D5.3 'Pilot planning and operational management report III'

Authors: **Gianna Avgousti (EBOS)**

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TRUSTS

Trusted Secure Data Sharing Space

D5.3 'Pilot planning and operational management report III'

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Responsible Author:	Gianna Avgousti (EBOS)		
Contributions from:	Ioannis Routis (NOVA), Manos Paschalakis (REL)		
Peer Reviewers:	Victor Mireles (SWC), Ioannis Markopoulos (NOVA)		

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Glossary of terms and abbreviations used

Abbreviation / Term	Description
AI	Artificial Intelligence
AML	Anti-Money Laundering
BV	Business Validation
CRM	Customer Relationship Management
D	Deliverable
E2E	End 2 End
ERP	Enterprise Resource Planning
EU	European Union
FRs	Functional Requirements
GDPR	General Data Protection Regulation
H2020	Horizon 2020
KPIs	Key Performance Indicators
M	Month
ML	Machine Learning
MVP	Minimum Viable Product
NBA	Next-Best-Action
PDCA	Plan–Do–Check–Act
PEP	Politically Exposed Persons
RiSC	Risk Assessment and Compliance
ToC	Table of Contents
TRM	Transaction Monitoring
TRUSTS	Trusted Secure Data Sharing Space
TV	Technical Validation
UCs	Use Cases
UI	User interface
WP	Work Package

Executive Summary

This deliverable is part of the Work Package (WP) 5 "Demonstration of the TRUSTS Platform in three business-oriented Use Cases (UCs)", of the ''TRUSTS - Trusted Secure Data Sharing Space" project and gives a detailed description of the planning and operational information of the three business-oriented UCs according to the business and functional requirements defined in WP2 "Requirements Elicitation and Specification" trailed during the TRUSTS demonstration.

This is the final version of the project's Deliverable titled: ''Pilot planning and operational management report'', addressing Task 5.1 "Planning, setup and operational management", along with the interrelated work that has been performed under WP2 (T2.2 "Testing framework and benchmarking" and T2.3 "Testing Framework").

To validate the effectiveness of the TRUSTS solution through the developed platform, three demonstration scenarios, namely UC1: Smart big data sharing and analytics for AML compliance; UC2: Agile Marketing through Data Correlation; and UC3: The data acquisition to improve customer support services, were defined. These scenarios are based on the three business-oriented UCs described in the first version of this report D5.1 "Pilot planning and operational management report I".

The purpose of this deliverable is to describe the methodology, overall planning, and framework of each UC. The direction of this final version is to conclude on the procedure for the implementation and testing plan of the TRUSTS UCs which was continuously updated and reported at the end of each demonstration phase. A full description of the selected scenarios followed, as well as details on the validation methodology used is provided in this report. The results of the UC tests and of the validation phases carried out in collaboration are reported in D5.11 in parallel submitted in November 2022.

Following the conclusion of the two defined demonstration cycles of TRUSTS, the main conclusion of this deliverable is that the chosen approach in setting up, deploying, and monitoring the UCs in a structured framework of implementation management was successful.

The process described in this Deliverable concludes with this version offering a detailed view of the management endeavour to successfully address the project objectives and in collaboration with other WPs promote and advance the realisation of TRUSTS. D5.3 presents the final implementation of the TRUSTS platform demonstration plan and operational management that has been developed during the project to demonstrate on a real-time implementation the solution for different scenarios.

2 Introduction

TRUSTS supports the emergence of a European data market and economy, based on secured, safe and General Data Protection Regulation (GDPR) compliant data exchanges, with the purpose to develop a platform supporting these exchanges.

TRUSTS ensures 'trust' in the concept of data markets via its focus on developing a platform based on the experience of two large national projects, while allowing the integration and adoption of future platforms. The TRUSTS platform acts both independently and as a platform federator, while investigating the legal and ethical aspects that apply on the entire data valorification chain, from data providers to consumers.

The project includes three UCs, involving the processing of aggregated personal (e.g., name, surname, nationality) and public data (e.g., RDC[1]) for the testing and validation of the TRUSTS platform. Depending on the particularities and specific characteristics of the UCs, described within this deliverable. The appropriate guidance towards compliance with the Horizon 2020 ethical guidelines and the European Union (EU) data protection framework were provided before the start and during the execution of the trials.

D5.3 "Pilot planning and operational management report" is the final version of a series of deliverables with the same title responding to the work performed originally within T5.1 "Planning setup and operational management". The deliverable is part of the WP5 "Demonstration of the TRUSTS Platform in three business-oriented UCs" and its purpose is to give a detailed concluding analysis of the planning and operational procedures followed by the three business-oriented UCs.

D5.3 aims to briefly revisit the structure of the UCs setup and the aspects of monitoring and development which were laid out in the previous two versions of this report (D5.1 and D5.2). The objectives of the previous two versions of this deliverable were essentially to set-up the plan, processes and monitoring of the UCs progress and implementation for each of the two cycle trials accordingly. While the objectives of this final version are to report on the assessment and evaluation of the planning results from the deployment of the testing phases.

Briefly this deliverable reports the status and work done under WP5 and T5.1 "Planning, setup and operational management" during the final and third year of the TRUSTS implementation. D5.3 additionally summarises the efforts taken thus far in the interrelated WPs (WP2 and WP3).

2.1 Mapping Projects' Outputs

The purpose of this section is to map TRUSTS GA commitments, within both the formal Deliverable and Task description, against the project's respective outputs and work performed.

Table 1: Adherence to TRUSTS GA Deliverable & Tasks Descriptions

TRUSTS Task		Respective Document Section(s)	Justification
T5.1 Planning, setup, and	*This is the management and monitoring task of WP5 whose objective is to provide the necessary demonstration testbench to the stakeholders, so as to*	*Section 3,*	Section 3 presents TRUSTS project aim and objectives and WP5

[1] *RDC https://rdc.com/*

operational management	*be able to demonstrate through actual field trials that the TRUSTS Platform is capable of supporting the stringent KPI requirements defined in WP1. The process in planning, setting-up and managing the demonstration pilots and their use cases, will be agile, so that a constant interaction cycle of progress will be delivering the results incrementally. To this end, the pilots will be following the Deming Plan–Do–Check–Act (PDCA) cycle. There will be a constant interplay between their progress and the technical developments. Specifically, for each pilot, the task will (a) provide the overall planning as well as the setup activities for the deployment and testing of the use cases; (b) Prepare the evaluation of the pilot as per methodology defined in T2.3, including indications on the baseline conditions (in terms of criteria for defining the sample), relevant assumptions to be considered (if any), workflow, checklists and templates, reference/target KPIs to be met/benchmarked according to D1.1, and key roles and interactions within this process; (c) prepare a Gantt chart of the expected tests, analysis and feedbacks loops. Once this procedure is structured, and before actually implementing it, it will be presented to and validated with all relevant partners in order to check its feasibility and maximize its efficiency. This task includes also the operational management and monitoring of the pilots, which will allow the project staff to take stock of relevant data, define datasets for impact analysis, process collect measurements, and organize outcomes into actionable information. EBOS will also monitor the implementation progress of the execution of the use cases, in coordination with the Project Manager, FNET, REL, LST, EMC, FORTH and PB as well as the WP3 and WP4 leaders to guarantee the compliance with the project objectives. The monitoring*		overview and commitments. Section 4 offers the outline of the first and second evaluation phase. Section 5, 6, 7 describe the three UCs covering their business description and context as well as their operation management approach. Section 8 concludes on the findings of the report along with its outcomes.
		Section 4, *Section 5, 6, 7* *Section 8*	

	exercise will feed into the performance evaluation and lessons learned tasks (T5.3 led by FNET). This task will also ensure that all activities in the pilots will be carried out in accordance with the ethics principles defined in the protocol produced in T6.1. A strong stewardship for the data shared in the pilots will be established together with KUL, which participates in this task to provide the necessary legal expertise.		

TRUSTS Deliverable
D5.3 'Pilot planning and operational management report III' The deliverable contains the implementation and testing plan for the pilots, updated at the end of each demonstration phase period.

2.2 Deliverable Overview and Report Structure

The document is part of the T5.1, a management and monitoring task for the series of the three UCs. Based on the objectives and the work carried out under T5.1, D5.3 reports on the project's three business-oriented UCs concluding execution plan, setup, and operational management with respect to their implementation and accomplishment for the second phase of the trial's execution.

The report initially offers the Executive Summary while section 2 is serving as the introduction of the report by describing its objectives, the overview, and its structure. Section 2 provides a detailed description of the TRUSTS's goals and task description as well as the mapping to the deliverables' output with information on how these are addressed in the report's different sections.

The rest of the document is organised as follows:

Section 3 presents TRUSTS project aim and objectives along with WP5 overview and commitments.

Section 4 offers the outline of the first and second evaluation phase.

Section 5, Section The '**Agile marketing activities through correlation of anonymized banking and operators' data'** UC, whose intention was to validate how big data analytics techniques applied on data shared via the TRUSTS Platform can provide timely and meaningful information towards targeting profitable customers at a local level.6, and Section 7 describe the concluding plan of the three UCs covering their business description and context as well as their operation management approach.

Section 8 concludes on the findings of the report along with its outcomes.

Finally, five Annexes are added to the Deliverable namely:

- Annex I: "TRUSTS Initial Generic Gantt chart, as in the GA"
- Annex II: "Final WP5 Gantt chart"
- Annex III: "UC1 final Business Validation"
- Annex IV: "UC2 final Business Validation"
- Annex V: "UC3 final Business Validation"

3 TRUSTS and WP5 overview

The successful creation and adoption of a pan-European data sharing space marks a milestone in the growth of the new data economy. Emerging Data Ecosystems that enable large-scale data to be securely connected, valorised, and shared, rely on Europe's purposes under the scale of H2020 and technological development.

Therefore, TRUSTS accomplishes the difference in the sphere of data technology and data innovation while the data market is empowering in Europe and worldwide.

This section delivers a synopsis of the TRUSTS project and its objectives, as a foundation to this report and it offers a WP5 overview along with an analysis of the three UC's.

3.1 TRUSTS objectives

The main objective of TRUSTS was to ensure 'trust' in the concept of data markets as a whole, via its focus on developing a platform that will act independently as a platform federator, while investigating the legal and ethical aspects that apply on the entire data valorisation chain, from data providers to consumers.

TRUSTS aim was:

- To set up a fully operational and GDPR compliant European Data Marketplace, targeting individual and industrial use.
- To demonstrate and realize the potential of the TRUSTS Platform in three UCs targeting the industry sectors of corporate business data in the financial and operator industries while ensuring it is supported by a viable, compliant, and impactful governance, legal and business model.

3.2 Demonstration of the TRUSTS platform, WP5 Overview

The integration was tested in practice by three different UCs, identified as most promising by the TRUSTS Consortium. WP5, according to the GA was designed to focus on demonstrating and validating the TRUSTS Platform, by:

- Setting up the test environment and performing the relevant planning and pilot operational management for trials in three pilots;
- Conducting advanced field trials within the following sectors: Financial Institutions, Telecom Operators, Corporate data providers, etc.;
- Using the test results and data to deliver impact analysis and impact assessment reports to systematically address the pilots' stakeholder perspectives.

3.2.1 TRUSTS objective associated to WP5

As summarized in the table below (Table 2), the fourth objective of the TRUSTS project is consistent with the work reported in this deliverable and the overall WP5 scope, while its focus stands on the demonstration of the TRUSTS Platform in the three business-oriented UCs.

Table 2: TRUSTS objective related to WP5

Objective 4	**WP 5 Demonstration of the TRUSTS platform in 3 business-oriented use cases**
To demonstrate the added value of the TRUSTS Platform in **3 business-oriented UCs** which showcase the sharing, trading, (re)use of data and services and result in added value generated through innovative applications built on multiple open and proprietary data sources.	
Achieving this objective will require the implementation of the following three UCs: **UC1** "The Anti-Money Laundering compliance use case": Smart big-data sharing and analytics for Anti-Money Laundering (AML). **UC 2** "The agile marketing through data correlation use case": Agile marketing activities through correlation of anonymized banking and operators' data. **UC 3** "The data acquisition to improve customer support services use case": Data processing and visualisation services for Big Financial Data, specifically to advance new ways of human-computer interaction (e.g., chatbots).	
Measurable outcomes: 1. Implementation and testing plan for the pilots, ready by M14 (February 2021) for the first demonstration phase and updated by M25 (January 2022) for the second demonstration phase; 2. First phase of UC trials completed by M24 (December 2021); 3. Second phase of UC trials completed by M32 (August 2022); 4. 360° performance evaluation and lessons learned report produced in its first version by M25 (January 2022) and in its second version by M33 (September 2022), thus providing a critical evaluation of the findings from the pilots, lessons learned, the degree the KPIs have been met and suggestions for improvements.	

WP5 consists of three Tasks. Task 5.1 "Planning, setup and operational management", Task 5.2 "Use case demonstration execution" and Task 5.3 "Performance evaluation and lessons learned".

