

European Business Ownership & Control Structures – Phase III

Project ISFP-2018-AG-IBA-EBOCS

Final Report

Deliverable

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We would like to thank the EBOCS partners for their contribution and dedicated support over the course of the EBOCS III project.

We are indebted to all experts and representatives of EU LEAs, FIUs, AROs, and business registers who have contributed towards the achievements made during the project. This includes the evaluation of and feedback on the EBOCS services and Visualisation Tool during the 10-month piloting period.

Europol have remained supportive of the EBOCS project and objectives through all phases and we would like to thank the colleagues who have continued to provide insight and officers to evaluate the EBOCS information services.

A special thank you is reserved for the Directorate-General (DG) Migration and Home Affairs of the European Commission for their support, which without this project would not be possible. The support and guidance provided by the project sponsor, Ms. Ute Stiegel and policy officer Mr. Giulia Caselli has been invaluable in achieving a successful outcome to this phase. They have afforded the project with exposure and access to the European ARO community for which we are extremely grateful.

Foreword

EBOCS III is a project carried out with the financial support of the Internal Security Fund (ISF) Police Annual Work Programme, 2018 under the full title: European Business Ownership and Control Structures - Phase III.

The project is sponsored by Directorate-General Home Affairs and has been established by an international consortium led by the European Business Registry Association (www.ebra.be) and consisting of the following project partners: Tower81 Associates Limited (Ireland); Enterprise Registry Solutions Limited (Ireland); Università Cattolica Del Sacro Cuore - Transcrime (UCSC) (Italy); Colegio De Registradores De La Propiedad Y Mercantiles De España (Spain); Registrate Ja Infosusteemide Keskus (Estonia); Sia Lursoft IT (Latvia); Oficiul National Al Registrului Comertului (Romania); Infocamere - Societa Consortile Di Informatica Delle Camere Di Commercio Italiane Per Azioni (Italy); PJMF Services Limited (Ireland).

The project was scheduled for an 18 month duration from 01 December 2019 to 31 May 2021.

Project Background

EBOCS was a follow-on project from BOWNET (www.bownet.eu) which was a European Commission funded research project. BOWNET was a feasibility study aimed at assessing what was necessary to develop an intelligent system able to search and integrate information on the beneficial ownership of legal entities for the purposes of anti-money laundering and other financial investigations.

The EBOCS project provides real-time information services for financial analysis and investigation purposes thus increasing the level of transparency on legal entities available today. EBOCS has developed an information network to provide simplified and unified access to business register data on business ownership and control structures.

EBOCS also provides CCAs with a Visualisation Tool (VT) that allows analysts and investigating officers to quickly search and trace ownership structures across multiple jurisdictions in a visual format that is pertinent to their investigation activities.

The objective of the project was to further build upon the achievements made to date within EBOCS. In addition to extending the breadth and depth of access to business registry data, this phase was tasked with achieving active piloting across the target CCA end users to qualify and highlight the benefits of the EBOCS tools and data services.

The specific objectives of the EBOCS III project were to:

- Extend the number of Business Register data providers
- Extend the piloting period through to May 2021
- Engage target user groups and achieve active piloting of EBOCS data services
- Deliver Visualisation Tool enhancements as requested by the target end users
- Progress towards a production level EBOCS service

This final project report presents the activities and results of EBOCS III – European Business Ownership and Control Structures (www.eboocs.eu). It details the development and outreach activities undertaken including analysis of ownership data and insights and feedback from the CCA end users.

Glossary

TERM	DEFINITION
AML	Anti Money Laundering
ARO	Asset Recovery Office / Asset Recovery Officer
BORIS	Beneficial Ownership Registers Interconnection System
BR	Business Register
CCA	Counter Crime Agency. We use the term Counter Crime Agency to encompass all authorities such as police, asset recovery agencies, Financial Intelligence Units and tax authorities who undertake preliminary or full investigatory activities.
BRs/Competent Authorities	This term encompasses business registers, Ministries of Justice, or other public agencies or authorities responsible for the operation of registries of legal persons.
GDPR	General Data Protection Regulation
VT	Visualisation Tool
BRIS	Business Registers Interconnection System
Legal Person	A legal (artificial) person is an association of people or special-purpose fund (e.g. a company/foundation) that is recognized by law as having legal personality.
Natural Person	A natural person is a real human being, as opposed to a legal person.
EBR	The European Business Register (EBR) is a network of National Business Registers and Information Providers from currently 17 European countries that is operated by the European Business Registry Association (EBRA).
Entity	A legal or natural person
Registered Entity	An entity that is registered on a legal register and is typically allocated a unique registration number
Registration Number	A unique number allocated to an entity registered in a business registry / competent authority. Will have to include country and in some cases the place of registration for countries with distributed registers.
SOAP	Simple Object Access Protocol

Executive Summary

Counter Crime Agencies (CCAs) operate with significantly different capabilities to identify the owners and controllers of corporate and legal entities that are registered within their jurisdictions. Since the inception of the EBOCS project, there have been significant developments in both European policy and legislation that are paving the way for increased transparency, that will help CCAs overcome the current challenges.

Some difficulties have been addressed by the implementation of the 4th Anti-Money Laundering Directive (**4AMLD**); however, the CCAs continue to operate without efficient and direct access to the data within the official registers at a pan-European level.

The 5th Anti-Money Laundering Directive (**5AMLD**) obligates the EU and the Member States that the national beneficial ownership registers be interconnected, via the European Central Platform. This will be facilitated via the Beneficial Ownership Registers Interconnection System (**BORIS**).

The implementation of BORIS will increase the accessibility and availability of beneficial ownership information of corporate and other legal entities, as well as of trusts and other types of legal arrangements. BORIS will provide CCAs with timely access to information to identify **WHO** the ultimately beneficial owner is; however, in the fight against financial crime, the **HOW** is equally important. The nature and complexity of the ownership and control structure; the jurisdictions employed; the type of owner and lifespan of ownership are all important attributes that indicate how an entity is owned and are crucial for risk assessment and investigative activities.

The vision for EBOCS is resolute and remains unchanged from the initial concept. The objective is to develop dedicated tools for CCAs to gain efficient and effective access to business ownership and control structure information

from the official Business Registers.

Within this project we have designed, developed and tested tools with the collaboration and support of the AROs, FIUs, Europol and European Commission to ensure that we deliver robust and fit-for-purpose solutions that will support their daily activities.

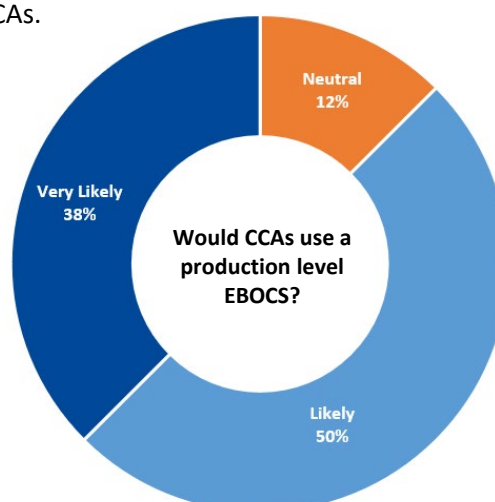
EBOCS Piloting

As part of the assessment and validation of the EBOCS Visualisation Tool, colleagues from various AROs, FIUs and Europol, kindly agreed to evaluate the Visualisation Tool. We achieved excellent coverage and successfully recruited 82 ARO and FIU officers across 13 jurisdictions.

Insight and feedback was collected via user surveys at the end of the 10-month piloting period. The output of the survey was extremely positive with 88% of respondents indicating that a production level EBOCS service would benefit investigations within their organisation.

Coverage is an important issue and the users requested that data sources from all European jurisdictions be integrated with the EBOCS service.

Within this report we have documented the project outcomes and considered how a production level service could be achieved. Clarity is required regarding the in-train EU initiatives and the role that EBOCS could play in their implementation and the broader support of CCAs.



Project Partners

The project partners participating in the EBOCS piloting extension are as follows:



We have received significant support from associated partners such as the Companies Registration Office, Ireland who provided extensive access to their data; and Kamer van Koophandel in the Netherlands has closely followed the project as an observer. We thank them for providing their support and subject matter expertise throughout the course of the project.



Activities & Deliverables

Activities

The ultimate objective of the EBOCS project is to design and implement effective information services to support ARO and FIU officers with their investigation activities. The project activities undertaken by the EBOCS partners were structured across four distinct work packages: 1) Project Management and Coordination 2) EBOCS Platform 3) Gateway Components and 4) Outreach Engagement and Production Ready Assessment

Deliverables

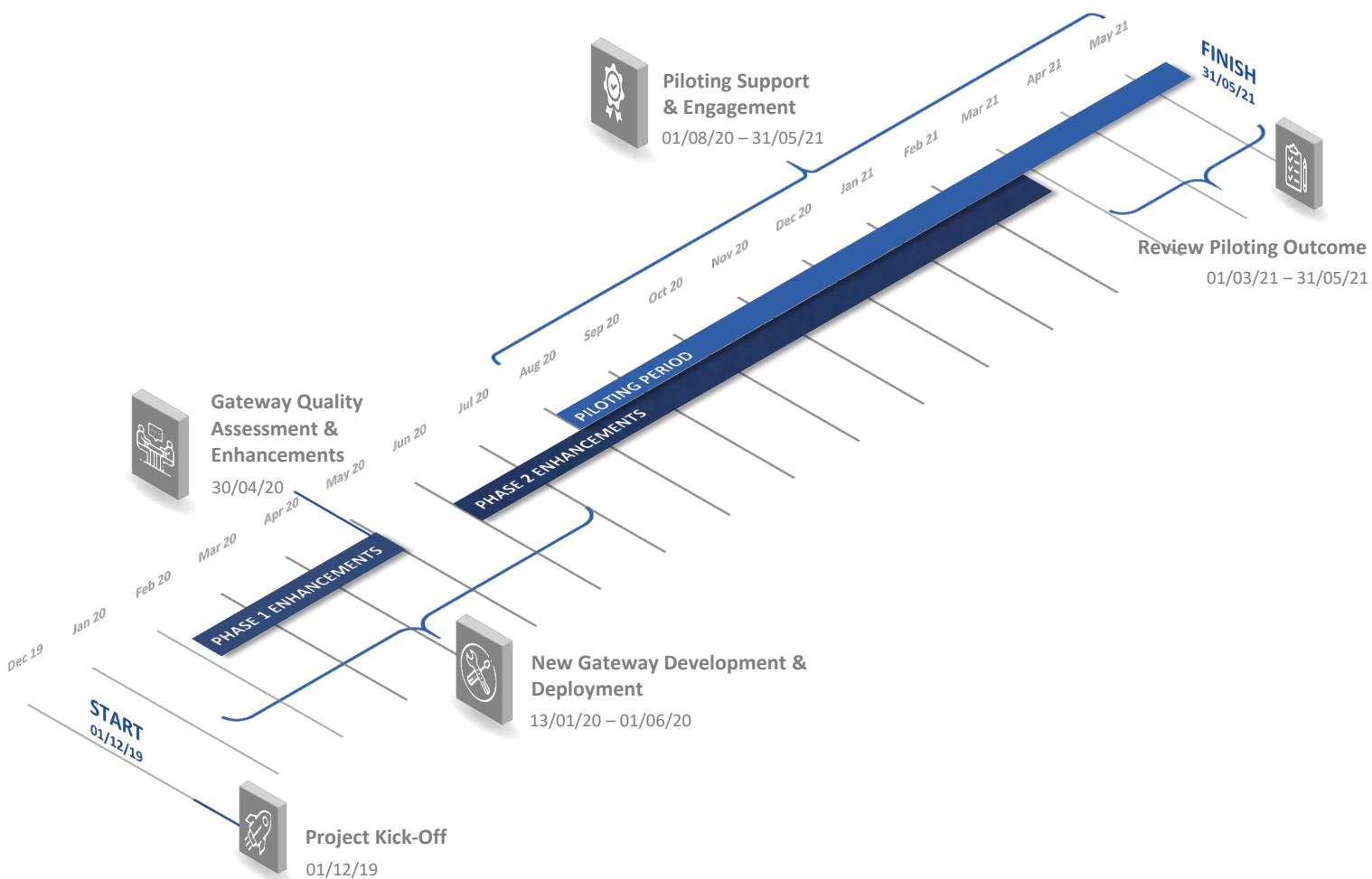
A summary of the project deliverables is presented in the following table, detailing the format of the final deliverable and the completion date.

This report (deliverable D6) presents the overall results of the project and acts as a single point of reference with the key highlights from the individual project deliverables.

	Title	Format	Due
D1	Project Description of Work	Report	31 Dec 2019
D2	Internal Project Plan	Report	31 Dec 2019
D3	EBOCS Collaboration Portal	Website	31 Dec 2019
D4	External EBOCS Website	Website	31 Dec 2019
D5	Project Status Update Reports	Report	31 May 2021
D6	Final Project Report	Report	31 May 2021
D7	Visualisation Tool and Platform Enhancements Specification	Report	31 May 2021
D8	Develop Visualisation Tool Enhancements	Other	31 May 2021
D9	Visualisation Tool and Platform Quality Assessment	Report	31 May 2021
D10	EBOCS Support Helpdesk	Website	31 Dec 2019
D11	Integration Guidelines (Gateway)	Report	31 Dec 2019
D12	Partner Gateways	Other	31 May 2021
D13	Outreach Strategy and Communication Plan	Report	31 Mar 2020
D14	Revised Terms of Access and MOU	Report	30 April 2021
D15	EBOCS Production Level Roadmap and Plan	Report	31 May 2021

Project Timelines

The following graphic illustrates the high level activities and delivery schedule for phase III of the EBOCS project. The project ran for an 18 month period, commencing on the 01 December 2019 and concluded on 31 May 2021.

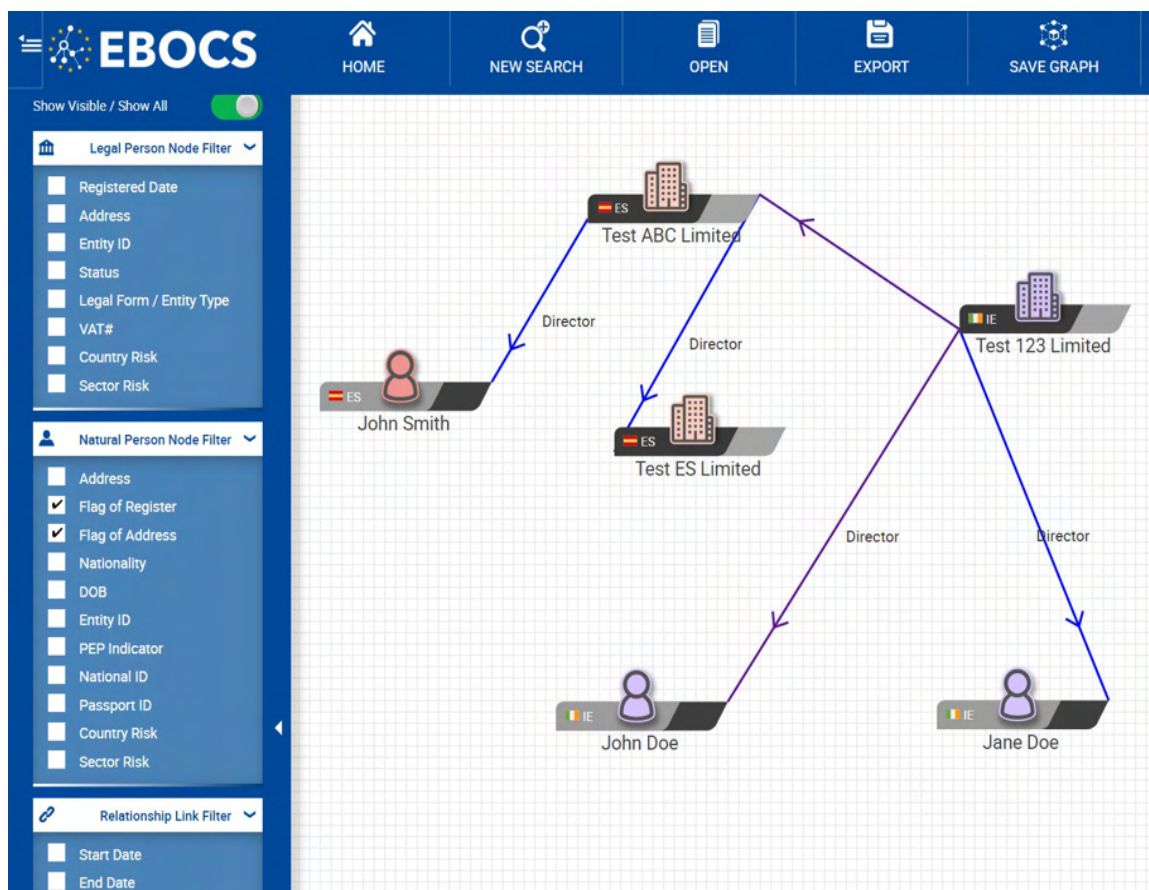


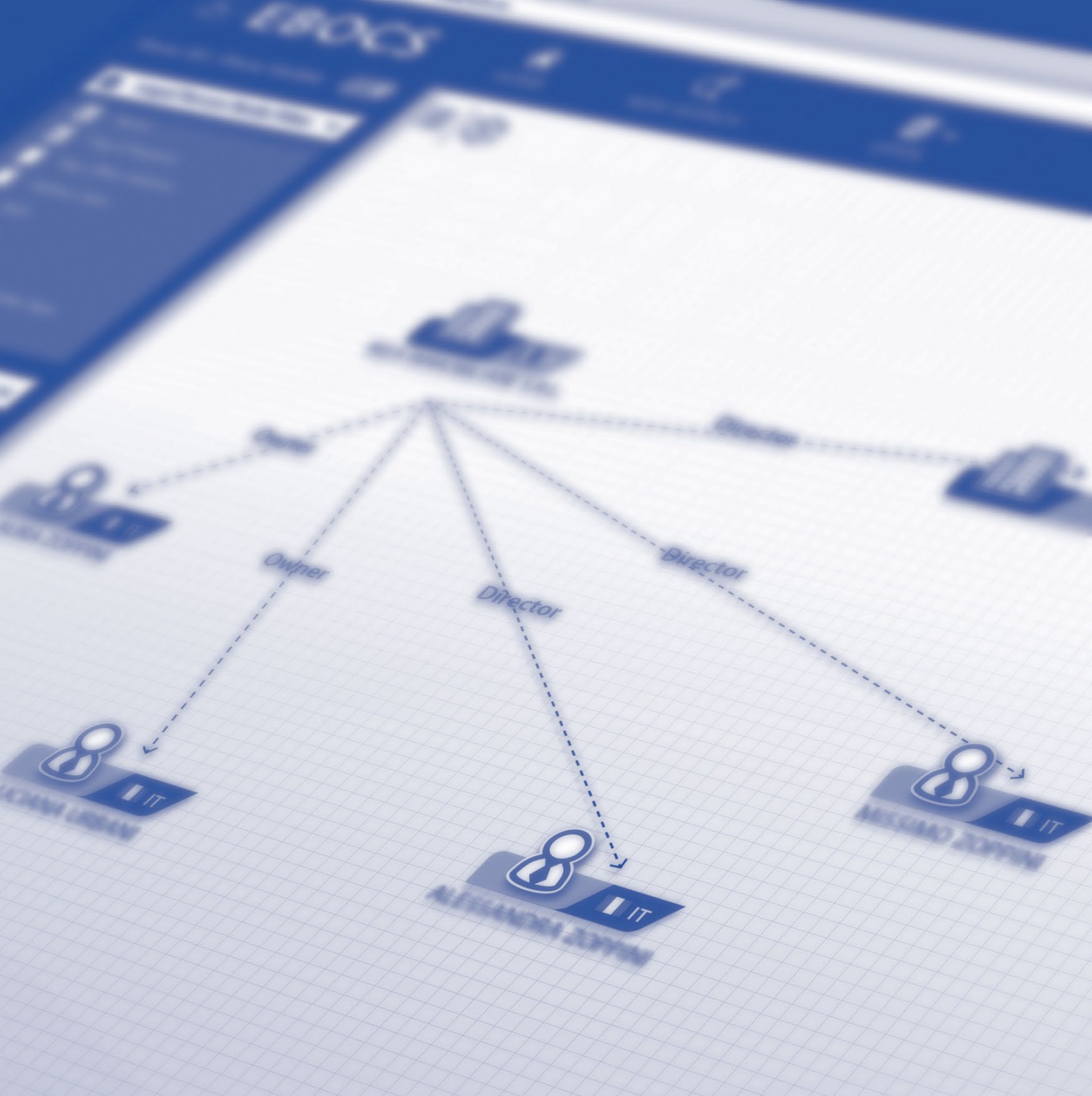
EBOCS Visualisation Tool

The EBOCS Visualisation Tool is an online graphical tool that aggregates ownership and control structure information from the primary Business Register data sources. The information is retrieved in real time from the official national data repositories and is presented to the end user in a graphical representation.

It provides users with a simplified representation of how natural and legal entities are linked to each other at both a national and cross border level. This central tool provides a feature rich mechanism for CCA users to develop a complete graphical view of their investigation results.

Within this report, we present the Visualisation tool functionality, including new features that have been added during this phase of the project following consultation with the CCA piloting users.





1 EBOCS Piloting

EBOCS Piloting

Overview

Piloting the EBOCS services with the European Counter Crime Agencies (CCA) was a key component of this phase of the project. Although the pandemic impacted our outreach and engagement strategy, we adapted our approach and adopted a digital engagement campaign. With the support of our project sponsor, and the project partners, we successfully recruited 82 piloting officers from the ARO and FIU communities.



The seven countries providing the Business Registry data for this piloting phase are as follows:



Estonia



Ireland



Italy



Latvia



Romania



Spain



United Kingdom

As part of the assessment and validation of the EBOCS Visualisation Tool and integrated information services colleagues from the Asset Recovery Offices, Financial Intelligence Units and Europol agreed to evaluate the Visualisation Tool.

82 Piloting Officers across 13 jurisdictions



Belgium



Czech Republic



Estonia



Finland



France



Germany



Italy



Latvia



Lithuania



Luxembourg



Malta



Romania



Spain

Outreach & Engagement

In Q1 2020, the project team agreed a strategic approach for the successful recruitment of piloting users.

As part of our outreach and engagement programme, we proceeded to :

- Identify EBOCS stakeholders
- Create a preliminary list of target ARO/FIU users
- Identify potential EBOCS CCA champions
- Leverage relationships with ARO/FIU stakeholders from previous EBOCS phases
- Leverage support from the Project Sponsor to promote to and access the ARO / FIU communities
- Prepare marketing and training material
- Engage and support EBOCS Champions / Users

It was agreed that we should leverage our existing network by actively promoting to the FIUs and AROs of the partner jurisdictions.

Users who participated within the EBOCS II project were also identified as target pilot users.

In order to support project partners with the engagement activities, the project team produced promotional documentation and updated terms of access to support the piloting period. The EBOCS user manual was provided as part of a briefing pack to present a complete overview of the EBOCS service features to candidate pilot users.

The official piloting phase ran for a 10-month period commencing 01 August 2020.

Outreach and Support

In previous phases of the EBOCS project, we had the opportunity to showcase EBOCS at in-person ARO / FIU meetings. The pandemic clearly impacted such gatherings; however, we adopted a digital outreach approach and

held virtual meetings and webinars to showcase EBOCS services.

Support webinars were hosted to encourage and support user piloting by providing information on:

- EBOCS Information Services
- Data Coverage
- Key Features
- Phase I Enhancements
- Future Enhancements
- Integration with AML Risk Indicators
- Security Features

Feedback

The piloting phase concluded in May 2021 and we launched a structured questionnaire to survey the participating pilot users.

The purpose of this survey was to gain valuable insights and feedback as to the quality and real-world value of the EBOCS information services. The survey focussed on data quality, usability and perceived value relating to the speed and accuracy of the tools and information services. It was important to qualify the value of EBOCS in supporting the CCAs with their investigations and analysis.

During the pilot period, we recruited 82 piloting officers from 13 jurisdictions. Within the survey, we achieved representation from 8 of the 13 participating jurisdictions.

Within the following sections, we provide a synopsis of the survey results under the headings of Visualisation Tool usability; Information Services Data Quality; Time and Resources; Service Readiness; and Production Level Service.

User Insights and Feedback

Data Quality

The majority of pilot users rated the quality of coverage as 'good'. Coverage relates to the actual data set provided via EBOCS as opposed to the number of jurisdictions or Business Registry data providers connected to the platform. No significant gaps in the EBOCS data set were identified; however, when additional Beneficial Ownership registers come online it is important that access is made available.

When asked if there were any particular jurisdictions that users would like to see added to the EBOCS network, the feedback typically indicated that information from every EU Member State is required. Some users expressed an interest in access to jurisdictions beyond the European borders.

Visualisation Tool (VT) Usability

Users feedback regarding the VT tool itself was very positive. It was acknowledged that the tool will *"make an investigation, especially concerning cross border company structures, more efficient"* and that *"if more Business registries would be added, EBOCS will be a vital tool for AROs"*.

New Feature Requests / Enhancements

Respondents provided some excellent feedback in relation to highlighting new features and enhancements to the online visualisation tool.

This included a request to develop an EBOCS API service to allow the FIU's to import EBOCS information into their existing core systems and tools to support investigation activities.

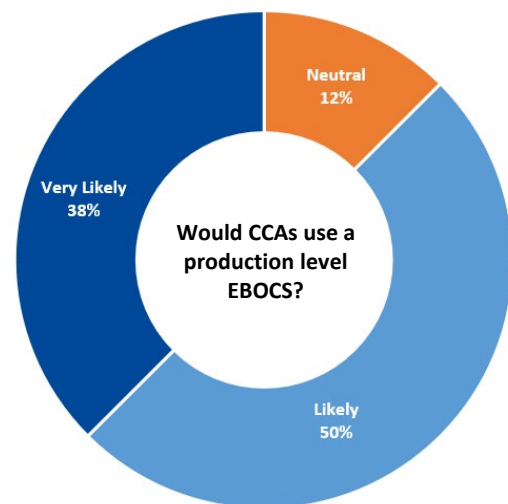
Efficiency / Service Readiness

The vast majority of users believed that the EBOCS information services would deliver a saving in relation to both time and human resources.

Respondents indicated that the service is currently at a good level in relation to service readiness.

Summary

The vast majority (88%) of users indicated that, if the EBOCS visualisation tool was made available as a production level service, their organisation were 'likely' or 'very likely' to use the tool to support their investigation activities.

