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Tailored IoT & BigData Sandboxes and Testbeds for Smart, Autonomous and Personalized Services in the European Finance and Insurance Services Ecosystem

D9.12 - Exploitation and Sustainability Plan - I

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0.4	2021-03-25		First round of contribution
0.5	2021-04-02	All	Work in Progress - Partners' Contributions for exploitation
0.6	2021-04-18	All	Pilots' Updates
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2.0	2021-04-29	All	Version for Quality Assurance
3.0	2021-04-30	All	Version for Submission

Executive Summary

The INFINITECH project has set its goals to become a reference ("Lighthouse") project of high interest and operational and policy relevance to today's and tomorrow's mainstream financial sector, (e.g. as represented by the 15 project pilots listed in the DoA (Description of Action), addressing core needs of incumbent and/or challenger institutions and their customers in banking, fintech, insuretech, etc.).

We also monitor emerging challenges, not part of the initial DoA but becoming a priority for younger citizens, such as green banking and investment. The Greta Thunberg generation demands that climate change considerations are part of thinking about Know Your Customer in a broad way, as part of global banking in the sense of world sustainability, using bank loans to influence customers to live and work in more sustainable ways, e.g. to generate more than you consume, extending the original DoA notion of exploitability, in ways that tomorrow's founders of start-ups will see as natural companions of "One World" loan criteria, leading to "lendtech 2030" and to zero-carbon banking and innovation support. This project's Lighthouse status is in tune with wider shifts in Horizon Europe from now to 2030, whose technology innovations address both Big Data and Machine Learning from a cross-cutting perspective that addresses key initial needs expressed by major and legacy stakeholders and their customers (including SMEs) and also emerging needs in adjacent sectors and/or arising from societal threats (e.g., pandemics, attacks on cyberphysical systems).

In the first half of the project, reported on here, the project reached all of its significant objectives for this period (such as a Reference Architecture Design, a set of components and tools, a Market Place) to demonstrate that a set of integrated, intelligent, collaborative, predictive and secure solutions to market needs can be developed efficiently and effectively by an EU-wide Lighthouse approach (as here), then adapted and adopted by a market always seeking more resilient and cost-effective defenses to face a growing and evolving security menace. The present document describes the initial version of the Exploitation & Business Plans of the project with the contributions of all partners and stakeholders integrated in a coherent vision able to transform a set of proof of concepts and artifacts at different maturity levels in an effective business value proposition tuned to the needs of the financial sector and ecosystem.

The main focus of this first version of the report is the initial approach to market transfer and exploitation of the project results. This deliverable sets up the general approach and the methodology to be followed during the rest of the project lifespan and the project's commercialization strategy, with special focus on the project's market platform, the identification of the exploitable items, the solutions/services that will be provided, the business models and monetization strategies of the services of the market platform.

A detailed financial analysis will be conducted at a later stage of the project, M36, with main focus on the financial sustainability of the business models.

As part of the exploitation strategy of the project, both joint exploitation and individual plans will be developed regarding the INFINITECH market platform and the individual partners' exploitation. On the joint side of the exploitation, IPR (% of distribution of the intellectual property rights) and commercial agreement (or the creation of a new legal entity (if this is approved by the consortium) have been drafted in this document and will be discussed; a final version will be available at a later stage.

Of course, cross-cutting and novel business models are also part of this strategy and the methodology used is the Canvas Model generation [2], which will provide an intuitive and visual description of the model selected by the consortium for the pilots and the platform. This approach will be supported by the description of the 9 building blocks of the model that are under discussion and will have a materialization during year 3 of the project.

As a living document, any market update or commercial opportunity identified with a direct impact on the project will be reflected in the next iterations of this deliverable (M27 & M39). Prospectively, those M36 iterations could build upon the Machine Learning expertise of the consortium (e.g., using adversarial approaches to refine the project's business models).

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Abbreviations

Abbreviation	Definition
AI	Artificial Intelligence
AML	Anti Money Laundering
API	Application Programming Interface
AWS	Amazon Web Services
BDA	Big Data Association
BDVA	Big Data Value Association
BOC	Bank of Cyprus
BOI	Bank of Ireland
BOS	Bank of Slovenia
CAN	Campus Area Network|Controller Area Network
CEP	Center (for) Energy Policy
CO	Confidential only for members of the Consortium (including the Commission Services)
CSV	Comma Separated Value files
DB	Data Base
DL	Deep Learning
DOA	Description of Action (also DoW, description of Work, PART A of Grant Agreement)
DPO	Data Protection Officer
DoA	Description of Action (also DoW, description of Work, PART A of Grant Agreement)
EBA	European Banking Authority
ECB	European Central Bank
EO	End Office|Erasable Optical
ERP	Enterprise Resource Planning
ES	End System|Expert System
EU	European Union
FI	Financial Innovation (INFINITECH beneficiary)
FIBO	Financial Industry Business Ontology
FIGI	Financial Instrument Global Identifier
GDPR	General Data Protection Regulation
GIS	Geographical Information System
GPS	Global Positioning System
HPC	High Performance Computing
HTAP	Hybrid transaction/analytical processing
IBM	International Business Machines

Abbreviation	Definition
ICT	Information Communication Technologies
IEC	International Electrotechnical Commission
IN	Intelligent Network
IOT	Internet of Things (also IoT)
IP	Internet Protocol
ISO	International Organization for Standardization
IT	Information Technology
IoT	Internet of Things
JDBC	Java Database Connectivity
JSON	JavaScript Object Notation
KYC	Know Your Customer
ML	Machine Language
MVP	Minimum Viable Product|Platform
MiFID	Markets in Financial Instruments Directive
NLP	Natural language processing
OCR	Optical Character Recognition
OLAP	On Line Analytical Processing
OLTP	On Line Transaction Processing
OSS	Open Source Software
OW2	Open Source Organization (ObjectWeb and Orientware community joined in OW2 project)
OWL	Web Ontology Language (W3C)
PSD2	Second Payment Service Directive
RA	Reference Architecture
RDF	Resource Description Framework
REST	Representational State Transfer
RF	Radio Frequency
RTD	Research and Development
RWD	Rear Wheel Drive
SA	Supervisory Authority
SAR	Synthetic Aperture Radar
SHARP	Smart, Autonomous and Personalized Services Specification
SME	Smalland Medium-Sized Enterprises
SQL	Structured Query Language
SSC	Super Stream Collider

Abbreviation	Definition
STR	Store Task Register|Synchronous Transmitter Receiver
SW	SoftWare
UI	User Interface
VAT	Value Added Tax
VDIH	Virtual Digital Innovation Hub
WP7	Work Package 7 dealing with Pilots

1 Introduction

1.1 Objective of the Deliverable

The purpose of the deliverable is to identify and present potential business models for the INFINITECH assets and components. One of the key challenges faced by the INFINITECH project is to ensure sustainability beyond the existing funding of the project. Dealing with this challenge requires an actionable exploitation plan underpinned by a set of robust business models.

This deliverable is the first one under the scope of T9.4 and will present the project's DoA-based exploitation plans across four complementary axes:

i) The dissemination and exploitation of the project's results through the project's multi-sided market platform (i.e. the BigData/IoT/AI solutions market platform that will be developed in WP8);

ii) The exploitation of the virtualized VDIH as a structure that will provide a single entry point for innovation management services relating to multiple-stakeholder, multiple-member-state mixes of digital finance, FinTech, RegTech and InsuranceTech;

iii) The preparation of the partners' individual exploitation plans in-line with their business and/or research strategy;

iv) The exploitation and long term sustainability of the pilot systems that will be deployed in the financial and insurance organizations of the consortium in WP7. For the joint exploitation activities (e.g., the multi-sided platform and the VDIH of the project), detailed business models and exploitation plans will be developed. Likewise, the task will carry out all preparatory activities for the joint exploitation, such as the establishment of exploitation and/or IPR agreements between the partners.

1.2 Insights from other Tasks and Deliverables

Exploitation will proceed in a manner that maximizes the project's wider impact and benefits beyond the consortium, disseminating and facilitating further use of their results by industry and society; as outlined in the Executive Summary, the coverage of future editions of this deliverable may go much beyond the initial DoA, e.g. to include consideration of how the financial sector's actions and priorities can be shaped by coordinated action of shareholders or users of social networks etc.

1.3 Structure

The deliverable at hand is structured as follows:

- Section 1 sets the context of the deliverable, and related task T9.2, within the general project overview.
- Section 2 introduces each of the 15 pilot systems (testbed and sandbox solutions, plus associated services being prototyped for, and test-marketed to, prospective Vendors / End-Users), and provides preliminary outline business plans for each one of the pilot systems.
- Section 3 outlines a joint exploitation plan, sets out and compares different scenarios considered for a joint plan, based on internal constraints and considerations
- Section 4 collects the Indivitual Exploitation statements and plans of all the Consortium Partners
- Section 5 describes the Assets produced by the project and the sustainability plan
- Finally, chapter four summarizes each individual partner's exploitation plans, while chapter five offers conclusions and next steps.

2 Pilots' Preliminary Business Plans

The INFINITECH Project aims to demonstrate and validate a vast number of pilots and use cases in different business domains and scenarios. The business problems being solved with the use of the INFINITECH technologies and solutions produce a number of value propositions that the INFINITECH project as individual organizations or as Consortium will pursue to create sustainable business opportunities and durable assets.

At the time of writing, this deliverable the actual DOA, as per the latest amendment, counts 15 pilots in course of development and definition.

The achievement of a strong and long-term impact is the ultimate goal of the project and will be measured by the business opportunities created. To create such opportunities a careful planning is required at all level of the project considering market status and analysis, customer segments and value propositions.

In INFINITECH, we will use the Business Model Canvas as a framework to analyse business models. The Business Model Canvas (Osterwalder et al., 2010) [1] describes a business model using nine basic building blocks, covering four areas of business: customers, offer, infrastructure and financial aspects. A sample template for Value proposition and Business Model Canvas is reported in pilot 14 (chapter 2.14).

The business models of all Pilots are presented in the next section.

In the next sections, each Pilot has as a reference the widely-used template for depicting early drafts of a Business Plan or Model, namely the BMC, Business Model Canvas.

