D6.2 – DISSEMINATION AND COMMUNICATION PLAN

Work Package	WP6 – Dissemination and Exploitation
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Executive Summary

This deliverable presents the dissemination and communication strategy of the PAPAYA project that the consortium intends to pursue in task T6.1 *Dissemination and Communication* (D&C) of work package WP6 *Dissemination and Exploitation*. Such activities are expected to help maximize the impacts of the project.

This first version of the D&C plan is possibly subject to updates. In this case, the changes in the initial plan will be reported in the two subsequent deliverables related to T6.1, namely D6.3 *Intermediate Dissemination and Communication Report* and D6.5 *Final Dissemination and Communication Report*.

In this deliverable, the definition of the D&C strategy is presented as answers of eight questions (why, who, to whom, what, what for, how, how good and when?) that explore the different aspects to consider when promoting the project and its results.

D6.2 clearly stipulates the objectives of the D&C activities: raise public awareness on the project and disclose the project results to potential parties that would benefit from PAPAYA. The deliverable then specifies that all project partners are committed to the implementation of the D&C strategy. The document also identifies, categorizes and prioritizes the groups targeted by the present plan: essentially, D&C activities will mainly target research and industrial communities and potential end-users without neglecting other groups such as policy makers and standardisation bodies and the EU civil society in general. The deliverable also determines the tailored messages that will be conveyed to each of these target groups. The D&C messages are also sorted according to whether they address **communication** (that is, the messages promoting the PAPAYA vision, objectives, expected results…) or **dissemination objectives** (essentially the messages disclosing the PAPAYA results). The inventory of these results, ranging from the definition of the use cases to the developed technologies, shows that D&C activities will cover and promote many aspects of the project. The deliverable then presents the expected impacts of the D&C plan and shows how they are aligned with the expected impacts of the PAPAYA project. The document then focuses on the collection of actions that are or will be performed in order to reach the objectives and to convey the identified messages, and also enumerates the metrics and indicators to assess the correct implementation of these activities. The consortium will ensure a variety of actions ranging from creating a visual identity for the project to the publication of scientific articles on topics covered by PAPAYA. Finally, the deliverable proposes a timeline for the D&C activities. In particular, some activities performed during the first semester of the project are listed and show partners' commitment to the task.

Glossary of Terms

ATOS	Atos Spain S.A.
D&C	Dissemination and Communication
DoA	Description of Action
EB	Executive Board
EC	European Commission
EU	European Union
EURC	EURECOM
GA	Grant Agreement
GDPR	General Data Protection Regulation
IBM	IBM Israel – Science and Technology Ltd.
ICT	Information and Communication Technologies
KAU	Karlstads universitet
KPI	Key Performance Indicator
MCI	MediaClinics Italia SRL
ML	Machine Learning
MLaaS	Machine Learning as a Service
ORA	Orange S.A.
PETs	Privacy-Enhancing Technologies
PM	Person-month
REA	Research Executive Agency
SEM	Search Engine Marketing
SEO	Search Engine Optimisation
SME	Small and Medium Enterprise
WP	Work Package

1   Introduction

This document, D6.2 *Dissemination and Communication plan*, corresponds to a deliverable of the PAPAYA project, funded by the European Union's Horizon 2020 (H2020) Research and Innovation Programme under Grant Agreement No. 786767. The project of 36 months duration (May 2018 – April 2021) aims at reconciling privacy and data utility in systems for data analytics. The PAPAYA consortium brings together European leading companies and research institutes with recognized expertise in the fields of security and privacy, cryptography and usability.

The present Dissemination and Communication (D&C) plan sets out the envisioned strategy, actions and procedures that will allow the consortium to efficiently communicate about the project and to disseminate its results. This strategy is critical to ensure a real impact towards relevant stakeholders and the effective exploitation of the results coming from PAPAYA.

1.1   Project overview

Recent advances in Big Data technology allow collecting and sharing large amount of data for the purpose of quickly analysing them and deriving valuable information to help businesses better understand their customers and improve their services. On the other hand, the growing use of such data that usually contains highly sensitive information raises serious concerns related to the confidentiality and privacy of the data. The PAPAYA project aims at developing a platform gathering various modules that enable data analytics functionalities while preserving the privacy of the underlying data. Data analytics operations range from simple statistics (such as sum, mean, standard deviation, etc.) to more sophisticated machine learning techniques (such as linear regression, neural networks, etc.). The PAPAYA platform also offers end users the ease to control the use of their data and to exercise their data subjects' rights such as the right to erasure.

1.2   Project objectives

The PAPAYA project considers the following objectives:

- ***O1: Design of cost effective privacy preserving data mining techniques***
  The project will develop a number of modules, each of them supporting a particular data analytics operation while keeping the underlying data confidential but still "usable".
- ***O2: Exploration of different restricted settings and design of dedicated protocols***
  The project will consider different usage scenarios and different degrees of access to the data which will result on the design and use of dedicated privacy enhancing technologies.
- ***O3: Risk management and user-control of data disclosure***
  In addition to the protection of the data, the platform will offer users the mean to control the use of them and hence reduce the risk of data leakage by offering different trade-offs between privacy and utility. Some visualization tools about disclosed data will also be provided to the users.

- *O4: Design and development of an integrated platform*
  Once the individual privacy modules have been developed, the project aims to integrate them in this unique common PAPAYA platform.
- *O5: End-to-end analysis*
  The platform will be evaluated on an end-to-end basis thanks to the definition of two use cases dedicated to healthcare and web and mobile data analytics.
- *O6: Dissemination and exploitation of the project outcome*
  The project will ensure high visibility and sustainability of the outcomes through effective dissemination and exploitation activities.

1.3 Outline of the document

The rest of the document rolls out the key elements of the D&C strategy in eight sections.

- Section 2 explains the purpose of the D&C activities ("Why?").
- Section 3 outlines the different roles and contributions of the PAPAYA's consortium members ("Who?").
- Section 4 identifies and defines the target audience that will be reached by our D&C activities ("To whom?").
- Section 5 reports the tailored messages to be conveyed via the D&C activities ("What?").
- Section 6 analyses the possible impacts of our D&C strategy ("What for?").
- Section 7 details all the D&C activities and procedures ("How?").
- Section 8 proposes a high-level schedule for the D&C activities ("When?").
- Finally, Section 9 concludes the document.

2 Why? – Purpose of D&C activities

In order to propose PAPAYA's effective D&C plan, we first give a working definition of the key terms and concepts that appear in the present document. We also expose the reasons and objectives of performing D&C actions, in accordance with the EU recommendations and obligations with respect to the promotion of the project and the publication of its results.

2.1 Definitions of "communication" and "dissemination"

The present D&C plan endorses the terms of "communication" and "dissemination" as defined by the EU Commission[1]. Below, we give a shortened definition of these concepts[2].

- **Communication** means "*taking strategic and targeted measures for promoting the action itself and its results to a multitude of audiences, including the media and the public, and possibly engaging in a two-way exchange. The aim is to reach out to society as a whole and in particular to some specific audiences while demonstrating how EU funding contributes to tackling societal challenges*".
- **Dissemination** refers to "*the public disclosure of the results by any appropriate means, including by scientific publications in any medium".* Besides, dissemination *"makes research results known to various stakeholder groups (like research peers, industry and other commercial actors, professional organizations, policymakers) in a targeted way, to enable them to use the results in their own work*".

In addition to these two definitions, we also borrow the definition of "exploitation", since this concept is correlated to the notions of communication and dissemination:

- **Exploitation** is "*the use of the results during and after the project's implementation. It can be for commercial purposes but also for improving policies, and for tackling economic and societal problems*"[2].

It is clear from the three definitions above that communication, dissemination and exploitation activities are seemingly connected, and support each other. Nevertheless, they should be distinguished from one another. The objectives they pursue, the items they consider and the target audience are the main differences between the three concepts. Indeed, communication promotes the project and its results altogether to reach society as a whole, while dissemination only advertises the results to the target audiences that may use them. On the other hand,

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[1] The EU Commission provides a glossary of terms including "communication" and "dissemination" at the following link http://ec.europa.eu/research/participants/portal/desktop/en/support/reference_terms.html. [last accessed: August 22, 2018]

[2] The shortened definitions are borrowed from the FAQ section in the EU participant portal that can be found here: https://ec.europa.eu/research/participants/portal/desktop/en/support/faqs/faq-933.html, [last accessed: August 22, 2018], and from the "Dissemination and Exploitation in Horizon 2020" presentation available here http://ec.europa.eu/research/participants/data/ref/h2020/other/events/2017-03-01/8_result-dissemination-exploitation.pdf [last accessed: August 22, 2018].

exploitation activities also only consider results with the purpose to facilitate and make use of these results by the targeted audiences that may make concrete use of the project outcomes.

Having these definitions in mind, within PAPAYA, we elaborate our D&C strategy around the objectives that we have outlined above and which are detailed in the following sections. Regarding exploitation activities, two dedicated documents (D6.4, due on M18 and D6.6 due on M36) will describe the actions performed to facilitate and make use of PAPAYA's outcomes. Therefore, this present document does not address exploitation.

2.2 EU H2020 obligations and guidelines with respect to D&C activities

The Grant Agreement (GA) between the PAPAYA consortium and the EU Research Executive Agency highlights the importance of D&C activities through specific articles that commit the consortium as a whole and the PAPAYA members individually to obligations related with the PAPAYA results (Article 29.1 in the GA) and the PAPAYA actions (Article 38.1).

Article 38 relates to the task of *promoting the action* of the project. Paragraph 1 of article 38 provides details on *communication activities by beneficiaries*. More specifically, article 38.1.1 stipulates the *obligation to promote the action and its results* in the following terms:

> "*The beneficiaries must promote the action and its results, by providing targeted information to multiple audiences (including the media and the public) in a strategic manner.*"

This article implies that every PAPAYA partner must commit to the obligation of undertaking actions to communicate on the project and its outcomes. The targeted audiences are listed in Section 4 whereas the key messages to communicate are identified in Section 5. Besides, while the present document describes the communication strategy for the project as a whole, Section 7.5 lists the intended actions to be achieved on an individual basis by each partner.

