



interiot

interoperability of heterogeneous  
IoT platforms

# Interoperability of Heterogeneous IoT Platforms

## D8.3 Impact Creation Plan

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## Executive Summary

The aim of the Impact Creation Plan is to be a reference document that establishes the basis to be followed by all partners. It is concerned to all the activities to be executed within the framework of the Project aiming to create and maximise impact of the INTER-IoT.. This plan provides comprehensive guidelines; templates; schedule; exploitation key performance indicators (KPI's) and initial open source communities and standardization strategies to maximise the impact of the INTER-IoT project by considering its four pillars as follow:

- **Communication activities:** A coordinated communication plan can be found in this document aiming to promote INTER-IoT as a major driver for IoT Platforms interoperability in the two application domains addressed in the project and with potential extension to other application domains. The plan will raise awareness among potential users, researchers and other stakeholders about developed approaches, ongoing results and technical outputs. This plan encompasses activities regarding communication and promotion material.
- **Dissemination strategy:** A data management and access strategy is developed, including Open Access publication based on: (i) Presence with technical papers, demonstrations, or talks at relevant international conferences, workshops, technical events, industrial forums and cooperation with European stakeholders; (ii) Production of leading-edge research material suitable for publication in international Journals specialized in ICT, transportation and health as well as web based media; (iii) Cooperation and cross-fertilization with other projects in the related area; (iv) other dissemination activities devised to promote the INTER-IoT concept and methodology, raise awareness also beyond the project's use case communities, advertise INTER-IoT achievements, provide adequate web visibility, etc. The access to the articles will be open, using a combination of the 'gold' and 'green' models. The research data will also be open access, with details described in the data management plan.
- **Data management guidelines:** Initial guidelines and rules for maintaining project data making it available to third parties can be found in this document. The development of the management and Sustainability Plan will be further described in D8.4. Additionally, the project will be involved in the Open Research Data Pilot and the information will be reflected in D1.2.
- **Exploitation and commercialization strategy:** The goal of this strategy is to obtain in an early phase a definition of an exploitation strategy, and the elaboration of the joint and individual INTER-IoT Exploitation Plan. The project consortium will seek for a common strategy to exploit the project results as an integrated system. In addition to common strategy, plans for individual exploitable products will also be drawn. Thus, individual partners could file potential patent applications or commercialize their IPR and part of the work as separate products or plug-in modules to existing systems. Additionally, individual measures of exploitation success through the definition of KPIs, as well as academic exploitation measures are proposed in this document. In this document can be also found both initial open source communities and standardization strategies.

This document also contains the current period report (M1-M4) on the status of the aforementioned pillars of the INTER-IoT project, providing some results achieved by the

consortium in line with the proposed plan. It will be a reference document for future reports on Creation Impact at (M18) and (M36), describing the achievements of communication, dissemination, data management, exploitation and commercialization activities during each reporting period.

Finally, the structure of this document is divided into the following sections:

- Section 1: Introduction
- Section 2: Communication activities
- Section 3: Dissemination strategy
- Section 4: Data management guidelines
- Section 5: Exploitation and commercialization strategy

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## Abbreviations

Abbreviation	Explanation
<b>AIOTI</b>	Alliance for Internet of Things Innovation
<b>API</b>	Application Programming Interface
<b>CapEx</b>	Capital expenditures
<b>CES</b>	Consumer Electronics Show
<b>CNCC</b>	Consumer Communications & Networking Conference
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>D#.#</b>	Deliverable number #.# (e.g. D8.3 corresponds to deliverable 3 of work package 8)
<b>EAI</b>	European Alliance for Innovation
<b>EC</b>	European Commission
<b>ETSI</b>	European Telecommunications Standards Institute
<b>EU</b>	European Union
<b>H2020</b>	Horizon 2020 Programme for Research and Innovation
<b>H2020 ICT30-2015</b>	Call for proposals: "Internet of Things and Platforms for Smart Objects"
<b>ICN</b>	Information Centric Networking
<b>ICT</b>	Information and Communications Technology
<b>IDCS</b>	Internet and Distributed Computing Systems
<b>IEEE</b>	Institute of Electrical and Electronics Engineers
<b>IF</b>	Impact Factor
<b>INTER-IoT</b>	Interoperability of Heterogeneous IoT Platforms
<b>IPP</b>	Impact per Publication
<b>INTER-LAYER</b>	INTER-IoT Layer integration tools
<b>INTER-FW</b>	INTER-IoT Interoperable IoT Framework
<b>INTER-METH</b>	INTER-IoT Engineering Methodology
<b>INTER-LogP</b>	INTER-IoT Platform for Transport and Logistics
<b>INTER-Health</b>	INTER-IoT Platform for Health monitoring
<b>IPR</b>	Intellectual Property Rights
<b>IETF</b>	Internet Engineering Task Force
<b>IoT</b>	Internet of Things
<b>IoT-EPI</b>	IoT European Platforms Initiative
<b>IT</b>	Information Technology
<b>ITL</b>	International Transport Logistics
<b>ITS</b>	Information Traffic System
<b>ITU</b>	International Telecommunication Union
<b>ITU-T(SG20)</b>	ITU's Telecommunication Standardization Sector, Study Group 20
<b>IWCD</b>	Interactive and Wearable Computing and Devices
<b>KPI</b>	Key Performance Indicator
<b>M#</b>	#th month of the project (M1=January 2016)
<b>MSc</b>	Master

<b>NPV</b>	Net Present Value
<b>MS#i</b>	Internal Milestone number #, used in the exploitation plan
<b>OGC</b>	Open Geospatial Consortium
<b>Opex</b>	Operating expense
<b>OpenEHR</b>	Open Electronic Health Record
<b>OPNFV</b>	Open Platform for Network Function Virtualization
<b>OTP</b>	Over-The-Top
<b>PCS</b>	Port Community System
<b>PhD</b>	Doctor
<b>QoS</b>	Quality of service
<b>ROI</b>	Return of Investment
<b>SIDO</b>	Showcase Internet des Objects
<b>SJR</b>	SCImago Journal Rank
<b>SME</b>	Small and Medium Enterprise
<b>SNIP</b>	Source Normalized Impact per Paper
<b>SoA</b>	State of Art
<b>SS CSCW&amp;IoT</b>	Special Session on Collaborative Wireless Sensor Networks and Internet of Things
<b>SWG</b>	Standard Working Group
<b>SWOT</b>	Strengths, Weaknesses, Opportunities and Threats
<b>TOC Europe</b>	Terminal Operations Conference and Exhibition Europe
<b>UI</b>	User Interface
<b>WP</b>	Work Package

# 1 INTRODUCTION

INTER-IoT contributes to the H2020 ICT30-2015 call for proposals: “Internet of Things and Platforms for Smart Objects”, addressing strategic high-level goals set by the European Union as well as practical stakeholders’ and end users’ needs for IoT platforms for smart objects interoperability. INTER-IoT reflects Europe willingness to create and offer integrated IoT platforms within and across different application domains. The project focuses in two application domains like Port Transportation and m-Health, but with a clear focus in extendibility of the scope. The extendibility of the proposal is addressed by means of the INTER-DOMAIN pilot, which will merge both application domain, and also will be populated with the outcomes of the open call. Tus, INTER-IoT aims to be a domain-agnostic solution.

The proposed framework, methodology and tools have the ambition to support EU IoT relevant agents (e.g. SMEs, IoT application developers, infrastructure integrators and operators) to provide integrated and interoperable services at different layers. INTER-IoT will provide APIs, enablers and tools to further extend IoT usage and interoperability in different application domains. Outcomes of the project will address different standardisation bodies and open source communities in order to extend the impact of the project results. Thus, the expected outcomes are completely in line with the strategic high level goals set by the EU strategic research in the area of IoT, and those presented in the IoT Strategic Research Roadmap<sup>1</sup>.

This deliverable is a revised version of the one submitted in M4 of the project. Current document includes updated views of the aspects highlighted by technical reviewers during M9 review meeting; inputs from the collaboration within IoT-EPI; inputs from the collaboration of INTER-IoT in the H2020-IoT1 LSP and an updated analysis after twelve months of the execution of the project.

## 1.1 Expected impacts

The INTER-IoT consortium is a balanced combination consisting of basic research-driven academic institutions; applied research providers; commercial service providers and end-users. This composition ensures the project’s multidimensional impact will be achieved. Moreover, the different nature of the members of the consortium, provide different axis for exploitation activities that will be developed in joint and individual exploitation plans. These plans have different orientations depending on the nature of the partners. Furthermore, the different partners will devote efforts to achieve impact in the different considered axis. While scientific dissemination will be targeted by universities and research centers, it is expected a high participation of SMEs and industries in conferences and journal papers. Additionally, industrial dissemination is highlighted as a key point to achieve impact, with a strong support from the stakeholders members of the consortium, and as a result of a collective effort.

The INTER-IoT partners will benefit from the methodologies and tools developed and tested in WP3, WP4 and WP5 and their potential for transfer into other domains. The main goal of

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<sup>1</sup> O. Vermesan, P. Friess, P. Guillemin, S. Gusmeroli, H. Sundmaeker, A. Bassi, I. Soler, M. Mazura, M. Harrison, M. Eisenhauer and P. Doody, “Internet of Things Strategic Research Roadmap”, 2011.

these developments is to be generic, and not depending on an specific application domain, as a consequence of selecting open platforms throughout the execution of the project. Furthermore, all partners are currently benefiting a significant expansion of knowledge, from the market analysis, participation in conference and the development of the state of the art of the different developed products and components. Furthermore, the cooperation between INTER-IoT and other funded projects in IoT-EPI cluster has proved to be a fruitful environment for this task. Depending on the specific organizations, this and additional benefits will be manifested along the execution of the project differently and will be achieved by different means. Universities are focusing on the application of research to academic syllabus and research paper publications, what may allow them to improve their position in the rankings. The INTER-IoT impact for private companies will be measured with other parameters like ROI. However, the nature of joint developments and the perspective of future exploitation of the results is being achieved by collective publications from two or more members of the consortium and the advance in the joint exploitation plans and business models to be applied to the results of the project. In this aspect cooperation with IoT-EPI, and specifically with BE-IoT CSA has been very useful.

The INTER-IoT consortium expects to reach the following impacts depending on the type of organization: SME, academic and research organizations, integrators, telecom operators and stakeholders and use case ecosystem. However, other sectors in the IoT value chain, including multidisciplinary entities will be included in the following versions of the impact creation plans.

### 1.1.1 Impact on SMEs

One of the main goals of INTER-IoT is to have a significant impact on the SMEs of the consortium, thus into the global market and the society. With INTER-IoT outcomes the SMEs expect to have the possibility of improving their existing solutions or to create new portfolio solutions by integrating or using the exploitable products of INTER-IoT defined in WP2: INTER LAYER, INTER-FW, INTER-METH, INTER-LogP, INTER Health, and their smaller components (e.g. INTER-LAYER gateway component).

It is planned that during the lifecycle of the project and after its execution these exploitable products will help the SMEs to open boundless business opportunities and unparalleled possibilities to develop new services and improve current portfolios, including the exploitation of new user-centric business models in sectors such as Transport/ Logistics, m-Health and cross-domain. Mainly SMEs will participate in the open call of the project launched in M10.

After the first year of the project, the SMEs will work on a Joint and Individual Exploitation Plan (WP8) where they will define every aspect related to the joint and Individual Business Model defined for INTER-IoT in WP2, including: the exploring usage-based personalised pricing scheme; the development of sustainable partnerships and the cooperation strategies among main stakeholders.

At the end of the project, the SMEs will be able to offer interoperability solutions to work with different devices and platforms, which will allow reduction of production costs, development of truly cost-effective solutions and the opportunity to embrace new markets with enhanced competitiveness. With independence of the application domain in which they perform their activity.

From the research and development point of view, the SMEs of the consortium will be also able to promote a more sustained innovation effort that fully exploits the benefits and advantages of open innovation environments. Overall, one of the main objectives of INTER-IoT is to become an enabler to secure and increase the industrial SME base in Europe dealing with IoT innovation.

### 1.1.2 Impact on integrators

Integrators are one of the business sectors that are expected to benefit from the outcomes of INTER-IoT. Currently, business model is complicated as they need to support multiple different standards together with several proprietary interfaces and platforms that are deployed in the field. It is a fact, that there is no interoperability mechanisms available between platforms and even platforms on the same ecosystem (e.g. within m-health, or port transportation and logistics) do not interoperate.

INTER-IoT through its exploitable products offers to the integrators reduction of their effort to embed different IoT objects and also to improve the applicability of INTER-IoT technologies on robustness, cross platform interoperability and cost of ownership. Regarding the increasing complexity, privacy and safety requirements, INTER-IoT allows deployments for different application domains that could be re-used and also interoperate seamlessly at different levels.

The analysis of the stakeholders provided a clear need from integrators to have available a set of tools like the one proposed in INTER-IoT. Not only for large projects but also for reduced projects. Moreover, the need of interoperability including communications, semantics and security will be required in future deployments in which more than one platform was involved.

### 1.1.3 Impact on telecom operators

Operators can provide value to IoT and billions of connected devices, through the use of their networks and from the traffic these devices produce. Several operators apply differentiated connectivity packages tailored to meet the needs of different devices and different types of users. However, to fully cater for the demands created by new types of devices and applications, innovative support systems will be required. Due to these aspects, the INTER-IoT consortium foresee a large impact on telecom operators as interoperability between devices from different Platforms will use 3G/4G and in the future 5G networks to exchange information.

Seamless mobility, roaming, network offloading and QoS will be essential if interoperability is provided for network operators. The use of new network paradigms like ICN or OTP infrastructures and provision of new services over these kind of networks, will impact business of telecom operators and they are going to point out this fact in their Joint and Individual Exploitation Plans. On the other hand, some telecom operators outside of the consortium, that are currently providing cloud infrastructures and virtualization services in large data centres.

Telecom operators through have always been interested in new kind of services and data to be transported in their networks. Although some of European Telecom operators are abandoning the vertical markets, the advent of 5G is going to increase the link between IoT interoperability and Telecom Operators.

It may be considered that 5G should develop and exploit network programmability functions to capture the IoT market. However, it should be acknowledged that IoT community (sensor & gateway vendors, network integrators, service providers...) is already progressing fast in the development of interoperable solutions. It is already acknowledged by the IoT community that interoperability in IoT platforms is an imperative for market development. However, the type of services and features that Telecom Operators can serve are limited and they yet lack proper solutions to deal with mission critical features, global service support and doing so at affordable costs. Only this flexibility in the development and operation of IoT services will create the required synergies across 5G networks from Telecom Operators and IoT platforms to fully meet the needs of the vertical services.

#### **1.1.4 Impact on stakeholders and use case ecosystem**

The INTER-IoT exploitable products defined in WP2 are addressed to two application domains: port transportation and m-health. These are related to two use cases or ecosystems that do not share many common features.

Regarding the ecosystem of port transportation, logistics companies and IoT operators and managers, the INTER-LogP use case is going to be beneficial to Port Authorities, IoT solution providers and enterprise customers. In case of Port Authorities, INTER-LogP may increase efficiency and safety in port premises. It is expected to increase the efficiency of the road and inland waterway transport network; optimise the utilization of available parking spaces; and provide additional community services. IoT solution providers, stakeholders and IoT and smart objects solution developers and integrators related to transport and logistics, will benefit from INTER-LogP and the other exploitable INTER-IoT products.

On the other hand, a wide range of customers and stakeholders will profit from the new innovative services that solution providers are able to deliver thanks to the enhanced dynamism and scalability of the enablers designed and developed by INTER-IoT's innovation. Improved performance through timely provision of goods and more effective use of existing cargo handling capacities (e.g., for terminal operators); global reengineering process with anticipation, simplification, the security of procedures and new services definition like cargo forecast, cargo availability or alerts (e.g., freight stakeholders) or access to transport and infrastructure information; easier communication between driver and dispatcher; monitoring of heterogeneous fleets with an integrated view; and, when combined with an appointment service, reducing waiting times at terminals (e.g., freight forwarders and road hauliers).

Regarding the INTER-Health use case, the m-health ecosystem, stakeholders, public authorities, users and operators and managers will greatly benefit from the INTER-IoT proposed solutions. Additionally, there is a clear link between the stakeholders associated with m-health and the growing market of AHA (Active and Healthy Aging).

INTER-Health for outpatients will improve the quality of homecare and survey quality of their health status; improve the definition of risk behaviour; provide information on diets and physical activity more relevant with the health status and with the risks of the subject compared to the traditional methods; increase the sensitivity of the screening of subjects who need intervention from the local doctor or of the hospitals (second and third level obesity, diabetes, etc.); reduce the time spent in face-to-face contact with the nutritional outpatient and the number of travels.



On the other hand, INTER-Health for public health services will increase efficiency with the same resources used; increase effectiveness through standardization of objective and subjective measurements; turn subjective ones, such as activity practice, into objective ones (by exploiting IoT wearable systems) and enlarge the number and type of subjects that appeal to nutritional outpatient. INTER-Health for local doctors will increase the availability for pathological subjects by reducing the number of healthy subjects.

Finally, it is important to remark that the INTER-IoT consortium is aware that the project will create impact in other IoT domains, such as farming or factories, among others. The INTER-DOMAIN use case will address different stakeholders and use cases (e.g. Smartcities) that could be linked or may need support from interoperability components like the ones produced by INTER-IoT.

## 1.2 Economic, environmental and social impacts

The INTER-IoT consortium expects also to create economic, environmental and social impacts. These impacts will complement or be a result of the technical impacts evolving from the project.

Regarding economic impacts, the current activities carried out are aimed to create market opportunities in both addressed application domains, and in new application domains due to extendibility of the results. Economic impacts in the two addressed application domains are of different nature and will be highlighted through the business models of the different partners so as through the analysis of the stake holders that will provide a clear landscape for impact creation.

