needs in personalized services</td>
</tr>
<tr>
<td>Research Community</td>
<td>Integration of service modules developed and development of different UIs for individuals and organizations</td>
<td>Improved monitoring of people (counting, actions, behaviours) in unconstrained</td>
<td>Presentations jointly with industry partners in events</td>
<td>Industries willing to enhance workers well-being</td>
</tr>
<tr>
<td>ICT companies</td>
<td></td>
<td></td>
<td>Explore joint research opportunities with industrial and research partners of the project</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: FORTH Business Model Canvas
environments
- provide Occupational safety and health monitoring (decision support module)
- Enhanced safety in industrial work environments for older adults
- calculate a very accurate position of workers with little to no latency
- Increased health and well-being conditions through associations of past, present, future micro-moments

Channels
- Social media
- Presentation in scientific events
- Organization of workshop
- Technology transfer organizations linked to partners (e.g. PRAXI (FORTH))

Smart homes/hotels/hospitals
- HCI domains (entertainment, e-marketing, etc.)

### Cost Structure
- Software development
- Technical support, update and maintenance
- Licensing fees for proprietary components and software
- Marketing & Promotion

### Revenue Streams
- OEM Selling (Contract agreements with companies integrating modules as part of their service)
- Subscription based (Licenses for individual modules for different companies, e.g., monthly, yearly fees)

### 3.4.1.2 AEGIS Exploitation
The AEGIS as a leading Industrial IT company in developing advanced visualization systems has proven previous experience in major IT development projects and in supporting the design and development of mobile applications. AEGIS aims to benefit commercially from the tangible assets that will be obtained in sustAGE, namely the integrated system and the Workforce Analytics Module. AEGIS is seeing to capitalize on the tools and services built during the project for promoting and integrating the results in its line with its commercial offering and allow AEGIS to target its products to companies in the domain and the emerging market for Work Analytics and Workforce Optimization. From the perspective of intangible assets, participation in sustAGE will grant AEGIS the capability to offer consultancy services to the organizations that are interested in adopting such tools and services.

### Table 4: AEGIS Business Model Canvas

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Proposition</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufactures of smart devices and sensors</td>
<td>Collaborative development of the service.</td>
<td>Sustain the efficiency of the older workforce to increase productivity</td>
<td>Existing Business relations</td>
<td>Manufacturing Companies</td>
</tr>
<tr>
<td>Application marketers</td>
<td>Integration of service modules developed and development of different UIs for individuals and organizations</td>
<td>Promoting the physical and mental well-being of the individual within and outside the working environment</td>
<td>Alliances and strategic partnerships</td>
<td>Service Companies</td>
</tr>
<tr>
<td>sustAGE Partners</td>
<td></td>
<td>Provide solutions to organizations for effective HR and</td>
<td>Participation in conferences and summits seeking for collaborations and partnerships for service expansion</td>
<td>Organizations of public and private sector</td>
</tr>
</tbody>
</table>
3.4.1.3 SAG Exploitation

SAG builds on over 40 years of customer-centric innovation and is ranked as a “leader” in more than a dozen market categories with the most complete business process and service platform to help organizations to achieve their business objectives faster. The company’s streaming, Big Data and business process management technologies enable customers to drive operational efficiency, modernize their systems and optimize processes for smarter decisions and better service. SAG’s advanced techniques in real-time, streaming processing analytics of heterogeneous data (APAMA streaming analytics) and in interactive visualisations and predictive analytics (Zementis Predictive Analytics) will be of interest to the Work Analytics market, especially when IoT is combined for the automation of data collection. Through sustAGE SAG will likely also demonstrate the usefulness of platform Cumulocity, a leading independent Device and Application Management Internet of Things (IoT) Platform that allows companies to effortless manage IoT machines effortlessly and focus on their business value adding activities.

