D2.2 – Data – Management Plan

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Work Package	WP2		

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History

Date	Version	Change
8-MAY-2018	0.1	Template "customized"
1-JULY-2018	0.2	ToC established and first content added
14-SEP-2018	0.3	Update of the document after the 2nd Plenary of the Project
19-OCT-2018	0.4	Version ready to be reviewed
31-OCT-2018	1.0	Version to be submitted to EC
23-APR-2019	2.0	Re-submission after requests from the Project Officer

Key Data

Keywords	Data protection, regulation, storage, processing, GDPR
Lead Editor	Carlos Palau, P01 UPV

Abstract

This deliverable has been created in the context of the Work Package 2 (*Work plan, coordination and document management*) of the H2020-funded project PIXEL (Grant No. 769355).

PIXEL Data Management Plan (DMP) outlines the measures that PIXEL project has put in place in order to accommodate for the requirements set for projects complying with FAIR data management and contributing to the Horizon 2020 pilot action on open access to research data. PIXEL selected this option in the Grant Agreement. The plan is considering the protection of personal data and business confidential information.

The DMP identifies the requirements for accessing existing datasets that form the basis of the work of the project. Pertaining to the data that the project will produce, the DMP initially identifies the types of datasets that will be outcome of the project, namely: public deliverables, scientific publications, contributions to standards, software and applications. But these data may evolve during the project, e.g anonymized data traces from the transport and logistics use case.

PIXEL commits to integrate all results and products into adequate open source communities, under the applicable licenses. Furthermore, project partners work closely with the standardisation boards and it is planned to bring the working results directly into the international developments.

Data that will be made publicly available will receive a Digital Object Identifier (DOI) and will be made available through external repositories and the project webpage several years after the end of the project.

The DMP also discusses Data Copyright and Intellectually Property Rights issues and assigns responsible persons for each type of data identified in the DMP, the proposed license to be used is Apache License 2.0. Considering always the restriction from the foreground work specified by the partners in the signed Consortium Agreement.

Finally, an overview of the Open Research Data Pilot is given and how PIXEL will collaborate in this plan, specifying which datasets will be published and which repositories will be used

This DMP and its future versions comply with Horizon 2020 FAIR Data Management Plan (DMP) Template.

Disclaimer

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List of acronyms

Acronym	Explanation
CA	Consortium Agreement
DMP	Data Management Plan
DPO	Data Protection Officer
EC	European Commission
EM	Ethics Mentor
GA	Grant Agreement
PC	Project Coordinator
PO	Project Officer
POPD	Protection Of Personal Data
ORDP	Open Research Data Pilot

1. About this document

The scope of this deliverable is to deliver the first approach to the PIXEL Data Management Plan. The idea is to cover the primary documentation to be released under a Data Management strategy, and to set out the basis for future iterations of DMP versions (to be done in D2.3 and D2.4). The objective of this document is to outline the plans for the long term availability of the project results. Project results can be categorised as follows:

- Project deliverables.
- Scientific publications.
- Contributions to standards.
- Software and Applications.
- Data (often traces) collected for analysis and evaluation.

1.1. Deliverable context

Table 1. Deliverable context

Keywords	Lead Editor
Objectives	N/A
Exploitable results	Though not directly related with any Exploitable Result, establishing this Data Management Plan will allow the project to develop a useful and regulatory compliant solution.
Work plan	This deliverable, even considered transversal, will be of application mostly in the preparation and execution of pilot every task in PIXEL in which data are involved.
Milestones	N/A
Deliverables	This deliverable is closely related with D1.5. While this document (D2.2) is rather generic for PIXEL data outcomes, D1.5 is focused primarily in the compliance of Data Management mechanisms with the current legislation, procedures and EC recommendations in relation to personal data.
Risks	Even not related directly to any of the Risks identified in the proposal, not following this Data Management Plan could imply certain IPR risks or further troubles related with the use and dissemination of data.

1.2. Methodology

This DMP and its future versions comply with Horizon 2020 FAIR Data Management Plan (DMP) Template.