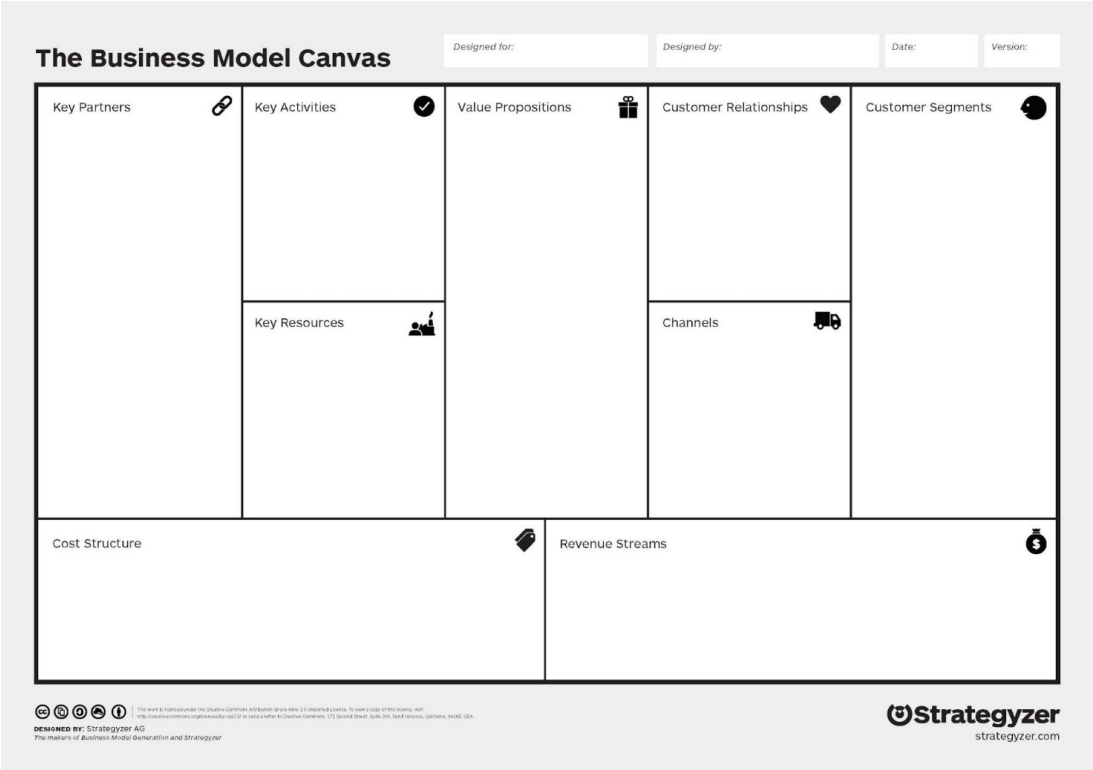

Figure 1 Figure By Business Model Alchemist - http://www.businessmodelalchemist.com/tools

Each Pilot plan has a dual perspective: - Perspective of Vendor (e.g., ICT company that wants to sell similar solutions to many end-users) - Perspective of End-User (e.g. banks that needs to roll-out the product)

By M24, workshops will have been run to populate and test preliminary (i.e., outline) BMC plans with representatives of each one of the fifteen pilot systems (testbed and sandbox solutions, plus associated services offered to prospective users).

The project partners are also exploring the option to jointly exploit the competencies, experiences and results of INFINITECH via companies, organizations, and interested parties.

2.1 Pilot#1

2.1.1 Description of Product/Service

Pilot #1 “Invoices Processing Platform for a more Sustainable Banking Industry” develops, integrates and deploys a data-intensive system that extracts information from notary invoices and establishes a sustainability index of notary services based on the number of physical copies that are issued that will be used by the bank. The system provides financial institutions the information (properly indexed) about the documents that are finally generated by notarial services and scores notaries based on a sustainability index, thus reducing costs for the bank and financial institutions and the number of useless printed copies.

2.1.2 Market Analysis

In the Market, we find three approaches to the business challenge we are tackling:

- Software As a Service-based solution. Here big technology companies like Google, Amazon, or Microsoft have in their cloud portfolio document information extraction services.
- Ontology/Taxonomy-based solutions. Here, niche players like Expert.AI have a set of pre-established ontologies and taxonomies to provide the quickest time to market to well-known financial services document processing challenges (financial statements categorization, claims, etc.).
- Machine-Learning-based solutions. There are big consultancy companies like Deloitte, Everis, Minsait or niche players like Taiger, who provide document management solutions for different use cases based on Machine Learning and rules.

The competitive advantages of the solution provided by Bankia and GFT are the following:

- State of the art technology using Deep Learning.
- Quality open source OCR without the burden of having a license fee to use this service.
- Ready to be deployed on-premises or in any cloud vendor provider infrastructure.
- Combination of document information extraction, concepts matching and business rules application.
- Focus on the sustainability score of notarial service to foster a better world with less waste generated by the consumption of paper.
- Tailored exclusively to the notarial invoices.

2.1.3 Description of Target Market

The target market includes banks and financial institutions and any other entity using and requiring notary services for the contracting of several financial products by their customers like mortgages. In particular, the target market represents banks and financial institutions (both private and public) that could benefit from the solution by reducing the costs related to the number of useless extra printed copies, by increasing the sustainability model of the bank operation, and by becoming more efficient and agile thanks to digital processing.

2.1.4 Route to Market / Product Launch

The current state-of-the-art of open source technologies brings the best-in-class of NLP and Deep Learning to this product. However, everything advances at lightspeed, especially in technology, and this is why we propose to invest our efforts in the following areas to complete the product:

1. Deploying the component as a whole system, with end-to-end scope matching all the details of a complete working scenario.
2. Providing the necessary last components and start working field tests.
3. Validating, with the necessary remediation, the system at normal working speed in full working cycles: data ingestion, processing, results in display, and operation actions taken by the end-users.
4. Enhancing and optimizing several aspects that will come up during the process naturally.

2.1.5 Main Business Targets

In Spain, the main business target represents between 10 to 15 potential Spanish banks that could benefit from the solution. In a second phase, the target market could also involve other entities using notary services related to mortgages (like Credit Financial Establishment, financial intermediaries or lending platforms) and could also be expanded to Latin American banks and European Banks (with prior adaptation of invoice processing associated technologies and concepts).

2.1.6 Outline of Marketing Actions

From the Perspective of the Vendor:

To disseminate and evangelize the commercialization of this product, we envisage the following marketing activities:

- Scheduling a set of webinars to socialize the features of the solution and its benefits.
- Brochures to be sent in a digital mailing campaign to potential buyers.
- Presence in social media (Linkedin and Twitter) where experts design and build the solution and will write or talk about the key aspects.
- Press Release to be published in generalist and specialized media.
- Demo Days with prospects to demonstrate how the solution works to potential buyers.

From the Pespective of the End-User:

The Spanish banks require notarial services for the contracting of several financial products with their customers (such as mortgages, ...), must pay for each physical copy of the documents that the notaries generate in each notarial service and must control the invoices generated by the notaries. The banks will have to test and verify that:

- Invoices' digital processing with Artificial Intelligence provides a solution to extract relevant indicators from the invoices that will be used to determine the sustainability score and to rate notaries based on a sustainability index.
- The solution is able to reduce the cost related with useless physical copies.
- This system will be aim to be adopted by the whole banking industry as a means of ensure more sustainable businesses.

2.2 Pilot#2

2.2.1 Description of Product/Service

This pilot develops a service for real-time risk assessment of portfolios based on on-line calculation of popular risk assessment metrics like VaR (Value at Risk), condition VaR and Expected Shortfall (ES). Currently, a prototype and a demonstration for accurate VaR assessment over Forex (FX) data is available. It will be extended and improved in terms of accuracy based on the factoring of additional parameters (e.g., market sentiment), as well as based on support for additional metrics (e.g., conditional VaR, ES). The value proposition of the product/service lies in its: 1) Real-Time nature i.e. the ability to provide on-line risk assessment insights in short time scales. 2) Accuracy i.e. the ability to provide more accurate assessments based on machine learning techniques i.e. assessments that outperform conventional VaR/ES calculations based on methods like historical VaR calculation, Variance-Covariance methods and Monte Carlo simulations.

This risk-assessment service will be offered to relevant financial and insurance organizations that are in need of credible, on-line risk assessments. These include trading enterprises, asset managers and wealth management departments of banks, as well as insurance enterprises that engage in high-frequency activities in the market.

2.2.2 Market Analysis

Competing Products/Services - Market Positioning Portfolio risk assessment metrics like VaR are widely used in the finance and insurance sector. The calculations are usually integrated in trading and investment/asset management tools. The calculations leverage state-of-the-art methods like the historical method, the Variance-Covariance method and the Monte Carlo Simulation method. INFINITECH aims to provide a collection of machine-learning-based methods that will be more accurate, while being able to work for high frequency financial transactions (e.g., FX trading). The relevant INFINITECH product falls in the broader risk management market. According to AlliedTelesis (https://www.alliedmarketresearch.com/risk-management-software-market), the global risk management market size was valued at $6,258.40 million in 2018, and market forecast is projected to reach $18,504.22 million by 2026, growing at a CAGR of 14.6% from 2019 to 2026. This growth concerns multiple sectors such as manufacturing, retail, healthcare, energy & utilities, government and public administration, as well as banking/finance/insurance. The latter segment is expected to experience the highest growth due to the adoption of risk management software by various banks and financial institutions. Note that risk management in finance and insurance sectors has multiple flavours, including for example credit risk, liquidity risk, money laundering risks, cybersecurity risks, compliance risks, as well as investment and trading risks. The market includes various types of financial institutions, such as banks, regulators, FinTechs, investment firms, asset managers and more. Out of these, the most relevant to the outcomes of the pilot are firms engaging in high-frequency trading, either through their own platform or using a third party established platform of the ecosystem. The number of high-frequency trading firms in Europe amounts to several tens of firms, which is broadened to some 100s of firms when their users/partners are accounted for.

2.2.3 Description of Target Market

The target market for the INFINITECH outcomes of pilot #2 comprises banks, financial institutions with interest in investment, trading and wealth management risks. Given the simplicity of the INFINITECH tools, the SMEs market will be prioritized, as the market segment that typically has less interest and equity availability to invest in more integrated and sophisticated solutions. The product will be promoted to two main segments of the market: (1) HighFrequency trading firms (e.g., (XTX Markets, Virtu Financial, Two Sigma Securities), notably the ones based in Europe (e.g., Optiver, GSA Capital Partners, Maven Securities), as well as smaller firms that use their services. (2) Some hundeds out of 5,963 banks operating in the European Union 28 (source: Statista.com), notably banks with wealth management activities in the counties where the partners have contacts and sales footprints

(e.g., Germany, Italy, Cyprus). Countries where the Pilot #2 participants have already footprints and collaboration will be prioritized. These countries include Germany, UK, Cyprus, Italy, Belgium and Greece.
The partners will target sales/deployment of the VaR/ES solutions to over 20 firms up to 2027 i.e. to less than 1% of the market, given the entry barriers in this market. As a solid step and low-hanging fruit target to commercialization, the solution will be exploited by JRC Capital and its partners i.e. their first users and track record will come from JRC's business network.

2.2.4 Route to Market / Product Launch

1) **TRL Advancement (Technical Maturity, Documentation) (M36-M45):** During the last months of the project, the pilot partners will aim to advance the TRL level of the system towards TRL=7. This includes the planning of thorough testing (including security testing) and the production of relevant documentation. The goal is to have a system validated in real-life environments, ready for demonstration to the customer. Further advancements will take place during a period of six months after the end of the project. 2) **Business Validation in the JRC Network - Reception of Feedback (M30-M45)**: A business validation of the solution will take place during the last stages of the INFINITECH project, based on its deployment and use by JRC teams. Likewise, additional validation will take place with the involvement of other trading and capital management enterprises, notably enterprises of the JRC business network. 3) **Evaluation of Alternative Business Models (licensed & cloud-based) (M39-M45)**: As part of the business validation of the solution, alternative business models will be evaluated regarding the offering of the solution. Two main models will be explored: (i) **A Licensed model**, which will involve the offering of the solution based on a B2B (Business to Business) modality and a comprehensive licensing model to interested parties. In practice, the model will involve pricing of the licensing, along with additional costs for customization of the VaR/ES solutions to the needs of the customer. This will enable the pilot partners to accommodate different business needs in the target market segments. For example, VaR/ES calculations that factor additional features (e.g., climatic parameters, market sentiment parameters, user risk profiling) could be developed and deployed, whenever requested by the customer. The pricing scheme will include charges for additional customization costs that will be added over standard licensing costs; (ii) **A cloud-based Pay-per-Use model**, which will involve the offering of the solution as a service to participants. The respective pricing scheme will include two components i.e., an upfront registration fee component and a pay-per-use component that will be based on the VaR data points used. The two models will be validated based on interactions with potential customers. Feedback on willingness to pay and the preferred business models will be solicited and exploited. 4) **Initiation of marketing activities** (M42-..): Upon the advancement of the TRL of the solution and the selection of the proper business model, the partners will commence marketing activities towards potential customers. In this direction, existing contacts to financial organizations and high-trading enterprises will be exploited in the organization of workshops and the initiation of targeted contacts for the presentation of the product. The marketing strategy will also exploit on-line modalities in-line with the available budget and the detailed business plan that will be developed during the second half of the INFINITECH project. 5) **Securing additional seed financing (internal, investors, grants) (M39-M52)** : The stakeholders of the pilot exploitation plan to raise additional capital to support the TRL advancement and the marketing of the solution. Seed funding will be sought based on structural funds, additional grants, internal innovation funding, as well as potential business partners and angel investors. The amount of required (seed) funding will be decided as part of developing the business plan (and, prospectively, a business model canvas) for the pilot. This business plan will be provided as part of subsequent versions of the INFINITECH exploitation deliverables. **6) Official Product Launch (M48)**: The official launch of the product will take place approx. 9 months after the end of the INFINITECH project. The product launch will built upon the pilot system's exploitation activities that will be carried out in WP9 and will be reported in subsequent deliverables. Note that these activities include a development of a detailed business plan as part of deliverables D9.13 and D9.14.