In the case of port transportation and logistics, taking into account the stakeholder and market analysis and the initial work done about business model design, the INTER-IoT consortium estimates that the outcomes of INTER-IoT will increase revenues and provide a reduction of CapEx/OpEx of port infrastructures stakeholders as well as the market positioning of solution vendors.

On the other hand, for the m-health use case INTER-IoT the main benefit will be focused to the continuous monitoring of patients to prevent and control chronic diseases; the therapies; the most assiduous efforts of local doctor and also the hospitalization. This produces (in addition to the aforementioned user health gain) efficiency gain in the activity of the local/family doctor and a consequent saving on the cost of drugs and hospitalization of the patient.

Through the elaboration of the preliminary Joint and Individual Exploitation Plans by all partners of the consortium, explained in section 5, INTER-IoT will result in concrete opportunities for developing a competitive advantage in both considered use case markets for all industrial and non-industrial players taking part in the exploitable products of INTER-IoT. Thus, creating a clear impact among stakeholders in both application domains addressed within the project, and extendable to additional application domains.

A key differentiator of this project is the full commitment to implement INTER-IoT results in real prototypes that are fully compliant to standards recommendations and demonstrated over realistic real-world large scale validation trials, and at the same time contribute to new or existing standards with the achieved results. The project's results will have a positive impact

in SMEs and start-ups that will be able to exploit the availability of heterogeneous services, technologies and data, providing innovative solutions based on them.

Finally, the extendibility and sustainability of the results in other application domains considered by IoT will support the economic impacts of the project. The impact assessment of INTER-IoT on these other domains is out of the scope of this project, however in the impact analysis report an overview of other application domains will be provided. The open call outcomes and the inclusion of new application domains, and creating interest among other stakeholders may be shown in the INTER-DOMAIN use case.

It is also important to highlight that INTER-IoT results and products will generate huge impact in the society and environment. On one hand, it is expected that INTER-IoT will contribute to inclusive societies by promoting smart and sustainable growth and strengthening Europe's role as global actor. The consortium also foresees specific activities for identifying barriers and obstacles for its implementation due to constraints in data sharing, data storing and use/ownership of data, derived from legislations of different countries designed to protect citizens' rights, security, privacy and confidentiality concerns.

Regarding the ecosystem of port transportation, logistics companies and IoT operators and managers, a lot of effort is put into reducing the energy demand of terminals<sup>2</sup> and some projects and efforts have already been developed by partners of the project in this area (i.e. VPF, NOATUM and AFP). INTER-IoT will complement measures already used in port transportation for a more climate-friendly ecosystem by providing interoperability and achieving better planning for ship arrivals, truck movements and efficiency in port premises, leading to a major reduction in CO<sub>2</sub> emission. For the test site in Valencia, INTER-IoT is expected to help to achieve the goal set by the Port of Valencia for a climate-friendly and sustainable mobility that is to shift the majority of transportation to greener procedures.

Regarding the m-Health use case, the social and environmental benefits are the consequence of the management of subjects using the interoperable mobile solution. INTER-Health is a concrete example of prevention that relapses not only on a single subject but also on the community, as the patients do not have to move to the hospital and environmental effects are reduced (e.g. use of own car or use of public transportation). If the improvement is multiplied, after the utilization on many thousands of users in European territory the effect is amplified.

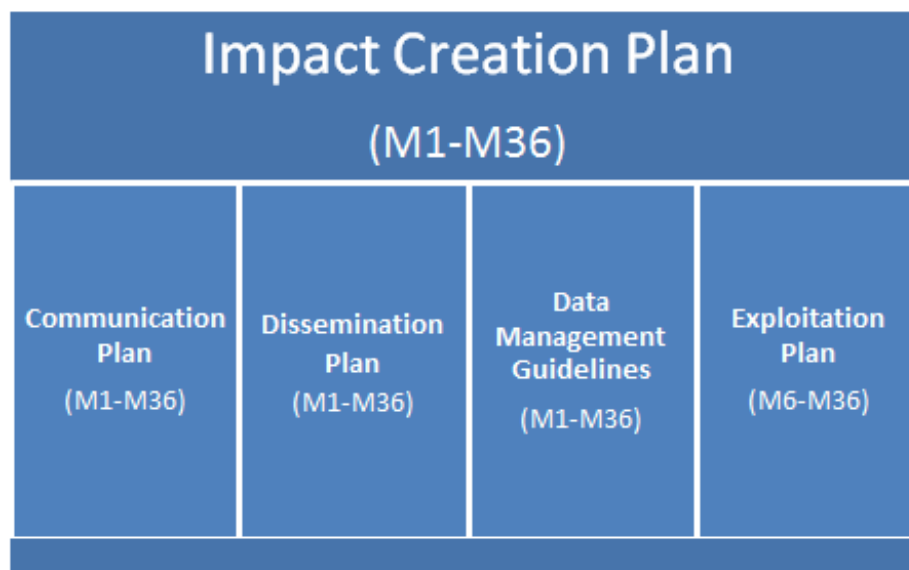
### 1.3 Impact creation

INTER-IoT project aims at the design, implementation and experimentation of an open cross-layer framework, an associated methodology and tools to enable voluntary interoperability among heterogeneous IoT platforms. The project results will allow effective and efficient development of adaptive, smart IoT applications and services, atop different heterogeneous IoT platforms, spanning single and/or multiple application domains, although initially the project targets transport and logistics and m-health. To achieve this, a set of impact creation activities as communication, dissemination and exploitation and commercialization activities will be carried out from the early stages of the project.

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<sup>2</sup> [http://www.fundacion.valenciaport.com/docs/inte-transit/T\\_InteTransit\\_2FMarti.pdf](http://www.fundacion.valenciaport.com/docs/inte-transit/T_InteTransit_2FMarti.pdf)



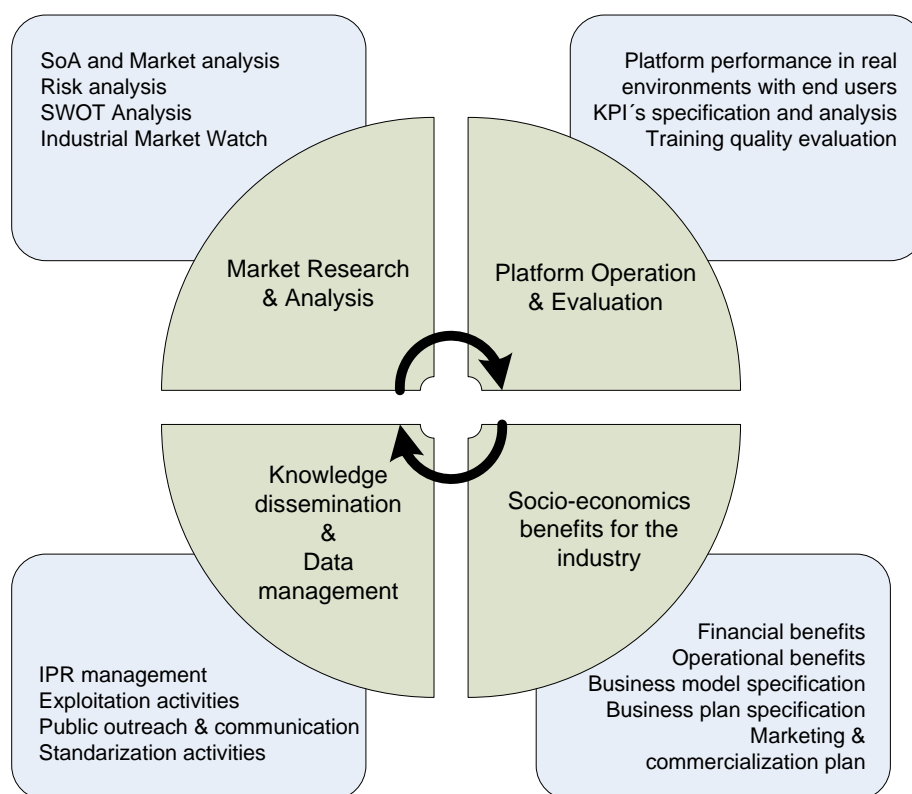


**Figure 1: Impact creation activities**

Activities to create impact will facilitate since the very beginning the communication and dissemination of results. In parallel to all the actions planned to create impact, INTER-IoT plans a specific punctual action in the form of an open call in order to include third parties in the project. The open call is directly linked with the INTER-DOMAIN use case for which new platforms, services, applications and components will be provided to validate the INTER-IoT concept and approach (section 1.3.4 provides details on the open call).

It has been understood and agreed upon in the project consortium that effective internal and external result communications are vital for the success of the project, and for creating impact. The impact creation activities are essential to keep project participants, and other stakeholders informed of the progress of the project and of any disruptive developments. They are also necessary to stimulate and gather feedback from interested groups and parties, and to increase the international visibility of the project. Furthermore, a strong effort will be made towards the analysis of performance of the developed applications in real environments and on their validation and overall evaluation. Simultaneously, the consortium will perform a continuous State-of-the-Art (SoA) research and targeted market watch and analysis that will be included in the deliverables of the corresponding technical WP. The information from this analysis will be used to continuously update the requirements and fine-tune the target audience, in order to get the maximum benefit to the impact creation actions.

The successful exploitation of the research and evaluation data along with an effective communication plan is one of the key factors for creating impact to the international community. Finally, emphasis will be placed on the design of an effective business plan and on the initial design of a marketing and commercialization strategy. For this, an analysis of the socio-economic benefits for the targeted industry and the individuals is also a critical part of our plan. The main activities planned for INTER-IoT for impact creation are depicted in figure 2. The figure represents a cyclic approach to the impact creation activities, considering that activities associated to one group will lead to another and this is the way it will be performed during the execution of the project. The list of activities to be carried out by the consortium have as main goal to produce impact, and for that different target audiences will be selected, depending on the activity, as will be explained in the following sections.



**Figure 2: Dissemination and exploitation results in INTER-IoT**

### 1.3.1 Operation and Evaluation Activities of the Platform and Applications

The developed INTER-IoT solutions (INTER-LAYER, INTER-FW and INTER-METH) will be integrated in real operational environments, and tested and demonstrated in real-life scenarios within the two large scale trial sites (INTER-LogP and INTER-Health). Stakeholders in the consortium (i.e. VPF, NOATUM, AFT and ASLTO5) will play a key role in the design of the on-site solutions and will be the main evaluators of the solutions' performance. However, the different technological products of the solution will be application domain agnostic and the main goal is that they could be used in different application domains and even in cross-domain environments. Although the stakeholders in the consortium evaluate the solutions in specific application domains, the evaluation and promotion will be opened to other stakeholders and end users not members of the consortium.

There will be a strong focus also on the specification and analysis of the KPIs and the evaluation results which will be demonstrated to a large number of interested parties, spanning both the user and scientific communities, through the project's communication tools and the participation to large scientific/commercial events. KPIs will be determined in WP2 during the requirements gathering phase and the definition of the use cases and scenarios for INTER-LogP and INTER-Health. Evaluation parameters will be associated with the objectives defined in the proposal.

WP7 is directly related with this activity as the evaluation plan that will be a public document will detail the process and some of the KPI regarding platform evaluation. Results of the evaluation process will be major contents in communication and dissemination activities as papers; participation in conferences; technical and industrial trade fairs; workshops with

stakeholders and opportunistic communication activities in social networks or newspapers. WP7 will include cooperation with IoT-EPI and the business modelling Task Force. The result of this collaboration will be reflected in the corresponding outputs of the WP-

### 1.3.2 Market Research and Analysis

Since the beginning, the project maintains a continuous monitoring of the key industry players and the market and scientific advances in the targeted application domains, as well as in related technological developments. The activity started in M1, in WP2 framework and will be released in D2.1, however in order to not continuously update the document, a repository with information from stakeholders, IoT products, requirements, use cases and scenarios has been created over a JIRA<sup>3</sup> server.

This detailed market analysis will provide the results for researching and identifying the unique selling points of the INTER-IoT project outcomes. D2.1 contains this information and will be used as a reference for impact creation. Systematic continuous efforts will be devoted to the risk and SWOT analysis of the project's results to identify and minimize the risk's effects. Risk analysis methodology and its results and mitigation actions will be analysed in WP1 and the information will be distributed to the rest of the consortium, with an effect in the selection of the target points to create impact. D8.7 will include updates in these areas in order to provide continuous information within the consortium.

### 1.3.3 Knowledge Dissemination and Data Management

The consortium is strongly motivated to provide technological and scientific results that will be of major importance and interest for the global scientific and industry communities. Not only the four academic partners (i.e. UPVLC, UniCal, TU/e and SRIPAS) that have a very high track record in terms of publications and citations, but also the other ten partners will participate in different publications addressed to the scientific community.

Due to the highly innovative aspects of INTER-IoT, we expect numerous scientific publications to be generated as a result of it. The quality and number of published articles will be of high importance for the applicants, since they will provide a visible and quantifiable performance evaluation of the project. Theoretical and experimental results will be presented in the major international technical journals (with a significant impact factor and broad public awareness), peer-reviewed conferences, and magazines (details are provided in section 3). In addition to scientific publications in journals and at conferences, which mainly target scientists and technical experts, a variety of other publications will be considered for the dissemination towards broader audiences; e.g. well-read on-line periodicals and related popular magazines. Work conducted within INTER-IoT will be disseminated primarily through presentation at relevant conferences (generalist or specific to certain aspects of the activities), fairs and meetings during the duration of the project. The INTER-IoT project will organize workshops, possibly co-located with relevant European and international conferences aiming at disseminating the relevant results and to foster collaboration with other European and International projects. Regarding chairing of conferences and workshops, the different partners, especially the academic partners, but also some industry partners and SME have an

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<sup>3</sup> <http://jira.atlassian.com/>

outstanding track record in organising conferences and workshops, so as special issues in relevant journals.

The partners will distribute printed brochures and posters at the international and national conferences/workshops. And in addition to these publications, some of the partners will bring interesting results from the project to the attention of the industry at specific dissemination events which they organize yearly.

All dissemination activities will be carefully monitored and reported by the project consortium and will be tracked in terms of citations and request from different communities, including co-operation in dissemination activities with the IoT-EPI projects.

### 1.3.4 Measurement of Socio-economic benefits for the industry

A strong effort will be dedicated to the definition of effective business models and the specification of a business plan for the project's outcomes. IoT is a new area in which innovative business models are in the process of development and INTER-IoT will provide new business models directly linked to the market watch and exploitation interests of the partners in the consortium individually and as a whole. The creation of an ecosystem of developers and end-users of the INTER-IoT developments will be analysed. Additionally, the activity together with IoT-EPI will provide an interesting feedback to the outcomes of the project.

This will be accompanied by a commercialization analysis of the INTER-IoT outcomes and a financial and operational benefits clarification for the targeted stakeholders for the application domains:

- For INTER-LogP, the benefits and needs will be analysed for port authorities, information services, software and solution providers (i.e., PCS operators), telecommunication companies, terminal operators and end users.
- For INTER-Health, for public health system, private hospitals and clinics; health centres; end-users and other involved stakeholders in the m-health domain.
- For INTER-DOMAIN, stakeholders from both domains will get extra benefits and additionally new stakeholders from different domains (e.g. smartcity operators or safety companies for transport and logistics).

Regarding INTER-DOMAIN, the project has reserved, following the requirements of the call, a portion of the project budget (12%) to fund specific activities to be carried out by third parties during the projects life cycle. These later-joining entities will be selected by means of a competitive call, in compliance with General Annex K of the Work Programme. Their participation will focus to the different INTER-DOMAIN use case related large scale trials, and will increase the target audience of the project. These third parties that will be financially supported will be recruited via the proposed open call to validate and improve technical capabilities of the interoperability framework in cross-domain scenarios, as well as push the utilization of field trial platforms. Therefore, the open call will be devoted to the following goals which will be specifically associated to INTER-DOMAIN use case:

- Validation and improvement of technical capabilities as e.g. specific interoperability mechanisms at different layers.
- Take up of INTER-IoT components and platform features by application developers, domain experts and entrepreneurs to create new applications and services using the framework and platform functions.

- Pushing INTER-IoT technology and service visibility on the market.
- Building an innovative, dynamic and industry open ecosystem around INTER-IoT results.
- Gathering new market relevant input for INTER-IoT platforms and find industry experts to improve technical capabilities as well as filling gaps in terms of e.g. missing functions or needed adoptions or modifications.

The details of the open call announced on the project website as well as in social networks and in different specialized journals and platforms. The main goal of the open call will be to create impact and start to create a community behind INTER-IoT.

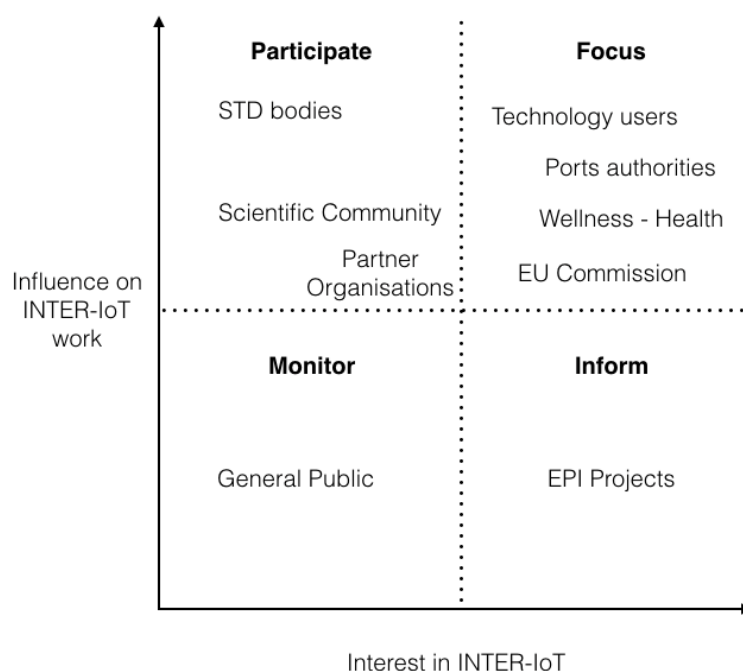
## 2 COMMUNICATION ACTIVITIES

### 2.1 Introduction

Usually, publicly-funded EU projects never shine on communication activities. While scientific results may be well beyond the state of the art, there is often a misconception regarding the communication activities that need to be performed in order to connect the project with the right audience and assure a timely and strong knowledge of the project results to “non-esoteric” parties. INTER-IoT wants to achieve a very large impact with project results, and therefore a clear and sound communication strategy will be put into place for assuring that all interested and identified stakeholders will be aware of the project results. In particular, INTER-IoT communication strategy will be developed in order to:

- achieve our objectives (in particular, Impact Creation);
- engage with our stakeholders;
- demonstrate through different channels the results of our work;
- ensure that a large amount of people (including non-technical ones) understand what we do.