2. Data Summary

The available operational data in ports (resources tracking, container status, vessel operations, surface or berth available, air/water quality measurements, etc.) is constantly increasing and technology is getting inexpensive and widely available. However, the application of such systems is still single-entity centric, since the information is not shared, keeping the real potential of the Internet of Things (IoT) hidden. Furthermore, an effective integration of operational data is far from optimal in most ports, and especially so in medium or small ports, where budget is limited and IT services usually are outsourced. In addition to this, digitalization does not reach equally every ecosystem, creating considerable gaps between large and small ports. PIXEL addresses every of those issues by providing an easy-to-use open source smart platform for operational data interchange in ports and its associated agents (e.g. cities). The project expects to improve several indicators in varying use-cases (e.g. 5% in energy consumption, 6% average cost per passenger or 85% in average waiting time for vessels and trucks).

PIXEL enables a two-way collaboration of ports, multimodal transport agents and cities for optimal use of internal and external resources, sustainable economic growth and environmental impact mitigation, towards the Port of the Future. PIXEL will leverage technological enablers to voluntary exchange data among ports and stakeholders, thus ensuring a measurable benefit in this process. The main outcome of this technology will be efficient use of resources in ports, sustainable development and green growth of ports and surrounding cities/regions.

Built on top of the state-of-the art interoperability technologies, PIXEL centralises data from the different information silos where internal and external stakeholders store their operational information.

Thus, PIXEL is the first modular solution combining strong methodology and smart technology for small and medium port ecosystems enabling optimization of operations through IoT while reducing environmental impact.

Furthermore, PIXEL provides tools and guidelines leveraging technology with a unique approach: creating a single environmental metric for ports and modelling and optimizing processes after gathering any information available.

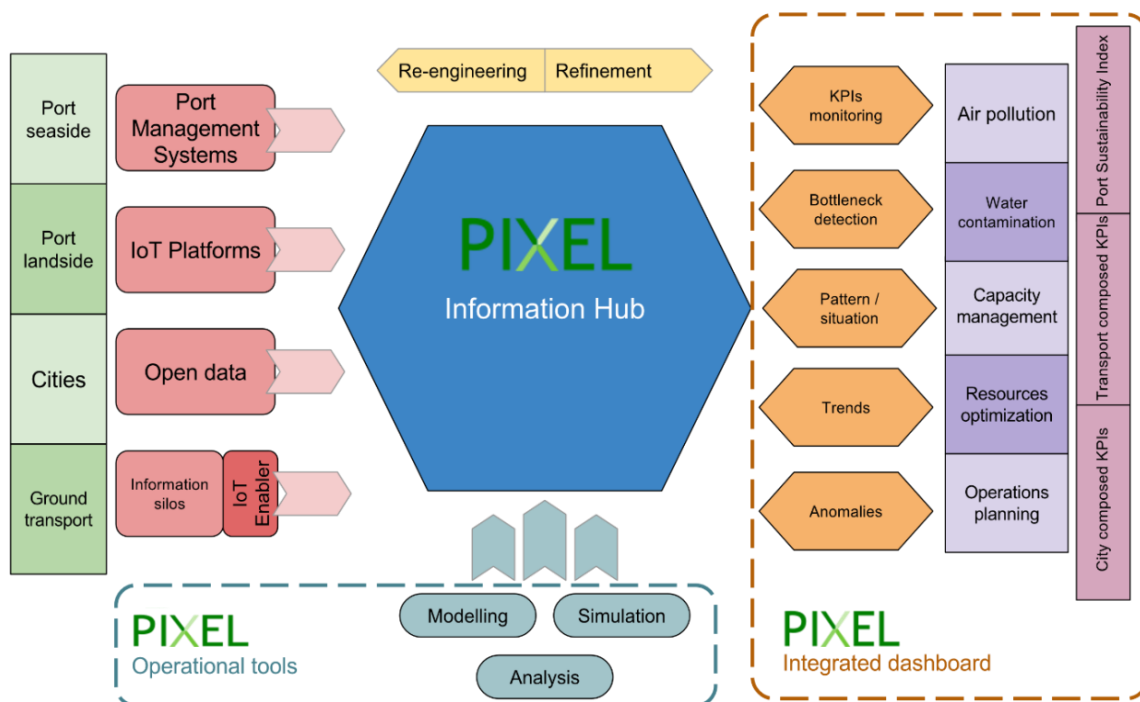PIXEL aims to achieve its impact through the implementation of a IoT architecture based on the following components:

Figure 1. PIXEL ICT architecture

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

- **Project deliverables.**
- **Scientific publications:** the scientific publications, mainly scientific papers, created by the consortium members, will contain technical results from the PIXEL project
- **Other publications and outputs:**

  Besides the scientific publications mentioned above, e.g. in journals or conference proceedings, it is expected that the project will generate further publications and other project outcomes, such as:

  - Promotion material (brochures, flyers, posters, etc.).
  - Press releases and further project announcements.
  - White papers created by the consortium on particular subjects.
  - Information regarding the open call.
  - Any further publication generated by the project.