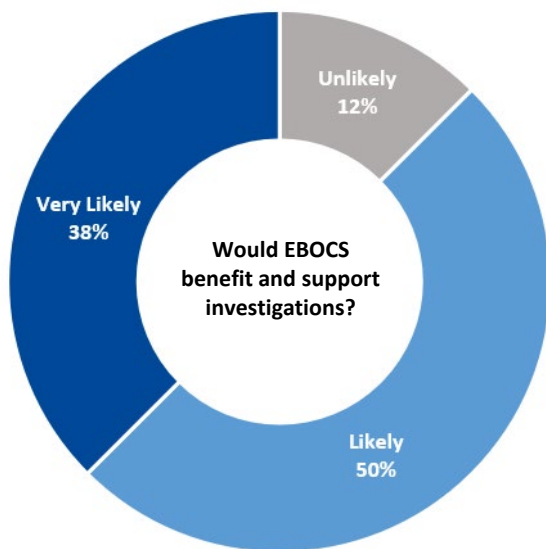


The visualisation tool was "useful, easy to use and informative" and "if more business registers were added, EBOCS would be a vital tool for AROs."

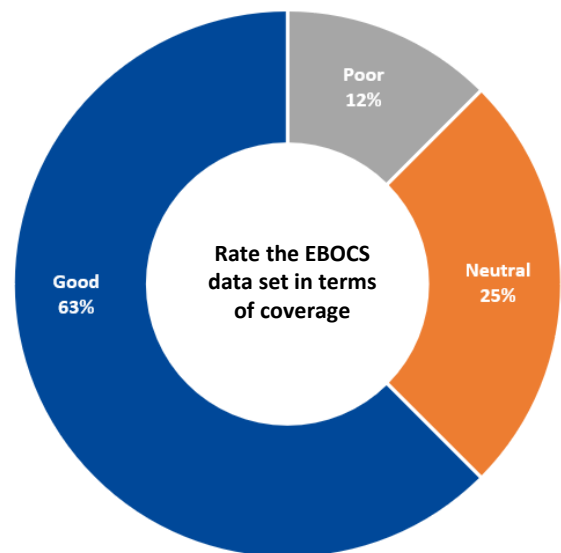
"The EBOCS platform will definitely make an investigation, especially concerning cross border company structures, more efficient."

Visualisation Tool

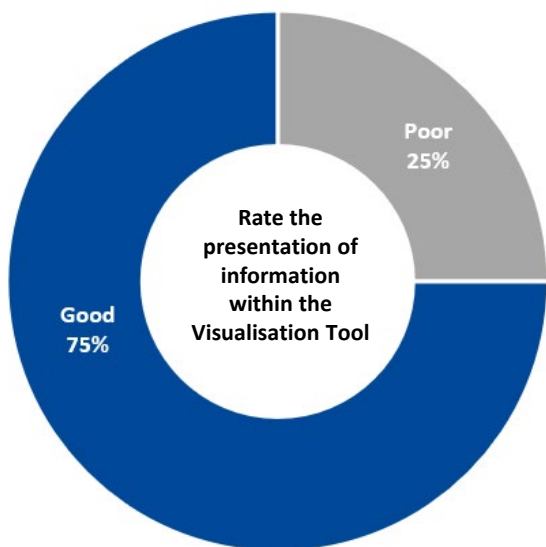
The vast majority (88%) of respondents indicated that a production level EBOCS service would be beneficial and support their investigation activities.



When asked to rate the current information coverage (i.e. the data set as opposed to the number of business registers that have participated in the pilot), the majority of respondents rated the current information coverage as 'Good'.

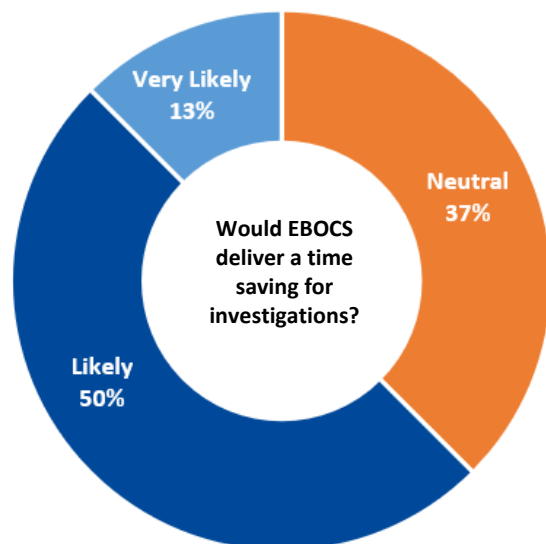


When asked to rate the presentation of information within the online visualisation tool, 75% of respondents rated the presentation as 'Good'.



Time and Resources

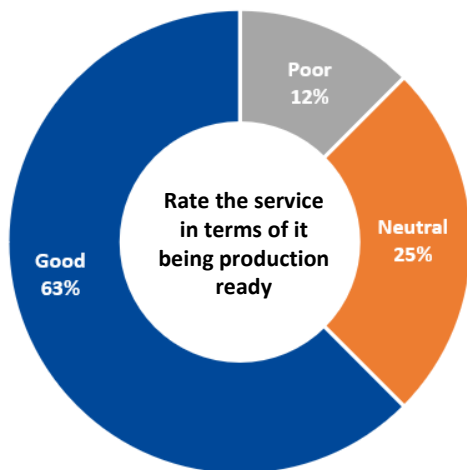
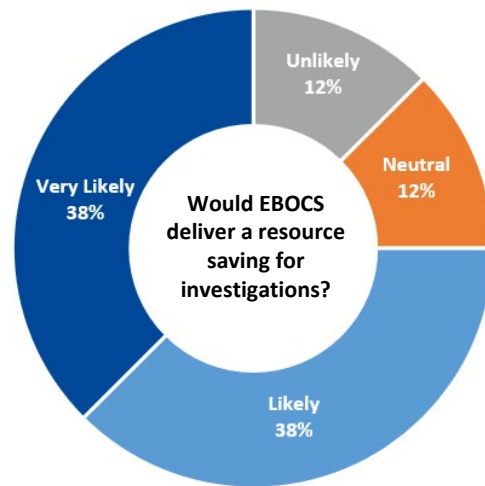
The majority of participants believed that the EBOCS services would at least be 'Likely' to deliver a saving in relation to time; with no respondents indicating that services would NOT deliver a saving.



Human Resources

Similarly, respondents rated EBOCS to be 'Likely' or 'Very Likely' (76%) to deliver a saving in relation to human resources. It is likely that EBOCS will allow resources to be repurposed away from mundane data collection to further value-added areas in the investigation process.

It was commented that *"While the EBOCS platform will save time, especially when accessing information about foreign companies, it will most certainly not lead to a decrease in human resources, at least not in its current form. It will definitely make an investigation, especially concerning cross border company structures, more efficient."*



Service Readiness

The piloting participants were questioned on the service readiness of the EBOCS Visualisation Tool.

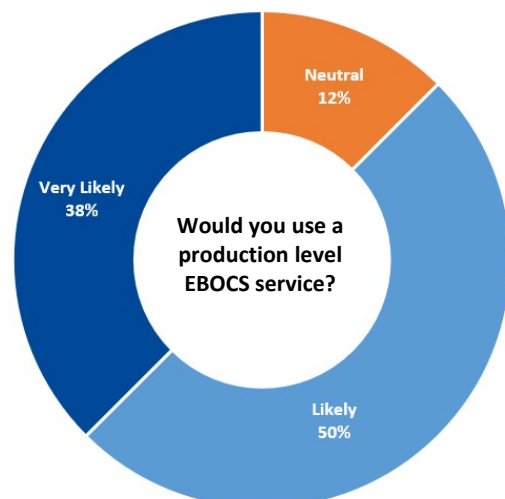
The majority (63%) rated the services readiness as 'Good' with 25% of respondents having a 'Neutral' opinion regarding this topic.

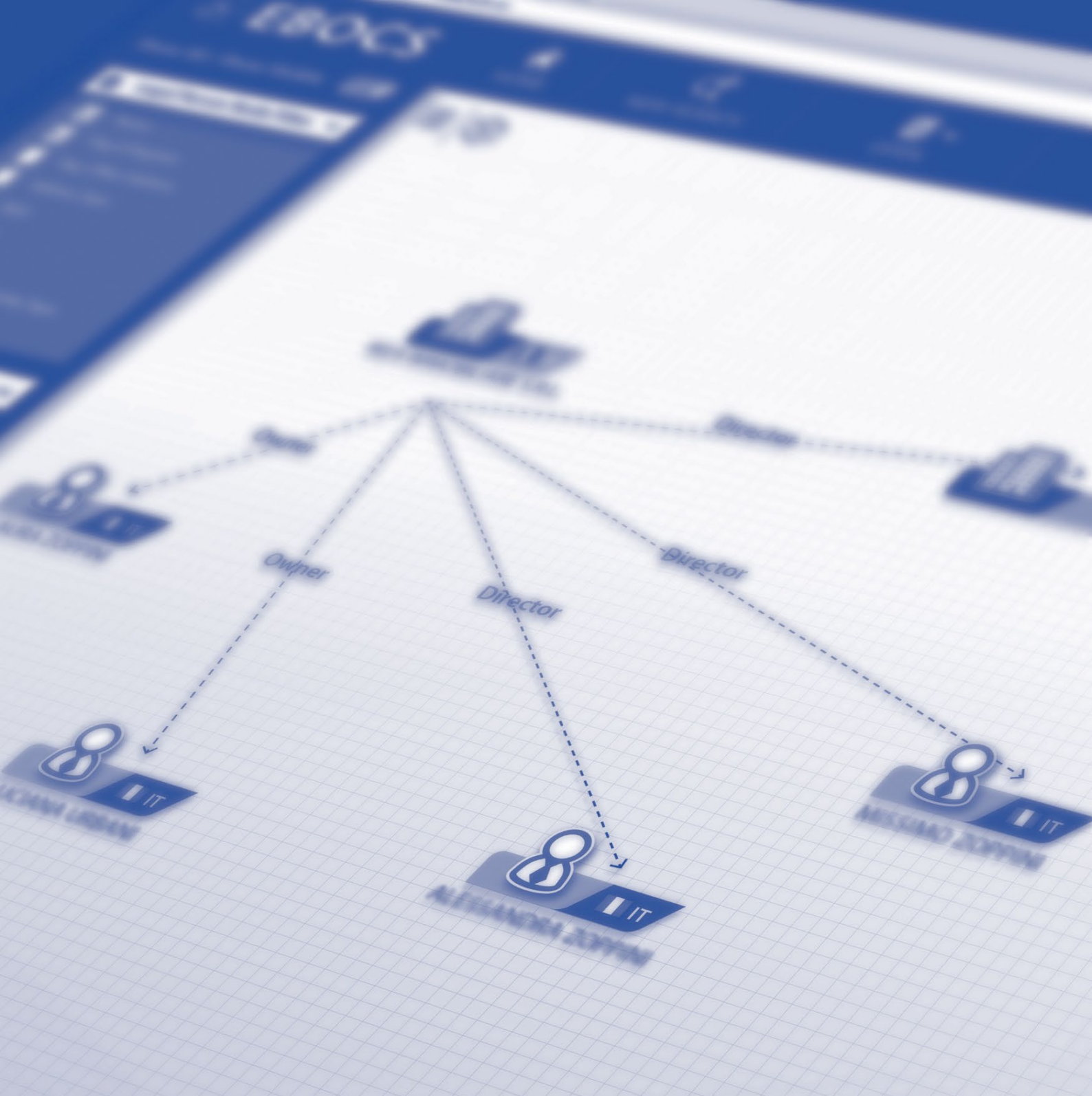
It was noted that the visualisation tool was useful in its current form, however, further business registers need to be added for the service to be effective.

Production Level Service

Finally, participants were asked to indicate how likely their organisation would be to use the EBOCS Visualisation Tool if it was made available as a production level service.

The vast majority (88%) indicated that they would be at least 'Likely' to use the service with 38% of these indicating that it would be 'Very Likely' for their organisation to use the EBOCS tools and services.



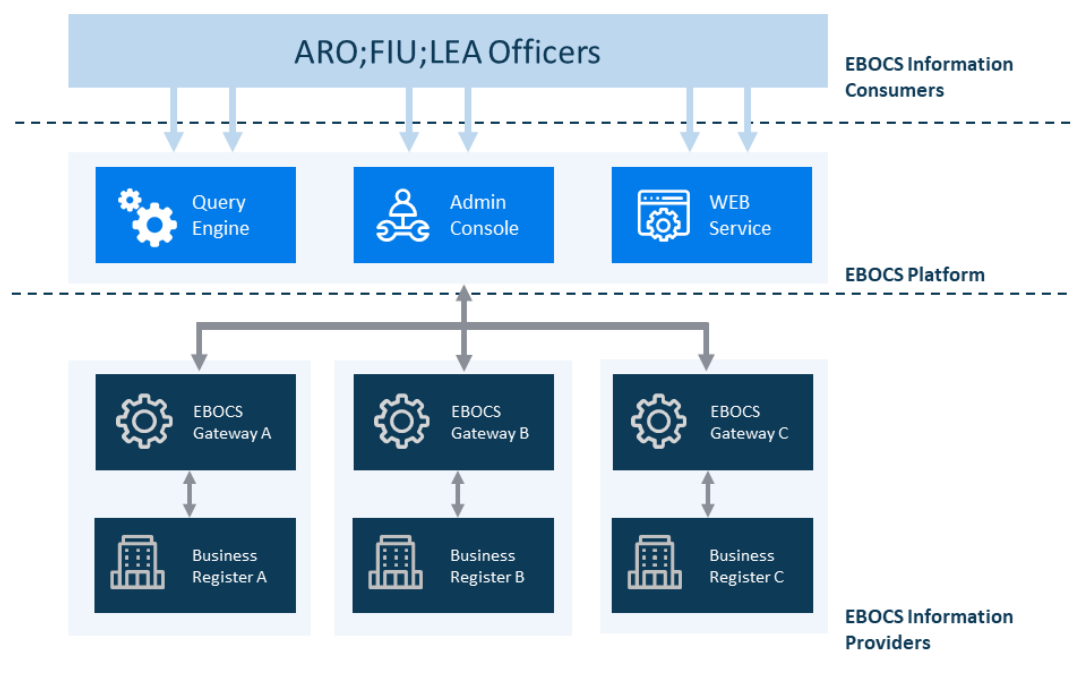


2 EBOCS Platform

EBOCS Platform

Within this section, we present a technical overview of the EBOCS platform including the implemented components and information web services.

The EBOCS information network is comprised of the EBOCS Information Providers; Information Consumers; and the connecting EBOCS Platform.



The EBOCS platform offers CCAs a single point of access to a network of business registers. The platform satisfies the CCA requirements by providing data services that support a set of defined use cases to traverse ownership and control networks at a national and trans-European level.

The platform provides a number of components and interfaces to facilitate the exchange of information between the business registers and the CCAs.

The platform employs a Service-Orientated Architecture (SOA) with a SOAP based interface that is implemented by the Business Registers as a gateway to their registry databases.

Apart from the document delivery, the EBOCS services support a synchronous message delivery approach.

The EBOCS Platform is a central system of components that facilitate the exchange of information between the data providers and consumers.

EBOCS Platform

EBOCS Information Providers

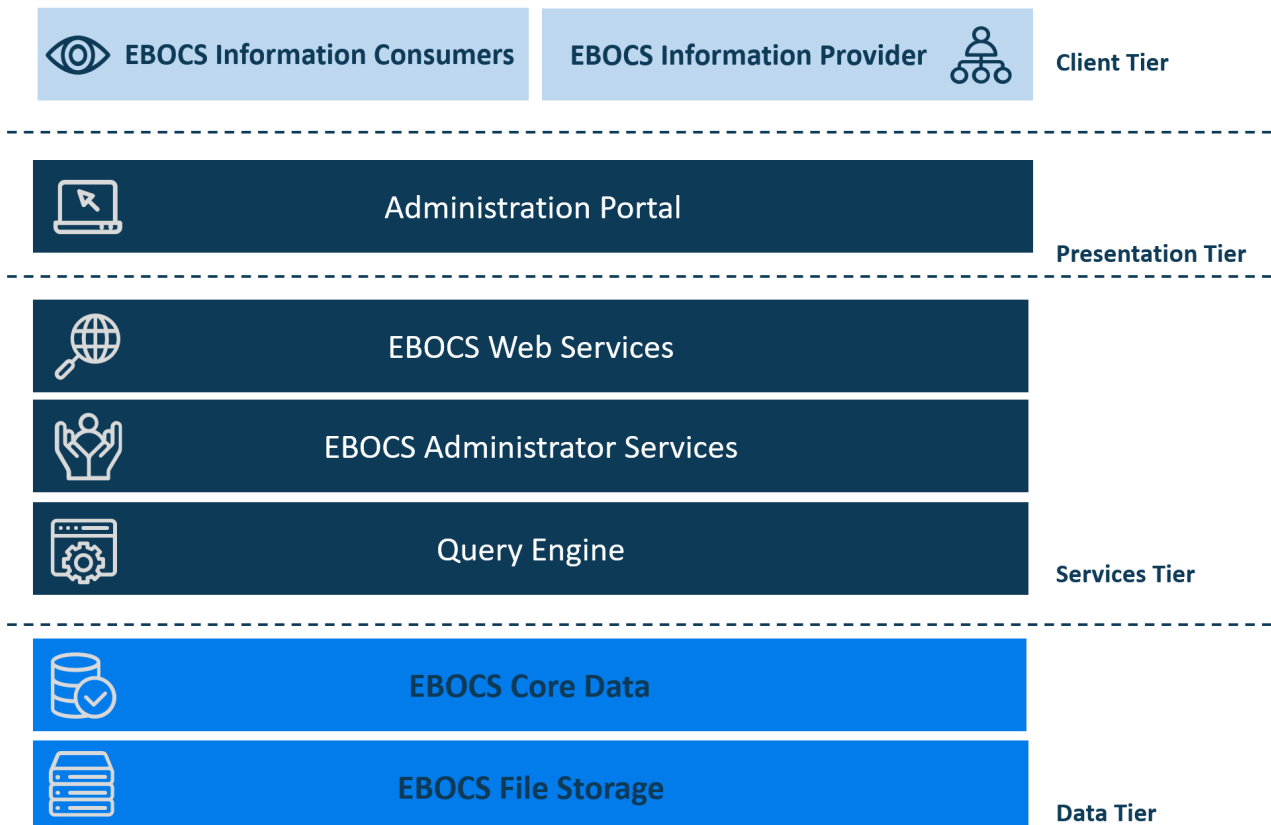
This encompasses the participating Business Registers and their systems that supply information to the EBOCS services.

EBOCS Information Consumers

The consumers of EBOCS services are the CCAs (or intermediaries) that require access to corporate information to support their investigations.

The EBOCS platform adopts a multi-tiered architecture that decouples the data, content and presentation layers. This design ensures that the developed services have the possibility to be reused in a production level EBOCS service which may adopt a different service architecture or technology stack.

The adoption of a central architecture has provided a rapid and agile development of the system components and has allowed the project to maximise the development of the EBOCS services in accordance with the project's schedule and budgetary constraints.



In order to connect to EBOCS the CCA users must register with EBOCS and provide the necessary security information to be fully setup on the system.

The visualisation tool that consumes the EBOCS services integrates directly with the platforms web services.

The EBOCS Information Providers (currently limited to business registers) implement a

local gateway interface which allows their data to be queried through the EBOCS Platform. Data providers are required to return messages in a specified format.

Within the next sections we will present the details of the major platform components.

Comprehensive information on all platform components are available in the EBOCS system specification documentation.

Overview - EBOCS Platform Components



Administration Portal

A standalone portal that interfaces with the EBOCS platform, underlying components and data requirements to provide administrative services such as gateway configuration, test/diagnostic support; user management and semantic lookups to the EBOCS providers and consumers.



EBOCS Web Services

A core set of web services that allows Information Consumers to access EBOCS data. Individual web services are available for each EBOCS use case.

Administration Portal

The Administration Portal provides functionality to the system and user administrators. The table below presents the range of services and functionality provided within the portal.

Test Services / Diagnostic Information	This allows admin users to test connectivity to partner nodes and view any connection error messages that may be encountered.
EBOCS Gateway Configuration	Admin users can view the current end address for their gateway service endpoint and update it if necessary; they also have the ability to configure a fail-over/DR gateway.
Account User management	Admin users are able to add, delete and update users associated with their account through the Admin Portal. This allows more than one user per provider/consumer to access the portal, for example a provider may wish to have two users that can access the portal: a technical and business user.
Contacts	A list of all EBOCS contacts are available for viewing in the Admin Portal; users are able to edit contacts associated with their accounts only. This list of contacts is particularly useful for maintaining the current technical contacts for each partner involved in EBOCS.
Downloads	A number of files are available for downloading including Integration Guides, Help files and sample code.
Knowledge Repository	The EBOCS knowledge repository stores supporting information regarding data sources. Additional information provides support to the CCA's when consuming the EBOCS data services.

EBOCS Web Services

The EBOCS Web Services are made up of a number of SOAP based services which provide the core functionality of EBOCS to the CCA users. These core web services are as follows:



Search Registered Entity

This service allows users to search and identify a specific registered entity. A registered entity is a natural or legal person that is registered on a public register and is typically allocated a unique identification number.

Pre-Conditions

Some of the following attributes are available to the user for the purpose of identifying the natural person:

- National identification number
- Passport number
- Name (full or partial)
- Date of birth
- Tax/Social security number
- Address

For a legal entity, some of the following must be available:

- Registration number
- Registered name (full or partial)
- Tax number
- Registration date
- Address



Get Officers And Owners

This service allows users to find the officers and owners of a specific registered entity.

Pre-Conditions

The registration identification and place of registration for the registered entity is known.



Search Officers And Owners

Using a natural or legal person as a starting point, this service allows users to find registered entities where the specific natural or legal person is an officer or owner.

Pre-Conditions

Some of the following attributes are known to the user:

- National identification number
- Registration number
- Place of registration
- Passport number
- Name (full or partial)
- Date of birth
- Tax/Social security number
- Registration date
- Address
- Country



List Documents

This service allows users to find the documents for a specific registered entity.

Pre-Conditions

The registration identification of the legal person is known to the user for the purpose of executing the search.



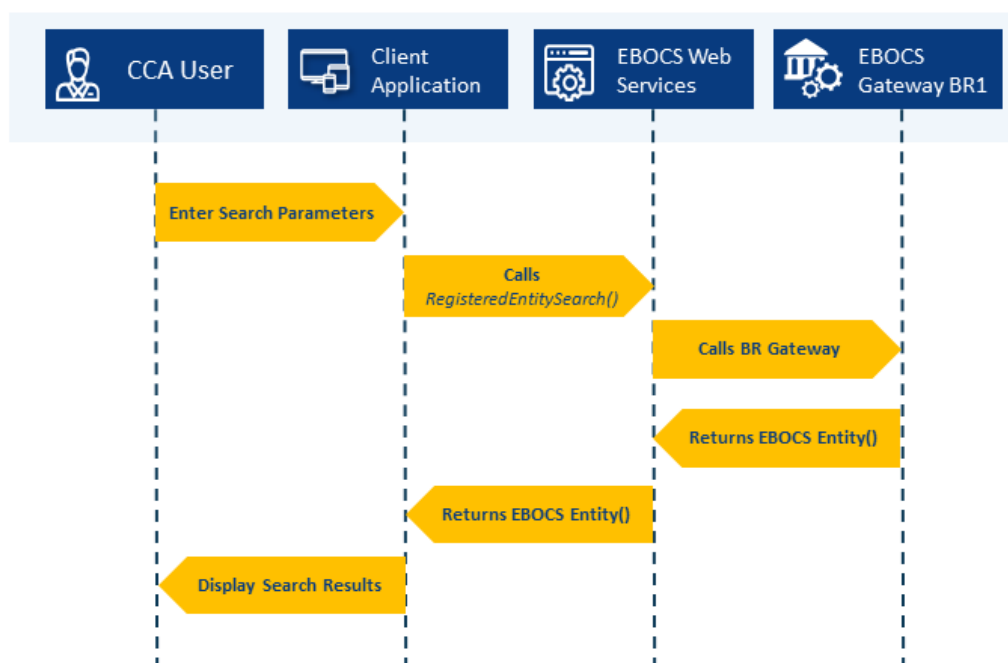
Order Document

This service action allows users to order the specific document from the provider for a specific registered entity.

Pre-Conditions

The registration identification of the legal person is known to the user.

The following sample sequence diagram is provided for the Registered Entity Search service and highlights the message flow for all EBOCS synchronous information services.



Registered Entity Search

EBOCS Information Providers

Building upon the research of the BOWNET project, EBOCS has targeted business registers as the sole source of information to facilitate the EBOCS prototype service. Six Member States have integrated with the EBOCS platform and are providing access to detailed business registry information.

The business registers from Estonia, Ireland, Italy, Latvia, Romania and Spain have undertaken the work necessary to supply EBOCS with data. Through their in-house teams and technical partners, they have developed national EBOCS gateways and have become the sole providers of business registry data to enable the EBOCS services.

Over 22 million companies and 43 million officers and owners are searchable on the EBOCS network. The accessibility and volume of data provided highlights the potential power of EBOCS if the service is implemented at a pan-European or global level. The services possible with access to this quantity of information will provide a valuable asset in the fight against financial and economic crime.

Business Registers Profile

The Business Registry domain contains a diverse set of operating structures from central and distributed administrative offices through to judicial proceedings operating under the auspices of the Ministries of Justice.

In addition, the Global business registration authorities operate under different business and cost-covering models. The EU business registries are required under EU directive to operate under a not-for-profit cost-recovery approach while counterparts within the domain act in a more commercial manner and are effectively a tax-collector for the jurisdiction.

There are therefore many different factors that impact the diversity of the underlying IT systems that underpin the business registers and determine the feasibility, quality of data/integration; and cost of supporting initiatives such as EBOCS.

EBOCS Integration

All Information Providers integrating with the EBOCS platform are required to develop and maintain an information provider gateway. These gateways provide access to the national registry data stores and facilitate queries by the EBOCS core web services.

Information Providers are also required to present meta-data regarding the document types and generally information that help the CCAs (Information Consumers) to perform searches.

Information Providers are not restricted to a specific technology stack when developing their EBOCS gateway. Any programming language will suffice once it can support the SOAP specifications. The information providers currently participating in EBOCS have implemented gateways using the .NET, PHP and JAVA technologies.

