



CEF Digital
Connecting Europe

Piloting with EBSI, **explained**

Webinar #1 – Design Your Pilot

22/10/2020

Hello.

Who is in the call today?

YOUR HOSTS



**Margaret
MULLIGAN**

DG CNECT
Policy Officer
Moderator



**Joao
FRADE**

DIGIT
Head of sector
Moderator



**Zaira
LIN**

DIGIT
SMO

SPEAKERS



**Pierre
MARRO**

DG CNECT
Policy Officer



**Robert
CZARNY**

DIGIT
Project Manager



**Kevin
AMBROGI**

DIGIT
Product Owner



**Saky
KOURTIDIS**

DIGIT
SMO



**Wesley
DEGLISE**

DIGIT
Product Owner

**How we will keep this call
interactive and interesting?**

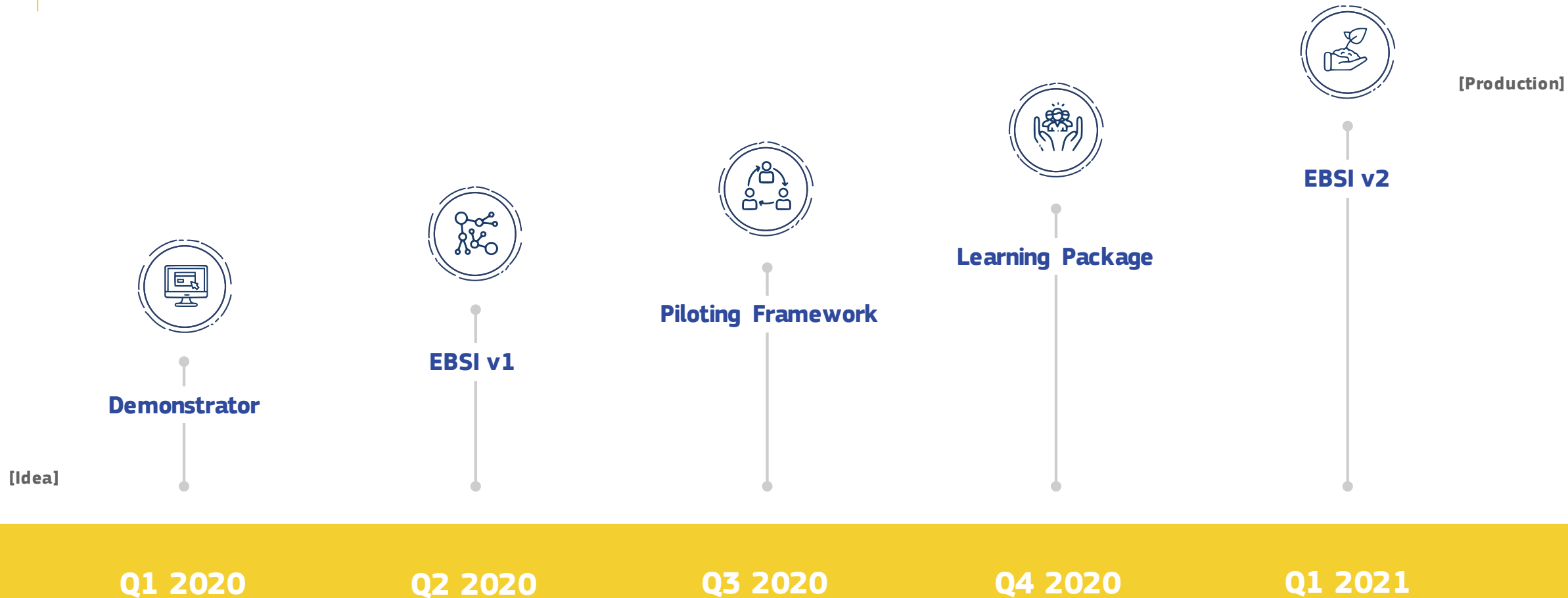
Go to www.menti.com and use the code 70 74 96 8

00

Introduction

Pierre Marro – **5 minutes**

The story of EBSI. From idea to Production.



There are three reasons why it is a great opportunity to start piloting with EBSI today.

01

EBSI is ready.

EBSI is ready as a sandbox (related to v1). It is an opportunity to prepare your integration and accelerate the development of applications using EBSI.

02

Do it together.

It is an opportunity to design, describe and plan your pilot together, using the same template, facilitating the experimentation of cross-border use cases and learn from each other.

03

Shape the future.

EBSI is in constant development. By taking part in the early stages of the piloting journey, you may contribute in shaping the future versions of EBSI together with us.

The learning package and the webinars are addressed to any stakeholders who:



You are involved in project from **CEF**
(Connecting Europe Facility)



You are involved in deploying a **Node** on EBSI



You are developing **use cases** supported by EBSI



You are interested in using EBSI for **future use cases**

The EBSI Pilot Framework is made of four stages. Each stage is organized in three step.

01

Discover

THE OPPORTUNITY

Explore the challenge of Digital Trust and the opportunities given by blockchain technology.

- 01.1 About Digital Trust**
- 01.2 From paper to Digital Post**
- 01.3 About Blockchain**

02

Design

PILOT CONCEPT

Get inspired by EBSI, shape and plan your pilot by clearly defining and describing it and how you are going to organize it.

- 02.1 Get inspired by EBSI**
- 02.2 Design your Pilot**
- 02.3 Roadmap your Pilot**

03

Build

PILOT IMPLEMENTATION

Prepare to integrate your applications and systems to EBSI and confirm your expectations (functionalities, reliability, security).

- 03.1 Kick-off your pilot**
- 03.2 Develop / Integrate**
- 03.3 Test the integration**

04

Launch

PILOT STORY

Launch the pilot, connect to the community, share your success story and help us shape the future of EBSI.

- 04.1 Launch & Monitor**
- 04.2 Share your success story**
- 04.3 Move forward**

For each step, we propose three key tasks to perform to move forward in your piloting journey.

01

Discover

THE OPPORTUNITY

01.1 About Digital Trust

- 01.1.1 The opportunity for a new trust paradigm
- 01.1.2 The challenges of Digital Trust
- 01.1.3 The Key Digital Trust Patterns

01.2 From paper to Digital Post

- 01.2.1 The Digital Post Office Pattern
- 01.2.2 How does it work?
- 01.2.3 The pre-requisites for this pattern to work

01.3 About Blockchain

- 01.3.1 Blockchain and the Digital Wallet
- 01.3.2 How does it work?
- 01.3.3 The pre-requisites for this pattern to work

02

Design

PILOT CONCEPT

02.1 Get inspired by EBSI

- 02.1.1 The vision and objectives of EBSI
- 02.1.2 The use cases and roadmap of EBSI
- 02.1.3 Scope your pilot

02.2 Design the Pilot

- 02.2.1 Identify participants and their benefits
- 02.2.2 Model the pilot scenario & identify pre-requisites
- 02.2.3 Map EBSI APIs

02.3 Roadmap the Pilot

- 02.3.1 Assess value and feasibility, prioritize & roadmap
- 02.3.2 Define budget, sourcing & governance model
- 02.3.3 Define the KPIs to measure the success of the pilot

03

Build

PILOT IMPLEMENTATION

03.1 Prepare the pilot

- 03.1.1 Check the EBSI documentation
- 03.1.2 Design integration of EBSI APIs / sample apps
- 03.1.3 Prepare your development environment

03.2 Develop / Integrate

- 03.2.1 Get access to the sandbox and APIs
- 03.2.2 Develop & integrate your app with our APIs
- 03.2.3 Create identities for your institutions and application

03.3 Test the integration

- 03.3.1 Test the new and existing functionality
- 03.3.2 Test the infrastructure of EBSI e.g. security, etc.
- 03.3.3 Share your feedback to EBSI

04

Launch

PILOT STORY

04.1 Launch & Monitor

- 04.1.1 Launch the application to your stake holders
- 04.1.2 Monitor the defined KPIs
- 04.1.3 Adjust the pilot in consequence if needed

04.2 Share your success story

- 04.2.1 Share / publish your success story in your channels
- 04.2.2 Get and leverage a EBSI dissemination Toolbox
- 04.2.3 Get feedback

04.3 Move forward

- 04.3.1 Agree KPI achievements with stakeholders
- 04.3.2 Assess the impacts of further roll out of pilot concepts
- 04.3.3 Plan a live launch of the pilot or relevant features

The EBSI Learning package proposes three key resources to help you. All three are organized according to the Framework.



1. Watch the
Episodes

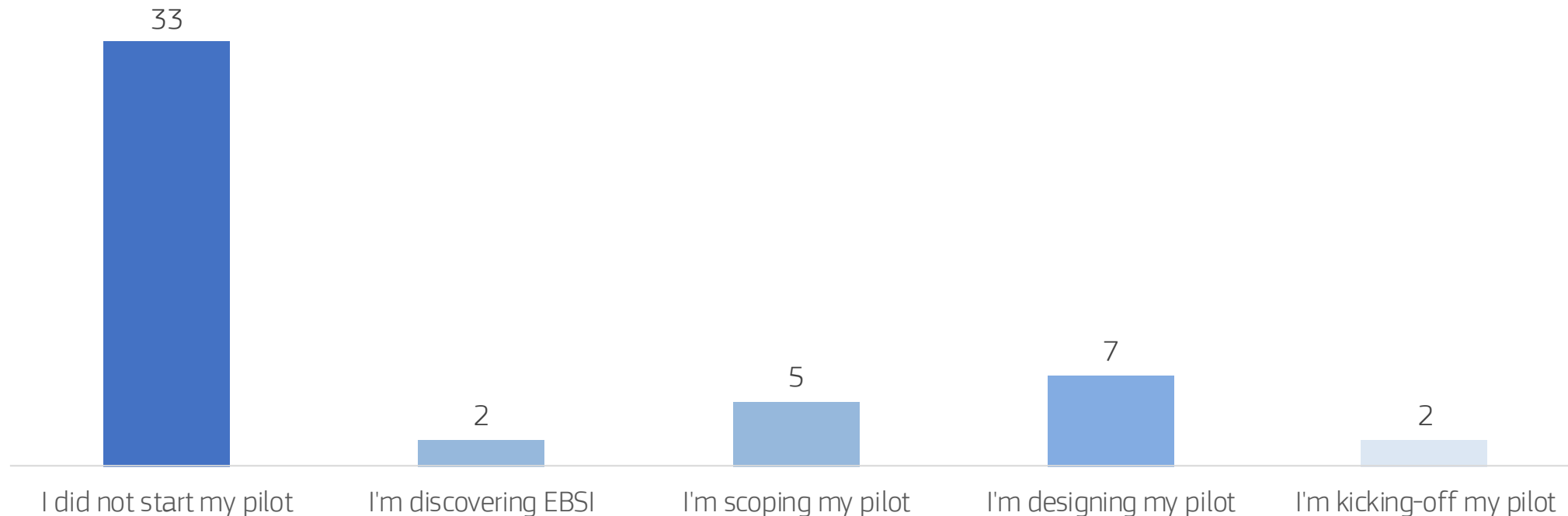


2. Download the
Toolkit



3. Participate in the
Webinars

During the registration process of this webinar, we have asked you your current state-of-play regarding your piloting journey.



That's why we propose to cover the following objectives and agenda for today.

01

Know more about **blockchain** technology

5'

02

Discover and **get Inspired by EBSI**.

15'

03

Get started and **scope your pilot**.

10'

04

Design your pilot (using common templates).

25'

05

Discuss on the **Top 3 technical questions**.

30'

06

Listen to **pilot story** and **lessons learnt**.

20'

07

Conclusion, wrap-up and **next steps**.

