Turkey in Horizon 2020 Phase II Focused Group Training

H2020 ICT Call topics

24-25 Oct 2019
Limak Ambassadore Hotel
Ankara

Day 2

Agenda - Day 2 – 25/10/2019

Session 4 Writing Successful Proposals in H2020 ICT calls (Chaired by Nikolaos Floratos)		
08:45 – 09:15	Registration - Networking	
09:15-10:45	How to write part per part the **EXCELLENCE** section in an H2020 ICT grant application with emphasis on examples from winning projects	H2020 ICT Trainer/Expert
10:45-11:00	*Coffee/rea break	
11:00-12:30	How to write part per part the **IMPACT** section in an H2020 ICT grant application with emphasis on examples from winning projects	H2020 ICT Trainer/Expert
12:30-13:30	Lunch	
13:30-15:00	How to write part per part the **IMPLEMENTATION** section in an H2020 ICT grant application with emphasis on examples from winning projects	H2020 ICT Trainer/Expert
15:00-15:30	*Coffee/tea Break	

Agenda - Day 2 – 25/10/2019

15:30-17:00	Participants will form groups or work individual and select one of the following to work with: • Develop an idea aligned with an ICT call topic • Prepare/Finalise an action plan for contacting key players for a specific H2020 ICT call-topic • Develop/Finalise a pitching email for selling their expertise to key actors in H2020 ICT calls • Develop a proposal concept (summary) • Prepare any subsection based on the grant application template and their familiarisation with the three sections in the proposal template (Excellence, Impact, Implementation) • Open: Any other topic they may wish to work with…	Hands on Practice on various elements, Group work Assisted by the ICT H2020 Expert

Session 4

How to write the EXCELLENCE section in an H2020 ICT grant application with emphasis on examples from winning projects

Proposal development

Do not start writing the proposal

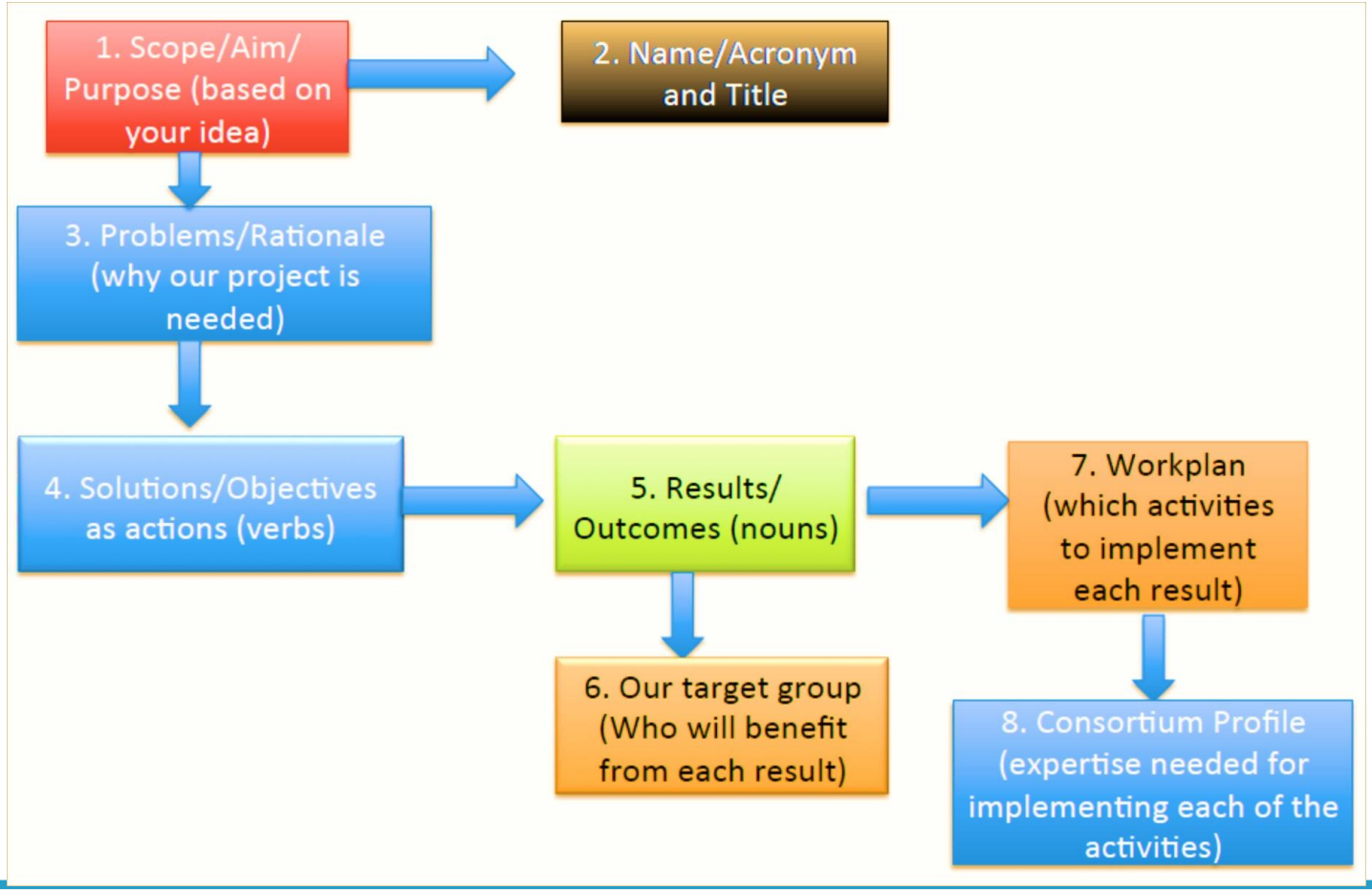
- Before you have what seems like an innovative idea
- Before you can link your idea to the appropriate call
- If you don’t have enough time till deadline
- If you don’t have the few capable and willing to help writing partners (core writers)
- If you don’t believe you can build a winning consortium

Proposal development

Then..

- Evaluate your idea several times (+with other people
- Study –AGAIN!– in detail the Work Programme topic (and its rules)
- Plan your writing process in time and resources
- Build your proposal development team (internal+ external)
- Assess the needs in partners, start looking for the ideal players if possible

Proposal Summary Structure



Proposal Summary Structure

- **Scope**/ Aim/ Purpose (based on our idea)

“A multi-scale holistic analysis where patient-specific information from various levels will be integrated and combined with information from other sources such as, environmental, behavioural and social risk factors to generate *robust predictors* for new personalised interventions for delaying onset and/or slowing down progression of OsteoArthritis”

Proposal Summary Structure

- Name/Acronym and Title

Proposal Title: Advanced, multi-scale personalised computer models preventing OsteoArthritis

Proposal Acronym: OACTIVE

Proposal Summary Structure

- **Problems**/Rationale (=why our project is needed)

An estimated 10% to 15% of all adults aged over 60 have some degree of OA, with prevalence higher among women than men

OA is not easy to define, predict or treat

Proposal Summary Structure

- **Solutions**/Objectives as actions

Development of **patient-specific computer models and simulation** in order to develop **appropriate OA prevention interventions or treatments**. The main focus of the Project will be on knee OA (KOA) because this is the joint where OA symptoms most frequently cause significant loss of function and mobility.

Proposal Summary Structure

- Results/ Outcomes

OACTIVE Hypermodel

Sub-results (models)

Proposal Summary Structure

- **Our target group** (Who will benefit from each result)

OA patients + their families

Medical care industry

Healthcare systems

Proposal Summary Structure

- Workplan (which activities to implement each result)

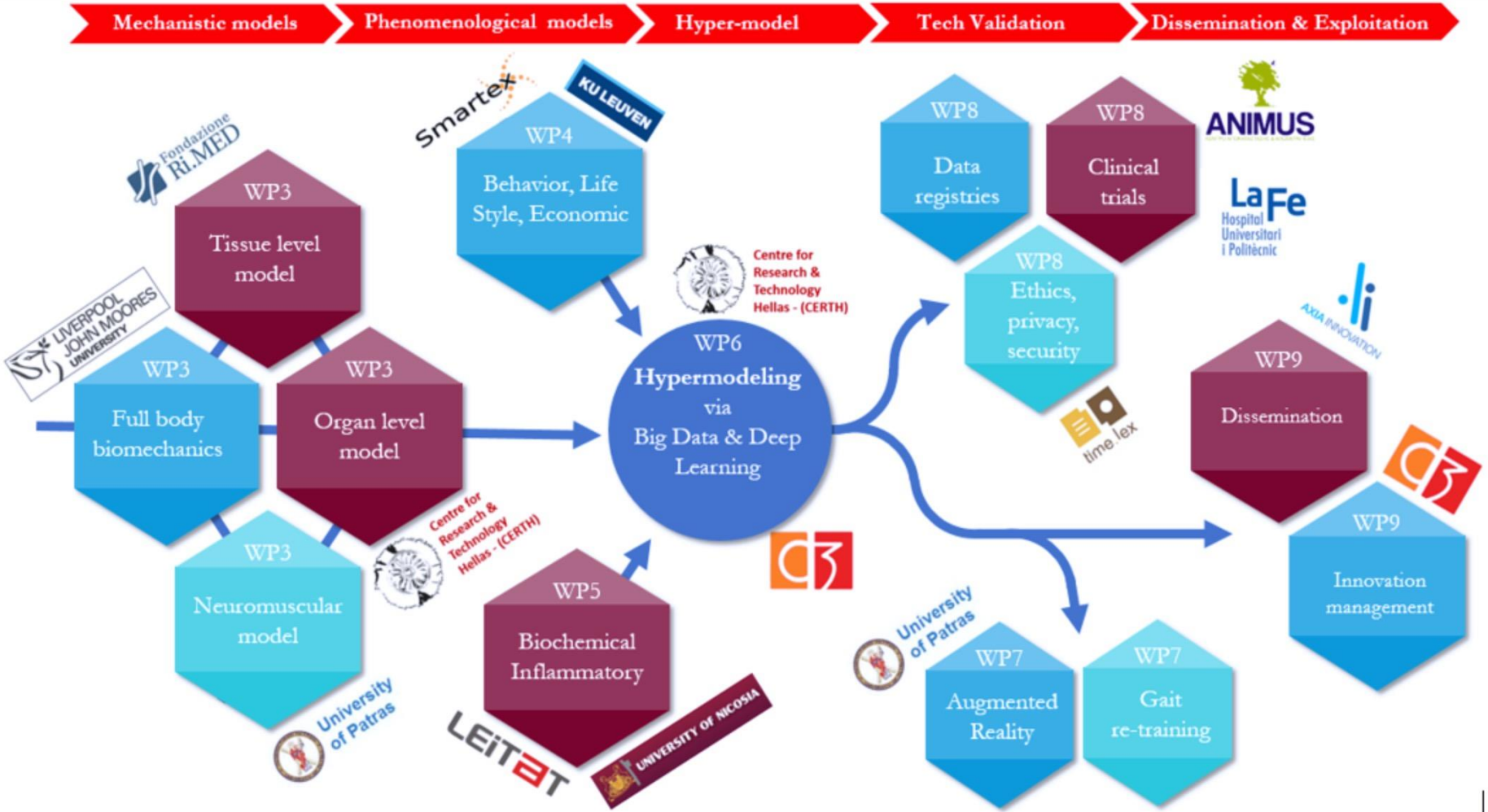
Organise the **Work Packages**
(analysis in section 3)

Proposal Summary Structure

- Consortium Profile (expertise needed for implementing each of the activities)

Develop the supply chain

The supply chain



The topic

- Specific challenge
- Scope
- Impact

Proposal Summary Structure

Also check!

