5G MEDIA

Programmable edge-to-cloud virtualization fabric for the 5G Media industry

D1.2: Data Management Plan

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The 5G-MEDIA Consortium is the following:

Participant number	Participant organisation name	Short name	Country
01	ENGINEERING – INGEGNERIA INFORMATICA SPA	ENG	Italy
02	IBM ISRAEL - SCIENCE AND TECHNOLOGY LTD	IBM	Israel
03	SINGULARLOGIC ANONYMI ETAIREIA PLIROFORIAKON SYSTIMATON KAI EFARMOGON PLIROFORIKIS	SiLO	Greece
04	HELLENIC TELECOMMUNICATIONS ORGANIZATION S.A. - OTE AE (ORGANISMOS TILEPIKOINONION TIS ELLADOS OTE AE)	OTE	Greece
05	CORPORACION DE RADIO Y TELEVISION ESPANOLA SA	RTVE	Spain
06	UNIVERSITY COLLEGE LONDON	UCL	United Kingdom
07	TELEFONICA INVESTIGACION Y DESARROLLO SA	TID	Spain
08	UNIVERSIDAD POLITECNICA DE MADRID	UPM	Spain
09	INSTITUT FUER RUNDFUNKTECHNIK GMBH	IRT	Germany
10	NEXTWORKS	NXW	Italy
11	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS	CERTH	Greece
12	NETAS TELEKOMUNIKASYON ANONIM SIRKETI	NET	Turkey
13	INTERINNOV SAS	IINV	France
14	BITTUBES GMBH	BIT	Germany

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Definitions and acronyms

5G-PPP	5G Infrastructure Public Private Partnership
DMP	Data Management Plan
DOI	Digital Object Identifier
EC	European Commission
EGE	European Group on Ethics in Science and New Technologies
EU	European Union
ICT	Information and Communication Technology
IPR	Intellectual Property Rights
VNF	Virtual Network Functions

Executive summary

5G-MEDIA project is a Horizon 2020 action and its expected exportable data will be open access. Data Management Plan (DMP) is a document which explains the project actions and describes the main elements of the data management policy that will be used by 5G-MEDIA project.

In more details, the way to store and share the produced data will be described in DMP. Additionally, DMP will present the format and the preservation of the data created within the project. Finally the ethics and the intellectual property rights will be also presented.

The main aspects that will be presented are:

- DMP structure;
- Ethics to be followed;
- Intellectual Property Rights.

The DMP is a document that would be updated from its creation to the end of 5G-MEDIA project.

1. Introduction

Data management is an important component of the responsible conduct of a research. Thus there is a need for a document to describe how data will be collected or stored and preserved, managed and shared. This document, which serves this purpose, is a Data Management Plan.

Horizon 2020 projects are required to export open access data. Because of that end users should be able to have free of charge online access to project scientific information and outcomes. More specifically, the information that will be offered under the 5G-MEDIA project includes (i) peer-reviewed scientific research articles (published in scholarly journals) or (ii) research data (data underlying publications, curated data and/or raw data). Developing a DMP, the description of what data will be open access and how these data will be shared and preserved will be introduced.

DMP can be divided into two main categories:

- Exploitation of research data generated (and collected) within the project;
- Dissemination of the scientific results which are created by the project.

The scope of the current DMP is to make the 5G-MEDIA data easily:

- Discoverable;
- Accessible;
- Useable;
- Interoperable.

2. Structure of 5G-MEDIA DMP

The structure of DMP depends on the parameters which should be clarified regarding the management of the project's generated data.