2.2.5 Main Business Targets

The main business targets of the Pilot #2 partners include: 1) To establish links with the ecosystems of high-frequency traders in Europe, towards promoting the VaR/ES solutions to their networks. Specifically, smaller companies that join the established European high frequency trading ecosystems will be pursued following this linking. 2) To promote the VaR/ES solution to wealth management and asset management departments of banks, where the partners have strong links and established business relationships. 3) To promote the solutions in a targeted way to over 100 customers and to convert 10% of them by 2025, i.e. two years after the end of the project. 4) To establish a network of partners in various EU countries (beyond the countries of the pilot #2 participants) as part of broadening the outreach to potential customers. These partners could act as resellers or integrators of the solution towards high-frequency trading SMEs residing in countries where the partners (i.e. INNOV, GFT, JRC) do not have established presence. 5) To enhance the VaR/ES offerings with additional parameters and functionalities, in-line with customers requirements beyond the INFINITECH pilot. In this direction, the consortium will try to solicit and analyze feedback from relevant stakeholders, notably SMEs engaging in high frequency trading activities. 7) 6) By accomplishing the above targets, the partners plan to sell (licensed or pay-per-use contracts) to the target 20 clients by 2027.

2.2.6 Outline of Marketing Actions

The marketing plan of for the risk assessment product/service of Pilot #2 will be based on the following actions: 1) Development of on-line Presence: The partners will create a web page for the solution under their web sites, along with relevant content (e.g., descriptions, screen-shots, visuals). Moreover, an on-line demo version will be packaged and offered. 2) On-line Content-marketing, including the development of blog posts and white papers regarding the solution and its benefits. These content items will be disseminated via social media channels, using organic and paid strategies. Tools like the LinkedIN Sales Navigator will be exploited to approach interested parties. 3) Direct Marketing, targeting meetings and face-to-face discussions with potential customers of the partners' network/customer databases i.e. notably JRC's, INNOV's and GFT's customer databases. 4) Promotional Workshops, notably workshops where the solution will be demonstrated and compared feature-by-feature with other state of the art solutions. Relevant stakeholders will be invited to participate. 5) Exhibitions and Trade-fairs, which are expected to take place following the end of the COVID19 pandemic outbreak. Prominent FinTech and Digital Finance venues will be targeted, notably events organized in the metropolitan cities of the European finance ecosystem (i.e. Paris, London, Frankfurt) such as Paris FinTech. Relevant budgetary provisions will be made, including collaborative arrangements between the partners. 6) Promotion through the INFINITECH marketplace, which will serve as a promotional channel for the solution. Nevertheless, this channel make take some time to give substantial leads, as the users/community around it is still in its infancy.

2.3 Pilot#3

The main objective of the Irish Pilot is to develop, integrate and deploy a data-intensive and analytics driven solution(s) with related procedures for enabling financial institutions (banks) to better understand their customers and their financial dealings and to prevent banks from being used, intentionally or unintentionally, by criminal elements for money laundering activities by identifying potential customer in the most efficient and autonomous manner by means of improving the called Know-Your-Customer (KYC) process.

KYC operations require banks to dedicate large personal and financial resources, and these cannot always be deployed in the most effective manner. Banks are continually looking for automation and intelligent tools to help reduce the operational costs of these regulated operations. This pilot proposes to combine INFINITECH AI/ML techniques and INFINITECH Real-Time Analytics in the creation of Graph Databases to represent complex relationships between entities while also developing a profile of individual customers to enhance credit and risk scoring, AML and fraud prevention.

Focusing on money laundering arising from human-trafficking-related criminal activity, it is proposed to utilize negative news from various sources, including social media platforms. The use of large volumes of non-traditional data mined from social media platforms has the potential to assist in entity research & resolution activities by authorized investigators. The ability of banks and credit institutions to utilize broader datasets would increase their effectiveness in collaborating with other entities to prevent money laundering by organized crime groups. The approaches proposed by the project while initially focused on money laundering arising from human trafficking would also be applicable to other similar money laundering activities.

2.3.1 Market Analysis

At present there are no cloud-based services in the market that are focused exclusively on money laundering arising from human-trafficking-related criminal activity by leveraging large volumes of non-traditional data, mined from multiple negative news media sources, to generate human-trafficking-specific typologies for assisting in entity research & resolution activities by authorised investigators as part of KYC due diligence investigations.

While there are several competing in-house technologies, both proprietary and available for multiple software vendors, most financial institutions adopt an ad-hoc approach led by the Risk Management & Financial Investigation Units within each institution, with limited external collaboration or access to large-scale topic-specific data sets. There is an opportunity to provide a consistent set of data-driven analytics, utilizing broader data sets, accessible through a trusted source (BPFI hosted cloud-services) to increase the effectiveness of financial investigation units in performing entity research & resolution-based investigations and collaborating with other entities to prevent human-trafficking-related money laundering by organized crime groups

2.3.2 Description of Target Market

The target market will be Financial Instutions who process payments and move money for clients. These will include Retail Domestic Banks, International banks, and FinTech Money Instutions who may specialise in payment services only (as opposed to full banking services).

2.3.3 Route to Market / Product Launch

The proposed route to market is to create a repeatable model based on a secure set of cloud services which would be owned and operated by the Banking Payments Federation of Ireland, acting as the trusted third-party on behalf of its member organisations. While the solution would be developed in Ireland with Bank of Ireland acting as the primary industry partner, BPFI will regularly harness its other member organisations, which include international financial institutions operating in the Irish market, to provide feedback, input and validation of the pilot approaches & outcomes.

The domain-specific capabilities and outcomes of the INFINITECH Pilot 3 project would be primarily directed by the Bank of Ireland Financial Investigations Unit, based on real-world scenarios and with proven benefits which would be captured as a customer case study and client reference for dissemination to other institutions as part of the market launch. BPFI would also be supported by IBM Ireland as both the technology partner, for operating and managing the cloud-based services, and as market launch partner with long-standing relationships with financial institutions throughout the globe.

2.3.4 Main Business Targets

The primary business targets will be the Fraud Investigation Units (FIUs) within Financial Institutions. These Institutions Include Domestic Retail Banks and the International Banks who have functions Involved In payment processing and money transfer.

The platform will also be of Interest to the FinTech Payments community who need to utilise Intelligent tools to meet their heavy regulatory obligations in the areas of KYC and AML.

National Regulators will also be Interested in having this service available to a wide market as it will help level the playing field between the Incumbent Banks and the disruptive new challengers.

2.3.5 Outline of Marketing Actions

As a representative body with three distinct memberships consisting of all the Irish Retail Banks, over 25 International banks, and over 100 FinTech companies, the BPFI will promote and educate its members to the objectives and findings of Pilot 3.

BPFI's dissemination activities will be mainly focused on discussions with its member organisations and the participation in industry-based conferences and workshops. BPFI will assist in presentation of the Infinitech project findings at major conferences and online events covering multiple domains such as the Financial Industry, Public Safety\Security and Human Trafficking. BPFI will also engage with peer organisations to gauge potential interest in new solutions\offerings built around the innovations of the project.

2.4 Pilot#4

2.4.1 Description of Product/Service

Privé's white label, modular solution aims to streamline processes to make financial intermediaries and advisors more efficient and to enable them to concentrate on customer advisory and an automated offering for "Private Banking" like services to the retail space. Privé is developing algorithms that build an accurate profile of the investors, taking into consideration the risk tolerance, purchase habits, market conditions, etc. Portfolios are then built individually tailored to the investor's preferences and/or goals. Our goal is to automatically construct an optimised portfolio by modeling the investment advisory and decision process using a certain level of AI procedures. The result is a tailored portfolio for each individual investor. All functionalities shall be also available via API access, which should be a kind of "Fintech-as-a-service" (FaaS).

2.4.2 Market Analysis

a. General Overview Wealth management providers are recognizing the need to adapt new technologies to serve more customers, more efficiently, while maintaining customer relationships as the top priority. Only with the integration of investment, technology, and wealth expertise can wealth managers scale their operations simply and efficiently. The need for "hyper-personalisation" of portfolios poses a challenge as operationally, most firms are not set up to cope with this and, given the high cost of maintenance, can only offer personalized portfolios to their ultra-high-net-worth clients. Simultaneously, Regulators are also pushing for higher transparency of financial advice. Privé realises this gap, and it is building a solution that would allow financial intermediaries and advisors to offer bespoke wealth management solutions to customers at scale through use of AI-based portfolio construction tools while adhering to various regulatory compliances.

b. Competing products and services

The current market landscape for using AI portfolio construction tools in a broader scaling is in its nascent stages and many competitors from Asia and North America are vying to exploit this opportunity. Global competitors in this space are - to a certain extent - Quantifeed (HK), FNZ (NZ) and Envestnet (US).

c. Market Positioning

Privé's product positioning shall be to offer the leading technology for enabling a fully-scalable digitised advisory and wealth management journey for financial institutions and market participants.

2.4.3 Description of Target Market

Our target market are all financial services intermediaries who provide advisory and wealth management services. Hence Banks, Insurers, Insurance Brokers, EAMs, Securities and Brokerage firms are the target customers for this solution.

2.4.4 Route to Market / Product Launch

Since Privé already has an existing customer base of leading banks, insurers, and external asset managers, we would be leveraging the existing network to identify and exploit upsell / cross-sell opportunities but also address financial institutions which are interested in a more digitised wealth management offering. We have already done selected research and some customer interviews which suggest that there is a relevant untapped opportunity for AI-based portfolio construction tools and robo-advisory services especially for the retail market.

2.4.5 Main Business Targets

Our main business targets are to generate organic revenue streams from new customers and through our existing network of clients. This would act as a proof of concept which would then be used to acquire new customers.

2.4.6 Outline of Marketing Actions

As we are a company that follows the customer intimacy value discipline, we intend to market our products through our relationship managers as well as our business partners, which offer complementary products and services. Our relationship managers and these partners would market our product and would be empowered and trained to give clients demo walkthroughs virtually, to explain the value proposition and functionalities.