The communication targets could overlap or be different to the targets of scientific dissemination. After identifying the targets and in order to be effective, we mapped our communication targets in the following diagram:



**Figure 3: INTER-IoT Project bodies**

We will use different communication means according to the quadrant where the communication target is. The main communication mean will be the web site for the general audience, and to provide centralized information like published papers, deliverables or access to the open call. We will use social media channels (such as Twitter, Facebook, YouTube or LinkedIn) in order to reach a large audience, and to provide information to the general public,

however a clear analysis of the type of audience will define the information provided. The main interest for us will be in identified users of the solutions we are developing: we will focus our communication to reach in depth the parties that are likely to build solutions on the technologies INTER-IoT is developing, namely INTER-LAYER, INTER-FW, INTER-METH, INTER-LogP and INTER-Health. This will include a broad scope of dedicated actions, including participation in the specialised industry shows and exhibitions, where the leading players and influences of the IoT market will be present.

## 2.2 Communication Time Plan

The communication Plan will start on M1 and will finish on M36 at the end of the project and contemplates the following two phases:

- **Phase I (M1-21):** While there isn't a specific milestone where all results will be available, we can notice that by M21 a few important results will be published (in particular, D3.2, D4.3, D4.5). Therefore, during the initial period of the project we will focus on the following objectives: to identify the stakeholders, to raise interest for the project, to collect a large stakeholders set of addresses, to promote the open call and to identify relevant industrial shows and exhibitions. Within this phase, the following activities will be held:
  - 1) **M5: Preparation of the questionnaire to send to the focus stakeholders:** As INTER-IoT has a very disparate set of relevant stakeholders, belonging to different domains, we want to understand from which channel they get the info related to new technology offerings. The questionnaire will give us the possibility on focusing our communication activities on specific media that have the highest reputation among our stakeholders.
  - 2) **M9: Identification of relevant stakeholders and creation of an address book:** Using the contacts that all partners have, and different professional networks, we will create an address book in order to identify the most relevant ones for our technologies and for the 5 products we plan to develop.
  - 3) **M11: Sending questionnaire to stakeholders:** We are aware that the return on questionnaires is rather low, so we plan to divide the group in two subsets: one of the ones we target primarily, and for what we plan to do a follow-up in order to have a rather large return, and a second subgroup, of stakeholders that have less relevance to our activities, for which even a low return rate does not have a major impact on our knowledge.
  - 4) **M15: Preparing the common strategy:** We will then analyse the results and formulate a detailed Editorial Plan, in order to develop a coherent communication strategy in the second half of the project, when important results of the project will be ready for exploitation.
- **Phase II (M22-36):** During this second phase, when stronger results will already be published, we will leverage the communication results from the first phase and execute the communication strategy prepared in the initial part. The main objective is to assure a large exploitation of the project results and to promote the solutions to the identified stakeholders using the most direct channels. The Editorial Plan will be revised every three months, in order to adapt it to changing environments and to focus on higher-impact activities.



## 2.3 Measures

Precise measures and actions for the communication will be prepared for M15, leveraging all the information we will have obtained until then. However, in the meantime, different actions associated with the initial communication plan will be developed by the consortium, like maintenance of the web site, presence in social networks and attendance to different academic and industrial events. These actions will be used to fine tune the activities that will be launched in M15. The actions taken during this first phase will be also used to gather interest of the target audiences to the INTER-IoT results.

The communication team will study the potential targets, using the work done in other WPs as well (such as WP2 and D2.1). It is planned to contact the identified stakeholders (the information about the stakeholders and their interests is stored in the JIRA repository and will be continuously updated although WP2 activity had finished) and to send a questionnaire on the communication activity and their information sources, to have a “scientific” approach on the communication channels we will pursue. The smaller the target the more effective we can plan the communication. The communication team will identify the likely future users of our technologies and target them, explaining to them clearly why they should be interested in our developments.

We plan to use both on line and off line channels, and tune them according to the target audience. Therefore, we will evaluate banners, websites and advertisement on social media on one side and fairs and publications on the other.

## 2.4 Templates used

It is planned to use two templates, the communication questionnaire and the communication template. The first one will be used to gather information from potential target audience, e.g. stakeholders already in the JIRA repository or other target audience. Information gathered from the target audience will be stored in a database and potentially in the JIRA repository already used to manage requirements, products and scenarios. The communication template will be used to report and control specific communication actions by the consortium partners.

### 2.4.1 Communication Questionnaire

The questionnaire will be released to the potential target audience and could be sent several times as new communication actions are being planned. The questionnaire will be configured as a web application accessible in the web site of the project, although other mechanisms could be used. The main questions to be included, with the possibility of enhancing or increasing them, are the following:

- From which source do you get the most valuable information on Technology Products for your company?
- From which source you believe you don't get any interesting information?
- Ideally, how often would you like to be informed about new technological developments that could have an impact on your current activities?
- Did you participate as a delegate in some Fair / Event in the last 2 years? If so, which ones?
- Do you plan to participate in some Fair / Event in the next year? If so, which ones?



- How often do you use social media for your business (Twitter, LinkedIn, Facebook, etc.)?
- Which are, in your opinion, the three strongest brands in the IoT space?

## 2.4.2 Communication Template

For the communication plan, we will be using a modified version of the Vertical Measures Template<sup>4</sup>. The template has been extensively used in several marketing activities, and with the included modifications, we will better address the particularities of INTER-IoT and H2020 research projects.

In all marketing activities, keeping track and planning activities through a calendar is of fundamental importance. It's an important planning tool to make sure that the content is optimised to hit the target stakeholders base and that the project partners are working in synergy. This calendar will allow us to:

- coordinate all publication with relevant events and milestones;
- manage resources and events participation;
- build on and cross-promote existing or future content;
- identify important metrics.

The spreadsheet template from Vertical Measures contains two calendars: a year view and a month view, described below in figure 4.

## 2.4.3 Year View

The purpose of this part is to look out over the year and identify important dates and milestones that our project must communicate. For example, if we will have an important deliverable coming out in June, we will start planning supporting content in March. This long view will let us plan well in advance so we can identify opportunities and have plenty of time to take advantage of them.

- **Quarters:** Identify quarterly goals, resources, and budget.
- **Seasons:** Natural seasons or other conceptual business periods for seasonal businesses.
- **Holidays:** Holidays to consider for publication scheduling.
- **Events:** Industry events and other — e.g. conferences,
- **Deliverables Launches:** Will focus on content around specific deliverables launches throughout the year.
- **Deadlines:** The current production deadlines for content that we need to meet.
- **Metrics:** The overall metrics — e.g. links, traffic, conversions — will try to target and track with content.

## 2.4.4 Month View

This template will map specific content pieces for each month. Having set the overall goals in the yearly view, we will plan the production of individual content.

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<sup>4</sup> <http://www.verticalmeasures.com>

- **Title/Description:** The handle for the content piece, like a blog post title or video concept description.
- **Status:** Where the content project stands — e.g. in production, on hold, published.
- **Due Date:** When the content is due from the producer/designer.
- **Publish Date:** When the content piece goes live.
- **Type of Content:** The format for the content — e.g. onsite article, blog post, infographic, whitepaper.
- **Producer/Designer:** Who will be producing/designing this piece of content.
- **Editor:** Who will be editing and formatting this piece of content.
- **Target Audience:** The audience, industry or other segment you are looking to reach.
- **Distribution Channels:** Where this content will be published — e.g. blog, resource articles, offsite.
- **Promotion:** The promotion and/or social media channels that will be leveraged for this specific content piece.
- **Metadata Tags:** The meta title, description, and/or keywords for this piece of content.
- **Metrics:** The specific metrics — e.g. links, traffic, conversions — that we will try to target and track with the content piece.

Month	Date	Type of Content	Producer/Designer	Editor	Target Audience	Due Date	Publish Date	Distribution Channels	Promotion	Meta Data Tags	Metrics	Notes
January	1											
	2											
	3											
	4											
	5											
	6											
	7											
	8											
	9											
	10											
	11											
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Figure 4: INTER-IoT communication template plan

## 2.5 Current period report on communication

### 2.5.1 Virtual presence

The deliverable D.8.1 (M2) consisted on the development of the following website [www.inter-iot.eu](http://www.inter-iot.eu), in order to communicate the projects results to a larger audience, and to provide access to registered users to internal repositories.

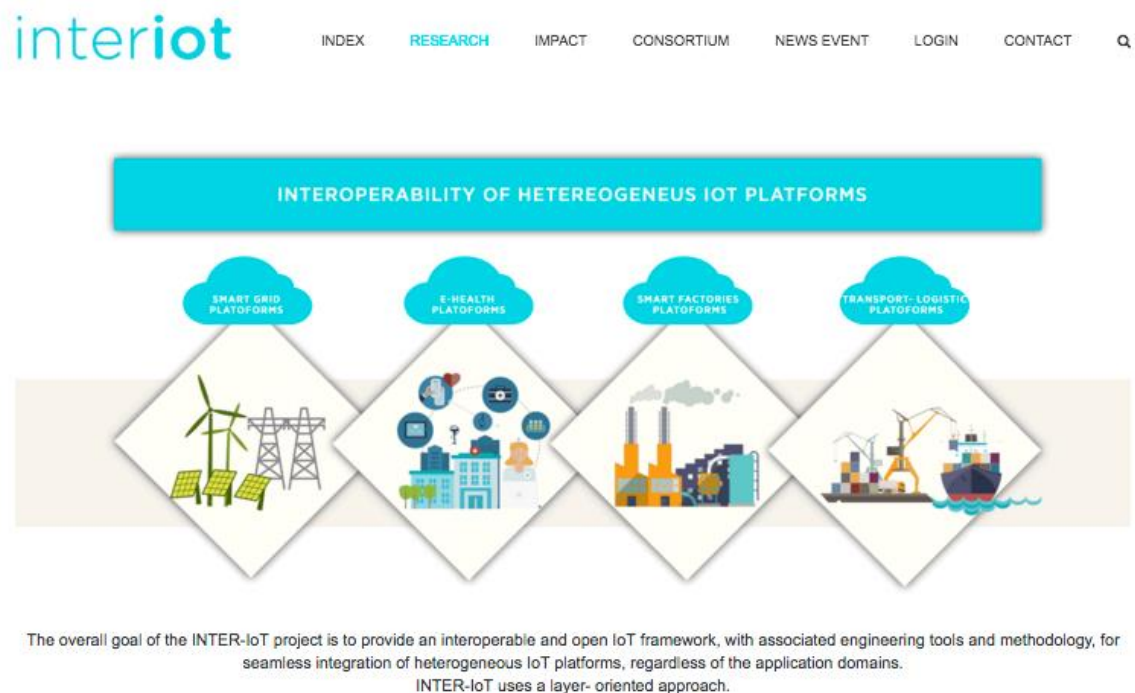
The website concept is divided in different pages:

- **Home page:** It has a general description of the project and a high-level explanation of the motivation behind the project and the main application areas targeted.
- **Research page:** In this page it is explained in more details what are the 6 objectives of INTER-IoT and which approach we will follow during the course of the project.
- **Impact page:** All the deliverables and public papers will be available for download from this page. It will also have subsections related to open source software and demos that the project will complete during its course.
- **Consortium page:** All partner's logos are shown, together with a short description, and with a link to their respective home pages.
- **News / Events:** All events that are of interest for INTER-IoT will be displayed.

- **Login page:** To enter the protected area of the site with confidential information.
- **Contact page:** Through an interface users interested in INTER-IoT will be able to contact the project.



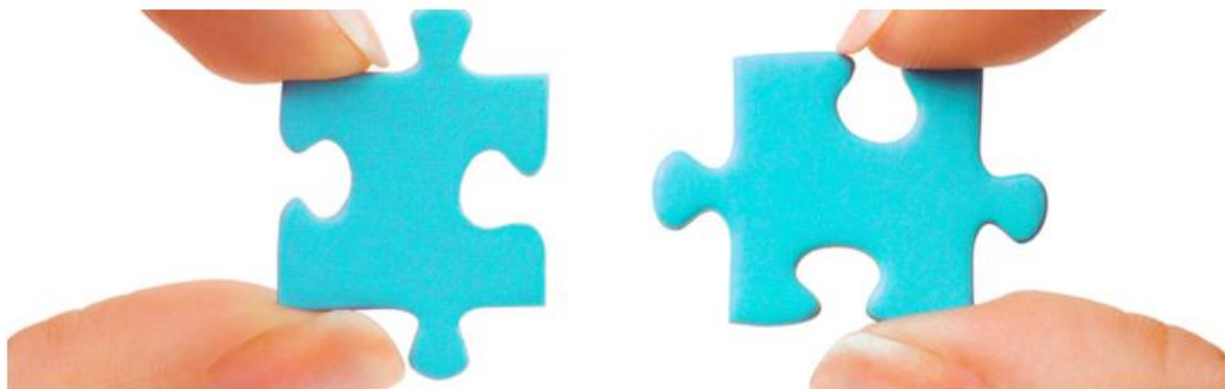
Figure 5: INTER-IoT website home page



## INTER-IoT OBJECTIVES

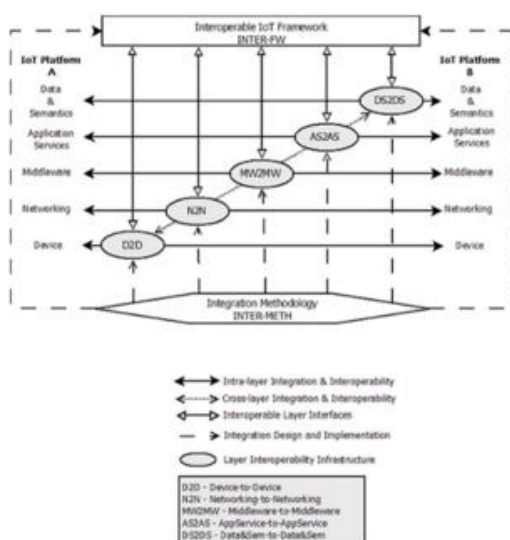


Figure 6: INTER-IoT website-objectives page



## APPROACH

INTER-IoT approach will facilitate rapid prototyping of novel IoT applications being executed over integrated IoT platforms across single and multiple application domains, providing all the building blocks needed to achieve interoperability, including a framework, methodology, associated APIs and tools. This will assure that interoperability will be sustained as different products and architectures evolve in the market.



## INTER-IOT APPROACH

- ✓ At the **device level**, seamless inclusion of novel IoT devices and their interoperation with already existing, even heterogeneous ones. This will allow fast growth of smart objects ecosystems.
- ✓ At the **networking level**, seamless support for smart objects mobility and information routing. This will allow design and implementation of fully connected ecosystems.
- ✓ At the **middleware level**, seamless service discovery and management system for smart objects and their basic services. This will allow global exploitation of smart objects in large (even extreme) scale (multi-platform) IoT systems.
- ✓ At the **application service level**, reuse and exchange (import/export) of heterogeneous services between different IoT platforms.
- ✓ At the **data and semantics level**, common interpretation of data and information based on global shared ontology in order to achieve semantic interoperability between heterogeneous data sources.
- ✓ At the **integrated IoT platform level**, rapid prototyping of cross-platform IoT applications.
- ✓ At the **business level**, faster introduction of IoT technology and applications across multiple application domains.