Topic conditions and documents

- List of countries and applicable rules for funding
- Eligibility and admissibility conditions
- Evaluation
  - Evaluation criteria and procedure, scoring and threshold
  - Submission and evaluation process
- Indicative timetable for evaluation and grant agreement
- Provisions, proposal templates and evaluation forms for the type(s) of action(s) under this topic etc

Part B

- Section 1: **Excellence**
- Section 2: **Impact**
- Section 3: **Implementation**
- Section 4: **Members of the consortium**
- Section 5: **Ethics and security**

Sections 1-3 (RIA / IA)

Basic info:

- Page limits
  - Single or 2nd stage: 70 pages (cover page and sections 1, 2 and 3, together)
  - 1st stage: 10 pages
- Recommended font: Times New Roman (or Nimbus Roman)
- Minimum font size allowed: 11
- Page size: A4
- All margins (top, bottom, left, right): at least 15 mm

Section 1: **Excellence**

- 1.1 Objectives
- 1.2 Relation to the work programme
- 1.3 Concept and methodology
- 1.4 Ambition

Section 1: **Excellence**

Introduction

2 pages -> present in brief:

- The problem
  - is it a big problem?
  - Is it trans-European?
  - Does anyone else try to address it?
- Your proposed solution
- The project consortium (+ diagram of the supply chain)

Section 1: **Excellence**

in the first page do answer

- ✓ *What problem the project solves? Why is it of EU relevance?*
- ✓ *What is the competition, how does the project assess against it?*
- ✓ *What is the impact?*
- ✓ *Why is the consortium the best possible?*
- ✓ *Present your concept with an image*

1st page example

1. Excellence

Osteoarthritis (OA) is a degenerative disease of the joints and the most common form of arthritis that causes pain and mobility limitation and, thus, reduces independence and overall quality of life [1]. Osteoarthritis is a complex disease in which biochemical and biomechanical factors are involved and occurs mostly in the weight-bearing joints of the lower limbs, such as the hip and in particular the knee [2] in addition to the hands and spine, although, almost any joint can be affected. Structurally, the whole joint is usually involved including diffuse and progressive loss of articular cartilage with concomitant changes in underlying bone (osteophyte growth and increased thickening or sclerosis) and soft tissue structures in and around the joint (synovitis, meniscal degeneration, ligamentous laxity and muscle weakness [3]). These changes affect musculoskeletal function and body movement in general, reducing general mobility and increasing disability with age. It is, therefore, of particular concern that **OA is one of the most common diseases affecting old age and the single most important cause of disability in older people** [4, 5]. The prevalence of the disease in people over 65 years old ranges from 12- 30% [6] and the knee is the most commonly affected joint [2]. Around 10% of people over 55 years of age have knee OA, and some of them are severely disabled [7]. Although the usual population associated with the condition is the elderly, who are mostly inactive, athletes and younger individuals are also susceptible. A great cause of concern is the large percentage of knee injured athletes that develop OA later in life, in their 40s or 50s, following successful operative repair of knee ligaments when they are young. These are particularly serious problems when there are multiple structures affected in the knee such as meniscus damage during anterior cruciate ligament rupture. The development of the disease in such a relatively young age leads to a long period of living with the consequences of OA. Depending on the population, the aetiology may differ; injuries, occupational activities, and obesity appear to be the most common causes of OA in young and athletic populations. Diagnosing OA in athletes and young individuals is sometimes challenging because of their increased pain tolerance [8]. In young and athletic individuals, the more time they spend engaging in occupational and recreational activities, their higher predisposition to injuries contribute to their higher likelihood of developing OA. Obesity and a history of traumatic knee injury (e.g., anterior cruciate ligament rupture and/or meniscal tear) are key risk factors for the accelerated development of knee OA, while structural hip deformities (including those contributing to femoroacetabular impingement syndrome) are strong predictors of early-onset hip OA. In view of these associations, rising rates of obesity and sports injuries are concerning, and may signal a future surge in OA incidence among younger people [9]. There is also a confirmed an association between type 2 diabetes and osteoarthritis and between cardiovascular diseases and osteoarthritis [10].

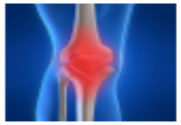


Figure 1.1
Highlighted area is affected by knee OA symptoms

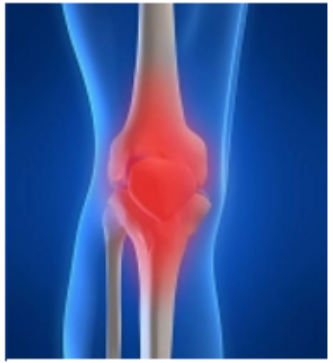
OA is not easy to define, predict or treat. Despite extensive research costing many billions of Euros, no drugs have been proven to modify the biological progression of OA, and only a few treatments are proven to relieve symptoms beyond the placebo effect. Given this failure to find an effective post-diagnosis treatment, attention should turn to preventing or delaying the onset of cartilage degeneration. **Identification of the risk factors for developing arthritis has been limited by a lack of longitudinal data, as well as an absence of reproducible, non-invasive** methods to measure changes in joint morphology and function. As a result, the disease processes governing **osteoarthritis progression are still poorly understood.** Although most of the existing research has focused on factors associated with the disease, the lack of longitudinal data examining the factors associated with disease onset and progression has resulted in a **lack of prevention and treatment interventions** that aim to target the most appropriate modifiable risk factors and, therefore, prevent or delay the onset and/or progression of the disease. Medical risk factors known to influence development of the disease include advanced age, gender, hormonal status, body weight or size, usually quantified using body mass index (BMI), and a family history of disease [11]. Additionally, there is **now evidence supporting a strong genetic association** [12, 13]. Other known risk factors for the onset and progression of OA include joint loading during occupational or physical activity and sports participation, muscle weakness, a past history of knee injury and joint operations (ACL injury and reconstruction, meniscal damage and partial meniscus removal) and depression. Although many of the above factors are fixed, other risk factors such as body weight, physical activity and occupation are modifiable. For many people occupational activities involving physically-demanding jobs, such as manual handling of heavy loads or prolonged kneeling may be associated with the disease [14].

The proposed OACTIVE approach

Whilst the available data have implicated the role of the various modifiable or non-modifiable risk factors in the development and progression of osteoarthritis, there is no integration of the factors at different levels of the system (tissue, organ, body) and, most importantly, their interactions. Furthermore, **no study has conclusively explored the interaction and integration of other influences and information sets** from different domains such as environmental, social, economic, and lifestyle factors, and their links to physiological, and medical/ biological risk factors in a patient-specific manner. The current OACTIVE project intents to make a significant leap forward adopting a **multi-scale**

The problem

Osteoarthritis (OA) is a degenerative disease of the joints and the most common form of arthritis that causes pain and mobility limitation and, thus, reduces independence and overall quality of life [1]. Osteoarthritis is a complex disease in which biochemical and biomechanical factors are involved and occurs mostly in the weight-bearing joints of the lower limbs, such as the hip and in particular the knee [2] in addition to the hands and spine, although, almost any joint can be affected. Structurally, the whole joint is usually involved including diffuse and progressive loss of articular cartilage with concomitant changes in underlying bone (osteophyte growth and increased thickening or sclerosis) and soft tissue structures in and around the joint (synovitis, meniscal degeneration, ligamentous laxity and muscle weakness [3]). These changes affect musculoskeletal function and body movement in general, reducing general mobility and increasing disability with age. It is, therefore, of particular concern that **OA is one of the most common diseases affecting old age and the single most important cause of disability in older people** [4, 5]. The prevalence of the disease in people over 65 years old ranges from 12- 30% [6] and the knee is the most commonly affected joint [2]. Around



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The problem

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Failure of Others to solve the problem!

OA is not easy to define, predict or treat. Despite extensive research costing many billions of Euros, no drugs have been proven to modify the biological progression of OA, and only a few treatments are proven to relieve symptoms beyond the placebo effect. Given this failure to find an effective post-diagnosis treatment, attention should turn to preventing or delaying the onset of cartilage degeneration. **Identification of the risk factors for developing arthritis has been limited by a lack of longitudinal data, as well as an absence of reproducible, non-invasive** methods to measure changes in joint morphology and function. As a result, the disease processes governing **osteoarthritis progression are still poorly understood**. Although most of the existing research has focused on factors associated with the disease, the lack of longitudinal data examining the factors associated with disease onset and progression has resulted in a **lack of prevention and treatment interventions** that aim to target the most appropriate modifiable risk factors and, therefore, prevent or delay the onset and/or progression of the disease. Medical risk factors known to influence development of the disease include advanced age, gender, hormonal status, body weight or size, usually quantified using body mass index (BMI), and a family history of disease [11]. Additionally, there is **now evidence supporting a strong genetic association** [12, 13]. Other known risk factors for the onset and progression of OA include joint loading during occupational or physical activity and sports participation, muscle weakness, a past history of knee injury and joint operations (ACL injury and reconstruction, meniscal damage and partial meniscus removal) and depression. Although many of the above factors are fixed, other risk factors such as body weight, physical activity and occupation are modifiable. For many people occupational activities involving physically-demanding jobs, such as manual handling of heavy loads or prolonged kneeling may be associated with the disease [14].

Our solution

The proposed OACTIVE approach

Whilst the available data have implicated the role of the various modifiable or non-modifiable risk factors in the development and progression of osteoarthritis, there is no integration of the factors at different levels of the system (tissue, organ, body) and, most importantly, their interactions. Furthermore, **no study has conclusively explored the interaction and integration of other influences and information sets** from different domains such as environmental, social, economic, and lifestyle factors, and their links to physiological, and medical/ biological risk factors in a patient-specific manner. The current OACTIVE project intents to make a significant leap forward adopting **a multi-scale holistic analysis** where **patient-specific information from various levels**, including molecular (e.g. biochemical/inflammatory biomarkers), cell, tissue and whole body, will be integrated and combined with information from other sources such as, environmental, behavioural and social risk factors to generate robust predictors for new personalised interventions for delaying onset and/or slowing down progression of OA. OACTIVE targets patient-specific OA prediction and interventions by using a **combination of mechanistic computational models, simulations and big data analytics**. Once constructed, these models will be used to simulate and predict optimal treatments, better diagnostics, and improved patient outcomes. Overcoming the limitation of the current treatment interventions, Augmented Reality (AR) empowered interventions will be developed in a personalised framework allowing patients to experience the treatment as more enjoyable, resulting in greater motivation, engagement, and training adherence. The AR element will also be helpful for the therapists for validating the patients' progress and allow them more adaptive rehabilitation therapy in terms of flexible interactive content. OACTIVE's mission is to **improve healthcare** by transforming and accelerating the OA diagnosis and prediction based on a more comprehensive and holistic understanding of disease pathophysiology, dynamics, and patient outcomes.

The -great- consortium!

The OACTIVE partnership

We have built a strong case following the OA-related challenges, to design a project covering all aspects of technical, medical and user requirements. To do that we have brought together a total of thirteen (13) EU-based partners, representing both medical industry and academia, having extensive experience in cutting-edge technologies and active presence in the OA research. The competitive advantage of the OACTIVE partnership can be summarised in Figure 1.2. The consortium comprises of (i) well known research organisations (LJMU, CERTH, UPA and RIMED) with wide expertise in OA modelling at various scales (full body, organ, neuromuscular and tissue level), (ii) technology providers in the field of biochemical and inflammatory biomarkers (LEITAT, NIC), (iii) organisations active in Social Sciences and Humanities and behaviour analysis (TIMELEX, KU LEUVEN) being responsible for investigation the effect of socio-economical risk factors in OA and ethics, (iv) Computer science experts such as CERTH and CETRI , (v) research oriented SMEs with dissemination, exploitation skills (AXIA and CETRI) and (vi) big medical institutions (ANIMUS and HULAFE) acting as the end-users of the project.

Example – First page

Problem

Guidelines

Solution

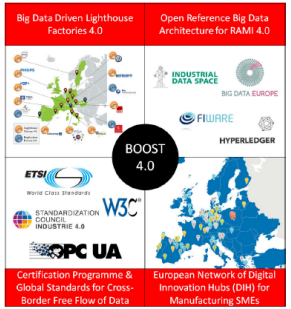
1 Excellence

1.1 Objectives

1.1.1 Background and Motivation

Europe has strong competencies and a global privileged position in the embedded and industrial/manufacturing market for devices, goods and services. The EU manufacturing market is significant with EU manufacturing sector accounting for 2 million companies and 33 million direct jobs and 60 million indirect jobs; it is the source of 15% of our GDP, 80% of our exports, 2/3 of investment in R&D and generates a **turnover of €7 trillion**. EU is market leader in Robotics and manufacturing automation with 30% world market share, embedded digital systems and product design software with 33% of world market share and 3D and laser based manufacturing with 25 to 40% market share. *The European Factories of the Future Association (EFFRA) recommendations on Factories 4.0 and Beyond (Sept 2016)* and the *First Stakeholder´s Forum on Digitising European Industry (February 2017)* clearly stated the need for development of large scale experimentation and demonstration of **data-driven "connected smart" Factories 4.0**, to retain European manufacturing competitiveness. The *Digitising European Industry (DEI): Working Group 2 – Digital Industrial Platforms* in its most recent report (February 2017), the *European Roundtable of Industrialists* (August 2016), and the *EC Communication "Digitising EU Industry: reaping the full benefits of a Digital Single Market"* (April 2016) all **stressed the strategic importance of EU industry to drive global standards for the Industrial Internet and lead the development of interoperable open digital manufacturing platforms and a European Data Space for ensuring European Industry 4.0 competitiveness,** *"since it is unlikely that a single industrial (data) platform will achieve a position of total dominance".* The BDVA workshop session during the General Assembly hold in Valencia (December 2016), where priotities for Big Data and manufacturing research priotities were established by big data and manufacturing experts, did nothing but reinforce the importance to develop a lighthouse model for the Factory 4.0 that can be generally applied across industry (independent of manufacturing sector, business development strategy, factory size and region of operation). **However, the key question remains, how could such transformative and general lighthouse model be developed for the Factory 4.0?** The *DEI Working Group 2, Strengthening Leadership in Digital Technologies and in Digital Industrial Platforms across Value Chains in all Sectors of the Economy* has in its more recent report (February 2017 provided clear gideliness about this:

1. **"Big Bang" attempts to launch a new platform as the preferred solution must be avoided in lighthouse actions.**
2. Existing data-driven digital manufacturing platforms should be connected and leveraged through federation under a shared factory 4.0 model that is aligned with and builds upon the RAMI 4.0 (Reference Architecture Model for Industry 4.0), see EFFRA ConnectedFactories support action.
3. Trusted and enhanced platform interconnectivity based on the definition and use of common and standardised (conveged) APIs and industrial data models should be extensively promoted., see EIT Digital OEDIPUS and German Industrial Data Space initatives (SIEMENS, SAP, FIWARE, Bosch)
4. Purely "research factory" environments will not suffice to leverage the expected industry 4.0 digital transformation impact. Successful large scale experimentation of Industry 4.0 should of course grant access to and make available research factory environments, e.g. ICT Innovation for Manufacturing SME (I4MS) Digital Innovation Hubs such as BEinCPPS network (ARENA2036 Sttutgart, Kaiserslautern SmartFactory KL, Milano FoFLab, Automotive Intelligence Centre, Bilbao). However, they need to be combined with successful and ongoing *"real factory"* concerns, business priorities and pilots (FP7 FIWARE for Industry, ECSEL ARROWHEAD, Productive 4.0) that will create a true market effect.



