Identity Management in PUbLic SErvices

D2.5 IMPULSE piloting roadmap V1

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Deliverable nature:	Report (R)
Dissemination level: (Confidentiality)	Public (PU)
Delivery date:	30-11-2021
Version:	0.8
Total number of pages:	23
Keywords:	piloting roadmap, pre-piloting stage, piloting activities, pilot experiments

Executive summary

The work package 2 (WP2) task of creating a co-design methodology is aimed at providing general instructions to the co-creative activities that facilitate the instantiation of pilots in six different case study locations. The end-user pilots comprise task T2.5, aiming at testing the eID solution prototype that will be developed by the technical partners to the IMPULSE consortium within the scope of WP5.

To facilitate these pilot experimentations, WP2 serves to introduce a set of preliminary actions jointly executed by the project participants. It involves various stakeholders with different technical and domain-specific knowledge in the co-creation of the IMPULSE experiments. These experiments are designed to attest the eID solution and validate its functionality in a controlled environment enabled by the joint efforts of the participants.

These actions take place during the initial stage of the piloting roadmap (pre-pilot stage) which is produced as part of WP2. The pre-piloting stage describes preparatory measures necessary for launching the first iteration of pilot experimentations. Considering various aspects of these activities, the first version of deliverable D2.5 presents a set of collaborative actions generalized across all six case studies.

Document information

Grant agreement No.	101004459		Acronym	IMPULSE
Full title	Identity Management in PUbLic SErvices			
Call	DT-TRANSFORMATIONS-02-2020			
Project URL	https://www.impulse-h2020.eu/			
EU project officer	Giorgio CONSTANTINO			

Deliverable	Number	D2.5	Title	IMPULSE piloting roadmap – V1
Work package	Number	WP2	Title	Co-creative design and piloting
Task	Number	T2.2	Title	Co-creative requirements elicitation scheme and piloting roadmap

Date of delivery	Contractual	M10	Actual		M10
Status	version 0.4		☐Final version		
Nature	☒Report ☐Demonstrator ☐Other ☐ORDP (Open Research Data Pilot)				
Dissemination level	☒Public ☐Confidential				

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Summary (for dissemination)	The pre-piloting stage describes preparatory measures necessary for launching the first iteration of pilot experimentations. The first version of D2.5 presents a set of collaborative actions generalized across all six case studies.
Keywords	piloting roadmap, pre-piloting stage, piloting activities, pilot experiments

Version Log			
Issue Date	Rev. No.	Author	Change
28-09-2021	0.1	Stepan Bakhaev, José Camposano (LUT)	Initial version of the document. Outline and structure.
12-10-2021	0.2	Stepan Bakhaev, José Camposano (LUT)	Intermediate check-up, adjusting the outline and contents.
09-11-2021	0.3	Bilal Naqvi, Stepan Bakhaev (LUT)	Intermediate check-up
11-11-2021	0.4	Annika Wolff, Bilal Naqvi, Stepan Bakhaev (LUT)	Intermediate check-up of the draft version, feedback on the content's adjustments
19-11-2021	0.5	Alicia Jiménez (GRAD)	Deliverable review for submission
18-11-2021	0.6	Kristrún Th. Gunnarsdóttir (RVK)	Review
23-11-2021	0.7	Riccardo Santilli (CEL)	Review
26-11-2021	0.8	Stepan Bakhaev (LUT)	Document adjustments based on partner's feedback

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Abbreviations and acronyms

- **ADR:** Action design research
- **AI:** Artificial intelligence
- **ARH:** City of Aarhus, Denmark
- **BIE:** Building, intervention, evaluation
- **CEL:** CyberEthics Lab.
- **DLT:** Distributed ledger technology
- **DPA:** Data processing agreement
- **eID:** Electronic identification
- **ERTZ:** Basque Government – Security Department – Ertzaintza
- **GDPR:** General Data Protection Regulation
- **GIJON:** City of Gijón, Spain
- **MOP:** Municipality of Peshtera, Bulgaria
- **NDA:** Non-disclosure agreement
- **PA:** Public administration
- **PAS:** Public administration server
- **RVK:** City of Reykjavik, Iceland
- **SO:** Specific objective (IMPULSE DoA)
- **UC/IC:** Union of Italian Chambers of Commerce / InfoCamere
- **WP:** Work package (IMPULSE DoA)

1   Introduction

The overall vision of the IMPULSE project defines the goals of WP2 in establishing a co-creative design methodology for the implementation of an eID solution according to the requirements of public administrative services. These include ensuring the robustness, security, and trustworthiness of the eID technology to the end-users. To accomplish the desired usability of the IMPULSE technology, the project employs an iterative approach aimed at incremental improvements of the eID solution through two rounds of pilot experimentations.

The pilot experiments are designed to evaluate the feasibility of the IMPULSE solution by objectively assessing diverse aspects of the proposed solution. This includes examining its technical feasibility in a series of end-user engagements taking legal, ethical, and operational features into account. The experiments are preceded by the pre-piloting plan which is used to formulate the design of full-scale pilots.