Similarly, article 29 concerns the task of publicly sharing the PAPAYA results. In particular, article 29.1 specifies the *obligation to disseminate results* in the following terms:

> "*Unless it goes against their legitimate interests, each beneficiary must — as soon as possible — 'disseminate' its results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publication (in any medium).*".

To comply with this article, each partner of the PAPAYA consortium is committed to advertise the project outcomes. Section 7.5 gives the details on how each partner contributes to this task. Furthermore, dissemination activities will be triggered as soon as first results are available. Besides, as mentioned in the article, appropriate means for dissemination, including scientific publications, will be used or produced. Section 7.3 lists the dissemination mechanisms.

In addition to the GA, the PAPAYA partners adhere to several guidelines offering recommendations to effectively handle D&C activities in the context of the EU H2020 framework. These guidelines are available in the H2020 research participants' portal[3].

2.3 Objectives of D&C – description of T6.1

The present document is part of the Work Package WP6 *Dissemination and Exploitation* and is related to task T6.1 *Dissemination and Communication*. This task aims at coordinating D&C activities in order to maximize the impacts of the PAPAYA project. This deliverable D6.2 details the overall strategy that the PAPAYA partners adopt in order to fulfil the objectives of this task. This strategy includes the creation and maintenance of the PAPAYA website that has been described in the first T6.1 deliverable (delivered at M3) entitled D6.1 *Project Website* [1]. To demonstrate the implementation of the D&C strategy, to report the corresponding activities and to assess the effectiveness of the present plan, two other deliverables will be produced at key stages of the project: D6.3 *Intermediate Dissemination and Communication Report* will describe the activities performed during the first half of the project and will be delivered at M18 whereas D6.5 *Final Dissemination and Communication Report* will supplement D6.3 with the activities carried out during the second half and will be delivered at the end of the project (M36).

The main goal of T6.1 is to help realize the vision and objectives of PAPAYA and help the project create an impact in the Digital Single Market and the European society. In this perspective, D&C play a crucial role in boosting this impact and pave the way for a concrete and effective exploitation of the PAPAYA results.

As prescribed in the European Commission (EC) communication brochure[4], communication inside PAPAYA should demonstrate how the project and its outcomes are contributing to a European 'Innovation Union'. Moreover, communication should account for public spending by providing proofs that it adds value by: (i) *showing how European collaboration has achieved more than would have otherwise been possible*; (ii) *showing how the outcomes are relevant to our everyday lives;* and (iii) *making better use of the results*[4]. Hence, the objectives of communication activities in PAPAYA are two-fold: **raise public awareness** about the project itself and, when the innovation is moving forward, **promote the PAPAYA outcomes and their impacts**. In addition to these two objectives, communication in PAPAYA should **improve the visibility of the European Commission's support**.

Regarding dissemination objectives, we aim at **disclosing the knowledge, practices and technologies** that will be developed during the project's lifetime, namely the PAPAYA platform and the individual privacy-preserving data analytics. A critical aspect to consider is that the

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[3] Participant Portal H2020 Online Manual http://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/grant-management/dissemination-of-results_en.htm [last accessed: October 4, 2018]
[4] European Commission. Communicating EU research and innovation guidance for project participants. http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-guide-comm_en.pdf [last accessed: August 22, 2018].

correct messages (detailed in Section 5) must be conveyed to the right targeted audiences (listed in Section 4) so that the results are effectively assimilated by these groups. The priorities of the PAPAYA's dissemination strategy are organized around four objectives: (i) **reach the potential target audience groups** and inform them about the vision, objectives and expected results of PAPAYA, (ii) **ease knowledge exchange and transfer** in academia, research and industrial spheres, (iii) **make the PAPAYA outcomes available** to the target audience and (iv) **incite potential stakeholders to move towards PAPAYA technologies** and **facilitate their adoption and use**. This last objective implies that dissemination might also occur after the project ends as to support exploitation of results.

3   Who? – D&C partners

3.1   Overview of D&C contributions by partners

Work package WP6 *Dissemination and Exploitation* is led by ORA, hereinafter referred to as the "D&C leader". The D&C leader co-defines the present PAPAYA D&C plan with the cooperation of the entire consortium. The D&C leader monitors the corresponding D&C activities carried out throughout the project in order to assess the effectiveness of the defined strategy as well as to apply corrective measures if necessary. Additionally, the D&C leader ensures that all partners implement the D&C strategy.

The D&C leader also constitutes the main contact point for all the D&C activities: it coordinates the tasks related with dissemination, communication and exploitation inside WP6; it collects all the activities carried out jointly by the consortium or individually by partners and reports them as explained in Section 7.4.5. Besides, all the partners of the consortium can contact the D&C leader to initiate a new D&C activity.

To ensure an effective D&C of the PAPAYA project and results, **all partners of the consortium are committed to support and contribute to the D&C activities during the project lifetime and beyond**, as stipulated in Article 29.1 and Article 38.1 of the GA (cited in Section 2.2). As the consortium comprises a group of industrial companies and research institutes, established in five different countries, namely France, Israel, Italy, Spain and Sweden, we will be able to reach a manifold audience. In particular, academic partners, EURC and KAU, will ensure an effective dissemination in the academia and research spheres, whereas companies, IBM, MCI, ORA and ATOS, will guarantee that PAPAYA's results will be transferred to both research and industrial sectors.

Partners' involvement in D&C activities includes the following assignments:

- making use of PAPAYA D&C material, including templates, presentations, flyers …;
- communicating and disseminating information related to PAPAYA through their respective own communication channels (*e.g.* websites, social media, business/research networks, …);
- following PAPAYA social media accounts and re-share PAPAYA posts published in PAPAYA's online communication channels;
- reporting to the D&C leader any news concerning the project's achievements that can feed PAPAYA's communication and dissemination material (to be published, for instance, in the project's website or Twitter profile);
- promoting the PAPAYA project, its objectives and its outcomes during events that the partners may attend and/or organize;
- publishing scientific articles in relevant conferences in the fields of computer science, computer security and privacy, cryptography, data analytics …;

- engaging in two-way exchange with the actors that can potentially be interested in PAPAYA results;
- assisting the D&C leader by updating a list of possible events where to promote PAPAYA;
- etc.

3.2 Effort table

The PAPAYA consortium plans a total of 44 Person-Months (PM) for WP6, which amounts to around 10% of the overall effort planned by the partners for PAPAYA. The figures in Table 1 show the commitment of all partners to WP6 activities and in particular to the ones related to dissemination and communication.

Table 1 - WP6 efforts by partner

Partner	EURC	IBM	KAU	MCI	ORA	ATOS	Total
Effort (PM)	5	3	3	12	9	12	44

4 To whom? – Target audience

Throughout the present deliverable, the term "stakeholder" is used to encompass any entity, group or individual that can be affected by PAPAYA, its objectives and its results. These stakeholders should be identified to direct the correct messages.

4.1 Identification and classification of target groups

An effective communication and dissemination strategy requires the knowledge of our audience. We plan to reach several groups from the most technical and skilled communities that tackle topics similar or in relation with the ones that PAPAYA covers (e.g. Big Data analytics, data privacy management, etc.), to the EU civil society that is the subject of privacy as a fundamental right. We first segment the targeted groups into internal and external audience:

- Internal audience: it consists of the members of PAPAYA consortium that communicate and disseminate information between each other. This audience consists of two academic partners (EURC and KAU) and four industrial members (IBM, ORA, ATOS and the Italian SME MCI). In addition, part of the internal audience consists of the EC and the PAPAYA's Project Officer. Internal communication inside each partner's organization can also be taken into account in this segment.
- External audience: as its name implies, this audience comprises the entities that are not part of the project. Figure 1 shows the distribution of the targeted audiences in function of their relation to PAPAYA and their scientific level. The figure also gives a prioritization of the target audiences. We describe in the following sections some details about them.
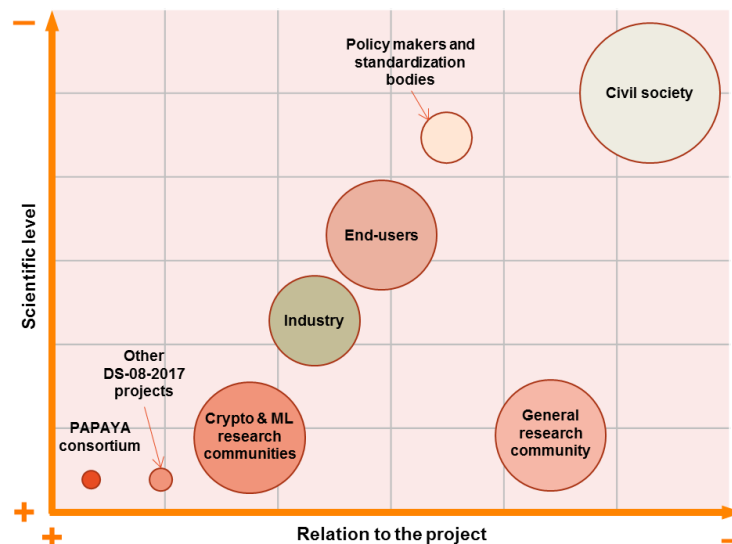

Figure 1 - Classification of target groups

4.2 Initiatives (other EU projects)

PAPAYA plans to cooperate and exchange results with several other related EU H2020 IA projects. More details are given in Section 7.3.5.2. Most of the PAPAYA partners already participated or are currently participating to EU projects which are more or less related to the PAPAYA proposal. This will create opportunities for knowledge and technology transfer and pave the way for a relevant exploitation of results.

4.3 Research community

Regarding research community, we are going to target several types of communities: (1) security/privacy/cryptography community; (2) data analytics/machine learning community; (3) and in a lesser extent "general" research community such as research on usability or user control (with respect to the PAPAYA dashboard that can be interesting on its own). Research communities 1 and 2 will benefit the most from the advances proposed in PAPAYA (namely the privacy-preserving data analytics modules, our privacy-by-design approach, etc.).

