

TRACE4EU D3.3:
**Strategy development for
further distribution of the
use cases among other EU
countries**



Project Title	TRACE4EU
Grant Agreement No.	Grant agreement No 101102743
Deliverable Title	TRACE4EU D3.3 Strategy development for further distribution of the use cases among other EU countries
Version	1.0
Deliverable nature:	Report (R)
Dissemination level: (Confidentiality)	Public (PU)
Responsible Partner	msg, Neumann
Authors	Viktor Urban (Neumann), Tamas Czegledi (Neumann), Zsolt Donauer (Naumann), Àdám Buza (Neumann), Róbert Soós (Neumann)
Contributors	Pascal Klipstein (msg), Steffen Schwalm (msg)
Reviewers	Christine Hennings (msg), Viky Manaila (Intesi Group)

Table of Contents

- 1 Introduction..... 6
 - 1.1 Project Overview 6
 - 1.2 Objectives 6
 - 1.3 Vision 7
 - 1.4 Scope 7
 - 1.4.1 Application of Blockchain Technology 7
 - 1.4.2 Consortium Collaboration 7
 - 1.4.3 Use Case Integration..... 8
 - 1.4.4 Capacity Building and Knowledge Sharing 8
 - 1.4.5 Project Adaptation and Evolution..... 8
 - 1.5 Boundaries..... 8
 - 1.5.1 Technological Constraints 8
 - 1.5.2 Geographical Constraints 8
 - 1.5.3 Industry Constraints 8
 - 1.5.4 Financial Constraints 8
 - 1.6 Current State 8
- 2 Fundamentals of Rollout and Ecosystem Strategy 9
 - 2.1 Purpose of the Rollout- and Ecosystem Strategy..... 9
 - 2.2 Main Goals of the Rollout Strategy and Expected Results 9
 - 2.3 Definition and Rollout Elements..... 10
 - 2.3.1 Understanding the Grounds 10
 - 2.3.2 Integrating Blockchain 10
 - 2.3.3 Customized Solutions for Use Cases..... 10
 - 2.3.4 Implementation and Rollout Strategy 10
 - 2.3.5 Collaborative Approach 11
 - 2.4 Resource Inventory..... 11
 - 2.4.1 Human Resources 11
 - 2.4.2 Technological Resources..... 11
- 3 Relevant EBSI Developments and EBSI Use Cases..... 12
 - 3.1 EBSI Developments..... 12
 - 3.2 EBSI-Traceability of Products and Materials..... 12
 - 3.2.1 Seafood..... 13
 - 3.2.2 Agrifood..... 13
 - 3.2.3 EV Batteries 14
 - 3.2.4 Halloumi 14
 - 3.3 EBSI-Traceability of data and documents..... 14

This project has received funding from the European Union’s DIGITAL programme under grant agreement No 101102743



3.3.1	Open Rights Data Exchange.....	15
3.3.2	Resume Credential Application	15
3.3.3	Democratization of Academic Publishing	15
3.3.4	Electronic Registers Delivery Application	15
3.3.5	Know Your Customer Application (KYC).....	16
4	The Rollout Approach to Further Distribution of the Use Cases Among Other EU Countries	16
4.1	Project Development Phases.....	16
4.1.1	Promotion of Use Cases and Ecosystem.....	16
4.1.2	Implementation Use Cases and Ecosystem Building	17
4.1.3	Technical Integration and Rollout.....	17
4.1.4	Framework for Usability and Cooperation	17
4.1.5	Rollout Among Other EU Countries or Industries	17
4.1.6	Evaluation and Reporting	17
4.2	Challenges and Objectives for Rollout Strategy.....	18
4.2.1	Possible Challenges	18
4.2.2	Objectives	18
5	Collaboration with the Ecosystem.....	18
5.1	European Commission and Strategic Stakeholders	18
5.1.1	Organize Seminars and Workshops	18
5.1.2	Take Part in Policy Discussions.....	18
5.1.3	Piloting and Communication	19
5.2	Relevant Institutions for Traceability Use Cases.....	20
5.2.1	Collaboration on Requirements Gathering.....	20
5.2.2	Organization of Training Sessions and Webinars.....	20
5.2.3	Run Pilot Projects	20
5.3	Scientific Communities and Innovations	21
6	Timeline for Rollout Actions	21
6.1	Year 1 (YR1) Actions.....	21
6.1.1	Initial Implementation	21
6.1.2	Interaction with Related Projects	21
6.2	Year 2 (YR2) Actions.....	21
6.2.1	Rollout Application Scenarios.....	21
6.2.2	Evaluation of Application Scenarios	22
6.2.3	Distribution Among Other Countries or Industries	22
7	Conclusion	22



List of Figures

Figure 1: Setting SMART goals	7
Figure 2: High level structure (HLS)	12



1 Introduction

1.1 Project Overview

The current project is realized within Digital Europe Programme, aiming to address the modern challenges of the industry and society by employing blockchain technology. Backing the project is a robust consortium at the European level, representing multiple member states and pooling their expertise and resources. Members of the consortium contribute not only through technological innovation but also through practical use cases, ensuring the project's real market relevance and practical applicability.

The choice of EBSI is not random. Its decentralized, secure, and transparent operation allows for the preservation of data integrity and authenticity, which is of critical importance in addressing industrial and societal challenges. Furthermore, the opportunities offered by blockchain enable the development of numerous new innovative solutions, further enhancing collaboration and trust among EU stakeholders.