During the pre-piloting stage, co-creation activities organised by WP2 are carried out to shape the pathway for piloting the IMPULSE case studies. These incremental steps will be taken prior to the first iteration of pilots to enable a testing environment for IMPULSE which can be replicated across all six pilot locations.

1.1   Aim of the deliverable

The purpose of D2.5 is to deliver a roadmap of a pilot instantiation. This first version of the document introduces a set of activities in preparation for the experiments across all sites of the IMPULSE case studies. These preparatory measures prescribe the joint activities of the pre-piloting stage, designed to facilitate agile experimentations and incorporated in T2.5, and they provide input to the enabling of a controlled environment for attesting the usability of the IMPULSE solution.

Deliverable D2.5 is aligned with Goal 1 of the IMPULSE project, which is to specify the requirements, acceptance, and impact on the use of the eID technology from diverse standpoints. Particularly, it follows the specific objective SO1.4 to test and validate the IMPULSE solution in six different locations (five European countries) considering the prerequisites of the case studies.

D2.5 is focused on collaboration among the project partners and this work serves to design a full-scale pilot testing of IMPULSE by exploring the technical, legal, ethical, and operational aspects of the experiments. Ultimately, realising the pre-piloting plan throughout the co-creation process will produce an experimental setup for IMPULSE to undergo a series of test cases executed by project team. These activities are outlined and described in the following subsections of the present document.

1.2   Stages of co-creative process

This first version of D2.5 reflects the initial stage of piloting roadmap which is essentially a course of action on preliminary arrangements. The pre-piloting stage runs through the February 2021 – August 2022 period (M1-M18), preceding the first pilot round (M19). On the given timescale, it encompasses preparatory activities that create a testing environment for demonstrating and validating the IMPULSE solution. Figure 1 features a visual depiction of the piloting roadmap, providing an overview of the pre-piloting stage activities and milestones.
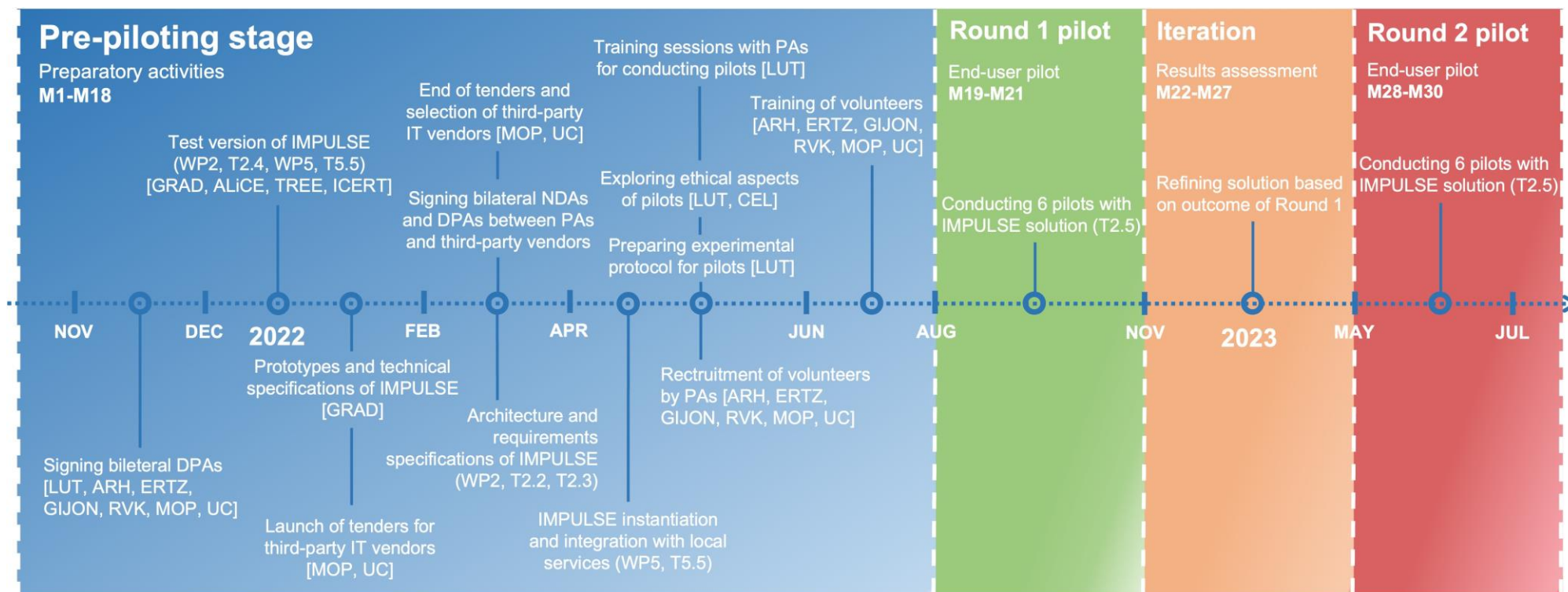
Figure 1: Piloting roadmap: pre-piloting stage

Preliminary actions toward the pilots include establishing agreements regarding data controllership and processing at the piloting sites. These agreements will define the attitude of project participants during the pre-piloting stage and set a formal basis for conducting the experiments. A test version released concurrently by the technical partners of the project (WP5) will provide the technological foundation for subsequent instantiation and integration of the IMPULSE solution with the public services that co-operate with the case studies. The third-party IT vendors selected in tenders by the public administrations will be involved to perform the necessary installation processes on-site. Eventually, the recruitment campaigns arranged by the municipalities to involve volunteers in the end-user pilots will enable a testing environment, incorporating workshops and training programmes for the participants.