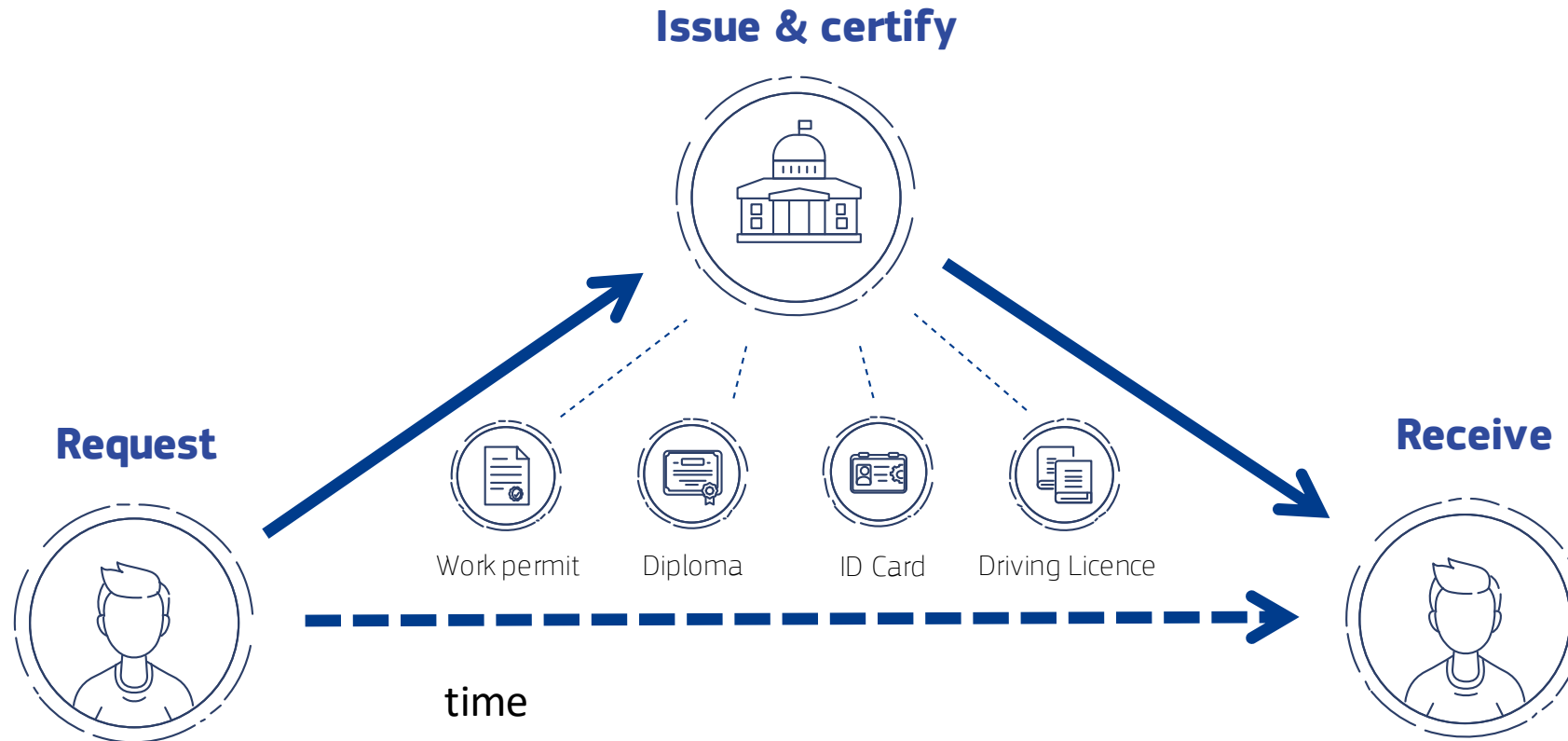
15'

01

About Blockchain

Joao Rodrigues Frade – **5 minutes**

Governmental entities are important intermediaries of many transactions happening in our society.

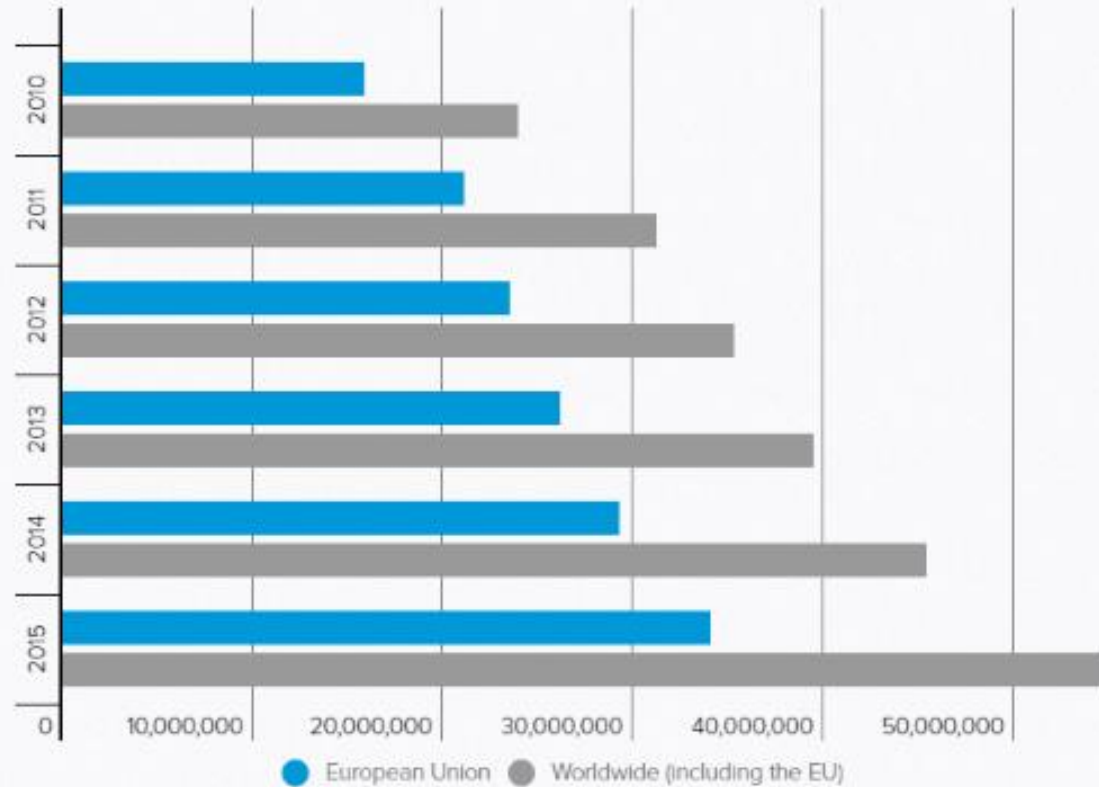


We need to address the challenge of digital fraud. Governments need technology to verify the authenticity of information.

Interpol has seen a sharp uptick in the number of missing passports — within Europe and around the globe.



Lost and stolen travel documents



Source: Interpol

There are two of the key ways or patterns of sharing and verifying official documents.



Pattern 01 “Digital Post”

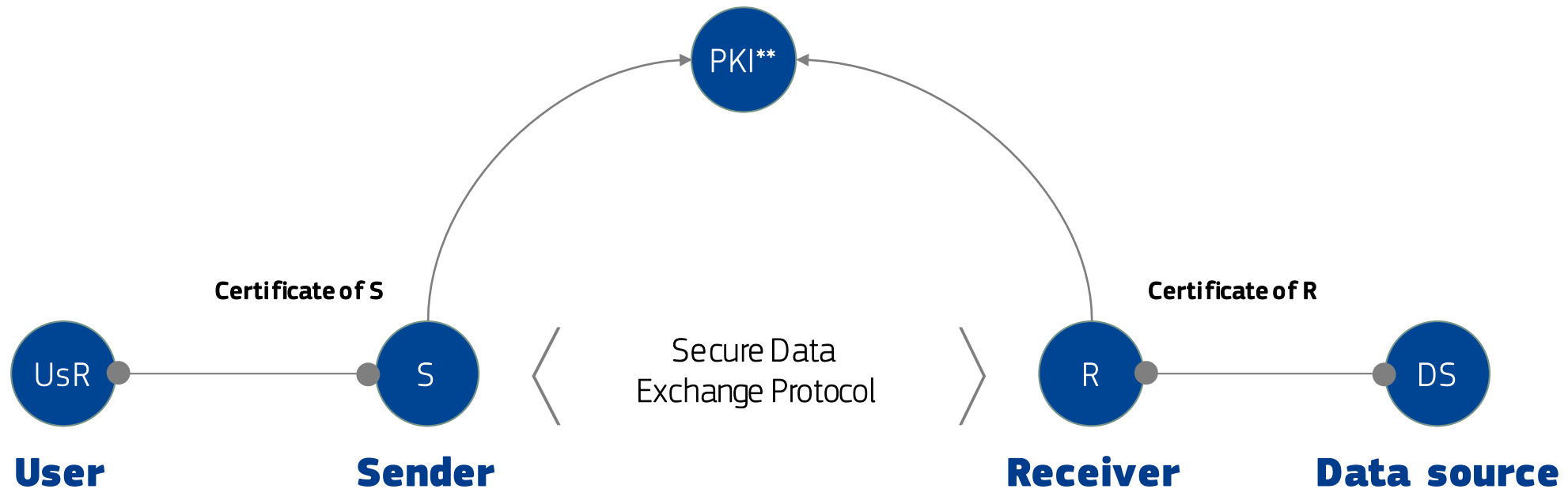
Just in time evidence issuance



Pattern 02 “Digital Wallet”

Verifiable Credentials

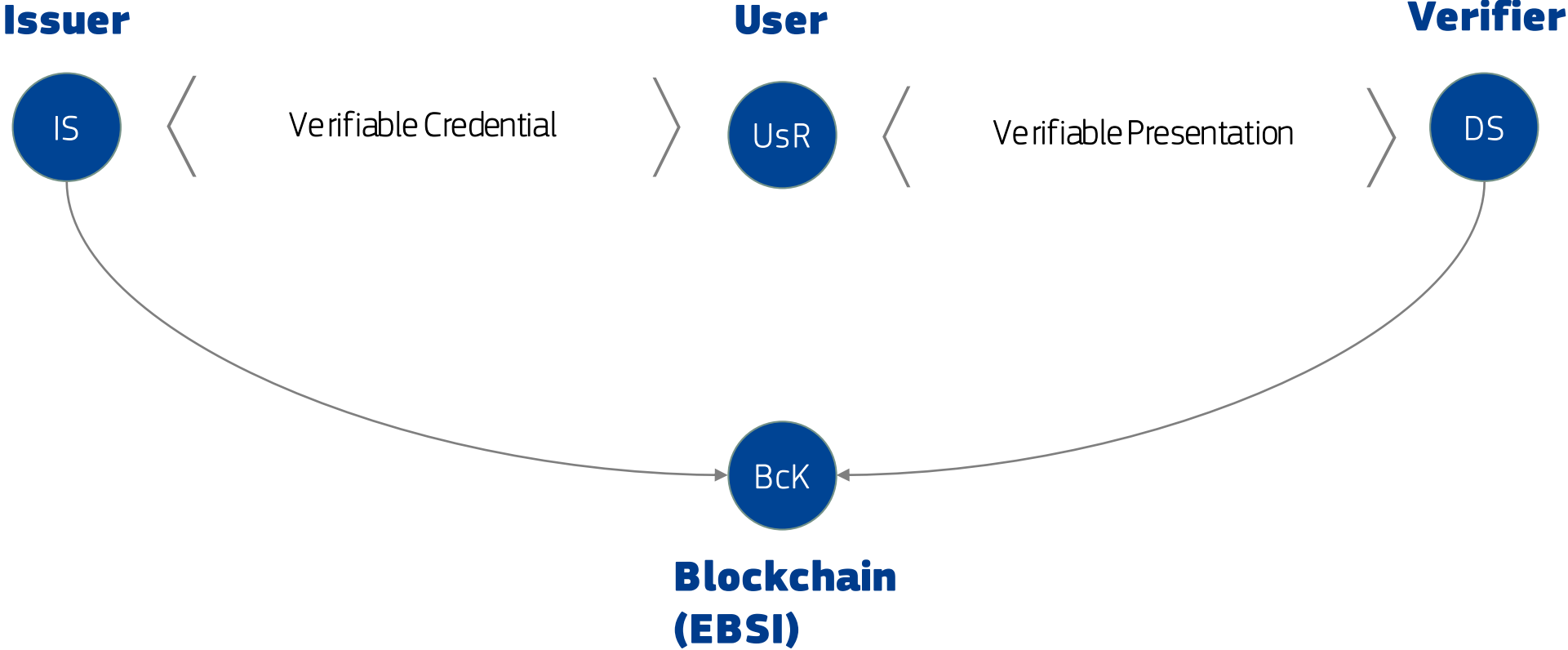
The traditional data sharing scenario replicates the post office pattern*.



