BUILDING TOGETHER

Creating Web3 technology ecosystems – report on EBSI's incubation programme

INSIGHTS FROM
THE EBSI PILOTS.

2024
SEPTEMBER

European Commission | ebsi European Blockchain

EUROPEAN COMMISSION
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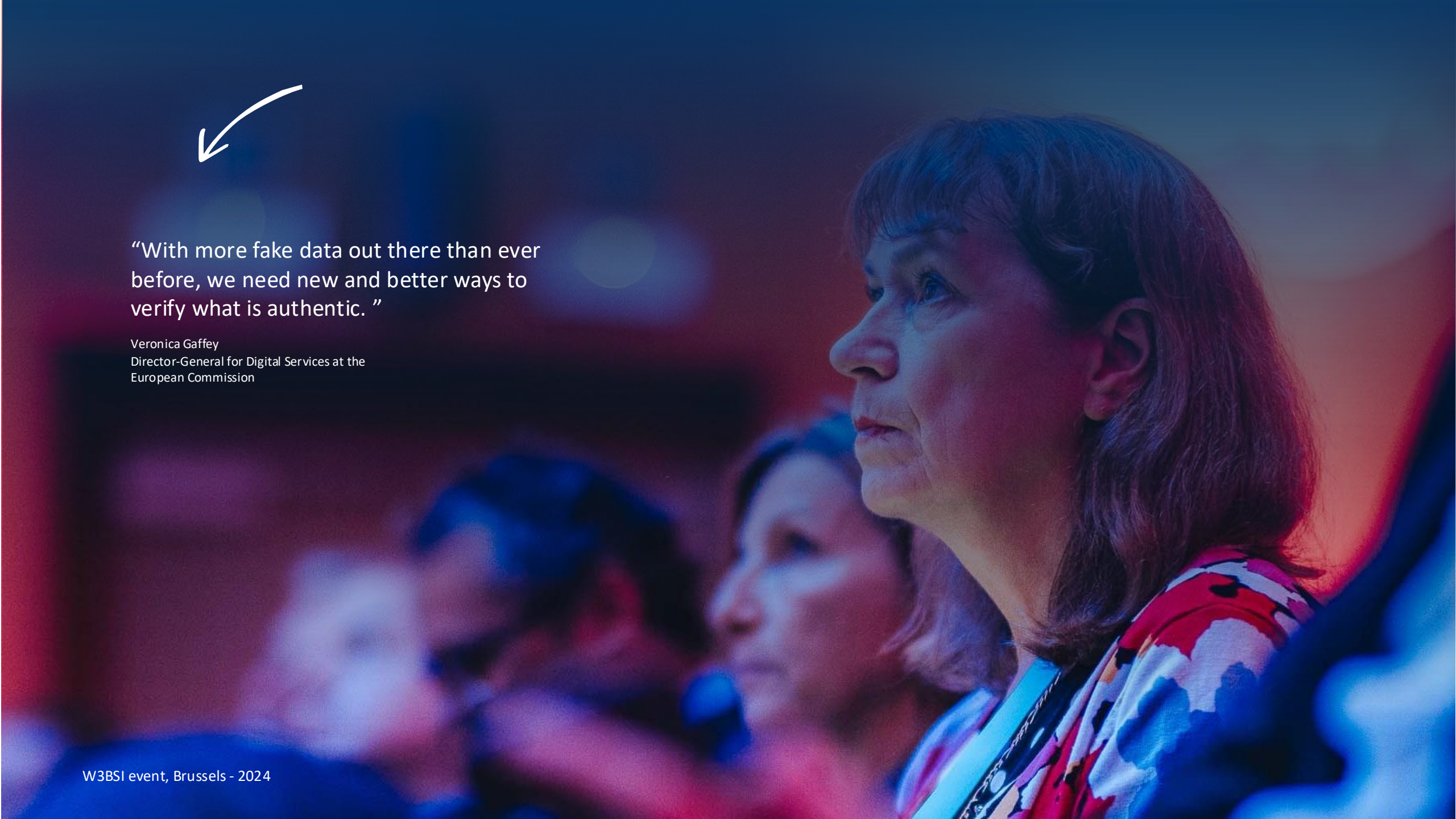
“With more fake data out there than ever before, we need new and better ways to verify what is authentic. ”
Veronica Gaffey
Director-General for Digital Services at the European Commission
W3BSI event, Brussels - 2024

Foreword

This report reviews EBSI's multi-year Incubation Programme, an ambitious initiative that engaged public and private organisations across diverse sectors to pilot Web3 solutions and lay the groundwork for a future European Web3 economy.

In today's AI-driven information landscape, the need for reliable ways to verify the authenticity of data has never been more critical. With the rise of Web 3.0 technologies, such as blockchain, digital wallets, Verifiable Credentials, and tokenisation, we now have solutions that address these challenges without compromising privacy or imposing centralised control.

Since 2018, the European Blockchain Services Infrastructure (EBSI) has pioneered the adoption of Web3.0 technologies for public services across Europe. Led by the European Commission and in collaboration with 29 countries, EBSI has been working to harness decentralised technologies to serve EU citizens, enabling secure, cross-border services.

However, technological innovation cannot thrive through design alone. For Web3 to succeed, the public sector must foster adoption by taking a system-oriented approach to change—one that builds incrementally through multiple, small steps rather than one sweeping transformation. This report reviews EBSI's multi-year Incubation Programme, an ambitious initiative that engaged public and private organisations across diverse sectors to pilot Web3 solutions and lay the groundwork for a future European Web3 economy.

A Growing Ecosystem of Pilots

The success of blockchain adoption doesn't just hinge on infrastructure. What truly drives impact is the development of real-world applications that solve practical business challenges. Since 2021, EBSI has not only provided a robust blockchain infrastructure but also actively supported pilot projects across sectors like education, social security, product traceability, and more.

EBSI's efforts included:

- **Open specifications** for Verifiable Credentials,
- **Self-service tools** for testing conformity with EBSI standards,
- **APIs, libraries, and toolkits** to support technical integration
- A **Support Office** to assist pilots in navigating these tools.

Aside from all the above self-service tools, open to all (check them out: https://devhub.ebsi.eu), EBSI opened applications for pilot projects as part of the **Early Adopter Programme** in 2022.

In 2024, the programme had expanded to 24 active projects across more than 15 countries and 10 different domains. Over 100 organisations participated, exploring use cases aimed at improving information authenticity, enhancing mobility, and boosting economic growth.

In May 2024, the W3bsi Ecosystem Day showcased these pilot projects. The event highlighted the need for concrete steps to transform pilot projects into fully functioning services ready for wide adoption. It also marked the beginning of the handover of the steering of EBSI from the European Commission to EUROPEUM-EDIC, a Consortium of Member States of the European Union, set to take over all EBSI operations in 2025.

Promising Growth in 2024

EBSI's successful adoption depends on the creation of a secure, decentralised network of nodes, a growing number of trusted issuers, and widespread use by its ecosystem. In 2024, we've seen significant growth: the **EBSI node network** has **reached a number of 41 active nodes**, while the number of registered **Trusted Issuers** has surged from **26 to 101, an increase of 288%** since 2023. These indicators show the tangible progress towards a thriving EBSI ecosystem.

To foster the adoption of new technology, policymakers need to start by having a clear, well defined end goal. This goal cannot be too broad – spanning too many use cases, or too many industries – nor too ambitious – expecting a complete market where demand and supply sides form simultaneously.
This goal needs to be underpinned by a set of clear standards and specifications which are, ultimately, the main product that a public institution is distributing. Standards and specs allow for interoperability and alignment between actors, they are the cornerstone of a well-functioning ecosystem.

How to build an ecosystem?

After 3 years of incubation activities, and the successful creation of a nascent Web 3.0 ecosystem in that time, we can look back on what worked well, less well, and what we'd do differently.

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The fundamentals: specifications and wallets

EBSI launched the **EBSI Verifiable Credentials Framework v1.0** in **2021**, together with the launch of its Early Adopter Programme. This version of the specifications established the key standards (W3C Verifiable Credentials, OIDC4VC and OIDC4VP) needed to operate **EBSI-compliant digital wallets**. Wallets are the first necessary element of a functioning ecosystem: they allow for actors (issuers, holders, verifiers) to exchange with each other. Without wallets, there is no sense in stimulating supply (issuance of credentials) nor demand (verification).

This is why the first wave of the EBSI Early Adopter incubation programme focused on creating a steady **market of wallets**. Wallet Providers were encouraged to build wallets based on EBSI's specifications and test them using the **first version of EBSI's Wallet Conformance Testing suite**, released at the start of 2022.

At the end of this first round of Early Adopters, culminating in the 31 May 2022 Demo Day, **6 pilot projects demonstrated the successful, cross-border use of EBSI Conformant Wallets**. We had an ecosystem of 17 conformant wallets from across Europe, and a nascent issuer and verifier base contained in those cross-border pilots. It was time for the next step.

Supply, demand, scale

By mid-2022, we were gearing up for the next stage in our ecosystem creation activities. In a study commissioned by the European Commission in November, we investigated the demand and supply-sides of Verifiable Credentials. What emerged was clear: **the demand for fast and easy verification is implicit** (as soon as actors are informed of the benefits, they develop an interest), but **there is no supply of Verifiable Credentials** by issuers.

This informed the next stage of our incubation activities and the launch of the **next wave of the EBSI Early Adopters incubation programme:** focussed on **matching supply and demand** and supporting issuers with **additional tools to develop their issuance capabilities**.

This led us to push our support and incubation tools even further, with the launch of:

- An interactive API catalogue
- Libraries to validate a Verifiable Credential (VC) or a Verifiable Presentation (VP) and tools to generate a DID following the did:key method by providing a public key JWK (Check them out: https://devhub.ebsi.eu)
- Crucially, **new business-oriented onboarding guides** targeted for **project managers** in public administrations tasked with **coordinating projects involving the issuance and/or verification** of Verifiable Credentials
- And finally, **3 new Conformance Testing suites** to test the accreditation, issuance, and verification applications created by Early Adopters

This, together with the running of the Early Adopter Programme– with weekly technical FAQ calls, project group coordination by EBSI's team, and frequent milestone presentations- contributed to the successful creation of a nascent ecosystem of **over 100 organisations across Europe** that demonstrated they were able to issue, exchange, and verify Verifiable Credentials across a multitude of industries and sectors, **across European borders**.

Because it’s not just how good your technology is, nor how solid the business case for its adoption is – it’s about how many believe in it so much they are willing to invest their time and money into implementing it. An entire ecosystem of actors across Europe and beyond needs to be propped up and supported in the adoption of a new technology. This is not only a technological, but a stakeholder coordination and communications challenge.

What’s next for EBSI?

As EBSI transitions to EUROPEUM-EDIC in 2025, the next phase will bring multiple opportunities. The focus must now shift from piloting projects to large-scale production. Some key priorities have been identified:

1. **Existing projects and their maturity to go into production**, ensuring a clear roadmap for deployment.
2. **Mobilisation of public authorities** taking into account the new EUDI framework and the on-going work on EUDI Wallet.
3. **Potential allocation of resources and support teams** to guide projects into production, while continuing to improve technical tools and stakeholder engagement.

Invest in your product, then invest more in its adoption

With EBSI, we developed a framework with high quality specifications based on Web3 standards that we believe have the potential to deliver tangible benefits to European citizens and businesses looking to move, work, and live within and across EU borders. We invested energy, skills and resources in developing a product we believe in, and through each successive wave of our Early Adopter incubation programme, refined and improved it.

But for as much as we invested in designing high quality specifications – the heart of every cross-border technology endeavour- we poured even more time and effort into convincing and recruiting implementers, accompanying them in their implementation journey, and providing them with high quality tools to ensure that our specifications became

This Service-Oriented approach – informed by our understanding of how individual organisations, and also ecosystems, evolve from awareness, to implementation, to testing, to full deployment – is at the heart of this ambitious experiment that was EBSI’s incubation programme.

To other projects seeking to foster adoption of Web3 and other innovative technologies, we say: invest in your educational materials, your dissemination strategy, your tools and your support systems. Invest in it as much, if not more, as you invest in your specifications, infrastructure, and products.

Because it is not just how good your technology is, nor how solid the business case for its adoption is – it is about how many believe in it so much they are willing to invest their time and money in implementing it. An entire ecosystem of actors across Europe and beyond needs to be propped up and supported in the adoption of a new technology. **This is not only a technological, but a stakeholder coordination and communications challenge.**

This report, based on a survey conducted among 37 leading organisations, offers insights into the progress of pilot projects and recommendations for achieving true Web3 adoption in Europe. It aims to provide valuable input on the ecosystem status, the stakeholders’ experience and satisfaction with EBSI services, and reflect the impact of transforming pilot projects into next-generation services, setting the stage for Europe’s future decentralised digital ecosystem.

May it help you in driving your own innovation projects to success.

Enjoy the reading.

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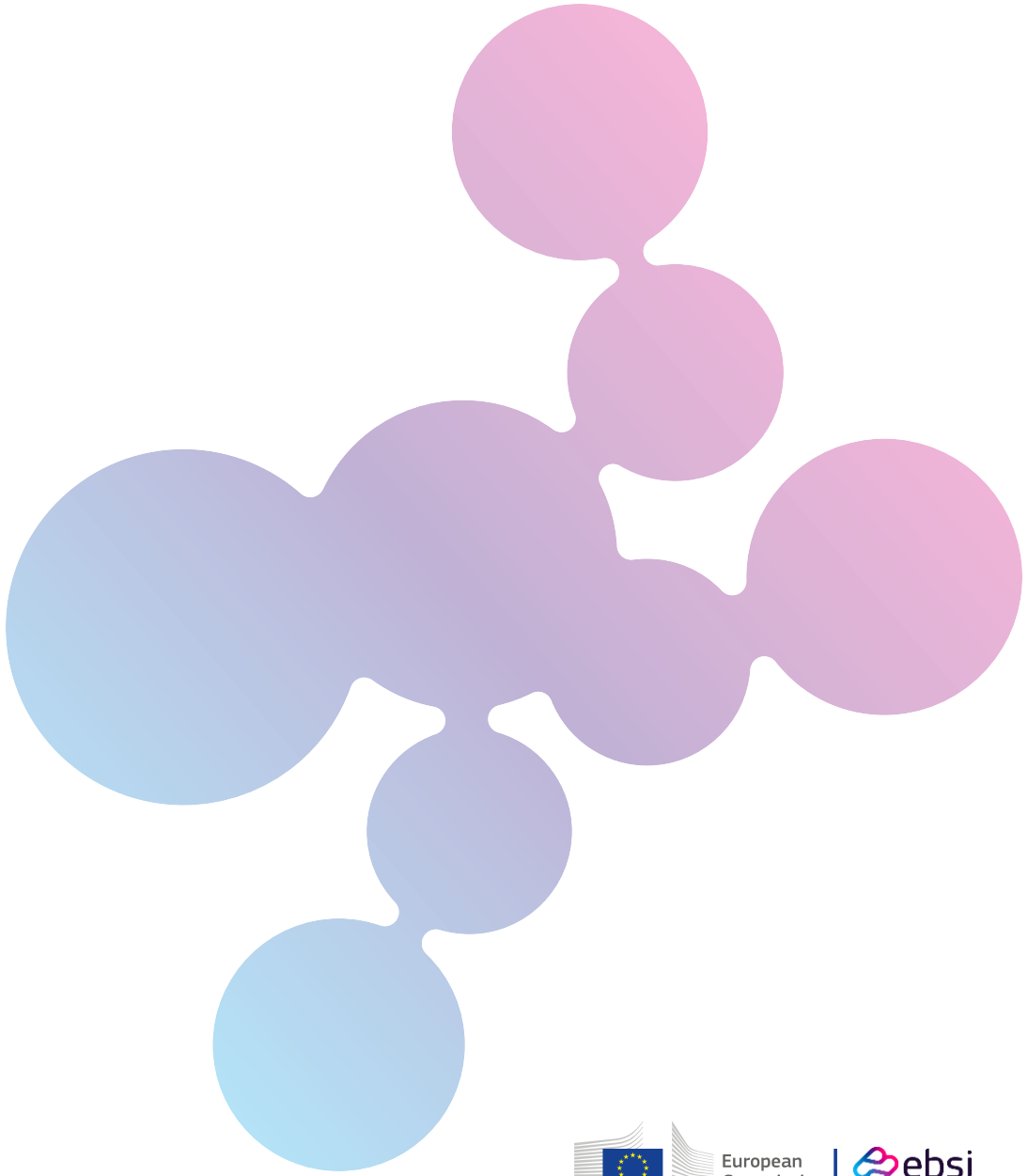

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EBSI and its incubation services.

THE EUROPEAN BLOCKCHAIN INFRASTRUCTURE SERVICE (EBSI) AND ITS INCUBATION SERVICES. CONTEXT AND APPROACH TO THE SURVEY.

INSIGHTS FROM
THE EBSI PILOTS.