BOOST 4.0 "Big Data Value Spaces for Competitiveness of European Connected Smart Factories 4.0" will demonstrate, in a realistic, measurable, and replicable way an open, certifiable and highly standardised and transformative shared data-driven Factory 4.0 model through 10 lighthouse factories. BOOST 4.0 will also demonstrate how European industry can build unique strategies and competitive advantages (significantly increase operational efficiency, E2E manufacturing planning and deliver improved smart product customer experience, and foster new digital business models; e.g. outcome-based and product servitisation) **through big data across all phases of product and process lifecycle** (engineering, planning, operation, production and after-market services) **building upon the BOOST 4.0 connected smart Factory 4.0 model to meet the Industry 4.0 challenges** (lot size one distributed manufacturing, operation of zero defect processes & products, zero break down sustainable operations, agile customer-driven manufacturing value network management and human centred manufacturing).

Problem

1 Excellence

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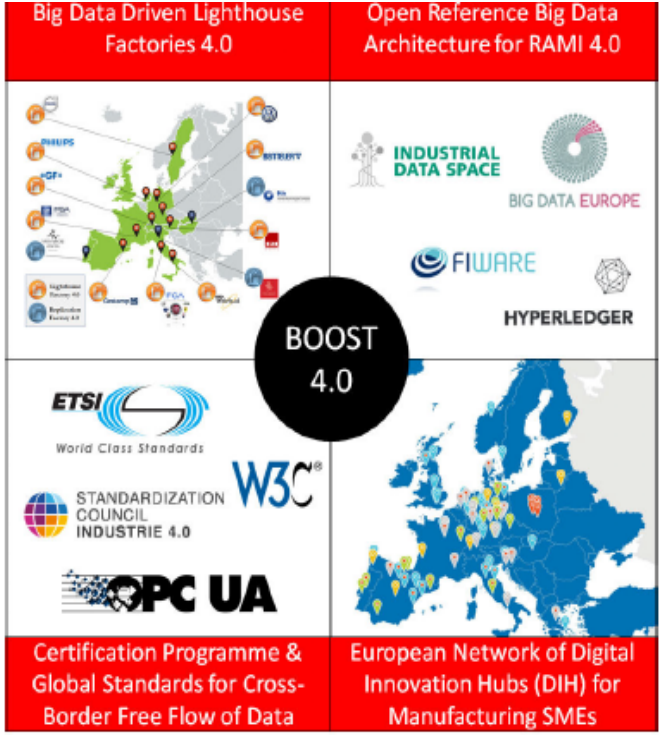

Solution

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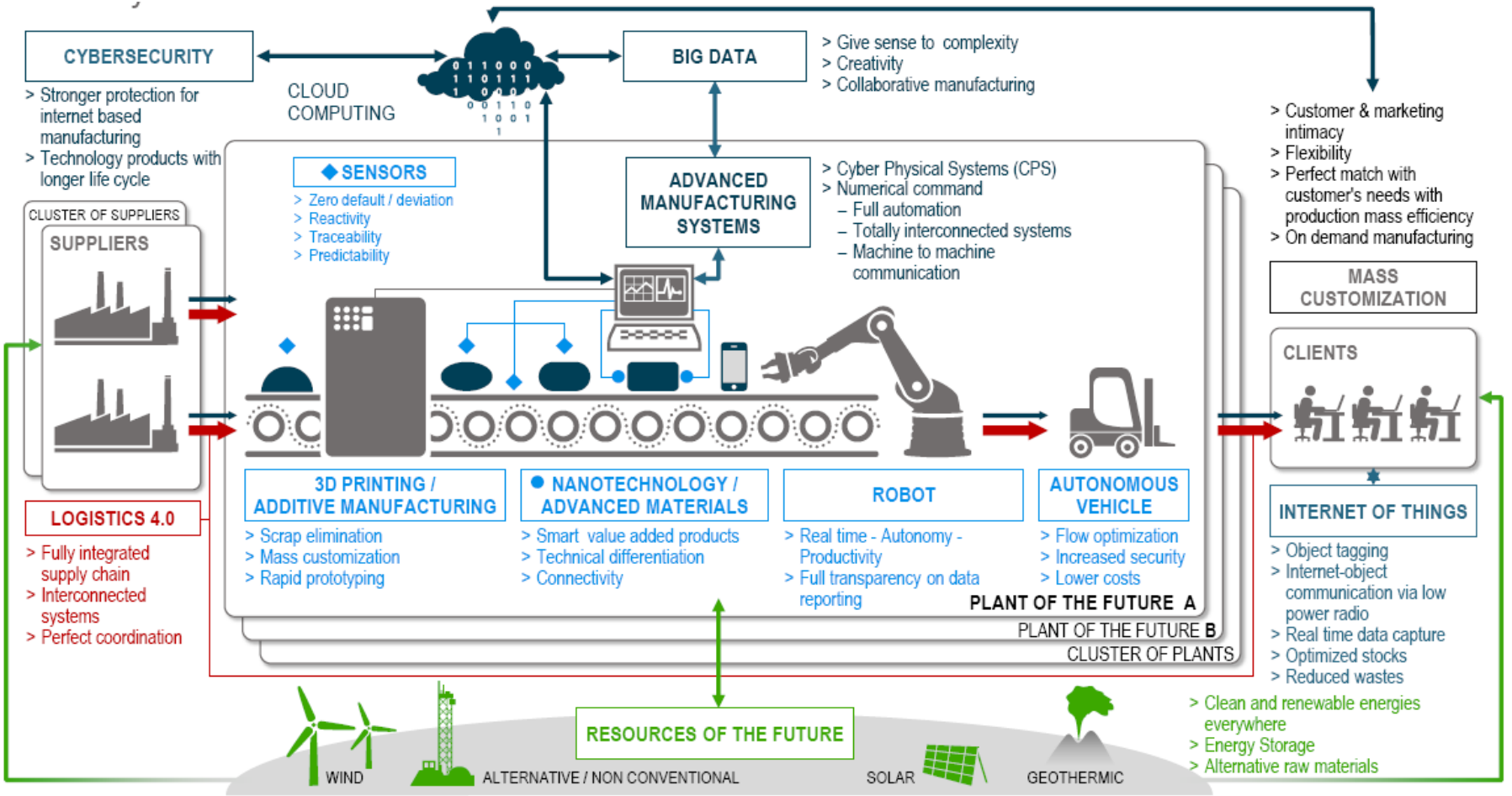
Concept


CYBERSECURITY
> Stronger protection for internet based manufacturing
> Technology products with longer life cycle
CLOUD COMPUTING
BIG DATA
> Give sense to complexity
> Creativity
> Collaborative manufacturing
> Customer & marketing intimacy
> Flexibility
> Perfect match with customer's needs with production mass efficiency
> On demand manufacturing
SENSORS
> Zero default / deviation
> Reactivity
> Traceability
> Predictability
ADVANCED MANUFACTURING SYSTEMS
> Cyber Physical Systems (CPS)
> Numerical command
– Full automation
– Totally interconnected systems
– Machine to machine communication
MASS CUSTOMIZATION
CLUSTER OF SUPPLIERS
SUPPLIERS
CLIENTS
3D PRINTING / ADDITIVE MANUFACTURING
> Scrap elimination
> Mass customization
> Rapid prototyping
NANOTECHNOLOGY / ADVANCED MATERIALS
> Smart value added products
> Technical differentiation
> Connectivity
ROBOT
> Real time - Autonomy - Productivity
> Full transparency on data reporting
AUTONOMOUS VEHICLE
> Flow optimization
> Increased security
> Lower costs
INTERNET OF THINGS
> Object tagging
> Internet-object communication via low power radio
> Real time data capture
> Optimized stocks
> Reduced wastes
LOGISTICS 4.0
> Fully integrated supply chain
> Interconnected systems
> Perfect coordination
PLANT OF THE FUTURE A
PLANT OF THE FUTURE B
CLUSTER OF PLANTS
RESOURCES OF THE FUTURE
WIND
ALTERNATIVE / NON CONVENTIONAL
SOLAR
GEOTHERMIC
> Clean and renewable energies everywhere
> Energy Storage
> Alternative raw materials

Section 1: **Excellence**

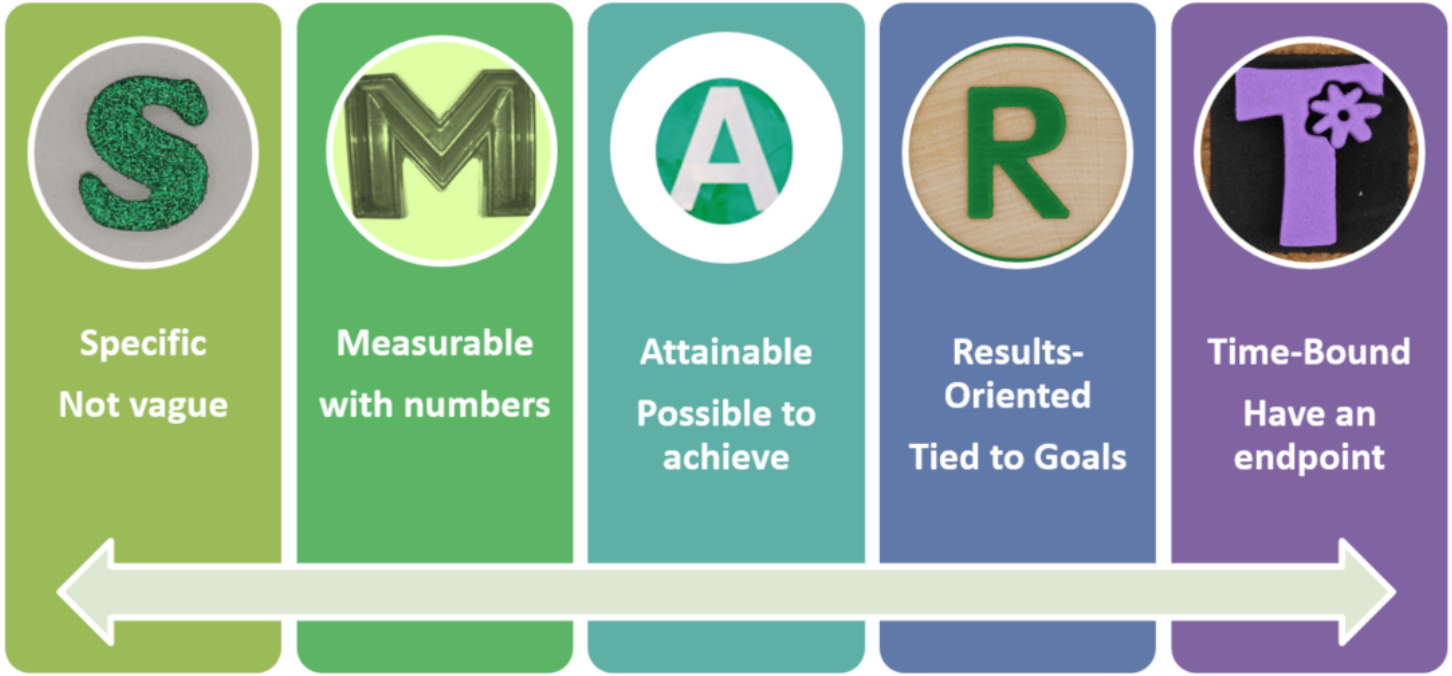
1.1 Objectives

- *Describe the overall and specific objectives for the project, which should be clear, measurable, realistic and achievable within the duration of the project.*

- *Objectives should be consistent with the expected exploitation and impact of the project (see section 2).*

Section 1: **Excellence**

1.1 Objectives



Section 1: **Excellence**

1.1 Objectives

Objectives ≠ Activities!

The right question: – *What do I plan to achieve*?

The wrong question: – What am I going to do?

Section 1: **Excellence**

1.1 Objectives example

	#	Objective (O)	MSC
Modelling / Risk factor analysis	1	**Mechanistic modelling framework of the musculoskeletal system** To develop in silico multiscale biomechanical models of healthy and knee joints with OA based on subject-specific joint and tissue level experimental mechanics that will be capable of predicting tissue loading and responses in individuals and provide inputs for the mathematical 'hyper-models' accounting for mechanical loading of tissues in different conditions and individuals. These mechanistic models will include: - Development of personalized neuromusculoskeletal models that could be used to predict knee OA onset and improve treatment - Development of novel calibration pipelines for the transformation of generic musculoskeletal models to personalized models by scaling anatomic geometry, kinematics and muscle kinetics and activation parameters. - Development of organ and tissue level models for the incorporation of detailed bone and cartilage models capable of predicting tissue responses following estimation of forces from the rigid body musculoskeletal models.	MS3 D3.1 D3.2

O1: Establish a set of European big data light-house smart connected factories (WP2, WP4-WP8, WP9)

Bring European manufacturing industry and factories to a leading edge in the global Industry 4.0 race through big data. To pilot and set the global benchmark and competitive advantage for European factories 4.0 advanced big data analytics and technologies supporting cognitive manufacturing processes.