Table 5: SAG Business Model Canvas

<table>
<thead>
<tr>
<th>Key Resources</th>
<th>workforce management</th>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Smart devices and sensors</td>
<td>• Provide recommendations to the individual to promote their physical and mental well-being on a daily basis</td>
<td>• Collaboration with smart device manufactures</td>
</tr>
<tr>
<td>• Technical support for software</td>
<td>• Personalized task/job/role recommendations through temporal reasoning and analytics</td>
<td>• Social Media</td>
</tr>
<tr>
<td>• Technical support for hardware</td>
<td></td>
<td>• exhibitions and events</td>
</tr>
<tr>
<td>• Individuals (Freelancers etc.)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost Structure</th>
<th>Revenue Streams</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Software development cost</td>
<td>• Freemium service for customers with premium features provided under a monthly registration fee</td>
</tr>
<tr>
<td>• Software update &amp; technical support costs</td>
<td>• Yearly fee for companies with ability to purchase bundle licenses for the total of its employees.</td>
</tr>
<tr>
<td>• Hardware purchases</td>
<td>• Contract agreements with manufactures to include the service</td>
</tr>
<tr>
<td>• Marketing</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Proposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Academic partners providing consultancy on sustAGE methodology</td>
<td>• IT Service development and service consulting</td>
<td>• A decision support module for working environment to provide Occupational safety and health monitoring</td>
</tr>
<tr>
<td>• Technical partners with solutions in health monitoring</td>
<td>• Sensor data collection and data transformation</td>
<td>• Labour safety and well-being for older workers</td>
</tr>
<tr>
<td>• sustAGE Partners</td>
<td>• Application of Analytics, prediction and recommendation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Communities</td>
<td>• Large Companies affected by aging work-force</td>
</tr>
<tr>
<td>• Personal assistance</td>
<td>• Companies suffering from occupational safety</td>
</tr>
<tr>
<td>• Strategic partnerships</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Customer Segments</th>
<th></th>
</tr>
</thead>
</table>
### Key Resources
- IT Software systems running as PaaS, SaaS, Cloud-Based, on premise
- Developers and consultants
- Cloud/Service infrastructure
- Personalized task/job/role recommendations through temporal reasoning and analytics
- Increased health and well-being conditions through associations of past, present, future micro-moments

### Channels
- Trade fares
- Existing Marketing channels or newly kicked-off campaigns
- Collaboration with sustAGE partners

### Cost Structure
- Software development and customizing cost
- Hosting and service provisioning costs
- Training costs

### Revenue Streams
- Licensing generated through PaaS, SaaS, Cloud-offerings, on premise licenses
- Individual licensing models for OEM, ISV (independent software vendors), and SW resellers

---

### 3.4.1.4 IMA Exploitation
IMA will capitalize on the gained expertise on collaborative games for mental training of older workers. The ability to personalize the training experience through game activities of incremental difficulty and the development of a collaborative platform for game-based cognitive will be an important asset for IMA, that will be exploited in many ways. IMA already has a strong presence in the market of serious games for children and the elderly focusing on rehabilitation and cognitive deficiencies. Through sustAGE, IMA will expand its target audience to older adult workers and will develop assets of interest to workers in many industries.

**Table 6: IMA Business Model Canvas**

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Proposition</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
</table>
| • PROFESSIONAL ORGANISATIONS
  • BIG CORPORATES
  • RESEARCH CENTRES
  • PATIENTS ASSOCIATIONS | • MARKETING - We will develop marketing literature and content for key social media outlets that target the youth market. We are exploring opportunities to present or exhibit at relevant events including conferences, exhibitions and sports events. We are seeking to develop collaborative relationships with key partners through networking and target contacts.
  • GAME DESIGN - We continue our strategy of co-design with selected users from the target market and key influencers of mobile game choices
  • Improve the library for cognitive stimuli | • Engaging elderly people through games
  • Offering a gamified specific solution to promote active ageing, social inclusion and training of cognitive functions | • reputation as a global leader in gamified health solutions across all demographic sectors
  • proven track record of developing mutually beneficial win-win relationships with partners and stakeholders
  • BUSINESS DEVELOPMENT: work with existing collaborative partners with access to markets in Europe, China and South East Asia
  • JOINT VENTURES: explore opportunities with joint ventures with key partners | • Companies
  • Therapists
  • Rehab centres
  • Care homes |
### Key Resources

Our staff with their multidisciplinary team can cover the whole process from development to sales.