Task 5.1 was led by eBOS and addressed the work within this report, providing the necessary demonstration testbench to the stakeholders, to be able to demonstrate through actual field trials the TRUSTS Platform. Task 5.1 was mainly acting as a management and monitoring task for the WP.

Task 5.2 was led by NOVA (ex. FNET) where the three pilot actors performed actual testing and validation activities in cooperation.

Task 5.3 was led by NOVA (ex. FNET) using the test results from Task 5.2, for a 360° performance evaluation and lessons learned reporting thus, providing a critical evaluation of the findings from the pilots, lessons learnt, the degree the KPIs have been met and recommendations for improvements.

	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
	MS4											*MS5*
WP5												
Task 5.1												
Task 5.2	Cycle 2 trials		MVP v2			MVP v3			MVP v4			
Task 5.3												
BV							3rd Business Validation					
TV	2nd Technical Validation											
Deliverables	*D5.2 (eBOS)*									*D5.5 (eBOS) D5.7 (NOVA) D5.9 (REL)*	*D5.3 (eBOS) D5.11(NOVA)*	

Figure 1: TRUSTS WP5 and UCs execution trials Gantt Chart during the third and final year

3.2.2 TRUSTS Use Cases

TRUSTS solution and business aspects were efficiently tested via the wide range of the TRUSTS UCs involving actors that represent all targeted sectors (industry sectors of corporate business data in the financial and operator industries).

The three UCs were:

1. The **'Smart big-data sharing and analytics for Anti-Money Laundering compliance'** UC, with the purpose to demonstrate the capabilities of the TRUSTS platform in providing faster and more accurate detection of financial crime and showcase how enriched data can be securely brokered via the Platform to interested customers who need to perform AML checks.
2. The '**Agile marketing activities through correlation of anonymized banking and operators' data'** UC, whose intention was to validate how big data analytics techniques applied on data shared via the TRUSTS Platform can provide timely and meaningful information towards targeting profitable customers at a local level.
3. The '**Buying data from a data marketplace to improve Natural Interaction'** UC with the objective to create an out-of-the-box analytics solution for the anonymisation and visualisation of Big Financial Data.

Further analysis of the three UCs is established in their corresponding section of this report, Section 5 (UC1), Section 6 (UC2) and Section 7 (UC3).

Overall, the project's technical development team supported the operation of the UC's by addressing all technical issues related to the operations of the TRUSTS Platform for data sharing and trading along with the technology innovations and progress so far in WP3 and WP4 that were effectively adopted in WP5 and the three business-oriented UCs.

4 Outline of the First and Second Evaluation Phase

This section delivers a synopsis of the TRUSTS project, as well as a recap on the previous first and second version of this report analysing the first and second evaluation phase of the project's developed product, serving as a foundation to this report.

4.1 TRUSTS vision

TRUSTS aim is to become more than a regular data market, accommodating a full range of data trading and respective collaboration services in one unified platform dealing with both sensitive, private, and industrial data. This, along with the ability to develop a sustainable business model, are what differentiates TRUSTS from other data marketplaces.

4.2 Evaluation of the TRUSTS platform

The E2E platform functionality, processes and operation were tested through the UC trials to ensure the establishment of a unified, broad, viable, expandable, and future-proof data marketplace service. TRUSTS and WP5 defined two demonstration phases for a 360° evaluation of the TRUSTS marketplace.

The process in planning, setting-up and managing the demonstration pilots and the three UCs continued advancing, with a constant interaction cycle of progress that supported the delivery of the results.

Figure 2 presents the overall WP5 time plan through the final year of the project implementation, involving the UCs trials and partly the correlated WP2 tasks, in respect to the Business and Technical Validation stages as defined and reported in D2.4[2].

Task 5.1 produced and submitted in March 2021, its first deliverable D5.1[3] "Pilot planning and operational management report I", focusing on the first demonstration phase preparation and documenting the plan, design, and definition of the three UCs prior to executing the first demonstration cycle between May and November 2021.

The second version, D5.2[4] "Pilot planning and operational management report II" was similarly submitted in January 2022 giving the first evaluation phase outline while focusing on the preparation of the second demonstration phase (between February - September 2022), to be followed by the three UCs based on the first demonstration phase results.

The PDCA model was followed as a supportive tool under WP5 and T5.1, regarding the planning of the UC trials. PDCA is a systematic process for gaining valuable learning and knowledge for the continual improvement of a product, process, or service, also known as the Deming Wheel. In general, it is a helpful tool and a key element of lean management that can be used when exploring and testing multiple solutions in a small, controlled trial while developing or continually improving a process[5].

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[2] *D2.4 'Methodologies for the technological/business validation of use case results I',* https://www.trusts-data.eu/wp-content/uploads/2020/10/D2.4-Methodologies-for-the-technological-and-business-validation-of-use-case-results-I.pdf

[3] *D5.1 "Pilot planning and operational management report I",* https://www.trusts-data.eu/wp-content/uploads/2021/03/TRUSTS_D5.1-Pilot-planning-and-operational-management-report-I_19-03-2.._.pdf

[4] *D5.2 "Pilot planning and operational management report II",* https://www.trusts-data.eu/wp-content/uploads/2022/03/TRUSTS_D5.2_Pilot-planning-and-operational-management-report-II.pdf

[5] *Lucidchart, "Lucidchart," 17 11 2022. [Online]. Available at:* https://www.lucidchart.com/blog/plan-do-check-act-cycle

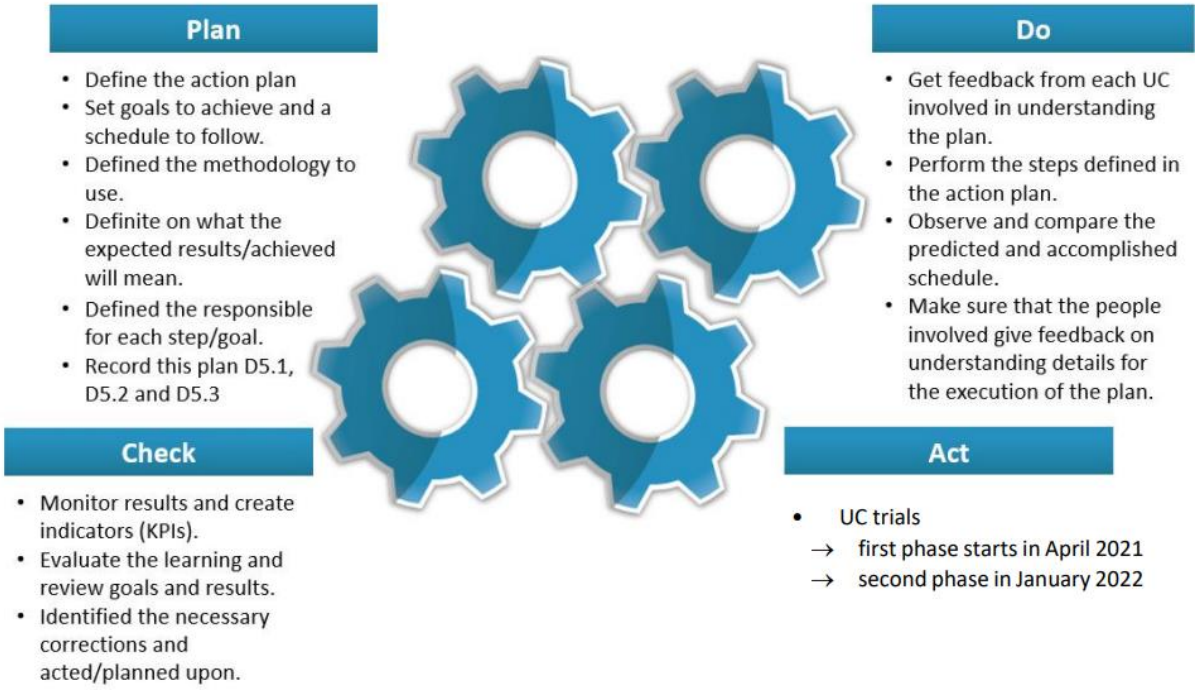


Figure 2: Plan Do Check Act Model (PDCA)

Further information and the steps followed can be access in D5.1.

4.3 TRUSTS first demonstration phase

The first release of the D5.1 in March 2021 provided the set-up conditions, methodology and deployment of the three UCs within the WP5 tasks, containing the implementation and testing plan for the three pilots for the first demonstration cycle. A corresponding section for each of the three UCs was reported, giving an extensive analysis of their objectives, and expected outcome as well as the required services to be included in the TRUSTS platform, including the stakeholder's role per UC. Each section consisted of each UC's detailed work that was developed within Year 1 of the project, and the expected progress and outcome throughout the project's lifetime. Furthermore, a mapping with the TRUSTS functionalities was provided for each of the three UCs as well as the envisaged functional architecture of each UC with a high-level description of the defined scenarios and test steps that were envisaged for the first demonstration phase, in the direction of testing the E2E product to provide valuable feedback towards improving both technical and business aspects of the TRUSTS data marketplace.

The first demonstration phase (May 2021-November 2021) followed the subsequent directions:

- User experience testing;
- Functional testing;
- System testing and unit testing;
- Performance testing;

Besides, the first demonstration and evaluation cycle trials evaluated the following:

- Enrolment process;
- Asset's upload;
- Catalogue search;
- Applications usage;

The lessons learnt and recommendations of the first demonstration phase can be accessed in D5.10[6] submitted in December 2021.

4.4 TRUSTS second demonstration phase

A more complex process resembling the commercial usage of TRUSTS was followed during the second TRUSTS demonstration phase, with a more populated platform, with multiparty transactions in place, for more accurate searches and transactions to showcase a multiparty operation. Additionally, a continuous integration and continuous delivery approach was commonly decided and followed by the Consortium, considering the platforms development under WP3. Three MVP versions were handed over to the UCs by WP3 to advance with the assessment of the TRUSTS marketplace development.

TRUSTS second demonstration phase was defined as:

- TRUSTS_UC1_Trials on MVP v2: 16 February - 6 May 2022
- TRUSTS_UC1_Trials on MVP v3: 16 June- 15 July 2022
- TRUSTS_UC1_Trials on MVP v4 (*final product set to be tested by the UCs*): 18 July - 30 September 2022

and evaluated the following:

- Companies' subscription,
- Enrolment process,
- Assets (applications and service) upload and catalogue search,
- Recommendation system,
- Contract fulfilment and billing,
- Federation,
- UCs assets usage/execution.

Beyond the trials that each UC performed on its own, all three UCs performed five (5) common trials to imitate real life transactions testing among other scenarios, scalability, and federation. Multiple corporate nodes were created, where each node uploaded several assets to populate the platform. Enriching the feedback with more responses with questionnaires from more stakeholder's engagement and trials session popularity, supplementary external stakeholders were employed to use the platform in the second demonstration cycle. By these means a more populated platform was validated with a simultaneous access to the TRUSTS platform.

The core goal of the UC trials was to assure that the final version of the TRUSTS platform covers all essential functionalities as per the WP2 rationale. Besides being updated through the project lifetime and based on the UCs evaluation feedback, all FRs defined should have been tested and hence evaluated.

A comprehensive analysis of the concluding lessons learned and recommendations following the second demonstration phase is submitted in November 2022 (as D5.11).

4.5 TRUSTS Business and Technical Validation

As presented in the Figure 4, three sets of BV and two sets of TV were identified over the projects' lifecycle, allowing the interaction between the business needs, business models and the technical

[6] *D5.10 "Performance evaluation and lessons learned Report I, https://www.trusts-data.eu/wp-content/uploads/2022/01/D5.10-Performance-evaluation-and-lessons-learnt-report-I-NOVA_Dec2021.pdf*

enablers. More details on what was validated and how these validations were performed along with the involved partners and templates used, is presented in D2.4 and the updated D2.5[7].

The first set of business and technical validation was performed in terms of the first demonstration phase where the BV offered the base for the start of the trials cycle with a detailed collection of business information about the UCs including the description of the problem (before TRUSTS) and the expected benefit (after TRUSTS), different personas, their roles and who is directly impacted by the UC. Finally, the definition of what were the expected (required or nice to have) functionalities provided by the TRUSTS data marketplace which will benefit at a business level the involved parties of each UC with a definition of several scenarios that were executed by each UC along with the expected results and a mapping of requirements and functionalities for each scenario. The first TV resulted to lessons learnt combined with the initial lessons learned of each UC and are further documented in D5.10 and correspondingly for each UC, in D5.4 (UC1), D5.6 (UC2) and D5.8 (UC3) as well as fed in D2.5 for the updated and revised validation methodology.

The second set of the BV and TV was similarly performed in terms of the second demonstration phase. The TV resulted to lessons learnt combined with the initial lessons learned of each UC and are further analysed in D5.11 and are supported correspondingly for each UC, in D5.5 (UC1), D5.7 (UC2) and D5.9 (UC3).

The final and third BV was performed by the three UCs following the conclusion of the TRUSTS demonstration phases, reporting on the concluding business validation of the three UC's while the development of business plans for the UCs with the highest commercial potential. Further reference to the TRUSTS business plan and UCs commercialisation can be accessed in D7.2 and D7.8.