Success criteria: 10 lighthouse manufacturing factories in the key and synergetic European industry led sectors of (autonomous-connected-electric) automotive, automation and white/personal goods had established

O.1.1 – Incorporate Relative Business Value (RBV) big data decision support framework in Industry 4.0 business development strategies

Description: Design, deploy & assess a novel business digital strategy development framework (T2.3) for big data platforms and highly distributed agile data networks. The framework should be adapted to address SME needs.

Success criteria: 1 big data digital business development methodology developed and assessed in 10 pilots

KPI1.1	Methodology defined	KPI@M9	1	KPI@M18	2	KPI@M36	2
KPI1.2	Methodology assessed in factories	KPI@M9	1	KPI@M18	5	KPI@M36	10

O.1.2 – Establish and evaluate innovative big data driven cognitive industry 4.0 manufacturing processes

Description: Develop and validate acceptance and performance of data-driven human-centric factory 4.0 cognitive manufacturing services and BOOST 4.0 big data framework (agile & learning manufacturing). (WP4-WP8)

Success criteria: 40 smart and cognitive big data-centric business processes will be established and demonstrated disrupting the established cross-sector data value chains, digital processes and business models.

KPI1.3	Business Processes Deployed	KPI@M9	------	KPI@M18	15	KPI@M36	40
KPI1.4	User acceptance of new processes	KPI@M9	------	KPI@M18	≥60%	KPI@M36	≥80%

O.1.3 – Demonstrate the replication potential of lighthouse factory BOOST 4.0 big data manufacturing processes

Description: Based on BOOST 4.0 lighthouse factories evidences, traditional sector industries will adapt and replicate the BOOST 4.0 operations and assess the performance improvements. (T9.5)

Success criteria: A set of 3 companies in traditional sectors replicate BOOST 4.0 big data transformation.

KPI1.5	Business Processes Replicated	KPI@M9	------	KPI@M18	-----	KPI@M36	6

Section 1: **Excellence**

1.2 Relation to the work programme

- *Indicate the work programme topic to which your proposal relates, and explain how your proposal addresses the specific challenge and scope of that topic, as set out in the work programme*

Section 1: **Excellence**

1.2 Relation to the work programme

- Create a table
- Break each part of the work programme topic
- Describe briefly how your solution addresses each part of it!

Section 1: **Excellence**

1.2 Relation to the work programme Example

Work Programme Requirements	OACTIVE Solution
Innovative methods for better understanding the influence of biological, social, environmental, lifestyle, occupational, economic etc. factors on human physiology and thereby on well-being and health. Impact: *Supporting predictive and preventive approaches in medicine, neurosciences and life sciences.*	The current OACTIVE project intents to make a significant leap forward developing patient-specific predictive computer-based models and simulation tools for understanding the development and progression of a major disease such as OA. The project aims to connect and integrate various information sets including factors from the biological, biochemical, medical imaging, social, lifestyle, economical, occupational, environmental and psychological domains. One step further than traditional statistics, OACTIVE resorts to knowledge discovery via advanced data mining uncovering how risk factors from different domains (medical, biological and social/environmental) and systems levels interact with each other resulting in disease. In order to explore these principles, a number of big data techniques will be developed to automatically extract interpretable data for the OA occurrence and progression. The developed models will be either consistent with current biological knowledge or providing new insights for the understanding of the risk factors for the development and progression of OA.
Identification of interventions for improving well-being and health. Impact: …*new personalised interventions for increasing resilience and recovery.*	OACTIVE will rely on the AR gaming technology offering both clinical assessment and rehabilitation options, usually not available with traditional rehabilitation methods. It aims at exploiting haptic and vision technologies to provide patients with assistive visual and contact feedback while performing games/rehabilitation as well as medical staff with biomechanical indicators for assessment and diagnosis support. It will go beyond the existing AR rehabilitation programs by: (i) expanding & improving the currently limited opportunities for rehabilitation scenarios, (ii) enhancing primitive spatial and temporal training scenarios, (iii) addressing staff and facility limitations as well as human factors, (iv) creating user friendly interfaces and integrating interactive environment, (v) accurately implementing crucial stimuli (force sensing, visual information) together to have a real impact on the game task completion performance.

Section 1: **Excellence**

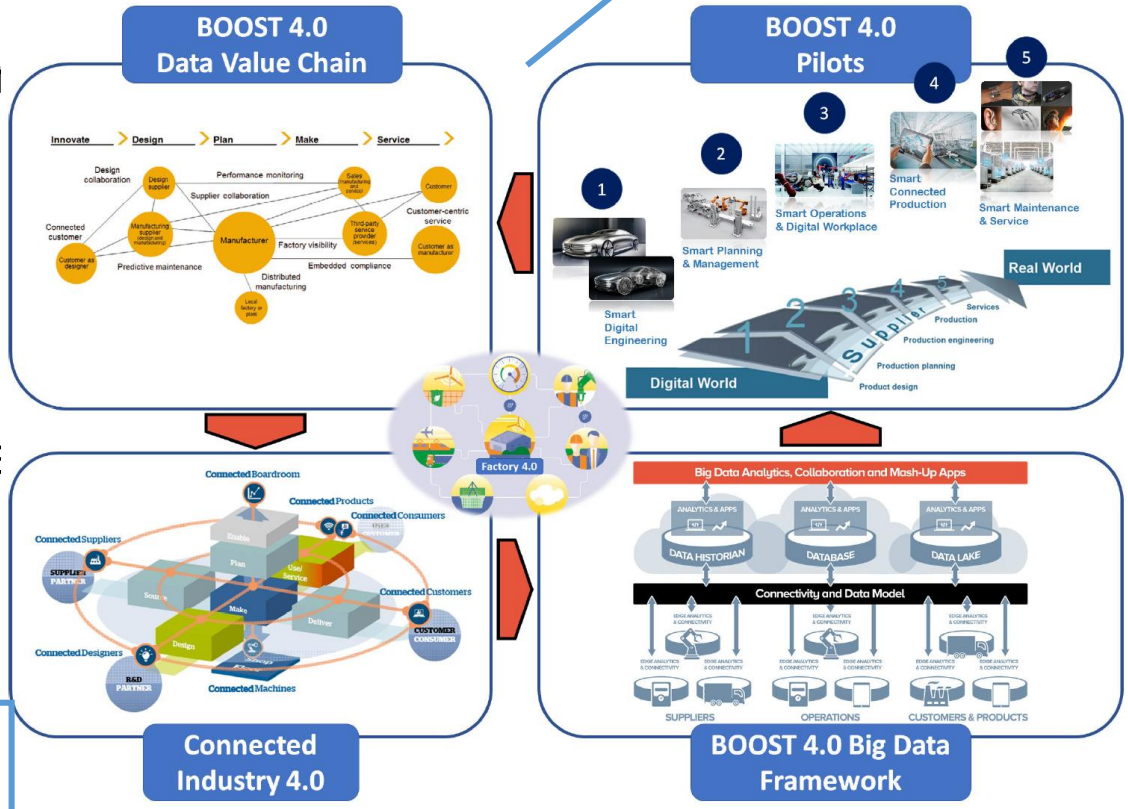
1.3 Concept and methodology

- *(a) Concept*
  - *Describe and explain the overall concept underpinning the project*
  - *Describe any national or international research and innovation activities which will be linked with the project*
- *(b) Methodology*
  - *Describe and explain the overall methodology*
  - *Where relevant, describe how the gender dimension, i.e. sex and/or gender analysis is taken into account in the project's content*

Objectives Overview

"**Big Data** Value Spaces for Competitiveness of European **Connected** Smart Factories 4.0" will demonstrate, in a realistic, measurable & replicable way an open, certifiable and highly standardised /transformative **shared data-driven** Factory 4.0 model through **10 lighthouse** demo-factories

Clear + concise aim of the project!!



Section 1: **Excellence**

1.3 Concept and methodology

The right question:

– ***How am I going to reach my goals?***

The wrong question:

– ***What exactly am I going to do and when?***

Section 1: **Excellence**

1.3 Concept and methodology

- Describe in detail the scientific part of our solution
- Create a table describing the positioning of the project

Targets	TRL		Partners involved
	Current	Potential	
	4	6	
	3	5	
	4	5	
	4	6	
	4	6	

Section 1: **Excellence**

TRL positioning - Example

Targets	TRL		Partners involved
	Current	Potential	
Patient-specific OA mechanistic models	4	6	LJMU, CERTH, UPA, RIMED
Patient-specific biochemical OA models	3	5	LEITAT, NIC
Patient-specific behaviour, social analysis	4	5	KUL, SMARTEX
Predictive big data / machine learning	4	6	CERTH, CETRI
Personalised intervention via AR	4	6	UPA

Section 1: **Excellence**

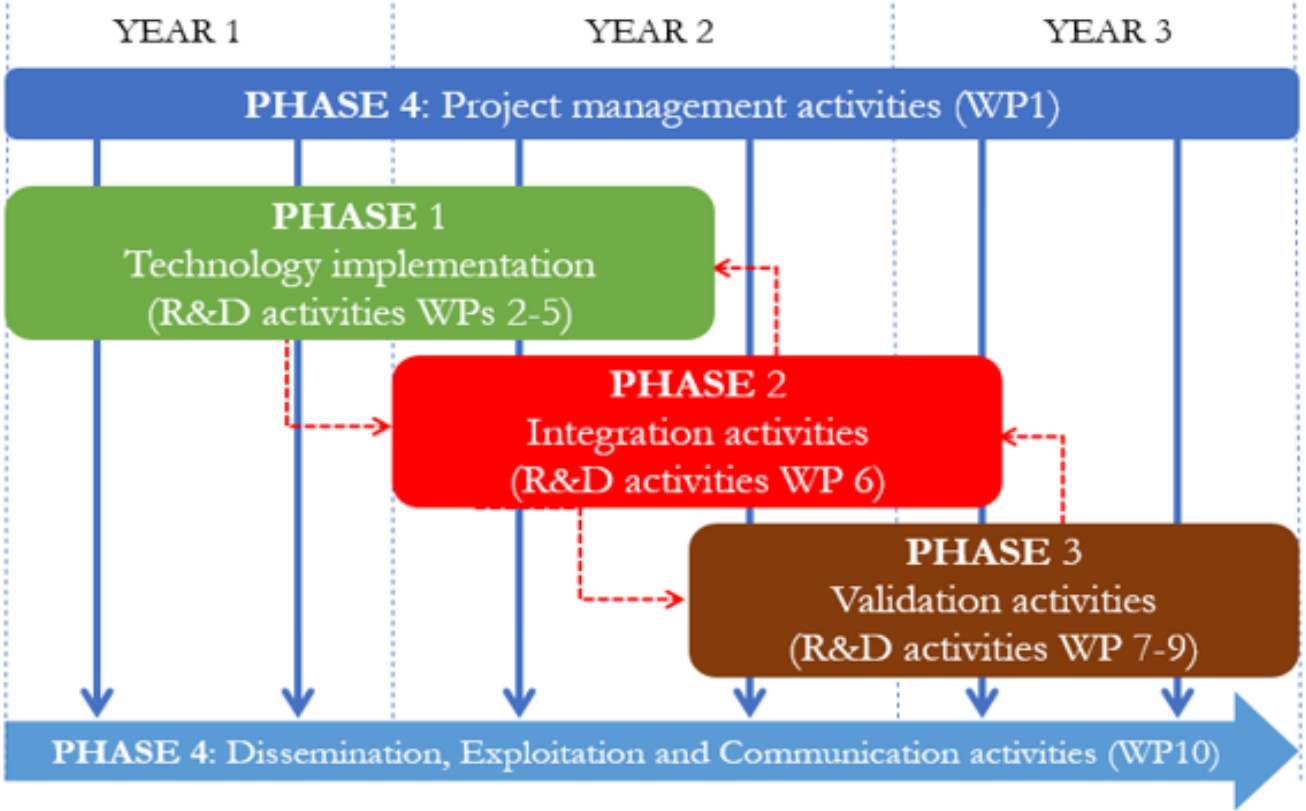
1.3 Concept and methodology

- Present related R&D&I activities / national, international and European projects each partner has been involved in