- **Contribution to standards:** standardization constitutes an important dissemination activity in PIXEL project. It aims to contribute to the activities in major international standardization bodies, as defined in the PIXEL Description of Action (Part of the project Grant Agreement). For deployment of the new single metric to assess environmental impact (PIXEL's PEI) a standardization initiative within the targeted standardisation and regulation bodies is planned to be initiated. The activity will be performed by individual partners, group of partners, whole consortium or in the framework of different initiatives like CSA DocksTheFuture.

- **Software and applications:** the PIXEL project plans to develop and test several applications. In addition to the source code and binaries, documentation of the developed applications, their specifications, and other related material will be available in the project deliverables
- **Data collected for analysis and evaluation.**

More detail on the impact aspects of these datasets has been analysed and described in D9.3 "Dissemination Plan" and the practical details on the management of the data sets will be provided later on through deliverables D2.3 and D2.4 (updates of this one).

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 PIXEL, the project is not considering provision of these data as public data sets because the PIXEL project does not own these information and results.

During the project lifetime, additional information on the following aspects will be elaborated for all data sets on case by case basis before making consortium decision on handling of the particular data generated or collected:

- Nature and scale of the data in consideration.
- To whom it could be useful, targeted audience and its size and level of interest.
- Information on the existence of similar data and possible synergies.
- Possibility for integration and reuse of the provided data by external users and researchers.
- Any further related issue.

The internal management of the information and the datasets will be handled using the Project Management tools deployed for the project, however to participate in ORDP different repositories will be used. More information on internal management of data (mainly documentation) is detailed in deliverable "D2.1 – Project management and quality handbook". Also, a brief summary of documentation management in PIXEL is depicted below in section 3.2 of this very deliverable.

3. FAIR data

3.1. Making data findable, including provisions for metadata

Prior to the beginning of the project, the partners agreed upon a Consortium Agreement (CA) in which results to be published, ownership of data and assets and other relevant points were depicted. This document was signed by all partners and it contains several information related to making data findable. In particular, section 7 (Results), section 9 (Access Rights) and section 10 (Non-disclosure of information).

For global openly available documentation, PIXEL will make data findable through an URL. Its publication will be made via website of the project (https://pixel-ports.eu) or via other official communication channels of the project. Every document made public will be backed at our own private repository.

The **scientific publications** (papers) will be openly available by means of an own instance of a Digital Object Identifier (DOI) repository.

A digital object identifier (DOI) is a character string (a "digital identifier") used to uniquely identify an object such as an electronic document. Metadata about the object is stored in association with the DOI name and this metadata may include a location, such as a URL, where the object can be found. The DOI for a document remains fixed over the lifetime of the document, whereas its location and other metadata may change. Referring to an online document by its DOI provides more stable linking than simply referring to it by its URL, because if its URL changes, the publisher need only update the metadata for the DOI to link to the new URL. A DOI name differs from standard identifier registries such as the ISBN and ISRC. The purpose of an identifier registry is to manage a given collection of identifiers, whereas the primary purpose of the DOI system is to make a collection of identifiers actionable and interoperable.

Organizations that meet the contractual obligations of the DOI system and are willing to pay to become a member of the system can assign DOIs. The DOI system is implemented through a federation of registration and agencies coordinated by the International DOI Foundation, which developed and controls the system. The DOI system has been developed and implemented in a range of publishing applications since 2000; by late April 2011 more than 50 million DOI names had been assigned by some 4,000 organizations. By April 2013 this number had grown to 85 million DOI names assigned through 9,500 organizations.

Some scientific papers within PIXEL will have DOIs assigned by the editorial companies (e.g. IEEE, ACM or Springer), but other works may require that PIXEL consortium obtains the identifier. To get a DOI, PIXEL will use the service offered by a DOI Registration Agency (RA). RAs collect metadata, assign DOI names, and offer other services such as reference linking or metadata lookup. Landing pages for each PIXEL deliverable and publication will be developed, the URL of the landing pages is stored in the associated DOI. In the landing pages the actual download link of the document can be found, so that the archived publications and data can be reached through other websites as well.