Prior to full integration with the EBOCS Information Network, Information Providers

were required to complete functional testing and sign-off activities.

EBOCS Information Consumers

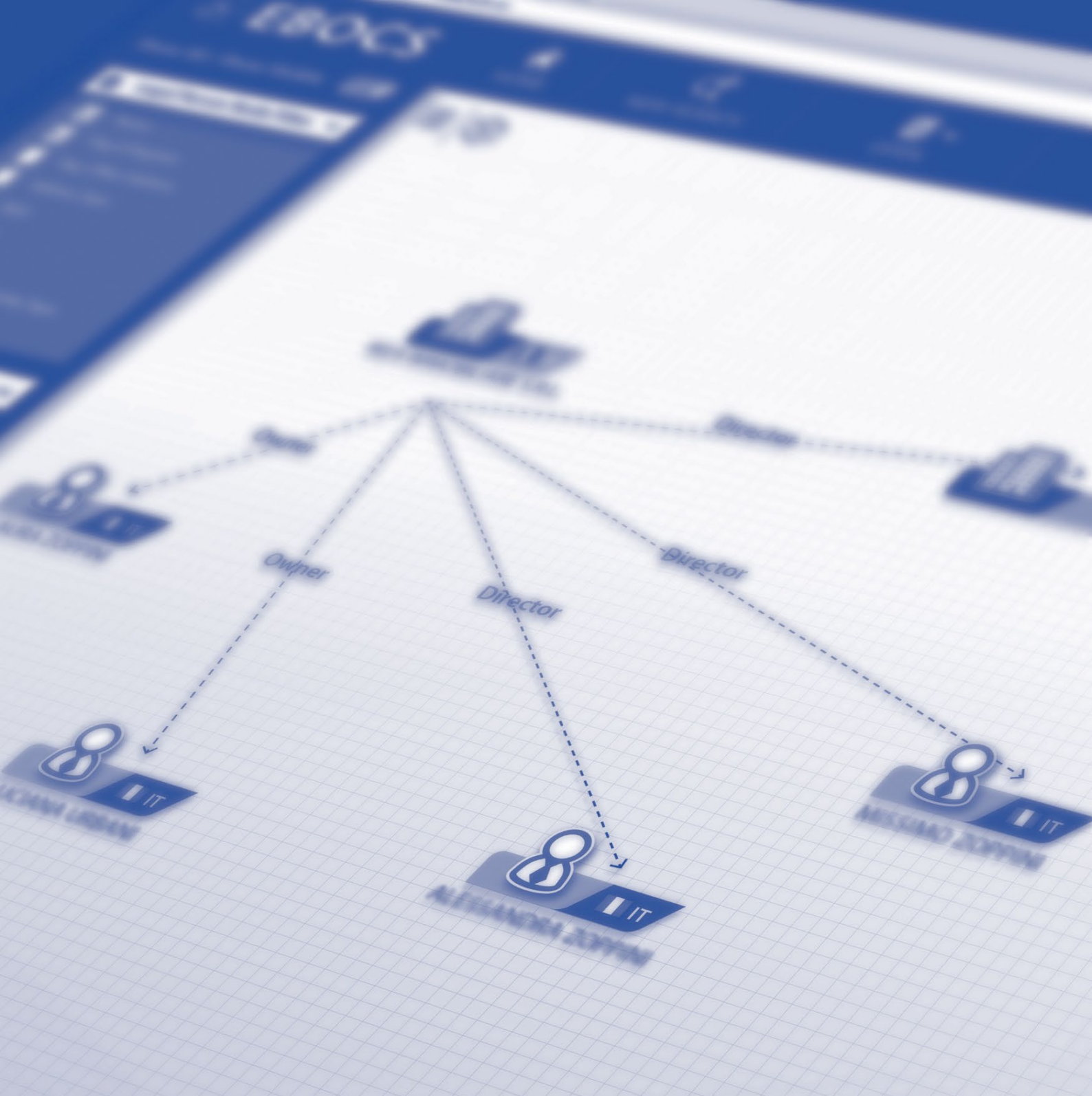
The main consumers of EBOCS services are the Counter Crime Agencies, such as Financial Investigation Units and Law Enforcement Agencies that are involved in the fight against financial and economic crime. The CCAs have a choice to consume services and information from EBOCS directly or they can consume information from an intermediary.

Beneficial Ownership data

Under the 4th Anti Money Laundering Directive (4AMLD), the European Member States are obliged to create and provide access to central registers of beneficial owners.

As these registers are coming online, EBOCS has worked to add this important data set to the EBOCS platform. During the course of this phase of the project, we have added Beneficial Ownership data from three of the participating jurisdictions (Latvia, Ireland and Spain).

Varying levels of restrictions to the national beneficial ownership registers bring challenges to delivering broad access within EBOCS. Further security or the means of identifying competent authorities may be required to deliver such access within the EBOCS Service; however, it is necessary to provide access to this important data set in a production level EBOCS service.



3

Visualisation Tool Functionality

Visualisation Tool Functionality

This section provides an overview of the features provided by the central Visualisation tool.

The following functionality is provided as part of the user interface design:

- Self-user management of accounts
- Ability to Save and Open searches
- Drag and place nodes – nodes stay in place
- Hide / Display Nodes
- Refresh Nodes
- Colour Nodes
- Add (Manual) / Delete Nodes
- Add (Manual) Links between existing nodes
- Ability to Annotate Nodes and Links (Add Notes)
- Ability to Manually Edit Node Data
- Display more data on hovering over a node or link
- Natural and legal person search

Screenshots from the tool itself are provided to highlight the enhanced features.

Login / Access Management

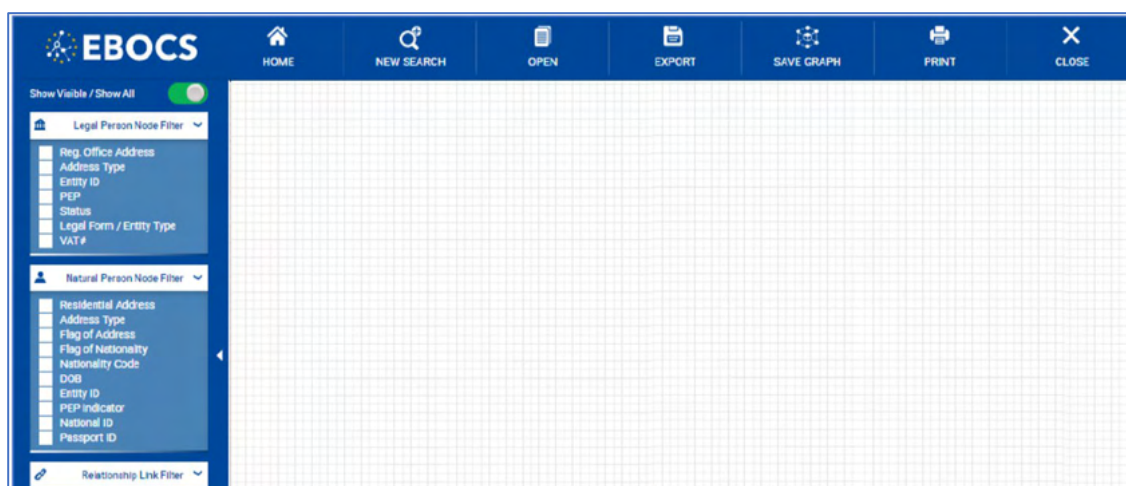
The visualisation tool can be accessed through the following URL: <https://vt.ebocs.eu/> where the user can select their preferred language.

Registration of each CCA account is an offline registration process and is currently managed by the technical service provider outside of the system. Users are presented with a user manual to support them in utilising the Visualisation Tool.

Upon completion of the CCA “group” account registration process, the CCA can manage group users going forward i.e. create sub users in their group.

Tool Bar

Upon successful login, the user is presented with the default home screen with a number of tool bar menu options. All tool bar options (except for the Admin Panel) are available to all users. (see the following screenshot)



Visualisation Tool Functionality



The menu tool bar is displayed throughout the session and provides users with the following options:

Menu Option	Description
New Search	Search for a legal or natural person to add to the graph
Open	Open a saved graph. A dialog box is displayed and allows users to open saved graphs.
Export	The application allows export to .PNG .PDF and .XML format and also an export to EXCEL format. The document type selected is exported to the download folder and can be viewed/edited using the appropriate software applications.
Save graph	Save graph to a local folder. This option can be used at any time as the user works with the canvas. A standard dialog box is shown allowing the user to save the graph in their desired location.
Print	Users have the option of printing the graph at any time. Standard print options will be presented to the user.
Close	Close graph with or without save option
Admin Panel	Manage user (CCA) accounts
Settings	Change Visualisation Tool Settings
User	Change own password, manage users or change personal settings
Logout	Logout

The key features of the main menu are detailed in the following sections.

Visualisation Tool Functionality

New Search

Visualisation tool users can initiate a new search by adding a person / persons of interest to the canvas workspace. The New Search menu option opens a search dialog box and allows users to search for either legal or natural persons. Basic and advanced search criteria are available for both entity types.

Legal Person

The Legal Person search dialog box includes the following fields and options:

- Search Type: Legal Person, Natural Person
- Country: Select...
- Entity Name: [Text Input]
- Entity ID: [Text Input]
- Advanced:
- Address: [Text Input]
- Registered Date: [Date Picker]
- VAT No.: [Text Input]
- Registered From: [Date Picker]
- Registered To: [Date Picker]
- Include Historical:
- Include Previous Name:
- Buttons: CLEAR, SEARCH

Natural Person

The Natural Person search dialog box includes the following fields and options:

- Search Type: Legal Person, Natural Person
- Country: Select...
- Surname: [Text Input]
- Forename: [Text Input]
- Date of Birth: [Date Picker]
- Advanced:
- Address: [Text Input]
- Entity ID: [Text Input]
- Passport No.: [Text Input]
- National ID No.: [Text Input]
- Include Previous Name:
- Buttons: CLEAR, SEARCH

Search Results

The search results are displayed to the user and all or multiple 'persons' may be added to the workspace.

The search results are displayed in a table with the following columns: Entity ID, Name, DOB, Address, Passport No, National ID No, and Tax No. The table contains 8 rows of results for John SMITH.

Entity ID	Name	DOB	Address	Passport No	National ID No	Tax No
LVFCJ-QnXpSkJwePWtw...	John SMITH	01/01/1962	Leeds LS2 7EG			
CI23eGhqN4Xk8fX14lyL...	John SMITH	01/08/1963	Branchalmuir Crescent ...			
3XUeUAhuYpoMa7QC1...	John SMITH	01/09/1972	Stook Street Paisley PA2...			
eCnKfdOhxvE2wCavxKSt...	John SMITH	01/09/1981	Hampden Road Warteg...			
5r26mBoCt3v5m_Gzi6u6...	John SMITH	01/04/1971	S 1-3 St. Georges Mount ...			
cV4F9Jhi-ud1Ld6gqwJ...	John SMITH	01/06/1987	Montjoly Street Preston ...			
-wMd4F76cSvVbmeDgc...	John SMITH		Burley Hill Trading Estat...			
A11>31h5mC86uQv veIM	John SMITH	01/01/1962	Burley Hill Trading Estat...			

Buttons: Add all, Add Selected to Graph

Visualisation Tool Functionality

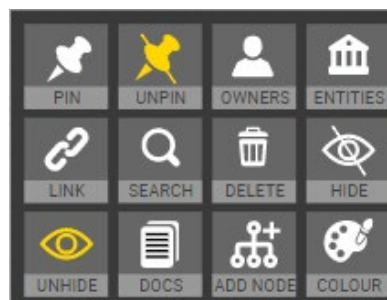
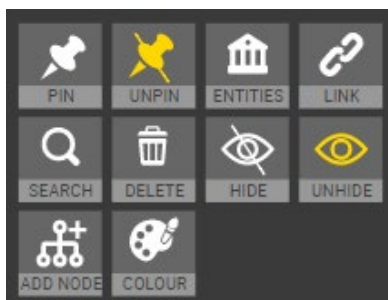
The user can now perform query actions on nodes displayed on the canvas. Hovering over the node displays the associated data.

The screenshot shows a user interface for a visualisation tool. On the left, there are two filter panels: 'Natural Person Node Filter' and 'Relationship Link Filter'. The 'Natural Person Node Filter' panel includes checkboxes for: Residential Address, Address Type, Flag of Address, Flag of Nationality, Nationality Code, DOB, Entity ID, PEP Indicator, National ID, and Passport ID. The 'Relationship Link Filter' panel includes checkboxes for: Start Date, End Date, % Holding, Beneficial Owner Ind., and Consolidate Relationships. The main canvas displays a node for 'John DOE' with a UK flag icon. Below the name is a data table:

REGISTER	NATIONALITY
ADDRESS	ENTITY ID
Hampden Roa...	aCnKfd0hrxEZ...
D.O.B.	PASSPORT N°
01/09/1981	

Below the table, it says 'Last Edited'.

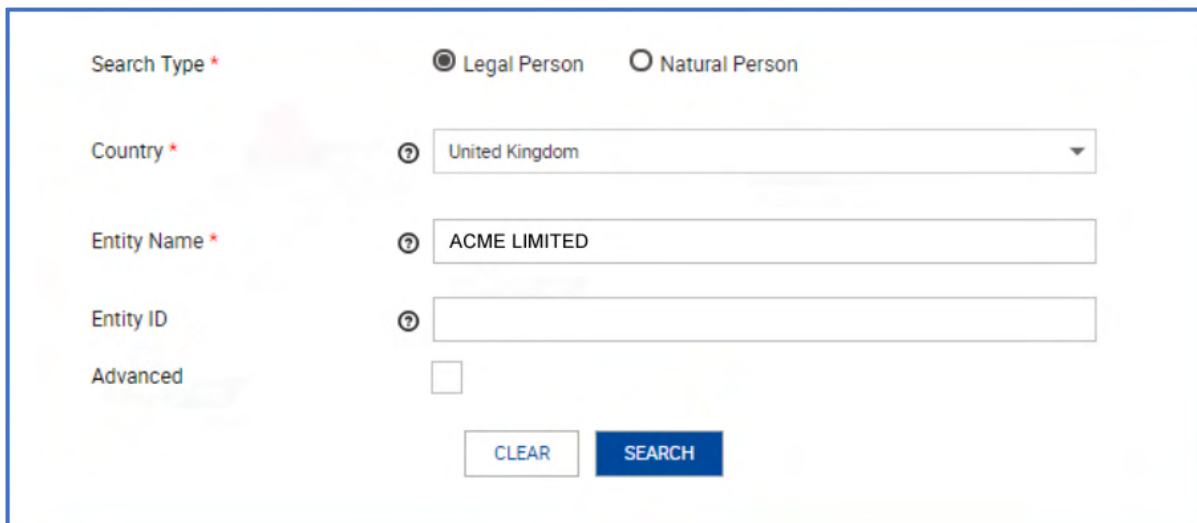
Selecting a node displays a number of tools / actions that can be performed.



For a legal person, additional tools “Owners” and “Docs” are available. These allow users to retrieve the owners of the entity and display the documents filed.

Visualisation Tool Functionality

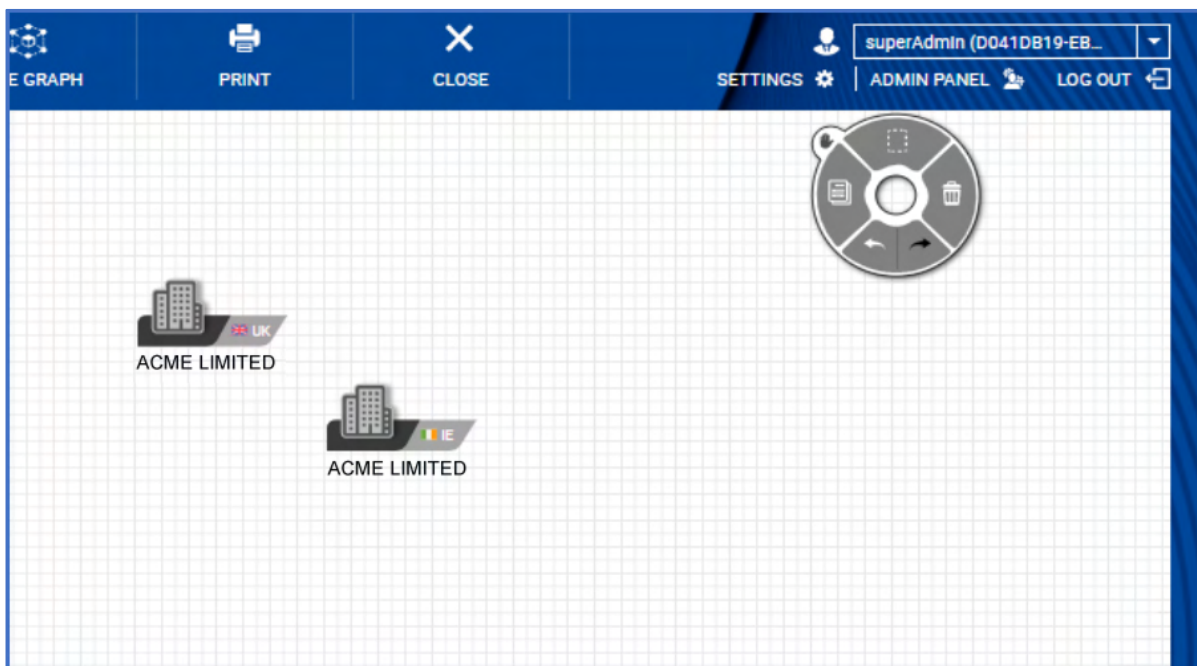
The search tool provided allows users to search for the same 'person' across another jurisdiction. The following search window will appear. The user specifies the jurisdiction ('Country') to search. Additional basic and advanced search criteria are provided to tailor the search.



The screenshot shows a search form with the following fields and options:

- Search Type ***: Radio buttons for **Legal Person** (selected) and **Natural Person**.
- Country ***: A dropdown menu showing **United Kingdom**.
- Entity Name ***: A text input field containing **ACME LIMITED**.
- Entity ID**: An empty text input field.
- Advanced**: An unchecked checkbox.
- Buttons: **CLEAR** and **SEARCH**.

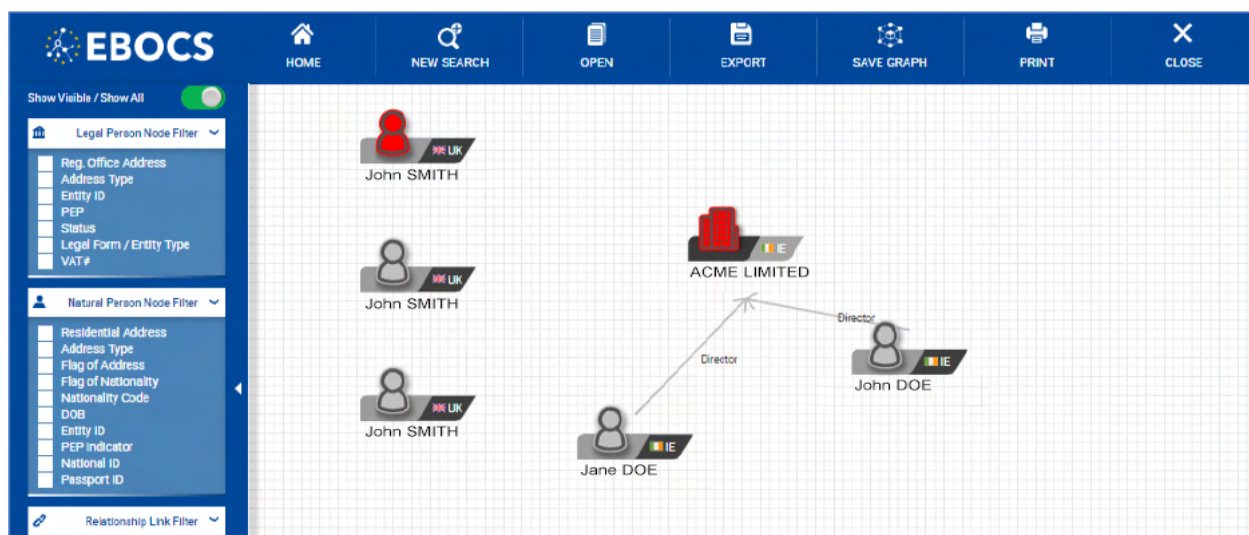
Search results (from the specified jurisdiction) are displayed and the user can add the entity to the workspace.



Visualisation Tool Functionality

Find Owners and Controllers

The user can find the owners and controllers of a legal entity by selecting the 'owners' tool option on the specific node. The list of owners and controllers are presented in a results list and the user can add one or more of these results to the workspace.



Find Owned or Controlled Entities

To find the entities owned or controlled by a Legal or Natural Person, users hover over the node and click the 'Entities' tool. A search window is presented, and the user enters the appropriate search criteria.

From the results list displayed, the user can add multiple entities to the workspace. Links are automatically added to the workspace indicating the relationship between the nodes.

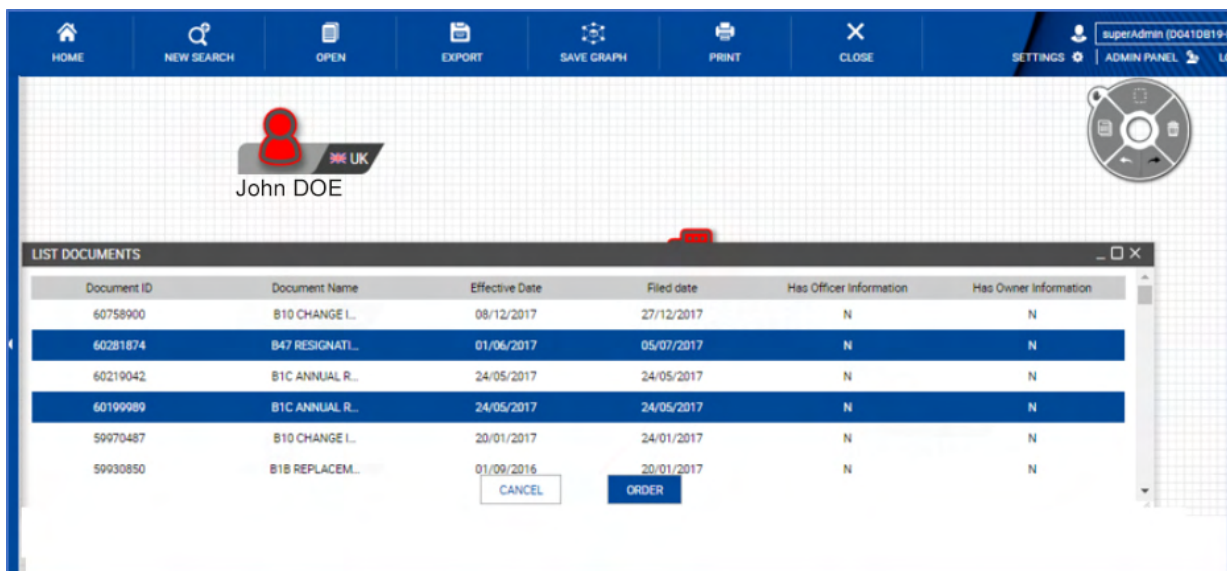
List / Order Documents

The user can initially view the list of documents filed (with the Business Registry) against an entity. The user hovers over the node and selects the "Docs" option:

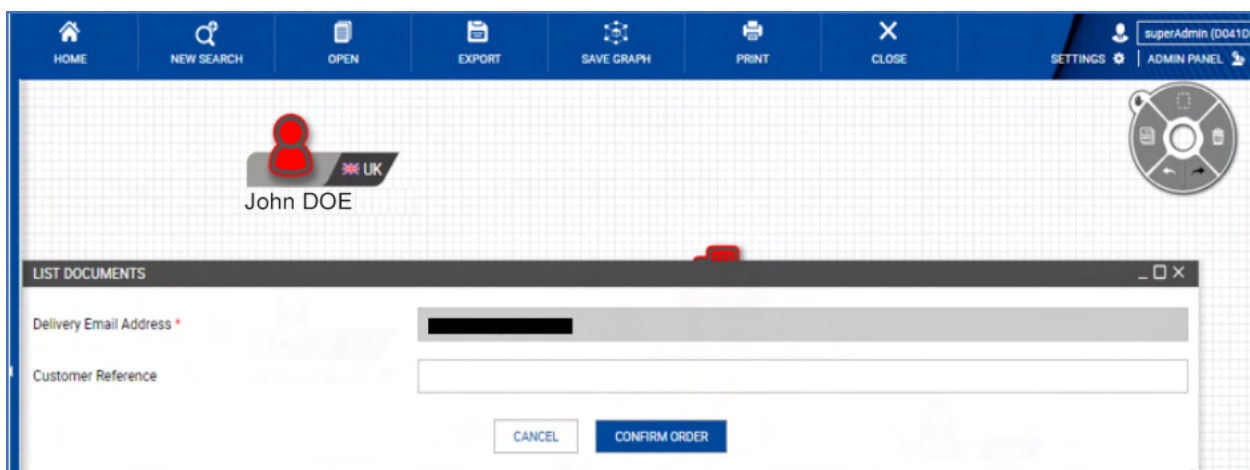


Visualisation Tool Functionality

A results window pops up and presents the user with a list of documents including a document ID; name; effective and filed dates; and indicators of whether the document has officer/owner information included or not. From the list provided, the user can select and order single or multiple documents at a time.



The documents will be delivered to the email address of the logged in user. The user may enter 'Customer Reference' if they wish. The user is then asked to confirm the final order.



Visualisation Tool Functionality

Additional Graph Features

The following additional graphical control features are provided to the user:

Option	Description
Pin / Unpin	Allows the user to pin or unpin the referral information associated with the entity
Hide / Unhide	A node can be hidden or displayed on the workspace
Colour	Nodes can be individually colour coded for highlighting purposes
Add Node	A new node can be added manually to the canvas either as a standalone entity; a related party to the selected node; or as a copy of the same entity. A node identified as a related party will have a link to the original entity displayed on the canvas with the entered 'relationship type' shown. A manually added node is represented in a different colour to distinguish it from a node generated as a result of a search.
Edit Node	Users can edit the referral information associated with a node by double-clicking on the entity and manually updating the information. Nodes that have been manually updated will be highlighted in a different colour on the canvas and will also have their 'Last Edited' date set.
Link	A new link can be added manually to the canvas to signify a relationship between nodes. A dashed line will be added between the nodes to indicate that this has been manually added. The 'relationship type' entered will be displayed on the link itself.
Edit Link	Users can edit a link by double clicking on the link between two nodes. Links that have been manually updated will be highlighted in a different colour on the canvas and will also have their 'Last Edited' date set.
Zoom In / Out	Users can zoom in and out of the canvas to get a closeup of an individual node/link or an overall picture of the investigation.
Drag	Users can drag and drop all graphical elements (icons; nodes; results and search windows) around the canvas area.