Section 1: **Excellence**

1.3 Concept and methodology

Describe the project workplan



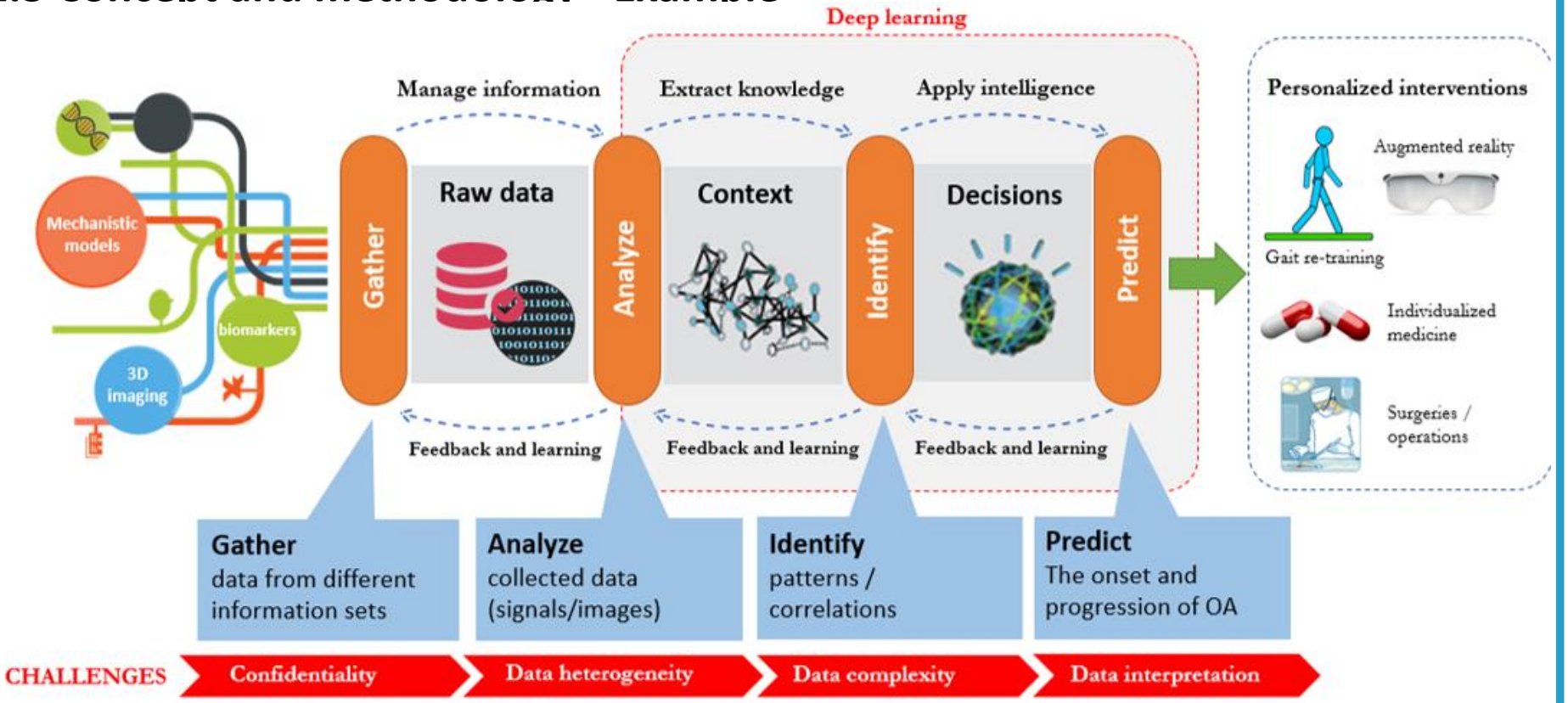
Section 1: **Excellence**

1.3 Concept and methodology

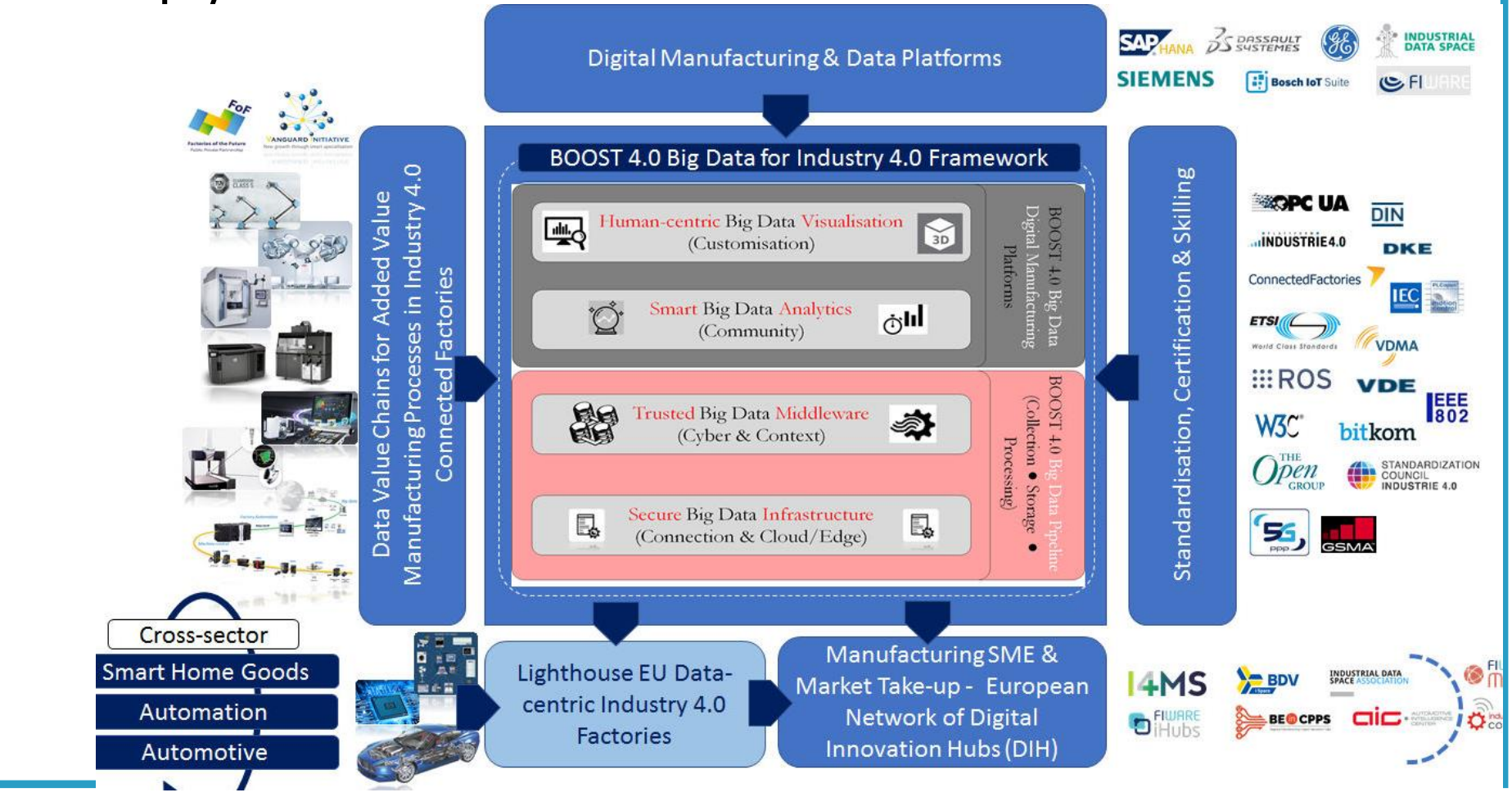
- Describe use cases
- Describe sex & gender issues (biological characteristics and social/cultural factors)

Section 1: **Excellence**

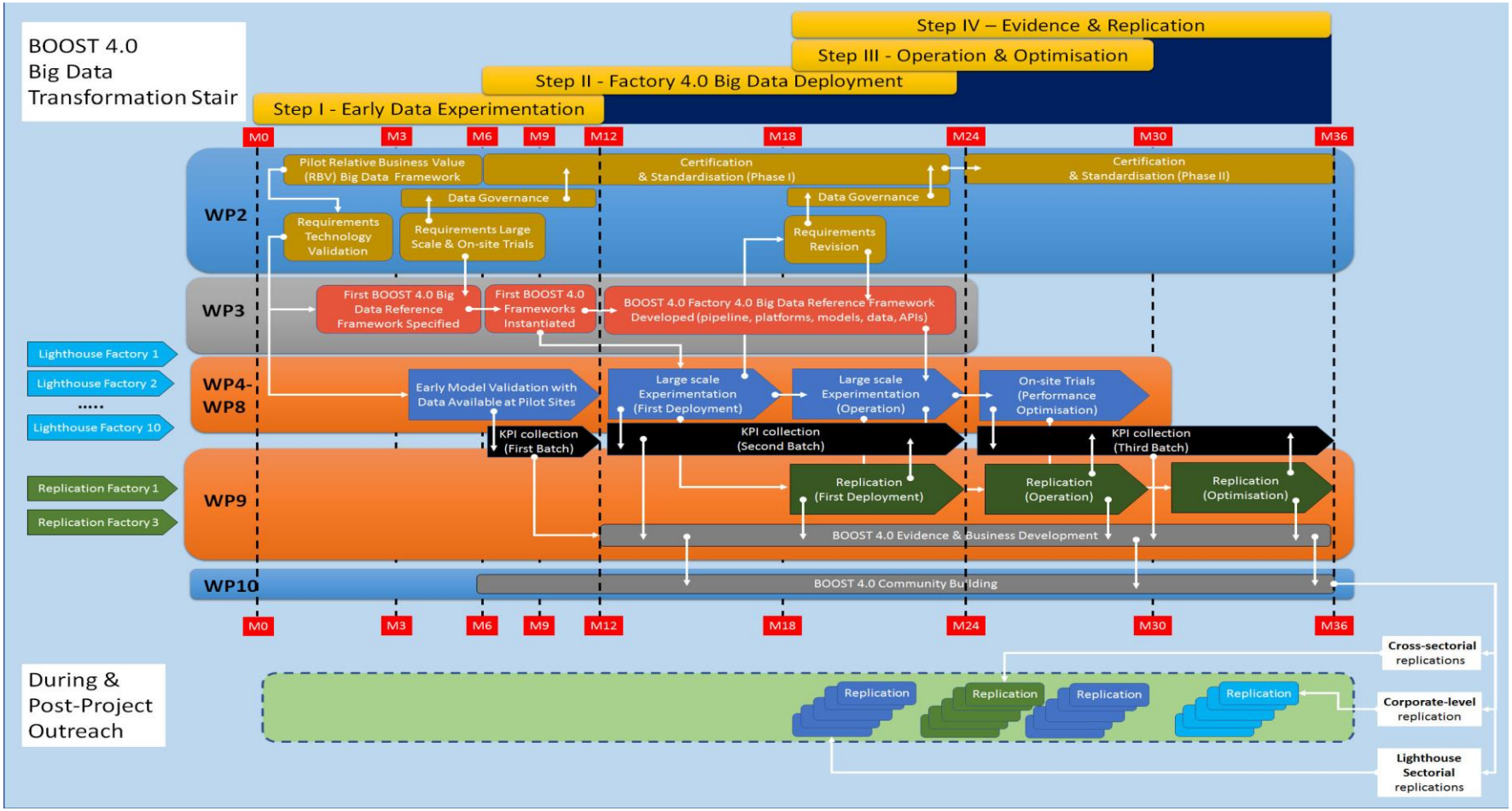
1.3 Concept and methodology - Example



Concept/method



stair-case methodology



Section 1: **Excellence**

1.4 Ambition

- *Describe the advance your proposal would provide **beyond the state-of-the-art**, and the extent the proposed work is ambitious.*
- *Describe the innovation potential*

Section 1: **Excellence**

1.4 Ambition

- Describe the project’s vision
- Describe key innovations
- Link them to project’s advances and challenges
- Refer to products and services already available on the market

Section 1: **Excellence**

1.4 Ambition

- Create a table with overall advancements over relevant EU funded projects
- Present results of your patent search

Section 1: **Excellence**

1.4 Ambition - Example

BOOST 4.0 ambition is being driven by the development of novel/improved advanced manufacturing processes supported by big data technologies. For factories 4.0 BOOST 4.0 ambition relates to technical concept pillars:

BOOST 4.0 Pillar	BOOST 4.0 Lighthouse Ambition
Trusted Big Data Middleware	Open big data-driven **augmented intelligence manufacturing systems**
Secure Big Data Infrastructure	**Big data holistic and evolutionary infrastructure** along with **transaction control and security**
Smart Big Data Manufacturing Platforms	Application of big data-intensive **cognitive manufacturing models**
Human-centric Big Data Visualisation	Extensive use of big data **amplified human cognition** manufacturing systems

Section 1: **Excellence**

Do not start writing without

- Carefully study the call
- Acknowledging that every proposal is different. DO NOT just copy paste from others or older ones!
- Having the proposal's summary
- Knowing your consortium and the supply chain
- Having studied previous versions and corresponding ESRs in case of resubmission
- Be sure there is enough time before the deadline

Interlude! - Fermi Method

a walk in inductive reasoning

"Use common experience to give answers in complex problems"

-> … -> … How many iPhone screen repairmen are there in the United States? ..->

First approach

a. we must find out how many are the owners of iPhones in US
b. Estimation: about 1 in 2 people has a smartphone, and those without them tend to be the very young or the very old. The total population of US is ~350M, thus our target population is 150M.
c. it is common to hear that Android phones dominate the marketplace, let's say that 2/3 market is Android and 1/3 is iPhone.
d. This estimation gives us an approximation of ~50M iPhone users in US.

Fermi Method: a study in inductive reasoning

Second approach

a. Another way is to think about the people you **see on the street** and try to directly estimate how many of them have an **iPhone**.
b. This number seems to be around **1 in every 5** people, which would make **~60M** iPhones in the country.