Following the template recommended by the EC [European_Commission] , the Data Management Plan (DMP) includes the following major parameters, as described in the figure below.
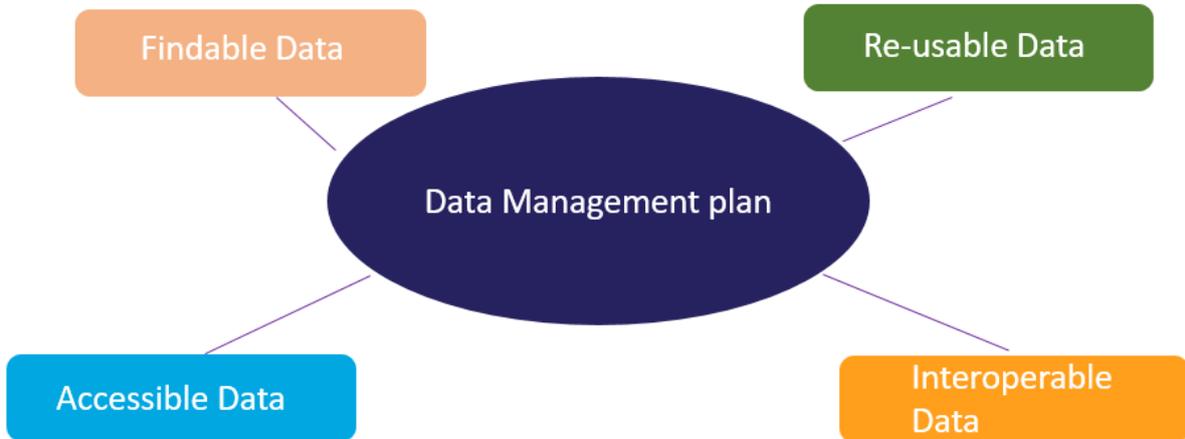
Figure 1 –5G-MEDIA Data Management Plan structure

In 5G-MEDIA the above parameters are appearing more specifically as summarized in the following table:

Table 1 – 5G-MEDIA Data Management

Data Management Plan	5G-MEDIA DMP
Findable Data	5G-MEDIA_[Name]_[Type]_[Date]_[Owner]
Accessible Data	http://www.5gmedia.eu and Zenodo repository
Interoperable Data	fully documented commentary on the data produced
Re-usable Data	• Long term data preservation after project's end • https://production.eng.it/portal/group/prj_5g_media

2.1. Findable Data

The data that will be generated in the framework of 5G-MEDIA project should be easily discovered by research communities. For this reason, these data will have a unique identifier. The suggested identifier is:

5G-MEDIA_[Name]_[Type]_[Date]_[Owner]

where

- [Name] is a short and characteristic name for the data
- [Type] is the type of data (code, publication, measured data)
- [Date] is the date when data was produced (format: DDMMYYYY)
- [Owner] is the owner (or owners) of the data (if exist)
- _ (underscore) is used as the separator between the fields

For example, the following identifier

5G-MEDIA_PlatformConfiguration_code_30082019_UCL

means that the generated data is a code which is used to configure the platform. The configuration is completed on 30-08-2019 by UCL, which is the owner of the configuration.

Apart from the unique name identifier, the data set description is also important. It is essentially an expanded description of the identifier with more details. Additionally, it is important to clarify which data are generated by the project and which are collected and used. In addition, the existence of similar data should also be mentioned.

The data set description is organized as the metadata. Metadata is used to give information about other data. The metadata identifier is formed in the similar way as the data identifier but with more details and, depending on the file format, will be either incorporated as a part of the file or as a separate file (in its simplest form) in the text format.

The suggested identifier is:

5G-MEDIA_[Name]_[Type]_[Date]_[Owner]_METADATA

where

- [Name] is a short and characteristic name for the data
- [Type] is the type of data (code, publication, measured data)
- [Date] is the date when data was produced (format: DDMMYYYY)
- [Owner] is the owner (or owners) of the data (if exist)
- _ (underscore) is used as the separator between the fields

2.2. Openly accessible

The public access to the project data is ensured with the development of the project website. 5G-MEDIA project's website could be found in the link http://www.5gmedia.eu. This website will permit the users and research collaborators to have easy and convenient access to the project research data. Additionally, Zenodo repository [Zenodo] will be used for storing the created data. Zenodo is an open and free repository, searchable and structured with flexible licensing, allowing storing all types of data: datasets, images, presentations, publications and software.