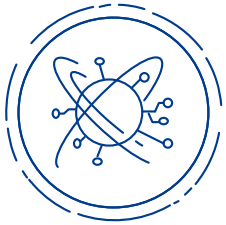
*The just in time evidence issuance pattern: this model is similar to a traditional paper-based flow of post-office

**Public Key Infrastructure

Let's have a look at the concept of verifiable credential and the Digital Wallet: How does it work?



What are the key advantages of using blockchain and the verifiable credentials?



Data control by
the citizen



Enhanced
selective data
discloser



Improved
traceability of the
origin and of the
recipient



Increased
efficiency
(no need of “just-
in-time evidence
issuance”)



Reduced
verification costs
(once at scale)

02

Get inspired by EBSI

Robert Czarny – **15 minutes**

Governments, and society, need technology to verify the authenticity of information. Having this challenge in mind, DG CNECT and DIGIT are currently developing the EBSI, in close cooperation with the EBP, to accelerate the creation of cross-border services and **putting blockchain technology at the service of public administrations for the purpose of verification of information, making the services trustworthy.**

<https://ec.europa.eu/cefdigital/wiki/display/CEFDI/GITALEBSI/List+of+EBP+Representatives>



EBSI will be the first EU-wide blockchain infrastructure, driven by the public sector, that respects European values with high-level of data security, data protection, and privacy.



Mobility

Enhances Cross Border services provided by Governments to citizens



Sustainable

Supports Use Cases that enhances environmental and Green Deal Policies



Compliance

Complies with GDPR, EAIDAS, NIS Directive



Enabler

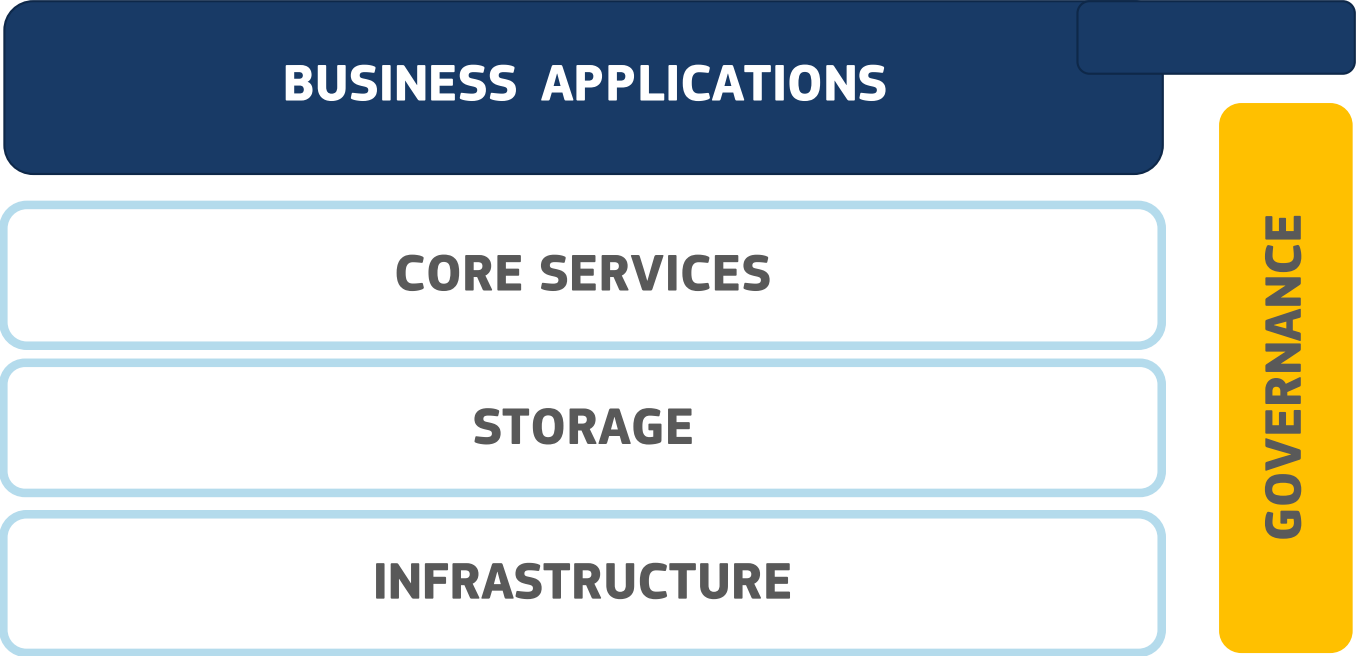
Reinforces Blockchain capacities In Europe



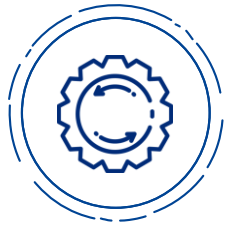
Open

Based on open standards, market friendly and multi-vendor

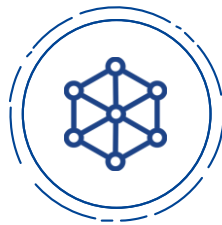
EBSI is composed of a layered architecture. The architecture of each node is composed of three main functional areas.



What can you achieve by using EBSI?



Simplifies
Administrative
Processes



Enhances Trust
with stakeholders



Increases
Efficiency



Increases
Transparency



Aligns to European
values (e.g. Regulatory
Compliance)



Makes the
verification of data
authenticity easy
and at low cost

In order to understand the potential of blockchain and EBSI, let's remind ourselves the journey of Eva.

<https://www.youtube.com/embed/m2uj7fgb2JI>

Watch the video

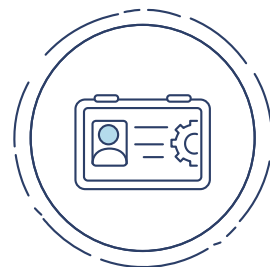


Practically, four use cases have been selected by the EBP and are currently under development.

(V1 as a sandbox and v2 in production)



Notarisation
of documents



European Self-Sovereign **Identity**



Diplomas
Management



Trusted data
sharing



(Reserved for TAXUD's Community at this stage)

+ 3 new use cases

SME financing, European Social Security Identification Number, Asylum process management

European Self-Sovereign Identity.

Features available in EBSI v2.0

	 Natural Person	 Legal Entity	 Registration Authority
Onboard on ESSIF	✓	✓	
Set up Verifiable ID Authentication		✓	
Authenticate using Verifiable ID	✓		
Request issuance of Verifiable ID	✓		
Request Verifiable Attestation	✓		
Present Verifiable Attestation	✓		
Register a Verifiable ID Issuer			✓
Register a Trusted Registration Authority			✓
Register a Verifiable ID Data Schema in TSR			✓

Diploma Management.

Features available in EBSI v2.0

	 Natural Person	 Education Organisation	 Third Party	 Accreditation body
Onboard	✓	✓	✓	
Request a credential	✓	✓		
Assign a new diploma VC to a Legal Entity		✓		✓
Register an Educational Organization		✓		✓
Register a new diploma VC		✓		✓
Request to be accredited to issue a diploma		✓		✓
Share credential(s)	✓		✓	
Register a QAA in the TAR				✓
Request to be added to the TAR				✓

Notarization.

Features available in EBSI v2.0



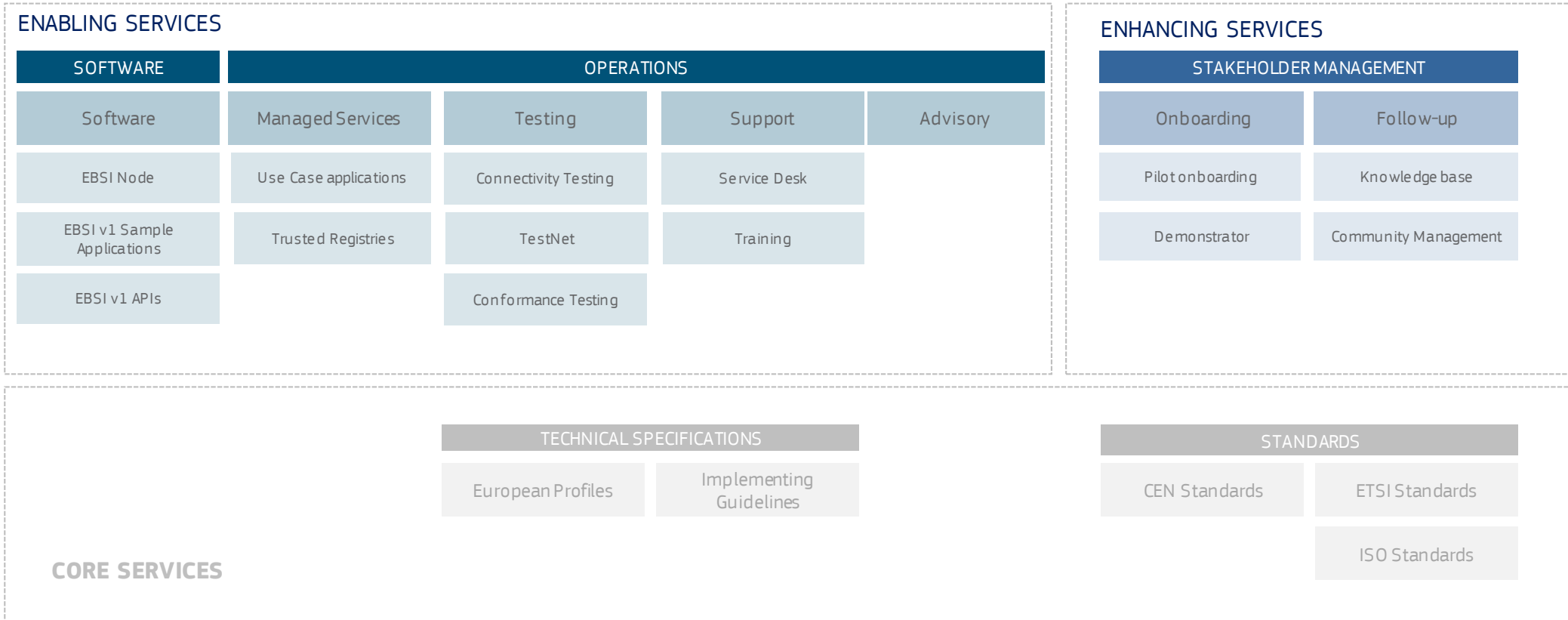
Natural Person



Legal Entity

	Natural Person	Legal Entity
Onboard	✓	✓
DID Authentication	✓	✓
Notarize a document (together with its metadata)	✓	✓
Retrieve / browse the notarization history	✓	✓
Visualize notarization details	✓	✓
Verify the existence of a notarization with metadata	✓	✓
Notarize a new version document	✓	✓
Store notarized document's metadata on EBSI storage	✓	✓
Register the data on Smart contract	✓	✓

The European Commission offers the following services (EBSI Service Offering Canvas v2.1 + updates made on 31 July).