Figure 7: INTER-IoT website-approach page



Website pages' views have been analysed since its launch by using Google Analytics. Results are shown in the following figure:

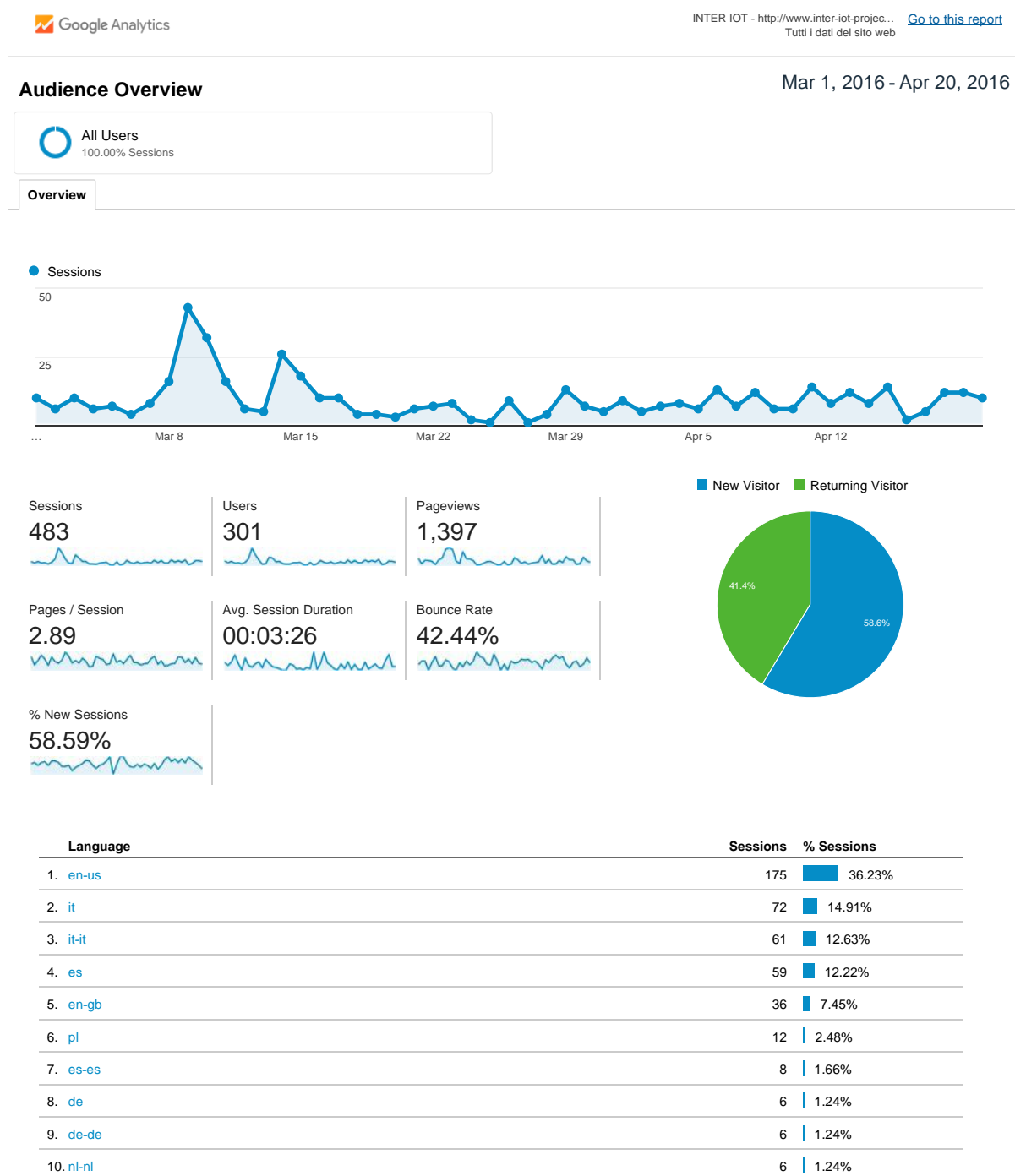
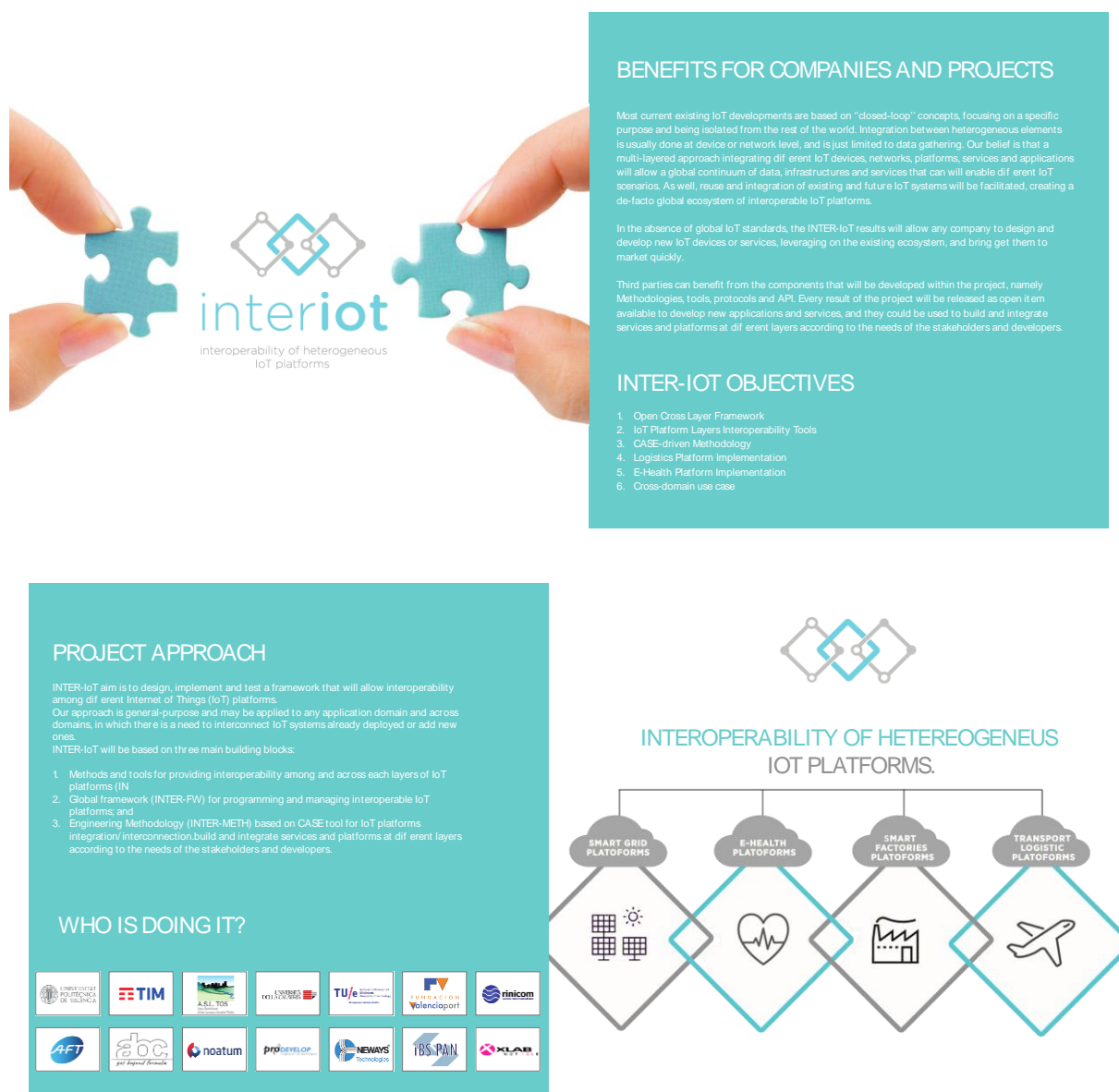


Figure 8: Analytics of INTER-IoT website since its launch

## 2.5.2 Leaflet, poster and popup stand

The deliverable D.8.2 (M2) consisted on the creation of a leaflet and a poster. In order to enhance the marketing aspect, this task was hired to a professional publishing company.

The leaflet presents the project, its approach and objectives, and highlights the potential benefits for companies and other IoT projects.



**Figure 9: INTER-IoT Leaflet**

The Leaflet will be updated in M18 and M36 taking into account the results obtained during the execution of INTER-IoT.

Using a similar graphic style, the poster shows the main concepts of the project with an attractive visual language. The poster will also be updated before major events, to promote all advancements done by INTER-IoT.

For participation in the industrial events INTER-IoT consortium has designed and implemented a popup stand, which will be shared by all the partners of the consortium.

### 2.5.3 Promotional video

The consortium has created a promotional video, in order to show the main outcomes of INTER-IoT. The promotional video will be available in the website of the project, and also in the website of the partners. The video has already been distributed through social networks and will be used as promotion material by the project and IoT-EPI.

The video has a duration of 99 seconds and currently is available in YouTube: <https://www.youtube.com/watch?v=EPW4bVu4msg>

The video will be the first to populate INTER-IoT YouTube channel that will be used to promote different aspects from the project using this social network platform and also to distribute knowledge associated with Internet of Things as a whole and specifically to interoperability.



Figure 10: INTER-IoT promotional video screenshot



## 3 DISSEMINATION STRATEGY

### 3.1 Introduction

Dissemination activities aim to establish critical mass and long-term commitment from different selected target groups. Therefore, results from various project activities will be disseminated to the widest possible, though precisely selected, communities through a number of focused activities. These activities will be aimed at different target groups, including both professionals (i.e. academia, administration and business; see, also, Section 2). Dissemination activities will be used to disseminate narrow or broad research results, as well as other project results (e.g. open sourced code) to specialised, precisely targeted groups.

It should be stressed that the dissemination activities will be continuous and that the plan of such activities will evolve throughout the lifetime of the project. The evolution will be caused both by the growth of internal knowledge (e.g. discovery of new target group, like conferences, research cluster or as a result of the Open Call); as well as changes in the ecosystem of research in which INTER-IoT project will grow. (e.g. evolution of AIOT initiative).

On the other hand, new or other additional dissemination mechanisms may become applicable or may need to be found. For instance, it is unclear what will be the format / role / popularity of Twitter, LinkedIn, or Facebook, in the third year of the project. Henceforth, material found in this section should be treated as the initial view of the way the dissemination activities will be shaped.

Dissemination of project results is one of the tasks (T8.2) within WP8. The following objectives of WP8, identified in the proposal, are related to the dissemination:

- **Scientific dissemination:** Disseminate the scientific and policy oriented research done in the framework of INTER-IoT by participating to academic and policy oriented conferences, by presenting working papers and scientific contributions, and by submitting scientific articles to peer-review journals.
- **Industrial Dissemination:** Disseminate the different exploitable services and products of INTER-IoT in the main industrial conferences and exhibitions of the sectors and markets addressed in the project (Ports, Health, IoT, etc.), in order to attract the attention of potential customers and users.
- **Dissemination and exploitation Plan:** Prepare and update a plan for the dissemination and exploitation of the project, including a record of activities related to dissemination and exploitation that have been undertaken and those still has to be planned.

### 3.2 Target audience for dissemination

Target audiences for dissemination activities can be divided into a number of groups. It is relatively easy to observe that these groups are expected to be interested in different results obtained from the INTER-IoT project, probably with some overlap. Furthermore, they will be interested to a different degree in each of them. The initial identified target audiences and their interests are (see, also, Section 2):

- **Academic institutions:** This target audience is composed of universities, research centres or other higher education institutions. They are primarily interested in published academic results materials (papers, slides, etc.), workshops and conferences organized by the INTER-IoT consortium, as well as the key tangible results of INTER-IoT: methodology, API and tools.
- **R&D departments of industrial companies:** They are likely to be primarily interested in methodology, API, and tools and workshops in order to learn about the use of the results from INTER-IoT, and apply them in their new prototypes and projects.
- **Start-ups:** They may be interested in the potential usage of the results from INTER-IoT and their potential usage of the project's results, being through the proposed Open Call or not.
- **Business in general, including the remaining stakeholders:** They may be interested in finding out if any results of the project fit directly or can be applied immediately to their current needs. Here, the key word is immediacy, as they are looking for tools that would give them an immediate advantage in the market.
- **EU-funded projects:** They may be interested in all results obtained from INTER-IoT. Regarding the starting point of these EU-funded projects, we can distinguish three types. On the one hand, the remaining 6+2 projects from the same ICT-30 call as the INTER-IoT project that started on January 1. The EC will strongly support and facilitate the exchange of results (cross-dissemination) from INTER-IoT to these projects through the form of task forces and joint workshops.  
On the other hand, there are other projects that started earlier and are still ongoing, and finally these projects that will start as a result of subsequent calls and INTER-IoT Open Call. For instance, there is a current call for proposals in the area of Smart Cyber-Physical systems, which may result in projects pertinent to the goals of INTER-IoT, which have to be approached to build bridges and disseminate results to them.
- **General public, including IoT enthusiasts:** They may be interested in “headlines” describing outcomes of the project, and possibly selected artefacts, treated as something that may be “played with”, e.g. out of plain curiosity. This target group will be also addressed by the communication strategy.

It is crucial that INTER-IoT will reach all the above indicated audiences with the right types of messages to raise their awareness of precisely the outcomes that they are interested in. Additionally, dissemination activity will try not to overlap with the different activities developed by the communication strategy (T8.1). Probably some target groups will be addressed by both strategies but using different channels and in a coordinated way in order to obtain extra efficiency.

### 3.3 Scientific dissemination

In this section it is described in detail how scientific dissemination of project results (scientific results, in particular) is planned, starting from dissemination mechanisms, that represent the channels to be used by the consortium:

- **Dissemination through publication in academic journals:** Current trends in academic (journal) publishing divide journals into a number of categories:
  - 1) **Journals with impact factor (IF; indexed in Thomson Reuters Web of Science; now Clarivate Analytics):**

- Journals with closed (paid-subscription) access
  - Journals with closed and open access, where authors that elect open access have to pay for it (usually, in this category, a small number of free publications per year are “available” and the decision who will be able to use them is left to the Editor-in-Chief.
  - Free open access (usually, publications in this category are “subsidized” by some organization / university, etc.
- 2) Journals without impact factor (IF), but with available bibliometric performance data (SNIP, IPP and SJR):** These journals (see Journals Metrics<sup>5</sup>) are characterized by different lists of indexing repositories. The number and popularity of specific indexing engines that are used by a given journal determines the potential impact of dissemination in a given journal. They also differ in the number of years for which the bibliometric data is available
- 3) Other journals (no IF and no SNIP, IPP and SJR):** These journals are also characterized by presence in different sets of indexing repositories, , but they are of limited interest to the INTER-IoT project.
- 4) New journals directly related to the Internet of Things that have been created by top publishers (e.g. Springer, IEEE Press, etc.), but do not have yet bibliometric track record:** This category of journals has emerged in recognition to the fact that results of the “early Internet of Things research” have been initially published in journals devoted to other areas of computing (e.g. Grid computing, networking, sensor networks, agent systems, etc.). In response, new journals have been proposed by top-notch publishers, with recognized names in their Editorial Boards. Note also, that Editors in Chief of open access journals from this category, very often, have a substantial number of free publications available in their discretion. These free publications are used to promote the journal initial content.

The existence of division of journals into these categories will have a definite impact on the way that INTER-IoT will disseminate its results. As it should be clear, selecting the right set of journals to disseminate scientific results of any project involves multi-criterial analysis. This is especially the case since *the budget of the INTER -IoT project does not include a separate category, devoted to open access publishing*. Therefore, publication venues have to be decided on a case-by-case basis.

The goal of the project, when selecting journal(s), for dissemination of project results, will be to maximize the impact, while balancing aspects such as: access, journal category, IF, SNIP, IPP, SJR, interests and needs of project stakeholders, etc. However, it is predicted that only journals from the categories (1), (2) and (4), will be taken into considerations. The category (4) is included as it is extremely likely that, for all practical purposes, it can be assumed that publishers such as Springer/ IEEE Press will facilitate journal transition to the Web of Science indexing, resulting in high impact of papers being published there and contributions published in these journals being highly visible / cited.

<sup>5</sup> <http://www.journalmetrics.com/values.php>)

It should be pointed out that bibliometric data changes annually. Therefore, it is important to consider current, as well as past impact factors. Such data is available, among others, through the Journal Metrics<sup>6</sup> portal. Observe that 2016 results, covering SNIP, IPP and SJR for up to 2015, are expected to be published no later than in June 2016. It is important to remark that an earlier ranking is expected to be delivered by the end of April and later updated, in June, to include late citations.

Research groups within the consortium have a considerable track record of publications in IoT area and especially in interoperability. INTER-IoT has boosted some of this research activities allowing that different publications already in preparation could speed up their submission with new results and use cases directly related with INTER-IoT contents. Some publications have already been submitted and it is expected that first results from these relevant journals be ready no later than M6 of the project.

In this context, we plan, whenever it will be possible to slightly postpone journal selection process, until the new list of impact factors is released and evaluated. Specifically, papers ready in March-May of a given year may be submitted to the journal of choice only when the next bibliometric data will be released as it is pointed out in section 3.4 (Time Plan).

As stated above, journal publications will attempt at reaching the balance between two main factors. On the one hand, open access journals will be preferred, while thriving to reach maximum journal impact. On the other hand, a number of publications will target very high impact in closed access journals or published in mixed-access journals. Here, the key factor will be the reputation of the journal, since high impact journals are the most read and cited ones.

While publications in academic journals are primarily the responsibility of the academic partners, all industrial partners will be strongly encouraged to become involved in journal paper preparation. In particular, this is likely to be the case of academic and non-academic partners publishing joint papers.

It is expected that the number of papers published per year will systematically increase, as the number of actual results will grow over time. It is also obvious that a number of journal publications, resulting from the project will be actually published after the completion of the project. This last consideration is based on the fact that it takes between 6 and 24 month and sometimes even longer for a paper to be actually published in a high-impact journal. Therefore, papers submitted to the journals in M30-M36 will be actually published after completion of the project.

All journal publications will be listed with links on the INTER-IoT project website. This will include also publications that will be completed after the project is completed.

A number of journals have been initially identified as potential for publication of project results. This list of journals will be updated as the project evolves. Journals have been selected after a detailed analysis of the different factors previously indicated, with a joint work by all the partners in the consortium, in order to cover every sensibility and target audience, from the technical point of view to the use case. These are summarized in Table 1.

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<sup>6</sup> <http://www.journalmetrics.com/values.php>, based on the SCOPUS indexing base.