4.4 Industry

With respect to industries, we plan to communicate the project results to three main sectors:

- **Commercial ICT Machine Learning as a Service (MLaaS) providers**.
  Operating with a business model similar to the highly successful model of MLaaS (e.g. Amazon Machine Learning services, Azure Machine Learning, Google Cloud AI, IBM Watson, etc.), combined with a strong privacy concern, the PAPAYA platform can be used by private or public companies in order to enhance their services with latest data analysis techniques in a privacy compliant way.
- **MLaaS consumers**.
  We plan to target all those companies that have sensitive data (such as business transactions, medical records, confidential documents, etc.) and do not want (or are prohibited by regulations) to reveal it to MLaaS providers and thus cannot benefit from their services today. With respect to the MLaaS consumers, potential business users of the outcomes of the project could be healthcare industry, telecom operators, companies belonging to financial and insurance sector, and others.
- **IT security & privacy industry.**
  Because PAPAYA will leverage PETs to design the privacy-preserving modules in the PAPAYA platform, we will target the security and privacy industrial sphere to disseminate our results.

Industrial partners in the consortium (ATOS, IBM, MCI, ORA) will help reach this target group.

4.5 End-users

End-users refer to the individuals that may make practical use of the PAPAYA results, especially the platform. Targeting D&C activities towards end-users is besides a key aspect of the requirement elicitation phase (WP2) in order to understand their needs. For instance, with respect to the e-health use case defined in the project, end users will be the healthcare

professionals. Receiving feedback from these medical experts allow us to tailor our offering to their needs. On the other hand, D&C activities should show to end-users are PAPAYA results can be useful for them. The use cases partners, namely MCI and ORA, are prone to reach these end users.

4.6 Policy makers, regulators and standardization bodies

Information on the PAPAYA vision, approach, and results will be spread via talks and panels at events such as the CPDP conference, via targeted information material and via social media channels to reach policy makers and regulators (Data Protection Authorities). We especially intend to spread information to this target group about how Privacy by Design can be achieved for Data Analytics with advanced cryptography. Project partners are already in close contacts to several Data Protection Authorities, such a CNIL in France, ULD in Northern Germany and Datainspektionen in Sweden.

Moreover, the project's industrial partners Orange and IBM plans to contribute to relevant standardization bodies and groups, such as ISO/IEC JTC 1/SC 27 WG2 (Cryptography and security mechanisms) and WG5 (Identity management and privacy technologies), IETF TC CYBER on horizontal cybersecurity (especially privacy by design) and on security tools and techniques (especially cryptography), CRISP-DM (CRoss Industry Standard Process for Data Mining). Also the European Telecommunications Standards Institute (ETSI) is also working on the development of standards to increase privacy and security for organisations and citizens is targeted.

4.7 EU citizens, civil society, including data subjects

The project will in particular also regularly inform the civil society about the project's vision, approach and resulting end user tools for enhancing data subject rights and for protecting their data. This will be done via the project's website, newsletters, fact sheets, talks targeted to the broader public and social media, as elaborated below.

5 What? – D&C messages

In the previous sections, we have identified the D&C objectives in relation with the project's goals and impacts and we looked at the possible audience to whom we will convey key information about the project and its results. In this section we identify the nature of this *key information*. According to the definitions of Communication and Dissemination recalled in Section 2.1, the objects of D&C activities are the project itself (communication) and the project results (communication and dissemination). According to the EC H2020 glossary[5], project results are defined as

> "*any tangible or intangible output of the action, such as data, knowledge and information whatever their form or nature, whether or not they can be protected*".

In other words, project results are any outputs produced during the lifetime of the project, which can create an impact during and after the project. Besides, these results can be used either by the consortium members or by the stakeholders identified in Section 4. In the following paragraphs, we detail the nature of the PAPAYA's results and specify the high-level value of the project that we want to convey to the different stakeholders.

To summarize, the objects of D&C activities can be explained in the following general terms:

1. The project itself: its scope, its objectives and the approach to reach them
2. The project results: namely the reached objectives, the achievements
3. The concepts and methodologies adopted in PAPAYA
4. The technologies developed in PAPAYA
5. The innovation aspects.

5.1 Inventory of expected PAPAYA's results

In order to precise the subjects of D&C activities, we first catalogue the expected PAPAYA's results. In the below paragraphs, terms in bold are the items constituting this inventory. In italic, we highlight the main concepts that should be associated with them during D&C activities.

It seems clear from the project overview given in Section 1.1 that the major results consist of the **PAPAYA platform**, the **privacy-preserving data analytics modules** and the **dashboard**:

- **The PAPAYA platform**: the promotion of the platform implies disclosing the concepts, methodologies and technologies that lead to its development. Namely, it consists in an *integrated* platform with the privacy-preserving modules and the dashboard that will in concert offer *privacy*, *usability*, *transparency* and *auditability* features. The architecture and implementation details will be part of the messages to convey.

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[5]EC's H2020 Glossary of Terms, article on the term "Results".
http://ec.europa.eu/research/participants/portal/desktop/en/support/reference_terms.html. [last accessed: September 7, 2018]

- **The individual privacy-preserving data analytics**: in a nutshell, we will design and develop *cost-effective privacy enablers* (PETs) for data analytics, consisting in cryptographic modules allowing to perform data analytics operations over encrypted data. These will ensure that data subjects' *privacy* is preserved while maintaining *data utility*, in line with *the data protection by design principle from the General Data Protection Regulation (GDPR)* ("positive sum"). In addition, PAPAYA will also support multiple settings, namely *single or multi-source of data* where each source keeps its own data private to the other involved parties. Design and implementation details will be part of the messages to communicate.
- **The dashboard**: the dashboard is a key element of the suite of PAPAYA's results. Its aim is to empower data subjects to *control* their data in the platform and to *exercise their rights* (including the right to modification, to data portability …) over their data according to the GDPR rules. The dashboard will provide the users with a *visualization module* that presents the information about their data and their processing, including *tamper-proof auditable accounts*. Details on design and implementation will be shared to targeted stakeholders.

In addition to the three above-mentioned results, we will consider the **use cases** as potential candidates for communication and dissemination. More precisely, D&C activities will disclose the details of the use cases and corresponding scenarios that we will develop during the project. Specifically, use cases' lifecycle comprise the three following steps: definition, requirement specification and validation. These three steps will generate relevant material for dissemination that may help inform and attract possible stakeholders to exploit PAPAYA's technologies.

Finally, a **guide** for operating the PAPAYA platform and a collection of **recommendations** for its refinement will be derived from the outcomes of the validation step of the platform against the use cases (this validation task is held in WP5). These recommendations and guide play a significant role in dissemination of the PAPAYA platform and more importantly in its exploitation by external stakeholders.

5.2 The value of the project

To spur the interest of the targeted audiences in the PAPAYA project and to convince the possible stakeholders in using PAPAYA's results a primary key message must be promoted to set the arguments and the reasons why and how these stakeholders will benefit from PAPAYA.

Therefore, we provide the following high-level message (story-telling message):

> The potential of recent advances in Information and Communication Technologies (ICT) are inherently dependent on the collection and processing of data, including personal data. Data analytics and machine learning can uncover useful insights that lead to discover information about customers and support decision-making for a business. Yet, privacy and data protection are fundamental rights, as enshrined in the Charter of Fundamental Rights of the European Union. It turns out that data analytics and machine

learning can be frightfully privacy-intrusive to data subjects as inferences can be drawn from their preferences, activities, habits, health status… which may be exploited without their knowledge or consent. To solve these problems, PAPAYA offers individuals **preserved privacy and data protection** while maintaining the **possibility to gain insights from personal data through analytics**. PAPAYA proposes a **platform for privacy-preserving analytics** that facilitates the adoption in a wide range of different types of ICT and that supports multiple data holders that collaborate while retaining the privacy of individuals. Besides, the PAPAYA platform helps organizations meet part of the principles edicted by the GDPR through **the dashboard for data subjects** providing them with control over their personal data and the means for exercising their rights. The platform will also generate **an auditable account** of all the processing through the platform that can be displayed to the data subjects through a **visualization module**.

In the next two sections, we detail the key messages in function of the target audiences and whether the objectives are to communicate or to disseminate.

5.3 Communication

As shown in Table 2, we will tailor the messages that we want to convey to the different target groups in function of their respective knowledge of the scientific concepts handled in PAPAYA.

Table 2 - Communication messages

Target groups	Key Messages
Civil society (data subjects)	PAPAYA supports the fundamental right of privacy which is crucial in democracies
Policy makers and standardization bodies	PAPAYA enhances compliance for data analytics with the GDPR and ensures European focus for technology exploitation
End users	PAPAYA empowers end users with modules to exercise their rights over their private data and control what is done with this data
Industry	PAPAYA enforces the principles of privacy-by-design and privacy-by-default and provides tools for GDPR compliance
General research community	PAPAYA creates research excellence and triggers future cooperation within Europe
Crypto and ML research community	PAPAYA leverages PETs for data analytics and machine learning specifically

5.4 Dissemination

Dissemination promotes the results developed in PAPAYA and in particular research and innovation activities. As mentioned in previous sections, dissemination should (i) generate interest and attract the target audiences that may use the PAPAYA results and (ii) make these results available for use to these stakeholders. In order to highlight the dissemination

messages, we present in Table 3 the PAPAYA results in relation with the work packages that produce them and associate for each of these results the targeted groups.