PIXEL Consortium has established a **particular procedure for the creation of documents within the project:**

Document	Naming strategy
Deliverables	**DX.Y – [Name]**
Example	*D2.1. – Project management and quality handbook*
Internal Del. Evaluation	**DX.Y_ev_[Iterative evaluation number]**
Example	*D2.1_ev_2*
Financial Reporting	**IFR_M[month]_PXX_[Partner Acronym]**
Example	*IFR_M2_P02_PRO*

Technical Reporting	**ITR_Mx-My_ PXX_[Partner Acronym]**
Example	*ITR_M3-M4_P03_XLAB*
Agenda of meetings	**Agenda_[Type of Meeting]_YYYYMMDD**
Example	*Agenda_Plennary_20180524*
Meetings minutes	**Agenda_[Type of Meeting]_YYYYMMDD**
Example	*Minutes_WP4_20180524*
Ethical issues ident.:	**EI_ PXX_[Partner Acronym] _[It. Number]**
Example	*EI_P14_IPEOPLE_1*
Participant information sheet for Humans	**ISH_[Type of Human]_[It. number]**
Example	*ISH_AB_1*
Certificate of informed Consent for Humans	**ICH_[Type of Human]_[It. number]**
Example	*ISH_Interviewed_3*
Information regarding processing of personal data	**ISPD_Entity [It. Number]**
Example	*ISPD_Port of Piraeus_1*
Certificate of consent about personal data	**ICPD_Entity_[It. Number]**
Example	*ISPD_Port of Piraeus_1*
Personal data associated to pilot trials	**PPD_UC[No. use case]_Entity**
Example	*PPD_UC1_Bordeaux Port*
Reporting template for ethical monitoring	**EM_[No. of report]_YYYYMMDD**
Example	*EM_15_20190215*

Table 1. Naming conventions and templates

Where the following legend applies:

- **Type of meeting**: Acronym for the type of meetings (both physical and by other means) that can be conducted in the project:
  - Plennary
  - AB – Advisory Board meeting
  - *WP#No* – Work Package meetings
  - *TX.Y* – Task meetings,
  - etc.

- **Type of Human**: According to the cataloguing done in D1.1, there are three types of Humans regarding the context of their participation in **PIXEL**:
  - o Interviewed
  - o AB
  - o Human
- **Entity**: Any entity which is identified and requested to pass through the procedure for personal data protection in the context of PIXEL. Naming instructions here are more flexible, allowing to indicate any acronym or identification for the entity.
- **Number of use-case**:
  - o UC1 – Energy management use-case
  - o UC2 – Intermodal transport use-case
  - o *UC3* – Port-City integration use-case
  - o UC4 – Port Environmental Index (PEI)

Regarding the version number, in each document is included a table called *history* that describes the date, the version number and a summary of the changes made in the version.

3.2. Making data openly accessible

Documents

As commented before, the list of the project deliverables catalogued as Public will be openly available at the section Publications/Deliverables of the PIXEL project website (http://pixel-ports.eu). The public project deliverables will be provided for download on the website after their approval by the consortium, submission to EC and approval by EC and external reviewers. The confidential deliverables will not be available through the website and they might be requested by external parties, in which case the consortium might make decision to disseminate corresponding deliverables or specific parts of the deliverables to particular external parties.

The project deliverables on the website will be provided in the widely adopted PDF format.

Scientific publications will be usually made available for a wide public audience. Restricted access to the publications will be accepted only if there are serious reasons expressed by the consortium members or publishers of the scientific papers, or if there are some restriction issues regarding copyright from the Editorial Company. Details on the scientific publication process, target journals, conferences and other data of the scientific publication will be properly registered and reported through Dissemination deliverables (D9.3, D9.4, D9.5) following the corresponding regulations for protection of data.

The consortium is strongly motivated to provide technological and scientific results that will be of major importance and interest for the scientific and industry communities. A set of international journals and conferences has been identified (see deliverable D9.3), which have a significant impact factor and broad public awareness respectively. Work conducted within PIXEL will be disseminated primarily through presentation at relevant conferences, fairs and meetings during the duration of the project. All dissemination activities will be carefully monitored and reported by the project consortium and scientific articles will also be prepared for the scientific community.