The consortium, along with the use cases it provides, guarantees the project's practical relevance and facilitates the testing and adaptation of blockchain technology in a real-world environment. Practical examples brought by individual members, combined with collectively crafted technological solutions, lay a strong foundation for a successful, long-term European Union project.

1.2 Objectives

In the nexus of European Union values, technological innovation, and sustainable development, our project's primary objective emerges. We aspire to harness the transformative advantages of blockchain technology, crafting a system that is not only trustworthy, transparent, and decentralized but also proficient at addressing the multi-faceted industrial and societal challenges of our age. Central to this endeavor is the formation of a robust European consortium. This collaborative platform aims to synergize the diverse expertise and resources of its members, ensuring a cohesive response to contemporary challenges. Through real-world scenarios provided by our consortium partners, we are poised to develop market-responsive solutions. Beyond addressing present needs, a key focus lies in fostering long-term adaptability and sustainability, ensuring that our initiatives remain relevant and effective in the evolving landscape of the coming decades.



Figure 1: Setting SMART goals

source: <https://www.bitesizelearning.co.uk/resources/smart-goals-meaning-examples>

1.3 Vision

In the dynamically evolving realm of blockchain applications, our vision for the Trace4EU initiative is sharp and purposeful. As Europe delves deeper into the intricacies of tracing, our mission transcends the generic, aiming for breakthroughs specifically in the use-case scenarios we've identified. These scenarios - encompassing Agrifood, EV Batteries' Materials, Seafood, and the unique Halloumi Use Case - reflect the sectors where we intend to pioneer and make a marked difference.

We envision a Europe where tracing, especially within these specified sectors, becomes a beacon of excellence and innovation. Through the concerted efforts of our consortium members under the Trace4EU framework, we're committed to setting unparalleled standards in these domains. Our goal is to forge a harmonized European approach where technology, market, and society interlace effortlessly. This vision not only positions Europe at the pinnacle of tracing innovations but also sets a global gold standard, inspiring and leading the way for the rest of the world.

1.4 Scope

1.4.1 Application of Blockchain Technology

At the heart of the Trace4EU project is the application of blockchain technology, especially in the sectors of agriculture, the food industry, and related industries. [EBSIs](#)' expansion includes integrating European digital identity under the new eIDAS 2.0 regulation with a focus on the traceability of products. This encompasses the development, testing, and integration of the technology at every stage of the food chain, as well as the formulation of necessary training and support systems.

1.4.2 Consortium Collaboration

The project not only focuses on technology but also heavily relies on a robust European consortium capable of integrating the expertise and resources of various members. This ensures the project's success and facilitates information exchange and coordination among participants.

1.4.3 Use Case Integration

Practical examples provided by the consortium, i.e., the case studies, play a pivotal role. Assessing the specific needs and challenges of each case study, and tailoring the application of blockchain technology for these instances, is a key area of the project.

1.4.4 Capacity Building and Knowledge Sharing

Another aim of the project is to promote capacity building and knowledge sharing within the EU. This involves organizing training programs, workshops, and conferences, and keeping stakeholders informed about the project's results and benefits.

1.4.5 Project Adaptation and Evolution

For the project to be successful and provide genuine added value, constant adaptation to the changing market needs is essential. In this context, feedback from consortium members, experiences gained in the market, and monitoring technological advancements become indispensable.

1.5 Boundaries

1.5.1 Technological Constraints

The project exclusively focuses on the application of blockchain technology in Europe and does not engage in the development or integration of unrelated technologies.

1.5.2 Geographical Constraints

The project solely concentrates on the member states of the European Union. Although the project's results and experiences might be applicable in other regions, the primary objective is its implementation within the EU.

1.5.3 Industry Constraints

While the project focuses on work in various industries, notably in agriculture and the food sector, it does not address industries that are not directly related to the consortium members.

1.5.4 Financial Constraints

The project's funding is limited to support received from the EU and resources provided by consortium members. Any additional funding requirements need to be separately considered and approved.

1.6 Current State

Traceability, or tracking products throughout their entire lifecycle, is crucial in modern supply chains. Recognizing this need, several technological solutions have emerged in recent years. However, the advent of blockchain technology has fundamentally shifted the paradigm in this domain. Blockchain, as a distributed ledger technology, harnesses the power of decentralization to ensure the integrity and transparency of data. This unparalleled depth and reliability in traceability allow not just businesses, but end-users too, to rely on the information provided by the system with full confidence. The immutable nature of data and the visibility across the entire lifecycle are testament to this.

While blockchain technology possesses vast potential, its practical implementation is not always straightforward. Different industries have varied needs and challenges that require tailored solutions. Referring to the use cases mentioned above, challenges like the lack of digitalization in Hungarian agrifood producers or issues like child labor and proof of origin in the EV battery materials sector are distinct problems that blockchain-based traceability can address.

However, it's essential to understand that blockchain isn't a panacea. Its effectiveness depends on its appropriate application and integration. The current state indicates that while there's a growing demand for blockchain-based traceability in the European market, the rate of technology adoption and

associated knowledge remains limited. Specific use cases, such as agrifood, EV battery materials, seafood, and halloumi cheese, all indicate a rising demand for traceability and related technological advancements. Understanding these sector-specific needs and adapting to them is pivotal for future success.