EBSI is the first pan-European, public-driven blockchain initiative of its kind, born in 2018 when 29 countries (all EU members states, Norway, and Liechtenstein) and the European Commission (EC) have joined forces to create the European Blockchain Partnership (EBP). The vision was to leverage on Decentralised Ledger Technologies (DLTs) to provide cross-border services for public administrations, businesses, citizens, and their ecosystems to verify information and make services trustworthy

Introducing EBSI

EBSI is the **first pan-European, public-driven blockchain initiative** of its kind, born in 2018 when 29 countries (all EU members states, Norway, and Liechtenstein) and the European Commission (EC) have joined forces to create the European Blockchain Partnership (EBP). The vision was to **leverage on Decentralised Ledger Technologies (DLTs) to provide cross-border services for public administrations, businesses, citizens, and their ecosystems** to verify information and make services trustworthy.

The blockchain ledger can be used to store information in a trusted, decentralised way, allowing for new forms of verification, traceability, and transparency for citizens. At EBSI we tap into blockchain's tamper-evident, immutable, and decentralised properties to support better public services for all Europe.

EBSI offers a **promising approach to addressing various verification challenges in Europe** by leveraging blockchain technology's inherent decentralised nature, cryptographic security mechanisms, immutability, and transparency.

EBSI aims to establish a secure, trusted, and resilient digital infrastructure for public administrations and businesses for seamless cross-border verification of information by providing a decentralised and **secure platform for storing and verifying credentials, documents, and data**.

This infrastructure **eliminates the need for intermediaries, automates verification processes, reduces the risk of fraud and administrative burdens, ensures the authenticity and the integrity of verified information**. It also helps to save costs for both public administrations and private companies and empowers individuals with greater control over their personal data, enabling selective disclosure and secure sharing of verified credentials

Today, EBSI is a fully operational infrastructure offeringdecentralised public digital services. It provides:

- A **robust software platform** that supports smart contract deployment, API integration, and data services like issuance, verification, traceability, and ownership of information.
- A **secure network of nodes** deployed across Member States under an open-source license (EUPL).
- **Trusted Registries** that ensure the availability and authenticity of the information stored on the blockchain.
- **Wallet conformance testing** to ensure interoperability across applications.
- A **Verifiable Credentials framework** based on W3C standards, usable in various domains and policy areas.
- Comprehensive **support services**, including help desks, digital toolkits, and educational resources.
- **Engagement initiatives** like the Early Adopters Programme, aimed at expanding stakeholder participation and ensuring successful implementation of EBSI projects.

In 2023 and 2024, the ecosystem experienced rapid growth. Today EBSI is a growing ecosystem of +500 public and private organisations from +30 countries. They are mobilised through 3 main programs: Digital Europe Programme, Early Adopters Programme and EC-based Projects.

Since 2021, we launched the Incubation programmes to help Early Adopters and their partners imagine, build, and contribute to blockchain project(s) using EBSI.

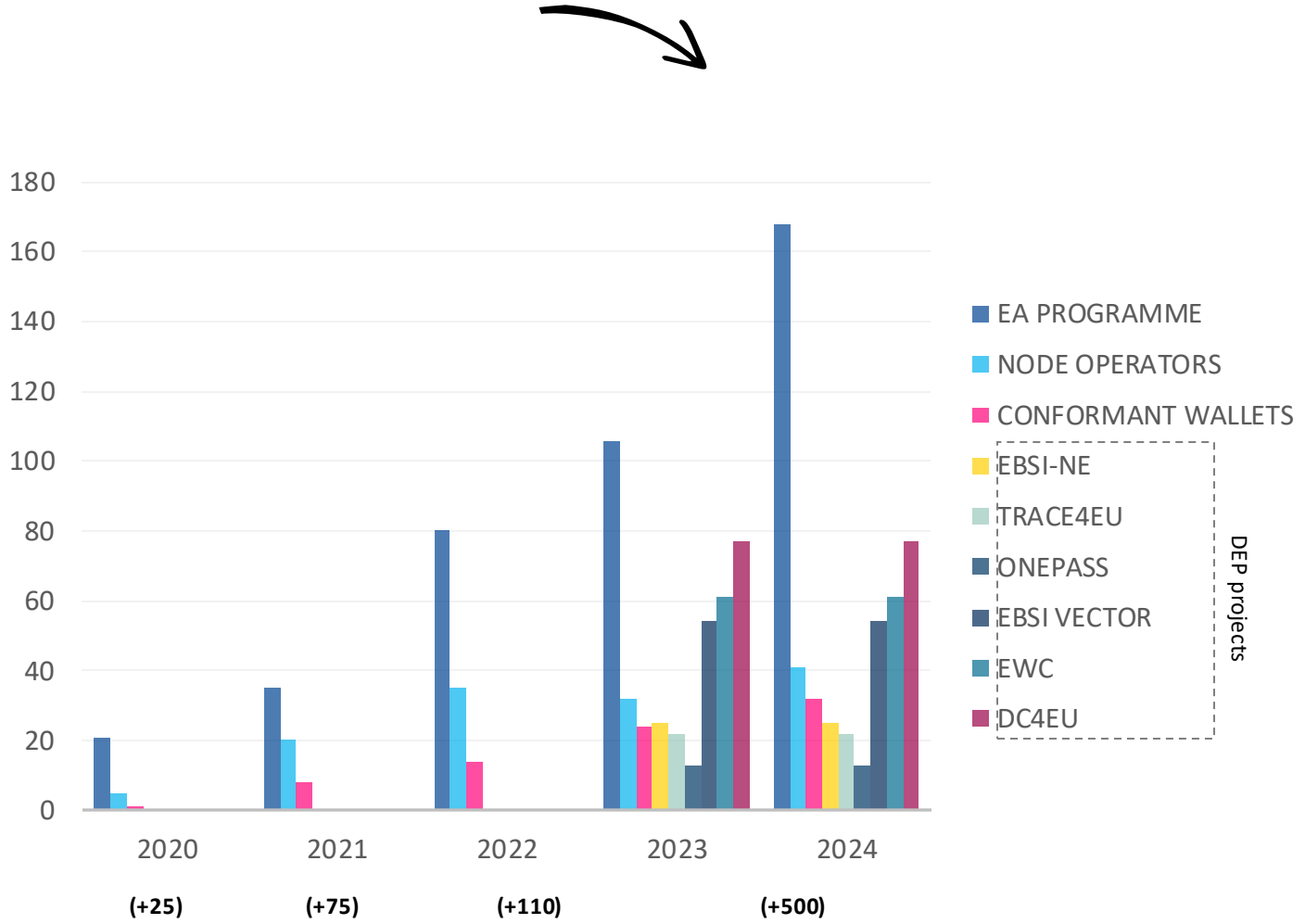
In early 2021, a group of Early Adopters joined the first wave of the EBSI Early Adopters Programme, designed to support both private and public sector partners in conceptualising and developing blockchain-based projects.

These initiatives aimed to leverage EBSI to facilitate the exchange of verifiable credentials, initially within the education sector. Participants were granted early access to EBSI's pre-production environment to build and test their specific use cases.

During this period and until end of 2022, over 50 organisations implemented nodes for EBSI, facilitating multicountry pilots focused on the exchange of educational credentials, mobilising more than 70 stakeholders.

In 2023 and 2024, the ecosystem experienced rapid growth, Today EBSI is a growing ecosystem of +500 public and private organisations from +30 countries. They are mobilised through 3 main programs: Digital Europe Programme, Early Adopters Programme and EC-based Projects. The graph on this page represents the total number of organisation actively and passively involved in EBSI.

Please note that, through this survey, we engaged with leading organisations from each pilot within the Digital Europe Programme, the Early Adopters Programme and EC-based Projects. We asked them to estimate the total number of active participants which has been estimated at 135. **When we include the number of conformant wallets and the number of nodes, the size of the ecosystem reach 207 active organisations.**



Today, EBSI covers over 24 active projects across more than 15 countries and 10 diverse domains. Together, they experiment with EBSI to make information easy to verify and almost impossible to fake - for better mobility of our citizens, better quality of our products, and better economic development of our enterprises.

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EA Programme
Digital Europe Programme
EC-based projects

Theme 1 - Building a resilient and secure network

1 EBSI-NE

Theme 2 - Towards a whole new mobility for citizens across Europe (Verification of documents)

2 Educational ID (Link)
3 Formal accreditation (Link)
4 University Alliances (Link)
5 Micro-credentials (Link)
6 Vocational Education and Training (Link)
7 VECTOR - Education
8 TRACE4EU - Résumé credentials
9 Employment credentials (Link)
10 Certificate of Good Conduct (Link)
11 VECTOR - EHIC
12 Cyclades Fast Ferries (Link)
13 Public Administrations Interoperability (Link)

Theme 3 - Ensuring authenticity of products and transparency in the supply chain (Verification of products and traceability

14 EBSI-ELSA (EUIPO) (Link)
15 TRACE4EU - Open Rights Data Exchange (Link)
16 TRACE4EU - Seafood tracing application (Link)
17 TRACE4EU - Agrifood tracing application
18 TRACE4EU - Materials Tracing Application (Link)
19 Random Red Ltd. (Link)
20 eOrigin (Link)
21 TRACE4EU - Electronic Registered Delivery (ERD)

Theme 4 - Unlocking business opportunities for European companies (Verification of legal entities).

22 OnePass - SME Financing (Link)
23 VECTOR - Business Registries (Link)
24 Dutch Blockchain Coalition

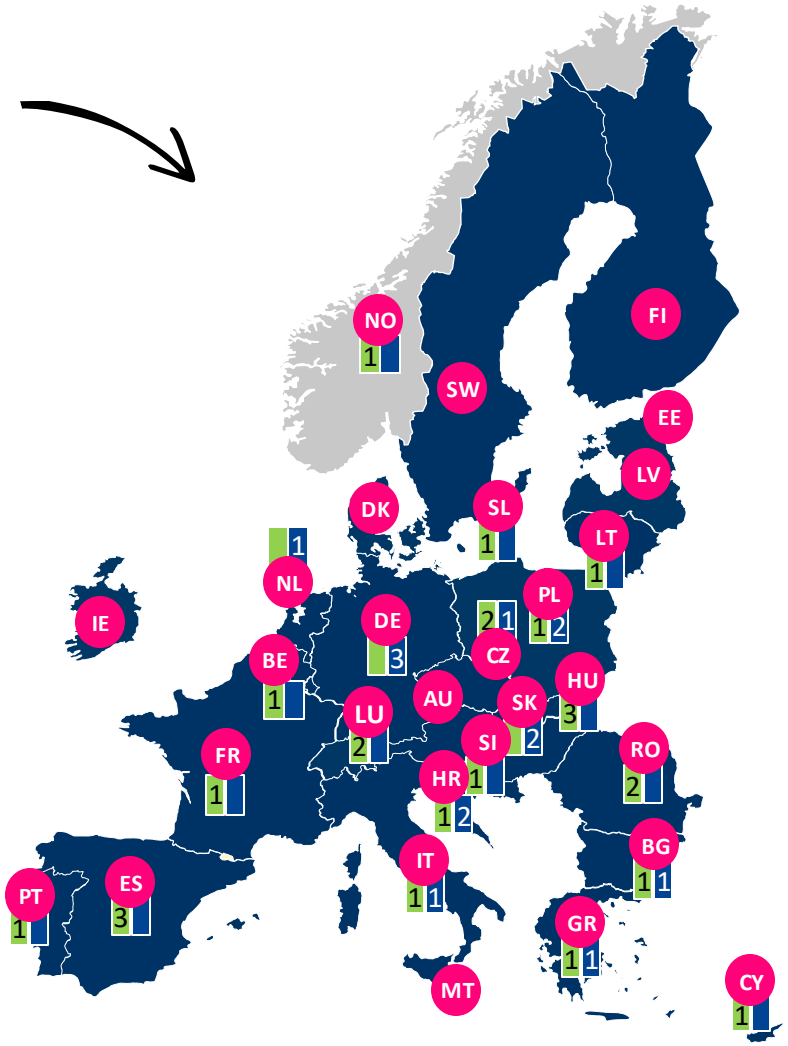
Theme	Sector	Project name	Project description
Theme 1 - Building a resilient and secure network	N/A	EBSI-NE	Exploring the key dimensions to protect the information in the EBSI network and its alignment with the new eIDAS trust service for electronic ledgers.
Theme 2 - Towards a whole new mobility for citizens across Europe (Verification of documents)	Education	Educational ID	Helping higher education alliances align on an interoperable system for managing students' identification.
	Education	Formal accreditation	Facilitating the use of digital student university certificates for cross-border use.
	Education	University Alliances	Helping students, academics, and staff seamlessly access courses, workshops, and resources at partner universities across borders.
	Education	Micro-credentials	Helping lifelong learners achieve their professional ambitions by giving them access to recognised micro-credentials.
	Education	VET	Assisting European citizens in the acceptance and recognition of certifications for vocational education and training across Europe.
	Education	VECTOR: Education	Reducing the gap between a “pre-production” implementation and a real-life EBSI adoption in the Education context.
	Employment	TRACE4EU: Résumé credentials	Helping labour force mobility across borders by facilitating the verification process of résumé credentials.
	Employment	Employment credentials	Helping labour force mobility across borders by facilitating the verification process of work certificates.
	Employment	Certificates of good conduct	Helping labour force mobility across borders by facilitating the verification process of certificates of good conduct.
	Social security	VECTOR: EHIC	Reducing the gap between a “pre-production” implementation and a real-life EBSI adoption in Social Security contexts.
	Travel	Cyclades Fast Ferry ticket	Improving all aspects of the travelling experience via ferry for EU students, by simplifying the onboarding experience.
	Public services	Public Administration Interoperability	Accessing citizen facilities between regional and national governments.
Theme 3 - Ensuring authenticity of products and transparency in the supply chain (Verification of products and traceability)	IP Rights / Creative industries	EBSI-ELSA EUIPO	Increasing supply chain transparency to address EU counterfeiting of products.
	IP Rights / Creative industries	Open Rights Data Exchange	Framing data management practices in the creative industries to improve authoritative and updated information on rightsholders, terms and conditions, and licensing opportunities.
	Food & beverage	Seafood tracing application	Helping the EU Fishing Industry to enhance product traceability, food safety, and combat illegal fishing.
	Food & beverage	Agrifood tracing application	Traceability for short local supply chains of agrifood products in Hungary.
	Construction	Materials Tracing Application (Digital Product Pass)	Helping European battery manufacturers enhance the reliability of information critical to the usage of product passports.
	Metrology	Random Red Ltd.	Helping European national and private actors increase the reliability of scientific measurement and calibration processes across industries and borders.
	Tax & Customs	e-Origin	Helping customs brokers, online sellers and marketplaces to resolve customs compliance issues.
	Other	Electronic Registered Delivery (ERD)	Enabling the safe exchange of electronic documents among EU citizens, professionals, public administrations, and businesses.
Theme 4 - Unlocking business opportunities for European companies (Verification of legal entities).		OnePass: SME Financing	Enabling cross-border investment within Europe by creating a trust framework between startups, investors, and trusted operators of services to startups.
		VECTOR: Business registries	Getting legal entities verified to facilitate cross-border business transactions.
		Company Passport	Presentation of the company passport project by the Dutch Blockchain Coalition.
		eInvoicing	Presentation of the electronic invoicing MVP by the Dutch Blockchain Coalition.

EBSI’s Blockchain Network counts 41 nodes of which 28 are validators, given the important role of adding transactions to the ledger.

Validator nodes

Peer nodes

DUO 58	Oslo Univ 77	U. Maribor 31	SIS 43	NASK 63
MITTWEIDA 38	OPDM 34	BELASTING DIENST 83	NASK 63.1	CSO 78
CZ.NIC 48	BRNO 71	Autocont 73	CIC 70	NASK 63	OPDM 34.1
GovPart 75	MinDIG 29	INFRACHAIN 79	GOV IT 49	BUTE 64	NASK 63.2
INAIL 74	EXION 82	INPS 27	STS 68	UEFISCDI 51	VELOFOX 54.1
FNMT 44	SGAD 24	REDIRIS 25	VELOFOX 54	BLOCKCHANIUM 81	CSO 78.1
CASA MOEDA 76	CRT Hellas 42	GRNET 17	DMRID 22	Belnet 13	RINIS 60



EBSI’s Ecosystem counts +30 interoperable wallets that are conformant with the specifications. They achieve this using our free, self-service Wallet Conformance Testing Suite.