Focusing on the other publications, the audience targeted by them, and potential for usability, they will be handled accordingly and stored in the adequate repository (PIXEL has available a secure repository hosted by Coordinator UPV). Thus, all non-confidential publications will be provided on the project website and the project consortium. PIXEL will follow here FAIR data management indications and the ORDP approach in open repositories.

Once a contribution to a standardisation/regulation body from the PIXEL project is in preparation, appropriate publication means for the contribution (e.g. its availability in Open Access) will be discussed among the consortium members, to make the corresponding decision.

Documents work space and documentation

PIXEL day-to-day work will be carried out, mainly, by an open-source web-based suite of tools named OnlyOffice**.** This free product is available online and, regarding the interest of it in PIXEL, allows several functionalities that will be useful during the execution of the project.

The features that are comprised in this suite are the following:
- Document edition, CMS
- Document management
- Mail
- Community
- Calendar
- CRM
- Possible to link with Drive, Box, Dropbox, OneDrive, OwnCloud

In PIXEL, this web-based tool will be hosted in UPV's premises, under a sub-domain of the name of the project (https://onlyoffice.pixel-ports.eu/). It is hosted with secure protocol web (SSL) in order to maximize the security of data and to complain with Ethics and quality requirements.

Regarding the daily work of the project, OnlyOffice is planned to take a major role, as the following features of the execution will be managed through the portal:
- Document edition
- Repository of versions
- File sharing
- Timing of tasks
- Gantt
- Tasks assignment

Within the OnlyOffice portal, various members of each partner have an account (associated to their mail) through which they sign in to access to the project management framework.

There has been created a project (PIXEL –Port-Iot for Environmental Leverage) where all the documentation and tasks are assigned and established to work with.

Software repository and documentation

The PIXEL project plans to develop and test several applications. In addition to the source code and binaries, documentation of the developed applications, their specifications, and other related material will be available in the project deliverables. In addition, the source code will be self-described or will have attached documentation. PIXEL aims to follow an open source policy when possible, using open repositories like GitHub or SourceForge for distributing the software and try to manage open source communities. Special care will be taken to protected foreground stated by the partners in the Consortium Agreement.

Rules for the development of code and software will be specified within WP4, WP5, WP6 and, if needed, in WP7. Nevertheless, some aspects and technologies have been defined that are recommended for every software development in PIXEL. They can be separated in two groups:

- **Basic tools** (enabling the coordinated development)
  - **Gogs**: Front-end tool for publishing code in a repository by using **git** methodology.
  - **Jenkins**: A continuous integration server, enabling the automatic deployment, execution of varying formats (shell scripts, binaries…), syncing and planning (cron tasks...), etc.
  - **Nexus:** Repository server to store and share within development team binaries and artifacts.
  - **Docker**: Program enabling virtualization in containers for the particular execution of isolated operating systems or software tools, not depending of the host machine.

- **Supporting tools** (adjacent to processes, but not essential for coding)
  - **SonarQube**: tool for continuous inspection of code quality to perform automatic reviews and to detect bugs, code smells and security vulnerabilities.
  - **Slack**: co-working tool, with file sharing, chat and other abilities enhancing coordinated team development.
  - **Trello:** web-based Project management tool, especially adressed for task assigning, Kanban, LEAN and Agile programming.
  - **JIRA:** tool for describing requirements of the project and to implement agile development techniques for WP6.

The tools just exposed will be available for PIXEL, and WP leaders will be able to choose whether to use them or not, according to their needs and requirements.

3.3. Making data interoperable

Descriptive documentation will follow the rules that have been adopted for the project, without the specification of any standard. The data, which is in PDF format and is available at the project website, can be used by the general public only if the according law is being accomplished.

According to the developed software, the interoperability will be determined by the final implementation of the different modules. Originally, each module will provide a REST API (with CRUD functionalities) and a containerization method, so it will be usable and self-contained. The JSON format will be used for data exchange between the different modules.

3.4. Increase data re-use (through clarifying licenses)

The exploitation commitment of the PIXEL partners, and the project's innovative aspects and results which may stimulate new products will require a careful planning of IPR issues. The PIXEL consortium will adopt the applicable IPR directives and regulations for Horizon 2020 by applying the principle of equality of all the partners towards the foreground knowledge and in full compliance with the general European Commission policies regarding ownership, exploitation rights and confidentiality.

The data will be available at least 5 years after the conclusion of the project. All the code will be available in a public repository of GitHub at the project finalization moment.