The Trace4EU initiative aims to comprehend and proactively respond to these demands, leveraging the full potential of blockchain technology to reshape the European traceability landscape.

2 Fundamentals of Rollout and Ecosystem Strategy

2.1 Purpose of the Rollout- and Ecosystem Strategy

The purpose of the rollout strategy is to build a strong ecosystem on document and product-/ material traceability through establishment of European partnership of key stakeholders:

- Policy makers
- Technology providers
- end user organizations in the domains:
 - product and material traceability
 - document and data traceability

The idea is to establish an ecosystem for proven supply chain as well as proof of origin of European products, documents and data for sustainable trade and secure exchange across Europe and beyond using EBSI. This will be achieved by bringing together the relevant stakeholders in Europe but also interested parties in the industries addressed by TRACE4EU or related ones. Another related objective of this activity is to enable further research, innovation, and knowledge transfer among the stakeholders and interested parties. This will be materialized through the proposed set of actions within this initial ecosystem strategy document.

Moreover, to achieve comprehensive rollout TRACE4EU integrated in the activities of the EDI, the European organization for blockchain – EDIC and other possible related organizations in the Member States and beyond.

2.2 Main Goals of the Rollout Strategy and Expected Results

The main goal is to build a comprehensive ecosystem on product and document traceability starting with one more country or adopt it to one more use case or industry as starting point. There are several main preconditions to be fulfilled:

- The TRACE4EU use cases must be feasible and adoptable to other domains or countries.
- The operational infrastructure shall be secure, legally compliant, efficient and highly scalable to achieve flexibility among industries.
- A catalog of offered services will be developed.
- quality criteria will be developed.
- The activities around exploitation, communication, dissemination and rollout will be executed in in coordinated measures because they are directly related.
- A relevant business plan will be prepared in close collaboration with relevant stakeholders.

- Supporting interaction with key stakeholders will ensure the acceptance of TRACE4EU use cases and possible rollout.

There are many anticipated outcomes in relation to these primary objectives, chief among them being the ecosystem partnership and auxiliary digital artifacts, software, and infrastructures that can be employed to propel the ecosystem toward long-term sustainability.

2.3 Definition and Rollout Elements

2.3.1 Understanding the Grounds

Before diving deep into the traceability framework's specifics, it's imperative to understand the ground it will operate on. The European market, while ripe with opportunities, presents its own unique challenges, primarily stemming from its diverse economic, cultural, and regulatory environment. These complexities demand a solution that is both technologically advanced and adaptable to local scenarios.

2.3.2 Integrating Blockchain

The core of the Trace4EU initiative lies in integrating blockchain technology to offer unparalleled traceability. This involves:

- Infrastructure setup: establishing a decentralized infrastructure that ensures secure, transparent, and real-time tracking of products.
- Stakeholder education: since blockchain is still a novel concept for many, a focused effort on educating stakeholders about its benefits and operations will be essential.
- Data integrity assurance: implementing mechanisms to guarantee that data entered into the blockchain is genuine and verifiable.

2.3.3 Customized Solutions for Use Cases

Each use case, from tracing potatoes in agrifood to monitoring the Red King Crab in seafood, demands a customized approach:

- Agrifood: creating digital solutions for Hungarian farmers to ensure genuine products are differentiated from counterfeit or mislabeled imports.
- EV Batteries' Materials: establishing a digital product passport system to verify compliance with EU Battery Regulations and trace material origins.
- Seafood: enabling comprehensive monitoring of the seafood lifecycle to ensure sustainable and legal fishing practices.
- Halloumi: enhancing the traceability of Halloumi cheese, providing a transparent mechanism for its production, distribution, and certification processes.

2.3.4 Implementation and Rollout Strategy

Rolling out such a comprehensive system demands a phased approach:

- Pilot testing: starting with controlled pilot tests for each use case to validate the system's efficiency and effectiveness.
- Stakeholder feedback loop: regularly collecting feedback from all stakeholders, from farmers to end-users, and refining the solution based on this input.
- Full-scale implementation: post successful pilots, transitioning to a full-scale rollout, ensuring smooth integration with existing systems and minimal disruption.

This project has received funding from the European Union's DIGITAL programme under grant agreement No 101102743



- Ongoing support and upgrades: establishing a support system for users and continually updating the system based on evolving needs and technological advancements.

The details will be defined based on results of initial implementation of umbrella architecture and use cases according to the application scenarios product traceability and data-/document traceability.

2.3.5 Collaborative Approach

The Trace4EU initiative acknowledges the power of collaboration. By joining hands with consortium members and other stakeholders, the initiative aspires to not only create a robust traceability solution but also foster a community driven by excellence, transparency, and trust.

2.4 Resource Inventory

In the quest to realize the objectives of the Trace4EU initiative, a comprehensive inventory of resources – both human and technological – is indispensable. Recognizing the need for a multidisciplinary approach and cutting-edge technology, we've outlined the key resources that will drive this initiative forward.

2.4.1 Human Resources

- Project management team: spearheading the initiative, this team will be responsible for overseeing the project's progress, ensuring milestones are achieved on time, and ensuring all facets of the project align with the overarching vision.
- Blockchain developers and experts: the crux of our traceability solution lies in blockchain technology. Thus, a team of seasoned blockchain developers and industry experts will drive the technological development and integration processes.
- Stakeholder engagement specialists: these individuals will interface with consortium members, farmers, seafood providers, battery material suppliers, and Halloumi producers to gather vital feedback and ensure the system's real-world applicability.
- Educators and trainers: as blockchain remains novel to many stakeholders, especially in sectors like agriculture, a dedicated team for education and training will be essential to foster adoption and seamless transition.
- Data security and compliance officers: ensuring the integrity, security, and legal compliance of the data within the blockchain will be paramount. This team will continually assess and fortify the system's data protection measures and ensure alignment with EU regulations.