It is in the project's scope that the E2E platform functionality, processes and operation was tested through the UC trials to assure the establishment of a unified, comprehensive, viable, expandable, and future proof data marketplace service. The scenarios defined and performed by each UC are in depth described in the following sections (5:UC1, 6:UC2, 7:UC3) and are devoted to testing the platform's E2E functionality and usability.

[7] *D2.5 'Methodologies for the technological/business validation of use case results II,* [*D2.5-Methodologies-for-the-technological-business-validation-of-use-case-results-II_Dec2021.pdf (trusts-data.eu)*]

5 The Anti-Money Laundering compliance, TRUSTS Use Case 1

This section covers the UC1 overall plan and setup activities followed during the second demonstration cycle of TRUSTS trials.

Fighting money laundering contributes to global security, integrity of the financial system and sustainable growth. Anti-Money Laundering (AML) seeks to prevent criminals by making it harder for them to hide illegal money. The European AML directives are intended to prevent money laundering or terrorist financing and establish a consistent regulatory environment across the EU. The EU AML framework has rapidly evolved during the last years and was several times amended by the European Union. Member States must transpose into their national laws various reporting and due diligence obligations, e.g., the requirement to:

(i) Verify the identity of customers and the beneficial owners.
(ii) Assess and, as appropriate, obtain information of the purpose and intended nature of the business relationship.
(iii) Conduct ongoing monitoring of the business relationship including scrutiny of transactions undertaken throughout the course of that relationship to ensure that the transactions being conducted are consistent with the obliged entity's knowledge of the customer, the business and risk profile[8].

Financial institutions, banks, the professional industry, stock exchanges, real estate brokers etc., are required to follow these directives, and perform these actions and procedures against money laundering, to comply with and to monitor customers' transactions and report any suspicious financial activity.

Data sharing and trading platforms such as the TRUSTS Platform represent an opportunity to securely share and trade data for AML purposes and results in maximising operational effectiveness while maintaining or reducing costs.

Acknowledging the significance of Artificial intelligence (AI), Machine Learning (ML) and smart analytics in providing better efficiency in combating money laundering, the purpose will be to securely share closed-loop data to feed a next generation advanced AI/ML-based AML solution, benchmarked against the current state-of-the-art (i.e., traditional rules-based). New AI/ML techniques were developed, which will be integrated with EBOS' existing WiseBOS Enterprise Resource Planning (ERP) AML rule-based model, to enable finer grained resolution at the scale needed to detect money laundering activities, thus evolving it into a next generation AML data-driven model.

5.1 TRUSTS Use Case 1 Objectives and Achieved Outcome

The objective of this UC is to demonstrate the capabilities of the TRUSTS Platform for AML purposes while establishing and validating how data shared via the platform can feed into an existing AML solution enhanced with big data analytics, for providing faster and more accurate detection of financial crime and money laundering, and how this enriched data can be securely traded via the platform to interested customers who need to perform AML checks.

UC1 leverages the power of the TRUSTS Platform's concept for securely sharing data between organisations, applying smart big data analytics for AML compliance purposes as well as fairly trading

[8] *"Article 13 of the 4th AML Directive (EU) 2015/849"*

the resulting data to the end-users such as Financial Institutions (FIs), internal/external auditors, fiduciaries, audit firms, etc.

The TRUSTS Platform sits at the centre of data exchange between actors and facilitates the trading of the resulting data and data analytics services for a wide range of actors interested in progressing to the next step of AML compliance

5.2 TRUSTS UC1 assets onboarded in TRUSTS

UC1 is supported by two applications and one service that EBOS has developed and enhanced towards their deployment and adoption in the TRUSTS platform. The below sub-sections introduce the overview of the UC1 main components and framework and provide more details on the connectivity setup as well as the main UC1 actors. These components are:

5.2.1 AML Screening *Service*[9]

The first step a company must take before taking on new clients (individuals or legal entities) is to conduct a background check. As part of their AML compliance policy, companies must have controls in place to avoid breaching applicable regulations and risking sanctions. The AML Screening service provides a tool to identify the risk profile of a client or potential client. It screens clients against politically exposed persons lists (PEP), sanctions lists, negative media sources, watch lists, country risk profiles, etc. The service is integrated into the world's largest risk-relevant database provided by RDC. A more detailed description of the AML Screening service can be found in D5.1 and D5.2.

5.2.2 AML RiSC - Risk Assessment *application*[10]

This solution enables companies to determine the risk level of their clients. This makes the RiSC solution the critical tool for compliance officers to effectively comply with AML laws and regulations. The risk assessment provides a comprehensive overview of client relationships, assesses their risks based on a dynamic, rule-based engine, monitors activities, detects, investigates, and documents suspicious cases.

Typically, this application follows the AML Screening service process mentioned above. It uses the KYC input data provided by the end user in the screening process, the screening report/result for the entity mentioned above (as this can be extracted from the AML Screening service) and a rule-based questionnaire to perform the risk assessment - of clients - and determine their risk level.

The application comes with a standard/default AI/ML model trained on the eBOS dataset It also provides scores using a traditional rule-based system.

A more detailed description of the AML Screening service can be found in D5.1 and D5.2.

5.2.3 AML Transaction Monitoring application

The application is being used by customers to perform AML checks. The aim of the application is to detect suspicious transactions for AML purposes. Therefore, by default, the end-users can observe on the screen only the suspicious transactions, however if they download the data, they will be able to observe the non- suspicious transactions as well.

Two key elements were deployed: a) A traditional rule-based system that is based on a set of deterministic rules, and b) a data-driven approach that is based on artificial intelligence and machine learning algorithms that can better capture relationships from historical data.

[9] *Service: a piece of software that is executed on the provider's infrastructure and that answers requests by the consumer*

[10] *Application: a piece of software that is executed on the consumer's infrastructure*

The new AI/ML-based approach leverages the potentials of the TRUSTS platform, by securely sharing data between organizations, and it benchmarked against the rules-based system. An AI rule dynamic engine was created to check a high level of false positive alerts. Moreover, the rule-based systems can become very complex depending on the set of rules laid down in the AML Directives and applicable national regulations. Using the checks of the rule engine and through specific statistical formulas a target label is created. The target label is used to create a supervised learning algorithm called random forest that based on a random sample of provided data determines if a transaction is suspicious or not. Ensemble model methodology as the AML Risk Assessment application.

A more detailed description of the AML Screening service can be found in D5.1 and D5.2.

5.3 Roles within TRUSTS UC1

TRUSTS UC1 as per the GA has three (3) participants within the projects Consortium. The roles of the UC1 stakeholders were:

eBOS is primarily the UC1 leader. The Consortium partner contributed its existing WiseBOS ERP AML solutions, which served as the basis for the UC1 KPI measurements. Building on the capabilities of the WiseBOS solution, EBOS designed, developed, and integrated new adaptive analysis algorithms and cognitive self-learning models into three updated AML modules with new functionalities to measure performance improvement. eBOS also acted as the main administrator and UC1 asset provider, participating in all testing sessions, mainly by monitoring the testing steps and supervision, and providing the applications with the necessary end-user data/input to better serve their purpose and enable more effective results.

NOVA and **InBestMe** acted as end-users', interested in sharing and trading data via the TRUSTS Platform. The purpose of their involvement was to validate the effectiveness and functionalities of the platform while ensuring high levels of AML Compliance. **K.N. Analytics Ltd** was an additional - external stakeholder that acted also as an end-user/UC1 consumer. All three end-users of the UC1 trial sessions acted mainly as observers by following the steps executed by eBOS as the super admin, and later providers of the feedback in terms of performance, functionalities, and technical improvements, to the project.

All above parties were also involved on the metadata provided to the platform (i.e., trained models).

TRUSTS is the user administrator allowing the subscription and user enrolment of companies (i.e., InBestMe and NOVA above), standalone marketplace and federated marketplace.

5.4 TRUSTS Use Case 1 Scenarios

This section offers the revised defined scenarios executed during the second demonstration cycle of TRUSTS UC1:

1. Companies' subscriptions.
2. Applications/service onboarding.
3. Applications/Service search on catalogue.
4. Contract fulfilment.
5. Dataset's uploading / announcement.
6. Federation.

7. AML Screening service execution.
8. AML RiSC application execution.
9. AML Transaction Monitoring execution.

UC1 scenarios were divided into two different categories, defining six scenarios and their steps envisaged to practise, in terms of evaluating the TRUSTS platform, as well as three scenarios

for the evaluation of the developed to support UC1 applications/service.

5.4.1 TRUSTS UC1 test case description

The TRUSTS platform implementation allowed all nine UC1 scenarios to be tested and evaluated. Each of the above nine (9) UC1 scenarios (TRUSTS Use Case 1 Scenarios) is realised through specific test cases, with a full set followed by UC1 end users as well as providers in accordance with the defined scenarios, offered in the same section, according to the originally defined methodology. **Error! R eference source not found.** below lists the full set of test cases per UC1 scenario. The full description and test cases steps can be found in D5.5 "Actual field trials of UC1 v2".

Table 3: UC1 Test cases per Scenario

Scenario	Test case	Title
SC1	TC1	eBOS subscription
	TC2	NOVA subscription
	TC3	InBestMe subscription
	TC4	K.N. Analytics Ltd subscription
SC2	TC1	AML Screening service onboarding
	TC2	AML RiSC application onboarding
	TC3	AML TRM application onboarding
SC3	TC1	Assets search on TRUSTS catalogue
SC4	TC1	Purchase of AML Screening service (Contract fulfilment)
	TC2	Purchase of AML RiSC application (Contract fulfilment)
	TC3	Purchase of AML TRM application (Contract fulfilment)
SC5	TC1	End-users' dataset onboarding/announcement (AML RiSC dataset)
	TC2	End-users' dataset onboarding/announcement (AML TRM dataset)
SC6	TC1	Federation
SC7	TC1	AML Screening service usage/execution
SC8	TC1	AML RiSC application usage/execution
SC9	TC1	AML TRM application usage/execution

5.5 Key Performance Indicators (KPIs) of TRUSTS UC1

This section and Table 4 lists the revised and updated high level KPIs defined in the GA and documented in D2.4 and D5.1 concerning UC1. This revised version demonstrated how effectively the UC1 achieved the key objectives and outcomes established following the maturity of the project and the respective. They focus on the overall performance of the UC measured the success versus a set of targets and objectives. As the KPIs were defined, the process to meet them is also outlined, along with the baseline and target value for M36 evaluation while performing adequate number of trials as reported in D5.5 "Actual field trials of Use Case 1 v.2" submitted in October 2022. A fifth column was computed (KPIs score) and it is presented and further explained in D5.11.

Table 4: UC1 KPIs

KPI	Baseline Value	Target Value (M36)	Process to meet the target KPIs
Detection accuracy.	Detection accuracy.	>90%	Predefined Scenarios before and after AI will be executed to validate these values.

Number of false positives.	The number of false positives flagged.	<30%	Predefined Scenarios before and after AI will be executed to validate these values.
Number of false negatives.	The number of false negatives flagged.	<30%	Predefined Scenarios before and after AI will be executed to validate these values.
F1 score (accuracy metric)	0-1	≥0.5	Predefined Scenarios before and after AI will be executed to validate these values along by a mathematical process.
Number of data providers interacting with the Platform.	Two data providers at the start of the UC.	Minimum 10 by M36 (+400%)	Two data providers for the start of the UC1 trials (RDC & EBOS). To meet this target by M36 the project needs to involve additional data providers using dissemination activities.
Number of end-users interacting with the Platform.	One end-user at the start of the UC.	Minimum 10 by M36 (+400%)	NOVA & InBestMe at the start of the UC1 trials. To meet this target by M36 the project needs to involve additional end-users using dissemination activities.
Ensure GDPR and other regulations compliance.	GDPR compliance by design.	GDPR compliance by design.	TRUSTS admin operation and respective technical support (e.g., logs maintenance and analysis ensure compliance and quality). Perform adequate number of trials.

5.5.1 TRUSTS UC1 long term business KPIs

TRUSTS UC1 platform functionality performance KPIs are also listed in the table below focusing on the overall performance of the TRUSTS marketplace. Similarly, this table is also presented in D5.11 with an extra column referring to the KPI result achieved.