+30

Conformant Wallets

IDCluster Wallet

Use case

Diploma|StudentID|Identity|PDA1

Devices

Mobile | Desktop

IMPULSE Wallet

Use case

Identity

Devices

Mobile | Desktop

Corposign DID

Use case

Diploma | Student ID | Identity|PDA1

Devices

Mobile | Desktop

Teknei ID-Wallet

Use case

Diploma | Student ID | Identity

Devices

Mobile | Desktop

GUnet - eDiplomas Wallet

Use case

Diploma

Devices

Mobile | Desktop

Poste Italiane

Use case

Diploma

Devices

Mobile | Desktop

KayTrust by NTT DATA

Use case

Diploma

Devices

Mobile |

VIDwallet

Use case

Diploma|StudentID|Identity|PDA1

Devices

Mobile |

Primus Money

Use case

Identity

Devices

Mobile | Desktop

CERTH-ITI

Use case

Diploma

Devices

Mobile | Desktop

MynextID

Use case

Diploma

Devices

Mobile | Desktop

walt.id Wallet Kit

Use case

Diploma

Devices

Mobile | Desktop

Talao

Use case

Diploma

Devices

Mobile | Desktop

Data Wallet - by iGrant.io

Use case

Diploma | Student ID | Identity|PDA1

Devices

Mobile | Desktop

Altme

Use case

Diploma

Devices

Mobile | Desktop

DS Wallet

Use case

Diploma | StudentID | Identity

Devices

Mobile | Desktop

Utopia ID Wallet

Use case

Diploma

Devices

Mobile |

Gataca

Use case

Diploma|StudentID|Identity|PDA1

Devices

Mobile |

EBSI follows a service-oriented approach, as described here with our Service Offering Canvas. This is applicable to many different outcome-services EBSI can enable. Today some of them are more mature than others.

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OUTCOME-SERVICES

- Digital verification of documents
- Digital verification of products
- Digital verification of legal entities
- Timestamp and tracing
- Tokens
- DAOs

ENABLING SERVICES

SOFTWARE

Sample software
EBSI node software image
Libraries and tools
Demo applications
API catalogue

OPERATIONS

Managed services	Testing services	Supporting services
Network orchestration	Wallet conformance Testing - Holder	Support Office
	Wallet conformance Testing - Verifier	
	Wallet conformance Testing -Issuance	
	Wallet conformance Testing - Accreditation	

ENHANCING SERVICES

STAKEHOLDER MANAGEMENT

Incubation / Onboarding	Communication
Experience centre	Social media and web content
Webinars / Workshops	EBSI explained
Early Adopter / Pilot programs	EBSI podcasts

CORE SERVICES

TECHNICAL SPECIFICATIONS

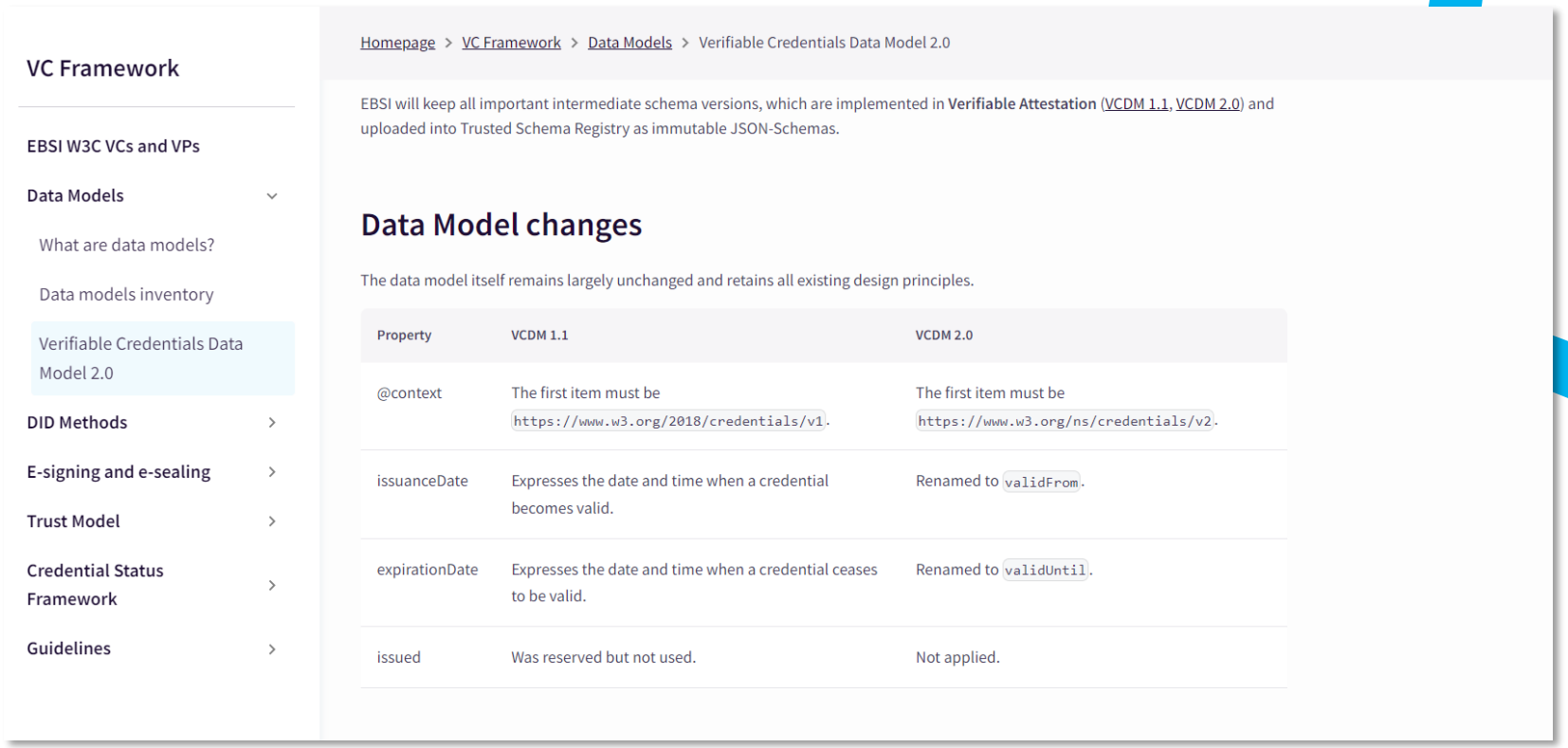
European Profiles	Implementing Acts	Implementing Guidelines
N/A	N/A	Verifiable Credentials Framework
		WCT Guidelines
		Node Operator Guidelines

STANDARDS

W3C	OpenID Connect	Ethereum
DIDs	OpenID4VCs OpenID4VP	Hyperledger Besu
VCs		

Our incubation programme offer services and tools at each stage of the pilot implementation journey.

EBSI's Verifiable Credentials Framework is well-documented in wiki-style specifications on EBSI's Developers Hub, covering formats, schemes, signing, protocols and more.



VC Framework

- EBSI W3C VCs and VPs
- Data Models
  - What are data models?
  - Data models inventory
  - Verifiable Credentials Data Model 2.0
- DID Methods
- E-signing and e-sealing
- Trust Model
- Credential Status Framework
- Guidelines

Homepage > VC Framework > Data Models > Verifiable Credentials Data Model 2.0

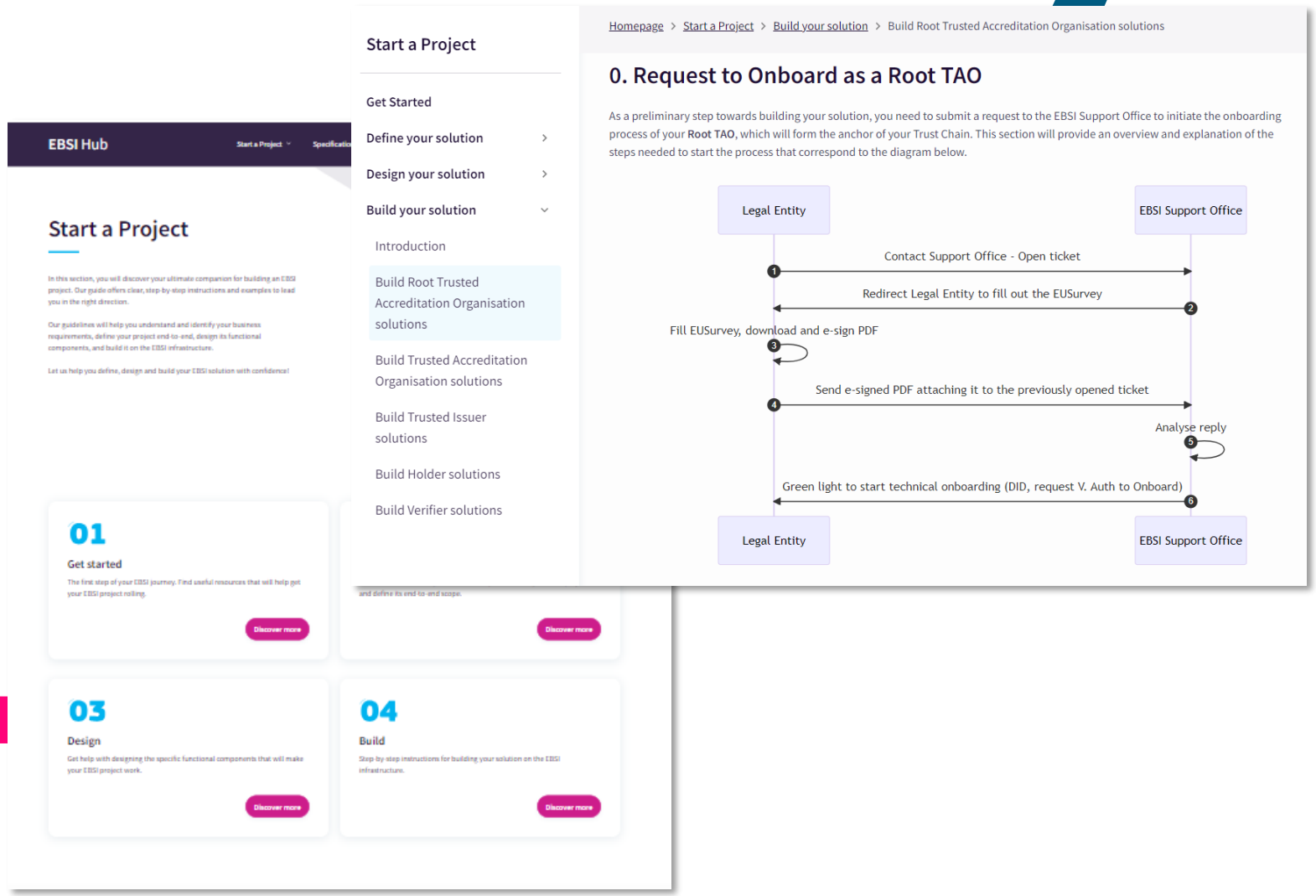
EBSI will keep all important intermediate schema versions, which are implemented in **Verifiable Attestation** (VCDM 1.1, VCDM 2.0) and uploaded into Trusted Schema Registry as immutable JSON-Schemas.

Data Model changes

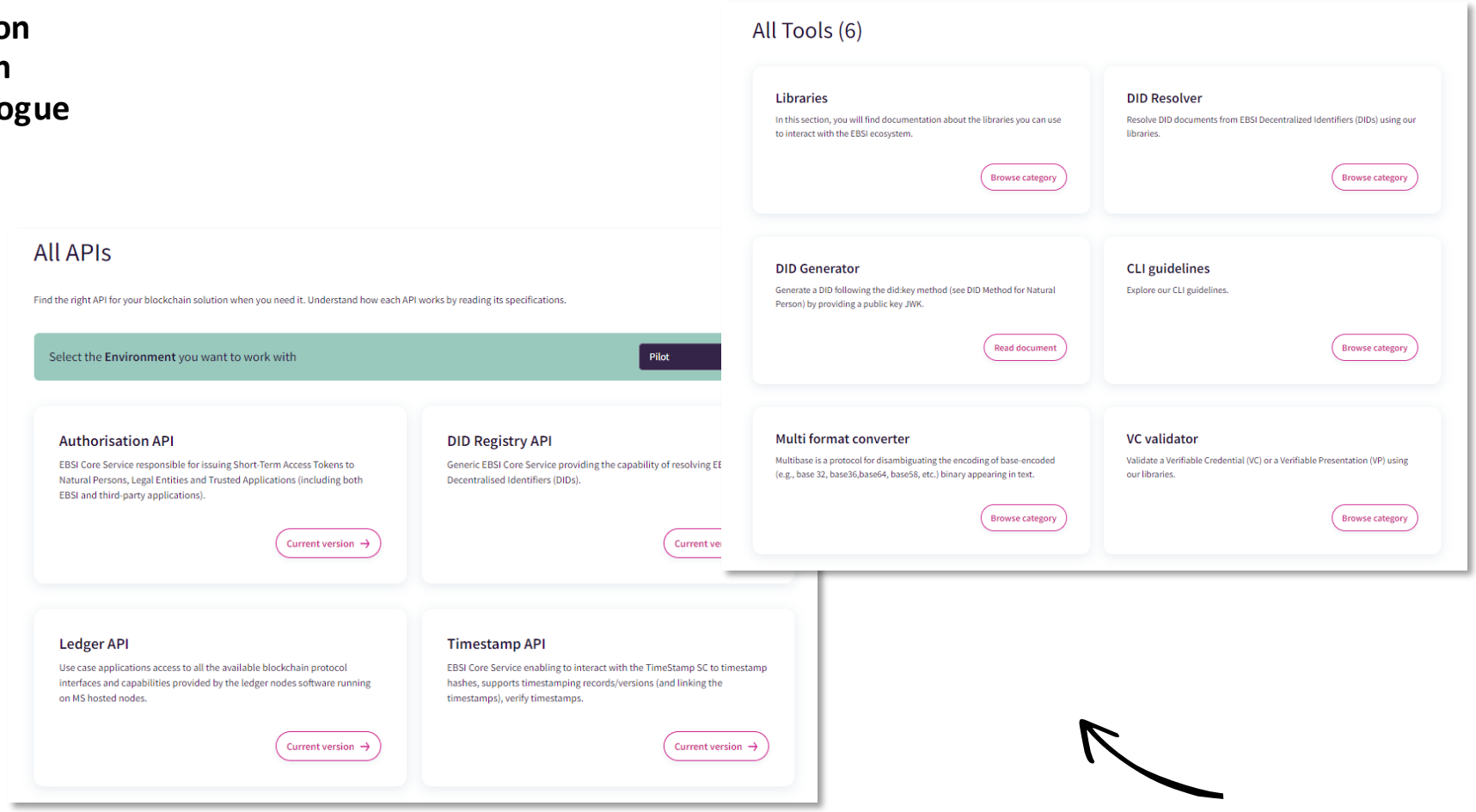
The data model itself remains largely unchanged and retains all existing design principles.

Property	VCDM 1.1	VCDM 2.0
@context	The first item must be `https://www.w3.org/2018/credentials/v1`.	The first item must be `https://www.w3.org/ns/credentials/v2`.
issuanceDate	Expresses the date and time when a credential becomes valid.	Renamed to `validFrom`.
expirationDate	Expresses the date and time when a credential ceases to be valid.	Renamed to `validUntil`.
issued	Was reserved but not used.	Not applied.

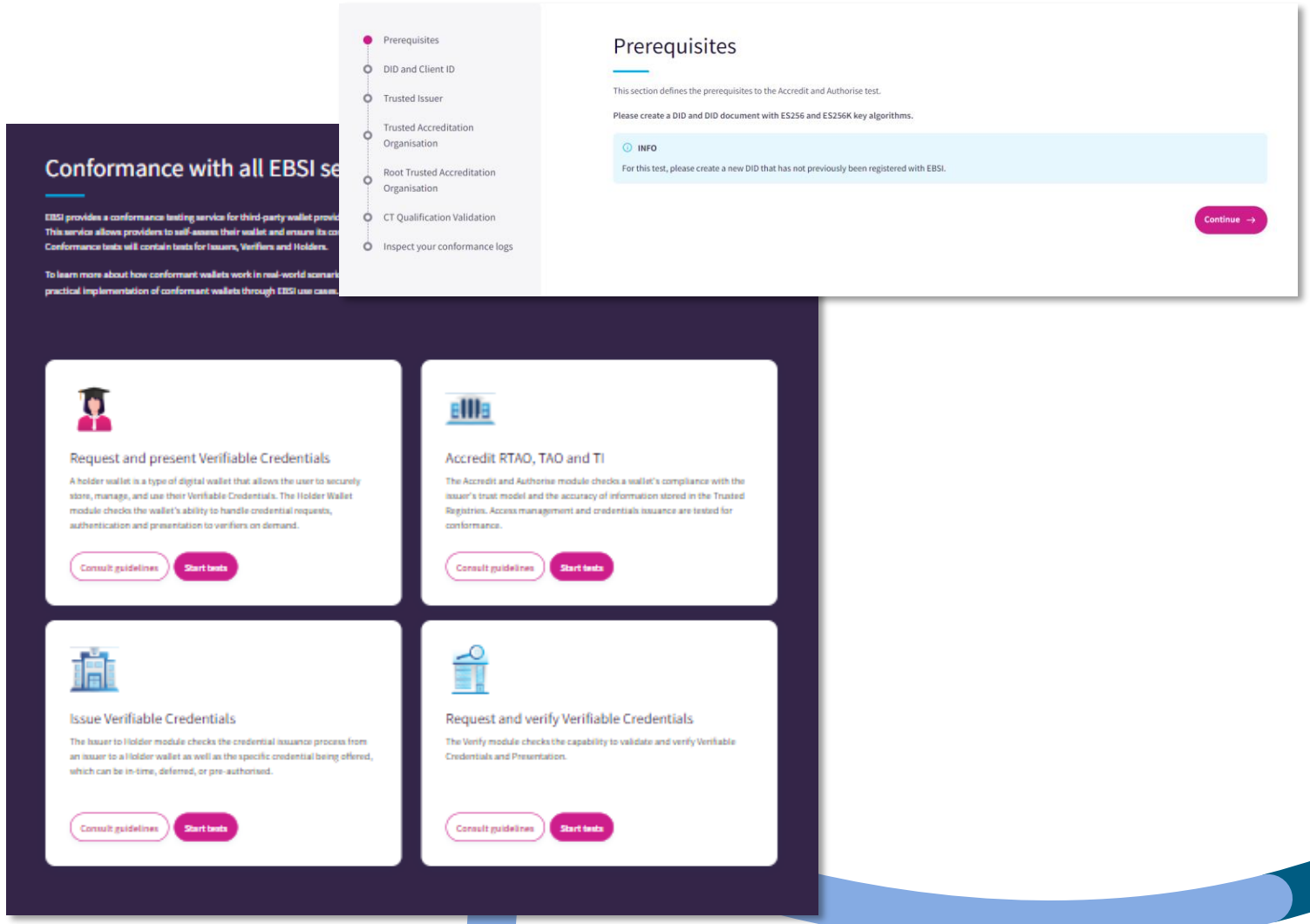
EBSI's Get Started guides offer a business-oriented way to navigate through the specs from the perspective of a technical project manager.