The icon group control can be moved around the canvas area as required and allows the user to:

- **Undo / Redo the actions**
- **Copy a selected node(s)**
- **Remove a node from the canvas**
- **Select multiple nodes on the canvas**

The control can be activated by clicking on individual nodes or using the select icon and then copying / deleting the highlighted node.

AML Risk Indicators

AML Risk Indicators

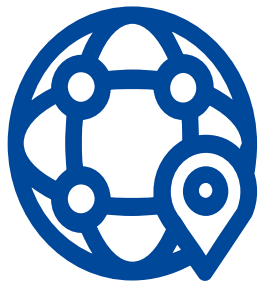
Our project partners at UCSC have integrated Anti-Money Laundering risk indicators into the EBOCS visualisation tool to support CCAs with their investigation and risk assessment of entities. These include high risk country and high-risk sector indicators.

The Business Register data providers provided the NACE sector code for each company, in NACE sector code version revision 2(rev.2) or 1(rev.1) format. The country code from the company address was also provided and used in determining the high-risk countries.

In addition (and where available), the nationality and country code were provided from the main address of all active officers and owners.

Screen shots are provided showing the risk indicator information provided to the end user.

High-Risk Countries



Based on:

- FATF blacklist/greylist
- EU AML blacklist
- EU blacklist of non-cooperative tax jurisdictions

High-Risk Sectors

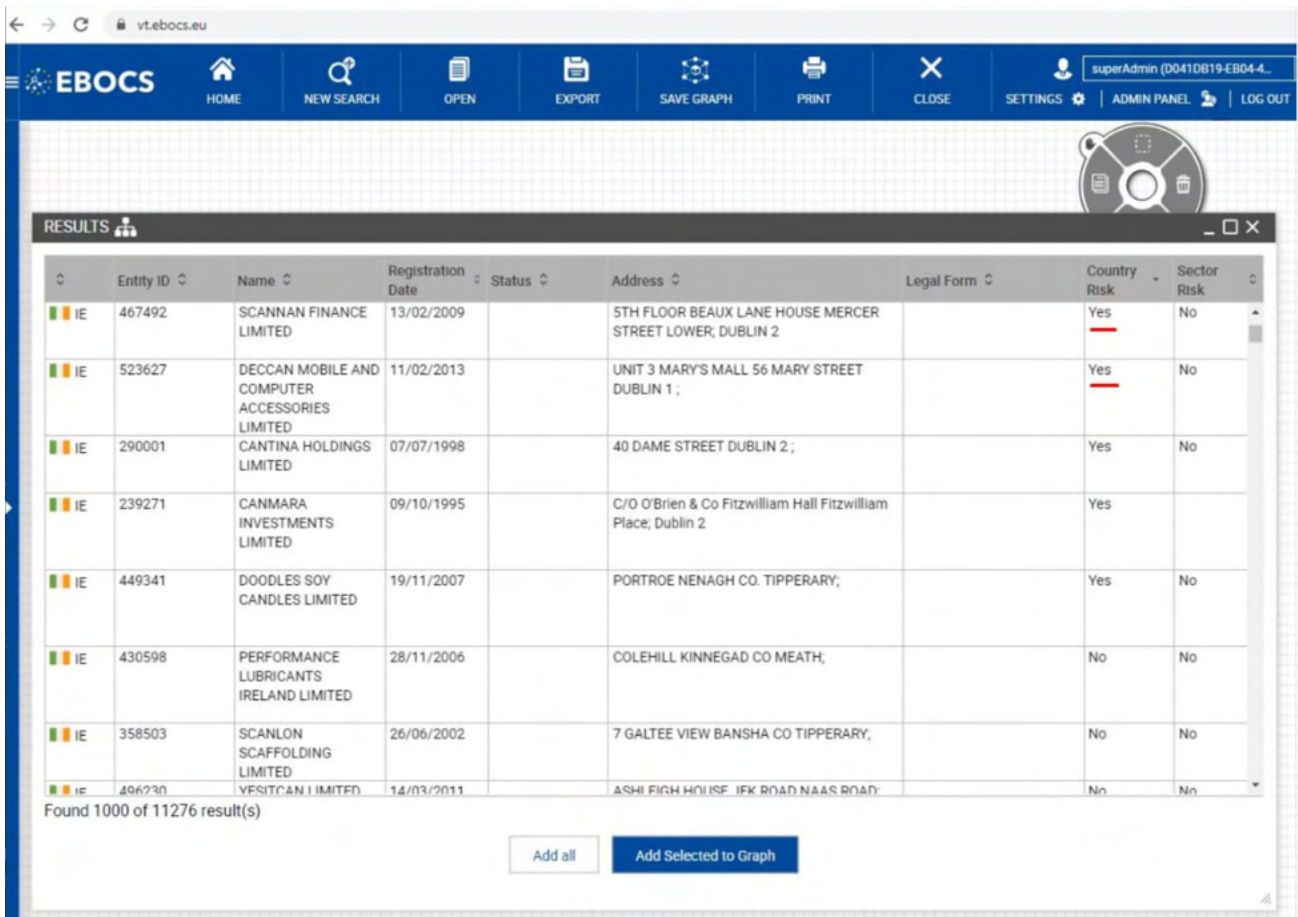


Based on analysis of previous enforcement / sanctions / seizure cases upon sector (weighted by number of registered firms in that sector).

Visualisation Tool Functionality

AML Risk Indicators

The following screen shot is taken from the online Visualisation Tool and shows the Country and Sector risk indicators as presented to the end users in the search results screen.



The screenshot displays the EBOCS Visualisation Tool interface. The top navigation bar includes the EBOCS logo and buttons for HOME, NEW SEARCH, OPEN, EXPORT, SAVE GRAPH, PRINT, CLOSE, SETTINGS, ADMIN PANEL, and LOG OUT. The user is logged in as 'superAdmin (D041DB19-EB04-4...)'. The main content area shows a 'RESULTS' window with a table of search results. The table has columns for Entity ID, Name, Registration Date, Status, Address, Legal Form, Country Risk, and Sector Risk. Below the table, it indicates 'Found 1000 of 11276 result(s)' and provides buttons for 'Add all' and 'Add Selected to Graph'.

Entity ID	Name	Registration Date	Status	Address	Legal Form	Country Risk	Sector Risk
467492	SCANNAN FINANCE LIMITED	13/02/2009		5TH FLOOR BEAUX LANE HOUSE MERCER STREET LOWER, DUBLIN 2		Yes	No
523627	DECCAN MOBILE AND COMPUTER ACCESSORIES LIMITED	11/02/2013		UNIT 3 MARY'S MALL 56 MARY STREET DUBLIN 1 ;		Yes	No
290001	CANTINA HOLDINGS LIMITED	07/07/1998		40 DAME STREET DUBLIN 2 ;		Yes	No
239271	CANMARA INVESTMENTS LIMITED	09/10/1995		C/O O'Brien & Co Fitzwilliam Hall Fitzwilliam Place, Dublin 2		Yes	
449341	DOODLES SOY CANDLES LIMITED	19/11/2007		PORTROE NENAGH CO. TIPPERARY;		Yes	No
430598	PERFORMANCE LUBRICANTS IRELAND LIMITED	28/11/2006		COEHILL KINNEGAD CO MEATH;		No	No
358503	SCANLON SCAFFOLDING LIMITED	26/06/2002		7 GALTEE VIEW BANSHA CO TIPPERARY;		No	No
496230	YESITCAN I LIMITED	14/03/2011		ASHI FIGH HOUSE IFK ROAD NAAS ROAD;		No	No

Country / Sector Risk Indicators

Visualisation Tool Enhancements

One of the key objectives within this phase of the EBOCS project was to implement visualisation tool enhancements as requested by the piloting participants. In addition to recommendations captured during EBOCS II, additional enhancements were identified and documented during this phase of the project.

These enhancements were evaluated and prioritised early in this phase of the project and developed and deployed by our technical partner ERS.

Visualisation Tool Enhancements

Within this section, we outline the enhancements that have been deployed to the EBOCS Visualisation Tool as part of the EBOCS III project. The following table lists the individual enhancements made, with the piloting participant / project partner identified.

#	Raised By	Title / Description
1	Estonia (EBOCS Piloting User)	Complex Name Search Add a complex (name) search under the advanced option (case sensitive, with wild characters and logical operators). e.g. to allow searches for company names that contain 'ABC' but not 'XYZ'.
2	Estonia (EBOCS Piloting User)	Toolbar Options Possibility of adding the main toolbar options (new search, open, export, print, close) to a right mouse click on the canvas. Currently there are two options under the right mouse click. If the toolbar options were added here, the toolbar could be hidden which would provide more space when working on smaller screens.
3	Estonia (EBOCS Piloting User)	Search Results Count Add a search results count within the results panel e.g. 'found 100 results'.
4	Estonia (EBOCS Piloting User)	Error Description Provide informative error descriptions instead of the general 'Unexpected Error' as currently reported.
5	Estonia (EBOCS Piloting User)	Country Dropdown Add shortcuts to allow user to jump to the various counties in the country dropdown e.g. R for Romania.
6	Estonia (EBOCS Piloting User)	Canvas Zoom Option The zoom option intervals are too big when using the mouse wheel to zoom in and out. Can the mouse wheel zoom match the + and – interval buttons i.e. a standard 10% interval either way.
7	Estonia (EBOCS Piloting User)	Add Node – Country Lookup The user cannot use the arrow keys to select a country from the country dropdown on the 'Add a Node' panel.
8	Estonia (EBOCS Piloting User)	Canvas Wheel – Select The select option from the canvas wheel does not work. The select outline does not select the items.

Visualisation Tool Enhancements

#	Raised By	Title / Description
9	Estonia (EBOCS Piloting User)	<p>Export Issues – two monitors</p> <p>When the browser window is stretched over two monitors, then only the image on the first screen is exported to *.png. The PDF Export freezes: the screen is blue and EBOCS VT is trying to save the chart, it hangs.</p>
10	Malta (EBOCS Piloting User)	<p>Documents - Ordered</p> <p>It would be beneficial if the tool would include a feature to be able to view a list of all the documents ordered by the user showing the status of such downloads and having access to view the documents from such feature.</p>
11	Malta (EBOCS Piloting User)	<p>Entity Attributes</p> <p>When putting a pin to show the details of the nodes, when certain field exceed the length of the box and are written as MALT..., the hidden text remains hidden even when highlighted with the cursor – this could be fixed by wrapping the text so that all the text will be readable.</p>
12	Romania (EBOCS Piloting User)	<p>Search all Countries</p> <p>It would be useful if the search was not restricted to a single country. Add a search all countries option or similar.</p>
13	Spain (EBOCS Piloting User)	<p>Export to Excel</p> <p>The application allows export to .PNG .PDF and .XML format but also it could implement an export to EXCEL format.</p>
14	Tower 81 (Project Partner)	<p>Natural Person – National ID</p> <p>The 'national id' is not available when the user edits a natural person node. It is listed as a check box under the 'natural person node filter' on the left-hand side of the screen but not on the edit panel for user input.</p>
15	Tower 81 (Project Partner)	<p>Export to XML</p> <p>Verify that all the information assigned to the nodes are actually exported. e.g. the passport number (although populated) is missing from the exported XML file for a natural person.</p>
16	InfoCamere (Project Partner)	<p>Export - File Size</p> <p>A PDF or image export produces a very large file size (approx. 90 megabytes). If the user wants to zoom into the image when there are a large number of entities, that fine; but an option to export a low-resolution image PNG would be useful.</p>
17	InfoCamere (Project Partner)	<p>Duplicate Entities</p> <p>The Visualisation Tool should check existing entities displayed on the canvas and not add duplicate entities.</p>

Visualisation Tool Enhancements

#	Raised By	Title / Description
18	InfoCamere (Project Partner)	<p>Add All</p> <p>Provide an 'Add All to Graph' button in the search results panel.</p>
19	InfoCamere (Project Partner)	<p>Results Ordering</p> <p>Add the option to order items in a results table according to a specified column (Name, Rel Type etc...).</p>
20	InfoCamere (Project Partner)	<p>Dynamic Results Table</p> <p>Instead of a fixed width, have dynamic expanding columns(e.g. to facilitate long entity names).</p>
21	InfoCamere (Project Partner)	<p>Advanced Search</p> <p>The advanced search page should be dynamic and tailored to the search input fields appropriate for each country (e.g. passport no. is not applicable for Italy).</p>
22	InfoCamere (Project Partner)	<p>Search Results Title</p> <p>The window title of the search results should inform the user which entity these results relate to. Append the entity name to the existing title of the search results panel.</p>
23	InfoCamere (Project Partner)	<p>Calendar</p> <p>Add functionality to the calendar widget to allow the user to change the year using additional arrows (similar to updating the month).</p>
24	ERS (Project Partner)	<p>Multi-Factor Authentication</p> <p>A new feature has been added to the EBOCS system that requires the user to authenticate with a mobile application during the login process to the Visualisation Tool.</p> <p>This functionality that can be enabled in the user settings. This improves the security of the system, when enabled a user must enter their password but they must also authenticate through a third-party authenticator app. This feature is something that could be turned on for all users as part of the production readiness.</p>

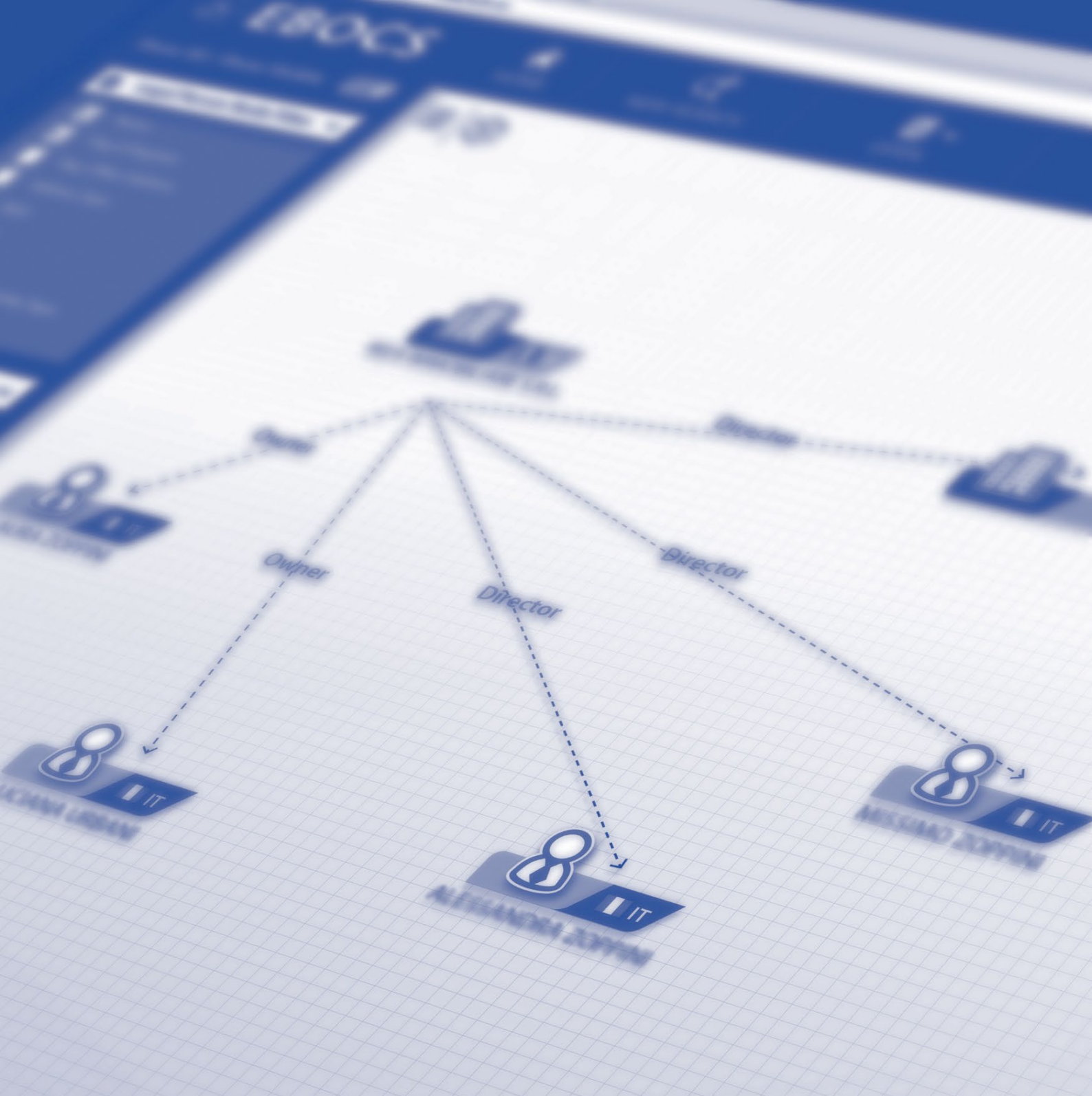
Additional Enhancement Requests

Within this sub-section, we present additional Visualisation Tool enhancement requests derived from piloting users and project partners over the course of the project. These enhancement requests were not deployed within this phase of the project but are documented here for consideration and prioritisation in potential future iterations of the project.

#	Raised By	Title / Description
1	Estonia (Piloting User)	<p>Close without Saving option</p> <p>There is no 'close without saving' option on right mouse click.</p>
2	Estonia (Piloting User)	<p>General Display Options</p> <p>Consider removing/hiding toolbars and menu options to facilitate users with smaller screens and make the canvas as large an area as possible. e.g., toolbars are only shown at a fixed zoom level; or Add popup toolbars on the canvas instead.</p>
3	Malta (II Piloting User)	<p>Documents – Link</p> <p>It would also be beneficial if a link to the document would be available on the entity's icon in the graph, therefore, it would be easy to access the document from the graph rather than having to find the email for each document.</p>
4	Malta (Piloting User)	<p>Entity Links</p> <p>The link (arrow) is sometimes misleading as it does not clearly connect the nodes which are visually depicted. If the link was clearly attached to the nodes, it could address this.</p>
5	Romania (Piloting User)	<p>Auto Generate Links</p> <p>It would be beneficial if the tool could automatically generate links between two or more entities.</p> <p>A new interrogation window, maybe named links, where you can introduce names/ids of different entities and the software would automatically generates links between these.</p>
6	InfoCamere (Project Partner)	<p>Advanced Selection Tool</p> <p>Provide an advanced selection tool to allow the user to select a group of companies by name, natural entities etc.</p>
7	InfoCamere (Project Partner)	<p>Entity Roles</p> <p>Where the user has selected multiple roles of the same entity (within the search results) to display on the canvas, the Visualisation Tool shows duplicate entities with separate links to each of the roles. It is proposed that a single entity should be shown with the multiple roles labelled on a single link.</p>

Enhancement Requests

#	Raised By	Title / Description
8	InfoCamere (Project Partner)	Calendar Add functionality to the calendar widget to allow the user to change the year using additional arrows (similar to updating the month).
9	InfoCamere (Project Partner)	Close Graph The close graph option needs to be reviewed. Currently, the canvas disappears first and then a popup window appears. It is not intuitive that this window relates to saving the graph before exiting.
10	InfoCamere (Project Partner)	Long Entity Names The visualisation tool crops the entity names (~40 characters). The user has to use the mouse hover to view the complete entity name. The complete names are not provided in the PNG or PDF exports. Can the font size be adapted to cover these scenarios; Can functionality be added to change the size of the default font? (options to be reviewed).
11	Europol (Piloting User)	Additional Register Data Provide data of the register where the data are available (for further required inquiries: register, location, contact details or way of contact)



4 Analysis of Ownership Data

Objective

Objective

The objective of the chapter is to provide an analysis of cross-border ownership links emerging from the data on shareholders, directors and beneficial owners (BOs) of companies registered in the six European Union countries involved in the EBOCS project – Estonia (EE), Ireland (IE), Italy (IT), Latvia (LV), Romania (RO) and Spain (ES).

Different countries provided different types and volumes of information. EE, IE, LV, RO all provided information on shareholders, directors and BOs, but with different levels of disaggregation and detail. IT provided information only on shareholders and directors. ES provided data on BOs only.

Despite the limited sample, and the different level of coverage, the analysis presented here:

- a) Represents the first cross-border analysis of ownership data from official business registers, and the first analysis of data from BO registers (in the European Union, and more widely);
- b) Demonstrates the level of cross-border interconnection of ownership links within and beyond the European Union, stressing the need for cross-border tools and projects such as EBOCS;
- c) Demonstrates the current heterogeneity of ownership data across EU countries, and the need to harmonise them at either regulatory level, through interconnection initiatives (such as BRIS or BORIS) and interconnection services such as EBOCS.

Sample & Coverage

The data analysed corresponded approximately to 4.86 million registered active firms responding to the legal forms covered by Annex II Directive EU 2017/1132 and generally referring to limited liability companies.

In particular, the 4.86 million firms were associated to:

- 444,848 legal person shareholders;
- 3,960,589 natural person shareholders;
- 2,080,872 directors;
- 3,593,437 beneficial owners.

Beneficial owners have been defined here on the basis of the AML relevant regulation and in particular on the basis of the operational definition employed by the countries covered when setting up the beneficial ownership register according to Art.30, par. 3 of the 4th Anti-Money Laundering Directive.

The percentage of firms for which information on shareholders and beneficial owners is available is, on average, respectively 90.7% and 43.4%

Preliminary Statistics

Shareholders

In the countries for which this information is fully available (EE, IT, LV, RO), there are on average 0.2 legal person shareholders and 1.6 natural person shareholders per company. Among the shareholders:

- 10.1% are Legal Persons.
- 89.9% are Natural Persons.

However, if considering only foreign shareholders, the percentage of legal persons as shareholders increases up to 30.4%

Table 1: Legal person and natural person shareholders by country

	Estonia	Italy	Latvia	Romania	Total
% legal person of total shareholders	11.1%	12.6%	8.8%	4.2%	10.1%
% natural person of total shareholders	88.9%	87.4%	91.2%	95.8%	89.9%

The ratio between natural persons and legal persons shareholders is, on average, 12: for every legal person as shareholder, there are 12 natural persons as shareholders. When considering only foreign shareholders, this ratio is equal to 3.4.

In the countries for which full information is available (EE, IT, LV, RO), the nationalities that show the highest ratios of legal persons vs natural persons are Belize, British Virgin Island and Luxembourg. Interestingly, 80% of the total number of legal person shareholders from Luxembourg in the sample are shareholders of Italian companies.

**Table 2: Ratio between legal persons vs natural persons per shareholder's nationality (> 2).
Countries covered: EE, IT, LV, RO**

Nationality	Aggregate ratio legal person vs natural person shareholders	Number of total shareholders
Belize	98.0	99
British Virgin Island	81.0	246
Luxembourg	32.7	4618
Liechtenstein	11.2	257
Seychelles	9.9	120
Bermuda	9.5	42
Panama	6.0	337
Gibraltar	5.5	72
Bahamas	4.0	35
China, Hong Kong	3.1	197
Netherlands	2.5	7105
Malta	2.5	978
Cyprus	2.5	5494
Singapore	2.1	286

Preliminary Statistics

There are no natural person shareholders from Cayman Islands, Marshall Islands and Saint Vincent & Grenadines: as regards to Cayman Islands shareholders, 97% of them are owners of Italian companies [note 8].

Directors and beneficial owners

In the countries for which full information on directors is available (EE, IT, LV, RO), there are 0.8 directors per company. On the other hand, in the countries with availability of BO information (EE, IE, LV, RO, ES), there are **1.4 beneficial owners** per company

Table 3: Number of beneficial owners per company by country [note 9]

	Estonia	Ireland	Latvia	Romania	Spain	Total
n. BOs per company	1.3	1.0	1.2	1.3	1.4	1.4

8. This result is calculated considering the total number of firms of EE, IE, LV, RO, ES. For IE and RO the number of firms that provides information on beneficial owners is used. IE was included in the sample: however, the information on beneficial owners is available only for 6% of registered firms, therefore the data could be unrepresentative.

9. For EE and ES, the result is calculated using data on private and public limited companies provided by Orbis BvD. IE and RO values are calculated using the total number of firms that provide information on beneficial owners, which are respectively 6,6% and 26% of the total number of firms.

Domestic vs Foreign nationalities

Table 4: Total number of nationalities per shareholders, directors and beneficial owners by country

	Estonia	Ireland	Italy	Latvia	Romania	Spain	Total
Shareholders	136	N.A.	179	126	171	N.A.	200
Directors	124	N.A.	156	108	76	N.A.	177
Beneficial owners	144	80	N.A.	113	134	234	238

Shareholders

In this section a comparative analysis of natural and legal persons shareholdings is presented. In the sample analysed, **95.9% of natural person shareholders are domestic** (EE, IT, LV, RO). This percentage is lower if considering legal persons as shareholders: 84.0% of them are domestic, while the other 16% are foreign.

Table 5: Foreign natural person and legal person shareholders by country

	Estonia	Italy	Latvia	Romania	Total
Foreign natural person shareholders (%)	7.3%	3.0%	11.0%	7.9%	4.1%
Foreign legal person shareholders (%)	15.0%	13.7%	30.9%	41.5%	16.0%

The two networks depicted below represents the cross-border ownership links involving shareholders, grouped by nationality [note 10]. The magnitude of cross-border links is represented by the breadth of the edge: the thicker the link, the higher the share of shareholders of that nationality on total foreign shareholders. Mutual links among EE, IT, LV and RO are not displayed in the figures [note 11].

The figures highlight, on the one hand, the high volume and wide variety of cross-border ownership links, and on the other hand, the differences between natural person and legal person-shareholders.