**Table 1: Main journals, conferences, book series related with INTER-IoT**

<b>Journals</b>	<b>Technical</b>	IEEE Transactions on Software Engineering; IEEE Communications; IEEE Network; Elsevier Future Internet; IEEE Internet Computing; Elsevier Computer Communications; Elsevier Future Generation Computer Systems; ACM Transactions on the Web; Elsevier Expert Systems with Applications; Elsevier Journal of Network and Computer Applications and IEEE Geoscience and Remote Sensing Magazine, IEEE Pervasive Systems, IEEE Internet of Things Journal, IEEE Sensors Journal, IEEE Transactions on Human-Machine Systems, IEEE Transactions on Systems, Man and Cybernetics: Systems, Information Fusion
	<b>Use case oriented</b>	IEEE Transactions on ITS, Elsevier Transportation research, Journal of Biomedical and Health Informatics, IEEE Trans. on Affective Computing, Port Strategy, Port Technology, Maritime Economics and Logistics, Scientific Journal of the Italian Association of Dietetics and Clinical Nutrition (ADI Magazine)
<b>Conferences</b>	<b>Technical</b>	IEEE Sensors conferences, IEEE Conference on Systems Man and Cybernetics, Federated Conference on Computer Science and Information Systems (FedCSIS), Internet and Distributed Computing Systems, Bodynets (Body Area Networks), ACM/IEEE ccGRID, IDCs, IDC, World Forum on Internet of Things (WF-IoT)
	<b>Use case oriented</b>	European Transport Conference, World Conference on Transport Research, IEEE ITSC, Pervasive Health, IEEE Healthcom, EAI International Conference on IoT and Big Data Technologies for HealthCare, Nutrition and Metabolism II Residential Course (Nu.Me), Congress of the Italian Association of Dietetics and Clinical Nutrition
	<b>Policy oriented</b>	WOHIT World of Health IT, Digital transport and Logistics Forum, TOC Europe, CeMat, Med@Tel, Intermodal Europe, InnoTrans, SITL Europe, Forum PA
<b>Book Series</b>	<b>Technical</b>	Springer Series on Internet of Things, SpringerBriefs in Cooperating Objects, Lecture Notes on Computer Science, Lecture Notes on Electrical Engineering

- Publication of results as book chapters:** It is obvious that, starting from project's year 2, a number of research areas, within the INTER-IoT project, will reach a good level of maturity. They might be ready to be turned into book chapters. The main difference between journal publication and book chapter is that the second one involved more meta-reflection, which will place the INTER-IoT results in a broader context of state of the art (SoA). Here, only most important publishers, e.g. Springer, Wiley, IOS Press, etc. will be considered for potential publication. The publication may take one of two forms: (a) publication of a Chapter within the book edited by someone "outside of the

project”, or (b) publication of a whole volume based on results of the INTER-IoT project.

However, this type of publishing is considered less appealing than publishing in journals and dissemination of results through conference-related presentations and publications. Nevertheless, publication of a volume solely related to the results of the INTER-IoT project will be seriously considered. Book series that were initially selected for publication of chapters / complete volumes are summarized in Table1.

- **Dissemination through conference presentations:** Let us start from noticing that, in the context of the INTER-IoT project, potential conference presentations should be divided into two categories as follow:

**1) Keynote / invited presentations:** The INTER-IoT consortium is composed of a number of high-profile researchers that are regularly invited to deliver guest/ keynote presentations. All such invitations will be used to disseminate results of the project. Here, note that guest / keynote presentations usually are the most attended presentations at any conference. Thus, they have the potential for very high impact of dissemination of results. Furthermore, such presentations often involve an opportunity to publish a paper in the conference proceedings. However, this type of disseminating project results (publishing paper in conference proceedings) will be used judiciously. Whereas delivering a talk to 100+ participants of a conference with a low-impact publication may be appropriate, wasting quality material for conference proceedings that later “nobody will read” may not considered “reasonable”.

**2) Contributed presentations:** Although there are categorized scientific conferences, e.g. “Australian ranking of conferences”<sup>7</sup>, the current status, value and importance of this and other rankings are unclear. Therefore, we have decided to evaluate individual scientific conferences on the basis of the following criteria:

- Matching between the conference target audience (topic area) and the INTER-IoT objectives
- Conference relevance (judged, for instance, on the basis of earlier editions)
- Competitiveness (acceptance rate for regular papers)
- Conference proceedings publisher (i.e. chance of Proceedings being indexed in the Web of Science)
- Post-conference publication possibility and venue(s)
- Cost of participation (includes location and price-performance ratio; i.e. what is included in the conference fee and what is not included).

In the case of conferences that can be used to disseminate results of the project, we also deal with a multi-criterial optimization problem, where decisions will be made, by the INTER-IoT consortium partners, on a case-by-case basis. Here, the overall goal will be to maximize impact of disseminating results through scientific conferences. Thus, all above mentioned criteria have to be taken into consideration. For instance, there are

<sup>7</sup> <http://www.core.edu.au/index.php/conference-rankings>



conferences with Springer proceedings and no post conference journal publication, while others may have CEUR-WS.org proceedings. There were already more than 1500 volumes published by this way, but including high IF post conference publication potential. The initial list of conferences selected as having good potential for dissemination of results of the project is presented in Table 1.

- 3) Organization of conferences and/or workshops within the frameworks of existing conferences:** INTER-IoT consortium has high-level researchers who are invited to act as chairs of well-known conferences. This situation will be used to arrange dissemination of INTER-IoT results.

Separately, topic workshop(s) will be organized within the scope of existing conferences. Here a two-step procedure will be applied. First, potential conference of choice will be evaluated using criteria stated in section 3.2.

Depending on the conference's effort, a workshop will be proposed. Furthermore, high-impact publication, and post workshop, will be sought.

- **Dissemination of results through open data schemes.** Partners involved in technology development and software lifecycle will also participate in extensive field deployments in the two pilots (health & logistics) of the project. The results allowed to be disclosed will be made available via open data platforms, in order that other IoT researchers and engineers may reuse it for their own purposes. Some platforms that could be used for open data releases are CKAN or JUNAR. However, the INTER-IoT consortium does not want to select any specific platform but be open to different alternatives. Additionally, the consortium will consider the Open Data European platform and other alternatives, if the produced data set is aligned with the interests of such platforms.
- **Other ways of dissemination:** There are a number of other ways through which the results of the project will be disseminated that complement Communication measures described in Section 2. They are the following ones:
  - 1) Presentations at local conferences:** At each country /location a number of conferences are organized. These conferences are usually thematically focused and mainly addressed to industry. These events are organized in the local language and all partners of the INTER-IoT consortium will use their own contacts to disseminate results at such conferences. Some examples of such conferences are: Italy – *Forum Risk Management in Sanità*, Forum PA, Poland – Technologies in Medicine, Spain – *Salón de la Logística* (SIL).
  - 2) Presentations to local interest groups:** At each country / location, especially in the case of larger cities, a number of local “groups of interest” organize their regular meetings. The information about such meetings can be found, among others, through the meetup.com site. These events are organized in the local language; here, all partners of the INTER-IoT consortium will use their own contacts to disseminate results at such events.
  - 3) Clusters:** SRIPAS, among others, is a member of three ICT Clusters. Two of them are “generic ICT in nature” (Mazovia Cluster ICT and Eastern Cluster ICT). Recently SRIPAS has joined to the newly formed IoT Cluster. On the other hand, SRIPAS will organize seminars within each cluster to disseminate project



results; SRIPAS' knowledge about collaboration with clusters will be passed to other members of the INTER-IoT consortium

- 4) **Joint seminars/workshops with other EU-funded projects:** It will be organized within the framework of the EU-scheduled activities (e.g. in the framework of IoT-EPI).
- 5) **Education activities especially from academic partners.** The knowledge and expertise acquired during the INTER-IoT project will be exploited during master or bachelor course delivery or seminars to postgraduates, in individual courses in the academic institutions (e.g. UPVLC, UniCal, TU/e and SRIPAS already include IoT oriented curricula), in international joint programmes (e.g. UniCal and UPVLC are having them since 2007) or in specific courses.

### 3.4 Industrial Dissemination

The heterogeneity of the consortium partners' objectives and exploitation strategies (academic/research) or commercial (industrial) makes necessary not only to contemplate a Scientific dissemination but also Industrial dissemination mainly addressed to the SME of the consortium.

The SME's of the consortium will participate in exhibitions and commercial venues, where to show their professional solutions and services based on the exploitable products of INTER-IoT.

The assistance to this type of events will help them attract the attention of potential customers and at the same time to raise awareness of the INTER-IoT project in the addressed market place identified in INTER-IoT.

The following table shows the main commercial venues and trade exhibitions identified by the SME of the INTER-IoT consortium, that will be taken into account for assisting during the lifecycle of the project and also for exhibiting once the prototype and exploitable products of INTER-IoT will be ready for that (from M30).

The table shows the next edition's date of the trade exhibitions, but most of them take place every year.

The assistance to some of them will be addressed by means of joint collaboration and it will be discussed by the consortium when to assist or to exhibit depending the results of the project.

**Table 2: Main commercial venues and trade exhibitions related with INTER-IoT exploitable products and services**

Sector	Name		Next edition's date and place	Partners (joint, individual)
Maritime and Shipping	International Congress of the International Cargo Handling Coordination Association (ICHCA) <sup>8</sup>		3-4 October, 2017. Las Palmas Gran	PRO

<sup>8</sup> <http://ichca.com/ichca-international-conference-2017>

			Canarias, (Spain)	
	TOC Europe 2017 <sup>9</sup>		27-29 June, 2017. Amsterdam, (Netherlands)	PRO, NOATUM, FVP
	Port Technology, Terminal Automation and Training <sup>10</sup>		19-20 April 2017, London, (UK).	PRO
<b>e-Health</b>	Patient First <sup>11</sup>		21-22 November, 2016. London, (UK)	RINI
	New Models of Care		22 September, 2016	RINI
	Trauma Innovation <sup>12</sup>		27-28 October, 2016, London, (UK).	RINI
	UK Digital Health Club, London <sup>13</sup>		25-28 May, 2017, London (UK).	RINI
	HEALTH+CARE Exhibition, London EXCEL <sup>14</sup>		27-29 June, 2017, London (UK).	RINI
	Med-@-tel <sup>15</sup>		5-7. April, 4, 2017. Luxembourg	SABIEN
	Health 2.0 Europe <sup>16</sup>		3-5 May 2017. Barcelona, (Spain)	SABIEN
	Medica <sup>17</sup>		13-16 November 2017.	SABIEN

<sup>9</sup> <http://www.tocevents-europe.com/>

<sup>10</sup> <https://www.porttechnology.org/conference/>

<sup>11</sup> <http://www.patientfirstuk.com/>

<sup>12</sup> <http://www.traumainnovation.com/>

<sup>13</sup> <http://digitalhealthcareworldcongress.com/>

<sup>14</sup> <http://www.healthpluscare.co.uk/>

<sup>15</sup> <https://www.medetel.eu/>

<sup>16</sup> <https://events.bizzabo.com/H2conEurope2017>

<sup>17</sup> <http://www.medica-tradefair.com/>

			Dusseldorf, (Germany).	
	ECHAlliance <sup>18</sup>		February 2017. Valencia (Spain)	SABIEN
<b>Transport and Logistics</b>	ITS Europe Congress <sup>19</sup>		19-22 June, 2017 Strasbourg, (France)	UPV, PRO
	SITL Paris - International Week of Transport & Logistics <sup>20</sup>		14-16 March 2017. Paris, (France)	AFT IFTIM
<b>ICT</b>	Infotronika <sup>21</sup>		24-26 Jan, 2018 (to be confirmed). Celje, (Slovenia).	XLAB
	TRONSHOW 2017 <sup>22</sup>		13-15 December 2017. Tokyo, (Japan)	ABC
	ISC High Performance 2017 <sup>23</sup>		18- 22 June, 2017. Frankfurt, (Germany)	XLAB
<b>IoT</b>	IoT Solutions World Congress <sup>24</sup>		3-5 October. Barcelona (Spain)	PRO
	IoT Tech Expo Global <sup>25</sup>		23-24 January 2017. London	SABIEN
	The IoT Show Asia, Singapore <sup>26</sup>		15-18 September 2017. Singapore	RINI

<sup>18</sup> <https://echalliance.com/events/EventDetails.aspx?id=863724&group>

<sup>19</sup> <http://strasbourg2017.itsineurope.com/congress/about/>

<sup>20</sup> <http://www.sitl.eu/en/Home/>

<sup>21</sup> <http://www.icm.si/our-events/events/intronika-slovenia2017/>

<sup>22</sup> <http://www.tronshow.org/>

<sup>23</sup> <http://isc-hpc.com/>

<sup>24</sup> <http://www.iotsworldcongress.com/congress/>

<sup>25</sup> <http://www.iotttechexpo.com/europe/>

<sup>26</sup> <http://www.internetofthingsasia.com>

Smart Cities	Smart City Expo World Congress 2017 <sup>27</sup>		14-19 November 2017. Barcelona (Spain)	PRO, FVP
	Chamber of Commerce and Industry of Slovenia - presentation or workshop for relevant Branch Associations <sup>28</sup>		Tbd-2018. Ljubljana, (Slovenia)	XLAB
Agriculture	Agrifood tech event <sup>29</sup>		14/15 December 2016. Den Bosch, (Netherlands).	NEWAYS
	Preparation Agrifood event 2017		16 March, 2017.	NEWAYS
	Smart sensor pressure cooker		19 January, 2017. Leeuwarden, (Netherlands).	NEWAYS

### 3.5 Dissemination Time Plan

The dissemination work has started on M1 and will finish on M36 at the end of the project. The Dissemination Strategy time-plan encompasses the following phases:

- **M1-M4:** During this phase, the Dissemination Team has prepared the final version of the initial Dissemination Strategy, which is part of this document D8.3.
- **M4-M5:** For this period the Dissemination Team plans to carry out the assessment of upcoming conferences, commercial venues and exhibitions and align them with the already available results. At M5, during the second plenary meeting in Calabria the INTER-IoT consortium will discuss the proposed Dissemination Strategy taking decisions for the next 12 months.
- **M16-17:** During this period the Dissemination team will carry out the assessment of previous and upcoming conferences, commercial venues and exhibitions. At M17, during a plenary meeting the INTER-IoT consortium will take decisions for the next 12 months. Additionally, the dissemination team in collaboration with the communication team will review the target groups, identifying with the help of the SME's consortium new potential users and customers.
- **M17-M18:** The journal bibliometric data will be evaluated, available by the, vis-à-vis results that are already available and those that are about to be available. At M8, the Dissemination team will establish an initial list of target journals for Y1. In parallel,

<sup>27</sup> <http://www.smartcityexpo.com/en/congress>

<sup>28</sup> <https://eng.gzs.si/>

<sup>29</sup> [www.agrifoodtech.nl](http://www.agrifoodtech.nl)

during the period M9-M18, the Dissemination team will select journals for paper submissions.

- **M18-M30:** The journal bibliometric data will be evaluated, available by the, vis-à-vis results that are already available and those that are about to be available. At M19 the Dissemination team will establish an initial list of target journals for Y2. During the period M20-M30, the Dissemination team will select journals for paper submissions. During M28-M29 the consortium the assessment of upcoming conferences and their alignment with the already available results will be carried out. At M29 during a plenary meeting, the INTER-IoT consortium will take final decisions for the remaining of the project.
- **M31-M36:** The journal bibliometric data will be evaluated, available by the, vis-à-vis results that are already available and those that are about to be available. At M32, the Dissemination team will establish an initial list of target journals for Y3. Besides, the SME of the INTER-IoT will present to the Dissemination Team its industrial dissemination Plan for Y3 for both individual and joint exploitation strategies. In parallel, during the period M33-M136, the Dissemination team will select journals for paper submission. At M36, the INTER-IoT consortium will publish an authored Book by Springer in the Springer Series on IoT Book with chapters based on the deliverables of the INTER-IoT.

### 3.6 Current period report on dissemination

During this period (M1-M4) the following dissemination activities with activity completely or partially related to the project, have been carried out:

- **Journal papers:**
  - 1) M. Chincoli, A.A. Syed, G. Exarchakos, A. Liotta, Power Control in Wireless Sensor Networks with Variable Interference. Mobile Information Systems. Hindawi. (accepted, to appear in 2016)
  - 2) R. Kotian, G. Exarchakos, S. Stavrou, A. Liotta, Impact of Transmission Power Control in Multi-hop Networks. Future Generation Computer Systems Journal (Special Issue on Cyber-physical Systems, Internet of Things and Big Data). Elsevier. (accepted, to appear in 2016)
- **Conference presentations with publications:**
  - 1) 25th International Joint Conference on Artificial Intelligence, New York, USA, July 9-15, 2016
    - Decebal Constantin Mocanu, On the synergy of network science and artificial intelligence, in press
  - 2) Tenth IEEE International Conference on Semantic Computing, February 3-5, 2016;
    - Paweł Szmeja, Maria Ganzha, Marcin Paprzycki, Wiesław Pawlowski, Dimensions of Ontological Similarity, 2016 IEEE Tenth International Conference on Semantic Computing (ICSC), pp. 246 – 249, DOI: 10.1109/ICSC.2016.62, IEEE Press
  - 3) 1<sup>st</sup> International Workshop on Interoperability, Integration, and Interconnection of Internet of Things Systems (I4T 2016), Berlin, Germany, April 4, 2016

- Maria Ganzha, Marcin Paprzycki, Wieslaw Pawlowski, Pawel Szymeja, and Katarzyna Wasielewska, Semantic Technologies for the IoT - An Inter-IoT Perspective, in press
  - Marco Manso, Barbara Guerra, Cosmin Carjan, Andrei Jigman, Angelo Amditis, Evangelos Sdongos, and David Donaldson, The Application of Telematics and Smart Devices in Emergencies, in press
  - Gianluca Aloï, Giuseppe Caliciuri, Giancarlo Fortino, Raffaele Gravina, Pasquale Pace, Wilma Russo, and Claudio Savaglio, A Mobile Multi-technology Gateway to Enable IoT Interoperability, in press
  - Michele Chincoli, Aly Amer Syed, Decebal Constantin Mocanu, and Antonio Liotta, Predictive Power Control in Wireless Sensor Networks, in press
- 4) 18<sup>th</sup> IEEE MELECON 2016, Limmasol (Cyprus), 18-21 April 2016
- Regel Gonzalez, Juan V. Pradilla, Manuel Esteve, Carlos E. Palau. DAIMD: Hybrid Delay-Congestion Control for Multipath TCP, in press
  - Juan V. Pradilla, Regel Gonzalez, Manuel Esteve, Carlos E. Palau, Sensor Observation Service (SOS)/Constrained Application Protocol (CoAP) Proxy Design, in press
- 5) 5th Flaminio Fidanza Award. Posters Section. Nu.Me.2016 - Nutrition and Metabolism II Residential Course, Orvieto, Italy, April 15-16, 2016
- Fortunata Maio, Margherita Gulino, Claudio Maggi, Carlos Enrique Palau Salvador, Massimo Uberti, Luciano Bernini, Massimo Corona, Monica Minutolo, Anna Aldrighetti, Angelina Della Torre, Domenica Pata, Bartolomeo Avataneo, Maurizia Rinaldi, Mario Cialdini, Gianluca Aloï, Giuseppe Caliciuri, Giancarlo Fortino, Raffaele Gravina, Pasquale Pace, Wilma Russo, Claudio Savaglio, Carlo Aldera, Fabio D'Ercoli, Alberto Delpiano, Giovanna Larini, Interoperabilità di piattaforme eterogenee internet delle cose (INTER-IoT): studio pilota mobile health, in press.
- **Conference presentations without publications:**
- 1) Benjamín Molina, “The Internet of Things for ports - INTER-IoT Project”, MESA (Maritime Europa Strategy Action) & SETRIS (Strengthening European Transport Research and Innovation Strategies) e-Maritime Workshop, Valencia (Spain), 27<sup>th</sup> January 2016
  - 2) Katarzyna Wasielewska, “Interoperability as challenge for (e/m)Health” presentation in Polish, Technologies in Medicine, Warsaw, Poland, March 31, 2016
  - 3) Maria Ganzha, Semantic interoperability in the Internet of Things, SmartER Europe Conference, Essen, Germany, February 18, 2016
  - 4) Marcin Paprzycki, Autonomous Resource Access in the Internet of Things, SmartER Europe Conference, Essen, Germany, February 18, 2016
  - 5) Carlos E. Palau, Interoperability in Smart Port Logistics – INTER-IoT Approach, Euro Med Telco Forum – “ICT innovations in Shipping and Smart Port Management in the Mediterranean Area”, Valencia, Spain, April 22-23, 2016
  - 6) Alessandro Bassi, “Overview of the Inter-IoT Project, NIST/ENEA event (IoT enabled Smart City Framework), Rome, Italy, April 14, 2016

- **Conferences organized:**
  - 1) 1<sup>st</sup> International Workshop on Interoperability, Integration, and Interconnection of Internet of Things Systems (I4T 2016), Berlin, Germany, April 4, 2016
- **Special Issues of journals organized:**
  - 1) Engineering Future Interoperable and Open IoT Systems, Journal Network and Computer Applications (submission closed; papers under review)
- **Participation at trade exhibitions and commercial venues:**
  - 1) As no tangible exploitable products and services have been achieved during this period, the SME of the consortium did not participate at any trade exhibition.