2.5 Pilot#5b

Pilot 5b, 'Business Financial Management (BFM) tools delivering Smart Business Advice', aims to assist Small Medium Entreprises (SMEs) - clients of Bank of Cyprus - in managing their financial health in the areas of cash-flow management, budgeting, revenue review, continuous spending/cost analysis and VAT provisioning - all by providing a set of AI-powered Business Financial Management tools and harnessing available data to generate personalized business insights and recommendations. The pilot enables taking a holistic view of a SME's business by utilizing various data beyond the SME's customer and transaction data held by the bank, including customer information, any available open-banking data, and external sources. Automation and personalization is achieved through the utilization of Artificial Intelligence by capturing individual customers and market behaviour, providing increased data-driven decision making opportunities to the SMEs.

2.5.1 Market Analysis

The Cypriot SME market has not only been highly underserved in recent years but also due to the ongoing digital revolution SMEs find themselves in a very distinct and challenging environment. SMEs today have significantly different needs where SME owners want to run their business on a smartphone and non-financial digital offerings play a key role. For instance, business support services (e.g. SME platform, integration support, invoicing) or business development service (e.g. Business Coach, Education). It is simply no longer just about getting a loan. Financial institutions need to appropriately respond with better services, i.e. value-add products and financial & non-financial services tailored for the SME market. According to Accenture "SME Banking 2020", 37% of SMEs are quite happy with the way it is today, however 63% of the SMEs want a deeper engagement with their bank. If "traditional" incumbent banks cannot provide a solution to SMEs' pain points, then over 30% of SMEs will utilize challenger banks and non-banks for payments, access to loans and transactions management. Business Financial Management (BFM) tools represent a potential key offering within this space. On the one hand, BFM has the capability to transform the banks relationship with SMEs from being an unfortunate necessity towards a trusted value adding advisor and on the other hand addresses vital needs and critical pain points faced by SMEs.

Figure 2 Business Financial Management (BFM) tools

The value of BFM tools becomes even more pronounced when integrating with Factoring, Invoice Management and 3rd party non-financial services hub. Overall BFM tools represent a strong incentive for SMEs to migrate to new digital channels.

Today none of the Cyprus Financial Institutions is offering such or similar product.

On an international level banks are stepping up their efforts to tackle SMEs with innovative product/ service offerings. Various banks started to address overlooked SME needs by launching entire new SME banks, Smart Lending products specifically tailored for SMEs, SME portals or BFM tools. However, in deference to existing BFM offerings for SME, as far as it could be identified, the proposed product with its Smart Virtual Advisor (Recommender) is aiming to address SME challenges in a more holistic, comprehensive way.

2.5.2 Description of Target Market

The pilot primarily focuses on SME customers of the Bank of Cyprus, supporting them throughout their digital transformation journey by providing value-added services on top of their core business. The smart Business Financial Management toolkit aims to increase customer engagement, offering valuable insights which will assist SMEs in their financial management. However, as in all European countries and most countries globally, SME's are the backbone of the Cypriot economy as well, with around 55.000 SMEs operating domestically in 2018. Hence, all SME's operating in Cyprus are potential users and part of the target market. In more detail, the table below, based on data drawn from European Commission's "The Small Business Act for Europe" (SBA), dives deeper into SMEs' structure in Cyprus and illustrates the number of businesses per class size, the respective number of employees as well as their value added for the year 2018.

Table 1 SMEs Structure in Cyprus - Source: 2019 SBA Fact Sheet Cyprus, EC

Class Size	Number of Businesses in Cyprus		Number of people employed		Value Added	
	Number	Share	Number	Share	Billion €	Share
Micro	51,314	92.9%	99,384	38.6%	2.5	27.3%
Small	3,365	6.1%	65,062	25.3%	2.7	28.6%
Medium-Sized	493	0.9%	50,994	19.8%	1.9	20.4%
SMEs	**55,172**	**99.9%**	**215,440**	**83.8%**	**7.1**	**76.3%**

It is noted that 92,9% of businesses operating in Cyprus are micro enterprises, employing less than 10 people with their annual turnover not exceeding 2 mil. euros.

2.5.3 Route to Market / Product Launch

At this point, an early version of the Transaction Categorization Engine has been developed (labelling the transactions of selected SME customers of Bank of Cyprus using 20 main categories and 80 respective sub categories), which is considered a core component for the development and implementation of the other microservices included in the BFM toolkit. Some components have prerequisites, whether that be a developed component like the transaction categorization engine, or prerequisites that have to do with technical and business processes like setting everything in the banks cloud ecosystem, connecting data sources to the testbed or getting consent from the SMEs to upload and process data. With more technological components and solutions offered by INFINITECH partners, pilot 5b's development team works closely with various bank departments, focusing on developing the rest of the analytical components, enriching the data utilized and setting the AWS testbed infrastructure of the bank. The constant evaluation of the models developed, along the feedback from internal and external stakeholders is vital for the pilot development and TRL advancement. In that direction, internal workshops with the banks' stakeholders and various departments involved are organized, aligning the pilot development with the banks' goals and product requirements and paving the way to a future product launch. Moreover, selected SMEs from various sectors will have the chance to be involved through various workshops, where they will get the chance to learn to use the pilot's microservices and functionalities, express which business financial management tool would fit best to their business and envision new functionalities. Both the external and internal workshops will have a significant impact on the pilot development, refining certain microservices and improving the quality of the generated business insights.

2.5.4 Main Business Targets

The value of BFM tools become even more pronounced when integrating with Factoring, Invoice Management and 3rd party non-financial services hub. Overall BFM tools represent a strong incentive for SMEs to migrate to new digital channels.

In particular, the key business targets are

1. **Increased Customer Experience** This new offering will significantly enhance customer experience.
2. **Increased Customer Loyalty** Facilitating financial health & business performance will result in happier SME customers who will in turn become more loyal to the bank.
3. **Increased Digital Adoption** Providing BFM tools drives digital adoption and more frequent use of digital channels.
4. **Reduced credit risk and lower NPLs** Deeper and better insight will improve SMEs and BOCs understanding of the SME financial situation, assist SMEs who are struggling with debt repayment and as a result reduce credit risk.
5. **Improved and streamlined SME lending** Use of BFM data and AI to speed up the process to determine credit risk for lending and consequent approval.

In addition, new revenue streams are generated through subscription fees for BFM premium features.

2.5.5 Description of Product/Service

Pilot 5b, 'Business Financial Management (BFM) tools delivering Smart Business Advice', aims to assist Small Medium Entreprises (SMEs) - clients of Bank of Cyprus - in managing their financial health in the areas of cash-flow management, budgeting, revenue review, continuous spending/cost analysis and VAT provisioning - all by providing a set of AI-powered Business Financial Management tools and harnessing available data to generate personalized business insights and recommendations. The pilot enables taking a holistic view of a SME's business by utilizing various data beyond the SME's customer and transaction data held by the bank, including customer information, any available open-banking data, and external sources. Automation and personalization is achieved through the utilization of Artificial Intelligence by capturing individual customers and market behaviour, providing increased data-driven decision making opportunities to the SMEs.

2.5.6 Outline of Marketing Actions

Marketing actions will aim to capitalize on a bank's leading position/market share in banking SMEs as well as the trust relationship in place between the BOC and its customers.

A marketing communications roadmap will be specifically designed for and tailored to this product. As part of this roadmap, actions will be performed that position BFM as a service that customers not only value but also want and need in order to succeed in today's world.

Based on the target market of the pilot described above, the marketing plan of the BFM smart advisor is divided into two main axes.

The first axis is focusing on the **pragmatists** customer type as well as SMEs already being a customer of the Bank of Cyprus. Those customer segments represent the main focus and the segment targeted most by the pilot. To increase service awareness engagement, both online and offline channels will be leveraged to deploy marketing actions such as the ones outlined below:

- Banks digital channel via push notifications/messages to SME users
- Emails/marketing letters to SME customers with decreased online engagement
- Customer Service communication at a bank's branches, informing new SME customers on the spot while opening a new business account

To existing customers of Bank of Cyprus, the pending workshops with SME pilot customers (representing the **early adopters/technology enthusiast's** customer type) is a considerable marketing item which will be promoted accordingly. Not only does the SME Pilot customer engagement illustrate the involvement of real users in the product development cycle but this will also clearly demonstrate the importance the bank places on capturing the SME needs & wants and its translation into personalized, value-adding personalized services.

For the second axis, a full-blown marketing campaign will be followed, aiming to attract new SME customers at Bank of Cyprus. In this direction, the Bank intends to run a campaign to reach potential new customers, promoting the Bank and its competitive advantages overall, all while focusing on SME needs and services. The key message will be the personalized BFM advisor, as an innovative entry to the Cypriot SME market which assists SMEs in their digital transformation and data-driven decision making. Possible main actions are:

Use of traditional media with emphasis on business publications in order to reach the desired target segment. Emphasis will also be given to digital marketing execution to reach business professionals who will be able to understand the use and innovative aspects of the service.

- Referrals by existing satisfied SME customers at a later stage.
- Public events, i.e. promoting the state-of-the-art aspects of the pilot in conferences, webinars and other events.

2.6 Pilot#6

2.6.1 Description of Product/Service

Leverage large customer datasets and large volumes of customer-related alternative data sources (e.g., social media, news feeds, on-line information) in order to make the process of providing investment recommendations to retail customers more targeted, automated, effective, as well as context-aware (i.e., tailored to state of the market).

As part of the pilot, an integrated BigData/AI workflow will be built in order to automate and personalize investment recommendations.

BigData and AI systems can revolutionize personalized portfolio management and customer behavior analytics, through improving and automating investment recommendations for retail customers for Banks & FIs.

2.6.2 Market Analysis

The Existing Landscape in Financial Institutions (and particularly Banks) has set as priority the identification of targeted Customer propositions and especially in investments sector. Driven both by competition as well as Customers' needs, depiction of each Customer's potential and risk appetite in combination with interesting investment recommendations, may lead in the increase of each Customer's share of wallet and at the end increase a Bank's Market share in the specific Sector.

Personalized offerings are the future in all Customer relationships. Of course, financial institutions and therefore Banks cannot and should not be excluded from this. It is an expectation from the Customers' side in which the Bank should cope with and finally deliver, in order to increase Customer satisfaction, maintain and reinforce Customer relationship. Apart from the day-to-day benefits that support both efficiency and effectiveness, mainly in the area of Operations, the main and final aim is to support sales activities, leading to fruitful investments and of course acknowledgement of the Bank's Partners or high-potential Customers.

Investment recommendation engines are available from various organizations (investment bank, securities, companies, investment consulting firms, etc.) mainly focusing not on retail customers, but mainly on private banking or already well positioned individuals or investment consortiums and funds. In parallel retail banks try to attract more customers to invest their money to instruments with higher earnings and improve their relationships.

All the above create a dynamic environment, where the need for better investment recommendations that can be adapted or better tailored to the need for each individual customer is a must. As such, even though there are several platforms that are mainly used by small, medium and big investment firms, there are not so many solutions available for retail customers, but mainly used by the ones that

have significant wealth image as part of the private or investment banking services provided from most of the financial institutions around the globe. Based on the above and compared to the services provided from several financial institutions in the EU region, as well as the neighbored countries, it seems that provision of personalized investment services is limited, based mainly on the market trends and without taking a deeper analysis of the investment profile, as well as the most appropriate financial instruments that is predicted that will maximize each individual customer's profit and investment performance.