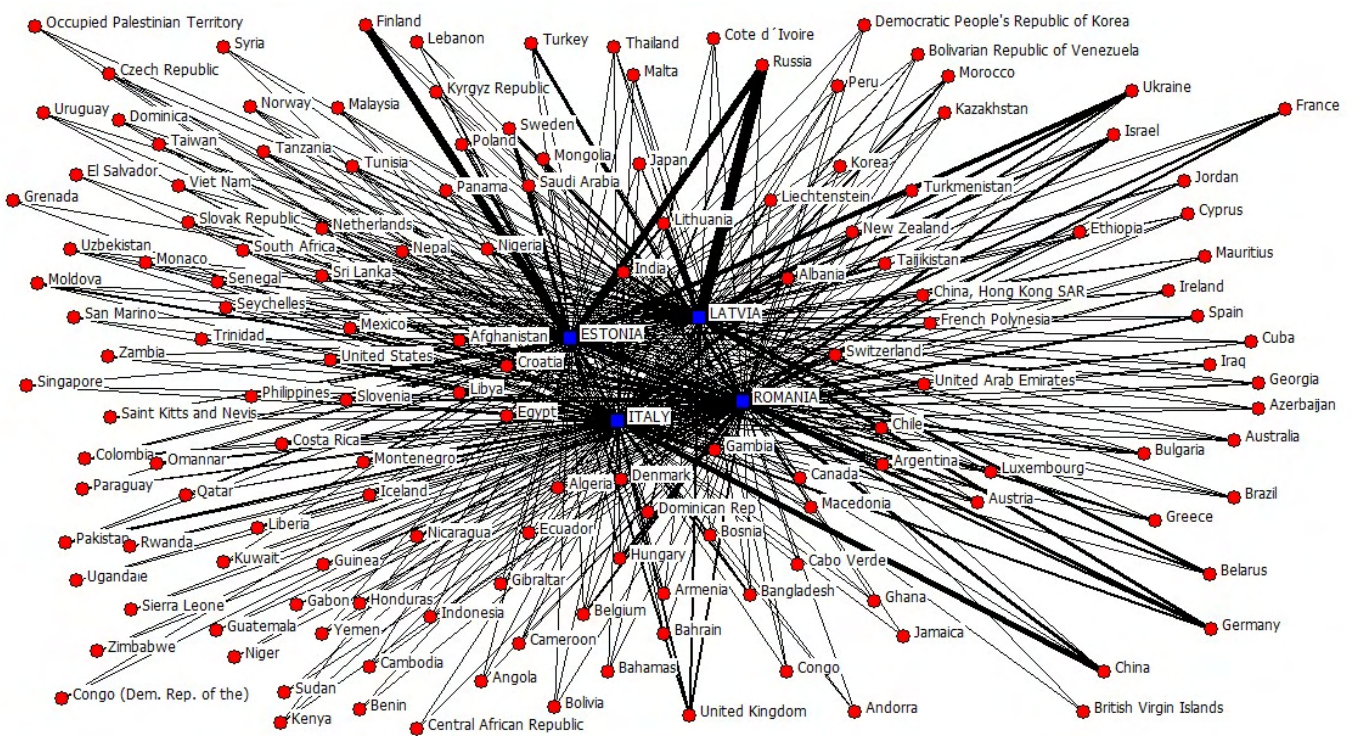
10. Nationality is intended here for natural persons as country of citizenship or passport. For legal persons it refers to the country of registration of the company.

11. This means that strong links among countries in the analysis, such as IT-RO are not displayed. However, they are discussed in the section on country analysis.

Domestic vs Foreign nationalities

Despite most of shareholders being domestic, there is a high volume of cross-border links which stresses the value of tool such as EBOCS.

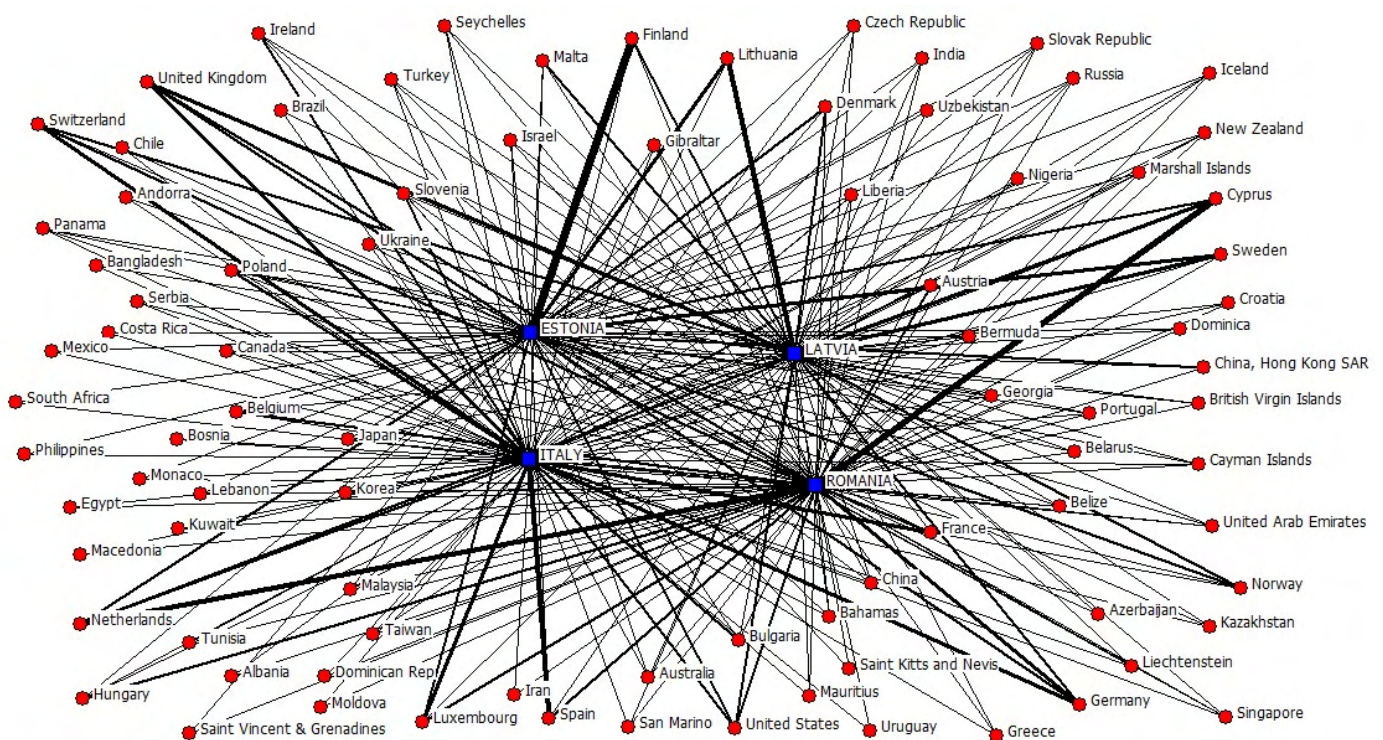
Figure 1: Cross-border links involving natural person shareholders



Domestic vs Foreign nationalities

Despite most of shareholders being domestic, there is a high volume of cross-border links which stresses the value of tool such as EBOCS.

Figure 2: Cross-border links involving legal person shareholders



The most frequent nationality among legal person shareholders is the United Kingdom, which represents 8.2% of all foreign legal person shareholders in the countries analysed (EE, IT, LV, RO), followed by Germany (7.5%), Netherlands (7.2%), Luxembourg (6.3%) and Switzerland (6.2%). On the other hand, among natural person shareholders a strong link is identified with China (9.5%), Russia (7.0%), Germany (6.2%), Turkey (4.1%) and France (4.0%).

In some of the analysed countries, some nationalities emerge promptly: for example, among legal persons, Cyprus in Romania, Finland in Estonia, Austria in Romania and Italy. And, among natural persons, Albania in Italy and Israel in Romania.

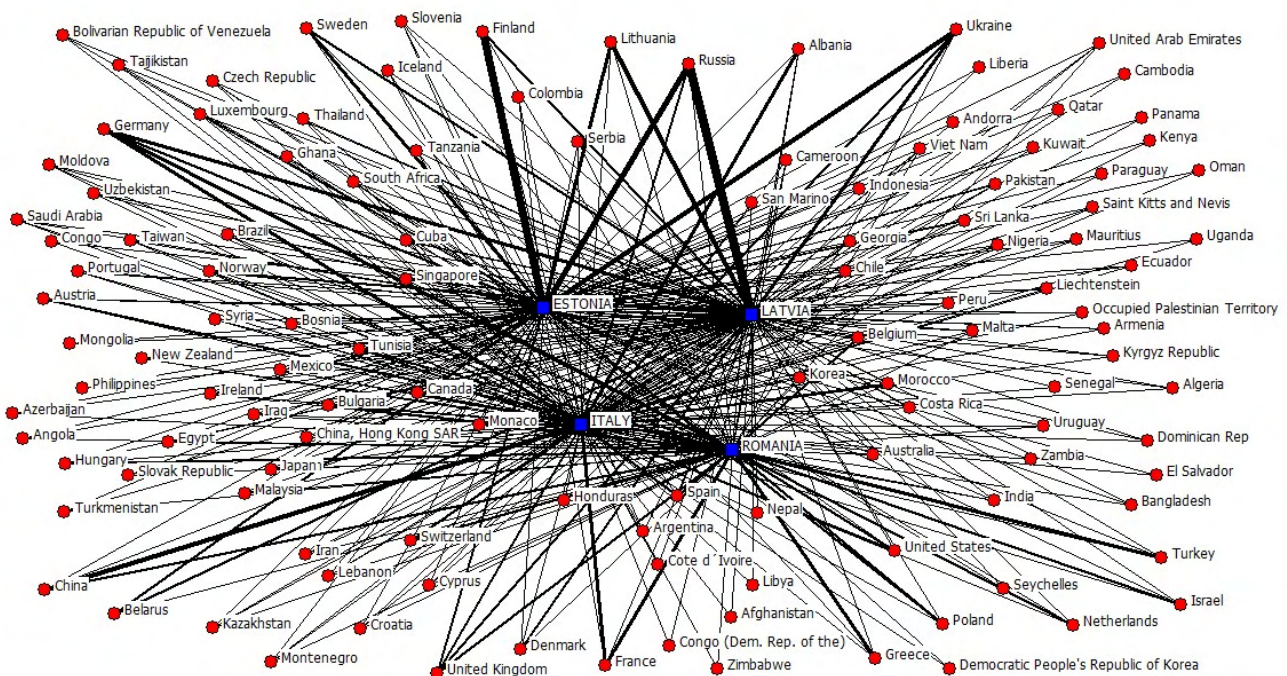
Domestic vs Foreign nationalities

Directors

In the countries for which information on directors' nationality is available (EE, IT, LV, RO), **95.3% of directors are domestic** – i.e. from Estonia, Italy, Latvia or Romania - while only 4.7% are foreign. Figure 3 depicts the network of cross-border links between **directors and companies** registered in the countries included in the sample (EE, IT, LV, RO). Links among EE, IT, LV and RO are not displayed in the figure.

China is the most frequent foreign nationality, representing 8.9% of foreign directors, followed by Russia (8.6%), Germany (6.6%), Albania (5.5%) and France (5.2%).

Figure 3: Cross-border links involving directors



Domestic vs Foreign nationalities

Beneficial Owners

In the countries for which info on BO nationality is available (EE, ES, LV, RO), 92.5% of beneficial owners are domestic individuals (i.e. from EE, ES, LV and RO), while **7.5% are foreign** individuals.

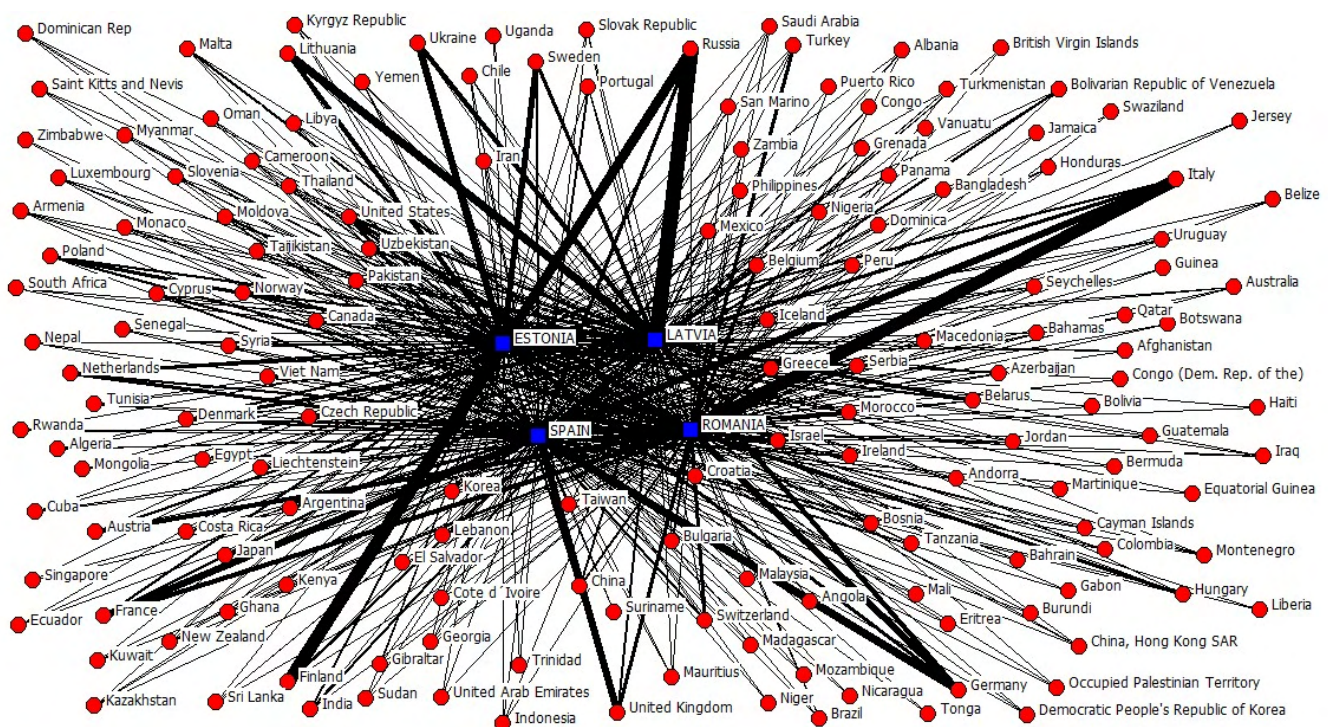
	Estonia	Latvia	Romania	Spain	Total
National beneficial owners (%)	93.5%	88.7%	90.1%	92.5%	92.5%
Foreign beneficial owners (%)	6.5%	11.3%	9.9%	7.5%	7.5%

Figure 4 depicts the network of the cross-border links between beneficial owners and companies registered in the countries included in the sample (EE, ES, LV, RO). Links among EE, ES, LV and RO themselves are not displayed.

Among foreign beneficial owners, Germany is the most frequent nationality (10.6% of foreign beneficial owners). The other frequent nationalities are France (8.6%), United Kingdom (8.6%), China (5.5%) and Russia (4.8%).

In some countries of the four analysed, some nationalities emerge promptly, such as Italy in Spain and Romania.

Figure 4: Cross-border links involving beneficial owners



Domestic vs Foreign nationalities

Table 6: Top ten foreign nationalities of legal and natural person shareholders, directors and beneficial owners in EE, ES, IT, LV, RO

	Shareholders – Legal Persons	Shareholders – Natural Persons	Directors	Beneficial owners
1	United Kingdom	China	China	Germany
2	Germany	Russia	Russia	France
3	Netherlands	Germany	Germany	United Kingdom
4	Luxembourg	Turkey	Albania	China
5	Switzerland	France	France	Russia
6	France	Ukraine	Finland	United States
7	Cyprus	Albania	Ukraine	Netherlands
8	United States	Israel	United Kingdom	Belgium
9	Poland	Hungary	United States	Sweden
10	Austria	Moldova	Lithuania	Switzerland

Ownership links with Blacklisted Countries

The analysis of this section focuses on the presence of shareholders, directors and beneficial owners from jurisdictions listed in the relevant blacklists and grey lists in the AML/CFT and in the tax domain. In particular, we have considered the following blacklist: FATF list of countries subject to "Call for Action" (i.e. FATF blacklist), FATF list of "Jurisdictions under Increased Monitoring" (i.e. FATF grey list), list of the European Commission of "High-risk third countries" in the AML domain (EU AML blacklist) and EU list of non-cooperative tax jurisdictions in the tax domain (EU tax black/grey list). The analysis is carried out on the February 2021 update of these blacklists and grey lists, and therefore does not take into account recent developments of these lists (e.g. the inclusion of Malta in the FATF list of "Jurisdictions under Increased Monitoring" on the 27th June, 2021). If these recent developments were included, the % of shareholders/BOs/directors from black and grey-listed countries may be higher.

Shareholders

Overall, about 0.5% of the shareholders of registered companies (EE, IT, LV, RO) from countries that are included in one of the lists considered [note 12].

Table 7: Shareholders from countries in black/grey list. % of total shareholders by country and aggregate

	Estonia	Latvia	Romania	Spain	Total
FATF black/grey lists	0.0%	0.4%	0.1%	0.2%	0.3%
EU AML blacklist	0.0%	0.1%	0.1%	0.2%	0.1%
EU Tax black/grey lists	0.1%	0.1%	0.1%	0.5%	0.2%

As regards AML lists (FATF and blacklist of European Commission), the highest percentage is shown for FATF black and grey lists. Keeping separate legal person and natural person shareholders, 0.3% of each come from jurisdictions included in FATF lists. Among legal person shareholders from such countries, more than half come from Cayman Island, and most of them are shareholders of Italian companies (615 out of 636).

As regards the EU lists of non-cooperative tax jurisdictions, Romania is the country with the highest percentage of shareholders listed (0.5%), mainly due to the high number of shareholders from Turkey, which is included in the grey list.

12. The percentage does not change if considering only legal person shareholders.

Ownership links with Blacklisted Countries

Directors

In the sample analysed (EE, IT, LV, RO), 0.6% of directors come from jurisdictions included in one of the black and grey lists considered (0.5% are from countries listed on AML lists). Italy shows the highest percentage considering both FATF and EU lists (0.7%), mainly due to the high number of directors from Albania, Morocco, Pakistan and Iran, which are included in AML lists.

In the sample analysed, 0.1% of directors are from countries included in the EU lists of non-cooperative tax jurisdictions. This percentage is higher for Romania (0.7%): as said, it is due to the high percentage of directors of companies registered in Romania from Turkey.

Table 8: Directors from blacklists. % of total shareholders by country and aggregate

	Estonia	Italy	Latvia	Romania	Total
FATF black/grey lists	0.0%	0.7%	0.1%	0.1%	0.5%
EU AML blacklist	0.0%	0.1%	0.1%	0.1%	0.1%
EU Tax black/grey lists	0.1%	0.1%	0.1%	0.7%	0.1%

Beneficial Owners

In the sample analysed (EE, ES, LV, RO), 0.3% of beneficial owners come from black/grey listed jurisdictions. Considering AML lists, 0.2% of beneficial owners come from jurisdictions listed in FATF black or grey lists or in the EU list of high risk third countries. Spain is the country with the highest percentage, showing 0.3% of beneficial owners from jurisdictions included in AML lists. On the other hand, as regards EU list of non-cooperative tax jurisdictions, Romania is the country which shows the highest percentage of beneficial owners from non-cooperative jurisdictions for tax purposes, for the same reason outlined for shareholders and directors.

Table 9: Beneficial owners from blacklists. % of total beneficial owners by country and aggregate

	Estonia	Latvia	Romania	Spain	Total
FATF black/grey lists	0.0%	0.1%	0.1%	0.2%	0.2%
EU AML blacklist	0.0%	0.1%	0.1%	0.1%	0.1%
EU Tax black/grey lists	0.1%	0.1%	0.4%	0.1%	0.1%

Business Sectors

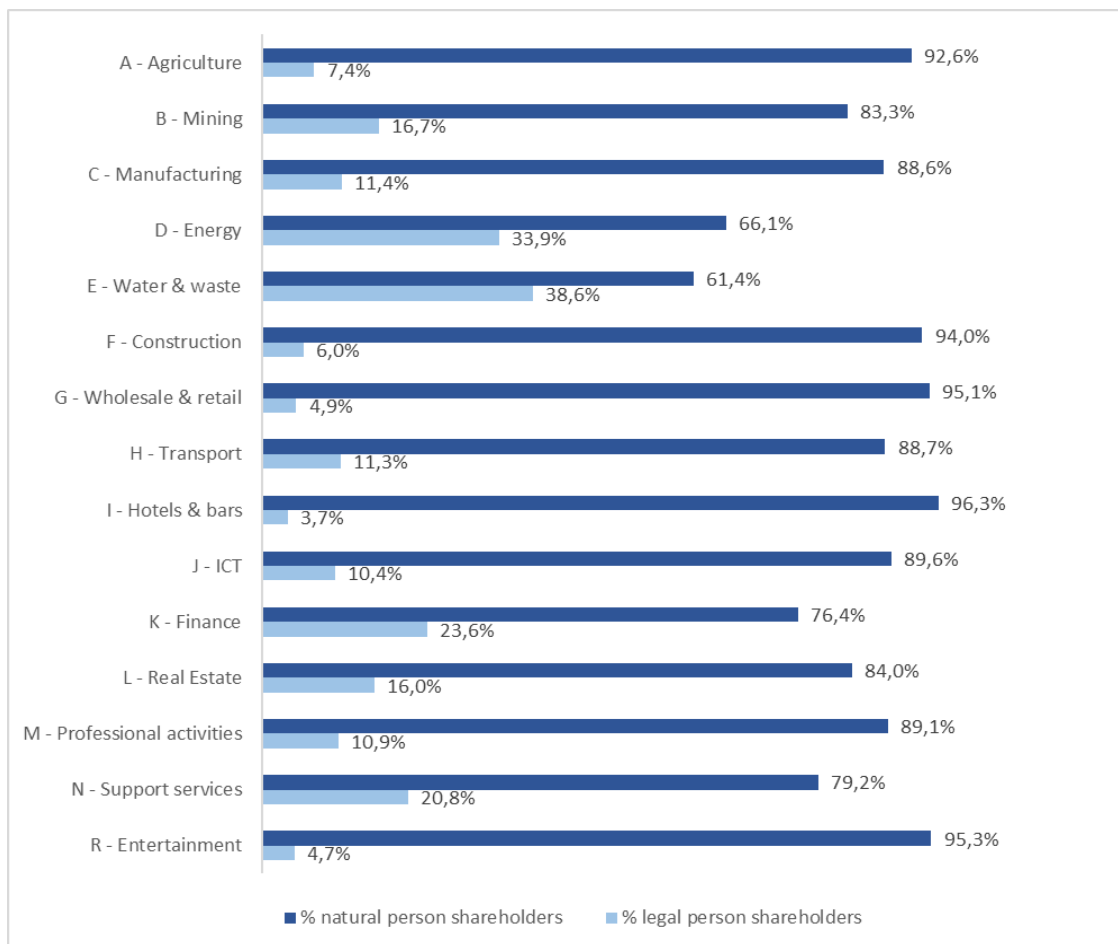
This section provides some data and statistics on cross-border ownership links by business sector. Data on shareholders, directors and beneficial owners by business sector were available only for Italy, Latvia and Romania. Overall, we were able to analyse in these three countries:

- 160,690 legal person shareholders;
- 1,467,843 natural person shareholders;
- 408,378 beneficial owners [note 13]

Shareholders

Water & Waste (NACE Section E) and **Energy** (NACE Section D) are the sectors with the highest percentage of legal persons among shareholders, respectively 38.6% and 33.9%, while **Hotels & bars** (NACE I) is the sector with the highest percentage of natural persons among shareholders: 96.3% of total shareholders are natural persons.

Figure 5: Legal and natural person shareholders by sector



13 Data available for LV and RO

Business Sectors

In the sample analysed, Luxembourg is the nationality which shows the highest ratio legal person vs natural person shareholders in almost all sectors.

When focusing on **foreign legal person shareholders**, the most frequent nationalities in most business sectors are those of major European countries (Germany, France, UK, Netherlands). However, for some sectors there are exceptions that will deserve further investigations (Table 8). For example:

- A high number of legal person shareholders from **Cyprus** is present in firms active in **Construction** (NACE F), **Mining** (NACE B), **Real Estate** (NACE L), **Hotels & bars** (NACE I) and **Entertainment** (NACE R), as well as legal person shareholders from **Luxembourg** and **Switzerland**.
- In Italy, legal persons shareholders from Spain are the most frequent in the **Transport** sector, while legal persons from **San Marino** are recurrent in **Water & waste**. Furthermore, about 20% of total legal persons from Luxembourg are shareholders in Real Estate.
- In Romania, legal person shareholders from **Spain** are highly present in firms active in the **Construction** sector, while the majority of Cypriot legal persons are shareholders in **Real Estate** (27.2%) and **Construction** (25.6%).

Table 10: Top 3 foreign legal person shareholders' nationality by sector and country. Selected sectors

		B - Mining	E - Water & waste	F - Construction	H - Transport	I - Hotels & bars	L - Real Estate	R - Entertainment
ITALY	1	UK	Germany	UK	Spain	UK	Luxembourg	UK
	2	Switzerland	UK	Luxembourg	Slovenia	Switzerland	Switzerland	Luxembourg
	3	Luxembourg	San Marino	Switzerland	Romania	Luxembourg	UK	Switzerland
		B - Mining	E - Water & waste	F - Construction	H - Transport	I - Hotels & bars	L - Real Estate	R - Entertainment
LATVIA	1	Germany	Lithuania	Estonia	Estonia	Estonia	Estonia	Estonia
	2	Estonia	Norway	Lithuania	Cyprus	Lithuania	Cyprus	Lithuania
	3	Denmark	Sweden	Finland	Lithuania	Cyprus	Netherlands	Cyprus
		B - Mining	E - Water & waste	F - Construction	H - Transport	I - Hotels & bars	L - Real Estate	R - Entertainment
ROMANIA	1	Netherlands	Italy	Cyprus	Netherlands	Cyprus	Cyprus	Cyprus
	2	Cyprus	Hungary	Spain	Italy	Hungary	Italy	Netherlands
	3	Italy	Austria	Italy	Germany	Netherlands	Netherlands	UK

14 Sectors are chosen on the basis of their vulnerability to ML/TF threats, according to available literature and national/supranational risk assessment reports (see, for example: Savona & Riccardi, 2017, 2018).

Business Sectors

Blacklists

In this sub-section, the analysis is focused on the sectors which show the highest percentage of shareholders from jurisdictions falling in the above mentioned blacklists and grey lists. **Construction** and **Hotels & bars** are the sectors that, in the sample analysed (IT, LV, RO), show the highest percentage of shareholders from jurisdictions included in one of the black or grey lists, respectively **2.8%** and **2.1%**.