Following any of the two approaches we can estimate the total number of iPhone owners are between 50M to 60M.

Fermi Method: a study in inductive reasoning

Let’s make our basic assumptions about the iPhone users

- Most people change smartphone when upgrade their contract. So, we guess that the typical user keeps the iPhone for 2.5 before replace it.
- Now, how many of these **screens** will be cracked over the **lifetime** of the phone? I'd **guess** that this number sits somewhere around **20%**.
- **Every cracked** screen doesn't get **replaced** or else we wouldn't see them around too often. Let's **assume** that if a crack happens in the first **2/3** of the **time** for which the customer owns the phone, they'll get it **fixed**, but **otherwise** they'll **just wait for a new phone**.

This means that in given year, ,

Or iPhone screens

Fermi Method: a study in inductive reasoning

Let’s make our basic assumptions about the iPhone users

- Most people change smartphone when upgrade their contract. So, we guess that the typical user keeps the iPhone for 2.5 before replace it.
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This means that in given year, ,

Or iPhone screens

Fermi Method: a study in inductive reasoning

How many repairmen does this support?

Assuming that each iPhone screen takes the average repairmen **1h** to fix and that

the average iPhone screen fixer spent about **half** their **full-time work week** fixing iPhone screens (averaging over full and part time workers).

Thus, we predict there to be enough broken iPhones to support the employment of approximately:

Session 5

How to write part per part the IMPACT section in an H2020 ICT grant application with emphasis on examples from winning projects

Section 2: **Impact**

Interview the leading writer

- Face to face or skype. More than one interviews are needed
- Agree on number of pages for impact
- Agree to
  - deliver your almost final draft one week before the submission and send it to partners for corrections and comments
  - deliver final version one day before the submission.

Section 2: **Impact**

Know your role – acknowledge the section 1-3 writer leads the proposal. Cooperate with him!

Create your own template with basic information you need.

The **Impact breakdown**

After the interview send it to the leading writer for confirmation.

Section 2: **Impact**

Fill in the Impact breakdown

Topic	
Acronym / full title	
Deadline	

Section 2: **Impact**

Fill in the Impact breakdown

End results *Novel end results that will be delivered at the end of the project*	
TRL of end results at the end of the project	
Product/service to be commercialized *Final end results that will be commercialized (not necessarily all of them - business plan)*	

Section 2: **Impact**

Fill in the Impact breakdown

Project duration	
Time to market (year of commercialization)	

Section 2: **Impact**

Fill in the Impact breakdown

Proposal end users (name – type)	
Customers (Type of company – organisation) *Who will pay to acquire the product / service.* *Same type of companies / organizations with the proposal end users*	
Size of market (EU, global)	
Do we **replace** something in the market?	

Section 2: **Impact**

Fill in the Impact breakdown

Proposal industrial partners *(name -> contribution)* *+Who is the last partner at the proposal supply chain (integrator) that is selling to customers*	
Competitors *(same type of companies with proposal integrator)* *Names of market big players*	
Price	
Training needed to customer?	

Section 2: **Impact**

Write the impact's summary

- 4 lines opening the impact section
- Summarize what will happen
  - if the project gets funded
  - if the final products reach the market
- Send the summary to the leading writer

Impact summary - example

2. Impact

The OACTIVE project is expected to offer the medical care sector a solution that will predict, delay the onset and slow down the progression of OA offering patients an increased quality of life. The adoption of the novel patient-specific predictive computer-based models by the health care community is expected to create a multidimensional impact on European economy, society and healthcare industry addressing in parallel EU priorities, as creating forefront knowledge, supporting job growth and competitiveness and improving EU citizens' quality of life.

Impact summary - example

2. Impact

The OACTIVE project is expected to offer the medical care sector a solution that will predict, delay the onset and slow down the progression of OA offering patients an increased quality of life. The adoption of the novel patient-specific predictive computer-based models by the health care community is expected to create a multidimensional impact on European economy, society and healthcare industry addressing in parallel EU priorities, as creating forefront knowledge, supporting job growth and competitiveness and improving EU citizens' quality of life.

Section 2: **Impact**

2.1 Expected impacts

Note

Be specific!

Provide information that applies to the proposal and its objectives!

Wherever possible, use quantified indicators and targets!

Section 2: **Impact**

2.1 Expected impacts

Describe how your project will contribute to:

- ***each*** *of the expected impacts mentioned in the work programme, under the relevant topic;*
- *any substantial impacts not mentioned in the work programme, that would enhance innovation capacity; create new market opportunities, strengthen competitiveness and growth in Europe or bring other important benefits for society*

Section 2: **Impact**

2.1 Expected impacts

The expected impacts are presented at the call topic!

Expected Impact:

a) Research and Innovation Actions (RIA)

- Increased capacity of the European software industry to exploit the capabilities of software-defined infrastructures at middleware and application layer.
- Improved reliability and cybersecurity of software developed with those tools, which will result in the reduction of loses for software failures or attacks. Investing in the best tools to fight the aforementioned challenges is multiplied has a wide effect
- Expand research and innovation potential in software technologies & infrastructures while overcoming fragmentation in the European supply base, optimizing investments and use of resources to yield multi-domain software-based products and related software services.
- Contribute to EU's technology independence in Software.

Section 2: **Impact**

2.1 Expected impacts

- Probably the most difficult part of the impact section
- Always write in cooperation with the leading writer
- Be 100% in line with the S1 scientific objectives
- Quantify your assumptions
- Don’t write unjustified estimations
- Add indirect benefits for the EU if not already asked
- Describe current status and changes taking place

Section 2: **Impact**

2.1 Expected impacts - example

iii. Supporting predictive and preventive approaches in medicine, neurosciences and life sciences.

OACTIVE will motivate the sectors of medicine, neurosciences and life sciences to adopt approaches that will transform healthcare from reactive to preventive. Predictive and preventive methods will focus on the integrated diagnosis, treatment and prevention of disease in individual patients embracing the transition from reaction to prevention and from disease to wellness. The OACTIVE medical tool will be used in preventive medicine, to predict occurrence or worsening of the OA disease in people at risk. The proposed hybrid modelling OACTIVE will take advantage of the knowledge (models) extracted for OA modelling and will further be extended to patient-specific modelling and prediction by applying advanced post-processing techniques (meta-analysis).

OACTIVE will enable early detection of OA, in a stage that it is easier and less expensive to treat effectively, and patients will be stratified into groups that enable the selection of the optimal therapy. Adverse drug reactions will be reduced by more effective early assessment of individual drug responses, while the selection of new biochemical targets for drug discovery will improve. Time cost and failure rate of clinical trials for new therapies will be reduced.

2.1 Quantified Expected impacts - example

Establish a sustainable competitive ecosystem of European technology and solution providers for interactive technologies

Current Status: Up until now, the European VR/AR industry consists of isolated efforts mainly on software development. In many situations where an AR/VR component is required, the European companies tend to outsource to sub-contractors in the USA or China2.

DataLogue's Contribution: DataLogue, through the establishment of EuroVR-DatAI Special Interest Group (see Task 2.3) will bring together participants from industry and academia that are very active in Interactive and Data Science technologies.

Expected Impact. Achieving increased industrial commitment by involving a wide range of users in applied research in the fields of DS, ML. AI through AR/VR technologies, will lay the foundations for tomorrow's industry in Europe. Cooperation between SMEs, large enterprises, research organisation and a municipality in the consortium and at a later stage at the after-sales chains that will be created will also benefit research outsourcing, upgrading of research capabilities, extension of networks in other European countries and will optimize the exploitation of research results and the adoption of technological knowhow. This will lead to the bridging of the gap between research and innovation, while highlighting of fast Return of Investment (ROI) will stimulate further private investments.

Suggested Success Indicators:

- During the project 100 organizations will be invited to participate in the newly established branch EuroVR-DatAI (Tasks 2.3).
- In the DataLogue website a page will be published where the potential partners can be informed about this initiative and express their interest.
- Two years after the end of the project, at least 75 organizations (AR/VR companies, Research Centers, Data Science companies, ML providers) will be joining this new eco-system.

Section 2: **Impact**

- *Describe any **barriers** that may determine whether and to what extent the expected impacts will be achieved*

Section 2: **Impact**

Barriers

- Examples: regulation, standards, public acceptance, workforce considerations, financing of follow-up steps, cooperation of other links in the value chain
- Cover economic, market, management, policy aspects if possible
- Do not include any risk factors concerning implementation (they are covered in section 3.2)
- Create a table with barriers and how you plan to address them

Barriers - Examples

	Barrier	How OACTIVE will help on its reduction
Economic	Lack of suitable financing mechanism for further commercialization, inadequate governmental or private support, limited access to funding.	Consortium partners will highlight benefits generated by the novel models at the project's dissemination events where ministries of health, national and EU authorities, funding bodies, private equity firms, venture capitals will be invited. The project's objectives and results will be also presented by consortium partners at conferences and trade shows will attend.
Market	Conservatism of medical care market and hesitation by patients to adopt new treatments and products.	Communication campaign will deliver clear and consistent messages to general public and authorities in a way that they can be understood by non-specialists, while the AR-driven treatments will facilitate a more enjoyable experience allowing a wider acceptance of the OACTIVE technology. Dissemination activities targeting medical actors and the scientific community will highlight the project's benefits. Concrete certification policy will increase social acceptance.
	Lack of skilled and experienced health providers in medical care industry	Development of 2 advanced technological training seminars for health providers (D10.2)
	Complexity of public and private medical care European markets, too many stakeholders involved.	One workshop and one conference will be organized by the consortium as part of its dissemination and exploitation strategy where public authorities, private hospital owners' associations, medical care equipment companies, regulators, EU healthcare platforms, medical associations, the research community, market actors and investors will be invited and will be asked to exchange their thoughts and perspectives.
	Possibility of an emerging rival development using similar technology	Strong dissemination and exploitation plan highlighting OACTIVE unique selling points, Robust IPR policy.
MNGM	Bad selling policies, weak and neglected after-sales service, ineffective marketing approach and education campaigns	The OACTIVE business cases will work as a driver / guide for interested investors. New international value chains will be also created.
Policy	Legal issues, data confidentiality	Authentication mechanisms (via X.509 certificates) assuring the secure access to data, pseudo-anonymization of clinical data, specific algorithms for data aggregation prevention and patient-centred authorisation mechanisms will be developed.

Section 2: **Impact**

2. Impact

2.2 Measures to maximise impact

a) Dissemination and exploitation of results

b) Communication activities

Section 2: **Impact**

2. Impact

2.2 Measures to maximise impact

- DO NOT copy paste from other proposals
- Follow the official template and focus on the project's end results
- Dissemination vs exploitation vs communication
- Ask from partners to develop their own exploitation plan

Section 2: **Impact**

2.2 Measures to maximise impact

a) Dissemination and exploitation of results

- *Provide a draft '**plan for the dissemination and exploitation of the project's results**'.*

Section 2: **Impact**

2.2 Measures to maximise impact

a) Dissemination and exploitation of results

The PDER.

Describe

- the **area** in which you expect to make an impact
- **who** are the potential users of your results
- **how** you intend to use the appropriate channels of dissemination and interaction with potential users.

Section 2: **Impact**

2.2 Measures to maximise impact

a) Dissemination and exploitation of results

The PDER.

Include

- A business plan
- A data management plan
- A knowledge management and protection plan

Section 2: **Impact**

2. Impact

2.2 Measures to maximise impact

a) Dissemination and exploitation of results

- Dissemination

Create tables for

- The end results
- The targeted groups
- Dissemination activities
- Conferences, Trade shows, Journals and Magazines

Section 2: **Impact**

2. Impact

2.2 Measures to maximise impact

a) Dissemination and exploitation of results

- Exploitation
  - Describe the targeted markets, competition and joint exploitation strategy
  - Present individual exploitation plans

Section 2: **Impact**

2.2 Measures to maximise impact

a) Dissemination and exploitation of results

Individual exploitation plans

Send an e-mail to all partners asking for

- General benefits generated for partner
- End result to be individually exploited
- Time to market
- Price of exploitable result / product
- Quantity forecasted to be sold per year
- Quantity per customer
- Cost per unit
- Competitors

Individual exploitation plan template to be filled in by partners

Partner's name	XXX	
General benefits generated for partner	By getting involved in the Multi3 project, XXX expects to gain ……	Please describe how your organization will be benefitted by participating in the Multi3 projects. No more than 3 lines.
End result to be individually exploited	Novel …	Please name the novel end result your organization will develop individually or in cooperation with other partner(s). This result will be (co-)owned by your organisation
Time to market	3 years after the project's end	Please give an estimation of how many years after the project's end your novel end result will be ready for commercialization
Price of exploitable result / product	70-100€/unit (Euros per measurement unit) (*unit = kg / m^2 / m^3 etc)	Please give an estimation of the price of your product / service, when it will be sold to customers. Please also name the type of customers

Individual exploitation plan template to be filled in by partners

Quantity forecasted to be sold per year	500,000 units	Please give an estimation of the annual quantity of sales of your product /service
Quantity per customer	100,000 units per customer or 1 license per customer	If applicable, please give an estimation of the quantity of units of your product sold per customer
Cost per unit	……40€/unit (Euros per unit)	Please give an estimation of the cost per unit, when your product will be sold.
Competitors	YYY, ZZZ..	Please write names of organizations or companies that will compete with your product / service
New jobs	New jobs during the project: .. New jobs per year of exploitation: ..	Please indicate how many people you will hire during the project and how many during first 5 years of exploitation.