As Big Data/AI technology becomes more popular and have various implementations in the financial industry space, provides a tool that can be used in order to provide better results for the investment performance, no matter the portfolio of the investor, meaning being an individual or a company. Also, usage of alternative sources like sentiment analysis provides a better classification for the proposed investment recommendations, that analyzing various sources of news, thoughts or announcements and better knowledge of the instruments, as well as the portfolio for investment. All the above create an environment that developing AI-based solutions for investment personalized recommendations not for the big players, but for retail customers will bring a kind of democratization of the proposed services, allow the investors to be increased and also each individual institution (either bank or investment firm) to increase an advisor's productivity and their customers' loyalty and investment performance. This is a very promising opportunity that can be one of the main factors for boosting investment business and of course profit for all stakeholders either banks and investment firms, or the customers - even the ones with limited budget for investments.

2.6.3 Description of Target Market

The personalized investment recommendations for the retail customers based on BigData/AI technology mainly will be used from NBG, as part of its strategy to improve and provide enhanced services to its clientele and more specific to the retail customer segment. As the personalized recommendations engine that will be developed will be a tool that can been used as-a-service will be also proposed to be used for all NBG Subsidiaries in Greece or other neighbored countries, as well as from NBG Securities or other investment-related companies in the EMEA region that may be interested.

2.6.4 Route to Market / Product Launch

The deployment of personalized investment recommendations for the retail customers based on BigData/AI technology, will be based on the development and better performance of the relative customer risk profiling and investment recommendation algorithms, that NBG will develop with the support and input from other INFINITECH partners participating in the specific development. Based on the results and following the usage of more and updated data from a Bank's clients, will be possible if the main AI/ML algorithms are trained to provide the best expected results.

Also, a pilot deployment to a limited portion of interested clients will be performed to measure the effectiveness of the new propose services, as well as to measure the adoption of such innovative services. Based on the previous points, the implementation firstly targets to a specific client's universe.

A Bank's final aim is to have a fully-operational recommendation engine in place. Prior to this, it is expected to have in place the results from the Pilot's execution as well as all the necessary elements for the personalized investments.

2.6.5 Main Business Targets

NBG targets by the development of the BigData/AI system for personalized investment recommendations for the retail customers, to achieve the following targets:

a) New, more automated investment banking processes for NBG branch network b) Investment advisors' productivity enhanced thanks to better recommendations c) Increase Customer Satisfaction and Loyalty d) Increase efficiency and effectiveness e) Identify each Customer's potential

Also based on the above targets the following metrics are expected to be increased

a) Increase of Acceptance Rate in Investment Offers from a Bank's Clientele b) Increase of Net income to the Bank from Customer's Investments c) Increase of Volume of Trading Transactions

2.6.6 Outline of Marketing Actions

As normal, NBG is following a dissemination plan in co-operation with Bank's Corporate Communications & Marketing team, in order to promote new products and services. For the personalized investment recommendations solution, it will be required to be performed specific marketing and dissemination activities. Any such actions, will be discussed and agreed upon operationalization of the Investment Recommendation Engine solution.

2.7 Pilot#7

2.7.1 Description of Product/Service

Pilot#7 will provide a module for calculating fraud prevention and detection models that help the banks to enhance their current cybersecurity policies and controls to avoid financial crime. By means of unsupervised machine learning and complex modeling, and supported by advanced computational power (near-quantum) technologies, the solution will provide near-real time, operational risk level considering the end-customer's normal behavior, which could greatly improve detection of financial frauds and reducing losses to the banks and society at large.

2.7.2 Market Analysis

There are several machine learning tools and models that banks try to apply to improve their fraud detection capacities, although most of them are built for general purposes and are not especially built for detecting financial fraud, which indeed is normally a use case with very specific characteristics (i.e. unsupervised learning on highly unbalanced datasets with very low fraud rate).

2.7.3 Description of Target Market

Therefore, CXB will be a first adopter and portfolio demonstrator of the potential solution of INFINITECH Pilot#7. Once tested, evaluated and demonstrated in the CXB use cases, they can be easily generalized in order to focus on a target market compounded by all the European banks or even other companies of the financial services sector (e.g. insurance companies).

2.7.4 Route to Market / Product Launch

2-4 paragraphs **TO BE DONE**

i.e. what it takes to advance TRL and make it a product/service

2.7.5 Main Business Targets

Business KPIS:

- Reduction of time in the fraud detection analysis (reduction of >25% of the overall process time).
- Reduction of false positives (reduction of >10-15% of false positives).

- Number of new detected frauds and amount of fraud avoided (€).

2.7.6 Outline of Marketing Actions

The project results will be communicated within the related communities of the pilot partners. This includes technology specialists in the security and AI domains and business related stakeholders. Moreover, it is planned to address stakeholders of the Financial Services business by publications, conference participations and specific stakeholder workshops. Regular marketing activities like blogs and social media posts shall support the marketing of the pilot and INFINITECH.

2.7.7 Perspective of Vendor

From the perspective of an ICT company, INFINITECH facilitates agile innovation. It provides a set of building blocks alongside a reference architecture, a combination which enables the development of innovative services by combining them. This way the INFINITECH way contributes to the general trend to agile DevOps, AIOps and collaborative innovation of technology providers and customers.

FUJITSU plans to communicate the INFINITECH project in its internal R&I, technology and business communities, e.g. the Fujitsu Distinguished Engineers and the Financial Services sales and business development). In Pilot #7 a major development will be a set of modules for efficient and rapid fraud detection. This development and the overall INFINITECH context shall be showcased in webinars or online workshops in these communities.

Moreover, FUJITSU will communicate the benefits and (intermediate) results externally in publications, conferences, and common marketing measures, which are used at FUJITSU.

2.7.8 Pespective of End-User

CXB plans to participate and organize several workshops in order to showcase the operational aspects of the Pilot#7 use cases and the business benefits obtained from the INFINITECH platform and tools. The demonstration and explanation of the process CXB follows to adopt INFINITECH innovations can be used to demonstrate other banks how can they improve their own cybersecurity and fraud prevention systems. Based on the knowledge and experience acquired in INFINITECH project, CXB can also provide its lessons learned and specific guidelines that help other banks on select the best approach to integrate INFINITECH Pilot#7 tools.

2.8 Pilot#8

2.8.1 Description of Product/Service

The pilot will develop a platform named **PAMLS (Platform for AML Supervision)** with several tools to enhance and improve the risk-based supervision. **Screening tool** will process and analyse data from different sources and with methods based on artificial intelligence (AI) and machine learning (ML) techniques, try to recognise unusual patterns and relationships among data, that could indicate typologies and risks of money laundering/terrorist financing (ML/FT) at level of individual financial institutions (FI). Detected patterns will feed **Risk assessment tool**, which will assess the FI risk from ML/FT perspective, and this will enable supervisory authority (in case of Pilot#8 BOS) to focus its resources on more high-risk FIs. PAMLS will also have additional functionalities, a **Distribution channel** that will enable the secure data exchange, and a **Search engine**: allowing supervisor to look for a specific transaction or a sample of transactions.

2.8.2 Market Analysis

In the global financial landscape, there is a significant area of innovation and development of new technologies that will help authorities to improve their supervisory toolbox.

As indicated in the latest report by the Financial Stability Board (FSB) The Use of Supervisory and Regulatory Technology by Authorities and Regulated Institutions (October 2020)[1] , improvement of the supervisory capabilities with SupTech use is a strategic priority for an increasing number of authorities. Reason for that is better availability and granularity of data, and new infrastructures such as cloud computing and application programming interfaces (APIs) which allow large data sets to be collected, stored and analyzed more efficiently. SupTech tools could improve in quality arising from automation of previously manual processes and could have important benefits for financial stability. Based on a survey of FSB members, the majority of respondents had a SupTech, innovation or data strategy in place, with the use of such strategies growing significantly since 2016. The report contains a variety of case studies giving practical examples of deployment of SupTech tools, from which two of them are developing tools in the area of anti-money laundering and combating the financing of terrorism (AML)/CFT):

- **Monetary Authority of Singapore (MAS)** developed a Suspicious Transaction Report (STR) network analytics tool, that helps to identify specific clusters of individuals/entities that exhibited suspicious behaviors, as well as the FIs involved. STR network analytics tool process FIs information from the structured data file in the STRs.
- **The Bank of Italy Financial Intelligence Unit (UIF)** receives on a yearly basis large amount of data (100.000 STRs, about 100 million monthly value-based aggregate records etc.). On this STRs database UIF is developing a tool to classify STR reports according to the type of money laundering scheme.

SupTech was also researched by the Financial Stability Institute within the Bank for International Settlements. In their report Innovative technology in financial supervision (SupTech) – the experience of early users SupTech applications (July 2018) [2] they explained SupTech can be used for data collection and for data analytics. In area of AML/CFT following examples are provided:

- **Data collection:** SupTech application developed by **Bank of Italy (BoI)** combine multiple data sources, STRs (structured data) with press reviews (unstructured data) for anti-money laundering (AML) detection.
- **Data analytics: BoI** is developing a tool to classify STR reports according to the type of money laundering scheme (reported above), **National Bank of Rwanda (BNR)** combines regulatory data with data from internal systems to produce meaningful information for supervisors and policymakers, MAS developed a STR network analytics tool (reported above), and **Comisión Nacional Bancaria y de Valores (CNBV)** developed an application to discover what a suspicious AML/CFT network is "talking about" - using big data to reveal relationships between people and between events.

Digitalisation has become increasingly important also at European banking supervisory level. As reported in European Central Bank (ECB) Supervision newsletter, Digital transformation of supervision picks up pace, dated on 17 February 2021)[3] , banking supervisors need to make a big effort to raise awareness of the impact of new technologies on banking processes and to strengthen their technology skills. Knowledge-sharing plays an important role in creating synergies and identifying the areas in which SupTech can make the greatest contribution. For that reason ECB is building a platform called Virtual Lab, that facilitates cross-border teamwork and allows European banking supervisors to explore innovative ideas and to collaborate on AI developments and other projects. Pentti Hakkarainen, Member of the ECB Supervisory Board revealed at the Supervision Innovators Conference in Frankfurt on 30 November 2020 [4], that within the Single Supervisory Mechanism (SSM) there are 28 participating national competent authorities and central banks that have already developed their own digitalisation strategies, set up innovation labs and introduced SupTech tools. From 2019 on ECB lists over 80 SupTech applications and use cases, many of which remain at the concept stage others have already been realised and put into use.

The European Banking Authority (EBA) also supports the scaling of innovative technology whilst ensuring high standards of consumer protection and financial sector resilience. In its Work Programme for 2021 EBA wrote that it will continue to focus on ensuring technological neutrality in regulation and supervisory approaches. This will be done by monitoring developments and

supporting knowledge sharing between supervisors and common regulatory and supervisory stances via the EBA FinTech Knowledge Hub, by thematic analysis and by potential policy responses. Specific areas of work will include (amongst others) supervisory technologies and further work understanding developments in AI and big data. Based on the market analysis most of the AML/CFT SupTech tools are in its developmental and experimental stage while the European supervisory authorities only just started to promote the need for digitalization and innovative technology in supervision.

Taking into account the performed analysis, tools developed within the Pilot#8 will enhance the AML/CFT supervisory capacity. By analyzing BigData coming from various sources, it will enable supervisory authority to identify new ML/TF trends and typologies within the financial sector and will therefore enable faster response of the supervisory authority to the emerging risks (supervisory guidelines, notices etc.). Pilot#8 also focuses on the ML/TF risks at FI level. Frequency of occurrence of ML/TF typologies at the specific FI will enhance its inherent risk and will influence on the FI overall risk assessment and therefore enable supervisory authority to focus its resources on FI with higher risk for ML/TF.