Table 5: UC1 long term business KPIs

Process	Description	KPIs
Application/Service on-boarding	E2E service & testing data onboarding process to be fulfilled.	The AML applications are successfully on-boarded on TRUSTS nodes.
Companies' subscription	User friendliness, clear processes, ability to verify and modify, logs existence.	Successful subscription of EBOS, NOVA and InBestMe. Successful definition of roles. Successful enrolment of NOVA and InBestMe, representatives.
Service catalogue usage	Search in catalogue using keywords throughout all	● Return adequate response in < 1sec. ● User task success > 90%

	federated nodes (Search data & service).	● User satisfaction, SUS score > 70
Service Usage	Well-structured, defined modules deployment, if necessary, process.	● Customer loyalty NPS > 8 [0-10] ● User satisfaction, SUS score > 70 ● Detailed results analysis, SUS score > 85 ● Service excellence, SUS score > 80
Contract fulfilment, service performance tracking, quality evaluation	Contract fulfilment, transaction logs existence, user evaluation existence, process to evaluate complete process by the TRUSTS operations to improve performance existence.	● At least 2 contracts are fulfilled. ● Operation completeness, SUS score > 80

5.6 TRUSTS UC1 Exploitation

The key purpose of UC1 was to develop a new data-driven approach for detecting money laundering acts, with improved classification accuracy and data security and showcase these transactions thru the TRUSTS platform.

eBOS brought into the project one existing service (AML Screening service) and one application (WiseBOS AML RiSC application) and also designed and developed new UIs for the above-mentioned assets to support the UC1 trials and their usage thru the TRUSTS platform. eBOS additionally developed a third asset (AML TRM application) to support the UC1 trials. AI techniques and ML algorithms (with the support of WP4 "Privacy Preserving techniques") were developed and implemented to enhance eBOS's WiseBOS RiSC and TRM applications / rule-based systems. The three assets overall were used on the demonstration of the TRUSTS platform with several scenarios followed either from the asset provider or the end user of the TRUSTS platform.

Having said the above, eBOS filled one patent on 15 February 2021, with the title: *Adaptive Anti-Money Laundering (AML) Transaction Processing*. The patent has been filed in France, Germany, Belgium, and USA.

While along with DELL - EMC one more innovation "*Allied Federated Learning and Ensemble modelling approach to ensure data privacy and security*" was well-defined and implemented supporting the TRM application. Both above mentioned UC1 innovations can be found on the Innovation radar of TRUSTS as well as to the EC innovation radar[11].

Additionally, the lack of a consolidated and widely viable data marketplace, secure and GDPR compliant while applications enhanced with AI are considered adequate to benefit various business collaborations in the framework of AML services and marks as a necessity to the data market. Such marketplace collaboration could be a benefit for the whole economy since innovative procedures and productions with added value would be presented into the market. Financial institutions, corporate audit departments, tax advisors and many more, need to do AML checks, and would therefore constitute potential customers of such a market.

All the above mentioned in section 5 of this report consists of UC1 detailed work.

[11] *EC Innovation radar: Adaptive Anti-Money Laundering (AML) Transaction Processing: Innovation radar > Innovation > Adaptive Anti-Money Laundering (AML) Transaction Processing (innoradar.eu), and Allied Federated Learning and Ensemble modelling approach to ensure data privacy and security: Innovation radar > Innovation > Allied Federated Learning and Ensemble modelling approach to ensure data privacy and security (innoradar.eu), accessed 18 November 2022*

6 The agile marketing through data correlation, Use Case 2

This section offers the UC2 overall plan and setup activities for the second demonstration cycle of TRUSTS trials that was followed.

6.1 TRUSTS Use Case 2 Objectives and Achieved Outcome

TRUSTS aims at constituting an E2E operational European Digital Marketplace platform, which will enable NOVA and PB to increase their digital transformation level and respective entrepreneurship activities towards being leaders in the Greek Telecom and Banking sectors.

The challenging envisioned business process of correlating external data sources in a manner compatible with GDPR and other respective regulations e.g., anonymised, and aggregated CRM data of NOVA and PB, has been chosen as a base evaluation scenario. Current practices e.g., absence of a unified and commonly acceptable technological and business framework able to assist such business collaboration, make it difficult to explore such business opportunities since all respective negotiations have to start each time from the beginning.

Thanks to advances in data-sharing technologies, enterprises can buy and sell potentially valuable information assets in highly efficient data marketplaces. Combining this data with a new array of privacy-preserving technologies, such as homomorphic encryption and private set intersection, one can now share encrypted data and perform computations on it without having to decrypt it first. This provides the best of all potential worlds: sharing data while preserving security and privacy.

All of this has fuelled a promising new trend. Stores of sensitive data lying in servers around the globe due to privacy or regulatory concerns are starting to generate value across enterprises in the form of new business models and opportunities. Gartner™ predicts that by 2023, organisations that promote data-sharing will outperform their peers in most business metrics[12]. Though currently in an early stage, this data-sharing trend is picking up steam. In a recent survey, Forrester Research found that more than 70% of global data and analytics decision-makers are expanding their ability to use external data, and another 17% plan to do so within the next 12 months[13].

According to[14] as part of a growing trend, organisations are unlocking more value from their own sensitive data while leveraging enormous volumes of external data sources that have traditionally been off limits. This can open a new arena of data driven opportunities. The ability to share secured data with others within an ecosystem or value chain is giving rise to new business models and products.

For the final cycle of trials where all the core functionalities were evaluated, the end-to-end operational nature of the TRUSTS platform was trialled in the forthcoming cycles.

The key evaluation goals were:

- To become a fully operational European Data Marketplace, providing Intellectual Property management for personal and non-personal related data.

[12] *Laurence Goasduff, "Data sharing is a business necessity to accelerate digital business," Gartner, May 20, 2021. GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally and is used herein with permission. All rights reserved.*

[13] *Jennifer Belissent, Chief Data Officers: Invest in your data sharing programs now, Forrester, March 11, 2021.*

[14] *Deloitte's Tech Trends 2022* https://www2.deloitte.com/content/dam/insights/articles/US164706_Tech-trends-2022/DI_Tech-trends-2022.pdf

- To act as a platform Federator, laying the groundwork for an ecosystem that will enable federation of independent data marketplaces.
- To create framework conditions to facilitate the emergence of an ecosystem of an ever-increasing number of companies around TRUSTS.

6.2 TRUSTS UC2 assets onboarded in TRUSTS

The required TRUSTS functionalities for UC2 trials were:

- Subscriber management,
- On-boarding of datasets/metadata, services/applications,
- Provisioning system
- Smart contracting
- Transaction logging
- Quality assurance and reporting
- Catalogue search for datasets, metadata, and subscribers
- Billing,
- Federation,
- Recommender engine,
- User friendly interaction,
- Deanonymization risk analysis: All data must be checked for potential risks.
- Private Set Intersection (PSI): secure intersection of data without having access to the other party data.

The above-mentioned services were expected to be built on the TRUSTS federated infrastructure, employing the necessary components to enable the secure data exchange, to safeguard the private information under a technical and legal perspective, but also preserve the capability to deliver reliable results and insights. Furthermore, these services will be made available to NOVA and PB through TRUSTS to participate in the overall assessment of the platform regarding data and services discovery and brokerage.

6.3 Roles within TRUSTS UC2

UC2 stakeholders and roles are:

- TRUSTS data marketplace operator i.e., WP3 and WP4 partners, administered the platform and provided all the necessary services with adequate quality and compliance.
- Federated data marketplace operator i.e., WP3 and WP4 partners or third-party data marketplace operators, administered the platform and provided all the necessary services with adequate quality and compliance.
- Application providers:
    - KNOW provided the PSI application,
    - RSA provided the de-anonymization risk analysis application,
    - FORTH provided the Banking application with smart dashboards, big-data analytics, and customers' economic behaviour insights.
- NOVA provided anonymized CRM data and defined the detailed business scenarios. NOVA also analysed the trial outcome.
- LST installed and used TRUSTS services (e.g., PSI) to intersect NOVA and PB datasets.
- PB offered aggregated and anonymized financial data.
- FORTH installed the required TRUSTS applications (e.g., PSI) to intersect NOVA and PB datasets

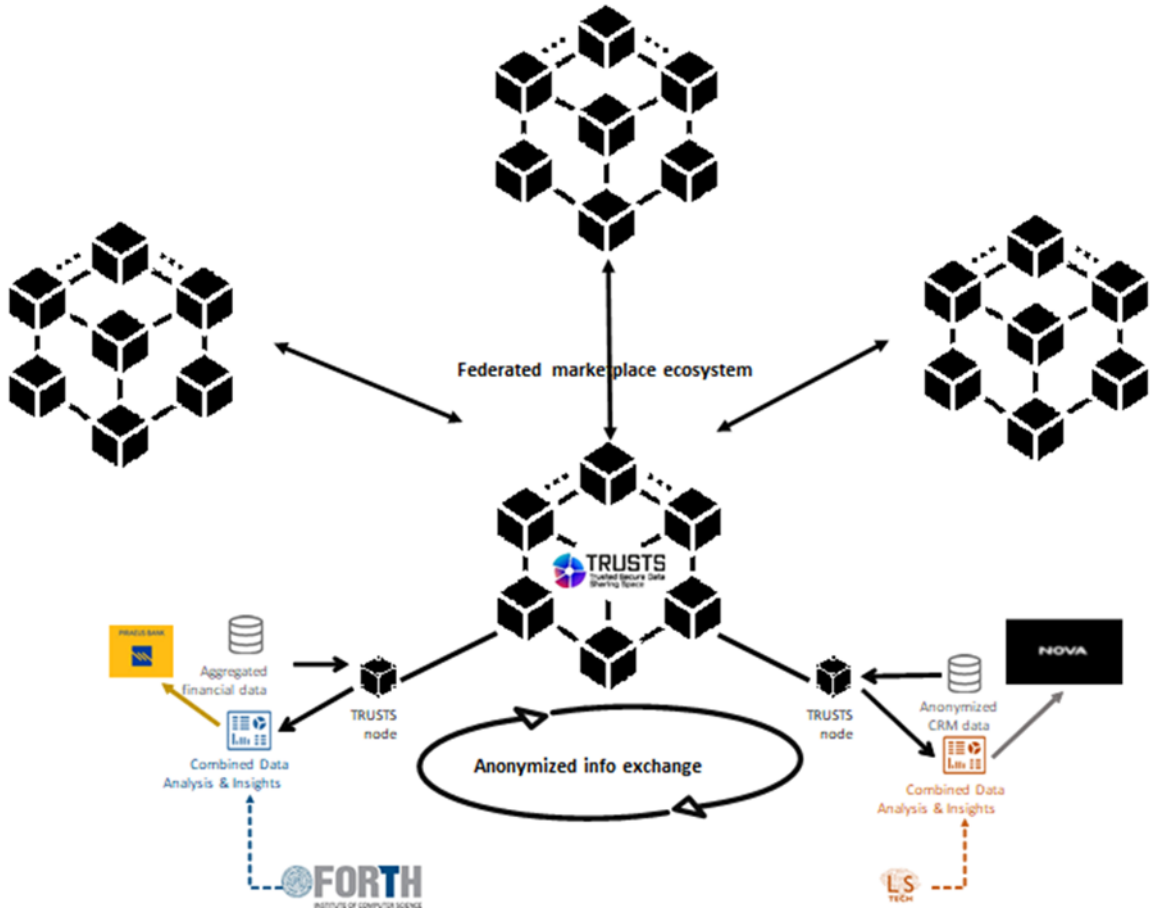


Figure 3: UC2 high level architecture and stakeholders

6.4 TRUSTS Use Case 2 Scenarios

This section lists the defined scenarios UC2 followed in the second demonstration cycle of TRUSTS trials evaluating the TRUSTS platform. The functionalities covered, the steps and the expected results are mentioned.

Table 6: UC2 Scenarios

TRUSTS UC2	**Agile Marketing through Data Correlation**		
SCENARIO UC2-SC1	**Application Onboarding**		
REQUIREMENTS REFERENCE	FR1, FR2, FR3, FR10, FR11, FR12, FR13, FR14, NFR2, FR36, FR37, NFR4, NFR5, NFR6, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
On boarding of applications (onboarding, smart contract, inclusion to the service catalogue, quality test). Federation issues should be tested	At least the **PSI, the Banking application and deanonymization risks analysis applications** are	The applications are successfully checked for security and malfunction issues and on-boarded to TRUSTS using the provided UI.	End to end service onboarding process to be fulfilled.

e.g., service onboarding in different federated nodes.	successfully on-boarded on TRUSTS nodes.	A respective smart contract is issued, and the service usage rules are defined.	

1. The application provider accesses the TRUSTS and logins.
2. The TRUSTS platform verifies credentials and validity of subscription.
3. The application provider reads the portal information and informative text, as well standards that the TRUSTS marketplace complies to and privacy policies e.g., GDPR, etc.
4. The application provider accesses the TRUSTS application upload area.
5. The application provider uploads the application
6. TRUSTS operators check the application quality and security issues and if all is ok, TRUSTS accepts the corresponding application.
7. TRUSTS introduced the application in the catalogue to be available to all federated nodes. Terms of usage of the application are included in the application description as well.

SCENARIO UC2-SC2	**Companies' subscription**		
REQUIREMENTS REFERENCE	NFR1, FR25, FR27, FR28, FR30, FR31, FR33A, FR36, FR37, NFR4, NFR5, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
Companies' subscription (selection of plan, subscription, signing the contract/smart contract, companies' representative's definition, and roles). Federation issues should be tested e.g., companies subscribed in different federated nodes.	Successful subscription of NOVA, PB, FORTH, LST, KNOW and RSA. Successful definition of roles. Successful enrolment of NOVA, PB, FORTH, LST, KNOW and RSA representatives.	NOVA, PB, FORTH, LST, KNOW and RSA are subscribed to a specific subscription service using the UI provided by TRUSTS. Companies' users are subsequently enrolled according to the rules of the subscription that each company chose.	User friendliness, Clear processes, ability to verify and modify logs.