Completing these steps prior to the first round of pilots will facilitate the test experiments by means of co-creative activities designed for the assessment of the IMPUSLE solution by the public services' users.

2   Overview of the research approach

The co-creation activities of the IMPULSE project partners are suggestive of research contributions embedded in the design of the eID solution. The user-centric nature of the IMPULSE platform and the diverse organisation of different knowledge domains involved in the project consortium are also suggestive of conceptual complexity in the development of the artefact. While the design-science research paradigm emphasises technological aspects of the solution, it puts artefact-building activities prior to evaluation within the organisational context. This results in less support for knowledge generation through design (Hevner et al., 2004). Contrary to design- and development-centred approaches however, the co-creative approach implies concurrence of building and evaluating the artefact, hence making the analyses of its continuing adaptation and local use practices suitable for generalising. To achieve this, the researchers intend to employ a combination of behavioural- and design-science paradigms in a way that is formally referred to as the action design research (ADR) method.

The ADR method is useful for open-ended information systems research problems that require repeated intervention in organisations to establish in-depth understanding of the artefact-context and subsequent developments of the socio-technical design agenda (Sein et al. 2011). It features an iterative design process comprised of artefact building, intervention in the organisation, and evaluation activities, which in sum interweave in a BIE-cycle. These procedures result in continuous evaluation of the problem-domains in question, and thus realising coherent design principles upon which a solution is built. The ADR method, complemented with design thinking approach, supports a co-creation process based in deep collaboration between researchers, practitioners, and end-users. As a mode of cognitive (and epistemological) practice, it emphasises shared understanding of the artefact contexts, helping to explore both the problem and solution domains, and their iterative alignment (Lindberg et al., 2011). Figure 2 provides a descriptive model of the ADR process adapted for the IMPULSE WP2 co-creative design and piloting work.
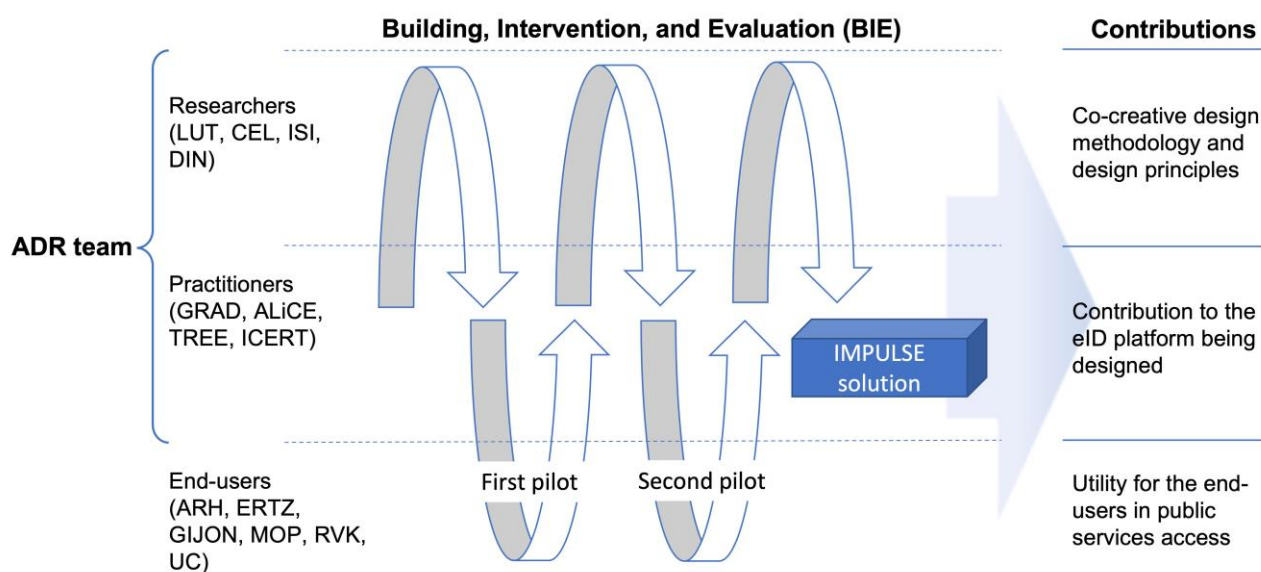

Figure 2: ADR methodology at the core of the IMPULSE co-creative process

Iterations in a form of a BIE-cycle, allow for continuous improvement of the artefact design through the assessment of each exit-stage outcome. For the IMPULSE solution, two rounds of piloting experimentations are intended to evaluate specific use contexts and determine design principles by means of co-creative sessions among project partners. Assessment of the first pilot outcomes is aimed at identifying new requirements for the IMPULSE eID solution, as well as to contribute to the refinement of the artefact. Following the first iteration, the value and utility of the solution, as well as anticipated and unanticipated impact should surface in evaluating and determining an enhanced version.