2.4.2 Technological Resources

- Blockchain infrastructure: this includes the servers, nodes, and networks that support the decentralized database. Ensuring robustness and scalability will be vital, given the diverse range of use cases.
- Integration tools: middleware and API (Application Programming Interface) tools to facilitate smooth integration of the blockchain system with existing databases and software used across the various sectors.
- Data verification mechanisms: technology solutions, potentially AI-driven, that can vet and verify the authenticity of data as it's entered into the blockchain. This will be particularly important given the challenges of manual data entry and ensuring data integrity.

- User interfaces: dedicated platforms or applications, both web-based and mobile, tailored for each use case. These interfaces will allow stakeholders to interact with the blockchain, input data, and extract insights.
- Data storage solutions: secure cloud storage solutions that can house the vast amounts of data generated and ensure easy retrieval when necessary.
- Security protocols and software: cybersecurity tools and protocols to safeguard the system from potential threats, ensuring both the integrity of the data and the privacy of the stakeholders involved.

3 Relevant EBSI Developments and EBSI Use Cases

3.1 EBSI Developments

Details on the assessment of EBSI against traceability requirements as well as dependencies between EBSI and TRACE4EU contains D3.2: Evaluation.

The requirements from the various application domains of traceability results in the High-level architecture of TRACE4EU, as shown in Figure 2 below. The architecture consists of four building blocks and also indicates the traceability flow. The sorted blocks of Figure below represent the traceability process steps beginning with the lowest block Identification. The first traceability process is identification, and the last is preservation. The blocks consist of the required components for the process step of traceability.

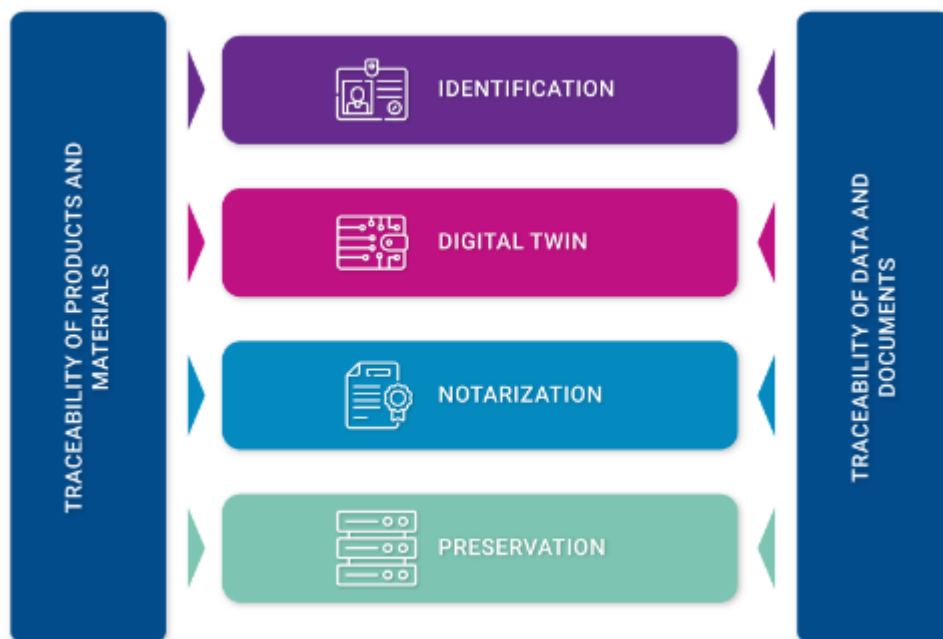


Figure 2: High level structure (HLS)

3.2 EBSI-Traceability of Products and Materials

Work package 4 of Trace4EU focuses on the traceability of materials and products in four different pilots. The following sections describe the regulatory context for each product traceability use case. Further information are part of Document D3.2.

3.2.1 Seafood

The Seafood scenario enables global traceability of seafood products. It allows the creation, holding, and verifying of digital twins for all actors in a supply chain. Digital twins represent claims of any seafood asset. Claims of a digital twin could be the location or the timestamp of caught fish. A public blockchain allows proving the processes and environments of the seafood asset, traveling throughout the supply chain. The Seafood scenario fulfills and extends the following supply chain requirements:

- Traceability: Optimizing transparency of origin and transport of seafood products
- Sustainability: Improvement of ecological (transport) processes and food safety
- Circular economy: Development and expansion of recirculation of packaging and biomaterials
- Needs: A comprehensive platform to ensure the traceability of seafood, such as the Red King Crab, from the point of catch to export.
- Relevance: Given the issues of illegal fishing and human rights violations, blockchain ensures transparent, secure, and standardized data collection, helping in monitoring and ensuring compliance with fishing quotas and regulations.
- Pain Points: Illegal fishing, human rights violations, and data silos.
- Areas for Improvement: Enhanced monitoring, control, and surveillance systems, integrated platforms to break down data silos, and programs to address human rights issues in the sector.