2.3. Interoperable Data

Several data types related to the VNF Descriptors, Ns Descriptors, VNF Catalogues, etc. could be generated from 5G-MEDIA project. It is quite difficult to re-combine all these different datasets. In order to ease the procedure of data exchange 5G-MEDIA consortium partners will use a fully documented commentary on the data produced.

2.4. Re-usable Data

Most of the project data will be open access. There will be accessible through Zenodo repository and project website. The accessibility capability will be extended for a certain period after the completion of the project.

If there are data which cannot be shared, the reasons will be mentioned and these data will be preserved in a repository with limited access and not in the website of the project. 5G-MEDIA project uses https://production.eng.it/portal/group/prj_5g_media in order to preserve the generated data.

3. Data security

In order to preserve and secure the produced data, the 5G-MEDIA partners are using the https://production.eng.it/portal/group/prj_5g_media portal. All the data generated, whether open access or not, will be archived in this portal. The access to the portal will be limited to project consortium partners and not open to the public.

4. Ethics

The 5G-MEDIA project consortium confirms that its actions that were mentioned in the above chapters are respecting the ethical approach to the use cases and pilots, conforming the regulations of the user informed consent and privacy policies and regulations of the EU. Consortium will act according the:

- General Data Protection Regulation 2016/679 (Protection of personal data) [European_Council];

- Opinion 23/05/2000 of the European Group on Ethics in Science and New Technologies [EGE] concerning 'Citizens Rights and New Technologies: A European Challenge' and specifically those relating to:

- ICT (Protection of privacy and protection against personal intrusion);
- Ethics of responsibility (Right to information security);
- Article 15 (Freedom of expression and research and data protection).

The project will ensure that the Consortium Agreement (or addendums thereof) is constructed to enable such assurances to be formally made and adhered to by consortium partners.

In addition, with respect to General Data Protection Regulation 2016/679 (Protection of personal of data), individual work packages will be specifically requested to ensure that any models, specifications, procedures or products also enable the project end users to be compliant with this regulation.

The 5G-MEDIA partners also will abide by professional ethical practices and comply with the Charter of Fundamental Rights of the European Union (c.f., http://www.europarl.europa.eu/charter/pdf/text_en.pdf).

5. IPR and Knowledge Management Plan

The Consortium Agreement [5G-MEDIA-CA] includes all the information and rules that project partners take under consideration in order to define the important points necessary to obtain the best possible management (financial conditions, Intellectual Property Rights (IPR), planning) of intellectual property. IPR will be managed in line with a principle of equality of all the partners towards the foreground knowledge and in full compliance with the general Commission policies regarding:

- ownership;
- exploitation rights;
- confidentiality.

In general, outcomes, innovative ideas, concepts and solutions that are not going to be protected by patent applications by the partners will be made public after agreement between the partners, to allow others to benefit from these results and exploit them. However, where results require patents to show the impact of 5G-MEDIA, there will be thorough scrutiny to determine that this does not infringe on patents belonging to others. Additionally, the intellectual property rights belonging to third parties will be considered and consortium members will ensure no infringement on intellectual property rights. The unified Consortium Agreement will be used as a reference for all IPR cases. The Consortium Agreement identifies the background intellectual property of each of the partners that may be used to achieve the project objectives.

The Consortium Agreement will provide rules for handling confidentiality and IPR to the benefit for the Consortium and its partners. All the project documentation will be stored electronically in the project's website and a repository. Classified Documents will be handled according to proper rules with regard to classification, numbering and locked storing and distribution limitations. The policy, that will govern the IPR management in the scope of 5G-MEDIA, is driven by a set of principles described in the following sections.

5.1. Ownership of outcomes

Each partner who produces an outcome under 5G-MEDIA project will also be the owner of this outcome. If more than one partners take part in the outcome production in a way that could not be possible to separate the contribution of each partner, then all the involved partners will have joint ownership of this outcome.