On the premise of the dynamic emergence of the IMPULSE solution in its contextual surroundings, D2.5 is aimed at conceptualising the piloting activities across the six case studies within the context of T2.2. In the following sections, this deliverable will define the roadmap through which this iterative co-creative process will be achieved.

3   Elements of pre-pilot planning

The instructions on pre-piloting activities apply to distinct aspects of the pilots including the account of participants, communication channels, data controllership and processing, and technical implementation procedures. This section provides an overview of the key preparations with respect to the pilot experimentations.

Logical basis of a pilot experimentation is featured in the generic scheme shown in Figure 3. Its key elements provide a rationale for the structure of this deliverable that are covered in the respective sections.
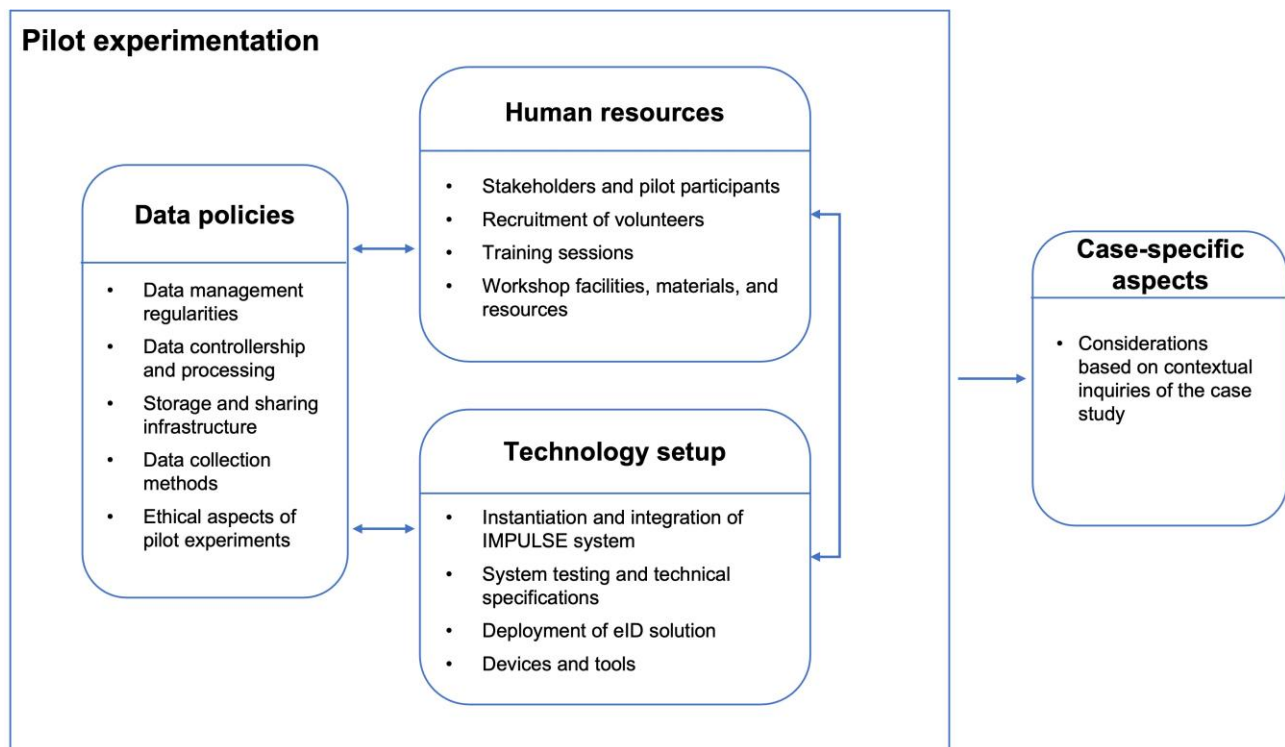

Figure 3: Elements of pilot experimentation

The sections of D2.5 are outlined as follows: First, to grasp the scope of the pre-piloting stage, the stakeholder groups are introduced based on the findings of previous WP2 deliverables. Given the overview of the involved parties, activities on establishing data management policies are described to specify the respective practices. Subsequently, the deliverable features the procedures for the instantiation and integration of the IMPULSE solution, which are required before the functionality of the solution can be demonstrated and validated. Finally, the deliverable addresses the training sessions arranged by the public administrations to develop a basis for conducting the workshops with pilot participants. The case-specific considerations are described in a separate section to illustrate the inquiries of certain pilot case sites.

3.1   Pilot participants

To enable a more controlled testing environment for the IMPULSE solution, the pre-piloting plan is comprised of collaborative practices involving various groups of stakeholders. These groups have been identified in the previous work of WP2, and thus provide diversity to the piloting contexts. Particularly, D2.1 features their roles in the IMPULSE pilot cases in a section on stakeholder analysis. This summary serves as the basis for identifying the roles that will support pilot experiments at each case study site.

The stakeholders who participate in the pilots are listed in Table 1 adopted from D2.1.