Table 3 - Dissemination messages

Key Messages (PAPAYA results)	Related WPs	Target groups
PAPAYA develops two use cases: **e-health** and **mobile & web data** analytics, each showcasing two usage scenarios for **single** or **multiple data sources**. PAPAYA identifies a **collection of requirements for the platform** consisting of legal, technical, functional and usability requirements.	WP2 Use cases	Industry Research community End users (Civil society)
PAPAYA designs and develops **privacy-preserving modules** for data analytics that leverage **PETs** such as homomorphic encryption, secure multi-party computation and differential privacy. PAPAYA also empowers end users with **control mechanisms** over their data by giving them the ability to make choices about the protection applied to their data. In addition, end users will be provided with **visualizations** of the data they share.	WP3 PETs for analytics	Industry Research community End users
PAPAYA provides an **integrated platform** that consists of the **individual privacy-preserving data analytics modules** and a **dashboard**. The dashboard will focus on the **accuracy-privacy trade-off** for privacy-preserving analytics. The platform will also provide **tamper-proof accounts** of all analytics activities on the platform.	WP4 Platform	Industry Research community End users
PAPAYA creates **demonstration prototypes**, based on the two use cases on healthcare and mobile & web data analytics. PAPAYA **validates its outcomes against the requirements** defined in WP2. PAPAYA conducts **technology assessment** through **testing** and **benchmarking** the platform, and its internal modules. This process will lead to the definition of a **set of recommendations** for refinement of the underlying technologies. PAPAYA provides **a platform guide** that serves as a documentation to ease the adoption and use of the PAPAYA technologies.	WP5 Validation	Industry End users (Research community) (Civil society)

PAPAYA plans to contribute to **standards** in the field of novel cryptographic mechanisms. Project partners **take-up PAPAYA technologies**. PAPAYA **influences the common perception about state of the art in advanced cryptography** through **scientific publications** and **participation to conferences** PAPAYA will also provide **feedback to policy-making, standardisation and legal bodies**.	WP6 Dissemination Exploitation	Industry Research community Policy makers and standardisation bodies Civil society

Innovation

Innovation management task (T1.3) will constantly monitor dissemination activities to ensure that contents created and shared are coherent with the vision and mission depicted for project PAPAYA. Outcomes coming from the innovation management plan will be used to target the dissemination activities.

6 What for? – Expected impact

Having identified the target audience and the messages to convey to each of the target groups, we present in this section the expected impacts of the D&C activities:

- Impact 1: a large number of stakeholders **being more aware** of PAPAYA and of the concepts and technologies developed during the project for bringing back trust and confidence in the European Digital Single Market and supporting the fundamental right of privacy.
- Impact 2: research and industry spheres **convinced that**, while being compliant with the GDPR principles, can still **infer useful information from the data they handle**, through their data analytics routines.
- Impact 3: research and industry spheres **convinced that** they can be directly affected by the outcomes of PAPAYA and are interested in exchanging with PAPAYA members so as to collaborate or provide feedback on PAPAYA's activities and results;
- Impact 4: businesses that **may adopt** PAPAYA technologies.
- Impact 5: PAPAYA's D&C activities **help foster EU research and innovation** on related technologies (platform for privacy-preserving data analytics, PETs, dashboard).

Table 4 shows how the aforementioned impact list in D&C activities are aligned with the PAPAYA's expected impacts identified at the beginning of the project and listed in the DoA.

Table 4 - D&C impacts aligned with PAPAYA expected impacts

PAPAYA's expected impacts	D&C impacts
Support for fundamental rights in Digital Society	Impacts 1, 2
Increased trust and confidence in the Digital Single Market	Impacts 1, 3
Increase in the use of privacy-by-design principles in ICT systems and services	Impacts 2, 3, 4, 5

7   How? – Description of activities

In order to effectively and successfully convey the messages listed in Section 5 to the respective target groups identified in Section 4 and to achieve the desired impacts mentioned in Section 6, we select a collection of tools and channels for D&C activities that we catalogue in the following paragraphs. We first outline the procedure that the consortium adopts in terms of D&C activities.

7.1   Guidelines

The implementation of D&C activities inside PAPAYA follows several guidelines that are specified in the present section. Some are directly borrowed from the Grant Agreement (articles 29 and 38 in particular) or from D1.1 *Project Handbook* [2].

Information of EU funding - Obligation and right to use the EU emblem
Any D&C activity related to the PAPAYA project funded by the grant should include the following text and display the EU emblem:

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 786767".

This acknowledgment should appear in any D&C material or project results such as publications, communication material, social media, project website, etc.

Disclaimer excluding REA responsibility
Any D&C activity related to the PAPAYA project must indicate that it reflects the view of the consortium only and the Research Executive Agency (REA) and the EC are not responsible for any use that may be made of the information it contains. Such a disclaimer will be displayed in social media, project website and any other communication material.

Logo and templates of PAPAYA
As presented in Section 7.2.1, since the launch of the project, PAPAYA adopts a unique visual identity consisting of a logo, a colour palette and templates for official documents. The project members are committed to use these materials in D&C activities.

Advance notice to the consortium members of dissemination of results and objection
According to Article 28 of the GA, a partner that intends to disseminate its results (for instance by means of publications) must give prior notice to the other partners of – unless agreed otherwise – at least 45 days, together with sufficient information on the results this partner will disseminate. Any other partner may object within – unless agreed otherwise – 30 days of receiving the notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the dissemination may not take place unless appropriate steps are taken to safeguard these legitimate interests.

Internal validation

The internal validation of publications or any other D&C activities observes the following procedure. Partners may submit their camera-ready version of the intended publication (or any other D&C activities) to the Executive Board (EB). In turn the EB will have 3 working days to object to this publication. If no objection or if no response is provided, then the publication/event is accepted by the EB.

D&C activities reporting and progress status

Any D&C activity should be reported to the Consortium. The D&C leader maintains a spreadsheet for reporting such activities. Details on this document are given in Section 7.4.5. Besides, an update of the status of D&C activities will be performed via quarterly meeting calls between the PAPAYA partners and shared during each General Assembly.

7.2 Communication

In this section we detail all the communication activities that are or will be performed in PAPAYA.

7.2.1 Papaya visual identity

7.2.1.1 Logo

The logo of the project represents its name, *i.e.* the papaya fruit. The acronym PAPAYA stands for "PlAtform for PrivAcY preserving data Analytics". Within the papaya fruit, some data analytics operations such as the sum or neural networks are shown. These illustrate the ability for the platform to perform these operations. The logo also shows that the platform outputs the results such as histograms and tables (represented as the juice of papaya here). Finally the locker located at the right bottom of the fruit depicts the privacy guarantees offered by the platform. The operations performed within the platform protect the privacy of the data and only their outcomes are revealed to the outside.
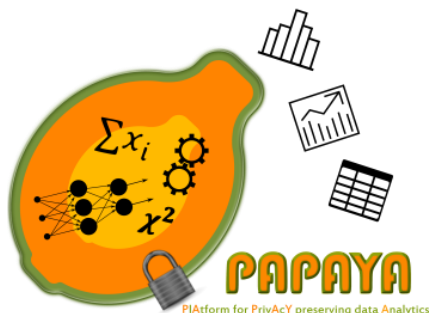

Figure 2 - PAPAYA logo

7.2.1.2   Papaya templates

Among different dissemination material, the project coordinator has prepared some templates for dedicated documents including project deliverables (in Word and Latex format), review forms (in Word), meeting agendas and minutes (in Word), presentations (in PowerPoint or Latex/Beamer), and all documents related to project reporting (Quarterly Activity Reports). The logo appears in all pages of these documents.

7.2.2   Communication material

During the first months of the project, we produced materials that will support our communication strategy. We describe here the announcement letter and the project flyer.

7.2.2.1   Announcement letter

At the beginning of the project, we designed and edited an announcement letter whose intention is to communicate about the project start. This letter presents the general context in which PAPAYA activities are taking place, the objectives of the project, the approach that we adopt in order to reach these objectives and the use cases that are used to showcase our results. In addition the letter gives some key facts about the project, lists the members of the Consortium and provides with some contact information. This letter has been released on July 2018 (M3) and can be found on the project website[6]. Intended to the general public, the letter has also been published in social media. The announcement letter is depicted in Figure 3.
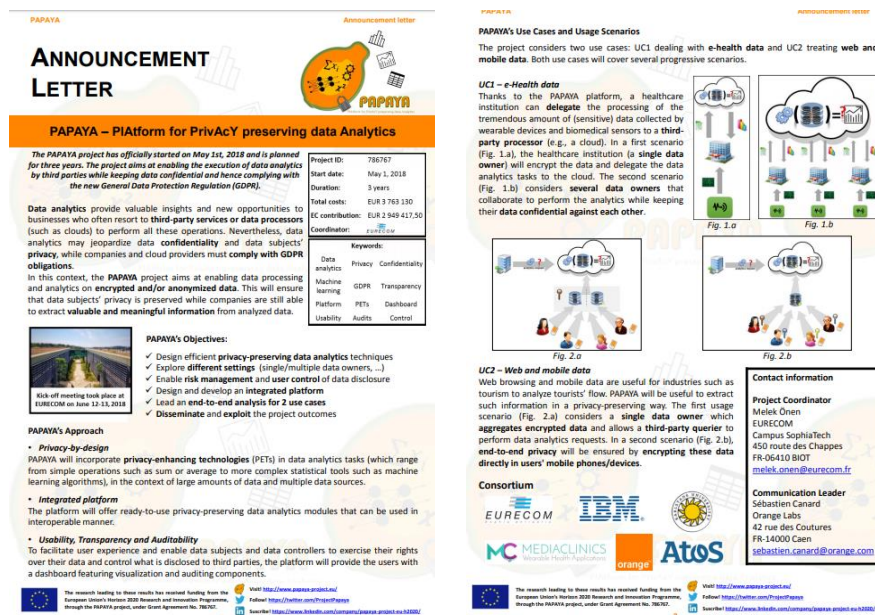

Figure 3 - Announcement letter

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[6] PAPAYA's announcement letter https://www.papaya-project.eu/content/papaya-announcement-letter

7.2.2.2 Project flyer

The PAPAYA flyer is one of the main communication materials that will be used by the consortium to promote the project to a large audience. Similarly to the announcement letter, the flyer provides an introduction of the project by highlighting its objectives, the two use cases, the website link, the social media profiles (Twitter and LinkedIn) and some contact details.

The flyer will be mainly used and distributed in printed form. It can also be distributed in electronic form if necessary (for instance, by e-mail to a potential interested party that wants rapid information about the project). In any case, the flyer will also be available for download in the project website. The printed flyer will be mainly distributed during events that the consortium will attend during the lifetime of the project, such as conferences, industrial events or meetings. As it does not contain esoteric technical terms, it can be distributed to a general audience, in order to understand the background and objectives of PAPAYA.