Go to www.menti.com and use the code 70 74 96 8

03

Get started

Saky Kourtidis – **10 minutes**

Currently you have three ways to get started with EBSI.



Take a **citizen's journey** and test the EBSI services.

Demonstrator



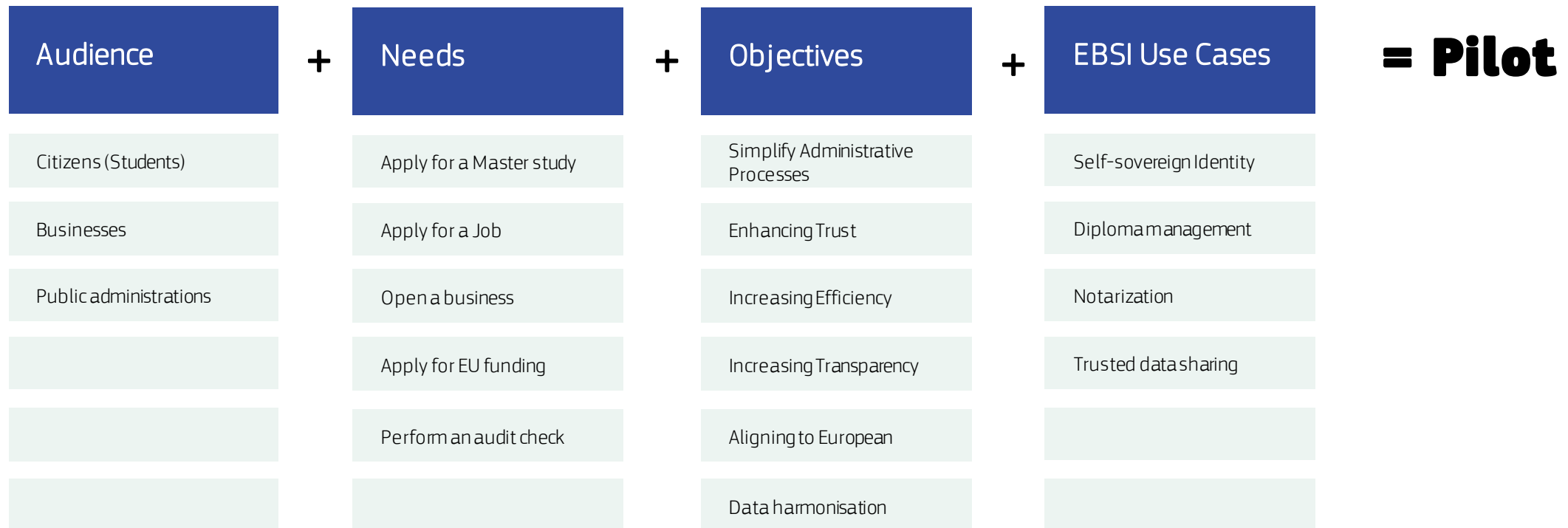
Deploy a **blockchain node** and connect to the network.



Prepare to **integrate your application** with EBSI.

PoC (v1) | Pilot for Production (v2)

Let's imagine, you are looking to integrate your application with EBSI. The first step is to create your Pilot scenario.



So, based on your scenario, you now know which EBSI use case you can start exploring and the typical features they offer.



Notarisation
of documents



European Self-Sovereign **Identity**



Diplomas
Management



Trusted data
sharing

(Reserved for TAXUD Community)

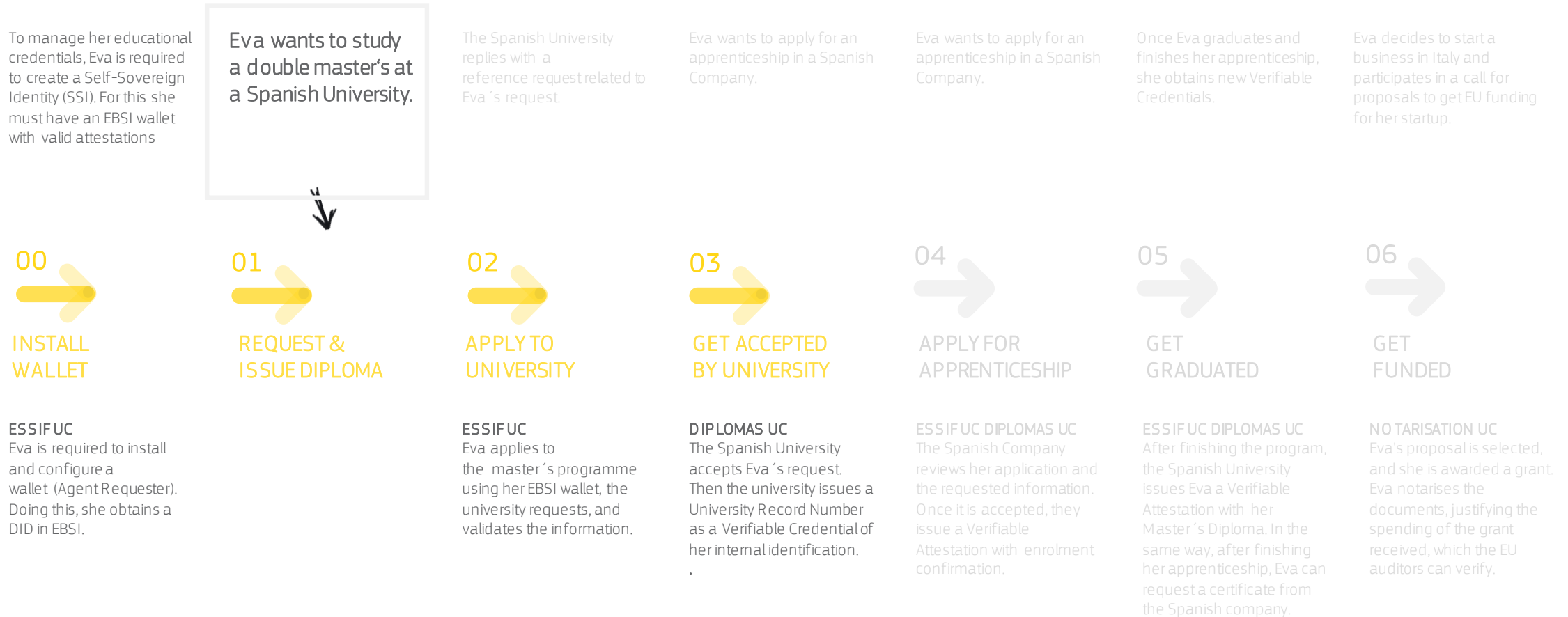
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04

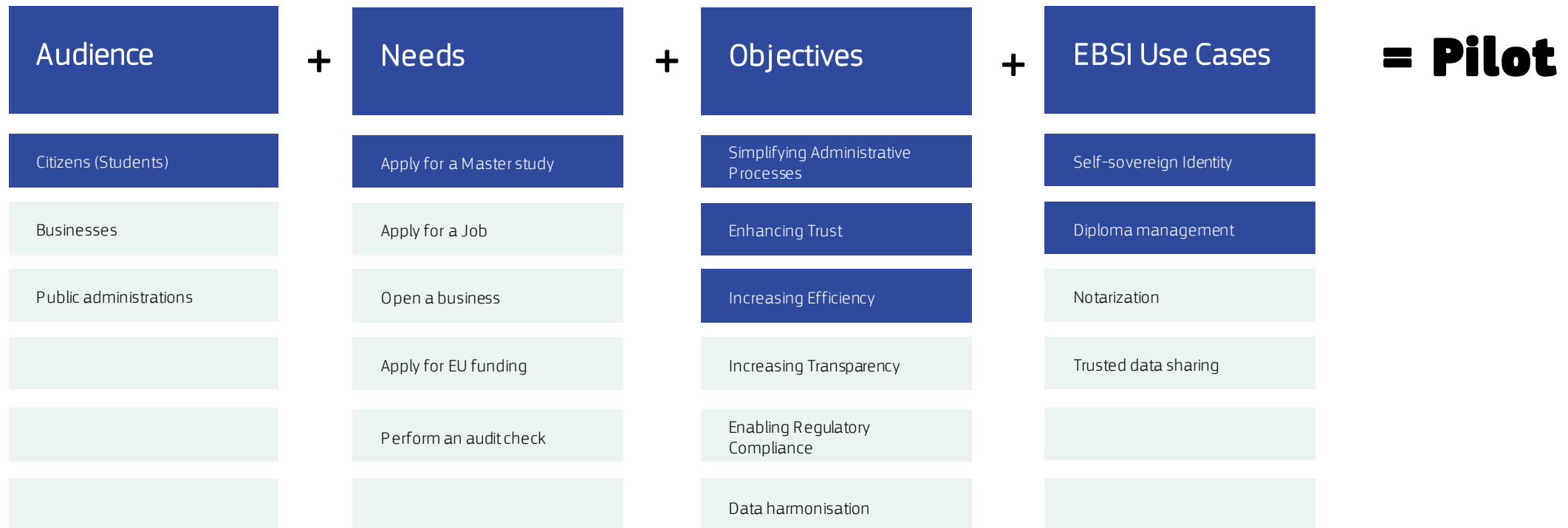
Walk through

Saky Kourtidis / Kevin Ambrogi – **25 minutes**

In this story, the end user is Eva, and she is going through a little journey during which she will answer several needs.



For the sake of making the pilot reasonable in terms of scope, we will take a part of that journey to build our scenario.



This pilot scenario example will look at how to leverage on EBSI (diploma management) for citizen to apply for double master's across border in order to improve UX, streamline verification processes and enhance legitimacy and trust.

Once you have defined your starting point, you are going to take 3 tasks to design your pilot scenario.