Table 11: Shareholders from blacklists. % of total shareholders by sector. Selected sectors

	FATF black/grey lists	EU AML blacklist	EU Tax black/grey lists
Mining	0.2%	0.2%	0.4%
Manufacturing	1.1%	0.3%	0.6%
Wholesale	0.8%	0.6%	0.8%
Water & waste	0.3%	0.1%	0.3%
Construction	2.2%	0.2%	0.5%
Transport	0.5%	0.1%	0.4%
Hotels & bars	1.4%	0.5%	0.6%
Real estate	0.5%	0.3%	0.3%
Entertainment	0.2%	0.0%	0.1%

In the Construction sector, 2.2% of shareholders are listed in FATF black and grey lists and it is explained by the high presence of natural person shareholders from Albania in Italian companies. In Hotels & bars 1.9% of shareholders come from jurisdictions listed in one AML lists, mainly due to the presence of shareholders from Morocco and Pakistan in this sector.

As regards EU list of non-cooperative tax jurisdictions, Wholesale & retail is the sector with the highest percentage of shareholders from listed countries, equal to 0.8%. This result is influenced by the high number of Turkish natural persons that are shareholders in Romanian companies operating in this sector.

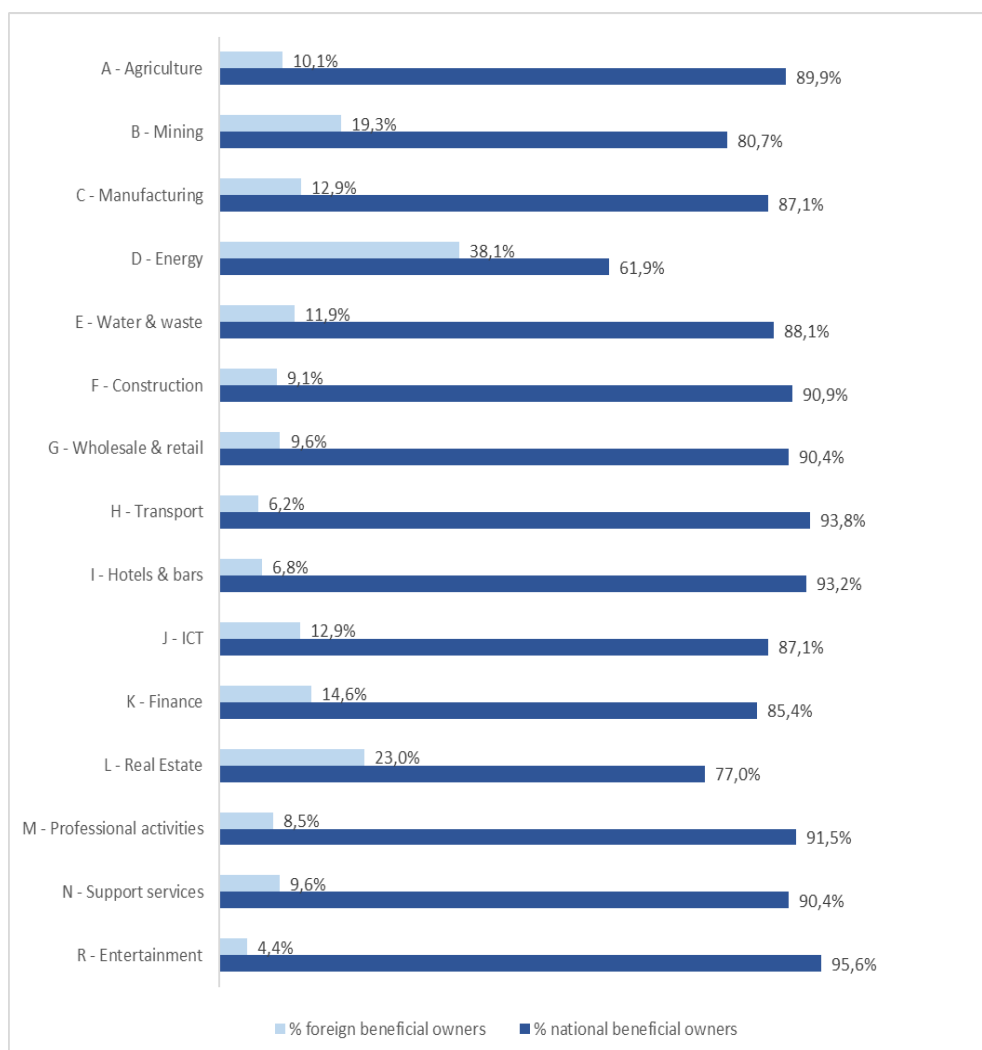
Business Sectors

Beneficial Owners

In **Latvia** and **Romania**, the only countries in which BO information is available disaggregated by business sector, **Real Estate** and **Energy** are the sectors with the highest number of beneficial owners per company, equal to 0.7 [note 15].

In almost all the sectors, most BOs are domestic. **Energy** is the sector with the highest percentage of foreign beneficial owners (38.1%), followed by **Real Estate (23.0%)** and **Mining (19.3%)**. This may be explained by the large number of multinational companies active in these sectors.

Figure 6: Natural and foreign beneficial owners by sector



15 A value lower than one is explained by the fact that only 26% of Romanian companies have available information on beneficial owners.

Business Sectors

Across most business sectors, the major European countries are the most frequent nationalities also among foreign beneficial owners. However, also in this case there are some exceptions, such as Israel in Construction and Real Estate and India and China in Hotels & bars. [note 16]

Table 12: Top 3 foreign BO nationalities by sector in Romania and Latvia

		Construction	Hotels & bars	Real Estate
LATVIA	1	Russia	Russia	Russia
	2	Estonia	India	Estonia
	3	Lithuania	Lithuania	Lithuania
		Construction	Hotels & bars	Real Estate
ROMANIA	1	Italy	Italy	Italy
	2	Israel	Hungary	Israel
	3	Belgium	Germany	Malta

16 Only 26% of Romanian companies have available information of beneficial owners, therefore these results could be incomplete.

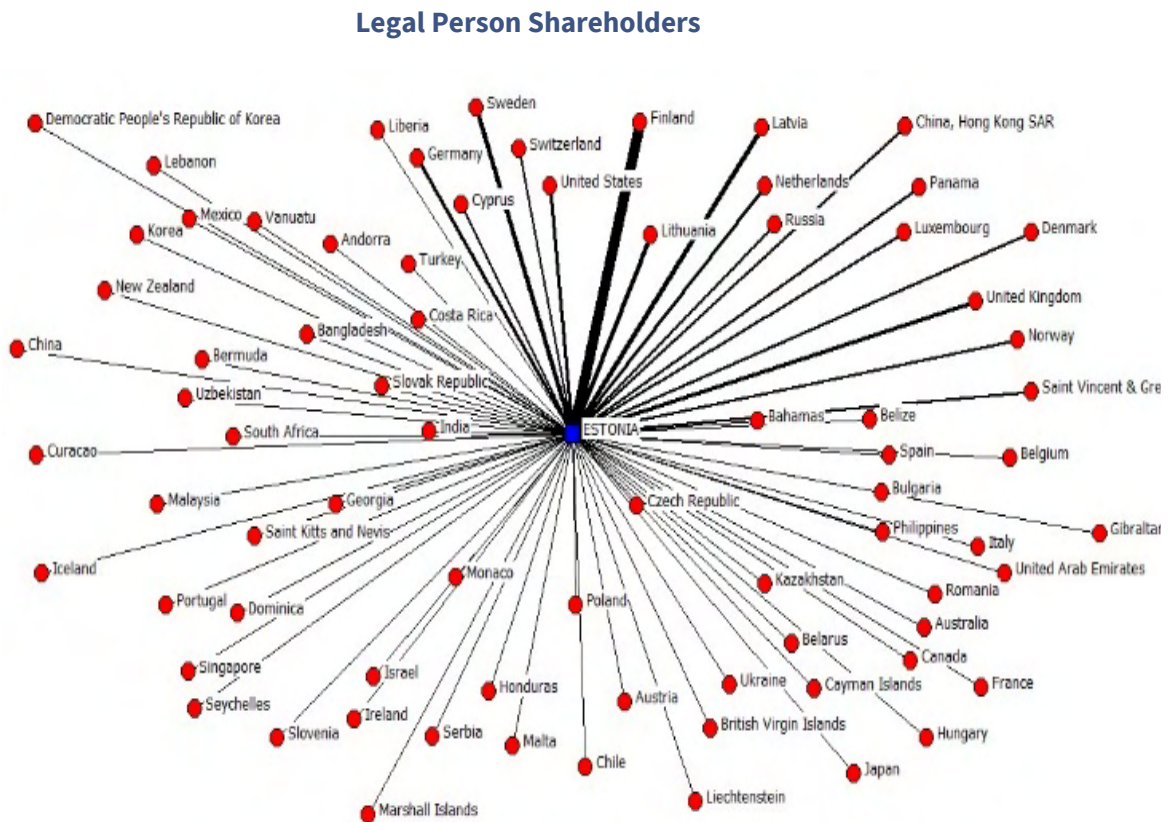
Analysis by Country

In this section an analysis of the most important cross-border links for each country is presented. The following figures show the network of the links between companies registered in the five EBOCS countries (EE, IT, LV, RO, ES) and shareholders, directors and beneficial owners from other jurisdictions. As said before, the thicker the link in the network, the higher the share of shareholders, directors or BOs of that nationality.

ESTONIA [note 17]

On average, 88.8% of shareholders in Estonia are domestic and 11.2% are foreign (15% in the case of legal person shareholders). 4.6% of directors and 6.5% of BOs are foreign. The most frequent nationalities among foreign shareholders, directors and BOs are those related to contiguous (or closer) countries.

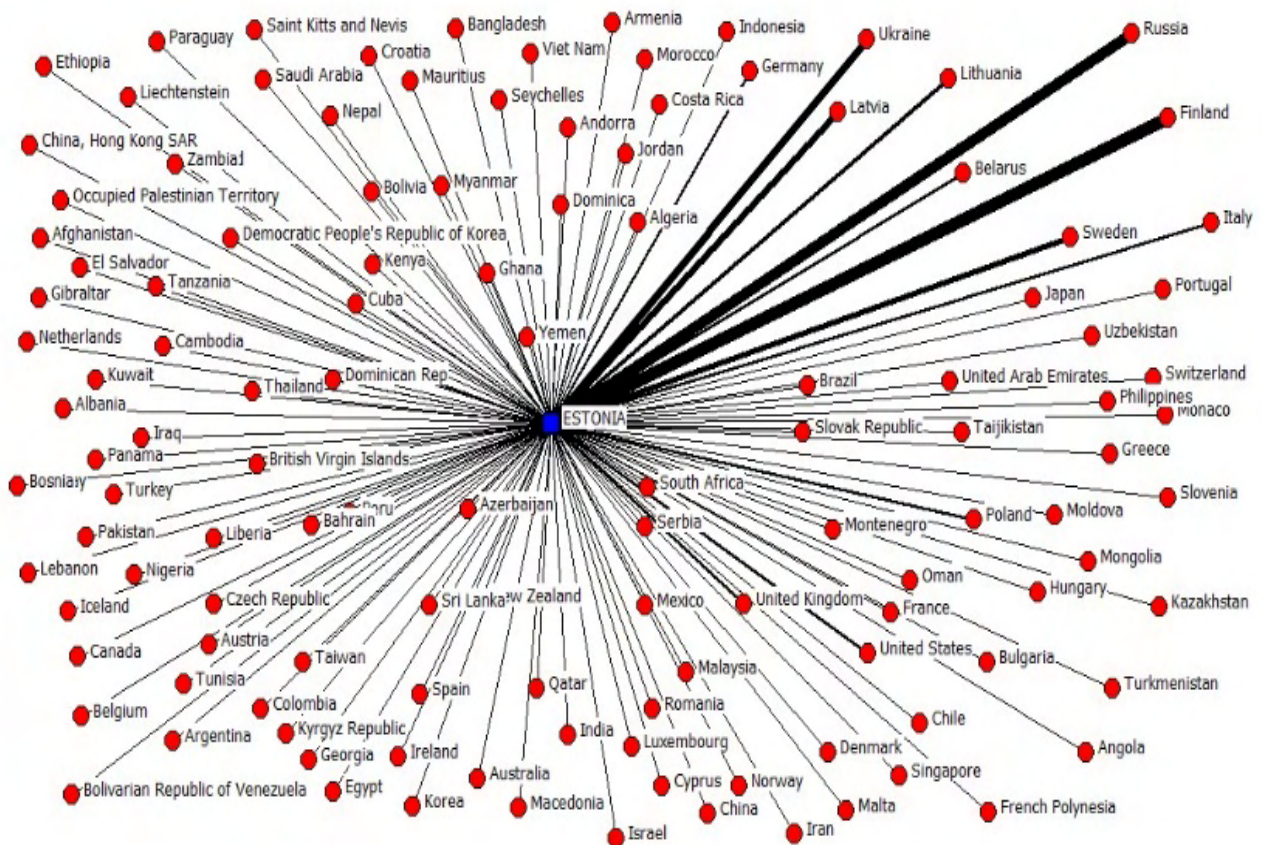
Figure 7: Foreign shareholders of Estonian companies



17 Estonia provided information on shareholders, directors and beneficial owners with no detail by business sector.

Analysis by Country - Estonia

Natural Person Shareholders

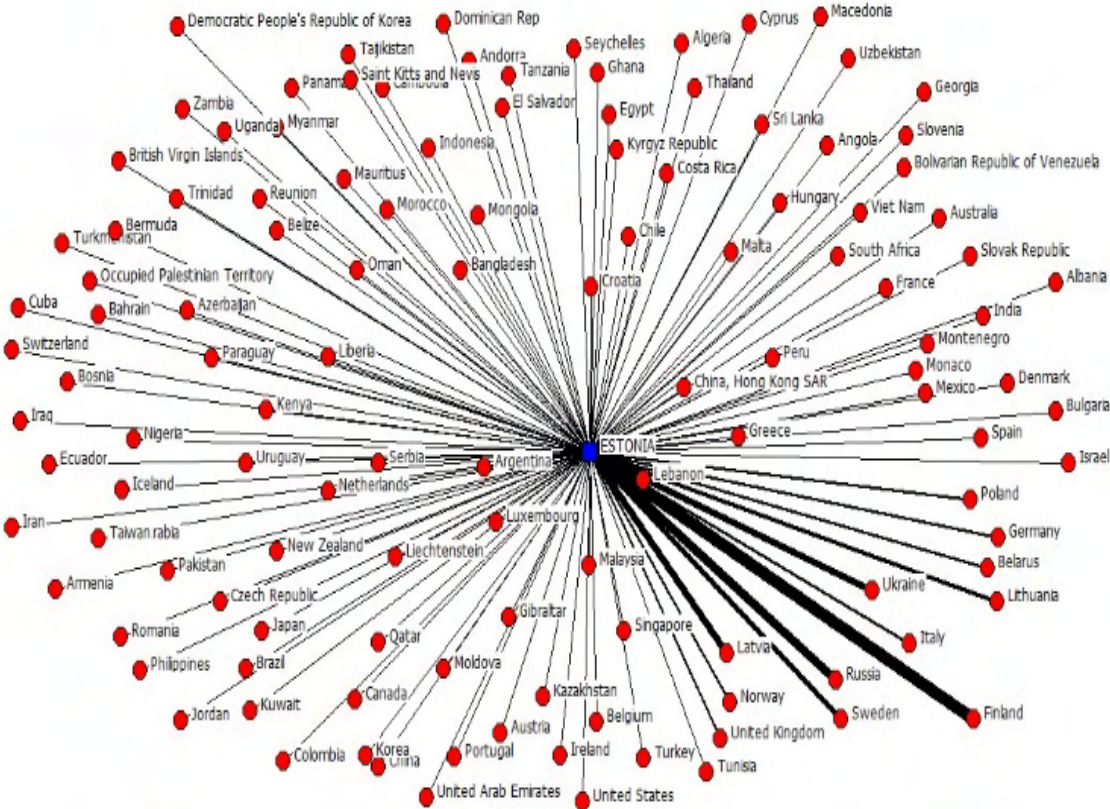


Finnish is the most frequent nationality among legal person shareholders (22.9%), followed by Swedish (8.8%), Latvian (7.7%) Lithuanian (6.6%) and Dutch (4.7%). Also looking at foreign natural person shareholders, Finnish (20.4%) is the most frequent nationality, followed by Russian (17.8%), Ukrainian (11.5%), Latvian (9.9%) and Swedish (5.7%).

Analysis by Country - Estonia

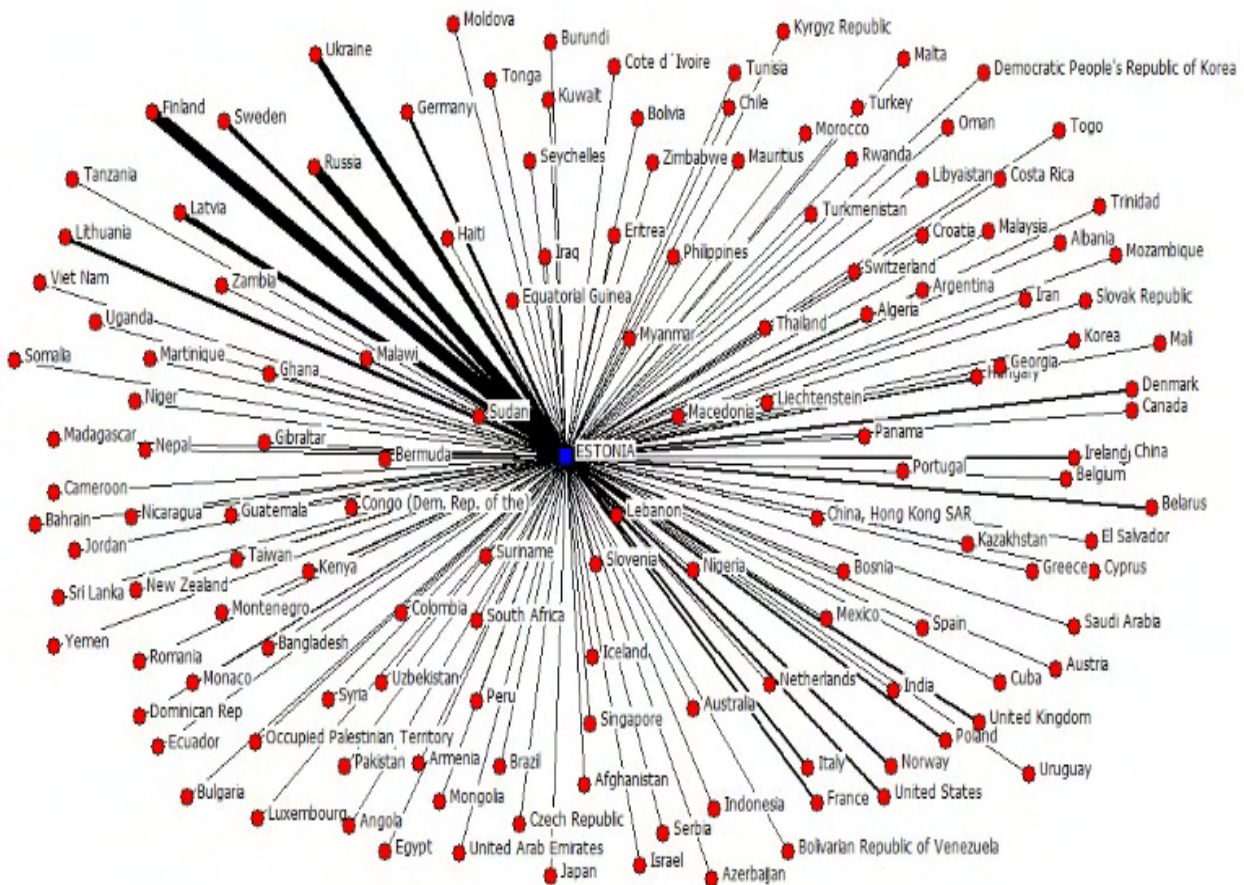
Figure 8: Foreign directors and BOs of Estonian firms

Directors



Analysis by Country - Estonia

Beneficial Owners



Similar patterns can be identified with foreign directors and BOs. Finnish (21.2%), Russian (14.2%), Latvian (10.8%), Ukrainian (10.3%) and Swedish (7.2%) are the most frequent nationalities regarding directors, while among BOs, Finnish (18.3%), Russian (14.3%), Ukrainian (9.9%), Latvian (7.5%) and Swedish (6.9%) are most represented nationalities.

Analysis by Country - Italy

Italy [note 18]

On average, 8.4% of the shareholders of companies registered in Italy are foreign. Notably, among natural person shareholders only 3% of them are non-national, while the percentage of foreigners is higher among legal person shareholders (13.7%). As regards directors, only 4.9% are foreign.

Besides the major European countries (Germany, France, United Kingdom), a frequent nationality among natural person shareholders and directors is Chinese, which may mirror the high presence of Chinese migrants living in Italy (Istat, 2020).

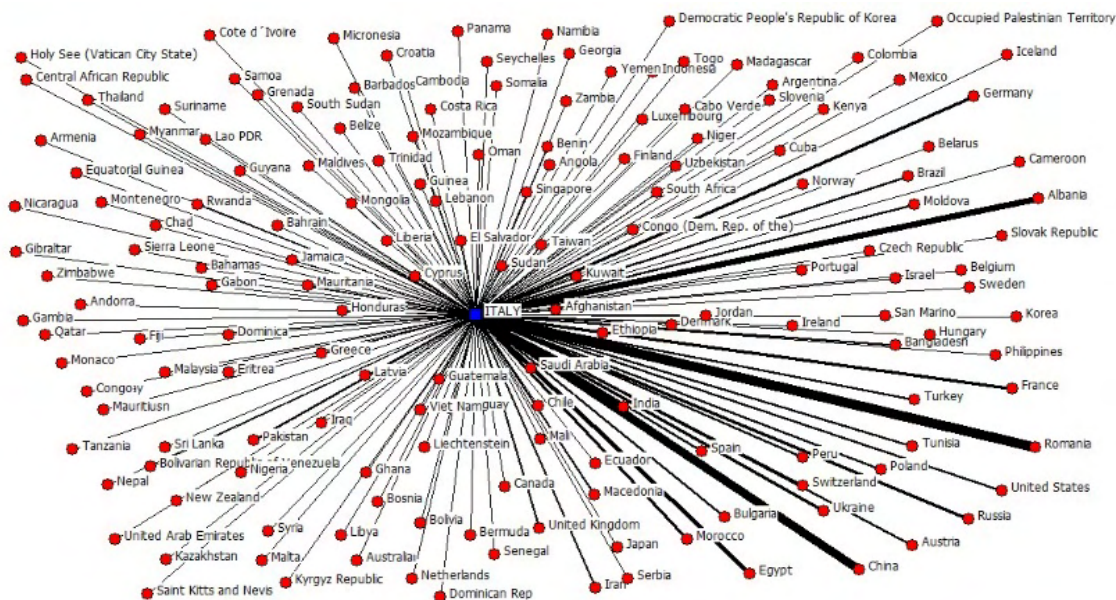
Among legal person shareholders, strong links can be observed between Italian companies and legal persons registered in Switzerland and Luxembourg. Among other factors - including geographical and cultural proximity (Savona & Riccardi, 2017), especially with regards to Switzerland - the high presence of holding firms from these countries may be also related to tax optimization purposes.

The sectors in which these shareholders are more frequent are Real estate, Construction and Entertainment for Luxembourgish legal persons and Wholesale & retail for Swiss legal persons, while Swiss legal persons are recurrent mainly in Mining, Hotels & bars and Real estate.

Instead, Spanish is the most frequent nationality among legal person shareholders, and almost 50% of them are shareholders in the Transport sector (NACE H). Other frequent nationalities are British (9.3%), Luxembourgish (7.5%), Swiss (7.3%) and German (6.7%).

Strong ties are identified with Romania, which represents 15.0% of total foreign natural person shareholders. Other frequent nationalities among natural person shareholders are Chinese (13.9%), Albanian (8.0%), Egyptian (4.4%) and German (3.6%).