Figure 4 features the first version of the PAPAYA flyer. It uses the same colour palette as the PAPAYA visual identity. It consists of a two-sided A4 paper folded into three parts. When folded, the first page shows the logo and the expanded named of PAPAYA. Inside pages intend to convey information about the project at a first glance. The back panel spotlights the logos of the consortium members and gives the abovementioned social media links and contact details.

The flyer may be updated throughout the project in function of the needs and the key stages of PAPAYA. At the time we are writing this deliverable, a second version is already in progress.

Figure 4 - PAPAYA flyer (unfolded)

7.2.2.3 Other materials

Other materials (such as posters, brochures, etc.) can be produced during the lifetime of the PAPAYA project, in function of the needs of the consortium, the needs of the individual partners and the events they plan to attend. In this case, they will be reported in one the two D&C reports (the intermediate report D6.3 due on M18 or the final report D6.5 due on M36).

7.2.3 Online presence

7.2.3.1 Project website

The PAPAYA website[7] is mainly focused on the following objectives.

- Centralize the whole information related to the project. The website also could be an initial delivery channel to promote project results

- Diffuse the objectives and key messages to the considered target audiences.

- Build community among partners and keep updated the consortium with the new initiatives

- Update information about participation at events, accepted scientific publications in conferences, released deliverables, and summarize, any activity of interest about PAPAYA.

Figure 5 - PAPAYA's website home page

The website integrates social media tools buttons (multi-channel) for Twitter and LinkedIn (see Section 7.2.3.3) to share and distribute information about the project. The website is going to be updated at a steady rate, including new information about the pilots, results or new milestones. Figure 5 illustrates the home page of the PAPAYA website.

Deliverable D6.1 (released at M3) explains the website in detail and explains which technology has been used to set the PAPAYA website, its design and how it is structured.

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[7] PAPAYA website: https://www.papaya-project.eu/

7.2.3.2 Project blog

To assure the periodic update of the website, we will maintain a blog about the project, whose articles will cover the advances related to the project and also explain to a wide audience, in a non-technical language, the approach of PAPAYA. Relevant contents, related to the key stages of the project (such as the definition of the use cases, the platform architecture, the initial privacy-preserving analytics modules, etc.), will be published in this blog. The idea is to link each blog entry to one of the PAPAYA milestones and/or public deliverables and to publish the blog article in a 2-month delay after this release. Table 5 shows a possible plan for the first blog entries.

Each blog article will be internally validated within the consortium before publication by adopting the following procedure: the partner that writes a blog entry will submit it to all the other partners to obtain a consensus on the content, so as to help protect innovation if needed. Any objection to the content of the blog entry should be issued within one week; otherwise, the article will be approved for publication.

Table 5 - Proposed plan for initial blog articles

Blog entry's topics	Related milestone	Month of milestone	Partners
Use Case 1	MS1	M12	MCI
Use Case 2			ORA
Requirements			ATOS
PAPAYA Architecture	MS2	M15	IBM
PAPAYA analytics	MS3	M24	EURC
PAPAYA transparency method	MS4	M24	KAU

7.2.3.3 Social media

Social media have recently become ubiquitous for communication. Massively and inherently interactive, social media tools are a suitable place to share content, interact with other members and develop a community. Besides, an effective social media campaign contributes to increase the visibility of PAPAYA, to maximize its outreach and hence to amplify its impacts. Consequently, PAPAYA will actively engage in social media communication channels, and in particular Twitter and LinkedIn. Several audiences can be reached through social media: ranging from general public to cryptography research community. In order to perform a successful social media communication, the consortium will adopt the following principles.

- *Be relevant*: the content should be interesting and expressed in terms that are understood by the audience we target.

- *Be concise*: social media platforms often limit the number of characters by post which coerces their users to convey message in very short sentence. In PAPAYA, we will follow this principle thanks to the use of relevant hashtags.
- *Be visual*: almost as important as texts are all the visual artefacts (pictures, videos, GIFs, emojis) that social media platforms allow us to publish along with text.
- *Be active*: we will regularly share content in the PAPAYA's social media channels.
- *Involve the PAPAYA partners*: we will highlight, whenever possible, PAPAYA partners. This principle will have two benefits: (i) it will show how the partners are contributing to PAPAYA and (ii) it may attract people that are already following PAPAYA partners' social media profiles, hence creating a network of interested parties, which by snowball effect, will raise awareness within their own community network.
- *Engage, follow, like, re-share*: PAPAYA will engage with its community of followers as far as possible by for instance, re-sharing or liking posts of a relevant follower.

Furthermore, our social media accounts will work as a complement to the PAPAYA website and will help drive traffic to it.

Twitter account

In PAPAYA, Twitter is used as a communication tool for maximizing our outreach. We can reach all the targeted groups identified in Section 4, with a focus on a technical audience from the cryptography and data analytics research community, as well as the potential industries that could be interested by the outcomes of the project. Besides, the Twitter profile of PAPAYA will be relevant to advertise the key steps of the project, to share with our community the events we will attend and to raise public awareness on privacy issues and solutions for data analytics. The aim of our presence in Twitter is to increase *engagement*, which refers to the number of *followers*, shares (*retweets*), of *likes* and *comments* that the content published by PAPAYA in Twitter will generate.

Not only the Twitter page of PAPAYA will share information about the project and its progress and results, but also, we will leverage the contents and features of Twitter to keep abreast of the recent advances in cryptography, in machine learning, of standardization efforts, of related events and of all other topics the PAPAYA project is interested in. Besides, as implied by the definition of communication mentioned in Section 2.1, Twitter will help us improve the visibility of EU funding and show how it contributes to tackling societal challenges. Furthermore, thanks to the retweeting feature, we will be able to share tweets from the Twitter accounts of the PAPAYA partners or related initiatives (such as related EU H2020 projects).

PAPAYA's Twitter profile, **@ProjectPapaya**[8], is active since M2 (end of June 2018). Besides, a PAPAYA's Twitter feed is embedded in the home page of the project website since its launch. Tweets posted by PAPAYA can be of two forms: tweets with technical terms, for the attention of a technical audience and tweets with less specialized terms that can be understood by the

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[8] PAPAYA in Twitter https://twitter.com/ProjectPapaya

general public. We intend to tweet at least twice a month, with a possible increase when the first PAPAYA results are available, in order to keep PAPAYA's profile alive.

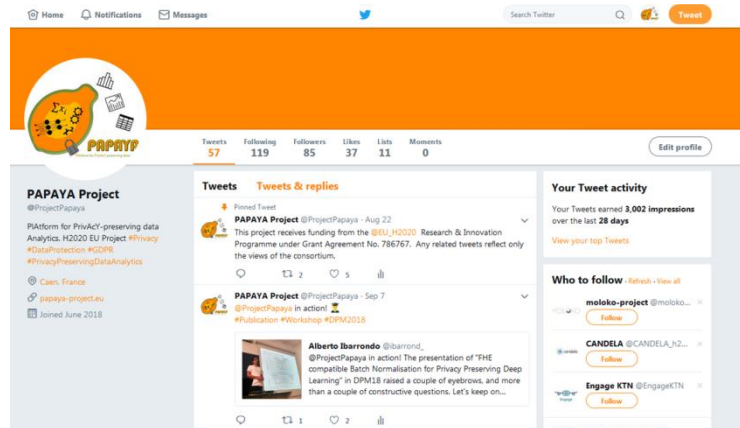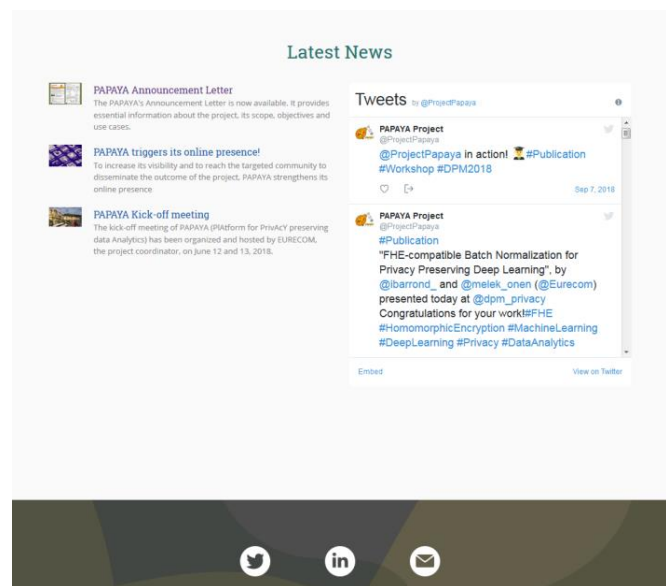*Figure 6 - PAPAYA in Twitter*

Figure 7 - Tweet feed in PAPAYA website

We also plan to create and/or use several hashtags in each of our tweets in order to promote the topics and concepts that PAPAYA works with. We also leverage the Mention feature to link PAPAYA's profile with consortium members' profile or with EU H2020's account. We provide below a (non-exhaustive) list of candidate hashtags.

Table 6 - List of PAPAYA's hashtags

Topics	Hashtags
PAPAYA	• #PAPAYA • #PAPAYAProject • #H2020 • #Horizon2020
Project lifetime	• #Job, #PostDoc, … • #Publication • #Event, #Workshop, #Conference • Dedicated event hashtags (for example: #ESORICS2018)
Privacy	• #Privacy, #DataPrivacy • #PrivacyPreserving, #PrivacyPreservingDataAnalytics • #GDPR • #DataProtection • #Dashboard
Data analytics	• #Analytics, #DataAnalytics • #MachineLearning, #ML • #DeepLearning • #ArtificialIntelligence, #AI • #NeuralNetworks, and other relevant algorithms (#kmeans, #regression, etc.) • #Statistics • #Utility
Cryptography	• #Cryptography • #HomormorphicEncryption, #homomorphic, #encryption, #FHE • #MultiPartyComputation, #SMC, #MPC (for secure multi-party computation) • #Blockchain • #PETs (for privacy-enhancing technologies)

Figure 8 - PAPAYA's word cloud on Twitter (M4)

LinkedIn account

Being present in LinkedIn is a natural choice for PAPAYA. Indeed, our target audiences, especially industries and research communities, are highly represented in the LinkedIn

audience. Therefore, this networking platform will enable us to create a community of followers and to maximize our outreach among these stakeholders. Besides, LinkedIn is a suitable platform to promote the PAPAYA results and spread our dissemination messages.