2.8.3 Description of Target Market

BOS Banking Supervision department (AML/CFT Unit).

In addition, we see an opportunity to share experience gained during the research of Pilot#8 to competent authorities in a common setting of AML/CFT regulation and supervision at national and supranational level.

2.8.4 Route to Market / Product Launch

Pilot#8 deployments will be implemented in agile way, meaning that all components will be developed in three phases:

- First implementation phase will be done in lab environment using historical fully anonymized data provided by BOS. Components will be developed in close cooperation with BOS, which will conduct regular validation of results in terms of usability. Maturity of developed components in the first phase is TRL 3-4.
- Second phase of implementation will be performed in beta production environment, Pilot#8 sandbox at BOS site. Components will be then developed and tested on BOS testbed including real historical data. SW development will follow agile methodology and will be done in close cooperation with BOS end-users. Maturity level at this stage is TRL 5-6.
- Final phase of implementation will continue on BOS sandbox using current test data. Some of the services (Risk Assessment tool, Distribution channel) will also be tested in production environment (TRL 7), while Screening tool and Analysis Repots will reach TRL 6.

The usability of PAMLS is influenced by the extent and availability of the data sources, which depends on the end-user entitlements and authorities.

2.8.5 Main Business Targets

Main business target is to develop a prototype that would be possible to be launched as a product and used in the BOS Banking Supervision department (AML/CFT Unit).

In addition, knowledge and experience gained during the research of Pilot#8 should be exchanged with other supervisory authorities to promote collaboration and innovation of SupTech in AML/CFT supervision at national and supranational level.

2.8.6 Outline of Marketing Actions

Promotion of experience and knowledge sharing throughout the committees in which the BOS participates at EU level (ESCB that consist of representatives of the ECB and the national central banks of the Eurosystem, and other competent bodies (such as national supervisory authorities in the case of the Banking Supervision Committee), ECB that through its supervisory mechanisms contribute to the safety and soundness of the European banking system within the EUROSystem and EBA which works to ensure effective and consistent regulation and supervision across the European banking sector) and at national level (e.g. Financial Stability Board (FSB) consisting of national supervisory authorities and Ministry of finance as an observer, with the objective of contributing to protect the stability of the Slovene financial system), as well as within the BOS departments.

1. https://www.fsb.org/wp-content/uploads/P091020.pdf
2. https://www.bis.org/fsi/publ/insights9.pdf
3. https://www.bankingsupervision.europa.eu/press/publications/newsletter/2021/html/ssm.nl210217_3.en.html
4. https://www.bankingsupervision.europa.eu/press/speeches/date/2020/html/ssm.sp201130_1~c04b855251.en.html

2.9 Pilot#9

2.9.1 Description of Product/Service

Blockchain crypto currencies and tokenized assets that are obtained fraudulently can go through various transfers on the blockchain. Pilot #9 aims to detect such fraudulent activities on massive blockchain transaction graphs. Since blockchain data is constantly accumulating and will be growing at increasing rates in the future, a parallel scalable transaction graph analysis system is being developed that runs on HPC clusters and that can process the growing transaction graph without encountering performance bottlenecks. Specifically, Pilot #9 will provide the following product and services:

(i) An open web based service that operates on massive Ethereum and Bitcoin public blockchain data and reports fraudulent crypto-currency and token transaction activity tracing that is accessible by both common end-users as well as by bigger financial institutions. Free basic service to common end-users as well as paid or agreement based additional customized services will be provided to larger organizations and agencies.

(ii) Token transaction analysis services on the permissioned Hyperledger Fabric which is currently not offered by other companies.

2.9.2 Market Analysis

As far as existing competing products and services are concerned about blockchain analytics for fraudulent activities, we see services like those provided by Chainalysis and Elliptic that have closed systems targeting large firms and EthProtect that provides a free service to common end users.

Chainalysis (https://www.chainalysis.com/) is a major provider of cryptocurrency analysis and investigation services that deliver customized reports and case responses to clients such as financial institutions, exchanges and government agencies. Elliptic (https://www.elliptic.co/) is another provider of blockchain analytics for financial crime compliance. Elliptic again targets large organizations like financial institutions and government agencies.

Etherscan is the most popular block explorer service for the Ethereum blockchain. Block explorers display detailed information about the blocks, addresses and transactions in the blockchain. Etherscan recently introduced another service called EthProtect (https://info.etherscan.com/ethprotect/) which aims to identify tainted addresses related to hacks, scams, suspicious fraudulent activities, and to trace them down to its origin. Just like the blockchain explorer service of Etherscan, EthProtect is a free service offered openly to the crowds (i.e. common end-users). Note that EthProtect provides a simple path trace to blacklisted addresses whereas our system can generate multiple relevant traces.

Whereas companies like Chainalysis and Elliptic enjoyed early entry into the cryptocurrency analysis arena and hence accumulated data about fraudulent activities and as well set set-up relationships with exchanges which may provide them with further data, Pilot #9 (which is disadvantaged in terms of historical blacklisted and identity related data) will differentiate and position itself as a service that is far less human-intensive and that builds on automated HPC tools and advanced parallel algorithms which will enable it to offer compute-based fraudulent-related automatic feature extraction from large volumes of Ethereum, Bitcoin and token transactions. There is a need for such a service since transactions throughputs of new generation of public blockchains like Ethereum 2, as well as permissioned Hyperledger Fabric (for which there is no such service available) are expected to grow to thousands of transactions per second in the near future. Also, since European Blockchain Services Infrastructure (EBSI) includes both Ethereum and Hyperledger Fabric blockchain protocols (https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITALEBSI/Ledger+API), this will enable our transaction graph analysis system to readily work on EBSI use cases.

2.9.3 Description of Target Market

Our target markets are as follows:

- Web-based fraudulent address tracing as well as computed address features services will be offered to common end-users or small businesses who expect a basic free service. The service will be based on public blockchain data and hence can be open to the massive common end-user market.
- Internal consumption by Aktif Bank.
- Agreement-based additional customized services will be provided to larger organizations such as financial institutions, exchanges and government agencies.

2.9.4 Route to Market / Product Launch

The current level of development of Pilot #9 is at TRL3-4. Industrially-relevant environment for Pilot #9 is defined to be an environment where the real world blockchain data is used. When carrying out our tests in Pilot #9, we are directly using industrially-relevant real public blockchain data. The datasets used are massive blockchain transaction data and actual blacklisted addresses collected from the Internet.

Our route to market will proceed in an incremental manner. Rather than complete all features and deploy to market the whole system after a long time, we will proceed with deployment of our product with features and services that are mature enough. Currently, we plan to deploy advanced graph traversal algorithm based fraudulent activity tracing on Ethereum cryptocurrency and major ERC20 tokens service to TRL6-7 by M21. This will be done by providing a web-based service that can be used publicly by real end-users. As a result, the industrially-relevant requirement of TRL7-8 will be satisfied since we use real blockchain data and since our system will be open to the real world. As we develop new features, for example, machine learning algorithms, tracing Bitcoin transactions and Hyperledger token support, these will be integrated into the existing system as new features. These new additional features are planned to be at the level of TRL3-4 by M24 and then advanced to TRL7-8 after M24, i.e. during the third year of the project.

2.9.5 Main Business Targets

Currently, banks in Turkey do not carry out transactions with cryptocurrencies due to lack of regulations. When regulations are established via the Banking Regulation and Supervision Agency (BRSA), Aktif Bank and other banks in Turkey can use the service for fraud detection.

2.9.6 Outline of Marketing Actions

Pilot 9 will take the following marketing actions:

1. Set-up web-based free service for blockchain fraudulent activity tracing.
2. Set-up twitter account to announce services, news, updates.
3. Prepare and disseminate blockchain crypto currency and token transaction analysis reports.
4. Publish peer-reviewed conference and journal papers and hence establish the case that the technology provided by Pilot 9 is backed by independent scientific reviews.

2.10 Pilot#10

2.10.1 Description of Product/Service

The purpose of this service is to enable security-related anomalies to be identified while they are occurring, if possible, by proactively monitoring and taking timely action on such potential security threats. The software component will be able to monitor in real time the financial transactions of a domestic and mobile banking system and will use machine learning models, alongside and in combination with traditional high-efficiency analysis techniques, applied on high-volume real data flows.

Thus, the pilot will move from the current post-event detection approaches to a new real-time approach that will be based on Big Data Analytics (BDA) technologies. For this pilot's reference scenario, the business service to be delivered is reliant on advances in precise and fine-grain financial fraud analysis and detection.

Such a business service will allow to meet two goals:

- The early detection of new and subtle types of frauds. Since fraudsters keep innovating novel ways to scam people and online systems, it becomes crucial to apply AI/ML methods to detect outliers in large transactional datasets and be robust to changing patterns.
- The reduction of the number of false positives which are usually analysed to understand if they are real fraud attempts or not. To this aim, it is very important to be able to train, validate and test ML models to make the most accurate ones operational.

2.10.2 Market Analysis

Following the identification of the financial industry as the target market for the development of Pilot#10, in this paragraph we try to explore the use of AI for information security in the financial sector, in order to understand which types of AI applications are currently in use for cybersecurity in the field of Real-time cybersecurity analytics on Financial Transactions' BigData.

In order to hypothesize a positioning on the market of Pilot#10, we considered it useful to analyze the main competing products/services currently present on the reference market, to compare with the state of the art, a possible testing in the market of Pilot#10 which is a tool based on machine learning techniques applied to real-time, financial transaction data-streams focused on adaptive detection for malicious transactions leveraging on established big-data analytics practices.

The following table summarizes information relating to similar solutions that have been clustered for convenience in three different application areas in the field of cybersecurity threats, such as:

- Fraud Detection and Money Laundering Security
- Aggregating Cybersecurity Data
- Monitoring and Preventing Cyber Threats

Table 2 Competing software products for Real-time cybersecurity analytics on financial transactions' data

No.	*Software Name*	*Company*	*Software features description*	*Area of application --*
1.	**OpenML Engine**	Feedzai	- Data science software that can help data scientists employed by banks to build their own custom fraud detection models using the specific fraud models already provided in the software. - This software can help banks, buyers and merchants detect and prevent money laundering and fraud. - The software can be integrated with a bank's existing systems using the data stored internally in the bank's data centers. - Feedzai's system can potentially analyze these data streams and obtain information on fraud, such as identifying a fraudulent transaction by a customer, creating granular risk profiles for customers in the form of a fraud score. - Feedzai's machine learning algorithms constantly process new events and transactions to update the fraud scores obtained from the risk engine, which are presented to bank employees via dashboard.	Money Laundering Security and Fraud Detection
2.	**PatternScout**	DefenseStorm	- Software tools can reportedly help banks detect and identify cybersecurity threats in their networks. - machine learning software to help banks and financial institutions automate cybersecurity and cyber compliance. - it saves on long-term security costs and avoids data leaks	Aggregating Cybersecurity Data
3.	**Threat Match**	DefenseStorm	- Software tools can reportedly help banks detect and identify cybersecurity threats in their networks. - it can potentially help banks increase visibility into their networks and monitor internal systems in real time for anomalies in the network. - It uses machine learning-based pattern recognition on historical network data. - Bank IT staff can access the dashboard and view security event data to quickly respond to security threats identified by the software.	Aggregating Cybersecurity Data
4.	**Enterprise Immune System**	Darktrace	- it uses machine learning to detect and respond to cyber threats in digital environments such as IoT, industrial control systems, clouds. - the integrated Darktrace Threat Visualizer tool can be integrated into the networks of financial institutions and allows IT security personnel to obtain a dashboard to monitor cyber threats in real time	Monitoring and Preventing Cyber Threats
5.	**Virtual Analyst Platform** *there are no case studies available to validate this software	PatternEx	- artificial intelligence software to identify malicious user intent and enable businesses to predict and prevent cyber attacks. - using machine learning the software can analyze data (e.g. users, IP addresses, sessions) from millions of users and detect suspicious activity, such as transactions from IP addresses with a history of fraud-related events. - the platform provides IT security analysts with information to understand which events are actual attacks and which are false positives. The system then incorporates analyst feedback into its models for the next set of data to be analyzed	Monitoring and Preventing Cyber Threats

2.10.3 Description of Target Market

In order to exploit the potential of application of the activities of Pilot#10, which fits into the context of a brand-new cyber threat sector, the financial industry could be identified as the target market of reference with the aim of guaranteeing the security of employees, customers and users with digital identity from all EU Member States. The financial industry and its associated services represents one of the areas more exposed to cyberattacks of various kinds.