3.2.2 Agrifood

The Agri-food scenario aims to create blockchain-based tracking of data exchange between food producers and raw food material processors.

The Agri-food scenario emerges from two real challenges in Hungary:

- Insufficient amount data about the exact. Verifiable information about the amount, quality, and precise details of the location of the original harvest is almost non-existent.
- Complex planning for kindergarten and school catering.

Blockchain-based solutions for traceability will enable better supply chains and better consumer information about food quality. Hungary will have a use case pilot environment with the producers' digital market:

- Needs: Farmers require a reliable and user-friendly system to capture and trace the origin and journey of their products, particularly for commodities like potatoes.
- Relevance: With the current challenge of imported products being falsely branded as local Hungarian produce, blockchain provides an immutable, transparent method ensuring authenticity and helping local farmers gain rightful recognition.
- Pain Points: Lack of digitalization, susceptibility to product misbranding, and reliance on manual data entry.
- Areas for Improvement: Development of user-friendly digital platforms for data collection, automated systems for data entry, and standardized protocols to avoid misbranding.

3.2.3 EV Batteries

The Battery scenario covers the tracing of metals to fulfill the "new Battery Regulation" requirements for responsible mining of battery raw materials. Mining companies need mining certificates such as IRMA or TÜV (Cera 4in1). In the battery scenario, verifiable credentials represent digital mining certificates. Trusted Organizations issue verifiable credentials to mining companies' digital identity wallets. A certificate in the form of a verifiable credential allows mining companies to present trustworthy, digital mining certificates to institutions, such as governments. Institutions verify digital mining certificates with cryptographic algorithms and EBSI. Such "proof of origin use cases" are a general requirement of the digital product passport that is now also regulated in the Ecodesign for Sustainable products directive for other product categories, such as buildings, electronics, and textiles.

- Needs: A secure, digital system to provide unambiguous proof of origin, sustainable practices, and compliance with EU Battery Regulations.
- Relevance: With concerns surrounding child labor, unsustainable mining, and recyclability, blockchain offers a tamper-proof, auditable method to verify claims and bolster stakeholder confidence.
- Pain Points: Concerns over child labor, unsustainable mining, lack of proof of origin, and recyclability challenges.
- Areas for Improvement: Implementation of secure, digital product passports, initiatives to promote sustainable mining, and systems for clear proof of origin.

3.2.4 Halloumi

EU geographical indication schemes protect specific know-how, authenticity, and agro-environmental conditions. The European Commission approved the protection of Halloumi as a protected designation of origin (PDO), covering the valuable name against imitation and misuse across the EU. Only Χαλλούμι/Halloumi/Hellim produced in Cyprus according to the product specification is now allowed to use the registered name. The implementation of the Halloumi will be based on using EBSI capabilities and APIs (current and new/enhanced), utilizing case-agnostic data schemas. The Halloumi scenario will demonstrate EBSI's ability to provide effectively, trusted, digitalized, and automated services to safeguard PDO and PGI registered EU products.

- Needs: A robust system to validate the authenticity of Halloumi cheese and its adherence to Protected Designation of Origin (PDO) standards.
- Relevance: With the prevalent risks of counterfeiting and non-compliance to PDO standards, blockchain serves as an indisputable ledger, certifying the genuineness of Halloumi cheese and safeguarding the product's integrity, producers' investments, and consumer trust.
- Pain Points: Counterfeiting, non-compliance with PDO standards, and challenges in proving product authenticity.
- Areas for Improvement: Immutable ledgers for product verification, streamlined certification processes, and initiatives to educate and inform producers on maintaining PDO standards.

3.3 EBSI-Traceability of data and documents

Work Package 5 of TRACE4EU focuses on document traceability through five pilots demonstrating five different scenarios. In this chapter, we will discuss the laws, regulations, and standards that are relevant to each scenario.

This project has received funding from the European Union's DIGITAL programme under grant agreement No 101102743



Further information are part of document D3.2.

3.3.1 Open Rights Data Exchange

The Open Rights Data Exchange scenario, led by Digiciti Networks, enables the monetization of digital assets through trusted rights data. Digiciti Networks is building an Open Rights Data Exchange, a data intermediation service regulated by the Data Governance Act.

The unique value propositions of services to holders (rights holders):

- Easy and incentivized attestation of machine-readable rights data, as well as curation, deduplication, and matching of rights data.
- Real-time access to reliable, exhaustive, current, and interoperable rights data, as well as auditable provenance and authenticity of rights data.

The Open Rights Data Exchange scenario and Digiciti are opting for decentralized storage of rights data and storing immutable bindings between contents and declarers on EBSI. Digital bindings point to public metadata stored on IPFS, the latter addressing private metadata stored locally.

3.3.2 Resume Credential Application

The Résumé credentials scenario aims to establish and improve verifiable credentials of professional experiences using EBSI. Citizens must ask employees to issue an employer reference and keep paper records of their (professional) experience. Companies face the challenge of verifying the authenticity of applicants' professional experiences as manual verification is time-consuming. Furthermore, information from applicants about professional experience could be fraudulent. The résumé credentials scenario covers cross-border and interoperable applications for governments, companies, and citizens. Additionally, the developing phase considers the long-term preservation of credentials. Résumé credentials such as upper secondary school diplomas require up to 50 years of long-term preservation.

3.3.3 Democratization of Academic Publishing

The Decentralized Academic Publishing scenario covers Open science with increasing numbers and timely publications.