<table>
<thead>
<tr>
<th>Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Events and exhibitions</td>
</tr>
<tr>
<td>• Media and newsletters</td>
</tr>
<tr>
<td>• Local retailers/business partners</td>
</tr>
</tbody>
</table>

**Cost Structure**

- General costs
- Direct costs (staff)
- IT and infrastructure
- Retailers

**Revenue Streams**

- Licenses for direct sales
- Bundled in some other solutions

### 3.4.1.5 CRF Exploitation

CRF exploitation strategy is threefold: (a) development a demonstrator for business continuity and proving the potential for integration into existing company processes, (b) anchoring of the project pilots to relevant processes of FCA (Fiat Chrysler Automobiles) plants and/or FCA supply chains, and (c) assessment of key results with the internal stakeholders for successive implementation. The sustAGE CRF pilot will be jointly developed by the Manufacturing department in FCA and the staff from Maserati plant in Grugliasco, where premium brands with medium-volume, high-margin and high customisation are developed. The plant also has heavy relationship with other plants (e.g., for sub-assembly), sharing of components with other vehicles and high mix of products. A business cases analysis that will measure the gain obtained via specific KPIs, will support the introduction of the corresponding technologies in the manufacturing department.

### Table 7: CRF Business Model Canvas

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Proposition</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Technical and universities project partners</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Company HR and OHS departments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Trade unions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Automotive industry needs definition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Proposal and checking of recommendations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Testing and validation of the system in the pilot line (CRF use case)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Multidisciplinary measures to manage the elderly workers, enabling people to remain productive and preserving them from stress or physical overload</td>
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<tr>
<td>• Promotion of the project’s outcomes towards FCA/CNHI sectors, partners and suppliers</td>
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<tr>
<td>• Automotive (FCA)</td>
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<tr>
<td>• Industrial, agricultural and construction vehicles (CNHI)</td>
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### Cost Structure

- Components and tool for the pilot line (Material)
- Temporary workers for the testing (Service)
- Personnel cost
- Travel and dissemination costs

### Revenue Streams

- Improved working conditions for workers and elderly workers |
- Improved productivity and process efficiency |
- Cost reduction due to sick-leaves, employee turnover and absenteeism

### 3.4.1.6 HPA Exploitation

HPA invests on the implementation of a new smart approach to port logistics and port workforce optimization, and the adoption sustAGE solution will provide the competitive
advantage that the port needs to improve its position in the south-east Mediterranean. The exploitation strategy will be based on a financially sustainable business model, which uses technology to improve workforce utilization, facilitate and boost workers’ performance and promotes port workers’ well-being. This successful paradigm will be promoted to other Greek ports and collaborating industries of logistics and maritime.

Table 8: HPA Business Model Canvas

<table>
<thead>
<tr>
<th>Key Partners</th>
<th>Key Activities</th>
<th>Value Proposition</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
</table>
| • Technical Partners and Universities  
• Consultants (FORTH, IFADO, UAU)  
• Trade Unions  
• Company HR and OHS departments  
• Technology Providers (FORTH, IMA, SAG) | • Customizing the platform according to customer needs  
• Provide Cognitive and mental training (training the trainers)  
• assessment of the worker’s physical activity  
• Specifications of what mental processes should the newly developed games trained and how | • Increase the occupational safety and appeal to work in port operations for elderly people  
• Provide better working conditions to workforce and increase employees satisfaction  
• Actively engage elderly workforce in production and processes and find appropriate/suitable activities for them | • Promotion to existing business contacts  
• Existing contracts with service suppliers and co-workers | • port operators in Greece and Europe  
• Companies working for HPA |

<table>
<thead>
<tr>
<th>Key Resources</th>
<th>Key Activities</th>
<th>Value Proposition</th>
<th>Customer Relationships</th>
<th>Customer Segments</th>
</tr>
</thead>
</table>
| • IT Hardware  
• Consultants and trainers  
• sustAGE Platform | | | | |

<table>
<thead>
<tr>
<th>Cost Structure</th>
<th>Revenue Streams</th>
</tr>
</thead>
</table>
| • Cost of operating the sustAGE platform  
• Promotion of the platform  
• Customizing and training of new customers | • Provided as a software as a Service  
• Contracts for training and customizing |

3.4.2 Exploitation for Academic Institutions

IFADO, UAU, AUTH and UNED belong to the group of academic institutions. In theory, academic institutions are expected to have limited opportunities for the exploitation of project results. However, they play an important role for further research on the basis of successful deployments.