In fact, financial market infrastructures such as payment services, investment services, asset management, banking, credit or insurance activities carry out financial transactions on a daily basis, generating a large amount of data that is highly subject to constant cyber security risks. Financial Institutions (FIs) such as banking, brokerage firms, insurance companies, leasing companies and other entities active on the financial market, currently have, among the issues of primary importance, a new issue: understanding how they could deal with the emerging cyber security risks linked to the data of a financial transaction in order to meet the growing expectations for the privacy of digital identity users in all EU Member States by fulfilling their regulatory and fiduciary responsibilities.

2.10.4 Route to Market / Product Launch

Pilot#10 will be progressively deployed from a lab environment to a production environment, passing through deployment in earlier stages of testbed experimentation. This procedure is aimed at a growth in terms of TRL (Technological Readiness Level) from a level 3-4 to a level 6-7 which foresees a demonstration for operational environment.

In this sense, the solution will be tested in a generate realistic data set that will be created consistent with the real data present in the data operations environment. The Synthetic dataset will be created by Poste Italiane starting from randomly generated personal data with no correlation with real people.

Target Products used for dataset are:

- Internal transfer of funds (enabling transfer of funds from the Bank current account of one payer to that of another Bank account holder);
- SEPA transfer The Single Euro Payments Area is a payment-integration initiative of the European Union for simplification of bank transfers denominated in euro;
- Foreign transfer is a tool used in the interbank system to transfer money between countries;
- SMWCA (Sending money to people who do not have a current account) is a means of payment, through which you can send a sum of money even to those who do not have a bank account;
- PCTU Top-ups phone credit;
- STFTS (Secure telematic fund transmission system) The procedure requires that a beneficiary is selected, together with details of the way he/she prefers to receive the money and the amount to be sent. You then have to pay the amount due, enter and check the personal data and send).

This phase will be fundamental to bring the solution closer to the market and preparatory to the actual launch of the product. The demonstration in an operational environment, in fact, allows to consider the solution fully safe and effective, features that could permit it to acquire a favorable position on the market

2.10.5 Main Business Targets

In paragraph 2.10.2 a description has been given regarding a possible target market identified in the financial industry, which could be a valid market to apply the activities of Pilot#10 aimed at significantly improving the detection rate of malicious events (i.e. fraud attempts) and enabling the identification of security-related anomalies while they are occurring by the analysis in real-time of the financial transactions of a home and mobile banking system.

However, since the financial industry is a market made up of numerous subjects, in this paragraph we try to identify potential customer targets on which to focus in order to capitalize and make the most of the validation actions of Pilot#10.

Within the financial sector, financial institutions (FIs) play a vital role in each country's financial system and play a crucial role especially for the majority of citizens by providing all financial transactions, savings and investment needs. FIs are joint stock companies responsible for providing money to the market through the transfer of funds from investors to businesses in the form of loans, deposits and investments. The most common types of financial institutions include commercial banks, trust companies, brokerage or investment firms, insurance companies, and wealth management funds. Other types include credit unions and financial corporations.

Financial institutions can be divided into two types:

1. bank financial institutions (e.g. commercial banks)
2. non-bank financial institutions (e.g. investment banks, insurance companies, finance companies, leasing companies, etc.)

With the aim of testing and validating the actions of Pilot#10, bank financial institutions and in particular italian commercial banks would appear to be an excellent customer target to implement the pilot's proactive approach and to prompt intervention on potential security threats. Being Pilot#10 based on increasing the detection rate of malicious events, such as fraud attempts, and allowing the identification of security-related anomalies through the real-time analysis of financial transactions of a home-banking and mobile banking systems, bank financial institutions represent a suitable business target for analyzing a vast amounts of data in order to define relevant cyber-risk ratings metrics and allow them to implement adaptive security measures and controls, based on real cyber-security postures.

In this sense, in recent years, banking financial institutions have been subject to a rapid digital evolution matched by a proportional and growing risk of exposure to cyber-attacks and are therefore currently under the eye of the storm for several reasons:

- Rising of reported abuses on home-banking and mobile banking systems
- Expected boost in the total number of transactions that makes clear the importance of detecting novel, malicious behaviors and cyber-attacks and facing the new technological challenges linked to unprecedented data volumes and the variety of new types of frauds or attacks
- Speed of execution of each operation

The Italian commercial banks are present in different types on the Italian territory and therefore a possible clustering could be hypothesized as follows:

- Italian commercial banks by number of branches
- Italian commercial banks in relation to distribution on the Italian territory
- Type of credit institution:
  - Co-operative Creedito Banks
  - Popular banks
  - Historical Italian banks
  - Banking groups

2.10.6 Outline of Marketing Actions

Some preliminary indications for the introduction on the market of the cybersecurity analytics solution have been clarified following these activities:

- Set specific buyer personas and marketing unique messages: Among the marketing objectives it is important to know buyer personas, that is the generalized representation of ideal customers who might be interested in the service/product and help to better understand the target through a unique marketing message to customize the contents based on their behaviors and their needs
- Addressing pressing cyber security issues and problems : Identify the top 3 problems related to cyber security and the main challenges in financial transaction data
- Identify relevant metrics : Identify the marketing metrics needed to measure the right strategy for product/service development Attaching a Lead scoring methodology to each Pilot : It might be useful to define a scoring system for the prospect to understand their real interest in the product/service
- Enhance the social media activities and project awareness : Promote exploitation through dissemination actions and strategies aimed at transferring information on the results of the project, in order to maximize its impact on individuals, organizations and communities

2.11 Pilot#11

2.11.1 Description of Product/Service

In Pilot#11 the service developed is to provide accurate risk estimations in motor insurance using AI techniques and ML algorithms based on real and up-to-date data. The data collected are from three different sources, the connected cars providing real-time info from each vehicle's CAN bus through On-Board Units (OBUs), the weather stations providing real-time weather conditions at the whereabouts of the vehicle monitored and the traffic incidents, such as roadworks and accidents, combined with road information. By processing these data different driving profiles will be created from considerate driving to more aggressive driving and drivers will be classified in these profiles.

This way, insurance companies will provide personalized motor insurance products based in the actual usage and therefore based on the actual risk. Premiums will be adapted to the driving behavior of the insureds giving them motivation to be more considerate drivers. In addition to usage-based insurance products developed, in Pilot#11 a fraud detection service is built to identify inconsistencies between the reported conditions of an accident and the real ones.

2.11.2 Market Analysis

The traditional way of pricing motor insurance products is based on statistical analysis of data coming from the driver (age, experience, marital status, gender etc.), from the vehicle (age, value, use, power, brand, model, color etc.) and from the usual place of circulation of the vehicle. This approach does not take into consideration the driving behavior of each insured driver, that influences the actual insurance risk.

In order to calculate the actual risk, insurance companies have developed Usage-based insurance products. The concept of Pay As You Drive (PAYD) service includes any scheme where the insurance premiums may depend on how much you drive, where you drive or when you drive. The simplest implementation of PAYD is coverage based on the odometer of the vehicle, then we have coverage based on mileage aggregated from GPS data or via mobile phones or RF technology and the most synthetic and accurate PAYD service is based on data collected from the vehicle. In addition to all these, when more sensors are used, like accelerometer by providing data of braking and accelerating, we have another form of Usage-based insurance, the Pay How You Drive (PHYD) service, similar to PAYD service but with more accurate risk estimations. The service developed in Pilot#11 is actually an advanced PHYD service using apart from the On-Board Units context information about weather conditions and traffic incidents, achieving higher level of accuracy in risk estimations.

Fraud detection in motor claims is always an issue for the insurance companies and so far, no advanced technology is used to achieve that. Insurance companies rely on police investigation and reports, private investigators, experts and even on research in social media, to detect fraudulent acts against them. By processing the data captured insurance companies may detect with solid-proof evidence some fake reports regarding the accident occurred.

2.11.3 Description of Target Market

The target market for Usage-based Insurance in motor is obviously Property and Casualty (P & C) insurance companies, that have a significant portfolio in motor insurance. Since the key factors of risk assessment and pricing remain the same throughout the world, we could say that the target market could be motor insurance companies worldwide. However, a more realistic point of view Is that the target market for our project are the motor insurance companies in Europe with almost 150bl Euros Gross Written Premiums, and especially insurance companies that have already integrated more or less Usage-Based Insurance products.

2.11.4 Route to Market / Product Launch

Pilot #11 deployment is composed by two mains, and initially independent, building blocks. The first one is related to the data gathering, homogenisation, storage and visualization, represented by the SmartFleet framework, whilst the other component covers the exploitation of the collected data to design, develop, train and provide the AI models that support the final Pay as You drive and Fraud Detection services. This is represented by the AI framework plus the final services created.

Referring to the SmartFleet component, the pilot is evolving a pre-existing IoT framework provided by Atos that implements the baseline of the data capturing process (in TRL4). This framework will be adapted and expanded to support the requirements of the connected cars and related context information management. At the moment of writing this deliverable, the SmartFleet has integrated and validated all required data sources so it is in a TRL5 status. During next stages of the project, the SmartFleet component will be tested within the connected cars infrastructure provided by CTAG so its is expected to reach a final TRL7.

On the other hand, pilot #11 environment will be used to evaluate some of the capabilities offered by the currently under development AI framework supported by Atos. This is expected to evolve from TRL4 to TRL 5 in terms of the framework. But considering the final AI powered services as the products to be offered by the pilot, these are the Pay as You Drive and the Fraud detection ones that would be be distributed as stand alone pieces of software, the final TRL will be one linked to them. These two services try to demonstrate the applicability of the Driving Profiling and Driver Classifier models to the real driving risk estimation and so, the expected final outcome will be a validation of the methodology and the estimation parameters. In this sense, the pilot has already built the concept of the AI models to be developed and started to compile the required datasets to identify data clusters. This is a TRL2. As the data analysis progresses, the pilot will evaluate different ML/DL techniques to define and train de designed models to achieve a final TRL 5 for the services developed, that demonstrates the driving profiling approach.

2.11.5 Main Business Targets

The main business target is the integration and the wide approval of the outcome of the project in the motor insurance business. Thus, Usage based insurance products based on IoT connected vehicles will be widely used to reach accurate risk estimations in motor insurance; fraud detection services coming from this pilot will be used and be accepted as the main tools to identify fraud in motor claims.