The requirements for academic publications to modern platforms are:

- Secure publication of scientific papers.
- Trustworthy publication processes
- Fast transactions between author and platform

The Decentralized Academic Publishing scenario aims to enrich and extend EBSI services for sharing, storing, and securing transactions in the academic publishing process. Further goals of the Decentralized Academic Publishing scenario are to increase the quality of peer review involving academic integrity, publication bias, and fraud from increased pressure to publish while building a decentralized ecosystem for publishing and reviewing scientific papers.

3.3.4 Electronic Registers Delivery Application

The application scenario 5,4 is specifically related to a trust service as regulated by eIDAS **Regulation 910/2014 (eIDAS)**. The current version, as well as the text for the new proposed Regulation, state that (Art. 3, (36)):

electronic registered delivery service means a service that makes it possible to transmit data between third parties by electronic means and provides evidence relating to the handling of the transmitted

data, including proof of sending and receiving the data, and that protects transmitted data against the risk of loss, theft, damage or any unauthorised alterations;

Art. 43 of the same regulation define the legal effects of such a service, while art. 44 specifies additional requirement for “qualified electronic registered delivery services”.

Note that no specific technical requirements are imposed on such services, nor any implementing act are currently in effect (this is going to change with eIDAS 2.0), which gives trust service providers large autonomy on the actual implementation. It is however worth noticing that it is an accepted practice to refer to the **European Standard EN 319 521** for the validation of policy and security requirements of (qualified) electronic registered delivery services.

3.3.5 Know Your Customer Application (KYC)

The KYC Tool application scenario covers EU citizens submitting their KYC (Know Your Customer) documents to banks and other institutions. The scenario considers any EU country that requires identifying customers.

The Know your Customer (KYC) blockchain use case aims to enable a seamless exchange of customer information among financial institutions for near real time compliance processing, enabling digital customer onboarding, while empowering customers with digital identity and document management in a secure manner.

Currently there is a manual process to gather customer information and collect all the KYC documents. The sharing of this information with 3rd party validation agencies is also cumbersome. Each of the divisions perform KYC in a siloed manner and hence there is duplication of effort. With the implementation of a blockchain, EBSI-based application, customers will be able to share necessary documents in a secure manner.

The KYC Tool scenario will simplify the KYC process and reduce customer time-consuming and cost-intensive identification. New services supporting the KYC use case will extend EBSI’s current capabilities.

The proposed scenario aligns with GDPR requirements. Personal data will be kept encrypted in off-chain storage and the owner of the encryption key will share the key to an institution via the on-chain EBSI network encrypted with the institution’s public key.

4 The Rollout Approach to Further Distribution of the Use Cases Among Other EU Countries

4.1 Project Development Phases

This section outlines an approach to promoting and expanding the EBSI – VECTOR ecosystem. The plan focuses on influencing the knowledge, attitudes, and behaviors of target groups, while also strengthening collaboration and communication within the consortium. The plan encompasses webinars, events, and continuous monitoring to ensure the ecosystem's growth and success. The tasks will be categorized under the following phases:

4.1.1 Promotion of Use Cases and Ecosystem

- Launch communication and dissemination campaigns to educate stakeholders about the goals of the innovation ecosystem program.

4.1.2 Implementation Use Cases and Ecosystem Building

- Implement umbrella architecture and first use cases alongside the TRACE4EU Toolbox and functionalities .
- Provide updates and highlight successful use case stories through webinars to share knowledge and inspire active participation from stakeholders.
- Carry out scheduled activities with a focus on ecosystem collaboration, best practices, and stakeholder participation.

4.1.3 Technical Integration and Rollout

- Finalize implementation umbrella architecture and start full implementation of use cases.
- Engagement with relevant relying parties and industries on communication, advisory boards for evaluation of TRACE4EU use cases and plan rollout across industries or countries.
- Design rollout scenarios (countries, industries, additional use cases) incl. timeline and tasks
- Plan webinars that highlight technological developments and how they contribute to the digital transformation of the ecosystem.
- Organize rollout activities that prioritize knowledge sharing and capacity building among attendees.

4.1.4 Framework for Usability and Cooperation

- Organize webinars to facilitate conversations about the ecosystem's long-term sustainability framework and to encourage cooperation with other projects, industries and member states.
- Place emphasis on a procedure to grow the network, welcome new participants, and include them in conversations.
- Decision on rollout scenario

4.1.5 Rollout Among Other EU Countries or Industries

- Implement rollout scenario by example and present it to key stakeholders for evaluation and possible adjustment on final strategy.
- Hold a farewell conference to highlight accomplishments, lessons discovered, and the ecosystem's future while influencing the attitudes and actions of target audiences.
- Hold a concluding ecosystem event that emphasizes technology planning and how it helps with ongoing innovation and growth while enhancing collaboration among consortium members.

4.1.6 Evaluation and Reporting

- Constantly track and assess the success of rollout initiatives, getting input from relevant parties to shape their perspectives, mindsets, and actions.
- Prepare a thorough final report that includes insights for improving communication strategy and outlines the results, difficulties, and suggestions for maintaining and growing the innovation ecosystem for EBSI infrastructure and use cases.

4.2 Challenges and Objectives for Rollout Strategy

4.2.1 Possible Challenges

- Further development of EBSI acc. to requirements for TRACE4EU so especially TRACE4EU Toolbox.
- Readiness of industries and member states to adopt traceability use cases from TRACE4EU.
- Legal developments within EU and EFTA which may influence the rollout of TRACE4EU use cases.