1. The subscriber (NOVA, PB, FORTH, LST, KNOW, RSA) accesses the TRUSTS data marketplace portal (https://www.trusts-data.eu/trusts-data-marketplace/)
2. The UC2 end-user accesses the registration area and reads the terms and pre-conditions.
3. The UC2 end-user downloads the TRUSTS registration contract, reads it and electronically signs it.
4. The UC2 end-user then completes the registration form and uploads and submits the contract back to TRUSTS.
5. The TRUSTS platform system/operator checks, approves, and activates the contract.
6. The subscriber is contacted and requested to deploy a user/corporate node on its company's premises.
7. The TRUSTS user/corporate node is deployed in the UC2 end-user (subscribers) premises, and the TRUSTS subscriber (UC2 end-user) is introduced into the catalogue to be visible in all federated nodes.

SCENARIO UC2-SC3	**Metadata uploading**

REQUIREMENTS REFERENCE	FR1, FR2, FR3, FR7, FR8, FR9, FR10, FR11, FR12, FR13, FR14, NFR2, NFR3, FR18, FR19, FR20, FR21, FR23, FR24, FR32, FR35, FR36, FR37, NFR4, NFR5, NFR6, FR42, FR43, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
NOVA and PB onboard the metadata. Federation issues should be tested e.g., companies subscribed in different federated nodes.	Successful upload of metadata and introduction to the catalogue	The metadata upload process is successfully performed, their lifecycle is defined, and they are discoverable in the catalogue.	User friendliness, Clear processes, ability to verify and modify logs.
1. The metadata provider accesses the TRUSTS and login. 2. The TRUSTS platform verifies credentials and validity of subscription. 3. The metadata provider reads the portal information and informative text, as well standards that the TRUSTS marketplace complies to and privacy policies e.g., GDPR, etc. 4. The metadata provider accesses the TRUSTS metadata upload area. 5. The metadata provider uploads the application 6. TRUSTS operators check the metadata quality and security issues and if all is ok, TRUSTS accepts the corresponding metadata. 7. TRUSTS introduced the metadata in the catalogue to be available to all federated nodes. Terms of usage of the metadata are included in the metadata description as well.			
SCENARIO UC2-SC4	**Asset catalogue usage**		
REQUIREMENTS REFERENCE	FR4, FR5, FR6, FR7, FR8, FR9, FR18, FR19, FR20, FR23, FR24, FR25, FR26, FR27, FR28, FR31, FR33B, FR37, NFR4, NFR5, NFR6, FR38, FR39, FR40, FR41, FR42, FR43, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
Search in service catalogue by NOVA and PB for discovering the appropriate metadata, the adequate PSI, deanonymization risk analysis, etc. services. Federation issues should be tested e.g., transparently searching to all federated nodes.	• Return adequate response in <1sec. • User task success > 90% • User satisfaction, SUS score > 70	NOVA and PB search through the catalogue for the required service transparently to all federated nodes. In addition, they may see the T&Cs of the services usage.	Search in service catalogue using keywords across all federated nodes.
1. The subscriber representatives (NOVA, PB) access TRUSTS and login. 2. The TRUSTS platform verifies credentials and validity of subscription. 3. The subscriber representative uses the search engine to search keywords on preferred applications/service/datasets in a user-friendly manner. 4. The search/recommender's engine responds and proposes applications/services/datasets as well as metadata.			

5. NOVA and PB select the appropriate metadata and application and initiate the usage process			
SCENARIO UC2-SC5	**Contract fulfilment, service performance tracking, quality evaluation**		
REQUIREMENTS REFERENCE	FR4, FR10, FR11, FR12, FR13, FR14, FR15, FR16, FR17, NFR1, NFR3, FR26, FR27, FR28, FR30, FR33A, FR33B, FR37, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
Ensure smart contract fulfilment, evaluate transaction logs, collect users' evaluation, improve operations if necessary.	At least 3 contracts are fulfilled.	Transactions are logged and validated. Users are rated. Compliance to law is confirmed.	Contract fulfilment, transaction logs existence, user evaluation existence, process to evaluate complete process by the TRUSTS operations to improve performance.
1. The UC2 end-user accesses the desired data asset and selects the appropriate contract they desire to acquire. 2. Appropriate billing is issued according to the subscribers' contract and compensation is achieved according to the application/service provider contract. 3. Payment is done. 4. The subscriber is then given a link to download on premises the adequate application/service. 5. The TRUSTS operator verifies remotely the identity and security of the installation, credentials, and validity of subscription. 6. The system automatically checks the logs for contract fulfilment and any quality issues that may need to be manually catered.			
Note: According to the TRUSTS GA: A Federated Data Market at European level shall provide: 1. hierarchical levels of privacy, that allow a data owner full control not only over who is able to access the data and at which granularity, but also who is able to view the metadata, 2. hierarchical layers of certification for data services to foster trust in the market actors, 3. the fully flexible combination of data and services available at different providers to create a new data product or service, 4. an automatic brokerage system, enabling the identification and recommendation of data and services to be used for a specific use-case, 5. tooling for a human broker to create customised offers for their customers, opening a new business field in the industry (i.e., the data broker). These services are designed to lower the barrier to entrance on the data market by actors ranging from private entrepreneurs and innovators, SMEs, or NGOs, to large, multinational enterprises.			
SCENARIO UC2-SC6	**Federation**		
REQUIREMENTS REFERENCE	FR2, FR4, FR5, FR7, FR13, FR14, FR17, FR23, FR26, FR27, FR28, FR37, FR38,		

SCENARIO TEST PROCEDURE	ASSUMPTIONS & CONSTRAINTS	EXPECTED RESULTS	ADDITIONAL NOTES
Ensure that federation is achieved with neighbouring marketplaces in terms of metadata/service/subscriber's catalogue, smart contract, privacy policies.	At least 3 transactions from federated marketplaces are fulfilled.	Transactions are logged and validated from different marketplaces.	Contract fulfilment, transaction logs existence, user evaluation existence, process to evaluate complete process by the TRUSTS operations to improve performance.
1. TRUSTS federates with external marketplace 2. External marketplace assets are merged with TRUSTS catalogue. 3. UC2 end-users search and find a desired asset from the merged catalogue 4. UC2 end-users purchase and download it. 5. A process of connection which involves exchange of information (e.g., IP addresses, certificates) between the end-users and TRUSTS operator. 6. Federation contracts are signed including compensation agreements for each transaction.			
SCENARIO UC2-SC7	**Dataset's announcement, recommendation, and matching**		
REQUIREMENTS REFERENCE	FR2, FR4, FR5, FR6, FR7, FR8, FR9, FR17, NFR2, NFR3, FR18, FR19, FR20, FR21, FR22, FR23, FR24, FR25, FR26, FR27, FR29, FR33B, FR34, FR35, FR37, NFR4, FR42, FR43, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
Ensure that the users will be able to announce datasets and their characteristics.	At least 3 datasets announcements will be included in the catalogue. At least 3 matchmaking successes will be performed. At least 3 relevant recommended datasets are proposed.	Dataset's announcements are successfully performed. Matchmaking of NOVA and PB request with available datasets is successfully performed	Contract fulfilment, transaction logs existence, user evaluation existence, process to evaluate complete process by the TRUSTS operations to improve performance existence.
1. The users will announce dataset and related attributes e.g., dataset that they cannot upload (e.g., CRM). Such an announcement will be entered in the datasets catalogue. 2. The users will announce their needs. Such announcements will enter a needed catalogue. 3. Recommendation and matchmaking will be automatically offered by the TRUSTS platform.			

6.4.1 UC2 assets scenarios

This Table 7 below lists the updated UC2 scenarios for the evaluation of the business applications supporting UC2.

Table 7: UC2 assets scenarios

TRUSTS UC2	**Agile Marketing through Data Correlation**		
SCENARIO UC2-SC8	**PSI usage**		
REQUIREMENTS REFERENCE	FR1, FR3, FR4, FR7, FR8, FR9, FR10, FR14, FR17, NFR3, FR18, FR27, FR29, FR31, FR32, FR33A, FR34, FR35, FR36, NFR5, NFR6, FR38, FR39, FR40, FR41, FR42, FR43,		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
Ensure that the users can correlate datasets using PSI	At least 1 dataset will be uploaded by NOVA and 1 by PB. The PSI application is installed in the NOVA and PB corporate nodes	Datasets of various sizes are successfully correlated using PSI	Contract fulfilment, transaction logs existence, user evaluation existence, process to evaluate complete process by the TRUSTS operations to improve performance existence.
1. The users will announce dataset and related attributes e.g., dataset that they cannot upload (e.g., CRM). Such an announcement will be entered in the datasets catalogue. 2. The PSI application will be on-boarded to the TRUSTS platform. 3. NOVA and PB procure PSI usage. 4. NOVA and PB download from TRUSTS PSI and install it to the corporate node. 5. NOVA and PB successfully correlate datasets through PSI.			
SCENARIO UC2-SC9	**Banking application usage**		
REQUIREMENTS REFERENCE	FR1, FR3, FR4, FR7, FR8, FR9, FR10, FR14, FR17, NFR3, FR18, FR27, FR29, FR31, FR32, FR33A, FR34, FR35, FR36, NFR5, NFR6, FR38, FR39, FR40, FR41, FR42, FR43		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
Ensure that the users have correlated data through PSI. Then the banking application analyses the outcome.	At least 1 dataset will be uploaded by NOVA and 1 by PB. The PSI application is installed in the NOVA and PB corporate nodes. The Banking application is installed in PB.	Datasets of various sizes are successfully correlated using PSI. Then the outcome is used by the Banking application.	Contract fulfilment, transaction logs existence, user evaluation existence, process to evaluate complete process by the TRUSTS operations to improve performance existence.

1. The users will announce dataset and related attributes e.g., dataset that they cannot upload (e.g., CRM). Such announcement will be entered the datasets catalogue.
2. The PSI application will be on-boarded to the TRUSTS platform.
3. NOVA and PB procure PSI usage.
4. NOVA and PB download from TRUSTS PSI and install it to the corporate node.
5. NOVA and PB successfully correlate datasets through PSI.
6. The banking application is on-boarded to the TRUSTS platform.
7. PB procures the Banking Application usage.
8. PB uses the Banking application to analyse the PSI correlation outcome.

SCENARIO UC2-SC10	**De-anonymization risk analysis application usage**		
REQUIREMENTS REFERENCE	FR1, FR3, FR4, FR7, FR8, FR9, FR10, FR14, FR17, NFR3, FR18, FR27, FR29, FR31, FR32, FR33A, FR34, FR35, FR36, NFR5, NFR6, FR38, FR39, FR40, FR41, FR42, FR43		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
The de-anonymization risk analysis application is available to the TRUSTS platform.	The de-anonymization risk analysis application is available to the TRUSTS platform.	Various datasets will be analysed for de-anonymization risk by the De-anonymization risk analysis application.	Contract fulfilment, transaction logs existence, user evaluation existence, process to evaluate complete process by the TRUSTS operations to improve performance existence.

1. The de-anonymisation risk analysis application will be on-boarded to the TRUSTS platform.
2. NOVA and PB procure de-anonymization risk analysis usage.
3. NOVA and PB use the de-anonymisation risk analysis application in various anonymised datasets.

6.5 Key Performance Indicators (KPIs) of TRUSTS UC2

UC2 trials were evaluated using the T2.3 methodology. In particular UC2 set the following KPIs:

Table 8: TRUSTS UC2 performance and process KPIs

Process	**KPIs**
Application Onboarding	**Description**: E2E service onboarding process to be fulfilled. **KPI**: At least PSI, deanonymization risks analysis applications are successfully on-boarded on TRUSTS nodes.
Companies' subscription	**Description:** User friendliness, Clear processes, ability to verify and modify, logs existence **KPI:**

	Successful subscription of FNET, PB, FORTH and LST. Successful definition of roles. Successful enrolment of FNET, PB, FORTH and LST representatives.
Service catalogue usage	**Description:** Search in service catalogue using keywords across all federated nodes. **KPIs:** ● Return adequate response in < 1sec. ● User task success > 90% ● User satisfaction, SUS score > 70
Application usage	**Description:** Well defined applications (i.e., MPC, PSI, deanonymization risk analysis, TRUSTS E2E service, etc.), modules deployment, if necessary, process. **KPIs:** ● Customer loyalty NPS > 8 [0-10] ● User satisfaction, SUS score > 70
Contract fulfilment, service performance tracking, quality evaluation	**Description:** Contract fulfilment, transaction logs existence, user evaluation existence, process to evaluate complete process by the TRUSTS operations in order to improve performance existence. **KPIs:** At least 3 contracts are fulfilled.

6.5.1 TRUSTS UC2 long term business KPIs

The KPIs defined in the GA and the process to meet them is outlined below. Their results are reported in D5.11.