Self-service tools for developers to work on their product, and an interactive API-catalogue



Self-service Conformance Testing Suite to help Digital wallets providers become conformant with EBSI' specifications, making them interoperable with each other.



The pilot implementation journey

01 LEARN

- Learn about EBSI and VCs
- Learn about success stories
- Learn about the pilot programme
- Participate to intro webinars.
- Assist demos at Experience Centre

- EBSI Explained
- Success stories
- Pilot programme
- Intro Webinars
- Experience Centre

02 REGISTER

- Register to the pilot programme
- Analyse use cases proposed.
- Qualify use cases proposed.
- Group use cases in clusters.
- Send invitation for kick-start webinar

- Kick-off webinar

03 ON-BOARD

- Participate to kick-start webinar.
- Set-up use case pilot team
- Sign Legal package.
- Set-up work environment.
- Get full access to EBSI services

- EBSI Hub
- Onboarding Toolkit
- VC Framework
- WCT guidelines

04 DEFINE

- Define describe use case scope.
- Identify and mobilise actors.
- Define user journeys/stories.
- Design Screen flow

- Educative webinars
- Demos and prototypes
- Sample screens

05 DESIGN

- Define and design Trust chain.
- Define and design Data models.
- Define and design Signature profile.
- Define Authentication patterns.
- Define Required capabilities.
- Plan for integration

- Libraries and tools.
- API catalogue
- Trusted Registries
- Blockchain Network orchestration.
- Support Office (SO)

06 BUILD

- Build RTAO solution.
- Build TAO solution.
- Build Trusted Issuer solution.
- Build Holder solution.
- Build Verifier solution.

07 TEST

- Test conformance of RTAO solution.
- Test conformance of TAO solution.
- Test conformance of Trusted Issuer solution.
- Test conformance of Holder solution.
- Test conformance of Verifier solution.

- Wallet Conformance Testing

08 MOBILISE

- Create project webpages
- Create pitch presentation
- Participate to celebration events.
- Promote content on social media

- Ecosystem Day
- Verifying legal entities
- EBSI Demo Day 2022

In May 2024, the W3bsi Ecosystem Day event brought 24 projects together for a showcase, during which each team pitched and demoed their use cases, following a vetting process by a panel in April. The event also marked the formal announcement of the transition to the EUROPEUM-EDIC, emphasising the opportunities of bringing EBSI into production. To aid in this transition and provide an overview of the EBSI ecosystem, we launched the Ecosystem Survey.

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In early 2021, a group of Early Adopters joined the first wave of the EBSI Early Adopters Programme, designed to support both private and public sector partners in conceptualising and developing blockchain-based projects. These initiatives aimed to leverage EBSI to facilitate the exchange of verifiable credentials, initially within the education sector. Participants were granted early access to EBSI's pre-production environment to build and test their specific use cases. By 2024, the scope of the Early Adopters Programme had expanded significantly, covering over 24 active projects across more than 15 countries and 10 diverse domains. With over 100 participating organisations, the focus remained on developing EBSI use cases to ensure information authenticity, enhance citizen mobility, improve product quality, and drive economic growth. In May 2024, the W3bsi Event (Ecosystem Day) brought these 24 projects together for a showcase event, during which each team pitched and demoed their use cases, following a vetting process by a panel in April. **The event also marked the formal announcement of the transition to the EUROPEUM-EDIC, emphasising the opportunities of bringing EBSI into production. The Ecosystem survey, launched after the event, aims to collect further insights from projects when preparing EBSI for production.**

Approach

The survey methodology consisted of the following key steps:

1. **Survey Design**: The survey was designed in alignment with our objectives, focusing on the needs of leading organisations within each pilot project.
2. **Participant Identification**: We identified the leading organisations for each active EBSI pilot project to ensure relevant insights.
3. **Survey Implementation**: The survey was launched, and selected organisations were invited to participate.
4. **Data Collection and Analysis**: Data was gathered and consolidated, followed by thorough analysis to extract actionable insights.
5. **Reporting and Recommendations**: The collected data and insights were compiled into this report, providing recommendations on the next steps.

Methodology

With the exception of the introductory chapter on EBSI and its ecosystem, all data presented in this report originates from the Ecosystem Survey.

The survey targeted **leading organisations** involved in each active EBSI project. **Leading organisations are defined as those responsible for coordinating and executing the pilot projects**.

A list of all active EBSI pilots was compiled. **From the 24 currently active EBSI pilot projects, we contacted representatives from 59 leading organisations to participate in the survey. We received 37 survey responses from 19 of the 24 projects, spanning 20 EU countries, resulting in a response rate of 79%**.

The survey was conducted from the end of July until the first week of September. The survey was designed and administered using the EU Survey platform.

The survey comprised **three main sections**: Assessment of EBSI pilot readiness; Evaluation of EBSI services, channels, and engagement models and Expectations for future developments. Each section included a mix of mandatory quantitative questions, optional qualitative questions, and mandatory qualitative questions. Quantitative questions were closed-format, utilising a rating scale from low to high, measured on either a 1 to 4 or 1 to 5 scale (with 1 indicating 'not used'). Each quantitative subsection provided an optional text box for additional qualitative comments. Qualitative questions were open-format and required respondents to provide text-based answers. All survey responses were securely submitted and stored within EBSI's internal software by the EBSI team.

Disclaimer

This report only contains data provided by the projects. To provide additional supporting content to evaluate the maturity of the projects, please consult the evaluation of the jury members that was performed in April 2024 as part of the selection process for the Online Ecosystem Day event (Click here to access the results).

This report contains a selection of the qualitative data from the survey respondents. If you want to have a look at the entire set of data and information, please consult the individual project data pages (Click here).

W3bsi was a celebration of three years of incubation. After years of working together, often remotely, it was the chance to connect with peers and, for the first time, see our entire ecosystem materialise before our eyes in one place.

W3BSI event, Brussels - 2024

This report presents a comprehensive assessment of the EBSI pilot projects. Drawing on data collected from the survey participants, this analysis provides a clear understanding of the current maturity, cost-benefit potential, and market impact of each pilot. It also evaluates the perceived value of the EBSI services, channels, and engagement models, offering actionable insights on how these can be optimised.
By examining the different stages of each pilot project and the key challenges faced by participants, this report aims to highlight areas for improvement while emphasising successes that can be scaled.

Chapter 1: Overview of Pilot Projects

This chapter offers a detailed overview of the pilot projects that participated in the survey. The goal is to outline their scope and diversity, giving context for deeper analysis.

Chapter 2: Maturity, Cost-Benefit, and Market Impact of Pilot Projects

This chapter focuses on the current readiness and value of each pilot project. It aims to assess whether these projects are ready for full-scale production deployment and provide an evaluation of the expected market impact. The following key areas are addressed:

- **Maturity assessment:** An evaluation of the maturity / readiness of the project to enter production from a business, technical and people engagement perspective.
- **Cost-benefit assessment:** An evaluation of the expected benefits and costs of the pilot projects.
- **Market potential:** An estimation of the broader market impact of the pilot projects.

Chapter 3: EBSI Services, Channels, and Engagement Models

This chapter dives into the perceived value of EBSI's services, channels, and engagement models. It is structured as follows:

- **Assessment of EBSI services:** A detailed evaluation of how the pilot participants value the services provided by EBSI.
- **Assessment of channels and engagement models:** This section examines the communication channels and engagement methods used by EBSI.
- **Pilot journey assessment:** A closer look at the most important stages in the lifecycle of the pilot projects.

Chapter 4: Conclusion – Key Insights and Priorities

The final chapter consolidates the key findings from the previous sections and provides actionable recommendations. It is structured as follows:

- **Conclusions on pilot projects:** This section summarises the current state of the pilot projects in terms of readiness for production, cost-benefit potential, and market impact. It also highlights critical areas where additional support is needed to overcome challenges.
- **Conclusions on EBSI services:** A summary of how EBSI's services, communication channels, and engagement models have been perceived by pilot participants, with a focus on areas that require further improvement.
- **Key priorities and recommended actions:** A list of concrete actions and priorities aimed at enabling the full-scale deployment of pilot projects.

Disclaimer

This report only contains data provided by the projects. To provide additional supporting content to evaluate the maturity of the projects, please consult the evaluation of the jury members that was performed in April 2024 as part of the selection process for the Online Ecosystem Day event (Click here to access the results).

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01

MEET THE EBSI ECOSYSTEM

OVERVIEW OF THE PILOT PROJECTS THAT PARTICIPATED IN THE SURVEY

INSIGHTS FROM
THE EBSI PILOTS.

Counterfeit and pirated goods accounted for 5.8% of EU imports in 2019, amounting to EUR 119 billion. Web3 offers an answer.

The following table shows the pilot project organisations who participated in the survey.

> List of pilot projects

> List of organisations that participated in the survey

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
			EBSI-NE	Educational ID	FAR	University Alliances	Micro-credentials	VET	VECTOR - Education	TRACE4EU - Résumé	Employment credentials	Certificate of Good Conduct	VECTOR - EHIC	Cyclades Fast Ferry	Public Admin Interoperability	EBSI-ELSA (EUIPO)	TRACE4EU - ORDE	TRACE4EU - Seafood	TRACE4EU - Agrifood	TRACE4EU - Materials	Random Red Ltd.	e-Origin	TRACE4EU - ERD	OnePass	VECTOR – Business registries	Dutch Blockchain Coalition
Veloxoft LTD	Private company	BG																								
Politehnica University of Timisoara (UPT)	University	RO																								
INCRREDA Limited	Private company	IE																								
Tan Tan	IT provider	ES																								
IZERTIS S.A	IT provider	ES																								
Université de Lausanne	University	CH																								
GUnet	IT provider	GR																								
KU Leuven	University	BE																								
FILMEU	University Alliance	EU																								
University of the Aegean, i4m Lab	University Alliance	GR																								
University of Bologna	University	IT																								
Freie Universität Berlin	University	DE																								
University of Paris 8	University	FR																								
University of Deusto	University	ES																								
Prosoon	IT provider	FR																								
University of Applied Sciences Lübeck	University	DE																								
GovPart GmbH	Private company	DE																								
Fraunhofer FIT	Public research institute	DE																								
University of Ljubljana	University	SL																								
RISE Research Institutes of Sweden	Public research institute	SE																								
HAW Hamburg	University	DE																								
Technische Universität Berlin	University	DE																								
Primus Money	IT provier	FR																								
EY	IT sector	IT																								
DVSV	Public services	AT																								
University of the Aegean	University	GR																								
IVIS (WERIFY)	IT provider	ES																								
Gobierno de La Rioja	Public administration	ES																								
Valunode OÜ	Private company	ES																								
NTNU	University																									
Norwegian University of Science and Technology	University																									
Random Red Ltd.	Private company																									
e-Origin	Private company																									
The Edge: R&BD	Private company	BG																								
FundingBox	Private company	PL																								
IDunion SCE	European Cooperative	DE																								
Dutch Blockchain Coalition	Other	NL																								
			24	4	2	6	5	4	5	30	1	-	4	3	7	-	5	4	-	-	1	1	1	15	1	12

> Number of estimated active organisations in each pilot project

Up to 65% of parcels entering the EU are currently undervalued, to avoid customs duties on import. That represents an estimated 7 billion EUR annual VAT gap in cross-border ecommerce.

From the 24 currently active EBSI pilot projects, we contacted representatives from 59 leading organisations. We received 37 survey responses from 19 of the 24 projects, spanning 20 EU countries, resulting in a response rate of 79%. The respondents were primarily from organisations recognised a s leading entities within their respective pilot ecosystems, effectively representing the perspectives of other active organisations within those ecosystems.

About Survey Participants

Identification of Survey Participants

From the 24 currently active EBSI pilot projects, we contacted representatives from 59 leading organisations. We received 37 survey responses from 19 of the 24 projects, spanning 20 EU countries, resulting in a response rate of 79%. The respondents were primarily from organisations recognised as leading entities within their respective pilot ecosystems, effectively representing the perspectives of other active organisations within those ecosystems.

Estimated Active Organisations in the EBSI Ecosystem

These leading organisations provided estimates on the total number of active organisations within their ecosystems, which is approximately 135.

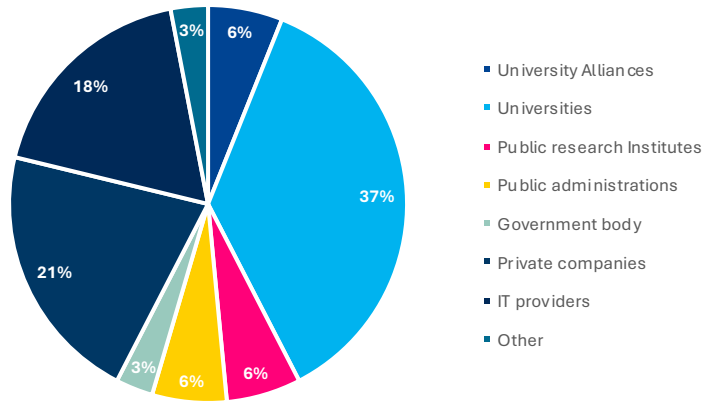
Profile of Survey Participants

The respondents included a diverse range of organisations: 12 universities, 7 private companies, 6 IT providers, 2 public research institutes, 2 public administrations, 2 university alliances, 1 government body, and 1 classified as “other."

Regarding their roles within the EBSI ecosystem: 14 were issuers, 15 were verifiers, 4 were Trusted Accreditation Organisations (TAOs), and 7 were wallet providers.

Disclaimer

Please be aware that the report uses data directly sourced from the feedback survey respondents. The EBSI team has used quantitative and qualitative data to compose accurate and comprehensive analyses, summaries and recommendations to help the reader.



An average of 19 million passengers board a ferry in Greece every year, of which 5% are students. And yet, the process still relies on manual checks and paper passes.

02

PILOT PROJETS' READINESS

WHAT IS THE CURRENT MATURITY, COST-BENEFIT POTENTIAL, AND MARKET IMPACT OF THE PILOT PROJECTS? WHAT IS THEIR CURRENT READINESS FOR FULL-SCALE PRODUCTION DEPLOYMENT?

INSIGHTS FROM
THE EBSI PILOTS.

02.1

What is the estimated **maturity of the projects** at a Business, Technical and People Engagement level? Are they ready for production deployment?

Insights from the EBSI pilot projects.

In the survey, we asked the participants how they would rate their pilot project maturity from 1 to 4 (with 1 being “very poor” and 4 being “very good”). We also asked them to justify their choices. The following table presents the aggregated quantitative results followed by qualitative input.