01

Define **stakeholders** and their **benefits**

02

Model the **pilot scenario** and identify **pre-requisites**

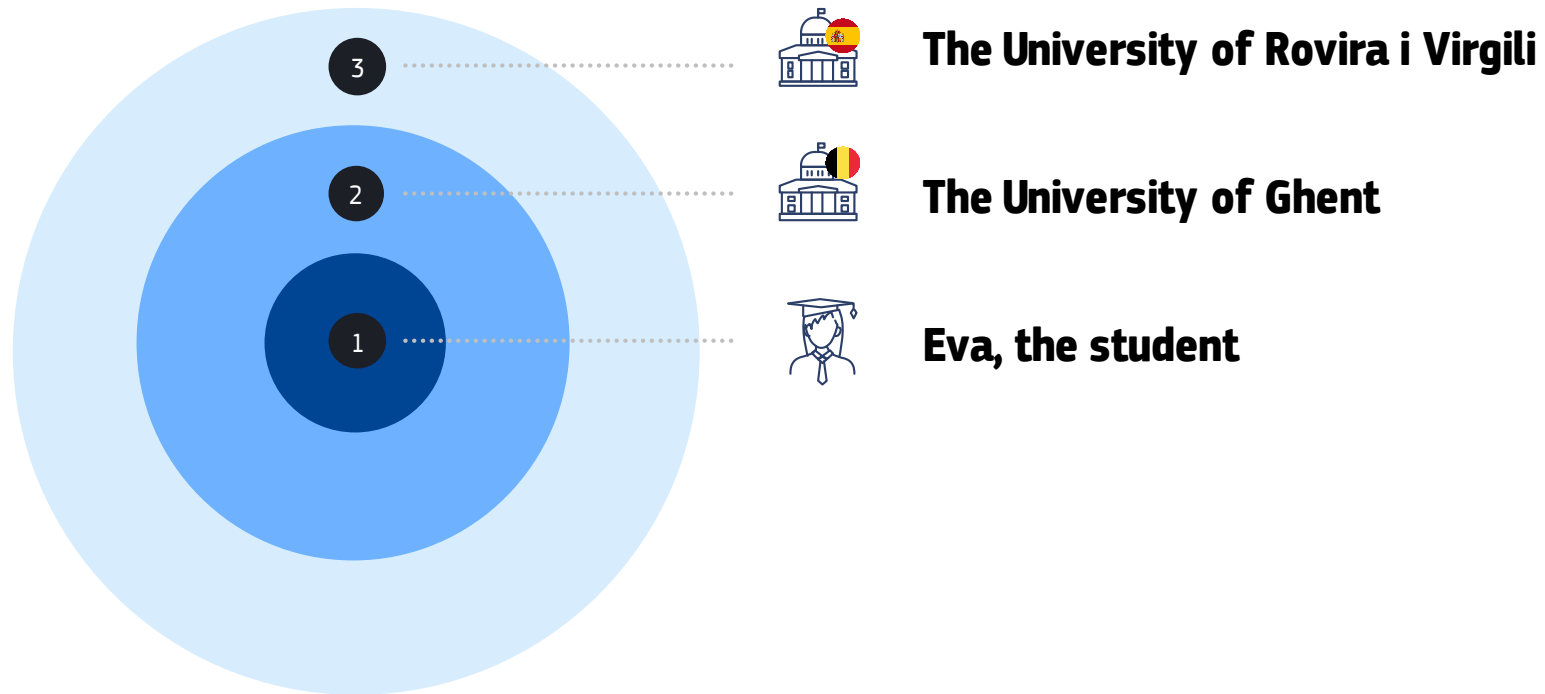
03

Define the **EBSI APIs*** you need for the pilot

*Application Programming Interfaces (Core services of EBSI)

Task 1

Identify participants in the ecosystem.



Task 1

Describe their key role in the process.



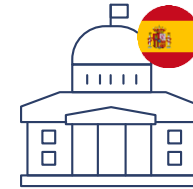
Eva,
the student

Request the issuance of her Verifiable ID and the Verifiable Attestation.



The University
of Ghent

Verify the request of Eva and issue both Verifiable Credentials.



The University
of Rovira i Virgili

Request and validate the information and accept Eva 's request.

Task 1

Describe their benefits.



Simplify Administrative Processes

Easily share certificates across-border with greater authenticity and trust.



Enhance Trust with stakeholders

Prove the legitimacy (e.g. Stronger security, privacy) of academic credentials and reduce fraud.



Increase Efficiency

Significantly save time in credential verification and credential attestation.



Increase Transparency

Get better control over identity and education credentials and confidence that credentials are secured and won't be subject to suspicion.



Align to European values (e.g. Regulatory Compliance)



Make the verification of data authenticity easy and at low cost



Streamline verification procedure, reducing administrative inefficiencies (cost and time) and provide faster service.



Streamline verification procedure, reducing administrative inefficiencies (cost and time).

Build a better digital infrastructure with cross-border ability for facilitating transcript verification between institutions, students, and employers.

Build a better digital infrastructure with cross-border ability for facilitating transcript verification.

Online, real-time, verification & origin (trust about issuer)

Enable accreditation for all kind of education: formal, non-formal and informal education.

Task 2

Identify the features you need.



Request

diploma verifiable attestation

EVA

- A student can **request the issuance** of an educational credential



Issue

diploma verifiable attestation

- A student can **receive their diplomas electronically**



Store

diploma verifiable attestation

- A student can **store their credentials**, along with their identity in a self-managed wallet



Access

diploma verifiable attestation

- A student can **access the educational credential** anytime to apply for courses or employment*

GHENT UNIVERSITY (BE)

- The university can automate the secure processing of the diploma request

- The **university** can **issue the educational credential** as a secure digital document

- A university issues its public identity that can be referenced by third parties

- A University or company **can verify the credential** and accept an application electronically

ROVIRA I VIRGILI UNIVERSITY (ES)

- An authorised third party can provide the app to process requests on behalf of the university

- An authorised third party can provide the app to process issues on behalf of the university

- A third party can act as store for the verifiable credential on the student's request

- Share credential (verifiable attestation) with 3rd party (verifier) so a third party in or outside the EU **verifies the credential** and accepts the application*

Task 2

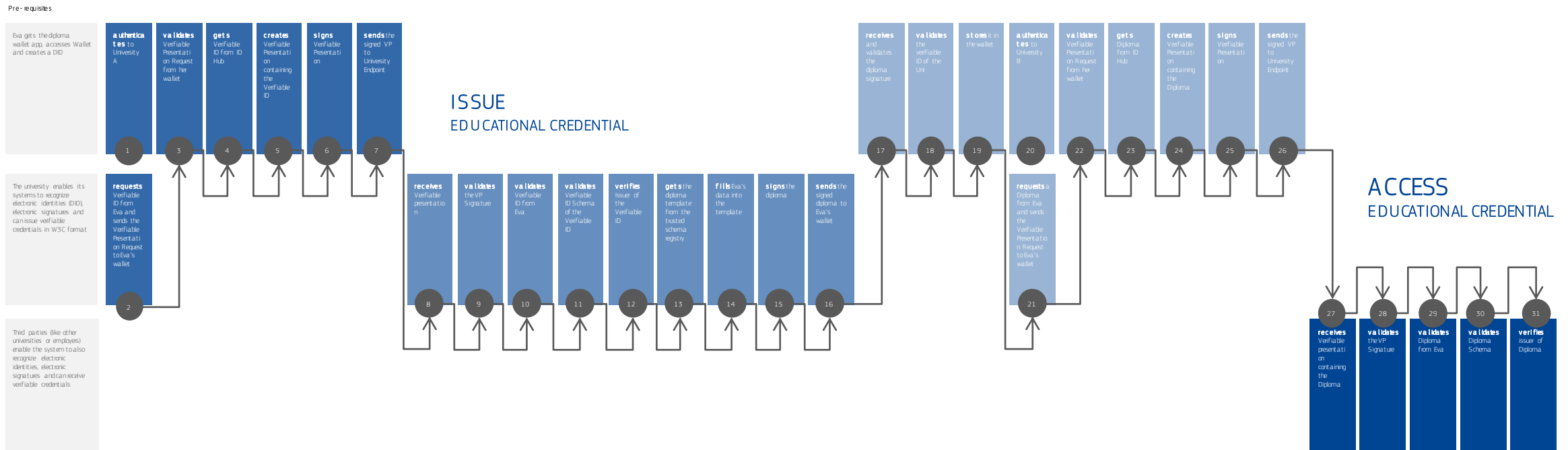
Model the scenario (don't forget the technical pre-requisites).

REQUEST EDUCATIONAL CREDENTIAL

STORE EDUCATIONAL CREDENTIAL

ISSUE EDUCATIONAL CREDENTIAL

ACCESS EDUCATIONAL CREDENTIAL



Task 2

Zoom on the detailed scenario: Request educational credential

 gets the diploma wallet app

 accesses wallet app

 creates a DID

 authenticates to University of Belgium

 requests Verifiable ID from Eva

 sends the Verifiable Presentation Request to Eva's wallet

 validates Verifiable Presentation Request from her wallet

 gets Verifiable ID from ID Hub

 creates Verifiable Presentation containing the Verifiable ID

 signs Verifiable Presentation

 sends the signed VP to University of Belgium

Task 2

Identify (generic) pre-requisites.

Regulatory acceptance

Establish the potential for **regulatory acceptance** for the pilot workflow or a roadmap to it

For **Diploma** this includes:

- Ascertain if the pilot fits within relevant national or Europe wide education authority regulation or that it could form part of an acceptance roadmap

Legal approval

Establish the potential for **legal approval** for the pilot workflow or a roadmap to it

For **Diploma** this includes:

- Gain legal approval for the pilot scope, especially pertaining to specific or local interpretation of GDPR for educational data

Ecosystem acceptance

Establish the potential for **acceptance and adoption of the pilot by the ecosystem** of players or a roadmap to it

For **Diploma** this includes:

- The pilot participant educational institutions agree to accept the electronic verifiable credential as proof of qualification

Task 3

Map EBSI APIs.

REQUEST EDUCATIONAL CREDENTIAL

STORE EDUCATIONAL CREDENTIAL

ISSUE EDUCATIONAL CREDENTIAL

ACCESS EDUCATIONAL CREDENTIAL

Pre-requisites



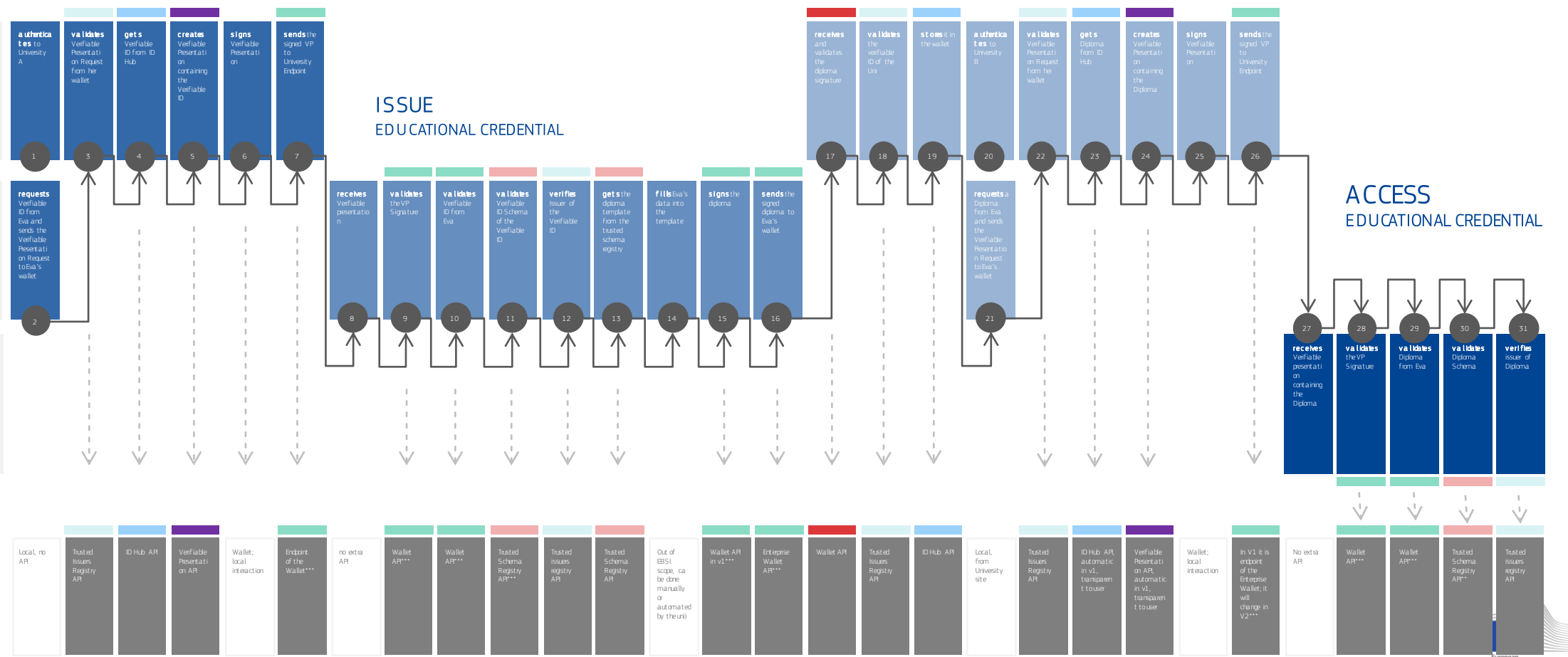
Eva gets the diploma wallet app, accesses Wallet and creates a DID