4.2.2 Objectives

- Rollout traceability use cases on EBSI among other EU countries and industries
- Contribute on comprehensive ecosystem on EBSI.
- Contribute on useability and legal as well as technical feasibility of EBSI within the eIDAS 2.0-ecosystem according to stakeholder needs.

5 Collaboration with the Ecosystem

5.1 European Commission and Strategic Stakeholders

5.1.1 Organize Seminars and Workshops

A diverse strategy will be used to interact with the European Commission and policy-making authorities in an effective manner. Plan in-depth training sessions and lectures intended especially for delegates from these organizations. These activities ought to be carefully designed to cover all of the complex aspects of the TRACE4EU project. What needs to be done in these workshops and seminars is as follows:

- **Objective Focus:** Provide a comprehensive overview of the main objectives of the TRACE4EU project. This includes outlining its main goals and how they fit into the larger digital transformation strategy of the European Union.
- **Impact Assessment:** Give a thorough examination of the ways in which TRACE4EU can improve EHIC (European Health Insurance Card) integration and quality education. Give examples of how the project can spur better service delivery and more accessibility in these areas.
- **Provide real-world examples and use cases** that illustrate how the ecosystem may easily enable safe, dependable, and effective interactions in the social security and education sectors. Present actual situations where TRACE4EU can significantly improve the lives of citizens.
- **Engage Stakeholders:** Send out invitations to influential decision-makers and interested parties to common meetings conferences and exchanges.

5.1.2 Take Part in Policy Discussions

In order to effectively engage policy makers, TRACE4EU must be aligned with the digital and educational strategies of the European Union. Consultations and discussions with pertinent EU agencies and working groups ought to encompass:

- **Aligning Strategically:** Showcase the TRACE4EU ecosystem's smooth integration with the EU's digital agenda, highlighting important tenets like data protection, digital sovereignty, and citizen empowerment.

- **Broader Goals:** Provide examples of how the initiative aligns with the EU's overarching goals for improving social security and education. Stress how important it is for promoting international collaboration and digital transformation in these and maybe other industries.
- **Regulatory Compliance:** Showcase the project's dedication to adhering to current EU standards, including GDPR (General Data Protection Regulation) and eIDAS (Electronic Identification, Authentication, and Trust Services).

5.1.3 Piloting and Communication

Pilot projects and case studies that provide verifiable proof of the TRACE4EU project's applicability and efficacy should be created in order to support its value proposition. These initiatives ought to tackle practical issues with social security and education, demonstrating the following:

- **Process Optimization** TRACE4EU can improve service delivery efficiency by streamlining bureaucratic procedures. It is necessary to offer specific instances of how it lessens redundancy and streamlines administrative procedures in order to prove this. For instance, TRACE4EU offers academic credentials that can be verified, enabling quick and safe verification and doing away with the need for human document processing. Additionally, it facilitates inter-institutional cooperation, guaranteeing that documents are updated and transferred smoothly when citizens move inside the EU, negating the need for new document submissions.
- **Security Enhancement:** Highlight the robust security features of the ecosystem, underlining how verifiable credentials and decentralized identity can fortify data protection and reduce the risk of fraud or identity theft. Decentralized identity will empower citizens with control over their personal information, providing secure access and data sharing.
- **Data Control:** Emphasize how citizens gain greater control over their personal data within the TRACE4EU ecosystem. Showcase how individuals can manage and consent to data sharing, in line with EU data privacy principles. The data portability enabled by TRACE4EU will allow citizens to move their data within the ecosystem while retaining control over access and usage.
- **Evidence-Based Insights:** Collect data and feedback from these pilot projects to provide evidence-based insights to policy makers. This empirical data can be used as a tool in demonstrating the significance of the TRACE4EU ecosystem as a vital driver for the EU's digital transformation agenda.

Through the adoption of these comprehensive approaches, TRACE4EU is strategically positioned to cultivate a robust and highly collaborative relationship with the European Commission and key policy makers. This collaborative synergy not only guarantees the project's alignment with the overarching objectives set by the European Union but also underscores its potential to spearhead a transformative paradigm shift within the realms of education and social security services across the European Union.

Such alignment not only fosters a climate of shared objectives and cooperative endeavors but also propels TRACE4EU as a pivotal catalyst in the process of modernizing vital public services, thereby positively impacting the lives of European citizens, and advancing the broader mission of the European Union.

5.2 Relevant Institutions for Traceability Use Cases

5.2.1 Collaboration on Requirements Gathering

An approach based on cooperation and thorough requirements gathering is essential to guarantee other industries, companies or member states a smooth integration into the TRACE4EU ecosystem:

- **Collaboration with Diverse Stakeholders:** TRACE4EU will work closely with a wide range of communities on product-/material as well as data-/document traceability establishments, including industry, regulative authorities, universities and industry associations. The scope of this engagement will encompass educational administrators, faculty, and other pertinent stakeholders, in addition to administrative circles.
- **Consultations:** Stakeholders in industry and public sector will be consulted on several occasions. During these consultations, unique pain points and requirements-specific solutions will be addressed as we dive into the particular needs and challenges faced by public and private institutions on traceability subjects.
- **Customized Application Development:** The TRACE4EU platform's specialized applications will be designed and developed using the insights obtained from these consultations and collaboration. These applications will be designed to meet the different requirements and subtle operational differences of different traceability scenarios in the relevant ecosystems acc. to TRACE4EU use cases.