Very poor	1
Poor	2
Good	3
Very good	4

		Theme 1	Theme 2												Theme 3									Theme 4			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
		EBSI-NE	Educational ID	FAR	University Alliances	Micro-credentials	VET	VECTOR - Education	TRACE4EU - Résumé	Employment credentials	Certificate of Good Conduct	VECTOR - EHIC	Cyclades Fast Ferry	Public Admin Interoperability	EBSI-ELSA (EUIPO)	TRACE4EU - ORDE	TRACE4EU - Seafood	TRACE4EU - Agrifood	TRACE4EU - Materials	Random Red Ltd.	e-Origin	TRACE4EU - ERD	OnePass	VECTOR – Business registries	Dutch Blockchain Coalition	Average
Business	Vision	3,5	3,3	4	3,5	3,5	3,3	4	4	4	-	3,5	3	4	-	4	4	-	-	3	4	-	3,5	4	4	**3.7**
	Audience	4	3,3	4	4	3,5	3,3	4	4	3	-	2,5	4	4	-	4	4	-	-	2	4	-	4	3	4	**3.6**
	Business objective	3,5	3,3	3,5	3,3	3,5	2,6	4	4	4	-	2,5	3	2,5	-	4	4	-	-	3	4	-	3	2	4	**3.4**
	Trust chain	3,5	3,3	2	2,6	3	1,6	4	4	2	-	3,5	2	1,5	-	4	4	-	-	4	4	-	2,5	2	2	**2.9**
	Cross-border mobilisation	3,5	2,6	3	3,1	3,5	2,6	4	4	2	-	3	3	4	-	4	4	-	-	1	4	-	2,5	2	1	**3.0**
		3.6	**3.2**	**3.3**	**3.3**	**3.4**	**2.6**	**4**	**4**	**3**	**-**	**3**	**3**	**3.2**	**-**	**4**	**4**	**-**	**-**	**2.6**	**4**	**-**	**3.1**	**2.6**	**3**	**3.3**
Technical	E2E solution	3.5	3.6	3.5	4	2	3.6	4	4	4	-	3	4	4	-	2	3.5	-	-	3	4	-	3.5	3	2	**3.4**
	Multiple Credentials	3	3.3	2.5	3.8	2.5	3	4	3	4	-	3	4	4	-	2	2.5	-	-	2	4	-	3	2	2	**3.0**
	Recognised Data models	3.5	3	3	3.8	3	3	4	3	2	-	4	1	3.5	-	4	4	-	-	4	4	-	2.5	3	2	**3.2**
	Integration with services / UX	3	3.6	3.5	2.1	2.5	3	4	1	4	-	3	3	4	-	2	2.5	-	-	1	4	-	1.5	1	2	**2.7**
	Ready for production	2.5	3.6	2.5	2.5	2	1.6	2	1	4	-	3	4	3	-	1	3	-	-	2	4	-	2	1	1	**2.4**
		3.1	**3.4**	**3.0**	**3.2**	**2.4**	**2.8**	**3.6**	**2.4**	**3.6**	**-**	**3.2**	**3.2**	**3.7**	**-**	**2.2**	**3.1**	**-**	**-**	**2.4**	**4.0**	**-**	**2.5**	**2.0**	**1.8**	**2.9**
People	Compelling problem	3	4	4	3.6	4	3	4	4	4	-	3.5	4	3.5	-	4	3	-	-	3	4	-	3.5	4	4	**3.7**
	Solution mapping	2.5	3.3	4	3	4	3	4	4	3	-	3.5	4	4	-	4	4	-	-	3	4	-	4	4	4	**3.6**
	Quality of delivery	3	3.6	3.5	3.3	2	3	3	3	3	-	3	4	2.5	-	2	4	-	-	3	4	-	3	2	3	**3.0**
	Quality of plan	3	3.6	2.5	3.3	3	3.3	4	3	4	-	3	4	2.5	-	4	4	-	-	3	4	-	2.5	1	4	**3.2**
	Reusable demo	2	4	3.5	3.8	3	3.3	4	1	4	-	3	4	4	-	4	4	-	-	3	4	-	3	2	3	**3.3**
		2.7	**3.7**	**3.5**	**3.4**	**3.2**	**3.1**	**3.8**	**3.0**	**3.6**	**-**	**3.2**	**4.0**	**3.3**	**-**	**3.6**	**3.8**	**-**	**-**	**3.0**	**4.0**	**-**	**3.2**	**2.6**	**3.6**	**3.4**
	Average	**3.1**	**3.4**	**3.3**	**3.3**	**3.0**	**2.9**	**3.8**	**3.1**	**3.4**	**-**	**3.1**	**3.4**	**3.4**	**-**	**3.3**	**3.6**	**-**	**-**	**2.7**	**4.0**	**-**	**2.9**	**2.4**	**2.8**	**3.2**

- Education
- Employment
- Social security
- Travel
- Public services
- IP Rights
- Food & beverage
- Constructions
- Metrology
- Tax & customs
- Businesses

Theme 1 - Building a resilient and secure network
Theme 2 - Towards a whole new mobility for citizens across Europe (Verification of documents)
Theme 3 - Ensuring authenticity of products and transparency in the supply chain (Verification of products and traceability)
Theme 4 - Unlocking business opportunities for European companies (Verification of legal entities)

Most projects demonstrate strong maturity in terms of business readiness. However, key areas like trust chain clarity and cross-border dimensions require further refinement to ensure full alignment with EBSI's strategic goals. Technical readiness appears to lag behind business maturity, particularly in terms of production readiness and service integration. Many projects need to complete the final technical milestones before they can be deployed in real-world environments.

Business Readiness

Insight: Most projects demonstrate strong maturity in terms of business readiness. However, key areas like trust chain clarity and cross-border dimensions require further refinement to ensure full alignment with EBSI's strategic goals.

Recommendations:

- **Clarify Trust Chains:** Prioritise finalising and strengthening the trust framework within individual projects to ensure seamless collaboration and trust across stakeholders.
- **Enhance Cross-Border Collaboration:** Foster more robust cross-border integration by identifying specific regulatory, operational, and technical gaps. Initiate bilateral/multilateral dialogues between member states to address these challenges.

Technical Readiness

Insight: Technical readiness appears to lag behind business maturity, particularly in terms of production readiness and service integration. Many projects need to complete the final technical milestones before they can be deployed in real-world environments.

Recommendations:

- **Accelerate Final Technical Steps:** Develop a clear roadmap for each project to bridge the technical gaps, focusing on deployment, testing, and scalability for production environments.
- **Integrate with Existing Services:** Ensure projects are seamlessly integrated with existing national and cross-border digital infrastructures. Establish dedicated working groups to facilitate integration and ensure interoperability across systems.

People Engagement

Insight: Most projects have successfully mobilised key stakeholders and reached a commendable level of maturity in terms of people engagement, which is crucial for long-term success.

Recommendations:

- **Maintain and Expand Engagement:** Continue fostering stakeholder involvement, especially with key decision-makers, and expand outreach efforts to ensure broad-based support and adoption. Focus on driving advocacy within the public and private sectors to solidify project backing.

Prioritisation of Mature Projects

Insight: The following projects have been flagged during the evaluation of jury members in April 2024:

- University Alliances for Education
- Cyclades Fast Ferry for Travel
- Public Admin Interoperability for Public Service
- EUIPO
- Open Rights Data Exchange
- e-Origin for Tax and Customs

This list needs to be compared with the previous table and the data from this report to consolidate the list of most mature projects.

Recommendations:

- **Focus on Scaling the Most Mature Projects:** Prioritise these high-potential projects for immediate scale-up efforts, ensuring they have the resources and support needed to move from pilot phases to full production.

Focus on scaling the most mature projects. Prioritise high-potential projects for immediate scale-up efforts, ensuring they have the resources and support needed to move from pilot phases to full production.

W3BSI event, Brussels - 2024

02.2

What is the **cost-benefit ratio** per project? Are they all worth investment? What is the cost-benefit impact of implementing the solution?

Insights from the EBSI pilot projects.

In the survey, we asked the participants how they would rate the cost/benefit potential of their pilot project from 1 to 4 (with 1 being “very poor” and 4 being “very good”). We also asked them to justify their choices. The following table presents the aggregated quantitative results followed by qualitative input.

		Theme 1	Theme 2									Theme 3										Theme 4			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
		EBSI-NE	Educational ID	FAR	University Alliances	Micro-credentials	VET	VECTOR - Education	TRACE4EU - Résumé	Employment credentials	Certificate of Good Conduct	VECTOR - EHIC	Cyclades Fast Ferry	PublicAdmin Interoperability	EBSI-ELSA (EUIPO)	TRACE4EU - ORDE	TRACE4EU - Seafood	TRACE4EU - Agrifood	TRACE4EU - Materials	Random Red Ltd.	e-Origin	TRACE4EU - ERD	OnePass	VECTOR – Business registries	Dutch Blockchain Coalition	Average
Value	Lower costs	4	3.3	3.5	3.5	3	3.3	3	2.5	4	-	3.5	4	2.5	-	4	4	-	-	3	4	-	3	4	4	**3.5**
	Prevent compliance issues	1	4	3.5	2.6	3	2.6	3	1.5	4	-	3	1	3.5	-	4	4	-	-	3	4	-	3.5	3	4	**3.1**
	Prevent fraud	4	3.6	3.5	3.8	3.5	3.3	3	2.5	4	-	3.5	4	4	-	4	4	-	-	3	4	-	3	4	4	**3.6**
	Mitigate security risks	4	3.6	3	3	2.5	3	3	3	4	-	3.5	3	4	-	4	4	-	-	3	4	-	3	2	3	**3.3**
	Strengthen your reputation	4	3	4	3.6	4	3.3	4	3.5	3	-	3	4	4	-	4	4	-	-	4	4	-	3.5	4	3	**3.7**
		2.6	3.5	3.5	3.3	3.2	3.1	3.2	2.6	3.8	-	3.3	3.2	3.6	-	4	4	-	-	3.2	4	-	3.2	3.4	3.6	3.4
Effort	Governance & organisation	4	2	2.5	3.1	2.5	2.3	4	3	3	-	3	3	3	-	4	4	-	-	2	1	-	3	2	4	**2.9**
	Processes	4	1.6	2.5	3.1	3.5	2	4	2.5	2	-	3	1	2.5	-	4	3.5	-	-	2	1	-	3	1	4	**2.6**
	People	4	1.3	2.5	2	4	2	4	3	2	-	3	1	2.5	-	4	3	-	-	3	1	-	2.5	1	4	**2.6**
	Data and Technology	4	1.6	2	2.6	3	2.6	4	2.5	1	-	3.5	2	2	-	4	4	-	-	2	1	-	2	4	4	**2.7**
	User Interface/UX	2	1.3	1.5	2.8	3	2.6	4	2.5	3	-	2.5	2	3.5	-	4	3.5	-	-	3	1	-	3	3	4	**2.7**
		3.6	1.5	2.2	2.8	3.2	2.3	4	2.7	2.2	-	2.6	1.8	2.7	-	4	3.6	-	-	2.4	1	-	2.7	2.2	4	2.7
	Cost-benefit ratio	**0.7**	**2.3**	**1.6**	**1.2**	**1.0**	**1.3**	**0.8**	**1.0**	**1.7**		**1.3**	**1.8**	**1.3**		**1.0**	**1.1**			**1.3**	**4.0**		**1.2**	**1.5**	**0.9**	

Very poor	1
Poor	2
Good	3
Very good	4

- Education
- Employment
- Social security
- Travel
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Theme 1 - Building a resilient and secure network
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Theme 3 - Ensuring authenticity of products and transparency in the supply chain (Verification of products and traceability)
Theme 4 - Unlocking business opportunities for European companies (Verification of legal entities)

The majority of projects recognise significant benefits to executing their initiatives, particularly for improving operational efficiencies, reducing costs, enhancing customer experience, and strengthening reputational standing. They also acknowledge a certain level of complexity, notably related to transforming governance, organisational structures, and processes.

Strong Perception of Benefits

Insight: Most projects recognise significant benefits to executing their initiatives, particularly for improving operational efficiencies, reducing costs, enhancing customer experience, and strengthening reputational standing.

Recommendations:

- **Quantify and Communicate Benefits:** Develop clear metrics to measure improvements in operational efficiency, customer satisfaction, and brand reputation. Ensure that these metrics are regularly reported to stakeholders to reinforce the value proposition of the projects.
- **Leverage Early Wins:** Identify early successes and leverage them to build momentum, demonstrating tangible improvements to both internal and external stakeholders.

Complexity and Cost of Implementation

Insight: Many projects acknowledge a certain level of complexity, notably related to transforming governance, organisational structures, and processes. This complexity translates into significant implementation costs.

Recommendations:

- **Streamline Governance and Processes:** Conduct a comprehensive assessment of governance and organisational structures to identify inefficiencies and areas for simplification.
- **Invest in Change Management:** Allocate sufficient resources for change management initiatives to ease the transformation of governance and processes, ensuring smoother transitions and faster adaptation by stakeholders.

Positive Cost-Benefit Ratio

Insight: Most projects report a positive cost-benefit ratio (>1), indicating that the perceived benefits outweigh the costs and that most consider the investment worthwhile.

Recommendations:

- **Prioritise High ROI Projects:** Focus on scaling projects with the highest cost-benefit ratio, ensuring that they receive the resources and support necessary to maximise their return on investment.
- **Monitor and Adjust:** Continuously monitor the evolving cost-benefit dynamics, making adjustments to project scope or resource allocation where necessary to maintain or improve performance.

Projects with Marginal or Negative Cost-Benefit Ratios

Insight: A small number of projects report cost-benefit ratios of 1 or less, suggesting their perceived costs may outweigh or equal their benefits. These projects require further investigation to understand the underlying factors contributing to this assessment.

Recommendations:

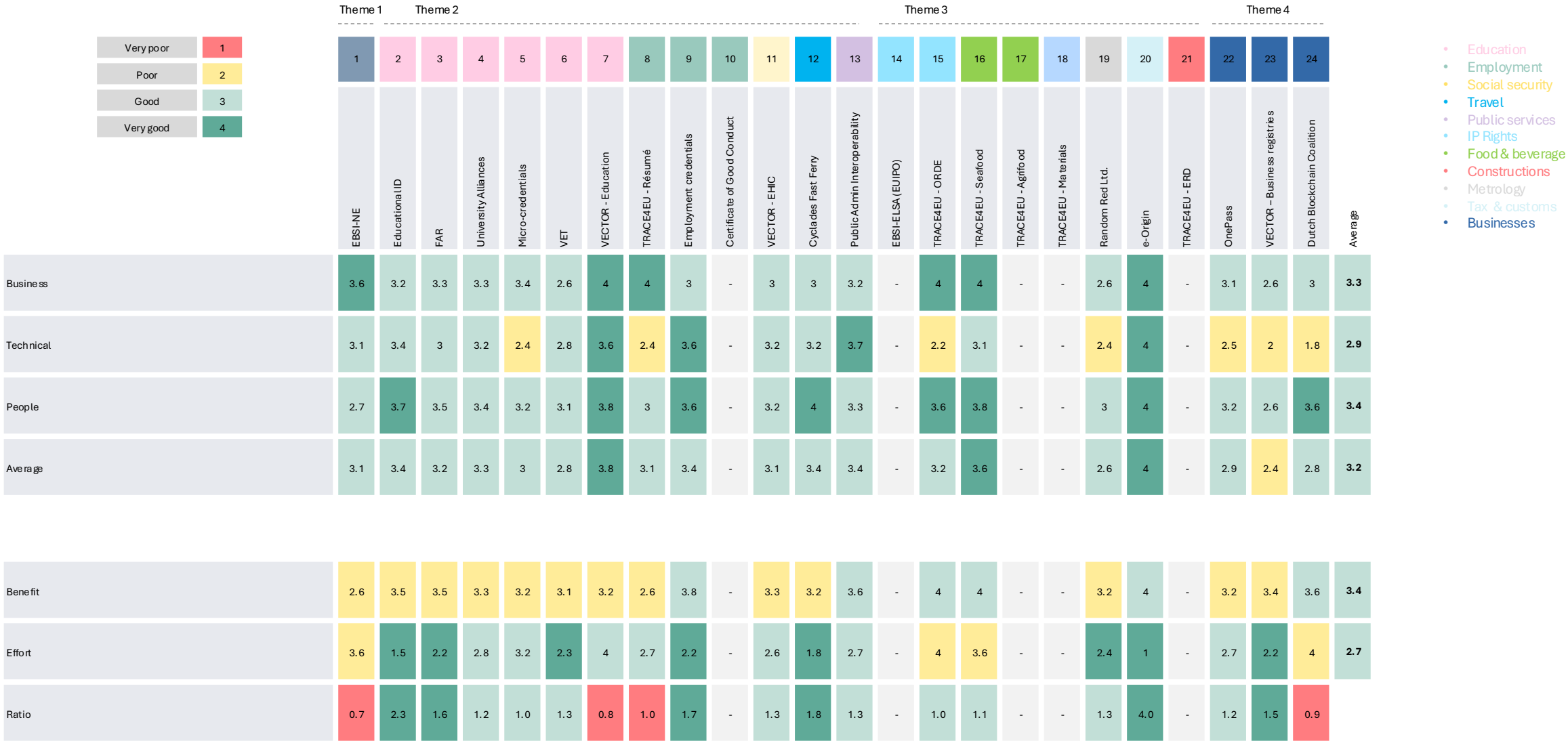
- **Conduct Root Cause Analysis:** Investigate the specific reasons behind the marginal or negative cost-benefit ratios. Assess whether these projects face unique challenges such as underestimated implementation costs, unclear benefits, or higher-than-anticipated complexity.
- **Re-evaluate or Rescope:** Based on the findings, consider re-scoping these projects to reduce costs, increase benefits, or improve alignment with organisational goals. Alternatively, determine if the project should be deprioritised or integrated with higher-performing initiatives.