Table 1: Pilot participants and stakeholders

Stakeholder	Piloting role	Description
Responsibles (Execution)/Political	Case owners	Oversee the system throughout its lifecycle phases, coordinate pilot experimentations locally on-site, control the data collected in piloting, support recruitment for case study.
Functional	Citizens (regular users)	Interact with the IMPULSE solution during the pilot experiments. Complete the tasks based on the test cases using the device for onboarding their identity and accessing the relevant public service in their case study region.
Developers (Technical)	Technologists	Technical partners of the IMPULSE consortium and external third-party IT vendors directly involved in the system development, instantiation, and integration with local services. Solve technical problems that occur during pilot activities.
Hired consultants	Trainers	Provide necessary training to the pilot participants and guidance on interacting with IMPULSE in test cases.
Hired consultants	Facilitators	Conduct the workshop sessions supporting participants with operational and technical issues. Facilitate pilot activities following the common pilot scheme.
Advisors and experts	Researchers	Have a deep knowledge about the project domain, provide a co-creation methodology for designing pilots and their evaluation. Assess the experiments based on data collected in case studies.

3.2   Cross-case preparations

3.2.1   Data sharing, storage, and management

This section describes activities regarding the establishment of the data controllership, processing, and sharing. Table 2 outlines these collaborative practices as follows.

Table 2: Activities on data management regulations

ID	Activities	Description	Assigned to partner(s)	Completion date
DAT01	Prepare bilateral DPAs between LUT and PAs	The Data processing Agreements (DPAs) are legally binding contract that states each party's right and obligations concerning personal data protection. The DPAs define the respective roles of data the controllers, i.e., public administrations, and the data processor (LUT) as the coordinator of the pilots. CEL support the process considering the legal aspects of the regulations.	LUT, CEL, ARH, ERTZ, GIJON, RVK, MOP, UC	M11

DAT02	Prepare NDAs and DPAs between PAs and third-party IT vendors	Non-disclosure and data processing agreements are aimed at securing confidentiality and regulating access to the primary data related to project piloting activities by third-party IT vendors, external to the consortium. These organisations will perform instantiation and integration processes on behalf of public administrations restrained from utilising the data for malicious purposes.	LUT, CEL, ARH, ERTZ, GIJON, RVK, MOP, UC	M12
DAT03	Set up data sharing infrastructure	Following the DPAs between public administrations and LUT, data collected on piloting sites will be stored locally on behalf of the data controller. The access to the data will be managed by the case owners. Public administrators will provide necessary infrastructure deployed on local servers of the employed data sharing platforms.	ARH, ERTZ, GIJON, RVK, MOP, UC	M13-M14
DAT04	Prepare DPAs between PAs and technical partners	The DPAs define the roles of data controllers (PAs), and data processor represented by some of the technical partners (TREE, and ALiCE) as developers of IMPULSE solution components with access to the personal data of case study volunteers for processing. CEL support the process considering the legal aspects of the regulations.	ARH, ERTZ, GIJON, RVK, MOP, UC, TREE, ALiCE	M14-M15

Recommendations on data management are communicated in guidelines that encompass data collection, storage, sharing, and the attitude to operating with data. It relies on a data management framework that was previously produced in D1.3 of the project. Within WP2, these data management practices are considered a part of the piloting activities, given that the data collected at the case study sites will be stored subsequently, analysed, and potentially distributed among IMPULSE partners. Therefore, to secure the confidentiality of certain types of information, the data management procedures are regulated by establishing data protection and processing principles.

During the first stage of pre-piloting, the IMPULSE consortium partners reached a decision on preparing bilateral agreements on data processing for the pilots. Data processing agreements (DPA) were composed by LUT for signing by each of the six public administrations that are the pilot case owners. These agreements determine LUT as the primary processor of data while the role of controllers falls on the public administrations. In essence, the DPAs restrain access to primary data by other partners of the consortium. Anonymised data can be shared upon request and made available as generalised findings reported, e.g., in WP2 deliverables. This way, the DPAs are intended to ensure legitimate dissemination, while avoiding informational gaps between the project partners.

In parallel, the technical partners will also agree upon and sign DPAs with the PAs. As eID component developers, they will share personal data collected from the PAs at the pilot sites through APIs with technical components for the processing of those data. These agreements will ensure legitimacy and ethicality of data usage and information collected from the citizen volunteers for research and testing purposes. These considerations will be also included in the consent forms agreed upon and signed by PAs and citizen volunteers.

Instantiation of the IMPULSE solution on piloting sites and its integration with the local services, involves third-party organisations. These organisations selected by way of tenders, will perform IT functions on behalf of the public administrations and therefore their access to the sensitive information should be regulated and restricted where possible. These partnerships will be regulated using bilateral DPAs and non-disclosure agreements (NDA) between the public administrations and the third-party vendors. The preparation of those agreements will be supported by CEL and the respective municipal authorities considering the requirements and the legal implications of the inquiries.