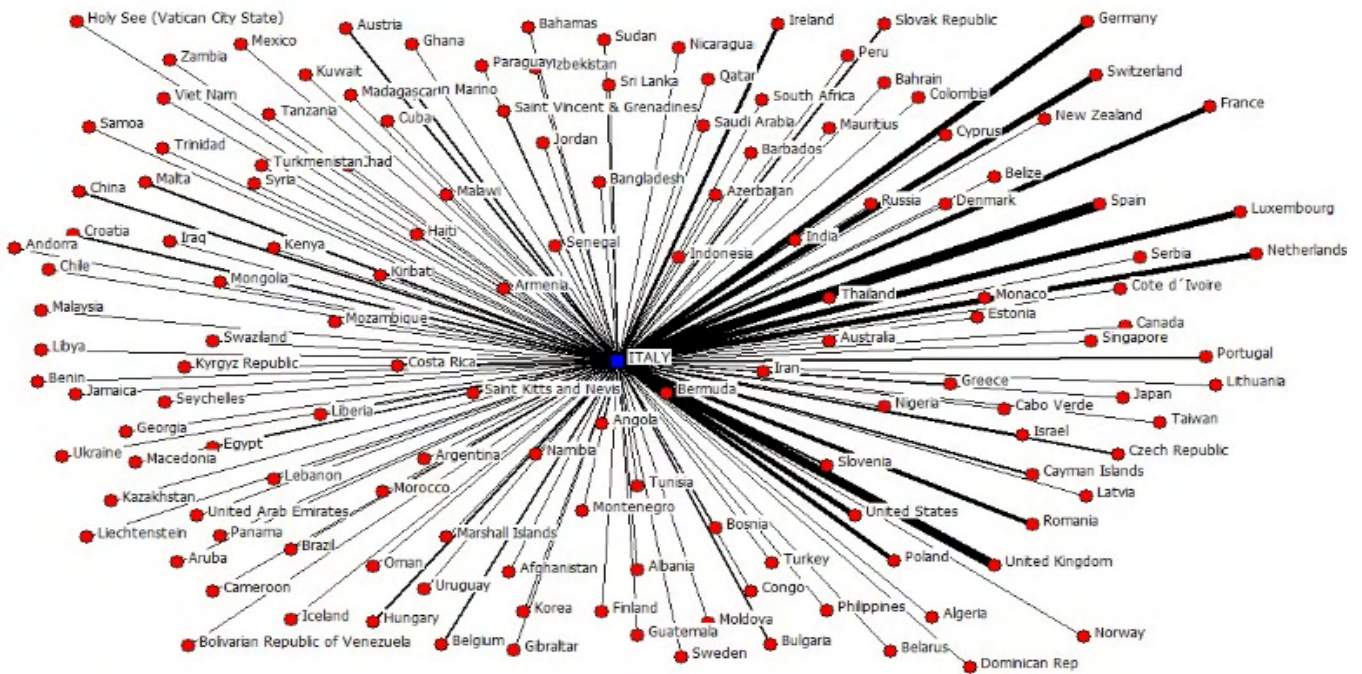
Figure 9: Foreign shareholders of Italian companies
Legal Person Shareholders



18 Italy provided information on shareholders and directors, by nationality and by business sector. The register of beneficial owners has not been established yet

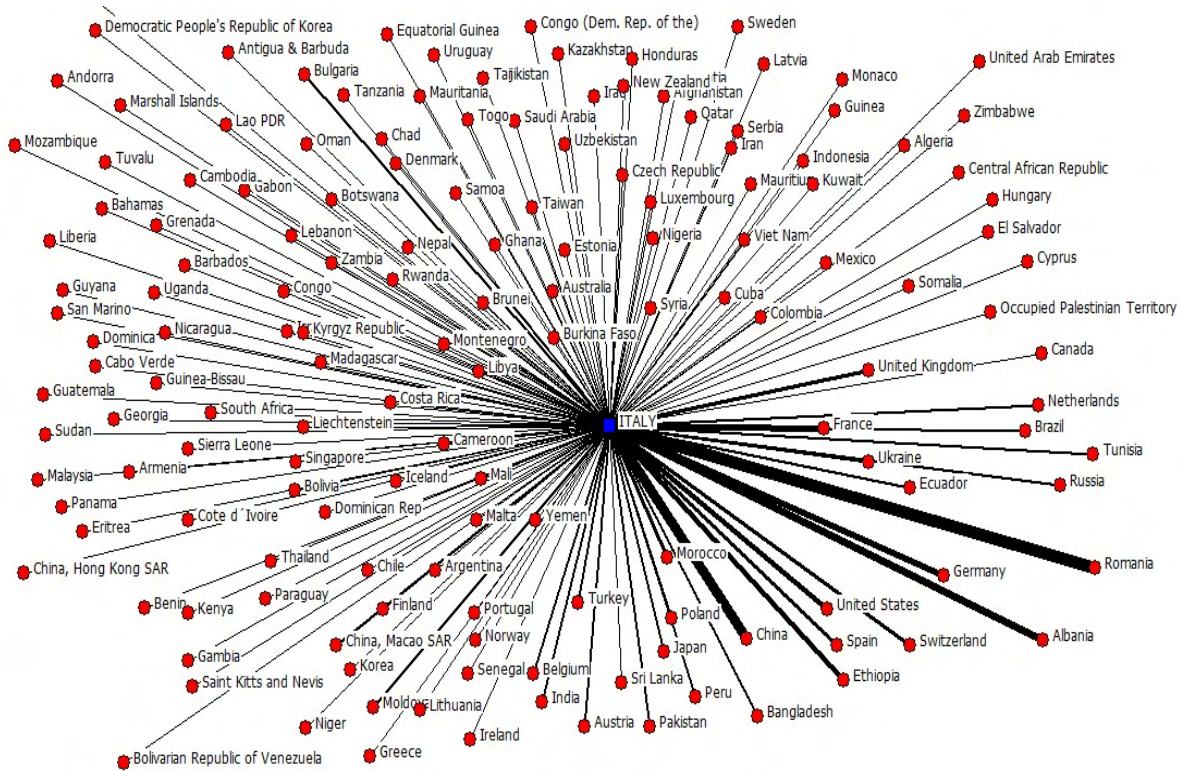
Analysis by Country - Italy

Natural Person Shareholders



Analysis by Country - Italy

Figure 9: Foreign shareholders of Italian companies



Italian companies present a predominant foreign director link to Romania (13.3%), which is the most frequent nationality among foreign directors, followed by Chinese (10.8%), Albanian (6.9%), German (6.3%) and French (5.9%).

Analysis by Country - Latvia

Latvia [note 19]

On average, 79.1% of shareholders in Latvia are domestic and 20.9% are foreign. Among them, legal person shareholders are more frequently foreign: 30.9% of total legal person shareholders are non-national, while only 11.0% of natural person shareholders is foreign. As regards directors, 11.7% of them are foreign, while among beneficial owners, 11.3% are non-national.

Besides the countries geographically and culturally close to Latvia (Russia, Lithuania, Estonia, Ukraine), Cyprus is a frequent nationality among legal person shareholders, mainly concentrated in the Real estate sector. It may be explained in light of the high level of Russian foreign direct investment in Eastern countries through Cyprus (Bulatov, 2017; Nesvetailova, 2020).

Estonian is the most frequent nationality among legal person shareholders, followed by Lithuanian (11.2%), Cypriot (9.1%), Swedish (5.9%) and British (5.8%). On the other hand, strong links are identified between Latvian companies and natural person shareholders from Russia (30.2%), Lithuania (9.4%), Ukraine (7.1%), Estonia (5.7%) and Germany (5.5%).

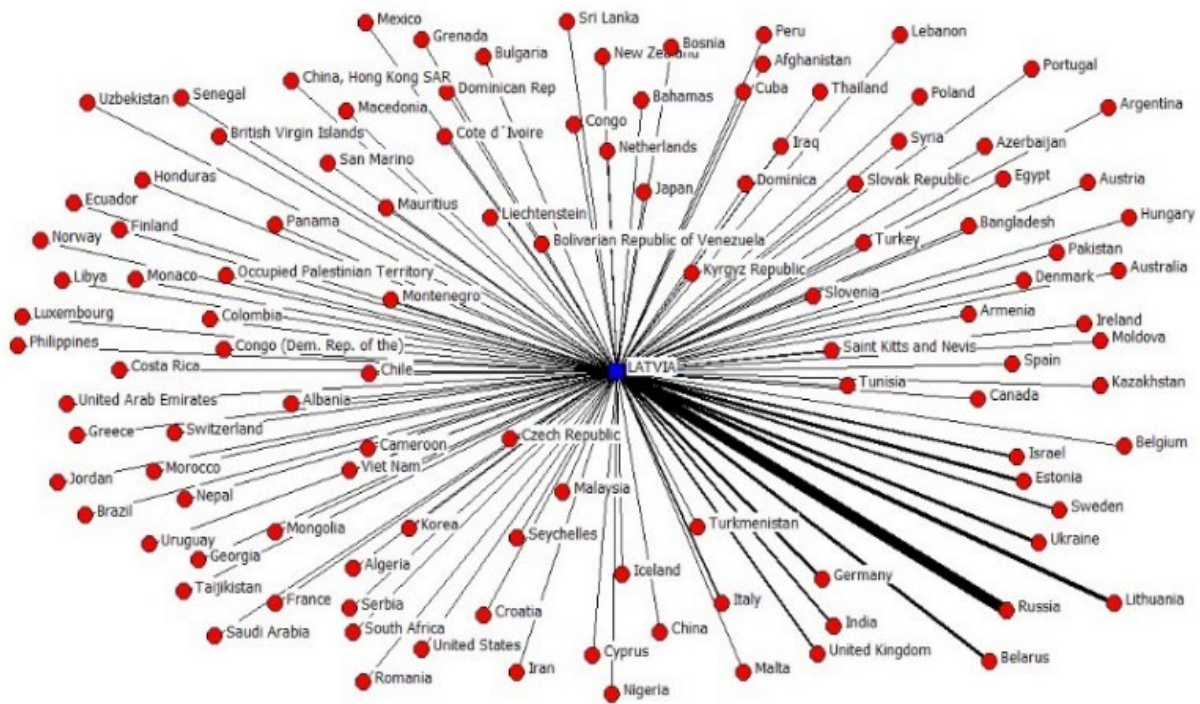
Figure 11: Foreign shareholders of Latvian companies



19 Latvia has provided information on shareholders, directors and beneficial owners with detail by business sector.

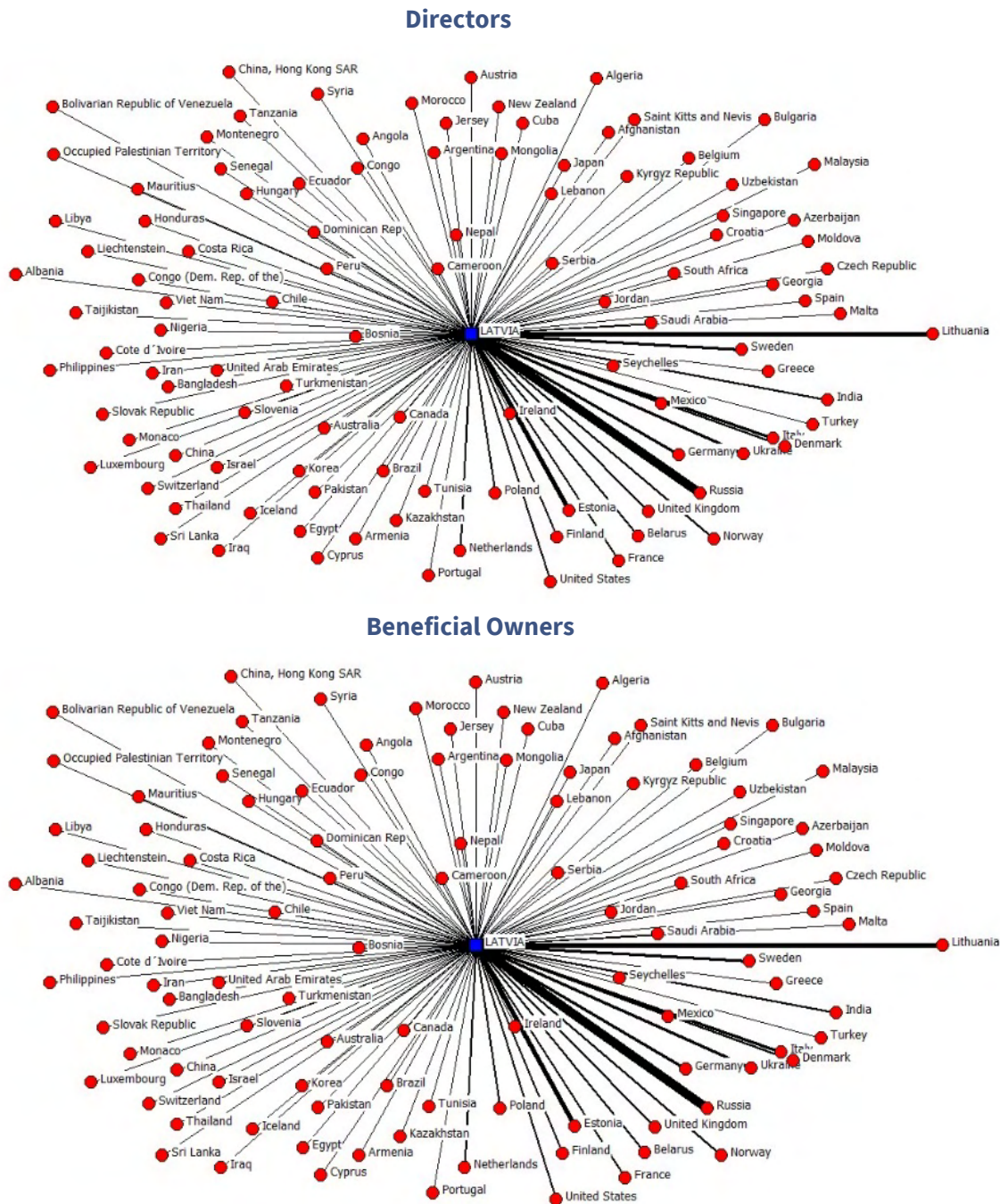
Analysis by Country - Latvia

Natural Person Shareholders



Analysis by Country - Latvia

Figure 12: Foreign directors SAR and beneficial owners of Latvian companies



Similar patterns can be identified among directors and beneficial owners. Russia (23.3%), Lithuania (11.4%), Estonia (9.1%), Germany (5.7%) and Ukraine (5.5%) are the most frequent nationalities among foreign directors. Similarly for beneficial owners: Russian is the most frequent nationality (21.7%), followed by Lithuanian (11.2%), Estonian (9.3%), German (6.3%) and Ukrainian (6.0%).

Analysis by Country - Romania

Romania [note 20]

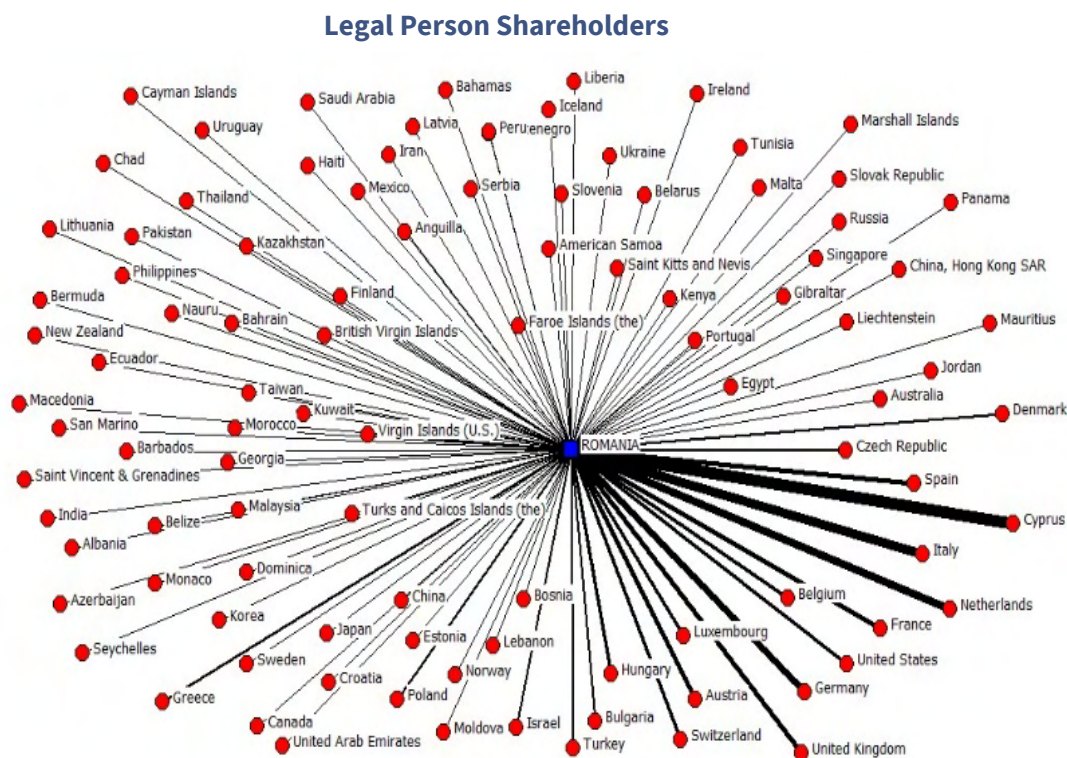
On average, 75.3% of shareholders in Romania are domestic. If separating legal person and natural person shareholders, 92.1% of natural person shareholders are domestic, while only 58.5% of legal person shareholders are from Romania. In terms of directors, 87.8% of them are domestic, while as regards beneficial owners, 90.1% are Romanian.

Cyprus is the most frequent nationality among legal person shareholders and Cypriot legal persons are mainly concentrated in Construction and Real estate sectors. Further analysis should investigate the driver of this relation: as well as for Latvia, it may be related to Russian or Israeli investments in Romania through Cypriot holding companies.

The high presence of Italians among shareholders, directors and beneficial owners may be explained by cultural proximity and strong business relations between the two countries (Aziani et al., 2021). Israel is a recurrent nationality among shareholders and beneficial owners and most of Israeli legal and natural person are shareholders in Construction and Real estate companies.

Strong ties are identified between Romanian companies and legal person shareholders from Cyprus (14.6%), Italy (11.6%), Netherlands (9.9%), Germany (8.5%) and Austria (5.1%), while the five most frequent nationalities among natural person shareholders are Italian (23.7%), German (6.8%), Turkish (6.1%), Israeli (5.8%) and Chinese (5.6%).

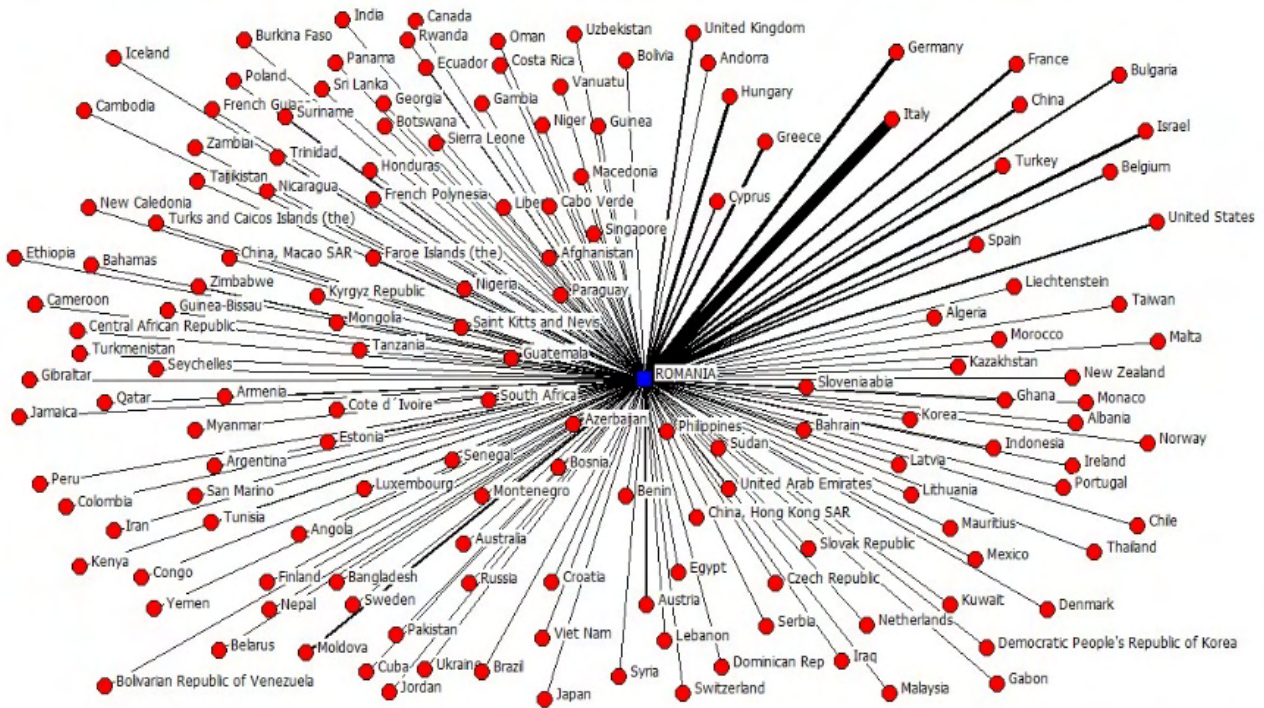
Figure 13: Foreign shareholders of Romanian companies



20 Romania has provided information on shareholders, directors and beneficial owners with detail by business sector.

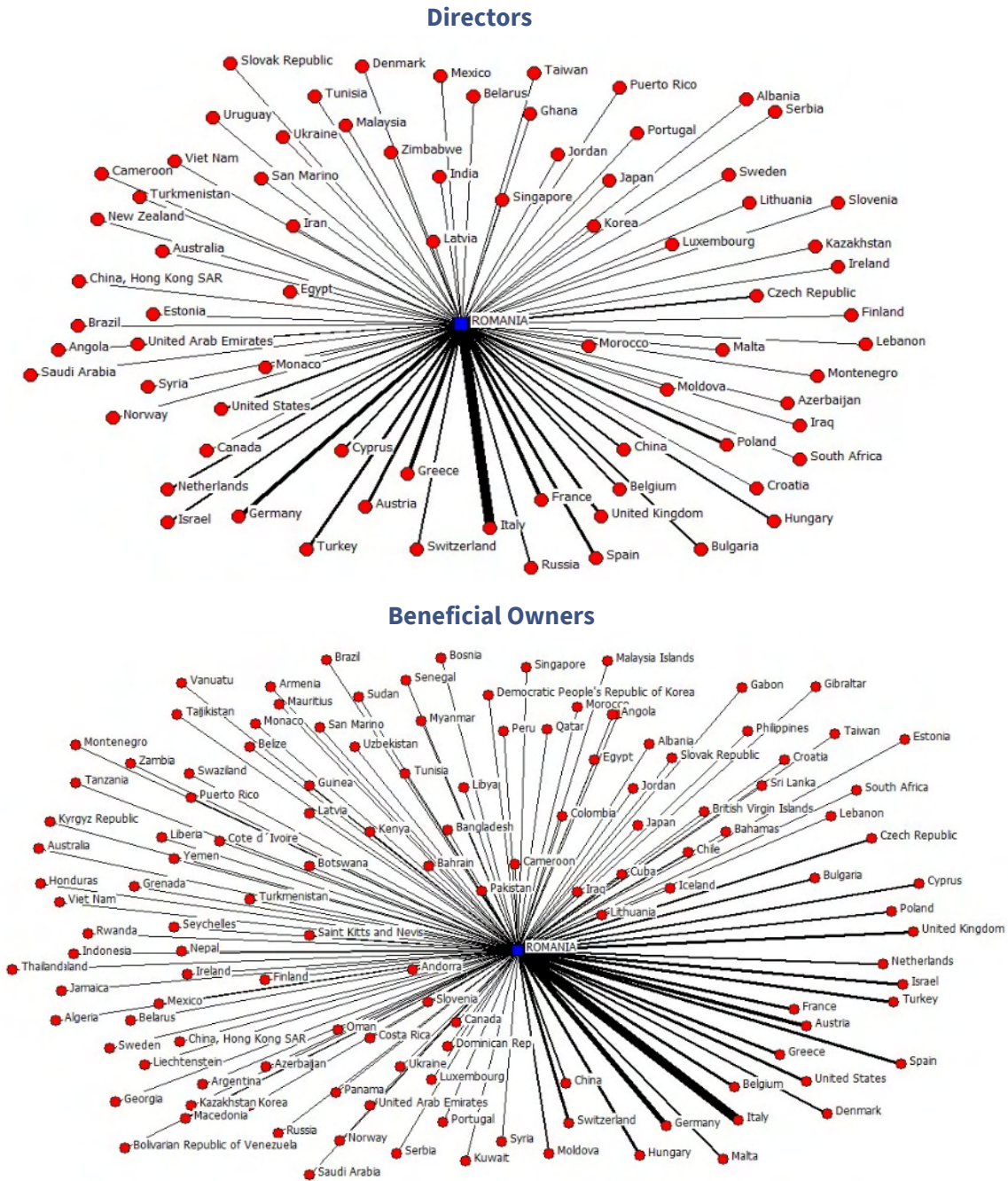
Analysis by Country - Romania

Natural Person Shareholders



Analysis by Country - Romania

Figure 14: Foreign directors and beneficial owners of Romanian companies



As regards foreign directors, strong ties are identified between Romanian companies and directors from Italy (19.8%), Greece (7.3%), France (7.1%), Germany (6.5%) and Turkey (5.1%). Italian (17.9%) is the most frequent nationality among foreign beneficial owners as well, followed by German (9.7%), Austrian (5.0%), French (4.9%) and Israeli (4.3%).