Table 9: TRUSTS UC2 longer term business KPIs

Key performance Indicator	Baseline value	Target value (M36)	Process to meet the target KPIs
Number of target marketing analysis	2 per month	>10 per month	Perform adequate number of trials
Data readiness for correlation	Low (1 week for data to become ready)	High (1 day for data to become ready)	UC data providers should provide adequate datasets for the trials
Data valuations	2 per month	>10 per month	Perform adequate number of trials
Data anonymization/ deanonymization	<1 per month	>10 per month	UC data providers should provide adequate datasets for the trials
Number of data providers interacting with the Platform	2	>10	To achieve this the project needs to involve additional data providers using dissemination activities

Number of end-users interacting with the Platform	2	>10	To achieve this the project needs to involve additional data providers using dissemination activities

6.6 TRUSTS UC2 Exploitation

The data marketplace is simply a name for a new data management paradigm required to keep up with the growing amount of data that has become available and allow for its commercialization. Companies can choose to ignore new data or manage it with older, bottlenecked processes. But that is equivalent to giving up. Those who choose to find a way to be in control of this issue must face certain realities. Success depends on finding a way to:

- Allow new data to be captured, profiled, described, and be found by users;
- Shape data into the most usable forms;
- Enable all the most popular data to be found by or recommended to those who might find it valuable;
- Get more people involved with this whole process;

The data marketplace vision makes all of this happen. It is an excellent start on solving a problem of frightening complexity. The data marketplace transforms the problem of managing the onslaught of new data to an opportunity to deliver more value to the business. If you don't feel that way when new data arrives, perhaps it is time to consider building a data marketplace.

All industrial partners participated in UC2 envisaged that the establishment of a fully operational marketplace, compliant with standards and regulations (e.g., GDPR, etc.) will stimulate internal processes towards promoting activities for data knowledge exchange and exploitation.

Currently the lack of standardised platforms and processes impede data exchange between different industrial entities since the decision making and approval process must be repeated for each individual case. TRUSTS platform aims at providing a robust solution in this direction.

It is very important to note that the trials aim at proving that TRUSTS implements a viable business environment. Business environments have significantly different operational requirements than platforms tested in the lab. TRUSTS aims at providing services that will bridge, set up and enable data exchange potentials between demanding industries such as telco operators and banks.

7 The data acquisition to improve customer support services, TRUSTS Use Case 3

This section covers the UC3 case including the plan and setup for the second demonstration cycle of TRUSTS trials that envisages to follow.

7.1 TRUSTS Use Case 3 Objectives and Achieved Outcome

The UC3 "The data acquisition to improve customer support service", to be specific, REL's aim was to test these services between REL NODE and BANK NODE, to increase their digital transformation and respective entrepreneurship activities as pioneers in their appropriate fields of work. During the UC3 trials, a variety of next-generation processes were used to test the platform's user-friendliness, completeness, and business effectiveness.

Accordingly, TRUSTS federated infrastructure is tested on providing the required components to enable this safe exchange of data, with the final point being to protect the private information under the wing of a technical and legal area, but also maintain the ability to send reliable results and insights. This will end up in an overall ranking of the platform regarding the search of data and services of the overall marketplace.

7.2 TRUSTS UC3 assets onboarded in TRUSTS

The following assets were used by UC3:

- The capabilities provided by the TRUSTS platform i.e., uploading of datasets and services, use management, the basic UI etc.
- ChatBot Model: In the case of the ChatBot, the customer sends a model that contains dialogue between users and gets back a trained model. This trained model can then be used to supply an AI powered robot that replies to normal users.
- Next-Best-Action (NBA) Model: In the case of NBA, the customer also sends a model, but it contains metadata based on a user's relation to the customer's NODE (in this case, a bank) with metadata that defines if the user should be trusted for paying back a loan, therefore a dataset comes back whether the person should be granted a loan or not (aka what is the Next Best Action).

7.3 Roles within TRUSTS UC3

UC3 stakeholders and roles are:

- **Relational Romania**: REL is the leading partner of UC3 and is offering the AroTRON Collection & Recoveries to test and validate improved and more natural ways of communications and debt collection for banks via the Trusts platform.
- **ALPHA Bank Group**: ALPHA is providing financial/personal data, anonymised telecommunication customer data and targeted marketing analysis to support UC3.

7.4 TRUSTS Use Case 3 Scenarios

Five (5) scenarios were defined, further listed in D5.2 to support the UC3 tests and deployment to verify the functionality of the TRUSTS platform.

Table 10: UC3 scenarios

TRUSTS UC3	**"The data acquisition to improve customer support service"**		
UC3-SC1	**Actors Onboarding and maintenance**		
REQUIREMENTS REFERENCE	FR32, FR36, FR31, FR30, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
Service Provider onboarding to TRUSTS platform, in our case BANK (Customer) and REL (Service Provider) connect to the TRUSTS UI, make new accounts and each user gets the appropriate rights/roles.		Registration is successfully completed and both parties can self-register new users. Rights/Roles assignment from both NODE administrators are also tested to function properly; the customer and the service provider can proceed and perform maintenance.	
1. BANK user and REL user connect to the TRUSTS UI. 2. BANK user and REL user request new accounts and partner certificates. 2. IDS administrator fulfils the requests for the certificates and fills the appropriate account information. 3. BANK administrator user and REL administrator user create additional users with the appropriate rights. 4. BANK administrator user changes the rights of other users by changing their roles.			
UC3-SC2	**Services onboarding and maintenance**		
REQUIREMENTS REFERENCE	FR1, FR2, FR3, FR4, FR18, FR19, FR20, FR23, FR24, FR32, FR36, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
Create a service, define the description for the service, upload packages and send metadata to the broker. Notifications to the service consumer are not yet implemented.		REL can create a service, upload the required packages to provide the service. Metadata is sent to and from the customer. Notifications should be sent to the service consumer.	

1. REL user with the appropriate rights creates services at REL's premises.
2. REL user connects to the UI portal.
3. REL user defines new service description.
4. REL user uploads packages for the services.
5. REL user sends the metadata to the broker.
6. REL user updates a service by uploading a new version of it.
7. Notifications are being sent with the form of messages to any consumer of the services.

UC3-SC3	**Catalogue search for data and services**		
REQUIREMENTS REFERENCE	FR5, FR6, FR7, FR8, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
The BANK user can connect to the CENTRAL NODE and search for a service, a service can be selected, and the user can choose to sign a contract with the partner to buy them services. Contract payment and signing are not yet implemented.		The BANK user should be able to connect successfully on the CENTRAL NODE and be able to search for a service. Once a service is selected, the user can choose to sign a contract with the partner for the service provider to provide their services.	

1. BANK user connects to UI portal.
2. BANK user searches for REL's service.
3. BANK user selects REL's service.
4. BANK user gets the result of the service in the form of a package.
5. BANK user initiates a contract.

UC3-SC4	**Download/Consume data**		
REQUIREMENTS REFERENCE	FR18, FR24, FR29, FR36, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
REL provides a service. BANK requests from the service provider the result of the service. BANK receives the processed result from the service provider (REL).		REL can successfully provide a service on the TRUSTS platform. The BANK can request the result from the service provider and successfully receive back their result.	

1. REL offers a service. 2. BANK issues a request for a service. 3. BANK receives the result of the service.			
UC3-SC5	**Service Usage Analysis and Billing (service inclusion in the marketplace)**		
REQUIREMENTS REFERENCE	FR10, FR11, FR12, FR13, FR14, FR15, FR16, FR17, FR33, FR36, FR44		
SCENARIO TEST PROCEDURE	**ASSUMPTIONS & CONSTRAINTS**	**EXPECTED RESULTS**	**ADDITIONAL NOTES**
REL receives payment from BANK user, a contract is established for the allowance of the service and the history of transactions is provided to them.		REL successfully receives payment from BANK user, a contract is established for the allowance of the service and the history of transactions is provided to them.	
1. REL launches the availability of the service on the date mentioned in the contract. 2. The TRUSTS platform records all activity between BANK and REL. 3. BANK requests the history of transactions from TRUSTS that REL provided within the period of the contract. 4. TRUSTS checks the authentication of the request. 6. TRUSTS sends transaction information. 7. BANK receives the information and stores them. 8. REL requests payment from the BANK. 9. BANK pays the bill and sends the payment information to TRUSTS and REL. 10. A notification is sent to REL and the transaction closes. 11. After the expiration of the contract REL stops providing the service to the BANK.			

Originally a sixth scenario was suggested, however, due to the requirements for its execution not being met by the start of trials, it was abandoned.

7.5 Key Performance Indicators (KPIs) of UC3

UC3 trials were evaluated using the T2.3 methodology. In particular UC3 set the following KPIs:

Table 11: UC3 KPIs

KPI	Baseline Value	Target Value (M36)	Process to meet the target KPIs
Ability of TRUSTS to create a federated data marketplace ecosystem.	None	Federation ability of the platform with external marketplaces. Business models building on federation potential.	Perform adequate number of trials.

Ensure GDPR and other regulations compliance.	GDPR compliance by design	GDPR compliance by design	TRUSTS admin operation and respective technological support (e.g., logs maintenance and analysis ensure compliance and quality. Perform adequate number of trials.
Number of data providers interacting with the Platform.	2	>10	To achieve this the project needs to involve additional data providers using dissemination activities.
Number of end-users interacting with the Platform.	2	>10	To achieve this the project needs to involve additional data providers using dissemination activities.

7.6 TRUSTS UC3 Exploitation

Companies throughout their daily operations collect large amounts of user data. Data that cannot easily be provided to third parties, due to regulations regarding the protection of personal data.

UC3 attempted to provide a solution to this problem by allowing third parties to query companies with specific questions and in turn the companies provide an answer, that is extracted from the data in their possession. In this way a third party is able to get the necessary information it needs, without ever seeing the personal data of the users. At the same time the companies utilize their users' data, without exposing their information to the third parties and in turn not having to deal with the personal data protection regulations.

8 Conclusions and Next Actions

This section summarises the insights gained throughout the concluding Task 5.1 and the planning of the execution of the second demonstration phase of the three business-oriented Use Cases of TRUSTS.

Deliverable D5.1 and D5.2 have provided the planning and monitoring aspects of the UCs intended for the first and the second demonstration cycle of TRUSTS trials respectively, while D5.3 offers an observation on the UCs operational conclusions drawn. The report concludes on the perceptions gained throughout the Task 5.1 and the TRUSTS implementation regarding the planning of the execution of each of the three business-oriented UCs following the two demonstration cycles defined for TRUSTS.

The report in its first version provided the overall UCs plan and emphasis on the activities and the time schedule for implementation, the monitoring of each UC and the workflow to be followed, the KPIs set and how the measurements were expected to be carried out at the end of each demonstration phase.

The initial plan and monitoring were followed throughout the duration of the project and the related tasks (WP5: Task 5.1, Task 5.2 Task 5.3) even though some adjustments hence improvements were made following the progression of the project. The scenarios and steps defined were followed by the three UCs evaluating, as per the project's scope, the E2E platform functionality, processes and operation through the UC trials guaranteeing the establishment of a unified, comprehensive, viable, expandable, and future proof data marketplace service.