In accordance with the established agreements, data collected during the pilots will have to be stored on site. The arrangement of the necessary infrastructure which includes servers and data sharing services will be the responsibility of the public administrations, and the deployment can be supported by the partnering vendors and IT departments. The input from end-users (e.g., interview recordings, transcripts, audio and video demonstrations captured during workshops, etc.) will be managed primarily by the case representatives, since they coordinate piloting activities on-site and are able to communicate in local languages with the volunteer participants. Availability of information will be controlled by the public administrations, and LUT acting as the primary data processor will provide guidance on the data collection methods.

3.2.2 Technology setup

This section provides an overview with respect to the instantiation, integration, and deployment of the IMPULSE eID solution at the piloting sites. Table 3 summarises activities of technological setup for the experiments.

Table 3: Activities on instantiating IMPULSE

ID	Activities	Description	Assigned to partner(s)	Completion date
TEC01	Release dummy version of IMPULSE	Technical partners develop the initial version of IMPULSE, in order to understand and being able to explain the requirements to the case studies.	GRAD, ALiCE, TREE, ICERT, CEL	M12
TEC02	Release test version of IMPULSE	Technical partners develop the initial version of IMPULSE for test purposes for the first iteration of piloting. System and integration tests are performed to validate IMPULSE functionality. IMPULSE prototype and technical specifications are introduced to the consortium. Test PAS server is provided to the public administrations.	GRAD, ALiCE, TREE, ICERT, CEL	M15
TEC03	Perform user acceptance test	LUT evaluates the prototypes against the user requirements based on previous deliverables of WP2.	LUT	M13-M15
TEC04	Assess technical specifications	Joint sessions between technical partners and public administrations are conducted to introduce technical specifications of IMPULSE (WP5). This should provide PAs the prerequisites for initiating tender processes and possible system instantiation.	GRAD, LUT, ARH, ERTZ, GIJON, RVK, MOP, UC	M12-M13

TEC05	Launch tender processes for selecting external IT vendors	MOP and UC launch tender processes for selecting third-party IT vendors who will perform IMPULSE instantiation and integration of local services on behalf of public administrations.	MOP, UC	M14-M15
TEC06	Replicate local services for test cases	Third-party vendors and internal IT teams of public administrations replicate their local services for integrating with IMPULSE and enabling test version of the eID solution.	ARH, ERTZ, GIJON, RVK, MOP, UC	M15-M16
TEC07	Complete integration of IMPULSE and local services	Integration procedures are completed at each piloting site. Case representatives coordinate the activities and work in collaboration with the technical partners of the consortium. Local services are complemented by the IMPULSE eID system, and the functionality validated.	GRAD, ARH, ERTZ, GIJON, RVK, MOP, UC	M16-M17
TEC08	Procure the devices to run IMPULSE in pilot experiments	Public administrations coordinate the procurement of the devices capable of running the IMPULSE app. Functionality of the devices should match the technical specifications of IMPULSE.	ARH, ERTZ, GIJON, RVK, MOP, UC	M17-M18

Pilot experimentations of T2.5 will be conducted to demonstrate and validate the functionality of the eID solution. A usability assessment of IMPULSE for both onboarding and authorisation of digital identity accessing public services, will be performed based on WP5 outcomes that provide the first test version of the service.

The IMPULSE app is the application that serves to validate the identity of the user, i.e., citizen or legal entity. The system incorporates artificial intelligence (AI) models that enable biometric authentication and verification of digitised documents. In the earlier stages of pre-piloting, training processes of the models have been initiated by the technical partners in the context of T5.2 and T5.3, respectively. For the first round of pilots, the partners decided to collect one type of ID document per each case study site. These samples of documents have been collected mainly inside the organisations participating in the consortium for training the system. The AI-based biometric authentication model has been implemented utilising the internal resources of the lead technical partner.

Integration of the components and implementation of the first test version of IMPULSE will be completed by M11 within the scope of WP5. It includes system and integration testing performed by the technical partners (GRAD, ALiCE, TREE, iCERT) to ensure the system is ready to be instantiated for pilot experimentation and present the IMPULSE prototypes to the consortium (M15). Following the system and integration testing, LUT will perform expert evaluation of IMPULSE as the preliminary usability inspection (M13-M15).

The preliminary activities also include enabling a test public administration server (PAS) to the municipalities (M15). Subsequently, specifications will be communicated to case study representatives through workshops arranged as part of WP5 activities organised by the technical partners (M12-M13). These sessions are intended to identify the requirements for integrating IMPULSE and local services, and thus allow the municipalities to launch tender processes for selecting third-party IT vendors who will perform integration on-site. During project meetings with case representatives, two of the six municipalities expressed their intentions to involve external IT vendors to manage system instantiation procedures, namely MOP and UC. The other public administrations, ARH, ERTZ, GIJON, and RVK, will perform the integration by means of internal IT teams and/or preselected partners. These activities will be arranged in accordance with previously established data management agreements.

Following the proposed timeline for the pre-piloting stage, the tenders and selection processes will be completed by the end of the March – April 2022 period (M14-M15), marking the launch of the system instantiation at the piloting sites. To enable a more controlled testing environment for the eID solution, the local services will be replicated by the PAs in collaboration with external IT organisations (where required) and integrated with IMPULSE in cooperation with the technical partners of the consortium. These processes will take place during the May-July 2022 period (M16-M18) and may differ depending on the readiness of deployment on site.