Individual exploitation plan example (OACTIVE)

SMARTEX

By getting involved in the OACTIVE project, Smartex expects to gain the final step in a process of development of comfortable wearable devices started about ten years ago, finally reaching the market with a product for movement detection and analysis. The novel product for lower limb monitoring for gait analysis will be sold together with the full service provided by the OACTIVE project or alone as a standalone device for gait analysis in clinical studies but also in other markets. The product developed within this project is expected to be ready for commercialisation within 6 months after the project's end, as it will be ready from a technological point of view about one year before the end of the project and it will use the final part of the project as validation of the hardware and optimisation of the algorithms. A few months will be anyway dedicated to a better finalisation of the product and focusing of the market. It is hard to make a certain evaluation of the price of the commercial product at this moment, as it largely depends on the number of IMUs and on their cost, which is going down quickly due to their massive use in other portable solutions (like smartphones and smart watches). The price of the prototypes used in this proposal will be pass from several hundreds to 2-300 Euros, but with a minimum economy of scale (e.g. 3-4.000 trousers per year) the same product could be sold at 70-100€/unit (which should be a price acceptable by end-users). Sales are expected to reach from a few thousand the first year/two years to some tens (possible many more) the following years. The production cost largely depends on the number of foreseen pieces and also on the change in costs of the components, so the first version of the prototype will cost (not including labour) several hundreds of Euros, but it will decrease to less than € 300 within the project lifetime and it must (and will reach) a cost inferior to € 50 when numbers will grow further.

Competitors: There are several competitors developing devices for lower limbs (or full body) monitoring and reconstruction, like Xsens, STT, Delsys, Noraxon, Heddoko, Synertial, but they are very skilled mainly in movement reconstruction for recreational purposes or movie special effect, with a limited number of customer but with very large budget, or other devices more research oriented, that are cheaper and more in line with our product, but thought for laboratories, so not so comfortable and not developed for self-don and doff. This is the key aspect that makes the difference, as Smartex have more than 10 years' experience in comfortable solutions for the wearable market.

Targeted groups

Category	Targeted group
Medical care industry	Hospitals, rehabilitation centers, medical care centers, medical institutes, health service providers, physicians, caregivers, companies in the health field or/and in the ICT field
General public	Individuals, OA patients and their families, elderly, athletes.
Regulatory authorities	Ministries of health, medical organisations, orthopaedic associations, regulatory authorities, NGOs, non-profit organizations, public initiatives
Research & education communities	Medical and ICT universities and research centers, participants in related EU projects, research societies, interested in early diagnosis and prediction of diseases or interested in computer-based modelling and simulation tools technologies, cognitive systems or human interfaces.
Media	Magazines, websites, webtv, local tv stations, newspapers, radio stations

Dissemination activities

- design and development of the project's website (M1)
- a periodic e-Newsletter (at least every 6 months)
- publication to at least 6 peer-reviewed articles at high IT medical journals
- publication to at least 6 articles to medical magazines
- participation to at least 6 major scientific international medical conferences
- presentation of the OACTIVE models to at least 3 major trade events on medical market
- uploading of the project's publishable deliverables on the project's website
- production of promotional material such as posters, summary protocols and leaflets/flyers to be used in dissemination activities, a DVD with project's accomplishments targeting industry and authorities. Two promotional videos will be produced also. One video will be produced at M3 of the project where the OACTIVE objectives will be described and one at M36 presenting the project's achievements
- a best practises handbook (M36)
- organisation of one dissemination workshop (M26)
- organisation of 2 training seminars involving end users' staff. They will be filmed and uploaded on the project's website (M22 and M28)
- organization of a final event as the major event of the project (M36) where a comprehensive overview on the achievements of the project will be presented to interested stakeholders and users at various academia, industry and public levels.

Indicative Conferences, Trade shows, Journals and Magazines

Journals *(title – Impact factor)*			
Pain	5.557	Obesity Research & Clinical Practice	2.094
Osteoarthritis And Cartilage	4.535	Simulation in Healthcare-Journal of the Society for Simulation in Healthcare	1.685
Arthritis Research & Therapy	3.979	Simulation Modelling Practice And Theory	1.482
Obesity	3.614	Knee	1.446
Journal Of Biomedicine And Biotechnology	3.169	Computers & Mathematics With Applications	1.398
Journal Of Orthopaedic Research	2.807	Mathematical And Computer Modelling	1.366
Database-The Journal of Biological Databases and Curation	2.627	Journal Of Orthopaedic Science	1.154
Journal Of Computational Physics	2.556	Mathematics And Computers In Simulation	1.124

Conferences and trade shows

(usually most of them are taking place every one or two years)

- WORLD CONGRESS ON OSTEOPOROSIS, OSTEOARTHRITIS AND MUSCULOSKELETAL DISEASES 2018 (Poland, Krakow, April 12-22 2018) http://www.wco-iof-esceo.org/
- OARSI 2018 World Congress, (UK, Liverpool, 24-29/4/18) Conference on osteoarthritis https://www.oarsi.org/events/oarsi-2018-world-congress
- ICOOMD 2018, 20th International Conference on Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (UK, London, May 24-25, 2018) https://www.waset.org/conference/2018/05/london/ICOOMD
- ICOOMD 2019, 21st International Conference on Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (UK, London, May 25-26, 2019) https://www.waset.org/conference/2019/05/london/ICOOMD/program?forceTentative=1
- GESUND & WELLNESS - LINZ - Linz (Austria), Fair for Health, Healthcare, Wellness & Fitness http://www.cmw.at/de/messekalender/4_messe_gesund_wellness_und_reisen_urlaub/
- AAOS ANNUAL MEETING - San Diego, CA (USA), American Academy of Orthopedic Surgeons Annual Meeting http://www.aaos.org/annualmeeting/?ssopc=1
- NAIDEX 2018 - Birmingham (UK), Equipment and Services for Disabled and Elderly People http://www.naidex.co.uk/
- MEDICAL FAIR BRNO - Brno (Czech Republic), International Fair for Medical Technology, Rehabilitation and Healthcare http://www.bvv.cz/en/rehaprotex/

Magazines

MD Magazine Osteoarthritis, NIH MedLine Plus, Total Health Magazine, Arthritis Today magazine, Best Health Magazine, INSPIRED Senior Living, Elderly magazine, Senior Times Magazine, Healthcare Global

<table>
<tr><th>Key partners</th><th>Key activities</th><th>Value proposition</th><th>Customer relationship</th><th>Customer segments</th></tr>
<tr><td rowspan="3">RnD partners operating in the computational modelling, simulation, big data and deep learning sectors
Experienced end users validating the new technology</td><td>Design and development of the novel models
End results exploitation management
Dynamic IPR management</td><td rowspan="3">Generation of robust predictors for new personalised interventions for delaying onset and/or slowing down progression of OA
Financial and societal benefits for EU</td><td>Highlighting benefits for individuals, OA patients, elderly, athletes, the healthcare industry and the economy
Dissemination and exploitation activities</td><td rowspan="3"><u>Primary</u>
Private and public OA treatment centers and hospitals, rehabilitation centers

<u>Secondary</u>
Individuals, OA patients, athletes, elderly</td></tr>
<tr><td>Key resources</td><td>Channels</td></tr>
<tr><td>Experienced consortium partners on computer modelling, simulation and OA treatment
Possible funding from private investors or the public sector</td><td>Already established partners' network in their countries and across EU
Licensing novel technologies at countries partners will have difficulties to reach
Different approach per possible buyer selling the novel models</td></tr>
<tr><td colspan="2">Cost structure</td><td colspan="3">Revenue Streams</td></tr>
<tr><td colspan="2">IPR protection, Certification costs depending the regulatory framework, Sales management and distribution cost</td><td colspan="3">OACTIVE diagnostic tests, OACTIVE models, OACTIVE AR games, License fees to computer modelling and simulation companies (not operating in the consortium partners' countries)</td></tr>
</table>

Section 2: **Impact**

2.2 Measures to maximise impact

b) Communication activities

Describe the proposed communication measures for promoting the project and its findings during the period of the grant.

Section 2: **Impact**

2.2 Measures to maximise impact

b) Communication activities

Create a table for your communication strategy
Include

- Information communicated
- Target group
- Means of communication
- Communication level
- When
- Responsible
- Performance indicators

Communication strategy

Information communicated	Target group	Means of com/tion	Com/tion level	When	Responsible	Performance indicators
Objectives and basic information on project, public deliverables	Healthcare industry, OA patients, policy makers, stakeholders	Project's website	International	M1-M36	AXIA	30000 visits and 500 downloads per public deliverable one year after the project's end
Project's activities	End users, authorities, OA patients and relatives	Newsletter, Social media (fb page, LinkedIn groups, twitter hashtag)	International	M1-M36	AXIA	300 registered mails, 500 likes on fb page, 50 LinkedIn posts and 50 twitter tweets per year
Achievements	General public, Investors	2 YouTube promotional videos, leaflets	Europe	M3, M36	AXIA	1000 views per video in 12 months from release
Lessons learnt	Healthcare industry, advisors	Best practices handbook (D9.3)	Europe	M36	AXIA, CETRI	200 downloads in 1 year after the project's end
Publications	Researchers, Research centers	High impact journals (table 2.3)	International	M36	All partners	6 publications and 6 citations in 3 years

Session 6

How to write the IMPLEMENTATION section in an H2020 ICT grant application with emphasis on examples from winning projects

Section 3: **Implementation**

3. Implementation

3.1 Work plan — Work packages, deliverables

3.2 Management structure, milestones and procedures

3.3 Consortium as a whole

3.4 Resources to be committed

Section 3: **Implementation**

3.1 Work plan — Work packages, deliverables

- List with WPs (3 lines description per WP)
- WorkPackages diagram
- Timing of the different WPs and their components
- Description of each WP (2 pages each)

WPs short description

WP1: Project Management: WP1 includes the administrative management, the quality management and the management of knowledge, IPR issues, Ethical, Legal and Safety Management as well as Open Research Data Management. This WP runs during the whole life of the project and interacts with all other WPs.

WP2: System Architecture Requirements and Use cases: WP2 is focused the overall needs, architecture and system specifications of the OACTIVE infrastructure taking into account all medical, regulatory, and technological perspectives. It will analyse and specify the requirements, restrictions and define high-level needs delivering a number of representative use cases and clinical studies to highlight its novelties. This WP will run during M1-M6.

WP3: Multiscale mechanistic modelling: WP3 focuses on the creation of scalable subject-specific musculoskeletal biomechanical models to be used for simulations of able-bodied and pathological movement. This WP will run during M6-M28.

WP4: Biochemical modelling and inflammation biomarkers: The aim of this WP is to examine the relationship between biochemical markers for OA and clinical diagnosis. This WP will run during M6-M28.

WP5: Behaviour modelling and environmental biomarkers: WP5 aims to detect user's physical, mental and social behaviours and information that can be used for providing individualised diagnosis and recommendations for patient-specific treatments. This WP will run during M6-M28.

WP6: Hyper-modelling framework empowered by big data and deep learning: The objective of WP6 is to develop the hyper-modelling framework of OACTIVE which will include data management mechanisms, development of data pre-processing algorithms, data mining techniques and the necessary ICT deep learning infrastructure, design and implementation of personalized predictive models, ontology-based framework and mechanisms for increased privacy and security. This WP will run during M13-M34.

WP7: Personalised intervention through augmented reality: The aim of WP7 is to develop AR tools for personalised interventions that will be used for the patient specific management of the condition. This WP will run during M6-M36.

WP8: Cellular-Tissue level validation: The objective of WP8 is to validate in vitro the relationship between cellular responses of osteochondral tissue and (a) biomarkers and imaging data (diagnostics), and (b) the tissue level mechanical activation during AR rehabilitation (therapy). This WP will run during M6-M36.

WP9: Technology assessment and validation: The objective of WP9 is to validate the integrated OACTIVE system by employing a comprehensive methodology that involves clinical studies in human populations and validation of the system using big data registries. This WP will run during M10-M36.

WP10: Dissemination and Exploitation*:* This WP involves all the dissemination and exploitation activities of the project e.g., the establishment and management of the project website, the production of the project's brochure, the organisation of the OACTIVE workshop, continuous dissemination activities and project clustering activities as well as the development of the project's exploitation strategy.