Quality assurance and control of **PIXEL** will be carried out through **self-assessment** and review of the project planning, including fine work plan for the upcoming six months, will be regularly carried out by the PIC and **discussed at every plenary project meeting**, starting from the project kick-off, with all consortium members. Schedule of the self-assessment cycles will be chosen in accordance with the project plan and timing of the main project milestones, but the assessments should be performed at least twice per year. Work done within WPs and tasks is continuously monitored and particularly checked during the self-assessment cycles by the PIC.

If necessary, the PIC will act, usually in cooperation with the work packages and tasks, by proposing necessary corrective actions and implementing respective changes in the project plan. The PCC will be consulted or directly involved in these activities, depending on nature and level of the needed work plan corrections.

Monitoring of all project activities, as a base for the **self-assessment**, is carried out in accordance with widely **adopted iterative PDCA** (Plan-Do-Check-Act) principle by considering all relevant project specifics and particularities of collaborative EU projects (Figure 2) and that has been incorporated to different ISO management standards.
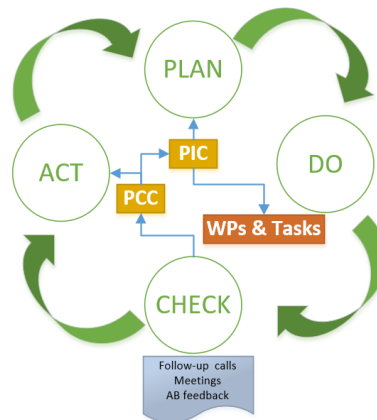
Figure 2. PIXEL PDCA approach

The project controlling is carried out by considering various internal project factors, such as status of particular project deliverables and milestones, work progress in general, status of the project resources. On the other hand, important impacts on the project could be caused by various external factors (e.g. changes in project relevant market and research areas), which will be also regularly observed by the Project Coordinator, and the PIC, in particular the Scientific and Technical Project Manager. If necessary, respective corrective actions can be proposed and implemented in accordance with the same principles.

3.4.1. IPR Management during the project

For the success of the project it is key that all partners agree on explicit rules concerning IP ownership, access rights to any Background and Foreground IP for the execution of the project before the project starts, as it was done with the signature of the CA on May 2018. Balancing with one of the main goals of PIXEL that is the release of every developed component within the project as open source with **Apache 2.0 license** (as indicated in the GA), considering always the foreground provided by the partners and stated in the CA corresponding annex. Therefore, such issues have already been agreed during the elaboration of the proposal to avoid any conflict and they will be further detailed (in a legally binding form) within the Consortium Agreement between all project partners. With regards to this, the IPR previous analysis has been already performed within the scope of task T9.4 and has been depicted in deliverable D9.6. Continuous observance of IPR issues will be carried out framed into the execution of this task, and will be led by the Innovation Manager of PIXEL.

3.4.2. Access Rights to Background and Foreground IP

All backgrounds brought to the project after conclusion of the CA and foregrounds created in the project will have to be reported by the project partners claiming the IPR ownership to the Project Coordinator, who will then inform all consortium members. If no objections on the IPR ownership is received from the consortium within a defined period (matter of CA), the IPR will be recorded in the project document repository. Public project results, such as public deliverables, will be made available for wide public for information and research purposes, whereas commercial use of the public results might require particular agreements on related IPR's, as defined in the CA.

3.4.3. Open Source and Standards

A central aim of this consortium is to provide benefit to the European member states ports and their multimodal hubs at large. PIXEL commits to integrate all results and products into adequate open source communities, under the applicable licenses. Furthermore, project partners work closely with the standardisation boards and it is planned to bring the working results directly into the international developments. The proposed license to be used is **Apache License 2.0**.

4. Allocation of resources

UPV is the responsible for data management in the project. This institution has the better position in order to guarantee security, integrity and reliability of the generated data, because UPV is hosting all the data and has an important security infrastructure.

Regarding the allocation of resources, data management has been taken seriously by PIXEL Consortium. It is an essential task within task T2.5 – Data and ethical management, planning and assessment. Key partners (UPVProject Coordinator, PRO-Technical Coordinator) will look for this aspect through the full duration of the project (M1 to M36 is the period of the task). According to the approved budget, these partners have 18 and 5 PMs respectively allocated for the whole work package 2, thus ensuring enough dedication of personnel towards data management, planning of protection, data security, documentation management, licensing, re-use of information, etc.