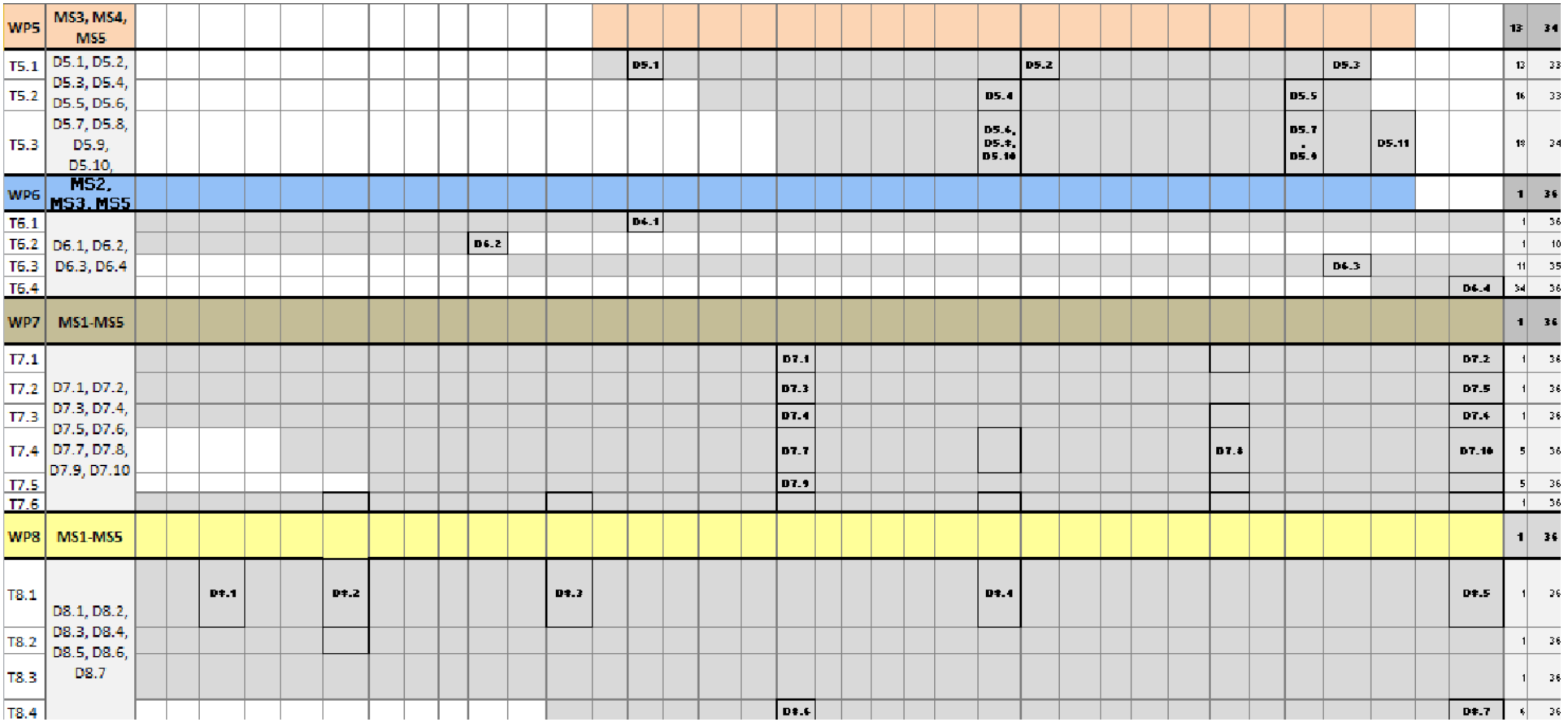
The report gives confidence that the testing phase which was initiated in M16 (May 2021), generated results and measurable KPIs that provided a clear insight on the UCs performance as well as validated the value of the TRUSTS platform and services in their business cases. The PDCA approach used in general, was a helpful tool and a key element of lean management that can be used when exploring and testing multiple solutions in a small, controlled trial while developing or continually improving a process.

The actual TRUSTS field trials of each UC and the concluding lessons learnt are documented in detail in the respective deliverables of WP5:

- D5.5 "Actual field trials of Use Case 1 v.2" submitted in October 2022
- D5.7 "Actual field trials of Use Case 2 v.2" submitted in October 2022
- D5.9 "Actual field trials of Use Case 3 v.2" submitted in October 2022
- D5.11 "Performance evaluation and Lessons Learned Report II" submitted in November 2022.

Annex I: "TRUSTS Initial Generic Gantt chart, as in the GA"

	Deliverables &	Months 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	Start-End (month)	
	Milestones						MS1						MS2						MS3						MS4														MS5		
WP1	MS1, MS2,																																					1	36
T1.1	D1.1, D1.2,			D1.1			D1.5																															1	36
T1.2	D1.3, D1.4,						D1.6																															1	36
T1.3	D1.5, D1.6												D1.2												D1.3												D1.4	1	36
WP2	MS1-MS5																																					1	24
T2.1																			D2.1																			1	24
T2.2	D2.1, D2.2, D2.3, D2.4,						D2.2																		D2.3													1	24
T2.3	D2.5, D2.6, D2.7						D2.4																		D2.5													1	24
T2.4													D2.6												D2.7													1	24
WP3	MS2, MS4, MS5																																					1	36
T3.1	D3.1, D3.2,			D3.1									D3.2																									1	36
T3.2	D3.3, D3.4, D3.5, D3.6,																																				D3.3	1	36
T3.3	D3.7. D3.8.												D3.4												D3.5						D3.6							6	30
T3.4	D3.9, D3.10, D3.11,																		D3.7												D3.8							6	30
T3.5	D3.12,												D3.9												D3.10												D3.11	3	36
T3.6	D3.13																		D3.12																		D3.13	18	36
WP4	MS3, MS5																																					1	36
T4.1																																						1	18
T4.2																																						1	18
T4.3	D4.1, D4.2																		D4.1																			6	32
T4.4																															D4.2							18	36
T4.5																																						18	36


WP5
MS3, MS4, MS5
T5.1
T5.2
T5.3
D5.1, D5.2, D5.3, D5.4, D5.5, D5.6, D5.7, D5.8, D5.9, D5.10,
D5.1
D5.2
D5.3
D5.4
D5.5
D5.6, D5.8, D5.10
D5.7 . D5.9
D5.11
WP6
MS2, MS3, MS5
T6.1
T6.2
T6.3
T6.4
D6.1, D6.2, D6.3, D6.4
D6.1
D6.2
D6.3
D6.4
WP7
MS1-MS5
T7.1
T7.2
T7.3
T7.4
T7.5
T7.6
D7.1, D7.2, D7.3, D7.4, D7.5, D7.6, D7.7, D7.8, D7.9, D7.10
D7.1
D7.2
D7.3
D7.5
D7.4
D7.6
D7.7
D7.8
D7.10
D7.9
WP8
MS1-MS5
T8.1
T8.2
T8.3
T8.4
D8.1, D8.2, D8.3, D8.4, D8.5, D8.6, D8.7
D#.1
D#.2
D#.3
D#.4
D#.5
D#.6
D#.7

Annex II: "Final WP5 Gantt chart"

	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18
	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21
						MS1						*MS2*						*MS3*
WP5																		
Task 5.1											Preparatory activities, planning, setup of UC's and operational management for 1st phase of trials							
Task 5.2																1st phase		
Task 5.3																		
BV							1st Business Validation											
Deliverables														*D5.1 (eBOS)*				

	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
							MS4											*MS5*
WP5																		
Task 5.1			*mid term review*		Planning, setup of UC's for 2nd phase of trials													
Task 5.2								2nd phase										
Task 5.3																		
BV					2nd Business Validation							3rd Business Validation						
TV	1st Technical Validation									2nd Technical Validation								
Deliverables						*D5.4 (eBOS) D5.6 (NOVA) D5.8 (REL) D5.10(NOVA)*	*D5.2 (eBOS)*									*D5.5 (eBOS) D5.7 (NOVA) D5.9 (REL)*	*D5.3 (eBOS) D5.11 (NOVA)*	

Figure 4: Final WP5 Gantt chart

Annex III: "UC1 final Business Validation"

Table 12: UC1 final Business Validation

<table>
<tr><td colspan="2">Background
Please provide a textual description of the business process and context surrounding the UC.</td></tr>
<tr><td colspan="2">What is the general context of the UC? (Describe the Organization / business situation)
UC1 leverages the power of the TRUSTS Platform in view of securely sharing data between organisations (i.e., financial institutions). UC1 applied smart big data analytics for AML compliance purposes as well as fairly showcased the trade of the resulting data to end-users such as the professionals, the Financial Institutions, internal/external auditors, fiduciaries, audit firms, etc.
The ambition of EBOS, NOVA (ex. FNET) and InBestMe, was to classify the business and the technological opportunities that are derived from the TRUSTS data marketplace. UC1 supported the purpose of establishing and validating how data shared via the Platform can feed into an existing AML solution enhanced with big data analytics, for providing faster and more accurate detection of financial crime and money laundering, and how these enriched data can be securely traded via the Platform. Artificial Intelligence (AI) and Machine Learning (ML) techniques were applied and made a significant and valuable difference in AML.
Data sharing and trading platforms such as TRUSTS Platform, represent an opportunity to securely share and trade data for AML purposes and thus to maximise operational effectiveness whilst maintaining or reducing costs.
Under what circumstances does the UC arise?
The lack of a consolidated and widely viable data marketplace, secure and GDPR compliant adequate to benefit various business collaborations in the framework of AML services enhanced with AI, is a necessity to the data market.
Such marketplace collaboration could be a benefit for the whole economy since innovative procedures and productions with added value will be inaugurated into the market. Financial institutions, corporate audit departments, tax advisors and many more, need to do AML checks.
How often?
It is very common in daily operational procedures of such organisations, to perform profiling customers, monitoring transactions etc.</td></tr>
<tr><td colspan="2">Describe the Personas
Please describe ALL personas who are <u>directly</u> impacted by the UC.
Describe <u>each persona</u> of the TRUSTS (Consumer? Org/Business operations? Technology? Etc.);
Please be as specific and detailed as possible about exactly what each persona does.</td></tr>
<tr><td colspan="2">Describe the end user personas (e.g., different types of consumers; operators in a data marketplace?)</td></tr>
<tr><td>Persona Name</td><td>Persona Role</td></tr>
<tr><td>eBOS - an innovative and client-focused Information Technology company providing technologically advanced e-business software solutions to enterprise customers on a worldwide basis.</td><td>eBOS acted as a UC1 end-user/consumer to demonstrate and validate the TRUSTS platform capabilities and effectiveness. eBOS acted as an end-user, searching for the UC1 (AML) assets, either directly or with key words through the TRUSTS search engine. NOVA proceeded with consuming and usage of the adequate AML. UC1 assets through the TRUSTS data marketplace.</td></tr>
<tr><td>InBestMe - is a securities agency providing personalised and automatized investment services and portfolio management, that acted as end-user. Mainly participated in several trials, monitoring the steps executed</td><td>InBestMe acted as a UC1 end-user/consumer to demonstrate and validate the TRUSTS platform capabilities and effectiveness. InBestMe acted as an end-user, searching for the UC1 (AML) assets, either directly or with key words through the TRUSTS search</td></tr>
</table>

and the results. Also gave input as feedback/lessons learned.	*engine. NOVA proceeded with consuming and usage of the adequate AML. UC1 assets through the TRUSTS data marketplace.*
NOVA (ex. FNET) - is one of the largest alternative fixed operators that provides broadband and pay TV services in Greece.	*NOVA acted as an end-user, searching for the UC1 (AML) assets, either directly or with key words through the TRUSTS search engine. NOVA proceeded with consuming and usage of the adequate AML. UC1 assets through the TRUSTS data marketplace.*
A.N. Analytics Ltd - acted as an external stakeholder / end-user. They were invited by eBOS to act as end-users through the TRUSTS platform as InBestMe and NOVA for more populated transactions.	A.N. Analytics Ltd *acted as an end-user, searching for the UC1 (AML) assets, either directly or with key words through the TRUSTS search engine. NOVA proceeded with consuming and usage of the adequate AML. UC1 assets through the TRUSTS data marketplace.*
TRUSTS datamarket	*Acted as user administrator allowing the subscription and user enrolment of companies and with specific roles within the subscribed companies' users/employees. Acted also as a service/application administrator so as to accept the adequate AML/UC1 assets.*
*Describe the **application provider(s)** (who builds and supports the application?)*	
Persona Name	*Persona Role*
eBOS - an innovative and client-focused Information Technology company providing technologically advanced e-business software solutions to enterprise customers on a worldwide basis.	*eBOS acted as a service provider by on-boarding to the TRUSTS data marketplace the WiseBOS AML service (AML Screening service). Also acted as application provider by on-boarding to the TRUSTS data marketplace the WiseBOS AML applications/modules (Risk Assessment application and Transaction Monitoring application).*
*Describe the **data provider(s)** (who will provide data to the application?)*	
Persona Name	*Persona Role*
InBestMe - is a securities agency providing personalised and automatized investment services and portfolio management	*InBestMe provided Transaction Data for companies/person investments and personal information that were input to the AML/UC1 applications to execute the trials and application required scenarios.*
eBOS - RDC (Bureau van Dijk) - *3rd party data provider*	*The RDC database was purchased (with a signed agreement between eBOS and RDC) to support the AML Screening service. The purchased data related to PEP lists, Sanction lists, Adverse Media, and all of them are considered as private data (since a subscription to access them is required). The input data (provided by the end-users) includes physical and legal entity information (KYC, etc.), and were evaluated for AML suspicious activities based on the provided RDC data.* *The RDC database was used as the main source for the calculations performed by the AML/UC1 Screening*

	service in order to provide the necessary result back to the end users (risk volume, etc.). The input data was used at the AML/UC1 Screening service to execute the scenarios required.
eBOS - an innovative and client-focused Information Technology company providing technologically advanced e-business software solutions to enterprise customers on a worldwide basis.	*eBOS acted as a data provider of transactions data that were used at the AML/UC1 Transaction Monitoring application as well as KYC data that were used at the AML Risk Assessment application to execute the required scenarios. Both datasets were anonymized in excel format.*

Describe the Problem

Describe in detail the problems that each persona*/stakeholder currently experiences (AS-IS today before TRUSTS)*

The lack of a consolidated and widely viable data marketplace, secure and GDPR compliant adequate to benefit various business collaborations in the framework of AML services enhanced with Artificial Intelligence and machine learning techniques.

Personas (who exactly?) experience this **problem** (what exactly?) when doing this **task** (when does it occur?) OR

- Financial Institutions
- Corporate offices
- Audit and Law firms
- Estate agents
- Automotive dealers, etc

All the above, are struggling daily so as to prevent money laundering activities and financial crime by their clients.

Personas (who exactly?) experience this **problem** (what exactly?) because of this **constraint** or limitation (when does it occur?)