We chose to use the LinkedIn company page template for our presence in this social platform. The PAPAYA page[9] is active since M2 (end of June 2018). It features an "About Us" section to describe the project (the consortium, the objectives …). The crucial component of the company page in LinkedIn is the engagement with the followers thanks to the contents (called *updates*) that we will share in the media. We plan to share updates that are relevant for our audience and which show the achievements of the PAPAYA project. Updates are the basis for triggering interactions with followers. We will regularly post updates, by adopting the principles listed above. To increase the number of followers, each partner of PAPAYA is encouraged to like, comment on and share PAPAYA updates. Besides, a "Follow us" invitation can be added in any D&C material that we will prepare during the lifetime of the project. Finally, if some of the partners will recruit interns, PhD candidates or post-doctoral researchers, the description of the job offer can be share via our LinkedIn page.
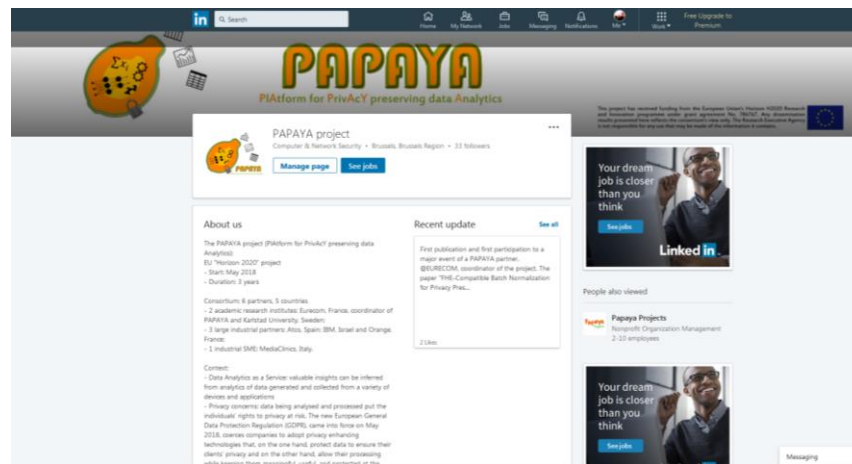
Figure 9 - PAPAYA profile in LinkedIn

YouTube account

Videos can be produced during the lifetime of the project to either present the project activities and events or to promote and demonstrate the PAPAYA technologies. Audio-visual materials are very attractive and hence they are a perfect tool for D&C purposes. For example, a video can assist the platform guide (D5.4) by demonstrating step-by-step instructions on how to use the PAPAYA platform.

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[9] PAPAYA's LinkedIn page : https://www.linkedin.com/company/papaya-project-eu-h2020/

YouTube is the most popular platform used to share videos to a wide audience. We plan to create a project YouTube channel to spread the PAPAYA audio-visual material to a large extent. Further details about the channel will be given in subsequent WP6 deliverables.

7.2.4 Media release

This section refers to contributions to local, national and international newspapers and media on key project results. The following can be highlighted:

7.2.4.1 Press release

Media have been a traditional tool to communicate and disseminate information to a general public beyond the specialized targets. Press releases will be written to support any relevant news about PAPAYA, and sent to the national agencies of the consortium partners. The public relations specialists of the PAPAYA partners could get involved in the process of approaching the press. We also plan to spread press releases at certain days, such as the Data Privacy Day. At the beginning of the project, PAPAYA has produced an Announcement Letter (presented in Section 7.2.2.1). This letter adopts a format similar to a Press Release and could also be considered as our first Newsletter.

Other channels to publish Press Releases will be taken into account:

- Industry publications: it is referred to corporate magazines or blogs or specialized publications as ERCIM News.
- European Commission publications as CORDIS.

7.2.4.2 Newsletter

A periodic Newsletter that will be published on a quarterly basis will be released to inform about PAPAYA. This newsletter will be focused on giving detailed information about the advances and achievements of the project, and will give a summary of the main news. It will keep updated to those people that want to have a picture about the state of PAPAYA in a timely manner or from time to time. In the website an option to subscribe to the newsletter will be available.
The first issue, planned by November 2018, will be about the main features of the project what we could define as The Why, What, How and Who of PAPAYA.
Currently this work is on progress, the upcoming issues of the newsletter will be reported in the deliverables planned with this purpose (D6.3 and D6.5).

7.3 Dissemination

In this section we detail all the dissemination activities that are or will be performed in PAPAYA. Please note that the communication activities specified in Section 7.2 applied to dissemination activities as well. This section rather presents the result-oriented means of promoting the PAPAYA achievements.

7.3.1 Public deliverables

A major means for dissemination is the PAPAYA deliverables. During the project lifetime, the consortium will produce 26 official deliverables: 5 deliverables will be confidential, published only for the members of the consortium and the EC services and 21 deliverables will be publicly disseminated.

All the public deliverables will be made openly accessible at the project's website together with an executive summary, which in brief informs about the important results reported in these deliverables.

7.3.2 Research papers and publications

Publications of research papers in peer-reviewed scientific journals and conference proceedings whose topics are closely related or relevant to the PAPAYA innovation work constitute a major asset in the dissemination strategy. Provided that the publications are in line with the guidelines established in Section 7.1, this activity will allow the PAPAYA concepts and findings to be widely spread to the scientific communities directly targeted by the scope of PAPAYA. Section 7.3.5 lists some candidate scientific conferences that we are going to target.

As prescribed in the GA, PAPAYA will ensure a *"green" open access* to scientific publications (Article 29.2), meaning that any user is given free-of-charge online access to the publications. Besides, publications will be made available in a public website (mainly institutions' websites, otherwise, PAPAYA's website)

7.3.3 Videos of demonstrators

During the project, in particular during Y3, software demonstrators will be developed to prove feasibility and functionalities of the PAPAYA platform in the selected use-cases.
Demonstrators must use in an effective way the PAPAYA platform, in order to test its functionalities and its effectiveness in a controlled environment. Also they will serve as dissemination tools themselves as success stories for the application of PAPAYA's PETs in real life scenarios. In order to reach most of the audience, each use case will also be collected in a video to be shared.
To better highlight underlining PETs, the most interesting ones will be subject of a video that may help in disseminating those complex technologies to a wider public.
All the videos produced will be shared on PAPAYA's social media and website in order to be publicly available and will be coherent with the target audience delineated in Section 4.

7.3.4 Software

Open source and cryptography technology has often proved to be a winning combination[10]. Since the technology is open source, anybody can check it, and prove its robustness. At the same time the amount of knowledge required to properly understand how those algorithm works and can be safely used is enough to protect companies. This has happened in many successful open source projects such as Telegram, Bitcoin, GPG. While it is still under discussion which, if any, PETs will be open sourced, this could be a good opportunity to make flourish the PAPAYA's core concepts beyond the project's life. Our exploitation activities, which are part of T6.2, will help make a decision on whether the modules will be made open source. In this case, the open source technologies will be part of the dissemination assets.

7.3.5 Events and networking

PAPAYA will at different events for presenting the project, advertising and demonstrating results, and for the purpose of networking establishing new contacts and cooperation.

7.3.5.1 Targeted events

For presenting scientific results, the following highly-ranked scientific conferences are particularly targeted: ACM CCS, PETS, ACM AsiaCCS, IEEE Security & Privacy, IFIP ICT, ACNS, CANS, CT-RSA, ESORICS, PKC, SOUPS. Table 17 in Appendix 1 details the list of possible events.

In addition, for reaching an industrial audience or policy makers, PAPAYA also intends to publish, exhibit and/or present at ENISA's (European Network and Information Security Agency's) Annual Privacy Forum and the CPDP conference, events hold by the Networked European Software and Services Initiative (NESSI), National security agencies as well as the EU Commission's ICT conferences. Also events offered for a technical industrial audience, including communities from the healthcare industry (e.g., HIMSS – Healthcare Information and Management Systems Society – and IHE – Integrating the Healthcare Enterprise) and web analytics industry, are targeted.

7.3.5.2 Collaboration with other initiatives

The PAPAYA consortium will network with other initiatives and in particular other EU H2020 Innovation Action projects so as to exchange knowledge and technologies, hence establishing synergies with current actions made to address the challenges tackled by PAPAYA. Besides, these kinds of interactions will contribute to maximize the impact of the dissemination activities. A list of related EU Innovation Action projects that we target to approach or are already in contact with, can be found in Table 7. These projects belong to the same call as PAPAYA's

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[10] Cryptography and Open Source, Blog article, Daniel Miessler
https://danielmiessler.com/blog/cryptography_opensource/ [last accessed: September 24, 2018]

(DS-08-2017) and can be classified into three scopes: PETs, GDPR in practice and secure digital identities. In this classification, the PoSeID-on and PAPAYA projects both address the PETs scope. Hence, collaboration with PoSeID-on will be mainly considered.

To approach the initiatives listed below, we will use dedicated communication channels, such as face-to-face meetings, phone calls or e-mail exchanges. Different kinds of collaboration are envisaged: cooperate in dissemination events, share mutual news in the respective project websites and social media, attend events organised by the other projects and present PAPAYA at those events, and jointly organise events such as workshops. PAPAYA also considers applying for the EU Common Dissemination Booster[11] (when it will open again), together with other projects, in order to make greater impact on the market and increase our outreach.