The university enables its systems to recognize electronic identities (DID), electronic signatures, and can issue verifiable credentials in W3C format



Third parties (like other universities or employers) enable the system to also recognize electronic identities, electronic signatures, and can receive verifiable credentials

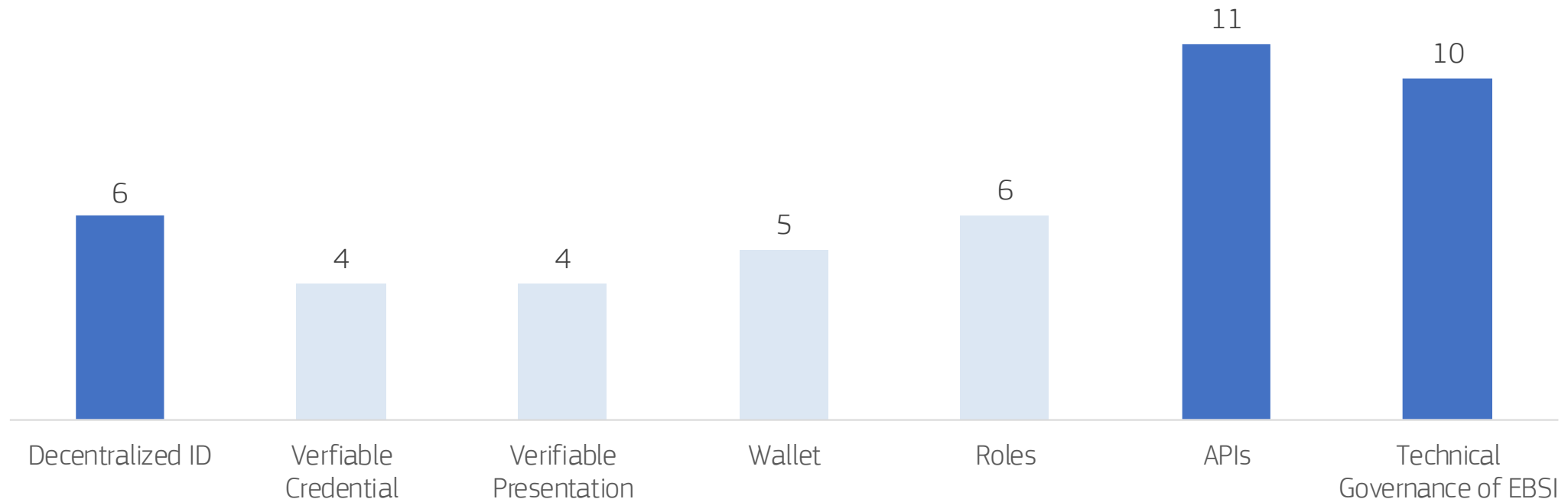


05

Technical forum

EBSI Technical Office – **30 minutes**

We have identified 3 key technical questions that you would like to answer to be able to move to the next steps.



EBSI APIs

What is available today?

- One stop shop to discover and test APIs.
API Catalog <https://api.ebsi.xyz/docs/> (currently only feature EBSI v1 APIs)



READ operations are public
POST operations require a valid token

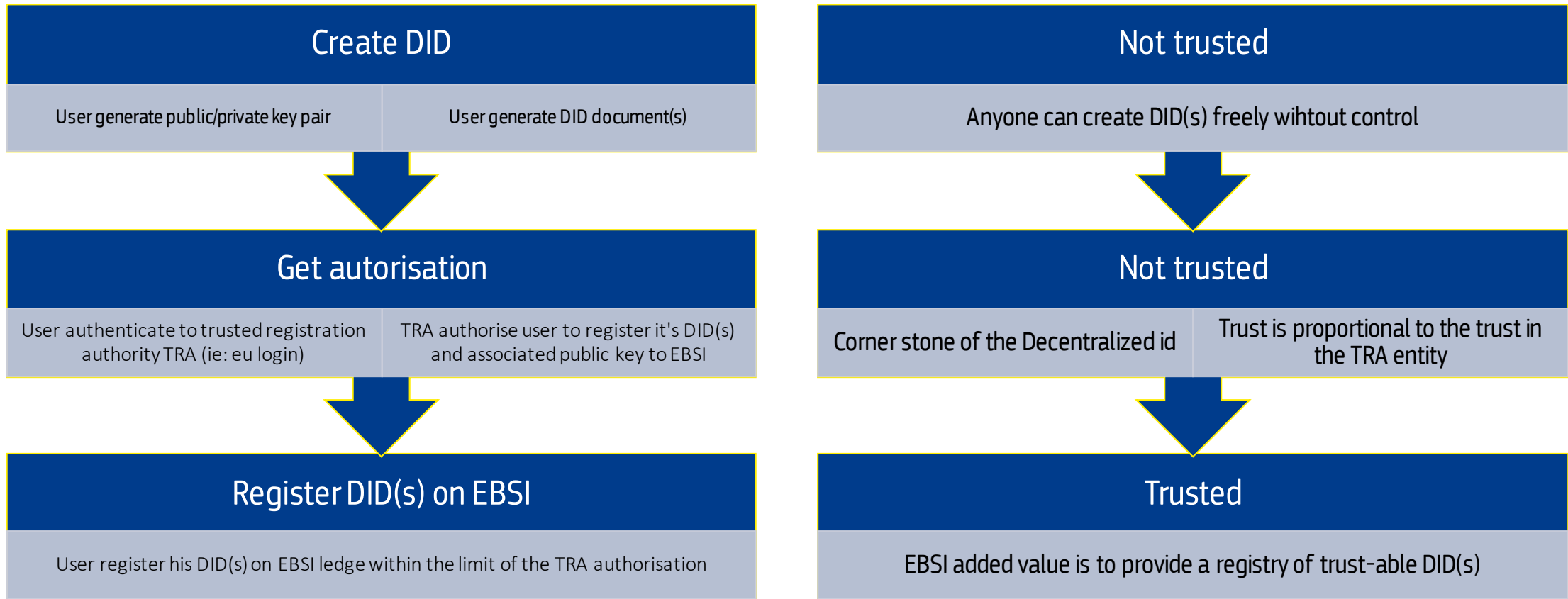
What comes next?

- API for V2 will be published on the EBP wiki
- <https://ec.europa.eu/cefdigital/wiki/display/EBP/Core+Services+Layer>
- Then they will be published on the API catalog on Q1 21

Decentralized ID

The Commission is currently working on trusted and secure eID.

We will try to contribute to this initiative by pioneering it through our decentralized identity framework



Technical governance

Roadmap for technical governance – where are we?



Documents Status - overall 90% complete

- EBSI Technical Governance Guiding Principles (80% complete)
- EBSI TechGov Decision-making bodies (90% complete)
- **EBSI V2 Technical Governance Rules (80% complete)**
- EBSI V2 Technical Governance Operational Guidelines (20% complete)
- EBSI V2 Technical Governance Node Operator Terms & Conditions Guidance (50% complete)
- Summary decision decks for stakeholders including Policy group

[Documents can be found here >>](#)

NOTE the TechGov content is derived from and regularly shared with the technical governance working group [TechGov Working Group Team Membership can be reviewed here >>](#)

NOTE Decision-making bodies and Rules are currently under WG review

Go to www.menti.com and use the code 70 74 96 8

06

Demo time

Norway | EU Blockchain – **20 minutes**



Case 1 - The Norwegian Company Registry and Blockchangers

Market Inclusion Registries – www.mir.network (10')

22/10/2020

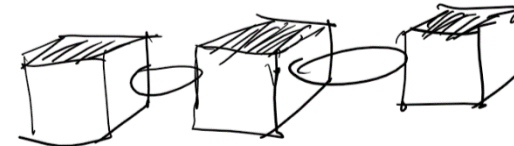
A prototype exists that put CapTables at the stage for innovation

Prior to EBSI, The Norwegian Business Registry built a prototype. Drawing on existing digital identities and an accessible company registry. This blockchain applications lists cap tables and facilitates e.g. trade in unlisted shares. Now let's open it to shareholders and company officials that do not carry Norwegian IDs.

Norway has a cutting edge common components like eID, public registries of roles and digital company registries.



These advantages have been applied in building a blockchain infrastructure somewhat ahead of EBSI



As of October, the prototype is revised, hopefully as a fully functioning pilot of cap table registry building

Attempting a migration to EBSI will act as a hugely interesting experiment on its scalability – and might provide some interesting inputs to EBSI as well



Transparent Cap Tables is a key foundation for economic development.

What is the audience (end-user) that you would primarily target?	What are the needs that you would like to primarily solve?	What are the objectives you would like to primarily achieve?
Citizens	Apply for a Master study (a cross-border)	Simplifying Administrative Processes
Businesses	Apply for a Job (a cross-border)	Enhancing Trust with external stakeholders
Public administrations	Open a business (a cross-border)	Increasing Efficiency
Investors	Apply for EU funding	Increasing Transparency
FinTech using it for own applications	Perform an audit and compliance check	Enabling Regulatory Compliance
[Description]		Data harmonisation

Listed companies enabled capital intensive industries such as railroads. Why should the power of capital markets be limited to big companies on the stock exchange?

Essential preconditions are IDs and a link to an actual entity (a company)



Notarisation
of documents



European Self-Sovereign Identity



Diplomas
Management



Trusted data sharing

Incorporation follows national law, but mostly everywhere a shareholder would need an identity and the limited liability company would require a registration in one or more public records – maybe verified by laws etc. We do not aim to create a vehicle for company registration, but we would need most of the fundamentals to be in place

Key questions

Establishing ownership is key to any number of value-creating processes, but will SSI and trusted data from EBSI **support the demands of business?** Will FinTech companies be able to build on the foundation, and will this **composability** survive when facing **national jurisdictions?**

Official support seems robust, but “network effects” may hinder use.

4

Investors with wicked problems

3

FinTech firms – including the investment branches of banks

2

SMEs and in need of transparency to build trust

1

Norwegian Business Registry (and public authorities)

The existing pilot was built to solve real-life problems for people

As for now, the typical stakeholder is rather more tech-savvy than the average public institution, SME, service provider or bank/investor



David Dyb

The Norwegian Business Registry

David is tasked with simplifying life for businesses. He is driven by opportunity and by doing new stuff. At 49, he does not fully master the technology and struggles somewhat to see how a smart contract on EBSI compares to a database or a public registry.



Aleksander Torp

SME owner

Aleksander founded Blockchangers in 2017, but raising equity outside a clique of [fools] friends and family is difficult and almost requires a leap of faith. At 34, Aleksander relishes at the possibility of paying dividends in ETH or establish company bylaws that cannot be broken.