The IMPULSE app is designed to operate on the volunteer's device and to store the encrypted sensitive data locally. To achieve this, the application has to be installed on smartphone devices capable of running the system. Integrated with the local services of the case studies, the app will provide access to the chosen public service through a web browser or a physical interface once the user's identity is verified. The procurement of smartphone devices that meet the technical specifications of IMPULSE system will be arranged by the municipalities coordinating piloting activities in case the volunteers do not own a device meeting the requirements.

3.2.3   Human resources

This section provides an overview of the preliminary actions to instantiate pilot experiments at the case study sites. Table 4 outlines these co-operational actions performed by LUT and case owners as follows.

Table 4: Activities on trainings and workshops

ID	Activities	Description	Assigned to partner(s)	Completion date
HR01	Prepare experimental protocol for pilots	The protocol describes in detail how the experiments will be conducted. It includes preparing a script for user testing as well as evaluation criteria for experiments to follow. The activity implies preparations of survey forms and interview questions for collecting user feedback.	LUT	M16
HR02	Explore ethical aspects of pilots	Verifying the ethical and legal rationale for the pilots to be conducted in each pilot location in accordance with the local legislation. Developing consent forms for each case study considering local legal requirements and personal data processing regulations.	LUT, CEL	M16-M17
HR03	Provide methodology on conducting workshop and training sessions for PAs	LUT conducts preparatory sessions providing guidance on workshop arrangement for public administrations to coordinate the on-site activities. It includes specifying testing environment which includes required facilities and specialists to perform training of volunteers.	LUT	M16
HR04	Prepare for workshop sessions incorporating specialists and facilities PAs	Public administrations hire specialists to conduct and facilitate the workshops with citizens in local spaces (e.g., living labs, conference rooms) providing the necessary equipment and resources.	ARH, ERTZ, GIJON, RVK, MOP, UC	M16

HR05	Initiate recruitment campaign to involve volunteers among the citizens	Public administrations initiate recruitment campaigns in each of the piloting location channelling the recruitment through the local networks and social platforms. The process follows the recruitment scheme developed by LUT and implies the involvement of 15 to 20 volunteers in each of the case studies. Consent form will be signed between PAs and volunteers.	ARH, ERTZ, GIJON, RVK, MOP, UC	M16-M17
HR06	Conduct three-day walkthrough workshop in each pilot site	Workshop sessions include training of testers on interacting with IMPULSE and familiarising with test cases according to the prepared test scripts. The activity is coordinated by public administrations on site and LUT provides support and guidance during the intermediate sessions.	LUT, ARH, ERTZ, GIJON, RVK, MOP, UC	M17-M18

The testing environment for IMPULSE will be enabled by means of preparatory training sessions and workshops which will be arranged by the public administrations locally with the support of and guidance from the LUT research team. The initial step for LUT during May 2022 (M16) will be preparing the experimental protocol which provides a rationale for the design of end-user pilots. This protocol will consider diverse aspects of the experiments including:

- Legal and ethical issues from a local, national, and international perspective
- Recruitment scheme to be implemented by each pilot site and citizens recruited for piloting
- Defining evaluation criteria and research goals
- Specifying all relevant resources and materials to be prepared in advance to support the pilots.

Considerations on legal and ethical issues will be supported with the expertise from CEL and legal authorities of the municipalities in the given timescale concurrently (M16). Exploring these aspects will ensure that the experiments are compliant with GDPR regulation and local (national) regulations in the respective inquiries. These issues will be revised if necessary to ensure an up-to-date version of the experimental protocol, especially prior to the first iteration of pilots.

LUT will disseminate the instructions providing support and guidance to the public administrations who will subsequently coordinate the pilot activities and the necessary preparations. A series of remote online meetings and follow-up discussions will be arranged in M16-M17 period between the research team and case representatives, to familiarise public administrations with the design of pilot activities.

IMPULSE usability testing will be conducted in a controlled environment which involves the participation of volunteers, i.e., citizens selected for the pilots. The recruitment campaign will be initiated at each pilot site and performed using local networks of partners, social platforms, and channels, to disseminate information of the upcoming experiments at pilot locations. This activity will take place in June – July 2022 (M16-M17) as soon as the recruitment scheme is delivered to the public administrations by LUT within the experimental protocol context. To enable a controlled environment for the pilot experiments and provide a foundation for the outcomes' evaluation, LUT considers the required number of the participants between 15 to 20 people. The recruitment implies signing consent forms by the citizens to ensure the protection of the personal data collected during the pilot activities. These forms will be developed in advance by the LUT and CEL teams and translated into local languages by the representatives of the case studies. This way, it ensures that all the individuals participating in pilots will be volunteers and they are given the background information and rationale for the piloting and the results anticipated. The recruitment will be completed prior to the beginning of training workshops organised in June -July 2022 (M17-M18).