Table 7 - Related EU H2020 projects

Name of Project	Project ID	Start/End	Topic	Objectives
PoSeID-on	786713	May 2018 Oct 2020	DS-08-2017: Cybersecurity PPP: Privacy, Data Protection, Digital Identities **(PETs)**	Develop Privacy-Enhancing Dashboard for personal data protection. Adopt blockchain and smart contracts technologies. Provide monitoring, controlling and management of personal data. Compliance with the GDPR.
PDP4E	787034	May 2018 January 2021	DS-08-2017: Cybersecurity PPP: Privacy, Data Protection, Digital Identities **(GPDR in practice)**	Provide method and software tools to systematically apply data protection principles in project, for GDPR compliance.
DEFeND	787068	July 2018 December 2020	DS-08-2017: Cybersecurity PPP: Privacy, Data Protection, Digital Identities **(GPDR in practice)**	Design and implement tools to assess compliance with GDPR. Tests via pilots for different sectors (health, banking, …)

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[11] EU Common Dissemination Booster https://www.trust-itservices.com/common-dissemination-booster

SMOOTH	786741	May 2018 October 2020	DS-08-2017: Cybersecurity PPP: Privacy, Data Protection, Digital Identities **(GPDR in practice)**	Create awareness and assist micro enterprises via a cloud platform to effectively and smoothly adopt and comply with the GDPR.
BPR4GDPR	787149	May 2018 April 2021	DS-08-2017: Cybersecurity PPP: Privacy, Data Protection, Digital Identities **(GPDR in practice)**	Develop framework to support end-to-end GDPR compliant intra- and inter organisational ICT-enabled processes.
OLYMPUS	786725	September 2018 August 2021	DS-08-2017: Cybersecurity PPP: Privacy, Data Protection, Digital Identities **(Digital identities)**	Reconcile privacy and strong identity using an online identity provider (IDP) approach without their drawbacks with respect to privacy.

7.3.6 Reaching standardisation bodies

PAPAYA will rely on members of the consortium who are already involved in standardisation initiatives, to communicate, disseminate and further exploit by means of standards the project outcomes. Some of the standardisation activities mentioned below (ISO, ETSI) are in line with the 2018 Rolling plan on ICT Standardisation[12]. Hence, PAPAYA will follow the evolution of standards for ISO, ETSI and CRISP-DM and will contribute when relevant.

As standardisation is part of exploitation activities, we only summarize below the different directions that will be followed by the PAPAYA partners who are active in standard

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[12] European Commission: 2018 Rolling plan on ICT Standardisation – Online version, chapter "ePrivacy" https://joinup.ec.europa.eu/collection/rolling-plan-ict-standardisation/eprivacy [last accessed: October 10, 2018]

development. Thanks to their close ties with standardisation initiatives, PAPAYA will be able to reach this specific target audience.

In particular, ORA is already involved in the ISO/IEC JTC 1 subcommittee SC 27 on Security, and especially on the working groups WG2 on Cryptography and security mechanisms and WG5 on Identity management and privacy technologies, which has ongoing work related to PAPAYA.

The project will also closely observe and plans to contribute with input to the ongoing work of the European Telecommunications Standards Institute (ETSI) on the development of standards to increase privacy and security for organisations and citizens, with a focus on privacy by design and advanced crypto mechanisms.

The Cross Industry Standard Process for Data Mining (CRISP-DM) provides a set of possible approaches that can be used by data mining experts to tackle some problems. IBM is currently maintaining an extended and refined version of CRISP-DM, called Analytics Solutions Unified Method for Data Mining/Predictive Analytics (ASUM-DM) and will try to contribute to this standard by adding dedicated PAPAYA privacy preserving technologies.

7.4 How good? – Monitoring activities and reporting

In order to assess the effectiveness of the present D&C strategy so as to apply corrective measures and update the D&C plan, if necessary, a continuous monitoring process will be carried out throughout the project lifetime. Such a monitoring process is crucial in the strategy as the impact of the D&C activities contributes to maximizing the impact of the project as a whole. The D&C leader is responsible for this monitoring task and coordinates the application of the corrective measures. The execution of the strategy will be measured according to several Key Performance Indicators (KPIs), which will help give quantitative and qualitative assessment for the D&C activities.

7.4.1 Website analytics

The purpose of PAPAYA website is to inform about the project. We can define it as the main online channel to convey the results and report about the performed activities and achievements. It will act as a focal point of information and the main reference to keep updated.

To analyse if the D&C activities have an impact on the website, we will monitor the website with Google Analytics[13], the well-known tool for digital analytics released by Google. The tool is used with the privacy extension (anonymizeIP) that anonymises the IP addresses of the visitors. The analysis will be based on four KPIs considered as the most critical ones:

- • Sessions: Total number of Sessions within the date range. A session is the period of time that a user is actively engaged with the website, app, etc.

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[13] Google Analytics https://analytics.google.com [last accessed: September 24, 2018]. As mentioned in D6.1 [1], to comply with the GDPR, the visitor of the PAPAYA website is informed that Google Analytics is used to monitor the use of the website and let the visitor select "I agree" or "No, give me more info".

- Number of visitors: Users that have had at least one session within the selected date range. Includes new and returning users.
- Percentage of new sessions: An estimated percentage of first time visits.
- Average session duration: The average length of a session.

For the Number of Visitors and Sessions we have established a target. They are quantitative parameters that should show progress at the same time as the project advances. For this purpose, we have made a benchmark looking for the data of two other websites of European projects with duration and topics similar to PAPAYA. This exercise drives to establish realistic targets as motivation to work on the website, as well as to have a reference about its performance.

For the two other metrics: Average Session Duration and Percentage of New Visitors (that is, the percentage of users who visit the website for the first time), rather than establishing a target, we have looked for a value of comparison, after analysing other websites, to know if the behaviour of PAPAYA website is similar to other websites of European projects. We have found that a visitor spends on average two minutes browsing on these websites, and the percentage of new visitors usually is around 85%.

We are going to start to measure KPIs from M3 (July 2018) since when the website is available. This benchmark will give us feedback to know whether our communication strategy is working or whether we need to modify it in order to get better results.

Table 8 - Website analytics

Indicators	M12	M24	M36
Sessions	2.000	4.000	6.000
Users	1.500	3.000	4.000
Average Session Duration	2:00 min		
% of New Visitors	85%		

We also have analysed how to use modern techniques of Digital Marketing to position PAPAYA for a particular search. The positioning of PAPAYA's website on browsers as Google, Bing, Yahoo or Qwant can be made through Search Engine Optimisation (SEO) and Search Engine Marketing (SEM) strategies by the execution of different proofs/error actions which need a periodic monitoring as there is not an exact formula to achieve a successful campaign. Therefore, for an SEO strategy, which is basically the Organic positioning of a website on the browser, some actions could be made:

- SEO Diagnostic with tools as SEOQuake[14] to establish if the development and architecture of the website cope with Google's SEO factors.

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[14] SEOQuake https://www.seoquake.com/index.html [last accessed: September 24, 2018]

- SEO Benchmarking of similar websites or related sites to identify keywords strategy. This can be done through Alexa with an Audience Overlap Tool[15].
- Reconstruction of the website to fix SEO issues found in the diagnostic.
- Keywords analysis through Google Trends[16] to determine how our target audience is looking for specific content with the planning of top keywords to be integrated on the website with further monitoring to identify the most successful ones.
- Development of a backlink strategy with the use of social media, scientific publication, participation at conferences/events, among others.

On the other hand, an SEM strategy can present positive short-term results but it implies having a specific budget for ads of browsers, as for SEM we are referring to be on the first page of search but paying for it. This type of campaigns involves an economic cost that we have ruled out because the resources of PAPAYA for this purpose are located within the partners; it is not our intention to resource to external companies.

PAPAYA website will be reviewed one time per month using these SEO techniques and check if its position is improving.

7.4.2 Social media analytics

In this section, we present the possible KPIs for the social media that we use in our D&C plan. There exist a bunch of built-in or external tools to assess the effectiveness of our social media campaign. Twitter and LinkedIn platforms both offer analytics dashboard to evaluate several metrics, such as the number of followers, the posts that obtained the more engagements, etc. In Table 9, we report our expected social media indicators within the first, second and third years of the project.

Table 9 - Social media analytics

Indicators	M12	M24	M36
Number of Twitter followers	100	150	200
Number of tweets (accumulated)	50	100	150
Number of engagements per tweet	30 likes and retweets		
Number of LinkedIn followers	50	150	200
Number of LinkedIn updates (accumulated)	20	40	60
Number of engagements per updates	10 clicks and actions		
Number of views in YouTube videos	100		

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[15] Alexa Audience Overlap Tool https://try.alexa.com/marketing-stack/audience-overlap-tool [last accessed: September 24, 2018]

[16] Google Trends https://trends.google.fr/trends [last accessed: September 24, 2018]

7.4.3 Event metrics

Participation to events will be measured according to two indicators. Table 10 presents the objectives for this activity according to these two indicators. In a nutshell, the consortium plans to attend events all along the project lifetime, with a possible increase during the last year of the project, when project results have reached a certain level of maturity.

Table 10 - Event indicators

Indicators	M12	M24	M36
Number of attended events	5	5	10
Number of presentations	5	5	5

7.4.4 Publication metrics

Table 11 lists the metrics related with publications. It features the number of accepted scientific papers during the entire project. We believe that the objectives that we set are reasonable enough to have an impact on knowledge.

Table 11 - Publication metrics

Indicators	M36
Number of articles in conference, journals	10

7.4.5 Reporting

The D&C leader maintains a spreadsheet to continuously report all the D&C activities performed during the lifetime of the project by the PAPAYA partners. This spreadsheet contains three tables that will help monitor the execution of the D&C strategy: "General", "Publications" and "Events", respectively depicted in Table 12, Table 13 and Table 14.

Table 12 - D&C activities reporting

Activity	Type	Partner(s)	Date	URL	Target Audience	Purpose	Language	Impact
Communication	Social media	…	…	…	…	…	…	…
Dissemination	Publication	…	…	…	…	…	…	…

Table 13 - Publications reporting

Type	Title	Authors	Partners	Title	Publisher	Place	Year	Pages	DOI	Peer-reviewed	Note
Article	…	…	…	…	…	…	…	…	…	…	…

Table 14 - Events reporting

Name	Date	Place	Partners	Material	Target Audience	Note
"Conf'18"	…	…	…	…	…	…

7.5 Partners contributions

Table 15 collects the contributions by each partner to the activities related with task T6.1 on dissemination and communication.