5.2.2 Organization of Training Sessions and Webinars

One of the main goals of the TRACE4EU project is to increase knowledge and expertise among industries on product- and material traceability. This includes:

- **Training activities:** TRACE4EU will plan webinars and training sessions specifically for industries with requirements on traceability of products and materials as well as data and documents. The intention is to increase awareness of the significant benefits of digital product passports and other material traceability applications.
- **Perspectives on Improvements:** These meetings will provide forums for imparting perspectives on how TRACE4EU can significantly improve the procedures linked to the issuance, authentication, and transfer of academic qualifications. Tangible examples of how these technologies can enhance the educational environment will be provided in the sessions.
- **Practicality and execution** will be the main focuses of these hands-on training sessions.

5.2.3 Run Pilot Projects

It is essential to validate the TRACE4EU toolbox usability and functionality in actual traceability settings in order to do this, TRACE4EU will:

- **Work together:** Establish proactive partnerships with companies and public authorities to launch and manage pilot programs. These initiatives will provide chances to evaluate the toolbox effectiveness and adaptability in various learning contexts.
- **End user Involvement:** Involve end users in these pilot projects directly and ask them to comment on the user experience.

- **Ongoing Enhancement:** The knowledge obtained from these experimental initiatives will be examined and utilized to refine the characteristics of the toolbox. By using an iterative process, the platform's usability is continuously improved to meet changing needs.

With its diverse strategy, TRACE4EU is positioned to work with industries and public authorities as a cooperative partner, committed to meeting their specific needs, improving their operational effectiveness, and enabling them to adopt resp. accept cutting-edge solutions on digital product passports, solutions for digital assets and other traceability application on the EBSI. TRACE4EU facilitates a paradigm-shifting change in the field traceability through these tactics.

5.3 Scientific Communities and Innovations

Through proactive partnerships with research institutions, TRACE4EU aims to gain a deeper understanding of the impact and scalability traceability scenarios using EBSI within the EU and beyond.

- **Strategic Alliances:** In order to create a knowledge-sharing environment, TRACE4EU will form strategic alliances with research institutions. These collaborations will continue into cooperative research initiatives aimed at evaluating the advantages and efficacy of TRACE4EU in the contexts of product-/material and data-/document traceability.
- **Research Publication:** A broad publication of the discoveries and understandings derived from these cooperative research initiatives will be made. Through the dissemination of research findings, TRACE4EU adds to about traceability subjects on the EBSI. Additionally, this dissemination acts as a potent catalyst to encourage adoption and comprehension.

6 Timeline for Rollout Actions

6.1 Year 1 (YR1) Actions

6.1.1 Initial Implementation

In the first year of TRACE4EU the umbrella architecture will be implemented including fundamental functional, interoperability and security testing. The first implementation of use cases within the application scenarios will be implemented based on the umbrella architecture. A well-grounded evaluation aims to identify possibly necessary adjustment among the architecture and common technical ground of TRACE4EU and/or requirements on application scenarios. Also the contribution to and evaluation of EBSI governance and specification is planned.

The results of those tasks as well as the ones from Year 1 activities on exploitation (See D2.6) are main input for the definition of final rollout strategy of application scenarios as well as their rollout among other countries or industries.

6.1.2 Interaction with Related Projects

This subject will be executed within the stakeholder management activities and communication strategy. The results will be additional input for final rollout strategy.

6.2 Year 2 (YR2) Actions

Further actions are planned in the second year of the project (YR2).

6.2.1 Rollout Application Scenarios

Based on results from Year 1 the use cases will be fully implemented and rolled out.

6.2.2 Evaluation of Application Scenarios

The rollout will be evaluated according to the methodology described in Section 4.1.10. Based on this one use case will be implemented in one more country or industry. The decision will be done in close collaboration with relevant stakeholder (see D3.1).

6.2.3 Distribution Among Other Countries or Industries

Based on the results of section 3.2.1 and 3.2.2 the distribution among other countries or industries will be shown by example.

7 Conclusion

The document describes the initial plan and measures for exploitation of Trace4EU results. All informations are based on the legal framework as well as stakeholder needs.

The eIDAS 2.0 framework involves the issuance of implementing acts and delegated acts by the European Commission. Standardization and further development of regulative framework set out technical specifications for certification and aim to address identified weaknesses and threats in the SWOT-Analysis within the project duration of Trace4EU.

A well-grounded evaluation aims to identify possibly necessary adjustment among the architecture and common technical ground of TRACE4EU and/or requirements on application scenarios. Also the contribution to and evaluation of EBSI governance and specification is planned. The results of those tasks as well as the ones from Year 1 activities on exploitation (See D2.6) are main input for the definition of final rollout strategy of application scenarios as well as their rollout among other countries or industries.

In the first year of TRACE4EU and well-grounded analysis of market and client needs is planned in order to achieve comprehensive overview and basement for detailed exploitation actions. Based on this possible adjustments on umbrella architecture, application scenarios as well as rollout planning and exploitation plans will be evaluated and executed.

The measures on communication, exploitation and rollout will be evaluated regarding their effectiveness in achieving the Key Performance Indicators given in the Grant Agreement. Main responsibility is in WP 1 on project management and WP 3 on Exploitation, Communication and Rollout actions.