5.2. Protection of outcomes

Outcomes protection is not mandatory in all cases. However the valuable outcomes should be protected. If more than one partners own an outcome, then all these partners should agree if the outcome will not be protected.

Where an outcome is capable of industrial or commercial application, it should be protected in an adequate and effective manner in conformity with the relevant legal provisions. The

owner or the owners should provide the best strategy to protect the outcome in order to become a commercial product.

Although a partner that owns an outcome is not required to consult the rest of the partners in order to decide to protect or not the outcome, they should preferably be informed, because they could express possible legitimate interests.

If an outcome owner does not will to protect it or extend its protection, then EC should be informed at least 30 days prior to the corresponding deadline. EC could protect this outcome if it is considered to be necessary, with the agreement of the contractor concerned.

5.3. Use and dissemination

- The partners shall use or cause to be used the outcomes arising from the project, which they own, in accordance with their interests. The contractors shall set out the terms of use in a detailed and verifiable manner, notably in the plan for using and disseminating the outcomes.
- If dissemination of outcomes would not adversely affect its protection or its use, the contractors shall ensure that it is disseminated within a period of two years after the end of the project.

5.4. Access rights

The access rights for implementation are the following:

- Project partners shall enjoy access rights to the outcome and to the pre-existing know-how, if that outcome or pre-existing know-how is needed to carry out their own work under that project. Access rights to outcome shall be granted on a royalty-free basis. Access rights to pre-existing know-how shall be granted on a royalty-free basis, unless otherwise agreed before signature of the contract.
- Subject to its legitimate interests, the termination of the participation of a project partner shall in no way affect its obligation to grant access rights pursuant to the previous paragraph to the other contractors until the end of the project.

The access rights for outcome use are the following:

- Partners shall enjoy access rights to outcome and to the pre-existing know-how, if that outcome or pre-existing know-how is needed to use their own outcome. Access rights to outcome shall be granted on a royalty-free basis, unless otherwise agreed before signature of the contract. Access rights to pre-existing know-how shall be granted under fair and non-discriminatory conditions to be agreed.
- Subject to the partner's legitimate interests, access rights may be requested under the conditions laid down in the previous paragraph until two years after the end of the project or after the termination of the participation of a partner, whichever falls earlier, unless the partners concerned agree on a longer period.

The Consortium Agreement that will be signed before the end of the contract negotiations with the Commission will gather the basic aspects of the IPR management:

- Confidentiality;
- Outcomes ownership / joint ownership of outcomes;
- Legal protection of results (patent rights);
- Commercial exploitation of results and any necessary access right;
- Commercial obligation;
- Relevant Patents, know-how, and information Sublicense;
- Pre-existing know-how excluded from contract.

Nevertheless, many specific IPR cases, that will need a concrete solution from the bases previously fixed, may exist. In these conflict situations, the Project Management Board will be the responsible to arbitrate a solution. In case of any members of this Board is directly affected by the conflict, it will not participate in the arbitration process.

6. Use of DMP within the project

The 5G-MEDIA project partners use this plan as a reference for data management (naming, providing metadata, storing and archiving) within the project each time new project data are produced.

The project partners are introduced to the DMP and its use as part of WP1 activities. Relevant questions from partners will also be addressed within WP1.

The DMP will not be used as a fixed document. It will be updated from its creation to the end of 5G-MEDIA project.

References

[European_Commission] Guidelines on FAIR Data Management in Horizon 2020, EC Guideline, July 2016, Link: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf

[Zenodo] Zenodo repository. Link: https://zenodo.org/

[European_Council] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679&from=EN

[EGE] The European Group on Ethics in Science and New Technologies (EGE) , https://ec.europa.eu/research/ege/index.cfm?pg=home

[5G-MEDIA-CA] Consortium Agreement –5G-MEDIA