### 3.7 Planned scientific dissemination activities

The following activities are already planned to the level that their execution can be assured.

- **Conference organization**
  - 1) IWCD Workshop, Nanchang, China, May, 2016
  - 2) IDCS 2016, Wuchan, China, September, 2016
  - 3) SS CSCW&IoT, Budapest, Hungary, October, 2016
  - 4) Globe IoT workshop at IEEE CNCC 2017, Las Vegas, USA, January, 2017
  - 5) EAI INTER-IOT Conference 2017, Valencia, Spain, October/November 2017

### 3.8 Planned industrial dissemination activities

The following activities dealing with industrial dissemination have been initially planned for the Y1.

- Participation at Patient First. 21-22 November, 2016
- Participation at New Models of Care 22 September, 2016
- Participation at Trauma Innovation, London 27-28 Oct 2016



## 4 DATA MANAGEMENT

### 4.1 Introduction

During the lifetime of the INTER-IoT project several results in form of documents, publications and specifications will be produced. Following the guidelines of the EU for open access to scientific knowledge produced within the European funded projects, the members of the INTER-IoT consortium are establishing mechanisms for allowing open access to their scientific publications. In order to do so, the EU plan for “Open Access to Scientific Publications and Research Data in Horizon 2020” will be used, according to the strategy and plan outlined in this document.

This section provides a brief overview of the data management policy that will be used as guideline for all project partners with regard to the datasets that will be generated by the project. A more detailed specification of the data management plan will be explained in Deliverable D8.4, where the current status of the produced data will be reflected as well. Additionally, in M6 the consortium will release D1.2 as the project has joined the Open Research Data Project.

### 4.2 Datasets to be established

A list of planned and expected data sets to be collected and generated in INTER-IoT project is presented below:

- Project deliverables.
- Scientific publications.
- Other publications and outputs.
- Contribution to standards.
- Software and applications.
- Data traces collected for analysis and evaluation.

A more thorough description explaining the span and contents of each dataset will be available in Deliverable D8.4. In addition, the project analyses available results from other research activities, publications, and further relevant information available. This information will be mainly used for internal project analysis and will be provided in respective project deliverables with appropriate references to origins of the gathered information. However, as the analysed information has not been created by INTER-IoT, the project is not considering provision of these data as public data sets because the INTER-IoT project does not own these information and results.

### 4.3 Data management guidelines

Data collected or generated by the project is stored in the Horde platform deployed for the project. Horde is a groupware open source tool and has been used for building the project’s shared repository. This shared repository is internal and will be only accessible for the project partners, as it will contain all the temporary data (draft versions and related information) as well as management or any other private data concerning the project.

For software and requirements tracking the JIRA tool is used, this tool will host only internal data and will be treated with the same confidentiality level as the Horde repository platform.

Both Horde and JIRA tools are hosted by UPVLC in a secured and private server, however some not restricted data will be released and provided as free traces for research.

Documents that have to be edited too often, or that need a more collaborative approach (such as action points and tracking spreadsheets, audio conference minutes, draft agendas, etc.) will be held on Google Docs privately, since a real time edition tool is not available for the Horde platform.

In the final stages of the project, all approved deliverables (classified as public) will be made publicly available from the project website, as well as other related useful research data used in the integration and experimentation parts. Any private data used internally in the project will not be disclosed. In any case, we will investigate the possibility of extracting part of this data and share it in an anonymized way, if it is really relevant and useful.

However, since this project is integrated in the EPI framework that encompasses all H2020-ICT30 projects internal parts of the produced deliverables could be shared or disclosed among the respective task forces built within the EPI. They will not violate any existing legislation and always with the agreement of all INTER-IoT partners. From another perspective, some results presented in the INTER-IoT deliverables may also have their origin in the internal Task Forces within EPI; in that case, specific reference will be provided in the deliverable.

The exchange of information for partners in the project's open call will be drafted in deliverable D1.2 and explicitly described in the open call procedure.

## 4.4 Medical Data Management

One of the INTER-IoT use cases is related with medical data and they will have a special treatment as indicated in the ethical assessment of the project. Medical data collected and recorded is sensitive data and it must be treated in accordance with current national legislature: Italian National Law 196 / 2003- "Code regarding the protection of personal data". (Art 4 D.lgs 196/2003: personal data disclosing health status and sex life - anthropometric data: weight, height, BMI, waist circumference, blood pressure, eating habits and physical activity practice). During nutritional counselling at ASL TO5 nutritional outpatient clinics, health personnel records data of individuals belonging to outpatients on a nutritional folder.

The ASLTO5 is the "Data controller" to the processing of health data collected during the health use case. Therefore, according to the Italian directives of the Privacy Guarantee, there must be a natural person, legal person, public administration or any other entity association and / or body that is competent in making decisions regarding the aims, methods of processing of personal data and the relevant means, including security profile. As Data Controller ASL TO5, may assign a "Data Processor" for the data processing, namely the natural person, legal person, public administration or any other body, association or body appointed by the data controller to process personal data.

Finally, the data processor can designate the "Person tasked with processing", that is an individual authorized to perform processing operations by the data controller or data processor. Those persons tasked with processing (key teams: the Physician, biologist nutritionist, food technologist, dietitian), during the experimentation will need to read an

information consent sheet to be signed by them to ensure that they have understood the research topics and freely choose to participate, according to the principles of protection of human rights (Helsinki Declaration).

The ASL TO5 as data controller is also responsible for enforcing the Minimum Security Measures for data and archives banks (Law 196/2003, Art 33 and 34). According to Law 196/2003, Art 19 ASL To5 has prepared its "Security Policy Document" containing all the information needed to perform an appropriate treatment of sensitive data and it has instituted a Control "Group Policy".

According to Art 4 of the same Act, the term "treatment" of a data means any operation or set of operations, carried out without the aid of electronic instruments, concerning the collection, recording, organization, storage, consultation, processing, modification, selection, extraction, comparison, use, interconnection, blocking, communication, dissemination, deletion and destruction of data, even if not registered in a bank data.

In particular, in the health use case the databases will be IT type: e-Care and BodyCloud. Therefore, ASL TO5 will instruct as "Data Processor" to the processing of data, other consortium partners to ensure the protection of data implemented on platforms. It must check and protect all health data at all stages of treatment.

For the purposes of the project, the medical data recorded will be made anonymous through the use of identification codes assigned by ASL TO5; in this way, the data will be seen by other partners in an aggregated form for the next consultation treatments, processing, extraction, comparison, use, interconnection, communication and dissemination.

Because during the project the decentralized monitoring of lifestyles in mobility will be tested, the experimental research protocol will be submitted to a Bioethics Committee to get the approval before the trial.

The ethical treatment of data of the project clarified the anonymization process that will be done for storage and release of data traces. This procedure will be explained in detail in the D8.4.

## 5 EXPLOITATION AND COMMERCIALIZATION STRATEGY

### 5.1 Introduction

The goal of the exploitation activities is to reach in an early phase of the project a consensus on joint and individual exploitation strategies that will satisfy the INTER-IoT consortium partners, avoiding any conflict between them (incl. agreements on the use of foreground, IRP, Licensing, etc.). However, the exploitation activity will be a continuous task, developed during the lifetime of the project, and will evolve and adapt as new inputs appear and are incorporated by the consortium.

**Exploitation is recognised as the key enabler for the success of the project by all consortium members; hence, all the partners are committed to the exploitation of the results.** The heterogeneity of the consortium partners' activities will lead to different types of individual exploitation strategies which can be either non-commercial (academic/research) or commercial (industrial). Thus, the consortium will foster exploitation of project results at different levels according to the type of partner.

All partners will participate in the definition of a strong and sustainable joint exploitation plan and collaborative business model. The final Exploitation Plan will provide a more specific description of INTER-IoT exploitable results obtained in WP2 and individual exploitation plans designed by each consortium's partner.

The key starting point of the execution of an Exploitation Plan is to elaborate **an effective business model to bring the new INTER-IoT exploitable services/products into the market.**



**Figure 11: INTER-IoT goes to the market**

The Exploitation Plan will be the pillar for the promotion and valorisation of the knowledge, services, components and technologies developed in the scope of the project and to bring the INTER-IoT idea to the market. It will encompass the following aspects:

- Market analysis
- Competitors analysis
- Force and environment analysis
- Marketing and sales strategy
- Operation strategy
- Similar solutions
- Product providers
- Product resellers
- Experts
- Decision makers
- Public organizations
- Potential clients
- Financial plan

Other issues that will be considered throughout the exploitation concept design and enhancement tasks are:

- Expectations regarding the different ways to obtain return-on-investment (ROI) from the project.
- Additional benefits derived from the project, such as entity notoriety.
- Alliance and key partners for the exploitation development.
- Economic impact resulting from industrial activity and commercialization of products that are developed based on project results, such as sales of derived products and/or services.
- Increase in development/operational efficiency for consortium members with regards to projects/operations related to INTER-IoT to be developed in the future. (6) Usage of knowledge/technologies for further research work.

The exploitation and commercialization activities will be described in detail in Y2 and Y3 of the project, through the reports on Creation Impact in M18 and M36.

The design of this Exploitation Plan takes into account the inputs from tasks and results from work packages WP2, WP6, WP7 and WP8 as figure 12 shows.

INTER-IoT Exploitation Plan	M1-M6	M7-M12	M13-M18	M19-M24	M25-M30	M31-M36
WP2: Requirements and Uses Cases						
WP6: Integration and Pilot Deployment						
WP7: Evaluation and Assessment						
WP8: Impact Creation						
T.8.1. Communication						
T.8.2. Dissemination of projects results						
T.8.3. Business and Marketing actions						
T.8.4. Exploitation						

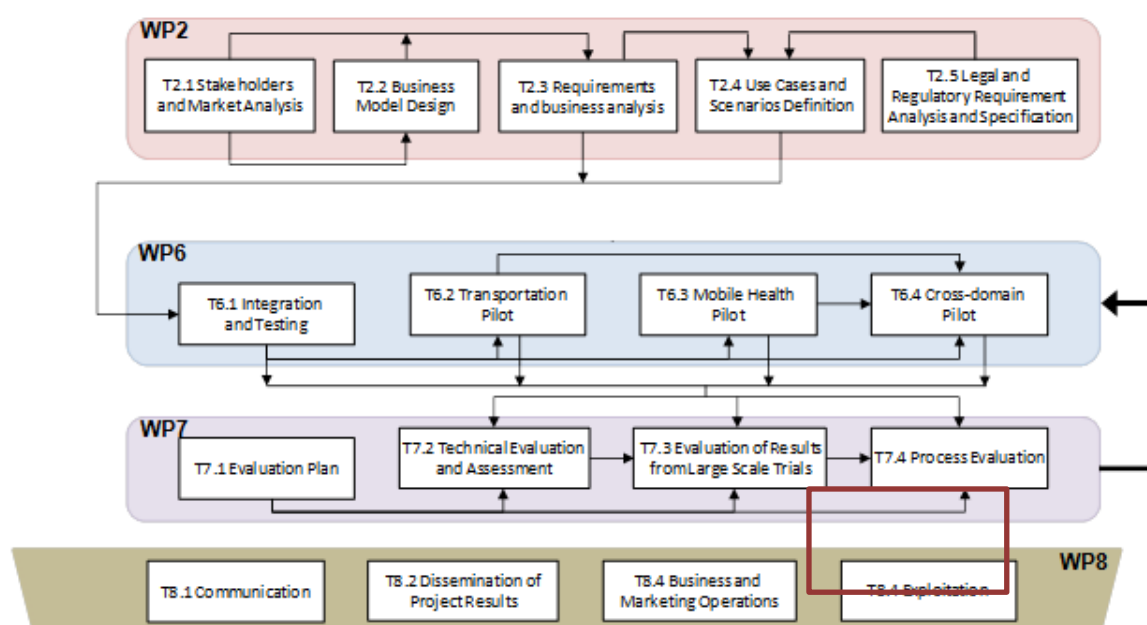


Figure 12: INTER-IoT's work packages related to Exploitation Plan

## 5.2 Exploitation Time Plan

The following figure shows a tentative plan/roadmap of the INTER-IoT towards the non-commercial and commercial use and operation of the INTER-IoT exploitable services and products.

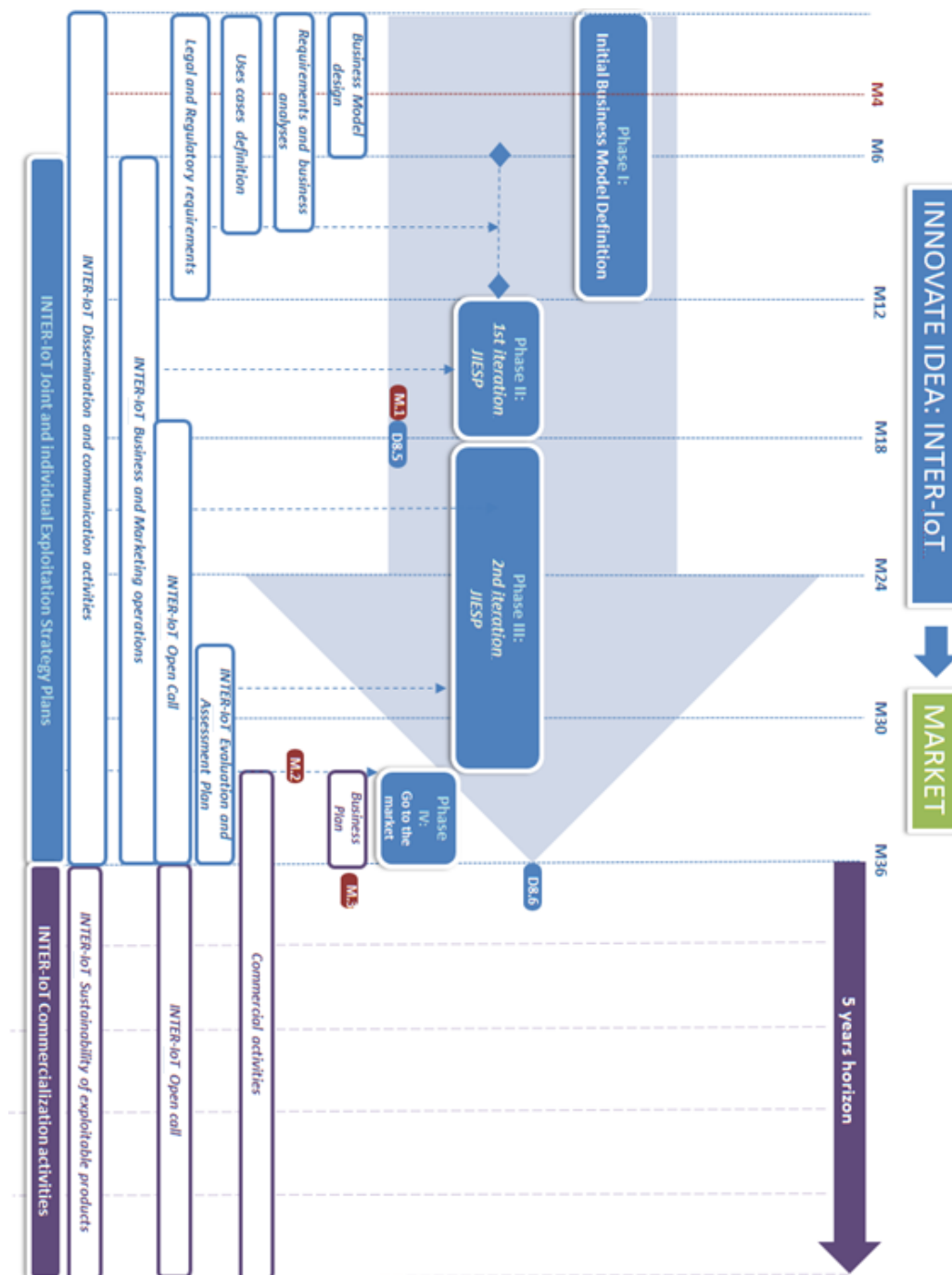


Figure 13: INTER-IoT Exploitation Plan

The timeline of the exploitation plan contemplates the elaboration of Joint and individual Exploitation Strategy Plans and the execution of commercialization activities, being divided into periods of 6 months.