Ole Mikkelsen

FinTech innovator

Ole works at Monner, a FinTech startup that enables crowd funding and trade in unlisted shares – his wicked problem is to prove ownership and actually swap shares for money with no counterparty risk



Ask Wik

Finance

Ask is a senior executive at OBOS – a property developer with an in-house banking arm. A core business is offering loans with shares as collateral. Today he relies on lawyers and blind trust – he would rather prefer a public ledger

The largest benefits becomes society through better allocation of capital.



Simplify Administrative Processes



Enhance Trust with stakeholders



Increase Efficiency



Increase Transparency



Enable Regulatory Compliance



Harmonize data

Entrepreneur and SME

Simplified corporate governance
Simplified compliance and reporting

Lower cost of raising equity and loans

Lower cost of raising equity and loans

The ability to prove my ownership in general and the rules of the game associated with shares

Simplified incorporation

Included in all others

Investors and business support

Simplified accounting
Simplified audit
Simplified credit assessments

De-risking loans, investments and governance (fraud, conflicts of interest, etc.)

Speed up the process of investing and de-investing
Enable new FinTech services

Enjoy the full legal protection and governance routines of shareholders in listed legal entities

Simplified tax reporting

Improved ability to analyze markets

Society and public authorities

Simplified data gathering

Match capital and projects / more businesses
An enabling technology for crowd funding

More investments: simplifying trade in equity,
Improved ability to scale successful businesses

Turning shares in unlisted companies into a bankable asset – i.e. making unlisted shares a source of collateral

Reducing the scope of money laundering

Not relevant in the case of Norway, but arguably interesting on a European level (a single look at how capital is allocated in the Economy)

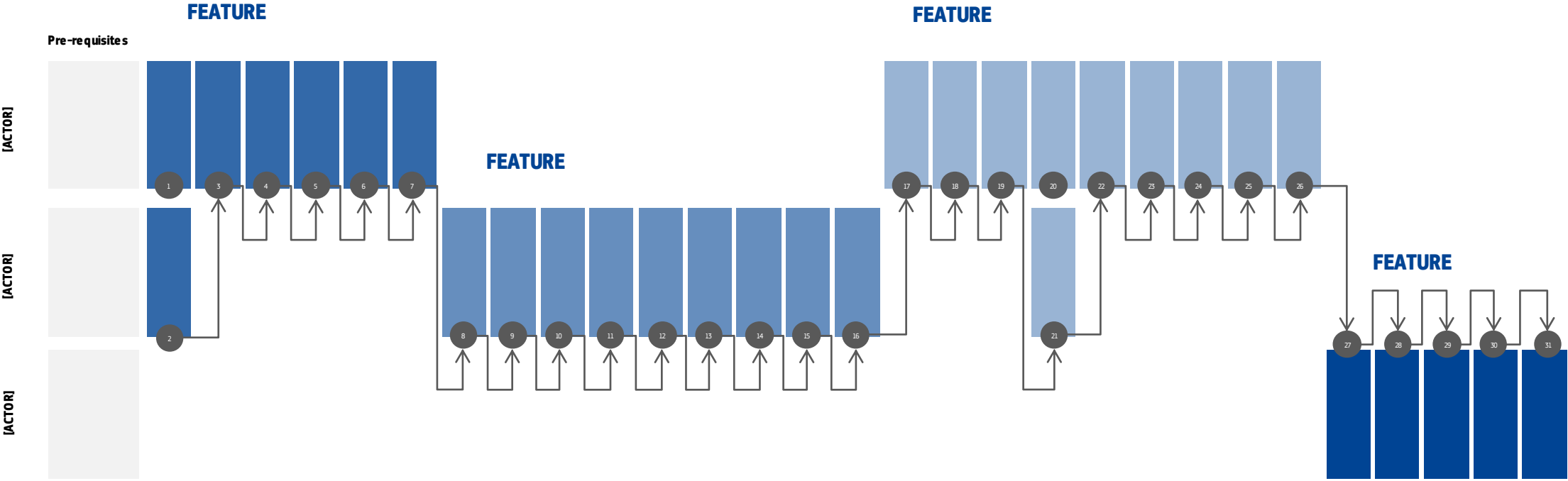
Four basic modules provides most of the functions required

We combine two modules (Share factory and the CapTable ledger) that borrow heavily from similar features in decentralized finance and two modules (authentication and oracles) where a public infrastructure is essential

	CapTable smart contract	Registry of CapTables	Authentication module	Business "Oracle"
Business Registry	The template allowing authorities to state "the rules of the game"	Offers the ability to harvest data rather than demand reporting	Making sure shares are listed by someone with the power of attorney	Prevents illegal listings (e.g. more shares than share capital)
SME	The engine which produces tokenized shares	Where I can prove the shares I own, or offer, do exist	Making sure my shares cannot be stolen; recover lost "keys"	Making sure nobody can act as an impostor on the company's behalf
FinTech	The smart contract to call upon to initiate a transaction	Ensures customers they receive what they have bought	Allowing one application to interact with other applications	Avoids the duplication of data that exist in a public registry
Investor	A guarantee against double spending	A tool to assess market opportunities	Allowing self service and sign in, e.g. to vote in a meeting of shareholders	All of the above

For flows and architecture, visit www.mir.network

The solution in work, its architecture and source code can be found on www.mir.network



Success depends on tech, but also market acceptance and legal aspects.

Regulatory acceptance	Legal approval	Ecosystem acceptance	Other
Establish the potential for regulatory acceptance for the pilot workflow or a roadmap to it	Establish the potential for legal approval for the pilot workflow or a roadmap to it	Establish the potential for acceptance and adoption of the pilot by the ecosystem of players or a roadmap to it	Revise specific preparatory elements that do not pertain necessarily to the technology but rather process flows and participant impacts
Will financial authorities treat this as an exchange without safeguards?	How to ensure the CapTable on the chain has no off-chain rival to define the truth?	What does it take to initiate a network effect? (critical mass to get the big majority on board)	What are the preferred user interfaces ... maybe your bank or an accounting system?
How to comply with GDPR and store some data off chain?	Will the calling of a smart contract be treated as e.g. a sell order?	While the flow of payments remain outside the chain, will trading still be feasible?	Will various jurisdictions place contradictory demands (e.g. openness vs secrecy)?
What is the proper procedure to conduct a “force transfer” of shares in case of e.g. death or fraud?	Who actually owns a CapTable entity? The company, the shareholder or the “public”?	How to make the process of developing services sufficiently simple for third parties?	How to handle double IDs, big data and usability?

We are still asking basic and somewhat “existential” questions

The structured, systematic approach of EBSI seems at once to be its greatest strength and biggest vulnerability

Does EBSI underplay composability (seamless services)?

Why not allow every application to act as a shared component? The shareholding module can easily be used e.g. for a trade in IPRs...

Blockchain is first and foremost an approach to “help a neighbour” ... Are there ways to offer more incentives?

Your approach signals plan and purpose, thank you EBSI!

As people are getting used to the “post office” pattern of digital IDs, will they come around to wallets and self sovereign IDs?

The ones that provide infrastructure may be far removed from the ones with a problem to solve. Does EBSI reach the users?



EU Blockchain

Overview of setup phase and two pilots (10')

22/10/2020

DIGIT.D3

Directorate-General
for Informatics

Agenda

1 What is EU Blockchain?

2 Setup phase: two selected pilots

- ‘Notarisation of internal audit trails’ by the EC’s Internal Audit Service
- ‘List of Trusted Lists (in the context of eIDAS)’ by DG CNECT H4

1. What is EU Blockchain?

EU Blockchain, a managed service by DIGIT that uses the European Blockchain Services Infrastructure (EBSI)

Building Blocks
for Member States and EU Institutions
funded by CEF

CEF EBSI

CEF eID

CEF eDelivery

CEF eSignature

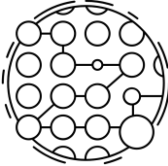
Reusable Solutions
for EU institutions (Policy and Admin systems)
funded via Operational Budget

EU Blockchain

EU Login

EU Send

EU Sign



Part of the
**Reusable
Solutions
Platform
(RSP)**

EU Blockchain: high-level timeline



- Launch and identification of **Thematic areas**
- Identification of **candidate Use Cases** in EU institutions
- Priortisation of Use Cases
- Execution of two **pilots**

Understanding EU Institutions' business processes

Would EBSI be useful for my entity and its current or future business processes?



Validation

Is your DG dealing with **validation of documents**?

Blockchain enables easy and automated validation of documents (e.g. in my business process I need to make validated documents available to others)



Cross border

Does your DG need to **interact with services/entities in the Member States**?

Blockchain supports trust establishment to allow interactions with external parties (e.g. in my business process I have to communicate with authorities in the Member States that follow an accreditation process to be part of my network)



Processing

Would your DG benefit from having **less overhead to process validation checks**?

Blockchain supports automated validation checks (e.g. in my business process I need to perform several lengthy steps to validate the issuance of official documents)



Trust

Would you benefit from having a **distributed storage with decentralised trust**?

Blockchain supports the establishment of a decentralised trust model where only validated parties are able to participate in the transactions (e.g. in my business process only accredited parties are able to send documents).



Transparency

Would you benefit from providing **transparent processes**?

Blockchain supports the establishment of transparent processes while proving authenticity/traceability of information to other entities (e.g. in my business process I want to be able to proof the authenticity and origin of documents).

Understanding EU Institutions' business processes

Would EBSI be useful for my entity and its current or future business processes?



Auditability

Do I need to easily **enable auditability of transactions**?



Compliance checks

Do I need to perform **automated compliance checks**?



Proof of data integrity

Do I need a **proof of data integrity**?



Timestamping

Do I need to **timestamp documents in the context of auditing**?



Enable trust

Do I need to **enable trust between different actors in the Member States**?



Authenticity of documents

Do I need to **authenticate documents**?



User identity & access control management

Do I need to enable **users to control their identity data and manage access to data**?

If **yes**, EBSI could support your DG.

2. Setup phase: two selected pilots

‘List of Trusted Lists (in the context of eIDAS)’ by DG CNECT H4

‘Notarisation of internal audit trails’ by the EC’s Internal Audit Service

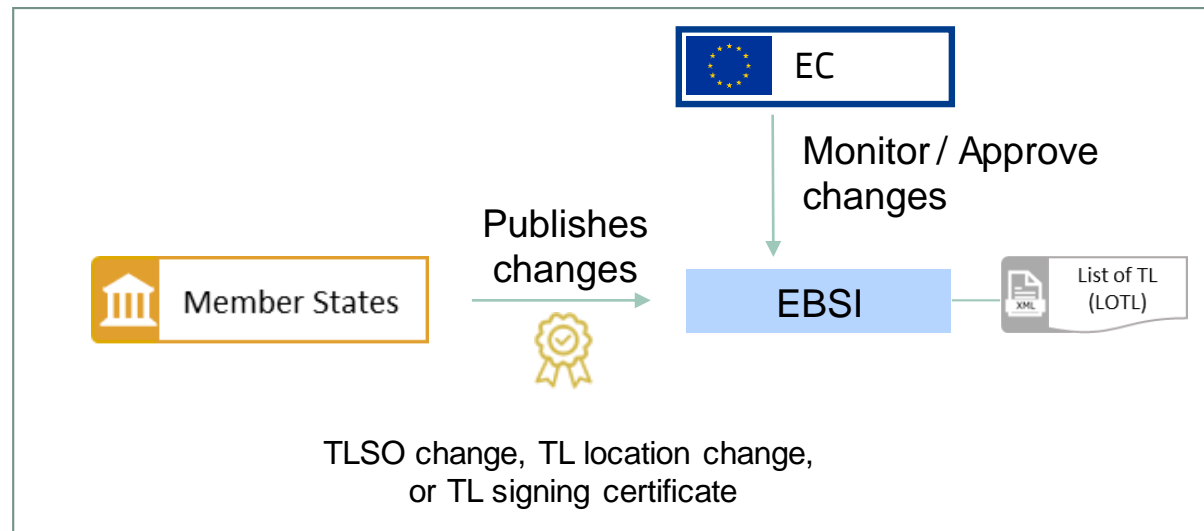
List of Trusted Lists (LoTL) – DG CNECT H4