02.3

What are our **strategic project recommendations** based on **maturity and cost-benefit analysis**?

Insights from the EBSI pilot projects.

By aggregating figures related to pilot project maturity and cost benefits analysis, we can have an idea on the readiness of projects to go into production.

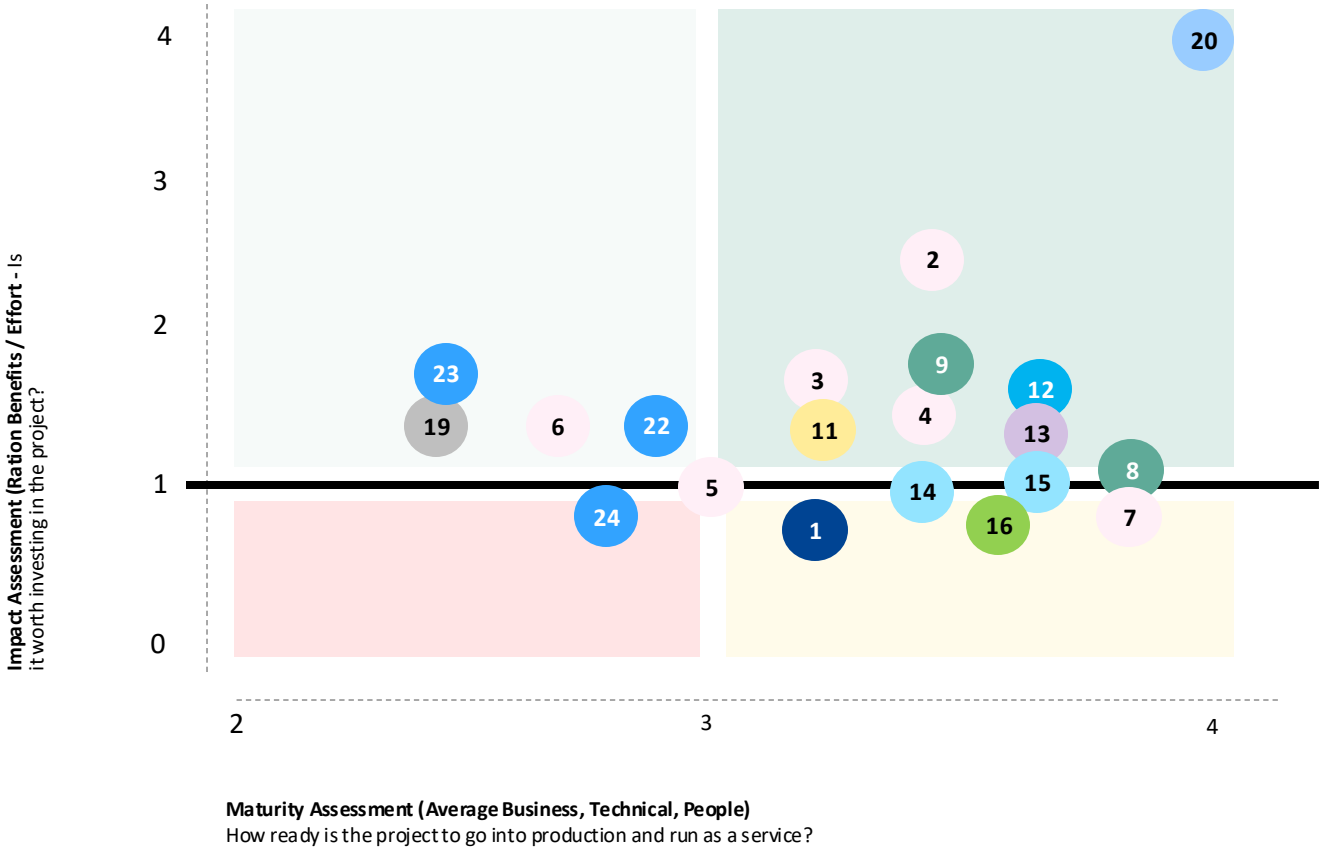


Theme 1 - Building a resilient and secure network
Theme 2 - Towards a whole new mobility for citizens across Europe (Verification of documents)
Theme 3 - Ensuring authenticity of products and transparency in the supply chain (Verification of products and traceability)
Theme 4 - Unlocking business opportunities for European companies (Verification of legal entities)

To determine the optimal path forward, we combined the maturity assessment (business, technical, people) with the cost-benefit analysis (impact/effort ratio) to categorise projects and guide resource allocation.

The evaluation framework focused on **two key questions**:

- **Impact Assessment**: Is the project worth the investment based on its cost-benefit ratio?
- **Maturity Assessment**: How ready is the project for production and execution as a service? The projects have been divided into four categories, with recommendations for each.



+10 projects appear to be ready for immediate action, meaning that we could prioritise them for execution and scale as they offer high returns with minimal additional investment while 4 other projects merit investment to reach the next level of maturity. Finally, 2 projects would require further investigation into resource needs and potential re-scoping is required to determine whether to proceed or adjust.

1. ACTIONABLE - Champion Projects to Prioritise for Execution

Criteria: High cost-benefit ratio, high maturity.

Recommendation: These projects are ready for immediate action. Prioritise them for execution and scale as they offer high returns with minimal additional investment.

Projects:

- Educational ID
- Formal Accreditation and Recognition
- University Alliances
- Trace4EU – Résumé Credentials
- Employment Credentials
- VECTOR - EHIC
- Cyclades Fast Ferry
- Public Administration Interoperability
- EUIPO
- Open Rights Data Exchange
- e-Origin

2. PRIORITY - Invest to Reach the Next Level of Maturity

Criteria: High cost-benefit ratio, low maturity.

Recommendation: These projects show high potential but require additional investment to improve readiness. Focus on accelerating maturity, particularly in technical and operational aspects, to unlock their full potential.

Projects:

- Micro-credentials
- Vocational Education and Training
- Random Red
- OnePass

3. CAREFUL CONSIDERATION - Projects to Further Investigate

Criteria: Low cost-benefit ratio, high maturity.

Recommendation: These projects are technically mature but may not justify investment based on current cost-benefit evaluations. Further investigation into resource needs and potential re-scoping is required to determine whether to proceed or adjust.

Projects

- TRACE4EU - Seafood
- VECTOR – Education

4. PARKING LOT - Deprioritised but Keep for Future Consideration

Criteria: Low cost-benefit ratio, low maturity.

Recommendation: These projects are neither mature enough nor offer a strong return on investment at this time. It is recommended to deprioritise them for now but keep tabs for future re-evaluation based on evolving priorities or technological advances.

The results can be enriched with the answers participants gave on the market potential of their pilot projects. A table summarising their feedback follows.

	What is the number of potential users in the industry or citizens affected by the solution through your pilot project?	What is the expected penetration rate and progression of the penetration rate in the coming 3 years of user adoption?	What is the estimated economic impact of your pilot project's solution in the EU (or Member State)?	What is the expected penetration rate and progression of the penetration rate in the coming 3 years of this economic impact?
EBSI-NE	1,000,000,000	1,500,000,000	Huge impact	30%
Educational ID	+27,000,000	55m-400m	Fraud prevention, identity theft	Very high (100%)
FAR	1,755,400	Potentially high	Reduce admin costs	70% if critical mass reached
University Alliances	~ 1,510,000	~ 2,010,000	Cost reduction	~ 35% of cost reduction
Micro-credentials	~1,000,000	10-50%	Boost economic activity	50-60%
VET	12,000,000	Contingent upon regulatory developments	Reducing costs	Contingent upon regulatory developments
VECTOR - Education	Millions	1000%	Huge	Significant
TRACE4EU - Résumé	All EU students, job seekers, professionals	30%	Reducing costs and increasing mobility	50%
Employment credentials	TBD	Dependent on EUDI adoption	Increase cybersecurity, decrease costs	Dependent on EUDI adoption
Certificate of Good Conduct	-	-	-	-
VECTOR - EHIC	Potentially all EU citizens	High	N/A	High
Cyclades Fast Ferry	1,000,000	20%	Iinsufficient data to make precise projections	N/A
Public Admin Interoperability	~10-11,000,000	60%, dependent on region	Increase efficiency	60%
EBSI-ELSA (EUIPO)	-	-	-	-
TRACE4EU - ORDE	1,500,000 SMEs in the EU creative industries / 12,000,000 creatives in the EU	3%	~€27 B p.a. If 3% impact on industry	1%
TRACE4EU - Seafood	10,000 fisheries	Very good	Increase trust, sustainability, and reduce costs	30-40%
TRACE4EU - Agrifood	-	-	-	-
TRACE4EU - Materials	-	-	-	-
Random Red Ltd.	55,000 calibration p.a in Germany alone	Dependent on mandate to adopt	Dependent on mandate to adopt	Dependent on mandate to adopt
e-Origin	100,000 businesses, 700m citizens	1,500,000 businesses	Reduce VAT gap by EUR 7bn	90% if supported by DG TAXUD
TRACE4EU - ERD	-	-	-	-
OnePass	5000 startups (Holders) / 1300 Investors (Verifiers) / 150 Accelerators (Issuers)	50%	Very high	75%
VECTOR – Business registries	23,000,000	0.01%	Reduce bureaucratic costs	0.01%
Dutch Blockchain Coalition	Potentially all business in the NL	To be defined in Q1 2025	EUR >100,000,000 cost savings for KYC and WWFT in NL	To be defined in Q2 2025

03

ABOUT THE EBSI SERVICES

WHAT IS THE PERCEIVED VALUE OF THE EBSI SERVICES, CHANNELS, AND ENGAGEMENT MODELS? WHAT ARE THE KEY STAGES OF THE PILOT JOURNEY AND WHAT ARE THE OPPORTUNITIES FOR IMPROVEMENT?

INSIGHTS FROM
THE EBSI PILOTS.

03.1

How valuable are the **EBSI services**? What are the **key areas to continue investing** in and what are the **opportunities for improvement** to maximise the impact of future services?

Insights from the EBSI pilot projects.

In the survey, we asked participants how they would rate the EBSI services from 1 to 5 (with 1 being “not used”, 2 being “very poor” to 5 being “very good”). We asked them to justify their choices. The following table presents the aggregated quantitative results followed by qualitative input.

			Theme 1	Theme 2										Theme 3										Theme 4				
Not used	N/U		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
Very poor	2		EBSI-NE	EducationalID	FAR	University Alliances	Micro-credentials	VET	VECTOR - Education	TRACE4EU - Résumé	Employment credentials	Certificate of Good Conduct	VECTOR - EHIC	Cyclades Fast Ferry	Public Admin Interoperability	EBSI-ELSA (EUIPO)	TRACE4EU - ORDE	TRACE4EU - Seafood	TRACE4EU - Agrifood	TRACE4EU - Materials	Random Red Ltd.	e-Origin	TRACE4EU - ERD	OnePass	VECTOR – Business registries	Dutch Blockchain Coalition	Average	
Poor	3																											
Good	4																											
Very good	5																											
		Webinars / workshops / trainings	N/U	4.3	4.0	4.5	4.5	4.0	5.0	2.5	4.0	-	N/U	5.0	4.5	-	5.0	3.5	-	-	4.0	4.0	-	4.0	N/U	4.0	4.2	
		Early Adopter Programme / Pilot programs	3.0	4.3	5.0	4.8	4.5	4.3	N/U	N/U	4.0	-	N/U	5.0	4.5	-	N/U	N/U	-	-	4.0	4.0	-	N/U	N/U	N/U	4.3	
Onboarding / Incubation services		Communities of practice (NO, EA, LSP)	3.0	3.6	3.5	3.5	5.0	4.0	N/U	N/U	3.0	-	N/U	2.0	2.0	-	N/U	3.0	-	-	4.0	4.0	-	4.0	N/U	N/U	3.4	3.8
		EBSI Experience Centre	5.0	2.6	4.0	3.6	5.0	N/U	N/U	N/U	N/U	-	N/U	N/U	3.0	-	N/U	4.0	-	-	3.0	N/U	-	N/U	N/U	3.0	3.7	
		EBIP/Gitlab	4.0	3.0	N/U	3.6	4.0	3.0	N/U	2.0	2.0	-	N/U	2.0	3.0	-	N/U	4.5	-	-	3.0	N/U	-	N/U	N/U	3.0	3.1	
		EBSI Explained and evangelisation material	5.0	4.3	5.0	4.3	4.5	4.0	N/U	4.0	4.0	-	N/U	5.0	4.5	-	4.0	3.5	-	-	4.0	4.0	-	4.0	3.0	4.0	4.2	
		Branding, messages and visual identity	3.0	4.3	5.0	4.3	4.0	4.0	3.0	4.0	3.0	-	N/U	5.0	3.5	-	5.0	3.5	-	-	4.0	4.0	-	3.0	N/U	3.0	3.9	
		Campaign concept	3.0	5.0	5.0	4.3	4.5	3.5	N/U	4.0	4.0	-	N/U	4.0	4.0	-	4.0	3.5	-	-	4.0	2.0	-	3.0	4.0	3.0	3.8	
		Presentations and pitch coaching	4.0	3.6	4.5	4.6	4.5	3.5	N/U	4.0	3.0	-	N/U	5.0	4.0	-	5.0	3.5	-	-	4.0	4.0	-	4.0	N/U	3.0	4.0	
Communication services		Project webpages / success stories	5.0	5.0	4.0	4.8	4.0	3.0	3.0	5.0	4.0	-	4.0	5.0	4.0	-	5.0	4.0	-	-	4.0	2.0	-	4.0	4.0	3.0	4.0	4.0
		Social media posting	2.0	4.6	4.0	4.5	4.0	3.0	3.0	4.0	4.0	-	N/U	4.0	4.0	-	3.0	3.5	-	-	4.0	4.0	-	4.0	5.0	3.0	3.8	
		Event delivery: W3bsi Ecosystem Day	5.0	5.0	5.0	4.3	4.5	4.5	3.0	3.5	4.0	-	N/U	4.0	4.5	-	5.0	3.5	-	-	4.0	5.0	-	3.5	4.0	4.0	4.2	
		Event delivery: Legal entities	5.0	4.3	N/U	3.7	5.0	N/U	3.0	4.0	4.0	-	N/U	4.0	4.0	-	N/U	3.0	-	-	3.0	N/U	-	2.5	4.0	3.0	3.8	
		Event delivery: EBSI Demo Day 2022	5.0	3.0	5.0	4.6	3.0	3.0	3.0	4.0	4.0	-	N/U	4.0	4.5	-	N/U	4.5	-	-	3.0	N/U	-	4.0	N/U	3.0	3.8	
		Sample software: Libraries and tools	3.0	3.0	3.0	4.0	4.0	2.0	N/U	4.0	2.0	-	N/U	4.0	3.5	-	N/U	3.5	-	-	3.0	4.0	-	3.5	N/U	3.0	3.3	
Software and operational services		Managed services*	4.0	3.3	3.0	3.5	4.5	3.5	N/U	4.0	4.0	-	N/U	3.0	3.5	-	N/U	3.5	-	-	3.0	4.0	-	3.5	N/U	3.0	3.6	3.6
		Trusting services: Wallet Conformance Testing	5.0	3.3	3.5	4.0	5.0	3.0	N/U	4.0	3.0	-	N/U	5.0	3.5	-	N/U	3.5	-	-	3.0	4.0	-	3.5	4.0	3.0	3.8	
		Support Office (SO) services	5.0	3.0	4.0	3.2	4.0	4.5	3.0	5.0	2.0	-	N/U	4.0	3.5	-	N/U	4.0	-	-	3.0	4.0	-	3.5	4.0	3.0	3.7	
		EBSI Hub specifications (general)	5.0	4.0	4.5	4.7	4.0	4.0	3.0	3.5	3.0	-	N/U	4.0	3.5	-	N/U	3.5	-	-	3.0	4.0	-	3.5	4.0	3.0	3.8	
		Onboarding Toolkit	5.0	3.3	4.0	3.0	4.0	4.0	N/U	4.0	2.0	-	N/U	4.0	3.5	-	N/U	2.5	-	-	3.0	4.0	-	2.5	N/U	3.0	3.5	
Technical specifications		VC Framework	5.0	4.0	3.5	3.7	4.5	4.0	N/U	4.0	2.0	-	N/U	4.0	3.0	-	N/U	2.5	-	-	3.0	4.0	-	2.5	4.0	3.0	3.5	3.6
		WCT guidelines	5.0	3.3	4.0	3.5	4.0	N/U	N/U	2.5	3.0	-	N/U	4.0	3.5	-	N/U	2.5	-	-	3.0	4.0	-	3.0	N/U	3.0	3.5	
		Node Operator Guidelines & SLAs	5.0	3.3	3.5	2.7	5.0	5.0	3.0	3.0	N/U	-	N/U	N/U	3.0	-	N/U	2.5	-	-	3.0	N/U	-	3.5	N/U	N/U	3.5	

- Education
- Employment
- Social security
- Travel
- Public services
- IP Rights
- Food & beverage
- Constructions
- Metrology
- Tax & customs
- Businesses

Theme 1 - Building a resilient and secure network
Theme 2 - Towards a whole new mobility for citizens across Europe (Verification of documents)
Theme 3 - Ensuring authenticity of products and transparency in the supply chain (Verification of products and traceability)
Theme 4 - Unlocking business opportunities for European companies (Verification of legal entities)

The implementation of the pilot programme was exceptionally smooth, and the team’s engagement was outstanding. Continuing to invest in this programme is essential to maintain the momentum of innovation and cross-border collaboration.