Table 15 - Partners contributions to D&C activities

Partner	Contribution
EURC	Logo Scientific publications Participation to various events such as conferences, workshops, forums Integrate teaching about PAPAYA research in their courses/lectures
IBM	Scientific publications Participation to various events such as conferences, workshops, forums Dissemination of project results to relevant business units in IBM (e.g. IBM Watson, IBM Cloud Private, and others)
KAU	Help in organisation of a thematic workshop at one of the upcoming IFIP summer schools for disseminating the project results to privacy researchers, PhD students and practitioners Scientific publications Participation to various events such as conferences, workshops, forums Integrate teaching about PAPAYA research in their courses/lectures
MCI	Video Dissemination of the use cases (e-health data analytics) Participation to various events such as conferences on the digital transformation of healthcare and workshops in partnership with University of Trento
ORA	Leader of WP6, coordinator of task T6.1 Social media (Twitter and LinkedIn) Design of communication materials (announcement letter, brochure …) Scientific publications Participation to various events such as conferences, workshops, forums Dissemination of the use cases (web and mobile data analytics)

ATOS	Design and Implementation of PAPAYA Website
	Update of the Website using the contributions of the partners
	Scientific publications
	Scientific journals as the "Ascent Journey" series of yearly publications where ATOS presents its view on innovation trends for technologies of the future, other type of publications.
	Participation to various events such as conferences, workshops, forums

8 When? – D&C timeframe

This section focuses on the timing of the implementation of the present D&C plan.

8.1 List of already done activities (at M6)

During the first months of the project, the PAPAYA members already initiated several D&C activities, which are reported in Table 16.

Table 16 - List of already done activities

Type	Month	Partner	Description of activities
Logo	M1	EURC	Design of the logo
Templates	M1	EURC/KAU	Design of Templates for Microsoft Word and PowerPoint (EURC) Design of Templates for Latex (KAU)
Interview	M2	EURC	Publication of an interview in the IMTech's blog[17]
Twitter	M2	ORA	Launch of PAPAYA presence in Twitter
LinkedIn	M2	ORA	Launch of PAPAYA presence in LinkedIn
Website	M3	ATOS	Design and activation of the website
Announcement letter	M3	ORA	Creation of the announcement letter, publication in the website
Contact	M3	EURC/KAU	First contact between PoseID-on and PAPAYA
Interview	M3	EURC	Interview with TeraLab, a French Big Data and Data science initiative, interested in PAPAYA outcomes
Publication	M4	EURC	Publication at DPM2018: *FHE-compatible Batch Normalization for Privacy Preserving Deep Learning* A. Ibarrondo, M. Önen DPM 2018, Barcelona, Spain
Event	M5	EURC	Presentation at DPM2018 Barcelona, September 7, 2018
Event	M6	EURC/ATOS	Participation at the PoSeID-On public event Digital Identity, Passport to the improved Digital World Rome, October 25, 2018

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[17] Interview of Melek Önen for the IMTech blog, issued on June 18, 2018
https://blogrecherche.wp.imt.fr/2018/06/18/papaya-plateforme-analyse-donnees-confidentielles/ [last accessed: September 21, 2018].

Event	M6	MCI	Participation to the innovation fair SMAU Milano 2018
			Presentation of a new product, MC Health Corner, the development of which is related to the activities carried out in the e-health use case
			Milan, October 23-25, 2018
Communication material	M6	ORA	Design of a first version for the PAPAYA flyer

8.2 Schedule for the rest

D&C activities in PAPAYA adopt the timeframe depicted in Figure 10. In a nutshell, communication about the project, its concepts and objectives is triggered since the very beginning of the project. It starts with the design of PAPAYA's visual identity and communication material and the launch of online presence, namely through the website and social media. Online presence will ensure a continuous communication of the project. Dissemination activities are kicked off once the first project results are available. In particular, in the first year of the project, we intend to have further scientific publications and we plan to increase interactions with other relevant projects. When the project results are mature enough, we envisage to improve the PAPAYA's visibility by attending business-related events and to spark our networking activities. Finally, to facilitate the exploitation of the PAPAYA results, we plan to implement demonstrators and software during the third year of the project.

The implementation of the present D&C activities will be punctuated by the editing of the two deliverables D6.3 and D6.5, respectively at M18 and M36, which will report the D&C activities.
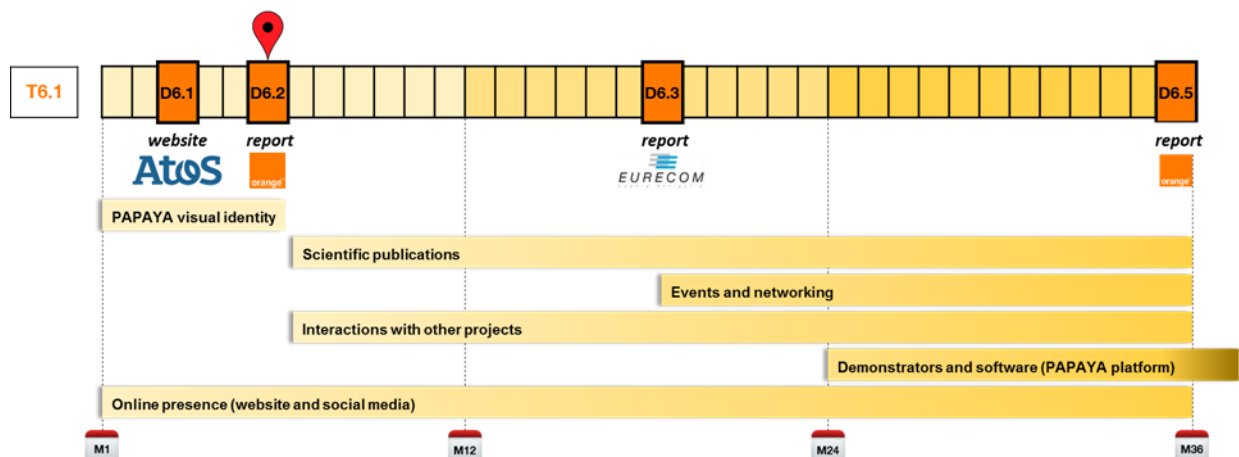

Figure 10 - PAPAYA's D&C timeframe

8.3 After the project

Beyond the project's lifetime, the partners will keep on promoting the PAPAYA results through their respective business activities. Besides, the PAPAYA website and the social media will still be alive at least one year after the project ends. The material produced during the project (videos, publications, deliverables, etc.) will remain accessible through the website.

The natural extension to D&C activities is the exploitation of the PAPAYA outcome. Deliverables D6.4 and D6.6 will set the exploitation strategy and report the exploitation activities that will be held by the PAPAYA partners.

9 Conclusions

The present deliverable D6.2 *Dissemination and Communication Plan* details the D&C strategy adopted by PAPAYA in order to promote the project and disclose its results to a wide audience. The document delineates the objectives of the D&C activities and shows how they are aligned with the project objectives and expected impacts. We precisely identified the target groups to whom we will be reaching out and we detailed the respective messages to convey. We also described the miscellaneous activities that have been or will be performed in order to implement the D&C strategy and we accordingly established an initial schedule. In order to evaluate the correct implementation of the D&C strategy, we also presented some indicators with target values and a reporting process that will help apply corrective measures and update the plan if necessary.

This plan ensures that the communication will raise awareness about the project and its context and guarantees that the PAPAYA results, be them scientific research outcomes or developed tools (the platform, the individual modules and the dashboard) will be thoroughly disseminated towards the relevant stakeholders. The visibility and the success of PAPAYA greatly depend on the effectiveness of the present D&C strategy that will assist in maximizing project's impacts and in fostering the take-up of the developed technologies.

The D&C plan is open for updates as the project moves forward. Subsequent deliverables (D6.3 and D6.5), reporting D&C activities at the middle and end of the project, may also reflect the potential updates in the strategy.

References

[1] E. González and M. Azraoui, "D6.1 – Public Project Website," PAPAYA, 2018.

[2] B. Bozdemir and M. Önen, "D1.1 – Project Handbook," PAPAYA, 2018.

Appendix 1

Table 17 shows a list of possible events the members of the consortium could attend during the lifetime of the project. There will be opportunities to promote the project and its results to a technical and/or industrial audience. All events may not allow for green open access but all PAPAYA related publications will be publicly available.

Table 17 - Possible events for PAPAYA

Name of Event
Data protection and privacy
Computers, Privacy and Data Protection Conference (CFDP)
Annual Privacy Forum
IAPP Europe Data Protection Congress
Privacy Enhancing Technologies Symposium (PETS)
IEEE International Conference on Privacy, Security, Risk and Trust
ACM Workshop on Privacy in the Electronic Society, co-located with CCS
DPM International Workshop on Data Privacy Management, co-located with ESORICS
ACM Workshop on Artificial Intelligence and Security, co-located with CCS
NIPS workshops on crypto and/or Artificial Intelligence
Workshop on Privacy by Design in Distributed Systems (W-P2DS)
Security
Availability Reliability and Security Conference (ARES)
IFIP SEC
ACM CCS
IEEE Security & Privacy Symposium
ESORICS
IEEE Transactions on Dependable and Secure Computing
ACM Transactions on Privacy and Security
Computers & Security
USENIX Security Symposium.
USENIX Summit on Hot Topics in Security, co-located with USENIX Security '18.
IEEE Security & Privacy
Legal and Socio-economical aspects
Workshop on Economics of Information Security
Law, Innovation and Technology
Computer Law & Security Review
Ethics and Information Technology
European Journal of Law & Technology
British Journal of Sociology
Other generalist conferences and journals
ACM Transactions on Information Systems
IEEE Security & Privacy Magazine
IEEE Computer
Communications of the ACM
Machine Learning, Data Mining, Artificial Intelligence (with Privacy as possible topic in the CFP)
ACM SIGKDD - Knowledge Discovery and Data Mining

ICDE - IEEE International Conference on Data Engineering
ICDM - IEEE International Conference on Data Mining
ECML PKDD - European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases
PAP -International Workshop on Personal Analytics and Privacy (PAP), co-located with ECML PKDD
CIKM - Conference on Information and Knowledge Management
SDM - SIAM International Conference on Data Mining
PPML - Privacy Preserving Machine Learning (co-located NIPS)