USE CASE TITLE	List of Trusted Lists (LoTL)
BUSINESS OWNER	DG CNECT H4
DESCRIPTION	Publication of the LoTL, a public registry published by the EC (in the context of eIDAS), in the blockchain
ACTORS INVOLVED	<ul style="list-style-type: none">• Trusted List Scheme Operators (in the Member States)• EC's LoTL managers

List of Trusted Lists (LoTL) – DG CNECT H4

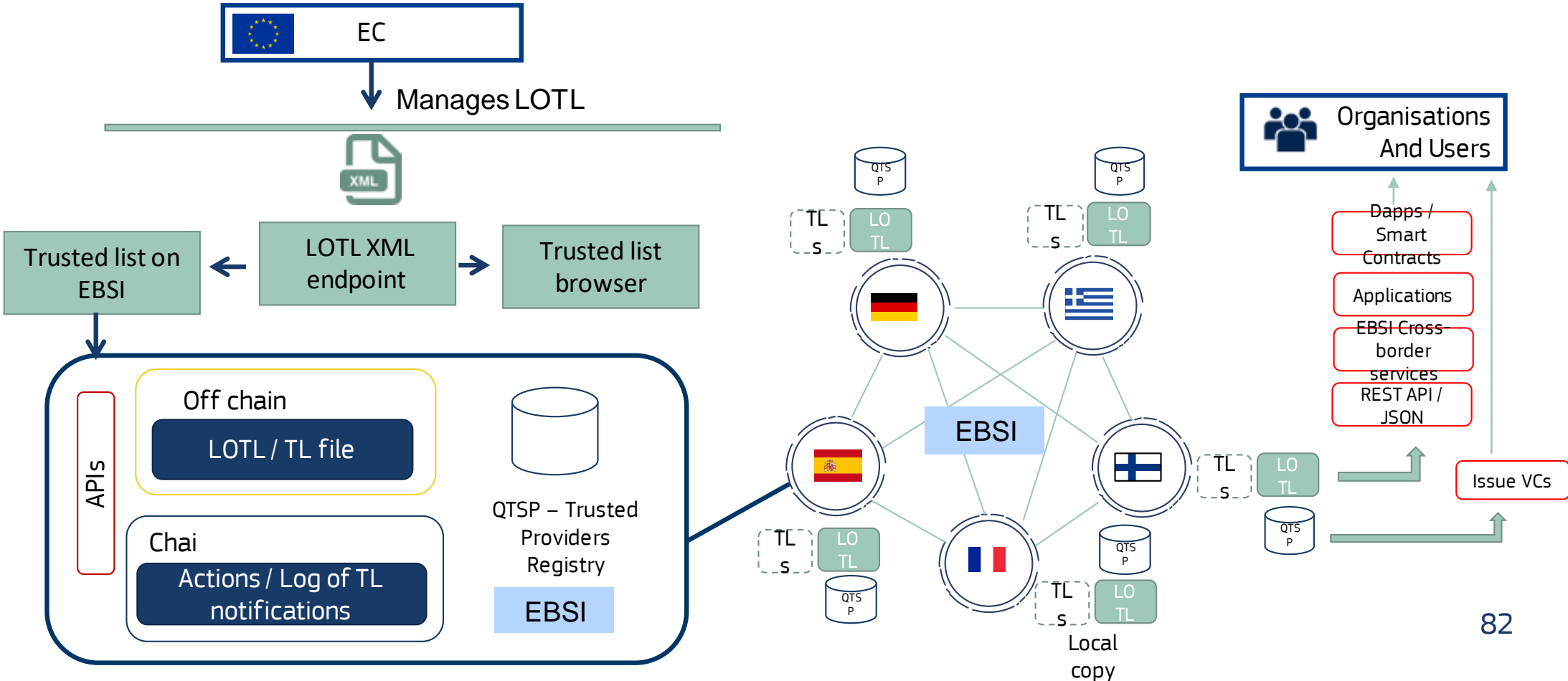
PoC Scope

An EBSI-based workflow to support **Trusted List Scheme Operators (TLSO) / Member States submit notifications / changes** on their Trusted List to the EC's List of Trusted Lists



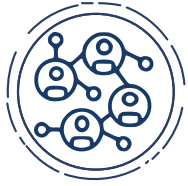
List of Trusted Lists (LoTL) – DG CNECT H4 PoC Vision

- Extend the use cases consuming the LoTL by publishing the lists to the EBSI nodes
- Further decentralize and automate the trust and cross-border services between the Member States



List of Trusted Lists (LoTL) – DG CNECT H4

PoC Benefits



Decentralised Trust and Transparency

Users can see the chain of changes / notifications and thus **Member States will be the pillars of trust** for the list.



Resilience

Taking the hosting of the individual Member States' lists from being hosted on 2+ hosting sites within one Member States to 20+ hosting sites, geographically **across the whole Europe**



Availability

Reduces the dependency on Member States to maintain availability

Adds availability of lists to all EBSI use cases, a business added value for EU Trusted List of Trust Service Providers



Real time audit

Adds **real time audit** as auditors have complete list locally to them

Contributing to Europe's vision for increasing **decentralization, auditability and traceability** and redefining **interoperable trust models** across different services.

List of Trusted Lists (LoTL) – DG CNECT H4

PoC in a nutshell



Create an EBSI Wallet

Get identified and receive Verifiable Credentials

Create a new notification about a Trusted List and notarize it

Approve and verify the TL of a Member State

The users' dashboard for their decentralised "identity" management and EBSI services

EC identifies / authenticates users and provides "Verifiable Credentials" that determine their role

Easy-to-use interface that allows creation and submission of a TL notification

Users can view the log of actions and verify the integrity/authenticity of a TL

Notarisation of internal audit trails - Internal Audit Service

USE CASE TITLE	Notarisation of internal audit trails
BUSINESS OWNER	IAS (Internal Audit Service)
DESCRIPTION	Use of blockchain to notarise audit actions, documents and evidences in the context of internal audits performed by the IAS
ACTORS INVOLVED	<ul style="list-style-type: none">• Internal EC entities and agencies that are audited by the IAS• IAS' team of auditors

Notarisation of internal audit trails – Internal Audit Service PoC Scope

This use case shows the adequacy of use of Blockchain technology to **support the Internal Audit execution process at IAS**. Notably for the following aspects:



Audit

Audit execution workflow (actions and approvals)

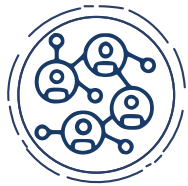


Authenticity

Guarantee the authenticity of audit related documents

Notarisation of internal audit trails – Internal Audit Service

Benefits from using EBSI



Decentralised Trust and Transparency

All **authorised users can see the chain of changes** and EBSI nodes are the pillars of trust.



Offline storage

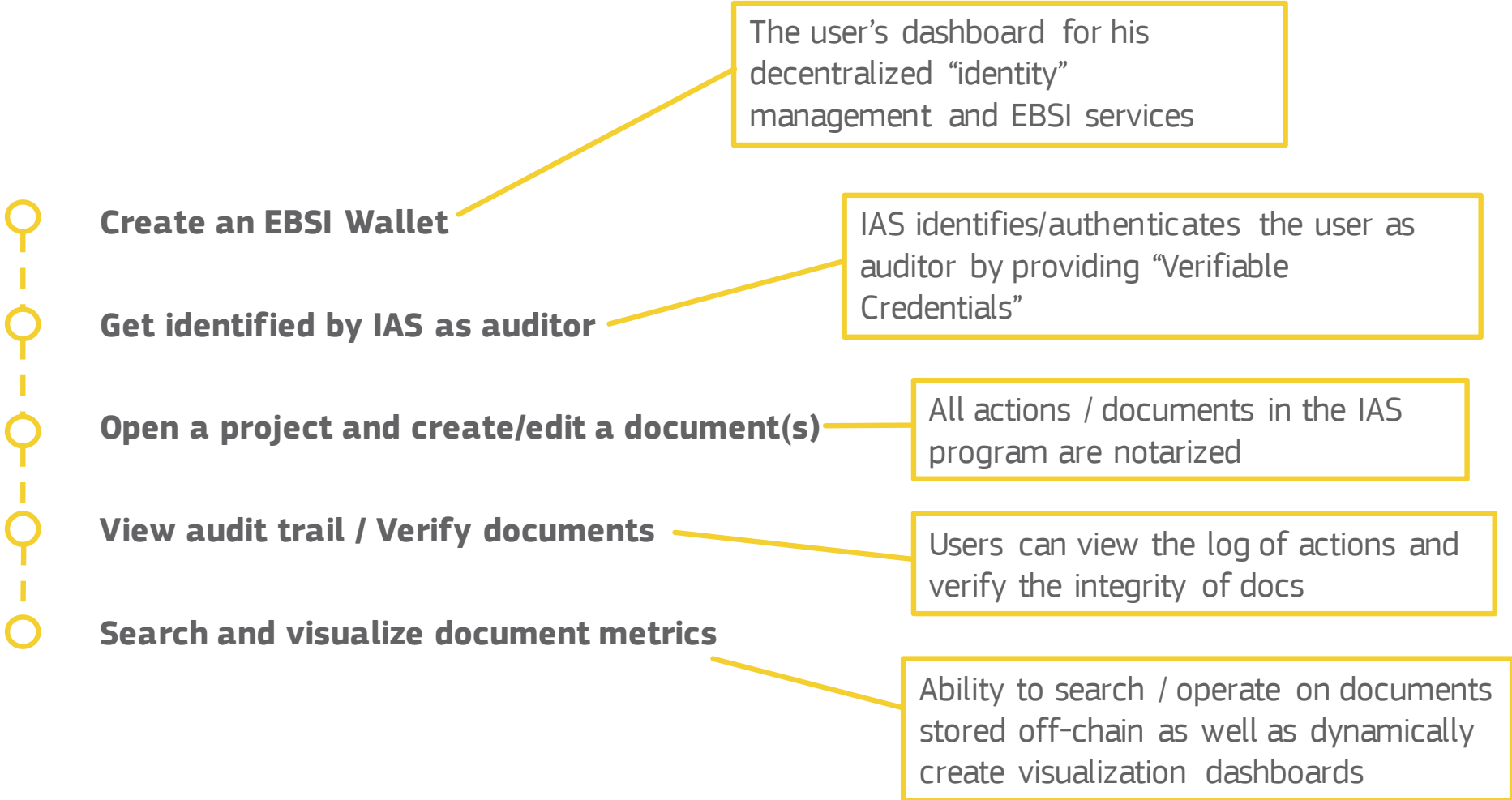
Enabling offline storage of documents in expert Content Management systems



Authenticity and integrity

Ensuring the **authenticity and integrity of actions and documents**

Notarisation of internal audit trails – Internal Audit Service PoC in a nutshell



07 Conclusion

Pierre Marro – **15 minutes**

The initial planning proposes to deep-dive into road mapping your pilot. But let's discuss together about what is best.

22 October 2020



**Design your
pilot scenario**



19 November 2020



**Roadmap
your pilot**



10 December 2020



**Kick-off
your pilot**



Go to www.menti.com and use the code 70 74 96 8

Thank you !