As EBSI will continues to evolve, it is crucial to build upon its strengths while addressing areas that require further enhancement. Feedback from pilot projects has highlighted both opportunities for improvement and key areas where continued investment is essential to maximise the impact of future services. We outline strategic recommendations based on these insights.

Key Areas to Continue Investing In

1. Production of Educational Material

The perception of Distributed Ledger Technology (DLT) varies widely among different groups, with some equating it with cryptocurrencies and others shaped by current media discourse. The effort to provide a basic, harmonised education on blockchain, verifiable credentials, and digital wallets has been crucial, according to most pilot projects. Continuing to invest in educational materials that demystify these concepts and align stakeholders' understanding is essential for fostering a well-informed ecosystem.

2. Onboarding and Incubation (Early Adopter Programme)

The onboarding and incubation processes, particularly through the Early Adopter (EA) Programme, have been described by nearly all pilot projects as well-structured and instrumental in aligning individual projects with broader ecosystem goals. The EA Programme is highly regarded for fostering collaboration, experimentation, and knowledge exchange. Workshops, training sessions, and webinars have been crucial in deepening understanding of EBSI and its applications. The emphasis on providing support for elevator pitches and developing demos to showcase project achievements has been particularly valuable. Continuing to invest in this programme is essential to maintain the momentum of innovation and cross-border collaboration.

3. Communication and Promotion

The production of promotional materials — such as project webpages and communication campaigns — has been instrumental in highlighting the achievements of pilot projects and demonstrating their value. According to pilot feedback, these communication and promotional efforts are among the most valuable services provided by EBSI. Continued investment in these activities will help amplify the success stories and foster greater synergies and engagement.

4. Events, Networking, and Collaboration

Most projects have praised the opportunities to connect with other pilot projects, stakeholders, and experts. Creating an open environment for projects from different countries and industries to interact and exchange ideas has been a significant positive. Events like the W3bsi Ecosystem Day Event have proven highly effective in showcasing the power of collaboration. Continued investment in organising these events is crucial for driving cross-border collaboration and innovation.

5. Technical Specifications and Operational Support

EBSI’s efforts in building comprehensive technical specifications, such as the EBSI Hub, Verifiable Credentials framework, onboarding toolkit, and managed services (including the API catalogue and blockchain orchestration), have been recognised as highly valuable. The availability of technical resources, such as sample software, API documentation, and conformance testing tools, has been pivotal in the successful implementation of projects. The establishment of the Trust Chain, in particular, is seen as one of the most valuable services of the entire technical onboarding. Continuing to invest in maintaining and enhancing these technical specifications and operational support systems will reinforce the ecosystem’s reliability and scalability.

While stakeholder engagement services are robust, continued investment in creating legal adoption, political mandates, and official digital credential schemas are the necessary next steps. At the same time, more intense, dedicated and domain-specific support is needed, especially during the critical transition phase before production.

To maximise the impact of future services and further drive the adoption of blockchain-based innovations across Europe, it is essential to balance targeted improvements with continued support in proven areas of strength.

Opportunities for Improvement

1. Reinforce and Simplify Technical Documentation

A notable 33% of pilot projects have identified the need for improved technical documentation, including tools and API guidelines. This calls for a clearer, more streamlined approach to navigating documentation, making it easier for various stakeholder groups to find relevant information. An enhanced, user-friendly technical and functional guide that enables users to work independently, with clearly defined expectations and results at each stage of the process, would be highly beneficial. Additionally, the development of digital guided courses could further aid users in navigating EBSI services.

2. Provide More Targeted Support

About 25% of projects have requested more efficient and personalised support services, particularly in technical areas. There is a demand for dedicated, domain-specific support, especially during critical phases such as transitioning to production. While general support is perceived as robust, stakeholders have expressed the need for more focused resources and guidance tailored to specific areas like digital credentials. Addressing this could involve creating use-case-specific documentation, detailed case studies, and dedicated support sessions to tackle unique challenges.

3. Clarify the Implementation Journey

Another 25% of projects have called for more clarity around the implementation journey, especially during the build and production phases. The testing stage was flagged as needing more detailed attention, though specific feedback was not given. Enhancing the build stage through more comprehensive framework examples and improved support for API integration is also necessary. Clearer guidance on the requirements and steps for moving into production would provide valuable support to stakeholders.

4. Increase Support and Engagement for Policy Stakeholders

20% of projects indicated the need for more direct support in engaging policy stakeholders. This involves strengthening outreach and advocacy materials targeted at this audience, ensuring alignment with state regulations to facilitate easier and faster adoption of pilot projects. Additionally, enhancing feedback mechanisms and control options for local public authorities and administrations could significantly boost their engagement and support.

5. Improve Access and Transparency for Grant Programmes

Approximately 15% of projects highlighted the need for increased financial incentives and greater transparency, particularly in the grants process. Improving the accessibility of information related to grant opportunities and ensuring a more transparent application and selection process could encourage broader participation and drive further innovation within the ecosystem.

An enhanced technical and functional guide, allowing users to operate autonomously with clear expectations and results at each stage of the process is essential. The creation of digital guided courses could provide easier access to services and improve overall user experience.

03.2

How valuable are **the EBSI channels and engagement models**? What are the **key channels to continue investing** in and what are the **opportunities for improvement**?

Insights from the EBSI pilot projects.

In the survey, we asked participants how they would rate the EBSI channels and engagement models from 1 to 5 (with 1 being “not used”, 2 being “very poor” to 5 being “very good”). We also asked them to justify their choices. The following table presents the aggregated quantitative results followed by qualitative input.

Not used	N/U
Very poor	2
Poor	3
Good	4
Very good	5

- Education
- Employment
- Social security
- Travel
- Public services
- IP Rights
- Food & beverage
- Constructions
- Metrology
- Tax & customs
- Businesses

	Theme 1	Theme 2												Theme 3								Theme 4			
Channels	1 EBSI-NE	2 Educational ID	3 FAR	4 University Alliances	5 Micro-credentials	6 VET	7 VECTOR - Education	8 TRACE4EU - Résumé	9 Employment credentials	10 Certificate of Good Conduct	11 VECTOR - EHIC	12 Cyclades Fast Ferry	13 PublicAdmin Interoperability	14 EBSI-ELSA (EUIPO)	15 TRACE4EU - ORDE	16 TRACE4EU - Seafood	17 TRACE4EU - Agrifood	18 TRACE4EU - Materials	19 Random Red Ltd.	20 e-Origin	21 TRACE4EU - ERD	22 OnePass	23 VECTOR – Business registries	24 Dutch Blockchain Coalition	Average
E-mail	5	4,6	4	4,3	3	3,6	5	4	2	-	N/U	5	3	-	5	5	-	-	4	4	-	3	5	2	**4,0**
Support Office	3	3,3	3	3,7	3	2	5	4	3	-	N/U	N/U	4	-	5	5	-	-	4	4	-	2,5	5	N/U	**3,7**
Group sessions and workshops	4,5	4,6	4	4,6	4,5	4	3	4,5	4	-	N/U	5	5	-	5	3,5	-	-	4	4	-	2,5	4	4	**4,2**
Individual sessions and calls	3	3,3	4,5	4,6	4,5	4,6	3	4,5	3	-	N/U	5	5	-	N/U	5	-	-	5	4	-	3,5	5	3	**4,1**
Engagement models																									
EC financial support (e.g. Grants)	4	3.3	3	3.6	4	4	4	4	N/U	-	4	N/U	3	-	4	4	-	-	4	4	-	4	4	4	**3.8**
National financial support	3	3.3	2.5	3.3	4	3.3	4	4	N/U	-	4	N/U	2.5	-	4	3.5	-	-	4	4	-	2.5	3	3	**3.4**
EBSI Services support	3.5	3.6	3	3.6	4	2.3	4	4	4	-	4	4	3	-	4	4	-	-	4	4	-	3.5	3	3	**3.6**

Theme 1 - Building a resilient and secure network
Theme 2 - Towards a whole new mobility for citizens across Europe (Verification of documents)
Theme 3 - Ensuring authenticity of products and transparency in the supply chain (Verification of products and traceability)
Theme 4 - Unlocking business opportunities for European companies (Verification of legal entities)

The support from the EBSI ecosystem has exceeded our initial expectations. The resources, guidance, and expertise provided have been instrumental in advancing our project, and we are highly appreciative of the thorough and proactive assistance we've received. The ecosystem's support has truly been a key factor in our success.

Survey participants were asked to evaluate the value of EBSI's current channels and engagement models and to provide recommendations on which channels to continue investing in and where there are opportunities for improvement. The feedback reveals both strong success and specific suggestions for enhancing engagement.

Key Areas to Continue Investing In

1. Group Sessions and Workshops

The most highly valued communication channels among the pilot projects are group sessions, workshops, individual sessions, and direct calls. Participants particularly appreciated the combination of email communications, individualised support, and collaborative group sessions. These channels facilitate effective knowledge exchange and offer tailored guidance, which has been critical in advancing various projects.

2. Multi-Channel Approach for Comprehensive Support

The multi-channel approach to communication and support—leveraging email, individual consultations, and group interactions—has been well-received. As one respondent noted:

"The support from the EBSI ecosystem has exceeded our initial expectations. The resources, guidance, and expertise provided have been instrumental in advancing our project, and we are highly appreciative of the thorough and proactive assistance we've received. The ecosystem's support has truly been a key factor in our success."

This feedback underscores the importance of continuing to invest in a varied communication strategy that adapts to the specific needs of each stakeholder group.

3. Collaborative Approaches

Collaboration is key for stakeholder success. For the EBSI pilot projects to achieve cross-border and cross-sectorial success (the ambition of many European Commission initiatives), it is important for them to take part in collaborative activities. The importance of collaboration is to reach a common objective and outcome.
EBSI's approach on collaboration has been to provide the pilot project stakeholders with an incubator program composed of use case match making, workshops, group Q&As, event preparation, pitch training, event presentations, and framework development. This approach ensures that all stakeholders aim for their own individual but cohesive objective and outcome.

While channels and engagement models are considered robust, improving the speed and efficiency of responses as well as foreseeing more direct communication at a project level would significantly enhance user satisfaction and project momentum.

To optimise the impact of future channels and engagement models, it is important to build on existing strengths such as group sessions, workshops, and a multi-channel support strategy. Areas for improvement like response times, personalised co mmunication, and streamlined grant procedures need to be addressed. Strategic investments in these areas will help strengthen EBSI's ecosystem and drive broader adoption and success.

Opportunities for Improvement

1. Faster Response Times

A key area for improvement identified by pilot project participants is the need for faster response times, particularly when it comes to addressing technical inquiries through the Support Office. Improving the speed and efficiency of responses would significantly enhance user satisfaction and project momentum.

2. Direct and Personalised Communication Channels

Many projects have expressed the need for more personalised support and communication. There is a strong preference for direct communication channels such as Slack, WhatsApp, or other instant messaging platforms that facilitate real-time engagement. Participants recommended creating dedicated chat channels or groups for each project, along with assigning an EBSI Single Point of Contact (SPOC) for each project or cluster of projects.

These suggestions align with the opportunities for enhancing targeted support identified in the EBSI services assessment. Additionally, some participants proposed adopting a GitHub-style interaction model to foster more efficient and collaborative communication.

3. Greater Transparency and Efficiency in Grant Procedures and Engagement Models

There is a clear call for greater transparency and efficiency in the grants process. Participants highlighted the need for more funding opportunities to support active participation in the EBSI ecosystem beyond 2024. There is also a desire for better alignment and transparency between different engagement models, combining services and financial incentives at both European and national levels. Streamlining grant procedures is especially crucial for startups, which often lack the time and resources to navigate complex administrative processes.

4. Enhanced Engagement with Local and National Governments

Engaging with local administrations and overcoming their resistance has been noted as a critical challenge for pilot projects. Establishing stronger ties at the local and national levels is essential to ensure the successful implementation of pilots. Participants recommended that national agencies actively promote participation among local governments and suggested the creation of EBSI working groups at the national level to foster such engagement.

5. Invest in Creating More Funding-Based Partnerships

Survey participants also emphasised the potential of partnerships that leverage public funding and private sector innovation. Developing more funding-based partnerships could drive innovation and foster collaboration across sectors, enhancing the overall value of the EBSI ecosystem.

There is also a desire for better alignment and transparency between different engagement models, combining services and financial incentives at both European and national levels. Streamlining grant procedures is especially crucial for startups, which often lack the time and resources to navigate complex administrative processes.

03.3

What are the **most important stages** of the **pilot implementation journey** and what are the **opportunities for improvement**?

Insights from the EBSI pilot projects.

In the survey, we asked participants how they would rate the different steps of the implementation journey from 1 to 5 (with 1 being “not used”, 2 being “very poor” to 5 being “very good”). We also asked them to justify their choices. The following table presents the aggregated quantitative results followed by qualitative input.

Not used	N/U
Very poor	2
Poor	3
Good	4
Very good	5

- Education
- Employment
- Social security
- Travel
- Public services
- IP Rights
- Food & beverage
- Constructions
- Metrology
- Tax & customs
- Businesses

	Theme 1	Theme 2												Theme 3								Theme 4			
Journey steps	1 EBSI-NE	2 Educational ID	3 FAR	4 University Alliances	5 Micro-credentials	6 VET	7 VECTOR - Education	8 TRACE4EU - Résumé	9 Employment credentials	10 Certificate of Good Conduct	11 VECTOR - EHIC	12 Cyclades Fast Ferry	13 Public Admin Interoperability	14 EBSI-ELSA (EUIPO)	15 TRACE4EU - ORDE	16 TRACE4EU - Seafood	17 TRACE4EU - Agrifood	18 TRACE4EU - Materials	19 Random Red Ltd.	20 e-Origin	21 TRACE4EU - ERD	22 OnePass	23 VECTOR – Business registries	24 Dutch Blockchain Coalition	Average
Learn	5.0	4.0	4.6	4.7	5.0	3.4	4.0	3.2	4.0	-	4.0	4.8	3.7	-	5.0	4.5	-	-	4.0	4.0	-	4.4	5.0	-	**4.3**
Register	5.0	4.3	3.1	4.8	5.0	3.5	3.5	4.0	2.8	-	4.0	5.0	4.1	-	4.7	3.5	-	-	4.0	4.0	-	3.2	4.0	-	**4.0**
On-board	4.8	4.5	3.4	4.6	4.5	3.6	3.4	4.0	2.2	-	4.0	5.0	3.5	-	5.0	3.5	-	-	3.4	4.0	-	3.3	-	-	**3.9**
Define	5.0	3.6	3.8	4.9	4.1	4.0	3.3	3.3	2.8	-	4.0	5.0	3.6	-	5.0	4.0	-	-	4.0	4.0	-	3.1	3.0	-	**3.9**
Design	5.0	3.8	3.7	4.2	4.5	2.4	3.3	4.3	2.0	-	4.0	4.2	3.1	-	4.3	4.2	-	-	4.0	4.0	-	2.8	4.0	-	**3.8**
Build	5.0	2.9	3.3	3.8	3.8	4.0	3.0	3.4	3.2	-	4.0	4.4	4.3	-	-	3.6	-	-	3.8	4.0	-	3.0	2.0	-	**3.6**
Test	5.0	3.1	3.1	4.1	3.0	4.0	3.0	3.8	2.6	-	4.0	5.0	2.8	-	-	4.0	-	-	3.8	4.0	-	2.6	-	-	**3.6**
Mobilise	4.3	4.4	4.1	4.7	4.3	4.0	-	4.4	4.5	-	4.0	5.0	3.4	-	4.0	3.8	-	-	4.0	3.7	-	3.3	4.3	-	**4.1**

Theme 1 - Building a resilient and secure network
Theme 2 - Towards a whole new mobility for citizens across Europe (Verification of documents)
Theme 3 - Ensuring authenticity of products and transparency in the supply chain (Verification of products and traceability)
Theme 4 - Unlocking business opportunities for European companies (Verification of legal entities)

There is an opportunity to develop and disseminate more tailored information and resources targeted at different stakeholder groups.

1. Learn

What We Should Continue Doing

Education and Evangelisation Materials

The "Learn" phase consistently receives the highest quantitative scores across pilot projects. As reflected in the survey results, the educational and evangelisation materials are indispensable for enabling stakeholders to gain a thorough understanding of the EBSI ecosystem. Continuation and enhancement of these materials will be critical to maintaining momentum and ensuring that all participants are well-informed.