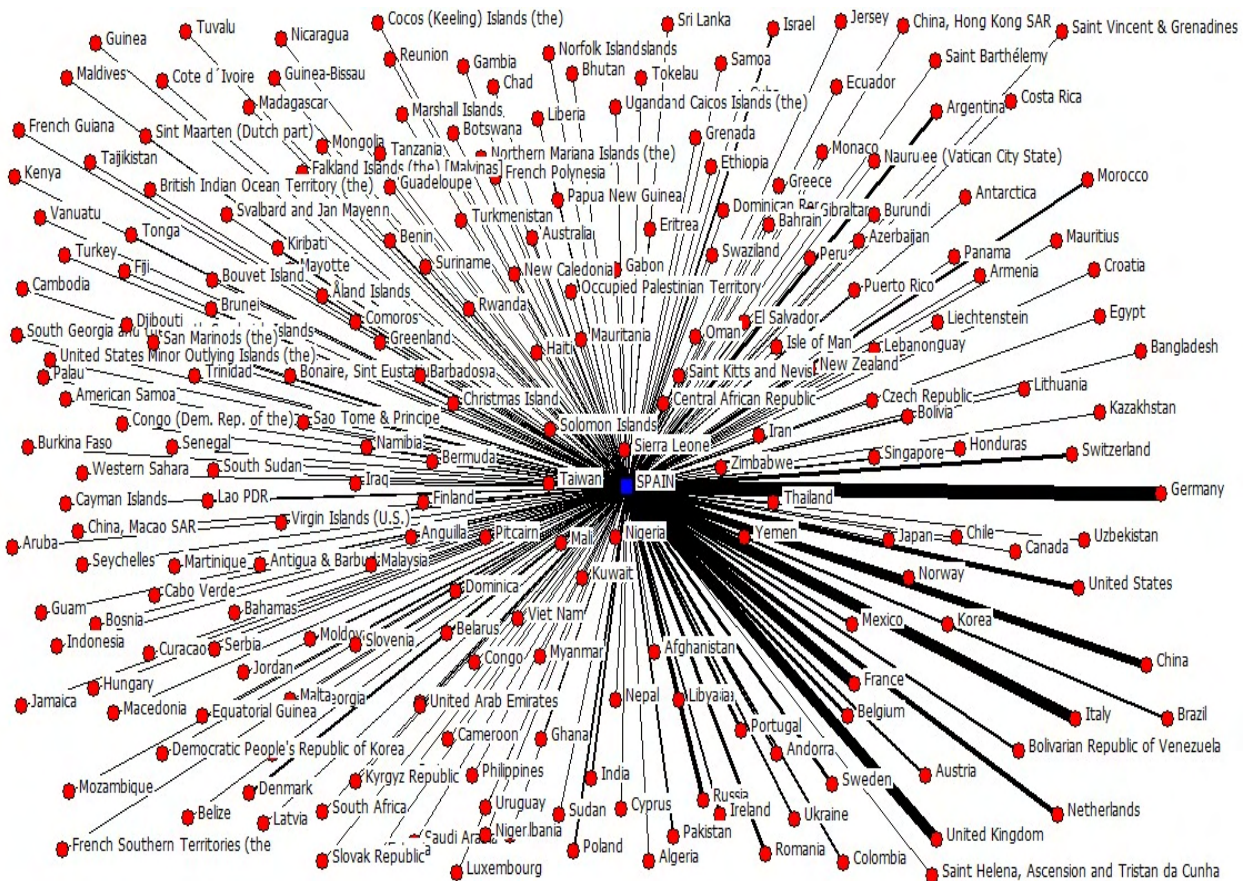
Analysis by Country - Spain

Spain [note 21]

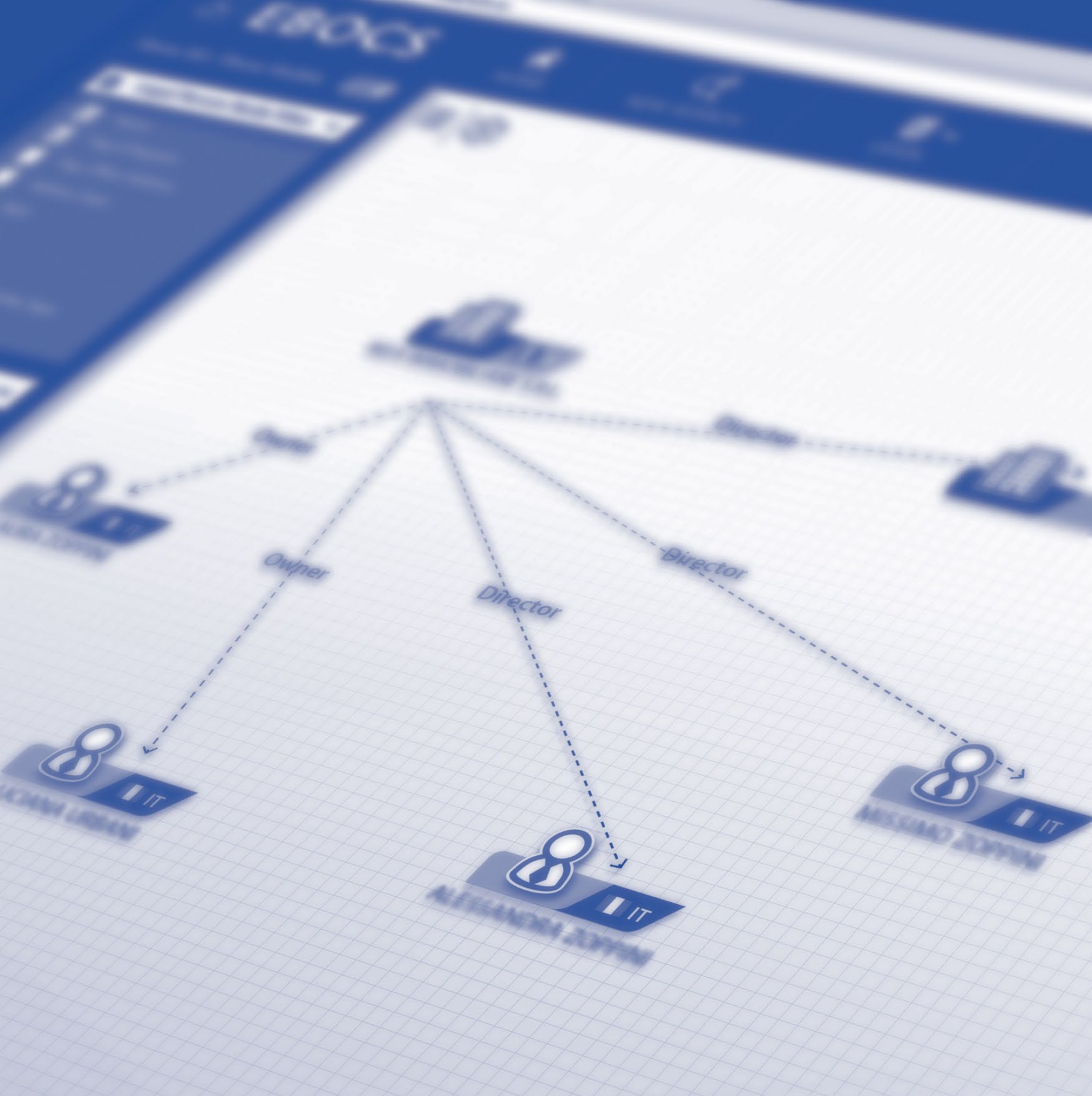
On average, 92.5% of beneficial owners are national, while the other 7.5% are foreign. German is the most frequent nationality among foreign beneficial owners of Spanish companies (11.2%), followed by British (9.9%), French (9.9%), Italian (9.6%) and Chinese (6.7%).

One driver behind these links seems to be the high presence of foreign citizens residing in Spain (Ferwerda & Riccardi, 2016) – particularly for the United Kingdom and Italy (INE, 2021).

Figure 15: Foreign shareholders of Spanish companies



21 Spain has provided information only on beneficial owners by nationality.



5 Production Level Plan

Production Level Service

The following graphic illustrates the high-level components necessary to implement and sustain a production level EBOCS service. The majority of these components have already been identified and known for some time. During the course of this project we have further reviewed the requirements within the context of data protection legislation and the EBRA operating context.



Prerequisites

The prerequisites are what we see as the requirements that need to be in place before proceeding with any further actions. It is essential that there are adequate resources to continue the actions into the future and that there is official support at a high level to sustain the actions.

Constitution

A constitution, governance and legal arrangements will need to be established to appropriately govern and coordinate the operation of an EBOCS production level service. There will need to be clarity on what services are to be provide and on a framework that sets out the functions and internal regulations that will be put in place to establish the controlled environment for the sustained operation and administration of the EBOCS service.

Policy

Any future platform must be able to engage with stakeholders in defining policies covering the operations of the platform.

Any policy discussions will encompass the nature of the platform, who may access data, the services that are provided, the sources of data to be made available and the standards that should operate.

Operations

The EBOCS organisation will have to manage an operational section and retain the capacity to interact with users to meet future and developing needs.

Our outline is based on our experience to date and specifies the minimum technical requirements and system capabilities that must be met to establish a production environment of the EBOCS platform.

Prerequisites

Prerequisites

Sponsor and Coordinating body

To become established in the first instance, an EBOCS service will require a funding sponsor and an organisation willing to take charge of operations including information and service management; platform infrastructure and support services.

A Member State, public agency or software supplier will not invest in or be interested in developing services around the EBOCS platform without the assurance that there will be continuous availability, improvement and adaptation of the platform and the network of data providers and consumers/collaborators.

On a strategic level, assurance is needed that the EBOCS services form a coherent and functional set operating at the EU level and across borders in accordance with changing legislation and with the growth of the EBOCS organisation itself.

The Commission has historically been very supportive of the work undertaken by EBOCS to date; however, with the developments with other EU initiatives, including BORIS, clarity is required to determine if EBOCS will play a role in this new landscape.

For management of the operations, it could be that a new agency is needed. It is more likely however that the operation would be housed by an existing organisation.

A distinct advantage would lie in using an organisation with technical competence and well-developed links with law enforcement bodies.

We have dealt with Europol, who have extensive IT infrastructure and who have

direct hands-on experience of investigations and liaison with the principal Counter Crime Agencies.

The Commission has a number of technical initiatives aimed at connecting public administrations all of which would have the technical and infrastructural facilities to support the platform.

We do not see a risk therefore that a suitable agency cannot be found to operate the service.

Funding

A general principle of subsidiarity and responsibility will be assumed.

This leads to a funding model as follows:

- Central EC funding of central services, platforms and governance bodies
- Member States, national agencies and trans-national organisations supporting their own costs of integration and service provision and consumption
- A flexible approach to accommodate future development of the network.

In the next phase of development as the network expands to achieve a critical mass of participation, it would be beneficial to continue support for registries that will join the network.

The EBOCS platform can continue to expand and consolidate in an incremental manner. If funding is available to continue the work, it must ensure that a final structure is envisioned and that the interim steps lead towards a sustainable platform.

GDPR Assessment

GDPR

In preparation for the delivery of a production level service, the project partners within this phase of EBOCS have undertaken a GDPR assessment of the EBOCS platform in conjunction with external GDPR consultants. The following list of documents have been produced as a result of this piece of work:

- a) EBOCS GDPR assessment – key recommendations
- b) EBOCS DPIA
- c) Privacy Statement
- d) Processor Controller arrangements

The following table presents an overview of the key recommendations that should be reviewed and considered as part of the deployment of a production level service:

#	Category	Legislation	Recommendation
1	Legal basis to be confirmed by the controller	Personal data shall be collected for specific, explicit and legitimate purposes and not further processed in a manner incompatible with those purposes. Article 5 (1) (b) - Directive 95/46/EC	<ul style="list-style-type: none"> a) CCA processing for the purpose of fraud prevention may not be automatically compatible with the original purpose. b) Each national business register must confirm that they have a legal basis for providing their data to the CCA agencies for the purpose of fraud prevention. c) Any future plans such as the sale of the data to CCA (other than for the purpose of covering the administration cost) must further be considered in relation to purpose compatibility
2	Data Processing Agreement to be signed between the National register (Controller) and EBOCS operator (Processor)	'Controller' determines the purpose and means of the processing of personal data and the 'Processor' processes personal data on behalf of the controller	A separate document describes the requirement under Data Protection Acts 1988 to 2018 and under GDPR. The set of contractual clauses are provided as an example and to be used as part of an existing agreement or as a stand-alone agreement.

GDPR Assessment

#	Category	Legislation	Recommendation
3	Privacy Notice	Provide clear information about the data you process (Art. (5) (1) (a/b))	<p>a) As a data controller, EBOCS only processes the EBOCS admin data. However, to provide clarity the privacy notice should facilitate a suitable data privacy notice referring to both processing activities and refer users to the privacy notice of the data provider (controller) where applicable.</p> <p>b) In regard to the data where EBRA is the data controller, the privacy notice must be embedded in the 'natural' process flow for new users such as the registration process.</p>
4	EBOCS Service – Exporting / Transferring Data	Personal data shall be collected for specific, explicit and legitimate purposes and not further processed in a manner incompatible with those purposes. Article 5 (1) (b)	<p>a) CCA have the ability to export data.</p> <p>b) Exports of personal data can be made from information available in the public registers but the person/organisation to whom the information is transferred to must comply with any restrictions on access to or use of the information in the national register.</p> <p>c) The national business register must consider if EBOCS functionality is covered under the legal basis used for each national register.</p> <p>d) The EBOCS service must ensure that the conditions of use in the public register are replicated in the EBOCS service and in any transfers to any further recipient of the data such as the CCA.</p> <p>e) Further functionality may need to be considered to protect the data accordingly to the requirements of the national registers such as audit trails, export authorisation, Pin protection, MFA, time-stamping, registration of a case number etc.</p>

GDPR Assessment

#	Category	Legislation	Recommendation
5	EBOCS Service - Data retention / deletion	Personal data shall be adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed (Art. (5) (1)(c))	<p>a) EBOCS Service facilitates the consolidation of data from national business registers in real-time.</p> <p>b) Specifically this allows for the generation of persistent, semi-persistent logs, exports or back-ups. Those must be handled in accordance with the data minimisation principle and align with the requirements of the data controller.</p> <p>c) Requirements should be defined in the Data protection addendum and reflect the requirements of the national register.</p>
6	Data Protection Officer (DPO)	<p>The controller and the processor shall designate a data protection officer (Art 27 (1)) where:</p> <ul style="list-style-type: none"> • processing is carried out by a public body • the core activity of the controller or the processor consists of the processing operations which require regular and systematic monitoring of data subjects on a large scale. 	EBOCS operator should engage a DPO for the EBOCS service once the service goes into production. This could also be done in cooperation with an existing DPO from a national register.
7	Accountability / Compliant Processing	<ul style="list-style-type: none"> • The controller shall be responsible for, and be able to demonstrate compliance with paragraph1 ('accountability') (Art. 5 (2)) • Where processing on behalf of a controller, the processing shall be governed by contracts (Art 28 Page 4 of 4(1)) • The contract shall stipulate that the processor makes available to the controller all information necessary to demonstrate compliance. (Art 28 (1) (h)) 	Creation of EBOCS policies to include breach procedures, retention/deletion procedures, data subject request procedures.

GDPR Assessment

#	Category	Legislation	Recommendation
5	Security	Personal data shall be processed in a manner that ensures appropriate security of the personal data, including the protection against unauthorised or lawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures (Art. (5) (1)(f)	Document internal security procedures, which should include the following: <ul style="list-style-type: none">a) CCA authorisation and registration processb) Policy and procedures for exporting data outside of the EBOCS platform e.g. Pin protection, MFA, encryption, transfer etc.c) Admin users rightsd) Security policies and access rights applicable to any Sub-processore) Policy on regular reviews, penetration tests and vulnerability scans

Constitution / Policy

Constitution

Statute / Articles

In order for the network to be operational, a coordinating board should be established involving the major stakeholders. That body should establish the governance model that will be adopted. That group should undertake activities to:

- Identify governance requirements stemming from the legal, operational and technical dimensions of the network
- Suggest alternative governance frameworks that might fit the requirements and provide swot and cost-benefit analysis.
- Consult main stakeholders and foster consensus about the choice of model and its particular parameters
- Provide a description of the organisational framework needed to implement and maintain governance and a roadmap for its establishment
- Ensure acceptance of the governance model, organisational framework and roadmap by stakeholders

Governance

The tasks of the governing body would initially focus on coordination of existing structures and decision-making processes.

Gradually, the governing body could receive additional governance tasks and responsibilities to support legal decision making in the framework of existing legislation and the European Institutional Framework.

Policy

Platform

There will be costs associated with the operational running of the platform and some data sources are required by policy and law to charge all users for accessing data. Some agencies derive their revenue for operations from access fees.

The relevant authorities should push for free usage for data transmitted across the network or, if that is not possible, develop easy ways in which payment can be arranged.

Access

During the project, access has been confined to EU Counter Crime Agencies. This enabled us to avoid complex policy issues for data providers while securing relevant quality reviews of the service.

That position is not sustainable into the future as reasonable requests for access will come from partner agencies with legitimate claims to use the service - particularly if they provide reciprocal access to data they have available.

Access should be provided to compatible non-EU actors based on standard EU criteria in the law enforcement area such as reciprocal access to data, status on accession to the EU etc. We see the priority as moving towards full EU coverage in the first instance.

Services

Services

We envisage demand for further services in addition to the existing EBOCS core services. A summary of these services is provided as follows:

Certification	<p>The basic EBOCS services are intended to provide information only. They support law enforcement by reducing the time taken to acquire and comprehend the data structures.</p> <p>Law enforcement processes require evidence to move to court proceedings and EBOCS is not currently designed for that.</p> <p>A full analysis is needed to show the level and means of digital certification of data that should be provided.</p>
Bulk Data Analysis	<p>Bulk data analysis involves the collection in one location of data on connections between registered entities (e.g. statistics on owners of certain nationalities in certain geographic areas or business sectors). This collection allows analysis by experts of the context within which businesses operate across borders.</p>
Access Logging	<p>Users have various views on the logging of access to the system. A proper trail of actions can be important in legal proceedings. At the same time, criminal investigations need to be secret as the very fact that data is accessed is useful intelligence.</p> <p>We consider that the extent of access logging should be configurable by the end users.</p>
Certified Document Ordering	<p>EBOCS supports document retrieval. Business registers also usually supply certified paper documents, but it is conventionally a separate paper-based system.</p> <p>A future EBOCS system should support the ordering of certified paper documents.</p>
Entity Monitoring	<p>Some registries provide a monitoring service where users are notified of changes on registered entities. We have been informed by users that a service such as this would be beneficial.</p>

Operations

Data Sources

In addition to the existing connected Business Registers, we would envisage the following registers as potential data providers:

Beneficial Ownership Registers: This is the basic data set - the beneficial ownership registers. This should expand over time to all of the EU registers.

Business Registers Ownership records: The beneficial ownership data on its own must be supplemented by all available ownership and control records such as shareholder data, directors etc.

Land Registers: Information relating to the ownership of land is an important source of data for law enforcement.

LEI: The GLEIF operates a register of Legal Entity Identifiers including ownership data. It is open data and should be included in a production level EBOCS system.

Other Registers: While attention focuses on company registers governed by the 1st Company Law Directive, some important entities, such as credit unions, are, in some jurisdictions, registered elsewhere.

Standards

EBOCS users should work to influence data usability and accuracy back in the originating registers. By involving a set of users with a unique perspective on the data they can add value to the sources. This includes the use of national ID systems; geographical identifiers and numbering standards. EBOCS could also perform data quality checks and report these back to the data providers.

Operations

Management and Support

A team of support staff will be necessary to maintain the production network once it is deployed.

From our experience in the operation of similar platforms such as the EBR Network, we propose the following complement of staff to provide functional support to the platform:

Support Manager: responsible for the overall management of the support of the network and also its technical direction and strategy. This would be a 50% FTE role.

Two Network administrators / developers: These two roles would provide resilience for maintaining, supporting and extending the platform. They would both be full time roles.

Semantic: Ontology Management

In EBOCS we agreed to use a small set of terminology to represent the various data elements that could emerge from registers.

This process is not straightforward and as the system expands, which involves a higher number of countries, the number of agreed components actually declines as a percentage of the data model. It is essential to use, as far as is possible, shared, and agreed meanings for terms.

Data Normalisation

The referencing of entities across borders for the purposes of EBOCS will benefit from BRIS introducing the EUID, however, alignment is not fully implemented at this time. There is consideration for a wider need for proper identification of owners (both natural and legal) at the time new register entries are made. This will also serve as a verification of data provided by companies.

Application Management

Application management activities will be required as part of any production level system. These will include, but are not limited to the following activities:

- Security
- Patch Management
- Change & Release Management
- Licensing Management
- Warranties and Third Party Support Agreements (if any)

Service Benchmarking

It will be necessary to define service-level agreements with appropriate performance benchmarking. It will be difficult to put in place an enforcement mechanism for this given the voluntary nature of any cooperation, but users should themselves see that proper performance levels must be maintained if the system is to be fit for purpose.

Platform

The nature of the platform that the technology stack will be deployed will need to be defined. In practice the platform could be that of an existing publicly owned service provider.

Advanced Security Model

EBOCS is intended to be a service in support of the CCAs in tracking ownership information across Europe. In the context of law enforcement, the platform would need to have a high level of security.

The 4AMLD requires that the provision of data under the directive to competent authorities or FIUs is not made known to the entity to which it relates.

It is likely that any live operation would have to go beyond that level of security, which

would in any event be primarily a matter for the data provider such as the business register.

The platform would have to facilitate secure and reliable message exchange and be able to ensure that the data exchanged had originated with the responsible authority. These security requirements would have to be defined in an adequate security model. It is envisaged that we will be able to leverage the building blocks as output of other European projects and this would be dependent on the host or sponsoring body.

System Controls

An operational system will have several management components that will ensure smooth operation and service delivery for the system end-users. We envisage the following essential components and services:

Automated Service Monitoring & Notification

The system would have dashboard services that would ensure early detection and analysis of operational issues. It would provide diagnostics on technical issues that may arise.

Logging & Reporting

The system would manage the interaction between the partners and keep partners updated on network interactions and traffic. It would support charging, diagnostic and reporting facilities.

Test, Acceptance & Production Environments

In order to run a reliable and professional service a number of individual environments would need to be established and maintained so that new software or services could be tested appropriately and released in a controlled and best practice manner.

Resilience & Fail-over

The system would need to be deployed to a high availability, high performance infrastructure in order to facilitate live operation and to establish resources to handle downtime and backup.

Additional Support & Integration Tools / Documentation

Operationally it is important that partners are provided with assistance in joining and maintaining their presence on the network. To reduce the on-going staff costs there is an upfront cost of developing suitable software tools and documentation.

Disaster Recovery & Business Continuity

The key components of the network must be robust and easy disaster recovery must be possible. This is easier to maintain on cloud services, but security and confidentiality must be maintained.

Procedures Manual

An extensive user-friendly procedures manual greatly reduces the work for all participants but must be defined and maintained. These procedures will support the management components defined above to ensure the required service delivery.

Liaison

It is anticipated that the following direct liaison activities will arise:

- Asset Recover Agency – CARIN: The Camden Asset Recovery Interagency Network manages cooperation between national Asset Recovery Offices
- Asset Recovery Offices: Asset Recovery offices are one of the principal sets of authorities tackling crime with an international dimension. *We see the EU ARO Platform hosted by DG Migration and Home Affairs together with CARIN as the appropriate channel.*
- National CCAs: National Counter Crime Agencies encompass the police, FIUs, AROs and tax authorities
- Europol: Europol operates FIU.net and coordinates EU CCA activity
- FIU-NET: FIU.net is a decentralised computer network supporting the Financial Intelligence Units (FIUs) in the EU. We see EUROPOL as the link to the FIUs.

Production Level Roadmap

Within the following section, we present an indicative roadmap to achieving an EBOCS production level service. The roadmap highlights the key components and anticipated milestones in achieving these components across a 24 month period.



A further breakdown of the required actions and schedule is provided in the subsequent pages.

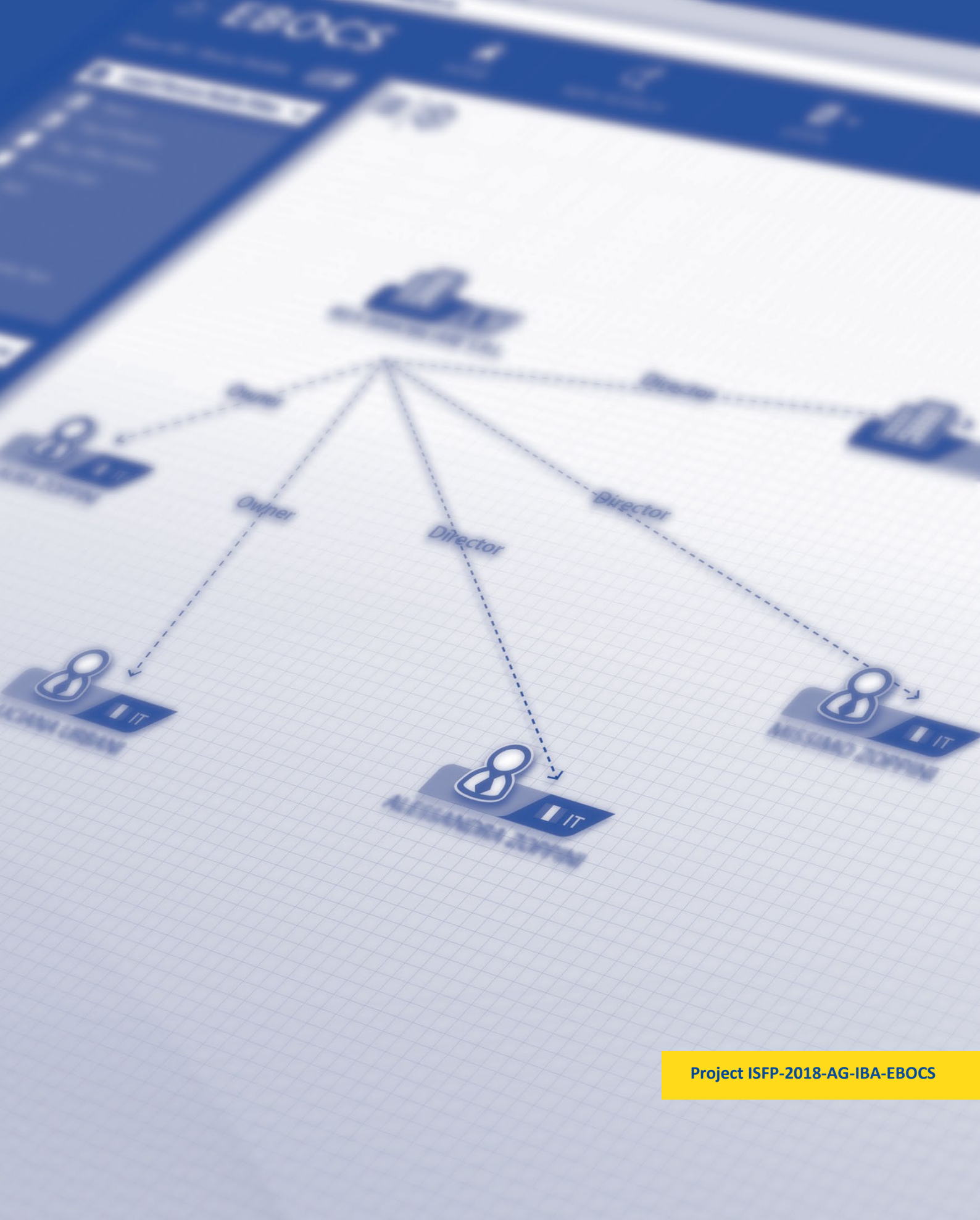
Production Level Roadmap

The project phase to prepare and deploy a production level EBOCS services is envisaged to run for a 24-month term.

#	Category	Description	Date
1	Prerequisites	Project sponsor and operation organisation are assigned.	Pre Month 1
2	Governance	The governance model including a project board will be set out.	Month 1 Year 1
3	Policy	The policy guidelines for the project will be defined and agreed. This includes any partner agreements required (e.g. potential Grant Agreements; Partner Consortium Agreements etc)	Month 3 Year 1
4	Information Sources	Outreach and engagement activities commence with the existing information business register data source partners.	Month 3 Year 1
5	Additional Information Sources	Review and engage with additional information sources that could be integration for the initial production level system or for future integration phases. Data quality activities and feasibility of timeframes / data sharing agreements etc will have to be conducted.	Month 4 Year 1
6	GDPR	GDPR activities will commence. This will include an initial review of the GDPR recommendations to comply with legislation as outlined in the previous iteration of the project. A plan to implement these actions will be agreed with project partners.	Month 5 Year 1
7	Data Sharing Agreements	The project team in conjunction with the project sponsor will work with the data providers to sign up to the proposed data sharing agreements.	Month 6 Year 1
8	Additional Services	Review and Schedule delivery of additional services identified as part of the piloting phase within this iteration of the project.	Month 8 Year 1

Production Level Roadmap

#	Category	Description	Date
9	Production Environment	The production environment is designed and deployed. This includes all components such as security requirements; backup and disaster recovery; scalability; support and maintenance agreements etc. Agreed additional services will also be developed and deployed during this phase.	Month 1 Year 2
10	System Testing and Quality Control	This activity relates to the quality control of the information provided to end users as well as establishment of support services for these end users.	Month 3 Year 2
11	Deployment	The production level service is deployed including system support and monitoring	Month 12 Year 2



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