The academic partners of the project (i.e., Universities, Research Centres) will exploit the project findings in ways that will help expanding their knowledge-base and enabling them to remain at the forefront of research in ICT, behavioural sciences and use research findings for practical applications and recommendations in sustAGE industrial domains. Furthermore, by being involved in such advanced and application-oriented innovation activities, the academic and research partners will ensure they stay competitive for future research as well as innovation-related initiatives, their exploitation may be summarized as follows:

- Enhancing teaching scope and quality by introducing new findings and technologies into the curriculum, thereby delivering well-trained data professionals and data scientists, which are urgently needed in industry.
- Offer professional and academic training on related solutions and relevant use cases.
- Present project results to students, university staff and the research community by means of seminars, tutorials, as well as renowned national and international
conferences and events, including presentations jointly with industry partners, thereby increasing awareness and adoption of sustAGE results.

- Identify future joint research opportunities based on the project results and lessons learned from sustAGE.
- Improved positioning for future and enhanced opportunities for cooperation with industrial as well as other research partners.
- Supervision of PhD and Master Students on domain areas related to the project, thereby delivering highly qualified data scientists with background in finance, manufacturing and advanced ICT technologies.
- Stimulate spin off projects from research to industry.
- Capitalize research results through spin-off and start-up companies.
- Data-based/knowledge-based recommendations for system development: OSH risks and human-task interaction characteristics
- Proactive/adaptive OSH management for older employees.
- Retention of work ability, performance and productivity through tailored monitoring and engineering of resources and demands for older employees.

Individual exploitation intentions by academic institutions will be defined by M18 in analogy to the industrial partners’ business canvas.
4 Liaison with Other Projects

Although most of the sustAGE framework is newly designed and based on emerging technological innovations, the partners can capitalize on the mature existing applications being used in existing projects and other worldwide initiatives. Furthermore, sustAGE partners have already identified key European Research projects that could be extended, thus ensuring that sustAGE will be built upon existing technologies and encourage strong liaisons amongst the recognised projects. Successful outcomes from a series of national and international research and innovation activities will be exploited and further advanced to realize the objectives of the sustAGE project. The following table contains indicative relevant projects, which will be evaluated and possibly extended within the exploitation task:

- **RADAR-CNS** (H2020) – exploring the potential of wearable devices to help prevent and treat depression, multiple sclerosis and epilepsy
- **HUMANS** (H2020) – define and demonstrate workplaces where automation and human workers operate in harmony to improve the productivity, quality, performance of the factory as well as the worker satisfaction and safety
- **INNOKAT** (BMBF) - Promoting innovation in small and medium-sized enterprises in the context of demographic change
- **AGNES** (H2020) – Active Ageing – Resilience and external support as modifiers of the disablement outcome.
- **INLIFE** (H2020) – support various forms of Education through a versatile gamification framework, which makes use of IoT for the creation of life-based serious games
- **I-BiDaas** (H2020) - Industrial-Driven Big Data as a Self-Service Solution is an EU-funded project that aims to empower IT and non-IT big data experts to easily utilize and interact with big data technologies
- **Factory2Fit** - Empowering and participatory adaptation of factory automation to fit for workers
- **Manuwork** - Balancing Human and Automation Levels for the Manufacturing Workplaces of the Future
- **BIONIC** – Smart wearable’s supporting active and healthy ageing
- **DigitalHealthEurope** - Support to a Digital Health and Care Innovation initiative in the context of Digital Single Market strategy
- **Ageing@Work** - Smart, Personalized and Adaptive ICT Solutions for Active, Healthy and Productive Ageing with enhanced Workability
- **SmartWork** - Smart Age-friendly Living and Working Environment
- **Homes4Life** - Certified smart and integrated living environments for ageing well
- **WorkingAge** [not official webpage] - Smart Working environments for all Ages
- **CO-ADAPT** [not official webpage] - Adaptive Environments and Conversational Agent Based approaches for Healthy Ageing and Work Ability
- **See Far** [not official webpage] - Smart glasses for multifaceted visual loss mitigation and chronic disease prevention indicator for healthier, safer, and more productive workplace for ageing population
5 Conclusion

The current document serves as a basis for the second and third version of exploitation plan and defines future opportunities and possibilities for increasing the impact of the expected outputs of sustAGE. The success of such a strategy is strongly based on an inclusive approach including stakeholders, living labs, authorities and industries. With refer to actions that have to be taken for a successful exploitation, the identification of business values sustAGE solution is providing as well as the performance of instruments like SWOT analysis, market analysis and Business Model Canvas are seen as important and crucial ones and hence their extended results are foreseen to be presented for the second exploitation iteration in D 7.5 (M18). The final exploitation results will finally be presented in D7.7 (M36) at the end of the project.
6 References