End user Persona	
Problem	*Not easy access to services/applications with consolidated information related to AML.*
Task / Constraint	*Provide AML operations on a daily basis.*
How is it addressed now? (Pre-TRUSTS)	*Purchases services from different providers and manually combines them.*
Application Provider Persona	
Problem	*Advanced and more accurate resulting AML applications.*
Task / Constraint	*Application of Machine Learning and Artificial Intelligence on historical data in data-driven AML applications.*
How is it addressed now? (Pre-TRUSTS)	*It is not addressed.*

Describe the Expected Benefit

*Describe the benefit that each persona hopes to achieve from the UC (**after** TRUSTS is implemented). Please try to be specific on the benefits that may apply … Cost? Time? Agility? Safety? Security?*

End user personas	
Describe benefit	• *A next generation Anti-Money Laundering data-driven model* • *Provide better evaluation of the risk score/assessment and transaction monitoring*

	• *Better man-power management* • *Better detection accuracy* • *More efficient investigations through intelligent advanced AML customer monitoring techniques;* • *Reduce the number of false positives and false negatives through better detection accuracy.* • *Detect real-time transaction - based KYC anomalies,* • *Detect even unknown behavioural and* • *Detect more complex money laundering patterns* • *Competitive advantage* • *All interested businesses will be fully compliant to the AML regulations so,* • *The fines will drop* • *Lead to reduced compliance costs,* • *SMEs will gain access through TRUSTS to an affordable dedicated solution.*
Specific benefit	*Quantify the potential benefit*
Cost reduction?	
Revenue Increase?	
Time saved?	
Faster Time-to-Market?	
Safety?	
Security?	
Accessibility?	
Persona experience?	
App. Provider Personas	
Describe benefit	*Provision of advanced and more accurate resulting AML services/applications via a secured platform in multiple companies at the same time and with the enhanced analysis and combination of examined data.* *Such marketplace collaboration could be a benefit for the whole economy since innovative procedures and productions with added value will be inaugurated into the market. Financial institutions, corporate audit departments, tax advisors and many more, need to do AML checks.*
Specific benefit	*Quantify the potential benefit*
Cost reduction?	
Revenue Increase?	
Time saved?	
Faster Time-to-Market?	
Safety?	
Security?	
Accessibility?	
Persona experience?	
Marketplace Expectations	

Please attempt to define what are the expected (required or nice to have) functionalities provided by the TRUST data Marketplace which will benefit at a business level the involved parties of the UC.		
Functionality	**Beneficiary**	***Required | Nice to Have***
Companies' subscription		***Required***
Advanced AML services and applications with more accurate results, accessed via a secured environment. Machine Learning and Artificial Intelligence enhanced analysis and combination of examined data for better results. Application and services onboard.	Both end-users and application/service providers as well as the interested organisations that are supposed to purchase/use these assets.	***Required***
An opportunity to securely share and trade data for AML purposes and thus to maximise operational effectiveness whilst maintaining or reducing costs.	Both end-users and application/service providers as well as the interested organisations that are supposed to purchase/use these assets.	***Required***
Search on catalogue	Both end-users and asset providers can search for a desired dataset/service or application through the TRUSTS search engine.	***Required***
Consumption / purchase of the adequate assets (Contract fulfilment / billing)	End-users purchase desired services/assets/datasets/applications via TRUSTS.	***Required***
Federation	End-users federates with external marketplace through TRUSTS.	***Required***

Annex IV: "UC2 final Business Validation"

Table 13: UC2 final Business Validation

Background *Please provide a textual description of the business process and context surrounding the UC.*	
What is the general context of the UC? (Describe the Organisation / business situation) The challenging envisioned business process of correlating external data sources in a GDPR and other respective regulations compatible manner e.g., anonymised, and aggregated CRM data of NOVA and PB, has been chosen as a base evaluation scenario. Current practices e.g., absence of a unified and commonly acceptable technical and business framework able to assist such business collaboration, make it difficult to explore such business opportunities since all respective negotiations must start each time from the beginning. Nevertheless, both NOVA and PB understand that such collaboration will be beneficial for both the companies and the clientele since it is expected to lead to better products targeting real subscriber/client needs. The whole economy will be benefited as well since innovative processes and product production value chains will be established. Such innovative processes will be tested through UC2 trials for their user friendliness, completeness, and business effectiveness. ***Under what circumstances does the UC arise?*** The UC arises when two external companies would like to correlate in a GDPR compatible dataset using standardised and trustworthy processes. ***How often?*** We cannot estimate the frequency for the time being since such processes are not currently applied.	
Describe the Personas *Please describe ALL personas who are **directly** impacted by the UC.* *Describe each persona of the TRUSTS (Consumer? Org/Business operations? Technology? Etc.);* *Please be as specific and detailed as possible about exactly what each persona does.*	
*Describe the **end user personas** (e.g., different types of consumers; operators in a data marketplace?)*	
Persona Name	*Persona Role*
NOVA & **PB** IT department executive (and their potential external support)	Produce the datasets and use the TRUSTS services
NOVA & **PB** Marketing executive	Analyse the correlation results
*Describe the **application provider(s)** (who builds and supports the application?)*	
Persona Name	*Persona Role*
TRUSTS (The application should be provided by TRUSTS even using third party applications. Processes, quality standards, help desk and operations should be provided by TRUSTS).	*TRUSTS operation, application, and processes provision.*
*Describe the **data provider(s)** (who will provide data to the application?)*	
Persona Name	*Persona Role*
NOVA & **PB** IT department executive (and their potential external support)	Produce the datasets and use the TRUSTS applications and services
Describe the Problem	

Describe in detail the problems that each persona*/stakeholder currently experiences (AS-IS today before TRUSTS)* **Personas** (who exactly?) experience this **problem** (what exactly?) when doing this **task** (when does it occur?) OR All the above, are struggling daily so as to prevent money laundering activities and financial crime by their clients. **Personas** (who exactly?) experience this **problem** (what exactly?) because of this **constraint** or limitation (when does it occur?)	
End user Persona	
Problem	The correlation of external datasets will provide further insight for targeted marketing activities
Task / Constraint	Currently not standardised and GDPR compliant processes exist for external datasets correlation. Not a trust organisation that will undertake the provision of such services.
How is it addressed now? (Pre- TRUSTS)	Not addressed currently.
Application Provider Persona	
Problem	The correlation application e.g., MPC should be provided by TRUSTS
Task / Constraint	Not addressed currently.
How is it addressed now? (Pre- TRUSTS)	Not addressed currently.
Describe the Expected Benefit *Describe the benefit that each persona hopes to achieve from the UC (**after** TRUSTS is implemented).* *Please try to be specific on the benefits that may apply … Cost? Time? Agility? Safety? Security?*	
End user personas	
Describe benefit	The benefit is expected to be the ability to augment business by receiving better insight in a standardised way. The provision of standard trustworthy and GDPR compliant processes by TRUSTS will be the real benefit beyond the specific UC.
Specific benefit	
Cost reduction?	*YES, but cannot be currently quantified*
Revenue Increase?	*YES, but cannot be currently quantified*
Time saved?	*YES, but cannot be currently quantified*
Faster Time-to-Market?	*YES, but cannot be currently quantified*
Safety?	*YES, but cannot be currently quantified*
Security?	*YES, but cannot be currently quantified*
Accessibility?	*YES, but cannot be currently quantified*
Persona's experience?	*Cannot be currently quantified*

App. Provider Personas	
Describe benefit	This information should be provided by TRUSTS operations
Specific benefit: Quantify the potential benefit	
Cost reduction?	This information should be provided by TRUSTS operations
Revenue Increase?	This information should be provided by TRUSTS operations
Time saved?	This information should be provided by TRUSTS operations
Faster Time-to-Market?	This information should be provided by TRUSTS operations
Safety?	This information should be provided by TRUSTS operations
Security?	This information should be provided by TRUSTS operations
Accessibility?	This information should be provided by TRUSTS operations
Persona experience?	This information should be provided by TRUSTS operations
Marketplace Expectations *Please attempt to define what are the expected (required or nice to have) functionalities provided by the TRUST data Marketplace which will benefit at a business level the involved parties of the UC.*	
Functionality	**Beneficiary**	***Required | Nice to Have***
It is envisaged to provide all the FR functionalities described in D2.3 and in particular: • Application Onboarding • Companies' subscription • Data asset catalogue usage • Application usage • Contract fulfilment, performance tracking, quality evaluation	All personas	Required

Annex V: "UC3 final Business Validation"

Table 14: UC3 final Business Validation

Background *Please provide a textual description of the business process and context surrounding the UC.*	
What is the general context of the UC? (describe the Organization / business situation) The TRUSTS Data Marketplace vision is to create a platform for sharing data, and through the platform to support the development of innovative ways of human-computer interaction currently in their infancy, e.g., chatbots that can act as automated assistants to support customers to resolve issues relating to their arrears at their own pace and with a personalised experience, through the analysis of Big Data using machine learning. ***Under what circumstances does the UC arise?*** *When there is a need for Automated Debt Collection "service" and to increase digital transformation and respective entrepreneurship activities as pioneers in their appropriate fields of work.* ***How often?*** *On demand* ***Other information?*** *The purpose of this demonstrator is the development of an innovative offering in the field of debt collections – that is a fully automated debt collections resolution centre, leveraging the power of the TRUSTS Platform. The idea is that through enhanced analytics, AI and the integration of bots, a Creditor will be able to run their debt collection department without needing to employ a very large number of agents to contact and negotiate with customers their debt resolution.*	
Describe the Personas *Please describe ALL personas who are **directly** impacted by the UC.* *Describe each persona of the TRUSTS (Consumer? Org/Business operations? Technology? Etc.);* *Please be as specific and detailed as possible about exactly what each persona does.*	
*Describe the **end user personas** (e.g. different types of consumers; operators in a data marketplace?)*	
Alpha Supporting Services	Data Consumer
*Describe the **application provider(s)** (who builds and supports the application?)*	
REL	Automated Debt Collection provider (AI/ML)
*Describe the **data provider(s)** (who will provide data to the application?)*	
Alpha Supporting Services	Data Provider
Describe the Problem *Describe in detail the problems that* each persona*/stakeholder currently experiences (AS-IS today before TRUSTS)* **Personas** (who exactly?) experience this **problem** (what exactly?) when doing this **task** (when does it occur?) OR **Personas** (who exactly?) experience this **problem** (what exactly?) because of this **constraint** or limitation (when does it occur?)	
End user Persona	
Problem	*High costs to manage the Debt Collection Process due to the need of many Agents to contact them.* *High number of complaints due to the nature of the communication.*
Task / Constraint	
How is it addressed now? (Pre- TRUSTS)	*Agents are calling the Customers to negotiate the debt resolution.*
Application Provider Persona	

Problem	
Task / Constraint	
How is it addressed now? (Pre- TRUSTS)	
Describe the Expected Benefit *Describe the benefit that each persona hopes to achieve from the UC (**after** TRUSTS is implemented). Please try to be specific on the benefits that may apply … Cost? Time? Agility? Safety? Security?*	
End user personas	
Describe benefit	Lower cost of Debt Collection expenses (KPI: Expenses (€) / Collected Amount (€). Improve Customer Satisfaction due to personalised, 24x7 and discrete service.
Specific benefit	*Quantify the potential benefit*
Cost reduction?	*Decrease operational cost for the same collectability, decrease in debt management operational costs*
Revenue Increase?	*Increase in collectability of debt and better foresee the end-customer's probability to default*
Time saved?	*YES but cannot be quantified currently*
Faster Time-to-Market?	*YES but cannot be quantified currently*
Safety?	*YES but cannot be quantified currently*
Security?	*Due to the elimination of the human factor the security process can be fully applied.*
Accessibility?	*Also enables people with special needs to get serviced.*
Persona experience?	
Other …	
App. Provider Personas	
Describe benefit	
Specific benefit	*Quantify the potential benefit*
Cost reduction?	*YES but cannot be quantified currently*
Revenue Increase?	*YES but cannot be quantified currently*
Time saved?	*YES but cannot be quantified currently*
Faster Time-to-Market?	*YES but cannot be quantified currently*
Safety?	*Cannot be quantified currently*
Security?	*Cannot be quantified currently*
Accessibility?	*Cannot be quantified currently*
Persona experience?	
Other …	
Other Provider Personas	
Describe benefit	
Specific benefit	*Quantify the potential benefit*
Cost reduction?	
Revenue Increase?	
Time saved?	
Faster Time-to-Market?	
Safety?	

Security?	
Accessibility?	
Persona experience?	
Other …	

Marketplace Expectations *Please attempt to define what are the expected (required or nice to have) functionalities provided by the TRUST data Marketplace which will benefit in a business level the involved parties of the UC.*		
Functionality	**Beneficiary**	***Required | Nice to Have***
On-boarding of external data	End users	Required
Services on-boarding	End users	*Required*
Metadata discovery (catalogue) and maintenance (descriptions, tags etc.)	End users	*Required*
Service usage and billing	End users	*Required*
GDPR related certifications	End users	*Nice to have*
Logging and auditing	End users	Required