Timing of the different WPs and their components

WP/Task	WP	Year 1												Year 2												Year 3											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1	**Project Management and Coordination**																																				
T1.1	Administrative and financial management																																				
T1.2	Technical management and quality assurance																																				
T1.3	Management of knowledge and intellectual properties																																				
T1.4	Ethical, Legal and Safety Management																																				
T1.5	Open Research Data Management																																				
2	**System Architecture Requirements and Use cases**																																				
T2.1	Definition of multi-scale Modelling Requirements																																				
T2.2	Design of the Data Collection Protocol and user requirements																																				
T2.3	Production of System Specifications																																				
T2.4	Use case requirements and design																																				
3	**Multiscale mechanistic modelling**																																				
T3.1	Neuromusculoskeletal Model																																				
T3.2	Finite Element Model																																				
T3.3	Biomechanical Simulation																																				
T3.4	Visual Analysis and Interactive Knowledge discovery																																				
4	**Biochemical modelling and inflammation biomarkers**																																				
T4.1	Recruitment of patients and Clinical evaluation of osteoarthritis patients																																				
T4.2	Qualification of OA biomarkers in serum of OA patients																																				
T4.3	Qualification of OA-related exosomal and microbiome biomakers																																				
5	**Behaviour modelling and environmental biomarkers**																																				
T5.1	Design and Development of OACTIVE wearable sensors																																				
T5.2	User behaviour analysis																																				
T5.3	Social determinants and relation to OA																																				
6	**Hyper-modelling framework empowered by big data and deep learning**																																				
T6.1	Data management																																				
T6.2	Data pre-processing and data reduction techniques																																				
T6.3	Knowledge discovery employing data mining																																				
T6.4.	Development of the ICT deep learning infrastructure																																				
T6.5.	Design and implementation of personalised predictive models																																				
T6.6.	Ontology-based framework for data standardisation																																				
T6.7.	Privacy, Security																																				
7	**Personalised intervention through augmented reality**																																				
T7.1	Analysis of hardware devices and software tools. Game hardware and software																																				
T7.2	Games framework development																																				
T7.3	Games development																																				
T7.4	Personalised context-aware, information visualization, DSS and feedback																																				
8	**Cellular-Tissue level validation**																																				
T8.1	Baseline screening of in vitro OA osteochondral units																																				
T8.2	Development of in vitro induced OA models																																				
T8.3	Evaluation of hormone-related, gender specific cellular responses																																				
T8.4	Development of systems capable of applying controlled loads within the																																				
T8.5	Assessment of cellular response to mechanical stimuli during rehabilitation																																				
9	**Technology assessment and validation**																																				
T9.1	Clinical Studies																																				
T9.2	Validation in big data registries																																				
T9.3	Ethics, compliance with intellectual property laws and data protection																																				
10	**Dissemination and exploitation routes**																																				
T10.1	OACTIVE Website and Media Presence																																				
T10.2	Build the OACTIVE community																																				
T10.3	Continuous Dissemination Activities																																				
T10.4	Clustering Activities																																				
T10.5	Organizing the OACTIVE Workshop and Special Sessions																																				
T10.6	Development of the Exploitation Strategy																																				
							MS1												MS2										MS3							MS4		MS5

Section 3: **Implementation**

WP description

Work package number		**Lead beneficiary**					
Work package title							
Participant number							
Short name of participant							
Person months per participant:							
Start month				**End month**			
Objectives							
Description of work (where appropriate, broken down into tasks), lead partner and role of participants							
Deliverables (brief description and month of delivery)							

WP1 example

Work package number	1	Lead beneficiary				NIC							
Work package title	Project Management and Coordination												
Participant number	1	2	3	4	5	6	7	8	9	10	11	12	13
Short name of participant	NIC	CERTH	LJMU	UPA	SMA	KUL	CETRI	LEITAT	RIMED	TIMELEX	AXIA	ANIMUS	HULAFE
PMs per participant	23	2	2	2	2	2	2	2	2	3	2	2	2
Start month	1					End month			36				

Objectives: The goal of WP1 is to plan and undertake all necessary activities for the project's effective coordination, including: i) manage the partners and resources to reach the general objectives and goals of the project, on time and with the budget allocated; ii) provide tools for communication between partners; iii) provide a plan for knowledge management, IPRs, and exploitation of results; iv) initiate the project with success by clarifying the project and WP objectives, the monitoring and reporting ….

Description of work

T1.1 – Administrative and financial management (NIC, ALL) **[M1-M36]**

With respect to administrative management the responsibility of this task is to establish a stable management basis and ensure a firm and ….

T1.2 – Technical management and quality assurance (CERTH, NIC) **[M1-M36]**

The technical management is a repeatable process that aims at monitoring and establishing the specific form and content of each deliverable, resolving what activities are necessary for their creation and delivery and at determining specific …

T1.3 – Management of knowledge and intellectual properties (CETRI, NIC) **[M1-M36]**

This task deals with the detection and assessment of the knowledge generated by the consortium. This knowledge will be initially ….

Task 1.4 – Ethical, Legal and Safety Management (TIMELEX, NIC) **[M1-M36]**

This task will be providing t….

Task 1.5 – Open Research Data and Software Management (**NIC**) **[M1-M36]**

OACTIVE will be a Pilot on Open Research Data and Software initiative by making publicly available part of the data recorded during the evaluation phase. OACTIVE will connect to the ….

Deliverables:

D1.1 – Project Management, Quality Assessment and Financial Plan [M3, Report, NIC]: This deliverable will incorporate all procedures and rules related to the technical and administrative management of the project, including a clear view of overall budget, rules for distribution of funds, follow-up and verification of expenses. It will also address the communication channels between the several boards and consortium partners.

D1.2 – First version of Ethics and Safety Manual [M6, Report, TIMELEX]: This report will define the first version of ethical and safety management issues.

D1.3 - Data management plan [M6, Report, NIC]: This deliverable will determine the strategy by which the research data generated by the project will be made open for maximizing their re-use.

D1.4 – First version of IPR plan [M18, Report, CETRI]: First report on the IPR related issues as agreed by all consortium members.

D1.5 – Final version of Ethics and Safety Manual [M36, Report, TIMELEX]: This report will define the final version of ethical and safety management issues.

D1.6 – Final version of IPR plan [M36, Report, CETRI]: Final report on the IPR related issues as agreed by all consortium members.

Section 3: **Implementation**

List of WPs

Work package No	Work Package Title	Lead Participant No	Lead Participant Short Name	Person-Months	Start Month	End month
				Total person-months		

List of WPs - Example

WP No	Work Package Title	Lead Participant	PMs	Start	End
1	Project Management and Coordination	NIC	48	1	36
2	System Architecture Requirements and Use cases	ANIMUS	53	1	6
3	Multiscale mechanistic modelling	LJMU	110	6	28
4	Biochemical modelling and inflammation biomarkers	LEITAT	72	6	28
5	Behaviour modelling and environmental biomarkers	SMA	91	6	28
6	Hyper-modelling framework empowered by big data and deep	CERTH	83	13	34
7	Personalised interventions through augmented reality	UPA	68	6	36
8	Cellular-Tissue level validation	RIMED	61	6	36
9	Technology assessment and full system validation	HULAFE	94	10	36
10	Dissemination and Exploitation	CETRI	51	1	48
	TOTAL		**731**		

Section 3: **Implementation**

List of deliverables

Deliverable (number)	Deliverable name	Work package number	Short name of lead participant	Type	Dissemination level	Delivery date (in months)

List of deliverables - Example

Del.	Deliverable name	WP	leader	Type	Diss.	Delivery
D1.1.	Project Management, Quality Assessment and Financial	1	NIC	R	CO	M3
D1.2.	First version of Ethics and Safety Manual	1	TIMELEX	R	PU	M6
D1.3	Data management plan	1	NIC	DEM	PU	M6
D1.4.	First version of IPR plan	1	CETRI	DEM	CO	M18
D1.5.	Final version of Ethics and Safety Manual	1	TIMELEX	R	PU	M36
D1.6.	Final version of IPR plan	1	CETRI	DEM	CO	M36
D2.1.	User requirements analysis report	2	HULAFE	R	PU	M4
D2.2.	Data Collection protocol	2	HULAFE	R	PU	M6
D2.3.	System specification report	2	LJMU	R	CO	M6
D3.1.	OACTIVE personalized computer biomechanical	3	LJMU	OTH	PU	M24
D3.2	OACTIVE biomechanical simulation and analysis	3	CERTH	OTH	PU	M28
D4.1.	Documentation on the qualification of biomarkers	4	NIC	R	PU	M28
D4.2	Report on qualification of OA-related exosomal and microbiome biomarkers	4	LEITAT	R	PU	M28
D5.1.	User Behaviour Modelling Documentation	5	SMA	R	PU	M18
D5.2	Documentation of behavioural attributes and interdependencies of physical factors	5	SMA	R	PU	M28
D5.3	Documentation of social attributes and interdependencies of cognitive and social determinants	5	KUL	R	PU	M28
D6.1.	Data Management Infrastructure	6	CETRI	OTH	PU	M23
D6.2	System integration architecture	6	CERTH	DEM	CO	M25
D6.3	Data mining tools for knowledge extraction	6	CERTH	DEM	CO	M28
D6.4	Computational intelligence models development	6	CETRI	DEM	PU	M31
D6.5	Design and implementation of personalised predictive	6	CERTH	DEM	PU	M34
D6.6	Ontology-based framework for data standardisation	6	CERTH	DEM	PU	M34
D6.7	Mechanisms for data privacy and security	6	CERTH	DEM	CO	M34
D7.1.	Analysis of hardware devices and software tools. Game hardware and software design	7	UPA	DEM	CO	M13
D7.2	Beta version of the Synthesized AR game system	7	UPA	DEM	CO	M18
D7.3	Final Synthesized AR game system	7	UPA	DEM	CO	M30
D7.4	Personalised information visualization interface	7	UPA	DEM	PU	M24/M36
D8.1.	Markers and cellular responses in OA osteochondral	8	RIMED	R	PU	M12
D8.2	OA in vitro models	8	RIMED	DEM	PU	M16
D8.3	Effects of hormones during OA	8	RIMED	R	PU	M18
D8.4	Mechanoactivation devices	8	RIMED	DEM	CO	M28
D9.1	Evaluation Toolbox Documentation	9	HULAFE	R	PU	M28
D9.2	Evaluation of OACTIVE in human population	9	HULAFE	R	PU	M36
D9.3	Evaluation of OACTIVE in big data registries	9	LJMU	R	PU	M36
D9.4	Intellectual property laws, licensing and data protection	9	TIMELEX	R	CO	M36
D10.1.	OACTIVE Web Site and media presence	10	AXIA	DEM	PU	M1
D10.2.	Training seminars (2)	10	AXIA	DEM	PU	M22, M28
D10.3.	Best practices handbook	10	AXIA	R	PU	M36
D10.4.	Data management plan (one draft version and one	10	AXIA	DEM	CO	M20/
D10.5.	PDER (2 draft versions and one final)	10	CETRI	R	CO	M12/
D10.6.	OACTIVE videos (One teaser and one final)	10	AXIA	DEM	PU	M3 / M36
D10.7	OACTIVE dissemination workshop	10	AXIA	DEM	PU	M26
D10.8	OACTIVE final conference	10	AXIA	DEM	PU	M36

Section 3: **Implementation**

List of milestones

Milestone number	Milestone name	Related work package(s)	Due date (in month)	Means of verification

List of milestones - Example

Milestone number	Milestone name	Related WP(s)	Due date	Means of verification
MS1	User requirements, use cases according to end-users feedback; system architecture designed	2	M6	*Objectives are validated and decided as feasible at M6*
MS2	First version of AR game system	7	M18	*Verification according to objectives*
MS3	All modelling approaches completed	3-5	M28	
MS4	Hyper-modelling framework completed	6	M34	
MS5	Integrated System validated	8-9	M36	

Section 3: **Implementation**

3.2 Management structure, milestones and procedures

Organisation structure

- Administrative Management
- Technical Project Management
- Quality Management
- The Steering Committee
- The General Assembly
- Ethical Board

Section 3: **Implementation**

3.2 Management structure, milestones and procedures

The Advisory Board (AB)

- Project Coordinator
- Technical Manager
- Dissemination and Exploitation Manager
- Work Package Leaders

Section 3: **Implementation**

3.2 Management structure, milestones and procedures

Decision Making and Conflict Resolution

- Communication-Monitoring-Reporting
- Conflict Resolution
- Innovation Management
- Quality and progress control
- Critical risks for implementation (table)

Section 3: **Implementation**

3.3 Consortium as a whole

- No need to *repeat information regarding individual members of the consortium (they are described in section 4)*
- **Create a table presenting the complementarity of technological skills in the project**

Section 3: **Implementation**

3.4 Resources to be committed

Summary of staff effort table

	WPn	WPn+1	WPn+2	Total Person-Months per Participant
Participant Number/Short Name				
ParticipantNumber/ Short Name				
Participant Number/ Short Name				
Total Person Months				

Section 3: **Implementation**

3.4 Resources to be committed

'Other direct cost' items table *(travel, equipment, other goods and services, large research infrastructure)*

Participant Number/Short Name	Cost (€)	Justification
Travel		
Equipment		
Other goods and services		
Total		

Section 3: **Implementation**

3.4 Resources to be committed

'Other direct cost' items table *(travel, equipment, other goods and services, large research infrastructure)*

Participant Number/Short Name	Cost (€)	Justification
Travel		
Equipment		
Other goods and services		
Total		

Tips and suggestions

- Remember that you write the proposal to convince the evaluators!
- Aim to take the reviewer by the hand and guide them through!
- Demonstrate that there is a convincing link between objectives, work-packages and deliverables!
- Do not just work to fill in the 70 pages! Work to convince and to get paid to accomplish your project!