### 5.2.1 Elaboration of joint and individual exploitation strategy plans

The elaboration of the individual and exploitation strategy plans will start on M6 and will finish in M36. It covers the following four phases:

- **Phase I: Initial INTER-IoT Business Model definition (M1-M12):** The initial design of INTER-IoT business model (particular and individual), being directly related to the project impact creation, will be elaborated within the framework of WP2 and will be ready in M6.

These initial INTER-IoT business models will be developed taking into account the integration and consolidation of the results on INTER-IoT requirements and business analyses; uses cases definition (transportation, m-health and cross-domain); legal and regulatory constraints and business model and marketing operations carried out during the period (M6-M12).

It is foreseen to make an identification of different business and collaboration models suitable to be used during the first stages of the project. These business models will be assessed including modelling and description of the value propositions, business methods, target customer segments, distribution channels, customer relationships, value configurations, core capabilities, partner networks, cost structure, revenue models, offerings, strategies, infrastructure, organizational structures, trading practices and operational processes and policies to be able to have different business options.

In summary, the initial INTER-IoT Business Model (M12), based on the Canvas Business Model and enforce with the LLava Matrix Framework and Lean Innovation Process (that will be used in T8.3), will provide a common and particular vision of INTER-IoT business models on the selected business scenarios with the identification of customer segments, common needs, value promise, set of exploitable products, value network, competitors and alternatives, revenue models, SWOT analyses and IPR issues.

These selected business scenarios (transport and logistics and m-Health) will be taken as the baseline for exploitation. It is also important to point out, that the communication and dissemination activities, both industrial and scientific, carried out during this period are direct connected with the Exploitation Plan. These activities will also help to raise awareness of the INTER-IoT business scenarios among potential customers, thus providing and initial market size estimation.

**Phase II: First iteration of the joint and individual Exploitation Plans (M12-M18):** This phase will run from M12 to M18 and will consolidate of all the work and data collected during phase I, including business models, market data, stakeholder's vision, technical results, Advisory Board contributions, open source communities, standardization bodies, and all business and marketing actions carried out in task T.8.3 Business and marketing operations.

The Exploitation Team (WP8) together with the team of WP2 will hold a workshop at M14. During this workshop, the final results of the WP2 will be presented in order to have a clear picture of the initial business models (joint and individuals) as starting point for Exploitation Plan. Additionally, during this workshop the exploitation activities of WP8 will start with the execution of first iteration of the joint and individual Exploitation Plans.



The partners will be asked to present the first iteration of the joint and individual Exploitations Strategy Plans in M16 as internal milestone MS1.

The output of this first iteration (MS1) of the joint and individual Exploitations Strategy Plans will be included in the Report on Impact Creation D8.5 (M18) and also in an intermediate version of D8.7 (M18).

- 1) **Joint Exploitation Strategy Plan:** During this workshop the partners will review the collaborative INTER-IoT business model and scenarios defined in WP2 and T8.3-Business and marketing operations. They will be requested also to rank the business scenarios according to risk, cost, opportunities etc. from the perspective of INTER-IoT as a project. In addition, they will fill in a template (included in Annex A), describing which are the joint exploitation opportunities they can identify at an early stage of the project, its role in the project and their vision about long-term sustainability of INTER-IoT Platform for commercialization (M12-M16). The Exploitation Team will take into account the Consortium Agreement 687283, and the guide<sup>30</sup> to IPR in Horizon 2020 by the European IPR Helpdesk.
- 2) **Partner's individuals Exploitation Strategy Plans:** During this workshop the partners will be also asked to explain in depth their business models from their own organization's strategy perspective. They will have to review and improve their business models presented in D2.2, in order to achieve more concrete and pragmatics ones, based on concrete future technical projects results. They will identify opportunities for exploitation which they will explore during the upcoming 16 months until M32. They will fill in a template (see an indicative template in Annex B) describing the following aspects:
  - Business Scenario selected
  - Partner's role in the project
  - Core product/services of their business idea
  - Target market
  - Estimation of the size market
  - Competitors and how they differ with them
  - Partnerships
  - Value proposition
  - Exploitation opportunities and risks
  - IPR and open source vision
  - Certification issues relevant for commercialising IT artefacts in medical area
  - Plan to place the product on the market (marketing and commercialization strategy)
  - 5 years financing strategy (ROI, NPV, Break-even point)
  - Expected impacts
- **Phase III: Second iteration of the joint and individual Exploitation Plans (M18-M32):** This phase will run from M18 to M32 and will consolidate the work and data collected during phases I and II, including the results of the Evaluation and Assessment Plan

<sup>30</sup> <https://www.iprhelpdesk.eu/node/2601>

developed in WP7 (M32) and the business model and marketing operations, carried out in T8.3 (M18-M32).

In parallel to this phase, the INTER-IoT plans an open call. Thus, the project will fund specific activities to be carried out by third parties within the framework of INTER-Domain use case in order to build an innovative, dynamic and industry open ecosystem around INTER-IoT and gathering new market relevant input for INTER-IoT. The execution of the selected projects will start approximately by M17 and will finish in M34 and will contemplate the building of particular business models and market strategies by the selected third parties.

At M30, according to the planned execution, the INTER-IoT consortium will execute two large scale trials (transport and logistics and m-Health) that will be evaluated following the Evaluation Assessment Plan through the execution of WP7. (M27–M36). The evaluation of the results from these scale trials will be divided in:

- 1) Impact evaluation on the expected impacts
- 2) Stakeholders/ user's satisfaction
- 3) Economic, societal, gender and legal aspects

At the same time a process evaluation will analyse the barriers hindering the implementation; the drivers that have a positive influence in the implementation process and the lessons learnt from these two large scale trials. Considering the extendibility of the different solutions to other application domains.

The results from the impact evaluation and process evaluation will deliver a comprehensive picture of the expectable benefits from implementing the system, as well as of the modalities required for its successful implementation.

Thus, after the execution of the trials, the Exploitation Team (WP8) will hold a workshop at M31 to conduct the activities to start the second iteration of the joint and individual Exploitation Plans.

The partners will be asked to present the second iteration of the joint and individual Exploitations Strategy Plans in M32 as internal milestone MS2.

At M32 all the partners of the consortium will be ready to start to work on the second iteration of joint and individual Exploitation Strategy Plans by reviewing their first iteration, taking into account the outputs from the business model and marketing operations (M18-M24) and the results on Evaluation Assessment Plan (M32).

During the workshop the partners will review the first iteration of the joint and particular Exploitation Plans (M18) and will work together in the elaboration of the second iteration.

- **Phase IV: Go to the market (M32-M36):** The final phase is to have a 'Go to Market' plan. This step takes into account the output of the completed business models on the second iteration (joint and particular) as references to be complemented with the last activities carried out in Assessment Plan and the business model and marketing operations, in order to achieve an effective business plan and an initial design of the marketing and commercialization strategy for joint and individual purposes. This joint final business plan will be ratified by INTER-IoT consortium's partners. It is important to remark, that any changes to the project and partner's roles are implemented to prepare for a transition phase towards the new model.

The third parties of the open call will also define their particular final business plan and market strategy to put into the market the products or services of the INTER-Domain use case.

The final effective business plan (joint and particular) (MS3) will be included in the Report on Impact Creation D8.6 (M36).

## 5.2.2 Commercialization activities

To raise awareness of INTER-IoT exploitable products and services, some pre-commercial activities and marketing operations can be carried out from M32. For instance, the participation in the commercial venues exposed in the industrial dissemination Plan (Section 3).

However, the INTER-IoT exploitable products and services will be ready only for commercialization after the completion of the INTER-IoT project (M36). In order to commercialize them, the INTER-IoT platform has to be maintained by the INTER-IoT consortium several years after the end of the project.

For that goal, INTER-IoT consortium will investigate how to publish multiple releases of the platform after the end of the project focusing on refinements to the existing functionality and layout, or important functional additions. The main effort to achieve a successful long-term sustainability will be to define specific exploitation roles per partner as soon as the INTER-IoT exploitable products and services are defined. The partners will be requested about their opinion during the first iteration of the joint and individual Exploitation Plan and also about their own commercial and marketing strategies.

On the other hand, the third parties of the open call will also carry out commercialization activities after project towards the financed start-ups, and future ones.

## 5.3 Exploitation Measures

In order to measure the impact creation in exploitation, the following table shows the initial proposed KPIs to be reviewed and measured until its integration in the next Report on Impact Creation D8.5 (M18).

**Table 3: Initial exploitation KPIs**

Academic and research	<ul style="list-style-type: none"> <li>• Number of IoT research papers published</li> <li>• Number of spin-offs generated</li> <li>• Number of IoT related courses and programmes taught.</li> <li>• Number of research human resources acquired in the IoT area</li> <li>• Number of participation to IoT-related projects at local, national, and international level</li> <li>• Number of IoT prototypes developed</li> <li>• Solutions based on social and environmental responsibility</li> <li>• 1 new open source community on Industrial IoT network management system</li> <li>• 1 open IoT testing and experimentation facility to help research and business teams develop new concepts and products</li> <li>• 1 open online network management platform for Industrial IoT infrastructures</li> </ul>
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<b>Dissemination and communication</b>	Social media KPI: <ul style="list-style-type: none"> <li>• Number of tweets per month</li> <li>• Number of posts in Facebook</li> <li>• Number of followers in Facebook per month,</li> <li>• Number of posts in LinkedIn per month,</li> <li>• Number of visitors of the website per month,</li> <li>• Number of new newsletter subscribers per month.</li> </ul>
<b>Commercialization</b>	<ul style="list-style-type: none"> <li>• Number of commercial presentations to existing customers</li> <li>• Number of new commercial products/services based on INTER-IoT</li> <li>• Number of existing commercial products/services improved with results on INTER-IoT</li> <li>• Number of existing and new customers of INTER-IoT LogP or derivate of INTER-IoT interested before M36</li> <li>• Number of existing and new customers of INTER -IoT LogP or derivate of INTER-IoT acquired through established channels on yearly basis</li> <li>• Required time to acquire a new customer</li> <li>• Number of patentable solutions developed during the project</li> <li>• Number of licenses</li> <li>• Number of daily uses</li> <li>• Number of partnerships</li> <li>• Number of strategic alliance</li> <li>• Sales growth on a short-to-medium period</li> <li>• Yearly sales growth</li> <li>• Yearly number of clients' growth</li> <li>• Average expected growth rate (%) per year</li> </ul>

## 5.4 Open Source Communities strategy

In recent years, many companies have realised that collaboration with a thriving user or developer community is a major factor in creating innovative technology driven by market demand. Thus, businesses have sought ways to stimulate contributions from developers outside their corporate walls, and integrate external developers into their development process. INTER-IoT consortium has considerable expertise in participating in open source communities and will bring this expertise in producing open source projects and at the same time participating in existing open source communities with specific contributions.

At the core of innovation are contributions, such as source code, bug fixes, feature requests, tutorials, artwork, or reviews, received from the community surrounding a software product. These contributions add to the software product in many ways, such as adding new functionality, fixing software defects, or completing and translating documentation. In addition to Open Source artefacts there are also other aspects affecting open platforms<sup>31</sup>: Open API, Open scope (extensibility), Open usage (adoptability) and Open adaptation (adaptability). These other aspects are addressed throughout the project, thus maximising INTER-IoT chances of success when engaging to OS contributions.

<sup>31</sup> <http://www.universaal.info/blog/post/3487/What-is-anopen-platform/>

Participating in an open source software community requires strategy and planning to deal with the rules and needs of such environments. INTER-IoT consortium will follow these steps, to contribute and participate in different open source communities:

- **Prepare** to contribute and select the most adequate people in the consortium to participate: For instance, documentation writers, UI designers, developers or communication people will have to be designated. To be prepared to contribute to an open source community some aspects have to be considered in advance:
  - 1) **Estimate time commitment:** It has to be considered carefully about where the time for the efforts will come from and if it is worth for the success of the project and for generating adequate impact.
  - 2) **Get to know the open source community:** Not everyone behaves in the same way neither use the same procedures for the same or different activities, although there is a tendency to homogenize and standardize procedures and tools.
  - 3) **Understand how the community communicates:** Most communities have an accepted way of engaging with the community. Most important, perhaps, is to learn how questions are asked and answered in this particular development community.
  - 4) **Understand how the community is governed:** Some communities, for example, that of the Linux kernel, are hierarchies with clear chains of command. Others, such as the community around the Debian distribution, are flat democracies. These different types of communities require different styles of participation. Understanding how decisions are made and conflicts resolved will help to understand how to best engage with the community.
  - 5) **Understand the role of constructive criticism:** The culture in a particular open source community may vary from that in other communities. Just as different organizations operate with different cultures, there are differences in how these communities communicate. Discussions can be lively, in which a range of individuals frankly express their opinions. The end goal is to further the development of the software and community as well as possible; this is certainly true for mature communities that have proven to be successful.
  - 6) **Understand the communications channels:** They typically use chat sessions, mailing lists, websites, blogs, wikis, and version control repositories as their primary means of communication. The consortium will look for the most adequate ways and communication channels to generate impact.
- **Engage:** This is the main aim of the participation of INTER-IoT partners in open source communities. And the main outcome is that developments within the project participate as a whole or partially in the communities in order to generate impact.
  - 1) **Communicate in which areas work is being developed:** If a partner work completely on his/her own to re-develop part of a project, by the time it is finished, someone will almost certainly have either duplicated the effort or the project may have made other changes that render the work obsolete. A corollary of the lack of central planning and coordination in open source projects is a need for everyone to bear at least a portion of the time to communicate with other members.
  - 2) **Acknowledge used resources and their creators:** It will be carried out by increasing the likelihood that others will also find the resource, and provides

positive feedback to the creators, encouraging them to maintain existing resources and develop new ones.

- 3) **Giving back to the community:** A healthy open source community depends on the principle of individuals giving back to that community. So, if people have received support from the community, the best way to make sure that situation continues is to reciprocate by providing support to another community member when possible and required.
- 4) **Detect and prevent community decrease:** Plan an exit strategy when the interest in the community decreases, and the management of the previous contributions.

As shown above, commitment to publish OS SW alone is just a first step towards successful contribution to a wider OS ecosystem. INTER-IoT consortium members are fully aware of the challenges when trying to maximise the impact through OS contributions. In order to rationalise effort in tasks T8.2 (Dissemination) and T8.4 (Exploitation) devoted to engagement in OS SW communities, INTER-IoT partners will seek to contribute through initiatives where they have already established their presence and credibility.

Partners that are leading tasks where considerable contribution to OS is expected are in charge of preparing guidelines for specific OS SW routes (device, network, middleware, application service layers, INTER-FW, INTER-METH, INTER-LogP, INTER-Health). This work will help identifying gaps between current engagements and INTER-IoT, as well as positioning of current engagements in a wider Inter-IoT perspective.

As OS and standardisation strategy is intrinsic to INTER-IoT, these aspects will also be a relevant factor in the evaluation of INTER-IoT Open Call project proposals. Although IPR management is in the domain of applicants, reviewers will strive to give more relevance to those contributing to open source initiatives.

The following table summarises current engagements of partners and the overall INTER-IoT strategy.