The Consortium confirms that this allocation seems proper to address compliance to FAIR management rules and ORDP recommendations.

5. Data security

Documentation and data related to the execution of PIXEL is securely stored at managed by UPV. The document repository (OnlyOffice) runs at secure premises behind DMZ and firewall control, besides internal and additional security mechanisms as SSL server implementation and authorization and access control.

Furthermore, other endpoints of PIXEL data are also managed the same way: e.g. PIXEL website is https://pixelports.eu and it is hosted at secure premises with privacy and cybersecurity mechanisms embedded.

Long-term storage and curation is planned from PIXEL coordination and several machines (physical and virtual) are especially reserved to store during and after the execution of the project to handle this request.

6. Ethical aspects

The D1.2 POPD-Requirement No.2 deliverable includes the definition, identification, cataloguing and ethics compliance analysis of the protection of personal data in PIXEL.

The D1.5 POPD-Requirement No.5 deliverable updates to some extent the deliverable D1.2 and can be conceptually considered as a bridge between D1.2 and D2.2. It enhances and drafts PIXEL's vision about personal data management as of M6, focussing on relevant procedures such as anonymization, storage, accessibility, interoperability and security per each Work Package.

Project members will provide the PIXEL project with their certificate of informed consent (the template in included in the Appendix A.1.2 of the deliverable D1.2) to process personal data. Therefore, no personal data of uninformed individuals will be involved in the project. The consent will fulfil all the requirements specified by the data protection law, e.g. it will describe the purpose of the project, types of data that will be collected, responsible data controller, etc. Furthermore, the research activities will possibly take place in several Member States (Italy, France, Spain, Croatia, Slovenia, UK and Greece), and for this reason notifications about the processing activities will be filed to the concerned National Data Protection Authorities, in accordance to their national laws. After the end of project lifetime, the collected data will be promptly deleted. The data collected through the informed consent of the participants will not be used further for any purpose incompatible with the original purpose of the collection. All the rights of the data subjects, e.g. right to object, right of access, and right to rectify, erase or block will be ensured.

7. Others

7.1. Open Research Data Pilot

7.1.1. Participation

Open Research Data Pilot (ORDP) is a new initiative of Horizon 2020 which aims to improve and maximise access to and reuse of research data generated by projects. The main focus of the Pilot is giving support and stimulate good practices and data management.

The PIXEL project is participating in the Open Research Data Pilot (ORDP), meaning that all publications, data and metadata to reproduce scientific experiments should be open access.

In the following section is presented an initial plan of the datasets that will be released, but since DMP is a living document (there will be updates via D2.3 and D2.4) there is the possibility of opting out some of the datasets to be published if certain issues arise[1].

7.1.2. ORDP Datasets

The following datasets will be included in the ORDP plan and will be released to a public repository:

- All open source software and components that are developed as part of the project, including source code and additional information.
- Results and enriched data derived from our research, as it will allow other researchers to verify and repeat the experiments. This will apply only to data which are not proprietary or commercially sensitive or do not have any ethical/legal implications will be made available. This is in line with the ORDP whereby a participant can opt out for reasons related to commercial, security or protection of personal data.
- All publications will ideally be made open access type gold (immediately accessible for free) if not certainly type green, in which case will be immediately released after the period of embargo. Note that if a peer reviewed publication contains any commercially sensitive content it will pass through IPR screening before being published and if any publishers are not "open access friendly", PIXEL can always opt to publish pre-print forms of articles as open access when allowed by the publishing companies

During the execution of the project new datasets could be considered to be published. Thus, this list will be considered as a living component that will be updated by the consortium after approval by the PCC. Each data set will be released being identified with a DOI.

7.1.3. Repositories

All data to be shared with or as part of the ORDP will be placed in a repository that will point to all data entities shared within ORDP so that these can be accessed, mined, exploited, reproduced, etc.

These repositories have to sustain the data value and be safe in legal terms, as well as maintain for as long as possible all the stored data. Preferably, it should support analysis and track data usage. For this reason, two main repositories will be used:

- Zenodo (https://zenodo.org/) is the repository recommended by the Open Access Infrastructure for Research in Europe (OpenAIRE).
- RiuNet (https://riunet.upv.es/) is an open access repository maintained by Universitat Politecnica de Valencia (UPV).

Although during the execution of the project other alternatives will be evaluated and considered.g

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[1] See page 8 and 9 of "Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020" V2.1 (Feb. 2016)