Opportunities for Improvement

Tailored Information Resources

One of the key challenges identified by projects is the varying levels of understanding among stakeholders, which has, in some cases, delayed decision-making. To address this, there is an opportunity to develop and disseminate more tailored information and resources targeted at different stakeholder groups. This approach would help bridge knowledge gaps and accelerate the decision-making process.

2. Register

What We Should Continue Doing

Maintain High Standards in Registration Processes

The "Register" step has achieved the second-highest quantitative score, indicating overall satisfaction. This suggests that the current processes are functioning effectively. It is advisable to continue with the established best practices while remaining vigilant for any emerging needs or opportunities to refine this stage.

Strong leadership has been a differentiating factor in the implementation journey. The competence and proactive engagement of the EBSI team were repeatedly mentioned as key contributors to the smooth execution of the pilot programmes.

3. Onboard

What We Should Continue Doing:

Detailed Onboarding Sessions and Webinars

According to feedback from 11 projects, the most critical aspect of the "Onboard" phase is providing comprehensive and clear support. Detailed onboarding sessions combined with continuous support are essential to ensure that all team members fully understand the tools, processes, and objectives. Additionally, the value of clear guidelines, effective communication from the Support Office and EBSI representatives, and well-summarised webinar content cannot be overstated.

Regular Communication and Idea Sharing

Three projects specifically highlighted the benefits of ongoing communication, idea exchange, and progress updates. These practices foster a strong sense of community and shared purpose, which is crucial for the collective success of pilot projects.

Leadership Excellence Throughout the Journey

Strong leadership has been a differentiating factor in the implementation journey. The competence and proactive engagement of the EBSI team were repeatedly mentioned as key contributors to the smooth execution of the pilot programmes. Regular, transparent communication between pilot projects and the EBSI support staff played a significant role in ensuring that challenges were swiftly addressed, keeping the projects on track.

Opportunities for Improvement

Holistic Support Across the Entire Journey

Not all projects expressed the same positivity. 6% of projects identified gaps in the level of support provided throughout the implementation journey, all the way through from registration to mobilisation. There is a clear need for more holistic, continuous support that ensures projects can progress effectively through each stage.

Tailored Use-Case Support

3% of projects indicated that while group sessions were beneficial, there is a significant opportunity to enhance these by offering more hands-on, use-case-specific training. Tailoring support to the unique needs of each project would ensure that participants can apply theoretical knowledge to their specific contexts more effectively.

Enhanced Financial Support and Grant Programmes

An additional 3% of projects believe that expanding EBSI grant programmes to offer more substantial financial support would significantly improve their ability to invest in necessary human resources. This, in turn, would increase development efficiency across all stages of the implementation journey.

The analysis of use cases and the subsequent matchmaking of organisations with shared scenarios, objectives, and goals have proven beneficial. This practice fosters synergies, accelerates project timelines, and enhances collaborative opportunities.

4. Define

What We Should Continue Doing

Guidance in Defining Use-Case Scope and Objectives

Four projects emphasised that the most critical element of the "Define" phase is having a clear definition of the use-case scope, objectives, and expected outcomes from the outset. Establishing these parameters early in the process ensures that all participants are aligned and that the project remains on track.

Matchmaking Through Common Scenarios

The analysis of use cases and the subsequent matchmaking of organisations with shared scenarios, objectives, and goals has proven beneficial. This practice fosters synergies, accelerates project timelines, and enhances collaborative opportunities.

5. Design

What We Should Continue Doing:

Trust Chain and Design Webinars

It is essential to continue providing webinars that focus on critical aspects such as use-case scope, flow, and the establishment of trust chains. These sessions are invaluable for guiding projects through the complex design phase.

Opportunities for Improvement

Onboarding Trust Chain Actors

Four projects noted difficulties in mobilising and onboarding relevant administrations as TAOs and RTAOs due to limited regulation and a lack of political mandates.

6. Build

What We Should Continue Doing:

Robust Technical Tools and Feedback Loops

Six projects underscored the importance of having robust technical tools, particularly APIs, and well-established feedback loops. These elements are crucial for identifying and resolving issues before they escalate, which is key to a smoother implementation process.

Effective Technical Learning Materials

According to 4% of projects, the quality of technical learning materials provided during the "Learn" phase and continuing through to the "Build" phase made a significant difference in their implementation journey.

Opportunities for Improvement:

Enhanced Tailored Support

2% of projects reported that as their focus shifts towards production, the level of tailored support from EBSI representatives will be critical for the future.

EUDIw Conformance

Another 2% of projects identified the alignment of EBSI specifications with EUDIW standards as a major area for improvement. As EUDIW adoption grows across the EU, ensuring conformance will be essential for broader acceptance and integration.

Production readiness is not only a technical challenge but also a legal one.

7. Test

What We Should Continue Doing

Testing Infrastructure, Including Conformance Testing

Building and maintaining a robust testing infrastructure, particularly for conformance testing, remains a priority. This infrastructure is essential for verifying the quality and reliability of pilot projects before they are scaled up.

Opportunities for Improvement

Expanded Testing Scenarios and Implementation Examples

5% of projects expressed a need for more detailed examples of testing scenarios and issuer/verifier guidelines. Expanding the documentation to include these examples would provide clearer guidance and help projects navigate testing challenges more effectively.

8. Mobilise

What We Should Continue Doing:

Early and Ongoing Stakeholder Engagement

According to 40% of projects, proactive stakeholder engagement is the most critical element of the "Mobilise" phase. Engaging relevant ecosystem stakeholders, including trust chain actors and TAOs, early and consistently through multiple channels is essential for identifying potential production blockers and making necessary adjustments.

Promotion Through Success Stories and Web Communication

One project emphasised the value of promoting success stories and effective communication through web pages and social media. Additionally, pitch preparation advice and event participation have been identified as crucial components for mobilising support and visibility.

Opportunities for Improvement

Enhancing Support for Legal and Regulatory Stakeholders

6% of projects highlighted the challenges posed by the immature EU regulatory environment and the lack of EU standards for EBSI and VCs. This has made the adoption of cross-border scenarios dependent on political mandates. Strengthening support in this area is vital for overcoming these obstacles.

Incentivising Legal Entities and Administrations

5% of projects pointed out that production readiness is not only a technical challenge but also a legal one. There is a significant opportunity for EBSI and its governance body to incentivise legal entities and administrations (such as RTAOs and TAOs) to participate in pilot projects. Additionally, 4% of projects noted a lack of support from EBSI in connecting with the right legal and organisational actors. By facilitating these connections, EBSI and the European Commission can play a pivotal role in helping pilot projects achieve their objectives.

> This table summarises the input coming from the projects on the different steps of the pilot implementation journey

01 LEARN

- Learn about EBSI and VCs **(4.5/5)**
- Learn about success stories **(4.3/5)**
- Learn about the pilot programme **(4.3/5)**
- Participate to intro webinars **(4.2/5)**
- Assist demos at Experience Centre **(4/5)**

- EBSI Explained
- Success stories
- Pilot programme
- Intro Webinars
- Experience Centre

With this step being the highest scoring, the education and evangelisation materials were the most valued elements.

02 REGISTER

- Register to the pilot programme. **(4.2/5)**
- Analyse use cases proposed. **(3.9/5)**
- Qualify use cases proposed. **(4/5)**
- Group use cases in clusters. **(3.9/5)**
- Send invitation for kick-start webinar **(4/5)**

- Kick-off webinar

This step has achieved the second-highest quantitative score, indicating that the high standard of operation should be maintained.

03 ON-BOARD

- Participate to kick-start webinar. **(4.3/5)**
- Set-up use case pilot team. **(3.9/5)**
- Sign Legal package. **(3.7/5)**
- Set-up work environment. **(3.7/5)**
- Get full access to EBSI services. **(3.8/5)**

- EBSI Hub
- Onboarding Toolkit
- VC Framework
- WCT guidelines

Onboarding sessions, regular communication, and leadership excellence were the most valued elements of tis step.

04 DEFINE

- Define describe use case scope. **(3.9/5)**
- Identify and mobilise actors. **(3.8/5)**
- Define user journeys/stories. **(4/5)**
- Design Screen flow. **(3.9/5)**

- Educative webinars
- Demos and prototypes
- Sample screens

Guidance in defining the scope of each use case and project matchmaking were highly valued.

05 DESIGN

- Define and design Trust chain. **(3.9/5)**
- Define and design Data models. **(3.8/5)**
- Define and design Signature profile. **(3.6/5)**
- Define Authentication patterns. **(3.8/5)**
- Define Required capabilities. **(3.6/5)**
- Plan for integration **(3.8/5)**

- Libraries and tools.
- API catalogue
- Trusted Registries

Trust-chain webinars with the EBSI team were one of the most important factors to the projects.

06 BUILD

- Build RTAO solution. **(3.4/5)**
- Build TAO solution. **(3.2/5)**
- Build Trusted Issuer solution. **(3.8/5)**
- Build Holder solution. **(3.7/5)**
- Build Verifier solution. **(3.8/5)**

- Blockchain Network orchestration.
- Support Office (SO)
- Technical individual/group sessions

Robust developer tools and comprehensive learning material were valued. Enhancing tailored technical support was advised.

07 TEST

- Test conformance of RTAO solution. **(3.5/5)**
- Test conformance of TAO solution. **(3.6/5)**
- Test conformance of Trusted Issuer solution. **(3.7/5)**
- Test conformance of Holder. **(3.6/5)**
- Test conformance of Verifier. **(3.8/5)**

- Wallet Conformance Testing

Conformance testing infrastructure was valued by many projects. Increasing testing examples was suggested.

08 MOBILISE

- Create project webpages. **(4/5)**
- Create pitch presentation. **(4.1/5)**
- Participate to celebration events. **(4.2/5)**
- Promote content on social media. **(4.2/5)**

- Ecosystem Day
- Verifying legal entities
- EBSI Demo Day 2022

With this step being the third highest scoring, projects valued early stakeholder engagement and promotional communication efforts.

04

KEY INSIGHTS & PRIORITIES

CHARTING A CLEAR PATH TO PRODUCTION: PRIORITISE PROJECTS, ENGAGE AUTHORITIES, AND MOBILISE RESOURCES.

INSIGHTS FROM
THE EBSI PILOTS.

"EUROPEUM encourages Europe to have a bold, ambitious, and innovative digital agenda in order to remain at the forefront of global technological development. I am convinced that, thanks to EUROPEUM, Europe will not only be able to meet current challenges but also anticipate those of tomorrow with confidence and determination."

Mathieu Michel
Secretary of State in charge of Digitalisation
(Belgium)

The assessment of the pilot projects demonstrates strong business readiness, although technical implementation is still catching up. While most projects have the organisational capacity and stakeholder alignment to succeed, final technical milestones need to be completed before production deployment can occur. People readiness is mature, but mobilising additional stakeholders—particularly public authorities—remains essential.

Conclusion on Pilot Projects Assessment

The assessment of the pilot projects demonstrates strong business readiness, although technical implementation is still catching up. While most projects have the organisational capacity and stakeholder alignment to succeed, final technical milestones need to be completed before production deployment can occur. People readiness is mature, but mobilising additional stakeholders—particularly public authorities—remains essential. Certain projects are poised to move into production, with a strong cost-benefit ratio and significant potential for social and economic impact. However, a concerted effort is required to onboard relevant authorities and create an end-to-end trust chain.

While most pilot projects see clear benefits in executing their use cases, complexity and high implementation costs are acknowledged challenges. Projects generally perceive the benefits as outweighing the costs, though the organisational and governance transformations needed are significant. To minimise complexity during the first production launch, the key will be to focus on delivering a streamlined Minimum Viable Experience (MVE).

Potential user reach extends far beyond the immediate project participants. For example, pilot projects such as University Alliances in Education and Cyclade Fast Ferry for Travel estimate reaching around 1.5 million students and staff across 10 countries within three years. Due to the high turnover in student populations, adoption can scale rapidly.

Key Recommendations for Pilot Project Prioritisation:

Focus on Champion Projects

Prioritise high-maturity, high cost-benefit ratio projects. Allocate dedicated resources to these projects for a short, intensive period to accelerate production deployment.

Invest in Promising Low-Maturity Projects

Provide targeted guidance to low-maturity but high-potential projects. Help them progress to the next level of maturity by addressing specific technical and organisational barriers.

Evaluate High-Maturity, Low-Benefit Projects Cautiously

Consider whether these projects can deliver long-term value or require adjustments in scope to justify further investment.

Defer Low-Maturity, Low-Benefit Projects

Keep these projects in mind for future consideration but focus current resources where impact can be maximised in the short term.

Participants highly value the support provided in defining use cases, developing elevator pitches, and preparing demos. EBSI Hub, the VC framework, and the onboarding toolkit have also been recognised as essential tools. However, there is room for improvement in technical documentation, response times, and the simplification of processes.

Conclusion on EBSI Services Assessment

The Early Adopters (EA) Programme is highly regarded for its role in fostering collaboration, inspiration, experimentation, connection, and knowledge exchange. The implementation of this programme was consistently praised, with participants describing it as “exceptionally well-executed” and commending the team's outstanding engagement. The workshops, training sessions, and webinars have been critical to understanding EBSI and its applications.

Participants highly value the support provided in defining use cases, developing elevator pitches, and preparing demos. EBSI Hub, the VC framework, and the onboarding toolkit have also been recognised as essential tools. However, there is room for improvement in technical documentation, response times, and the simplification of processes.

While EBSI’s multi-channel communication approach (email, individual sessions, group workshops) is well-received, pilot participants have expressed a need for faster technical support and greater transparency, particularly in grant processes.

The Test and Build stages, as well as the Mobilisation phase, require more attention, especially in mobilising legal stakeholders and refining the API integration process.

Recommendations for EBSI Service Enhancements

Continue Investing in Core Activities

- Maintain excellence in producing educational materials and running the Early Adopters Programme.
- Continue to facilitate incubation, match-making, and leadership in defining project scopes and objectives.
- Keep organising networking events, promotional campaigns, and stakeholder engagement activities.
- Continue to provide robust technical specifications, operational support, and testing infrastructure.

Opportunities for Improvement

- Simplify and enhance technical documentation and APIs for easier integration.
- Accelerate response times in the Support Office, providing personalised support through dedicated channels (e.g., Slack, project-specific chats).
- Focus on engaging local and national governments more effectively and aligning EBSI with EU regulatory frameworks such as eIDAS2 and EUDIw.
- Expand testing and integration examples to assist in real-world implementation.

Develop a clear list of prioritised projects, focusing on those with high maturity and cost-benefit ratios. Ensure these projects span different sectors to enable synergies and scalability. This will allow for the definition of Minimum Viable Experiences (MVEs) that reduce complexity and accelerate production deployment.

Key Insights and Strategic Recommendations

1. Prioritise Projects for Production

Develop a clear list of prioritised projects, focusing on those with high maturity and cost-benefit ratios. Ensure these projects span different sectors to enable synergies and scalability. This will allow for the definition of Minimum Viable Experiences (MVEs) that reduce complexity and accelerate production deployment.

2. Mobilise Public Authorities and Establish Legal Mandates

Engage public authorities and ministries to create legal and regulatory frameworks for digital credentials. Organise dedicated events where key stakeholders (e.g., University Alliances) present their projects and needs to public authorities. Define clear milestones and roadmaps for public sector involvement, ensuring the adoption of official digital credential schemas.

3. Align EBSI with EU Regulations (eIDAS2 and EUDIw)

Push for alignment with EU regulations, such as eIDAS2 and EUDIW, to ensure EBSI's conformance and broader acceptance. Encourage Member States to accelerate the adoption of eIDAS2, defining a cohesive Trust Framework across the EU. Political mandates and regulatory incentives will drive institutional participation and adoption.
.

4. Maintain Consistent Communication and Mobilise Additional Stakeholders

Implement a strong communication campaign to raise awareness and mobilise more public and private stakeholders. Increase networking and collaboration opportunities through events and cross-project partnerships. Focus on engaging non-technical organisations, such as legal and public sector entities, to ensure broader ecosystem buy-in.

5. Finalise Development of Minimum Viable Experiences (MVEs)

Reinforce technical support and refine specifications as pilot projects move towards production. Specific action points include:

- Providing dedicated and tailored support to the select projects.
- Improving the speed and responsiveness of the Support Office.
- Strengthening technical tools and API integration with clear, actionable examples.
- Enhancing integration with information systems, IAM, and authentication mechanisms.
- Plan a large-scale communication campaign upon the launch of live projects to maximise visibility and adoption.

"It is a game changer. It will be administration and everything we do at our fingertips. Instead of queuing, we will be receiving things in our hands and exchanging what we need to exchange with whoever that needs to know who we are and what we do."

Roberto Viola

Director-General of DG CONNECT (Directorate-General for Communications Networks, Content and Technology) at the European Commission

THANK YOU

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INSIGHTS FROM
THE EBSI PILOTS.

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