**Table 4: Open source communities' contributions**

Partner	Previous and on-going OS engagements	INTER-IoT specific plan
UPV	<ul style="list-style-type: none"> <li>Currently contributing to 52North</li> <li>Currently contributing to Kurento.</li> </ul>	<ul style="list-style-type: none"> <li><b>Plan for the OS SW route for Application Service layer components</b></li> <li><b>OS SW recommendations to be followed by INTER-IoT open call reviewers</b></li> <li>Contribution to 52North</li> <li>Contribution to Kurento</li> </ul>
TI	<ul style="list-style-type: none"> <li>Telecom Italia is partner of OPNFV<sup>32</sup></li> </ul>	<ul style="list-style-type: none"> <li>Exploitation via OPNFV.</li> <li>Engagement in SourceForge to be evaluated</li> </ul>
UNICAL	<ul style="list-style-type: none"> <li>Founder and member of OS SPINE Project</li> </ul>	<ul style="list-style-type: none"> <li><b>Plan for the OS SW route for the INTER-METH case tool</b></li> <li>Engagement with INTER-METH related communities</li> </ul>

<sup>32</sup> <https://www.opnfv.org>



		<ul style="list-style-type: none"> <li>Engagement with Eclipse Kura</li> </ul>
<b>PRO</b>	<ul style="list-style-type: none"> <li>Member of OGC (Open Geospatial Consortium)</li> <li>PRO has contributed to the Sensor Web Enablement Initiative (SWE) through the open source software gvSIG</li> <li>PRO has contributed to the OpenLayers project</li> <li>PRO participates in research and development projects that contribute crucial pieces of source code to the open source communities such Eclipse</li> </ul>	<ul style="list-style-type: none"> <li><b>Plan for the OS SW route for INTER-FW components</b></li> <li><b>Plan for the OS SW route for INTER-LogP</b></li> <li>OGC (Open Geospatial Consortium): Sensor Web interface for IoT SWG (Standard Working Group).</li> </ul>
<b>TU/e</b>		<ul style="list-style-type: none"> <li>Kick-start a new open source community on IoT network management system.</li> <li>Contribution to the Contiki OS open source community</li> </ul>
<b>VPF</b>	<ul style="list-style-type: none"> <li>Member of the Digital Transport Logistic forum</li> </ul>	<ul style="list-style-type: none"> <li>Contributions through the Digital Transport Logistic forum</li> </ul>
<b>XLAB</b>	<ul style="list-style-type: none"> <li>XLAB participates in research and development projects that contribute crucial pieces of source code to the open source communities. Most notable projects are on the field of distributed system, cloud computing and security. Contributions to ManageIQ (Red Hat), deployment and CI (Coudify, FCO, Jenkins, Chef), data.gov.uk, Angular Dashbord Framework, Lubcloud, etc.</li> </ul>	<ul style="list-style-type: none"> <li><b>Plan for the OS SW route for Middleware components</b></li> <li>Identification of relevant OS communities from the XLAB's ecosystem of contributions</li> </ul>
<b>RINI</b>	<ul style="list-style-type: none"> <li>Rinicom engaged with OS SW community by utilising OS voice and video compression software in its PoDCom product. This software is an application which enables Skype-like services in peer-to-peer networks without the use of a dedicated server. The engagement with OS SW community continues as PoDCom requires ongoing support and continuous updates.</li> </ul>	<ul style="list-style-type: none"> <li><b>Plan fort the OS SW route for Network Layer interoperability components</b></li> <li>Engagement with Network Layer related communities</li> </ul>
<b>AFT</b>		<ul style="list-style-type: none"> <li>AFT will seek existing IoT open-source communities in France where transport and logistics industries are best represented and disseminate toward them INTER-IoT open-sourced results.</li> </ul>



<b>SRIPAS</b>	<ul style="list-style-type: none"> <li>• Member of 3 Clusters – 2 ICT Clusters (Mazovia and Eastern) and a newly founded IoT Cluster</li> <li>• Member of the Polish Information Processing Society.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Plan fort the OS SW route for Data Semantics components</b></li> <li>• clusters will be systematically informed about availability of results.</li> <li>• consider the creation of an IoT Section of the Polish Information Processing Society.</li> </ul>
<b>ASLTO5</b>		<ul style="list-style-type: none"> <li>• As pilot partner, ASLTO5 will contribute to the identification and assessment of OS communities covering eHealth. Particular consideration will be given to ethical and privacy principles.</li> <li>• ASLTO5 will try to start collaboration with other associations working in the world of technology for monitoring health and well-being in healthcare.</li> </ul>
<b>ABC</b>		<ul style="list-style-type: none"> <li>• ABC will identify the most suitable open source community for promoting a further development of the code after the end of the project.</li> </ul>
<b>NEWAYS</b>	<ul style="list-style-type: none"> <li>• Contribution to IoT-Agriculture: Neways is participating in the IoF2020 project with Wageningen University &amp; Steketee &amp; Agrom for the development of a smart weeding machine that couples weeding information to a database to do growth prediction and collection of weed percentages on the land. This is all send to a cloud database.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Plan for the OS SW route for the D2D gateway development</b></li> <li>• Contribution to IoT-Agriculture</li> <li>• Engagement with Eclipse Kura</li> </ul>
<b>SABIEN</b>		<ul style="list-style-type: none"> <li>• <b>Plan for the OS SW route for INTER-Health</b></li> <li>• Engagement with INTER-Health related communities</li> </ul>

Larger IoT open source communities will be addressed by the exploitation managers in this consortium. In that, the consortium shall monitor new advances in technology and methodology in those communities.

This agrees with the EC's specific objectives<sup>33</sup> of the open source strategy, in particular with the increasing contribution to existing open-source communities. The software produced by the Consortium will be published using the European Union Public License (EUPL)<sup>34</sup>, securing the partner's work against exclusive appropriation by third parties. Where partners are contributing to already existing OS communities, respective licenses will be used.

In addition to commitments provided in table 4, other relevant open source communities that will be taken into consideration are, other than the ones with already established connections

<sup>33</sup> [http://ec.europa.eu/dgs/informatics/oss\\_tech/index\\_en.htm](http://ec.europa.eu/dgs/informatics/oss_tech/index_en.htm)

<sup>34</sup> <https://joinup.ec.europa.eu/community/eupl/home>

listed in table 4, within initiatives of particular focus in matters of interest for the use-cases included in this project (logistics and healthcare). Examples of such are the OpenMRS<sup>35</sup> community (leading open source enterprise electronic medical record platform where IoT integration is a valuable asset) or OpenBoxes<sup>36</sup> (designed to track any type of stock and the flows associated with it with obvious applications in logistics), available under an Eclipse Public License. Furthermore, the Consortium will follow the progress of RedHat IoT<sup>37</sup> in their public events, with particular interest in Healthcare efforts and use-cases<sup>38</sup>, as well as their methodology to avoid the recent threats of hacked medical IoT<sup>39</sup> devices.

The work of the Eclipse IoT working group<sup>40</sup> is of particular interest focusing a framework for M2M solutions for energy management, healthcare, fleet management, etc. The efforts of

Eclipse open source initiative for IoT<sup>41</sup> is boosting the worldwide collaboration between organizations and individuals sharing goals in open IoT. This consortium requires contribution with this workgroup to achieve momentum and visibility (in particular, planning the OS SW route for the D2D gateway development including Eclipse's platform to build IoT gateways - Kura 42). The membership includes the participation in the working group meetings, including technical and requirements discussions where this consortium can present progress, and the participation in developer outreach programs, including webinars, surveys and events, with targeted dissemination actions.

## 5.5 Standardization strategy

Standards are of two types: de jure and de facto. The first ones are the standards coming out from the official SDOs, which are agreed upon (usually long) discussions and compromises between parties. The standardization activity of our results within the SDOs will profit from previous and current presence of project partners in key standardization organizations. For what concerns the second class, which are standards generated by the usage of large industrial groups, the consortium also plans to target industrial alliances to promote INTER-IoT results.

Beside the engagement in developing new standards, it is important to notice that the project is fully committed in following the relevant existing standards in all the different fields the project is actively engaged. As it will be practically impossible to have a relevant impact on many different standards, the INTER-IoT consortium opted for participating in a small number of them, which we deem absolutely relevant for the success of the project overall.

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<sup>35</sup> <http://openmrs.org/>

<sup>36</sup> <https://openboxes.com/>

<sup>37</sup> <https://www.redhat.com/en/insights/internet-of-things>

<sup>38</sup> <https://www.redhat.com/en/resources/pulse-report-healthcare-it-trends-and-red-hat>

<sup>39</sup> <https://www.bloomberg.com/features/2015-hospital-hack/>

<sup>40</sup> <https://iot.eclipse.org/working-group/>

<sup>41</sup> <https://iot.eclipse.org/>

<sup>42</sup> <https://www.eclipse.org/kura/>

The standardization activity will profit from previous and current presence of project partners in key standardization organizations. Therefore, it is also planned to target industrial alliances, in order to promote INTER-IoT results.

**Table 5: Standardization contributions**

Partner	Standardization's contributions
UPV	<ul style="list-style-type: none"> <li>UPV will participate in IETF WGs related with IoT (6LoWPAN, ROLL and CORE) and will try to contribute (and in ITU-T SG20 (lead group on IoT) and SG21 (IoT related issues with interoperability). Additionally, participation in different WG of AIOTI.</li> </ul>
TI	<ul style="list-style-type: none"> <li>Telecom Italia participates in OSGi Alliance Consortium in "IoT" WG in March, June and November 2016</li> <li>Telecom Italia participated in 3GPP in "RAN1 Ad-Hoc NB-IoT" WG in January 2016</li> <li>Telecom Italia participates in Wi-Fi Alliance in "NAN, OCE, HOTSPOT 2.0, LOCATION, SPECTRUM&amp;REGULATORY, IOT, ASP" WG in March, June and October 2016</li> <li>ETSI M2M e OneM2M'</li> <li>ITU - T WG20 (Smart City)</li> </ul>
UNICAL	<ul style="list-style-type: none"> <li>UNICAL is member of AIOTI, contributing to almost all the working groups</li> <li>UNICAL will identify suitable standardization bodies to which actively contribute. Specifically, the following IoT standardization bodies have been/will be analysed: IEEE, ETSI, ITU, IETF, W3C, OneM2M, IERC.</li> </ul>
PRO	<ul style="list-style-type: none"> <li>PRO is part of the FIWARE Community and of the AIOTI in order to develop and support the dialogue and interaction among the Internet of Things players in Europe.</li> </ul>
VPF	<ul style="list-style-type: none"> <li>VPF is part of AIOTI in order to develop and support the dialogue and interaction among the Internet of Things players in Europe.</li> </ul>
TU/e	<ul style="list-style-type: none"> <li>TUE will contribute to IETF 6tisch WG on time scheduled channel hopping networks.</li> <li>TUE will contribute to other communities e.g. MBAND (IEEE802.15.6 or IEEE802.15.4j) will also be considered.</li> </ul>
XLAB	<ul style="list-style-type: none"> <li>OASIS also supervises a set of Committees in the area of IoT/M2M. XLAB will assess the possibility of contributing to some of the IoT Committees related to Inter-IoT developments.</li> <li>XLAB will participate in the presentation of suggested standards to the IoT-EPI initiative in order to create a critical mass for supporting Inter-IoT standardisation efforts</li> </ul>
RINI	<ul style="list-style-type: none"> <li>Rinicom will continue to pursue a sensor agnostic approach to PRIME's system development in healthcare. We will also investigate feasibility of contributing to standard development in INTER-Health.</li> </ul>
AFT	<ul style="list-style-type: none"> <li>AFT will undertake communicate toward transport companies and social partners to raise awareness and gain support for the standards produced by INTER-IoT</li> </ul>
SRIPAS	<ul style="list-style-type: none"> <li>SRIPAS is a part of AIOTI</li> <li>SRIPAS has established working contact with the OpenEHR initiative and will attempt at establish links between the INTER-IoT results (especially in the semantics) and the OpenEHR initiative.</li> </ul>
ABC	<ul style="list-style-type: none"> <li>ABC will participate in several standardisation and normalisation activities, from IETF (WG ROLL, CORE), to ETSI, to ITU-T (SG20), and to AIOTI WG3.</li> </ul>
NEWAYS	<ul style="list-style-type: none"> <li>NEWAYS will implement and explore the validation results to have the INTER-IoT standards except by the market.</li> </ul>

The following table shows the selected standardization bodies with the related partners of INTER-IoT that will take part on these standardization bodies and report.

**Table 6: Standardization strategy**

Partner	Standardization's contributions
<b>UPV</b>	<ul style="list-style-type: none"> <li>• IETF WGs related with IoT (6LoWPAN, ROLL and CORE)</li> <li>• ITU-T SG20 (lead group on IoT) and SG21 (IoT related issues with interoperability).</li> </ul>
<b>TI</b>	<ul style="list-style-type: none"> <li>• OSGi Alliance Consortium</li> <li>• 3GPP in "RAN1 Ad-Hoc NB-IoT" WG</li> <li>• Wi-Fi Alliance in "NAN, OCE, HOTSPOT 2.0, LOCATION, SPECTRUM&amp;REGULATORY, IOT, ASP" WG in March, June and October 2016</li> <li>• ETSI M2M e OneM2M'</li> <li>• ITU - T WG20 (Smart City)</li> </ul>
<b>UNICAL</b>	<ul style="list-style-type: none"> <li>• IEEE</li> <li>• ETSI</li> <li>• ITU</li> <li>• IETF</li> <li>• W3C</li> <li>• OneM2M</li> <li>• IERC</li> </ul>
<b>VPF</b>	<ul style="list-style-type: none"> <li>• AIOTI</li> </ul>
<b>PRO</b>	<ul style="list-style-type: none"> <li>• AIOTI</li> </ul>
<b>TUE</b>	<ul style="list-style-type: none"> <li>• IETF 6tisch WG.</li> <li>• MBAND (IEEE802.15.6 or IEEE802.15.4j)</li> </ul>
<b>XLAB</b>	<ul style="list-style-type: none"> <li>• OASIS</li> <li>• AIOTI</li> <li>• IoT-EPI</li> </ul>
<b>SRIPAS</b>	<ul style="list-style-type: none"> <li>• OpenEHR initiative</li> <li>• AIOTI</li> </ul>
<b>ABC</b>	<ul style="list-style-type: none"> <li>• IETF (WG ROLL, CORE)</li> <li>• ETSI</li> <li>• ITU-T (SG20)</li> <li>• AIOTI WG3</li> </ul>

**Table 7: Standardization strategy**

Partner	IETF	ITU-T	ETSI	IEEE	W3C	AIOTI	OGC	OASIS
<b>UPV</b>	6LoWPAN, ROLL and CORE	SG20 (lead group on IoT) and SG21 (IoT related issues with interoperability).						
<b>UNICAL</b>						Generic		

<b>VPF</b>						Generi c		
<b>PRO</b>						X	Contribut ion to the Sensor Web interface for IoT SWG	
<b>TUE</b>	6tisch							
<b>XLAB</b>						X		TOSCA, IoT
<b>SRIPAS</b>					X (*)	X (*)	X (*)	
<b>ABC</b>	<b>ROLL, CORE</b>							

(\*) Generic Internet of Things Ontology

It has to be highlighted the large participation of INTER-IoT partners in AIOTI activities, especially in WG3 and WG4. Considering also that several researchers from the partners are the point-of-contact of their organisations within AIOTI, the participation and contribution from the project is planned to be significant. At the same time, INTER-IoT partners are actively collaborating in IoT-EPI in the area of standardization, so joint activities with the other projects funded in H2020-ICT30-2015 and also collaboration with IERC is also foreseen during the lifetime of the project.

## 5.6 Templates used

It is planned to use the initial two templates proposed in the annexes A and B that will be reviewed and complemented during the lifecycle of the project.

## 5.7 Current period report on exploitation and commercialization

During these 4 months, the Impact Creation team has been focused on covering the elaboration of the Impact Creation Plan in this deliverable D.8.3, and in the participation in the execution of the deliverables D2.1 and D2.2 of WP2.

# ANNEX A JOINT EXPLOITATION TEMPLATE

Joint Exploitation Plan	
<b>Name of the partner:</b> PRODEVELOP, S.L <div style="text-align: right;">  </div>	
<b>Partner's type:</b> Industry Organization, SME, University, Research Organization, Public Body Organization	<b>URL:</b> <a href="http://www.prodevelop.es">www.prodevelop.es</a>
<b>1. Partner description</b>	
<i>Describe your profile and its relation with INTER-IoT</i> <i>About 1500 characters</i>	
<b>2. Partner's role in the project</b>	
<i>About 750 characters</i>	
<b>3. Partner's strategy purpose?</b>	
<i>About 750 characters</i>	
<b>4. Offered services/products in the project</b>	
<i>About 750 characters</i>	
<b>5. Joint Exploitation opportunities</b>	
<i>About 1500 characters</i>	
<b>6. IPR considerations</b>	
<i>About 750 characters</i>	
<b>7. Business considerations</b>	
<i>About 750 characters</i>	
<b>8. Role on the long-term sustainability of INTER-IoT Platform for commercialization.</b>	

About 750 characters

## 9. Issues to overcome

Identified by: **PRODEVELOP, S.L**

Registration Date: 24/02/2016



## ANNEX B INDIVIDUAL EXPLOITATION TEMPLATE

Individual Exploitation Plan		
Name of the partner: PRODEVELOP, S.L		 interiot <small>interoperability of heterogeneous IoT platforms</small>
<b>Partner's type:</b> Industry Organization, SME, University, Research Organization, Public Body Organization	<b>URL:</b> <a href="http://www.prodevelop.es">www.prodevelop.es</a>	<b>Business Scenario selected:</b> <ul style="list-style-type: none"> <li>• Transport/ Logistics</li> <li>• M-health</li> <li>• Cross-domain</li> </ul>
<b>1. Partner's role in the project</b>		
<i>About 750 characters</i>		
<b>2. Which is your strategy purpose? Business scenario selected.</b>		
<i>About 1500 characters</i>		
<b>3. Which problem do you resolve?</b>		
<i>About 1500 characters</i>		
<b>4. Which is your value promise?</b>		
<i>About 1500 characters</i>		
<b>5. Which is your target market? How big do you estimate the market?</b>		
<i>About 15000 characters</i>		
<b>6. Results of interviews?</b>		
<i>About 1500 characters</i>		
<b>7. How many interviews have you carried out till the moment? How many user stories have you collected? Are you satisfying the need of the customers?</b>		
<i>About 1500 characters</i>		
<b>8. Which competitors are there and how do you differ from them?</b>		

About 750 characters

- 9. What level of technology readiness do you expect this to have at the end of the project prototype, product, etc. When do you plan to have a beta version? How many beta testers do you estimate?**

About 1500 characters

- 10. Which partners do you need or already have for the business implementation?**

About 750 characters

- 11. What exploitation opportunities and risks do you foresee for your business idea? Describe the SWOT Analysis.**

About 1500 characters

- 12. Which is your IPR vision?**

About 1500 characters

- 13. Which is your open source vision?**

About 1500 characters

- 14. When and how do you plan to place the product on the market?**

*Describe your communication, dissemination, marketing actions, commercialization strategy (strategy alliance and key partners, sales strategy, etc.)*

About 2500 characters

- 15. Describe your financing strategy for a 5 years scenario (ROI, VAN, Break-point)**

About 2500 characters

- 16. Describe the expected impacts of your business idea**

*Social, Economic, Environmental, SME, Research, etc.*

*About 1500 characters*

***Paying customer: To how many customers did you sell your product***

*About 1500 characters*

**Identified by: PRODEVELOP, S.L**

**Registration Date: 24/02/2016**