Experimental protocol will detail the activities that take place during the pilots and the co-creative methods which will support their implementation. The participants are expected to follow the test case scripts that will generally include:

- Completion of pre-pilot questionnaire or interview session
- Installation of IMPULSE app on user's device
- Onboarding of the user's identity with the ID document
- Authentication in a public service with IMPULSE
- Completion of standard usability questionnaire or trust survey

Instructions for the piloting activities will be delivered to volunteer participants through the workshops arranged flexibly over a period of 1-3 days (depending on the availability of facilitators and volunteers), coordinated by the public administrators in the pilot locations. These workshops will be conducted in a physical environment considering local recommendations on organising public events and social distancing enforced by local health authorities in the regions. The physical environment should be living labs, conference rooms, or other facilities suitable to deliver the test case script. These spaces should be facilitated with all the equipment necessary to perform the training sessions, especially taking into account the limitations of disabled people. Public administrations will coordinate the activities of qualified trainers and facilitators in preparatory procedures providing the operational setup for the pilot experiments.

3.3   Case-specific considerations

This section is dedicated to providing description of pre-piloting activities that do not follow the general course of action due to certain limitations and inquiries. These exceptional measures and case-specific considerations are brought on by the contextual surroundings of the piloting sites that are stated in terms of the local legislation, demographics, and socio-economic factors, and therefore cannot be affected for change. Table 5 outlines these considerations in respect to specific case study sites.

Table 5: Activities in case-specific considerations

No.	Activities	Description	Assigned to partner(s)
1.	Recruitment of volunteers for the first piloting round	The recruitment campaign implies the involvement of volunteers selected from the internal personnel of the public authority. To maintain the neutrality of the testing audience towards the solution, ERTZ initially considers the following groups of the internal personnel: • Sales and administrative department • Cleaning and maintenance staff • Security guards not performing policeman duties • Students from ERTZ academy • ERTZ members not directly involved in IMPULSE project	ERTZ
2.	Technical instantiation of IMPULSE and integration with local public service	Following the case study, the municipality of Aarhus will perform the integration of IMPULSE with the physical interfaces of the public service, i.e., retrieval of physical ID documents from the lockers. This will imply specific arrangements to the design of the pilot experiments to ensure the seamless usability experience for the citizens.	LUT, ARH

4   Conclusions

Deliverable D2.5 in the current version provides an outline of the activities prior to the first iteration of pilots. To conceptualise a roadmap of the co-creation process, the consortium partners will employ an iterative research approach, which is formulated as a cycle of continuous building, intervention, and evaluation of the IMPULSE eID solution, unfolding the co-creative nature of the project. The arrangements of the preliminary steps in the initial stage of the roadmap facilitate the creation of a controlled testing environment, to demonstrate the solution to potential end-users and validate it in terms of its functionality.

The preparatory activities of the pre-piloting stage of the IMPULSE project, facilitate the pilot experimentations of task T2.5. The main outcome of piloting will be evaluation of data that can be distilled to produce new knowledge on eID technologies, and subsequently produce new requirements for the IMPULSE eID solution. The piloting activities can potentially reveal technical issues that have not been identified during the system's instantiation. To ensure the robustness of the usability testing, the piloting processes will be iterated twice, considering the pre-piloting activities as a course of action to be taken prior to each round of experimentation.

The pre-piloting plan should then facilitate the running of the six case-study pilots of the project, considering the contextual surroundings of the IMPULSE instantiation and use. The joint activities of the project researchers, host organisations, and technical partners enable a co-creative process for a multi-disciplinary assessment of the proposed eID solution.

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Annex A   Data sharing requirements

Data collected in (pre-)piloting activities	Type of data (primary or secondary)	Data storage location (e.g., SharePoint folder, local network drive, offline only)	LUT	Case owners (ARH, ERTZ, GIJON, MOP, UC/IC, RVK)
Raw responses of questionnaires and surveys	Primary	Webropol servers located in Finland	C	P
Audio/video recordings of interviews with case stakeholders, conducted in English	Primary	LUT Microsoft OneDrive cloud or offline local storage	C	P
Transcriptions (or minutes) of interviews with case stakeholders, conducted in English	Secondary	LUT Microsoft OneDrive cloud or offline local storage	C	P
Audio/video recordings of interviews with case stakeholders, conducted in local languages different than English	Primary		-	C
Transcriptions (or minutes) of interviews with case stakeholders, conducted in local languages different than English	Secondary		P	C
Audio/video recordings of workshops and co-creation sessions with end-users (physical or online), likely conducted in local languages different than English	Primary	Miro (?)	P	C
Summary of results (or minutes) in English of workshops and co-creation sessions with end-users	Secondary	IMPULSE TREE SharePoint folder	P	C
Online diaries and other feedback submitted through web forms by end-users	Primary		P	C
3-days walkthrough workshop data (training of facilitators from the public administrators)	Primary	IMPULSE TREE SharePoint folder, Miro (?)	C	P
Audio/video recordings of experimental workshop(s) with DIB and DIHs	Primary	Miro (?)	P	-
Summary of results (or minutes) in English of experimental workshop(s) with DIB and DIHs	Secondary	IMPULSE TREE SharePoint folder	P	-

P – Processor, any party that will access, read, analyze, and/or manipulate the data collected by the controller on their behalf.

C – Controller, primary custodian and party that is responsible for determining the purpose and needs of collecting, storing, and sharing the data.