2.11.6 Outline of Marketing Actions

Since Usage Based Insurance products with this level of accuracy and combining data not only from the vehicle but from other sources as well, is innovative in motor insurance, there may be a lot of skepticism at first from the side of the insureds. To override these doubts as a marketing action can be considered a trial period of the service. This way, the insureds will have the opportunity to know how premiums would have been adapted during this period according to their driving behavior, motivating them to drive in a considerate way. So, the safer they drive the less they would have been charged, or after the trial period the less they will pay for their car insurance.

Another aspect that can be exploited is the fraud detection service, since this will provide undisputable real data about an accident not only in favor of the insurance company but in favor of the insured as well in case there is a dispute about responsibility over the accident. Needless to say, that with the real time location of the vehicle a stolen vehicle may also be recovered, which would be beneficial for the insured especially if the vehicle wasn’t covered for car theft.

2.12 Pilot#12

2.12.1 Description of Product/Service

In Pilot#12 the service developed is to provide accurate risk estimations in health insurance throughout the insurance period using AI (Artificial Intelligence) techniques and ML (Machine Learning) algorithms based on Real-World Data (RWD). The data collected from the insureds through the Healthentia app can be collected either through an integration with built-in health apps in Android and iOS devices (e.g., Apple Health), through integration with external activity trackers or reported by the customers themselves using in-app questionnaires and event-reporting options. The measured data, depending on the devices connected, are steps and distance, floors or elevation, calorie consumption, sleep time and heart rate monitoring. The reported data, apart from demographic data that are requested at first registration, are symptoms like body temperature, blood pressure, cough, headache, diarrhoea etc., liquid intake and meals, body weight and a weekly quality of life questionnaire (the often-used EQ-5D-5L Questionnaire that covers mobility, self-care, usual activities, pain/discomfort, and anxiety/depression).

By processing these data and analysing insureds' lifestyle and behaviour, a personal score is generated for each insured. This way, insurance companies will provide personalized health insurance products based on the actual risk. Premiums will be calculated according to the lifestyle and the behaviour of the insureds giving them motivation to adopt a healthier way of life. In order to override possible misuse of the application, since the insureds have monetary benefits from it, there will be two approaches, one is to properly train the algorithms to identify such misuse and the other is to provide the insureds with accurate risk assessment on various health domains, so that they will be tempted to provide real and accurate data.

2.12.2 Market Analysis

The traditional way of pricing health insurance products is based on statistical analysis of demographic data such as age, gender, marital status, occupation, smoking and drinking habits and habits in general, obtained through initial interviews prior to the enrolment to the insurance program. At the same time the insured provides to the insurance company their personal full health record (serious diseases and illnesses, past surgeries) along with health record of their close relatives (for inherited diseases). This approach does not take into consideration the actual lifestyle and behaviour of the insured and the evolution through time, which influences the actual insurance risk.

In order to calculate the actual risk, real-world data must be integrated in risk assessment in health insurance. So far, real-world data are collected by various means but not for the health insurance industry. Various kinds of activity trackers like smart watches, wristbands, and clips, with varied brands and models are widely used to measure physical activity. On the other hand, there are over 300.000 health apps available in mobile phones, connected to an activity tracker or not. Some of them simply record activity, others offer health advice, or provide the users with exercise programs or even nutrition advice for a balanced diet. The idea in Pilot#12 is to collect and use these data, that users of these activity trackers or apps are already providing, in health insurance programs and provide personalized insurance programs, with continuous adaptation of premiums to lifestyle and behaviour.

2.12.3 Description of Target Market

The target market for usage-based Insurance in the health sector from the side of the carrier is obviously Life and Health insurance companies eager to adapt innovative technologies and from the side of the insureds those who are already familiar with the use of activity trackers and health apps. Although there are no major particularities in health risk assessment all over the world, it would be more realistic to say that the target market for our pilot is the health insurance companies in Europe with more than 150bl Euros Gross Written Premiums.

2.12.4 Route to Market / Product Launch

Pilot #12 deployment is composed by two main, and initially independent, building blocks. The first one is the data manipulation building block, related to the data gathering, homogenisation, storage and visualization, employing the Healthentia platform, the INFINITECH Data Collector, Anonymizer and Data Protection. The second building block is the AI services one, related to the exploitation of the collected data to design, develop, train and provide the AI models that support the final Risk Assessment and Fraud Detection services.

Referring to the Data manipulation building block, the technology readiness of its main components is as follows:

• Healthentia platform: This is a product of Innovation Sprint, already in use for clinical research as a class I medical device. It is in TRL9, while in INFINITECH it is being repurposed from the clinical to the insurance domain.

• Data Collector: This is a module created by UBITECH for the INFINITECH project. It is at TRL6, and planned to reach TRL8 throughout the project.

• Data Protection Orchestrator: This is a module created by ATOS for the INFINITECH project. It is at TRL5, and planned to reach TRL6 throughout the project.

• GRAD - Anonymization component (TRL: 5 -> >=6): Modifies data in order to preserve privacy, especially when they are outsourced or shared; Includes different algorithms for avoiding appearances of data combinations that could lead to re-identification; It is one of the main technologies in the project's data governance arsenal

• LeanXcale database: This is a product of LeanXcale. It is in TRL 7 (product's master release version 1.5), while in INFINITECH it is being currently evolved into TRL 8 (product's master release version 1.7).

The AI services building block utilises ML services built by Innovation Sprint for INFINITECH. At the beginning of the project the risk assessment service was at TRL2, while the fraud detection one at TRL1. During the project they will both reach TRL5.

2.12.5 Main Business Targets

The core business target is the integration and the wide approval of the outcome of the pilot in the health insurance business. More specifically, the target is that real-world data will be integrated in risk assessment and usage-based health insurance products will be introduced in health insurance. In addition to this, the motivation given for a healthier way of life and the medical advice provided are a combination that will lead to a reduction in claims and eventually profits for the insurance companies.

2.12.6 Outline of Marketing Actions

Like every attempt to launch an innovative service or product, personalized health insurance products are likely to be confronted with scepticism from the side of the insureds. To overcome these concerns and populate the use of usage-based insurance products, an approach would be to give the ability to the insureds to test the service with a trial period and realize how their lifestyle and behaviour would have affected the premiums. The most interesting part is to demonstrate the change in the premiums from the deliberate actions of the insureds, motivating them to lead a healthier way of life. Since the use of an activity tracker with advanced sensors is ideal to capture the necessary data and reach an accurate risk assessment by processing them, it would be wise to promote these products along with sales channels of these trackers. Within Pilot #12, special attention is being given to the question of how much people are willing to share their personal health-related data with insurance companies, and why? A broadly disseminated survey is designed to answer these questions that can serve as input for the marketing strategy as well as the further design of the application.

Another marketing action could be the fact that by providing measured data from their physical activity and genuine reported data, the insureds will receive medical advice in various health domains that may even lead to prevention of a serious health disease.

2.13 Pilot#13

2.13.1 Description of Product/Service

The main objective of Pilot #13 is to implement a data analysis platform applying machine learning and artificial intelligence technologies to better predict the insurance needs of SMEs. In this context, the platform will generate a risk map of the SMEs based on their daily activities and will predict how the risk will vary on time. Therefore, the pilot will design and implement a service that effectively monitors the current risks of SMEs, as well as their risk variance in the future, in order to improve the control of the accident rate, the renewal of insurance policies and offer personalised insurance cover.

SME Profiling. Through this platform module, a detailed study of each SME's risks is carried out, which makes it possible to offer personalised insurance and banking products based on their needs, increasing the conversion into sales by the insurance and banking entities, as well as better and more adequate insurance for the SME.

SME Underwriting. Module aimed at automating processes for the issuance of insurance and banking products that allows bankers, insurers and intermediaries to shorten processes and increase the efficiency of financial institutions. In addition, this module allows these entities to increase their knowledge of their clients through KYC (Know Your Client) techniques to improve compliance with legal requirements and those of the regulator.

2.13.2 Market Analysis

The main competitors come from the segment specialized in the commercialization of machine learning models based on Big Data that work with specific data from insurance companies, such as:

Carpe data from North America https://carpe.io/ Focused on business data analytics for insurance and claims.

Digital Fine Print from UK (www.digitalfineprint.com), startup with presence in English-speaking countries such as UK and USA, therefore, it is not present in the Spanish market, but it represents an important competitor for Wenalyze in its internationalization in USA. Its pricing is variable depending on the volume of data analyzed. It is a company created in 2016 that has received $3 million in venture capital funding.

CYTORA, UK multinational (https://cytora.com/). Direct competitor of Wenalyze, it operates in the UK and has plans for entry into the US. It has received funds of about 40 million euros. Its main clients are insurers and reinsurers, but not banks.

PLANCK, a US company (https://planckdata.com/). It does not operate in Spain, but it does operate in other markets where Wenalyze intends to expand. It is a startup founded in 2009 and has received 3.5 million dollars in venture capital funds. Its pricing is determined by the volume of data analyzed.

Thus, after the United Kingdom's exit from the EU, Wenalyze will be the only company, among these competitors, from the European Union. Therefore, the market positioning for Wenalyze's solution based on Pilot #13 is to be the leader in the European market and to enter the competition for the U.S. market.

We do not consider competitors to include companies that are mere data providers without applying any artificial intelligence, ratios or elaborated indicators, or those that only use financial information and not online activity, footprint, etc.

2.13.3 Description of Target Market

The market for Big Data services in the financial sector in Spain and internationally is in full expansion.

In financial services (Banking and Insurance), there are significant opportunities for profitability through the application of Big Data and Analytics technologies and methodologies. With the 2008 financial sector crisis, regulatory pressure has forced many businesses, particularly in Banking, to invest in areas such as risk management, compliance and operations. This has accelerated the trend towards enterprise data management, which is a good starting point in the adoption of new and more advanced data exploitation initiatives.

The combination of Big Data and Analytics is increasingly enabling banks and insurers to leverage new and varied data sources and become "smarter" entities achieving greater differentiation in a fast-changing competitive market. Thus, among the opportunities it provides, the advantage offered by this technology to help in complex decision-making processes stands out. An advantage that, in short, has a positive impact on business results derived from increased efficiencies and higher revenues, with a slight variation in the case of insurance companies highlighting the opportunity to extract "intelligence" from the combination of structured and unstructured sources of information.

Market size is based on the number of SMEs in the company's two priority areas of expansion and service, Europe and the US. Together, both markets add up to more than 50 million SMEs susceptible to analysis by Wenalyze's financial institution clients.

MARKET	EU	USA	TOTAL
TAM (Total Addressable Market)	1.102.500.000,00 €	1.350.000.000,00 €	2.452.500.000,00 €
SAM (Service Addressable Market)	392.000.000,00 €	480.000.000,00 €	872.000.000,00 €
SOM (Service Obtainable Market)	122.500.000,00 €	150.000.000,00 €	272.500.000,00 €

Figure 3 Wenalyze Market Size

2.13.4 Route to Market / Product Launch

Pilot #13, given its technological architecture and components, currently has a TRL status of 7 but to achieve its post-project goals, it must evolve to a finished and fully functional product.

Currently the TRL status of each of its technological components are as follows:

1. Data Ingestion, automated information-gathering robots TRL 8.
2. Data Management, polyglot module and non-relational databases TRL 6.
3. Machine learning modeling TRL 7
4. API and visualization of the results for clients TRL 8

Therefore in the project there are different levels of development of the technology. The Route to market is to obtain a TRL 8 level in all components, and test it in market environments to move to a real production state.

In order to reduce the time to market, in addition to the technological development of the product, validation meetings and pilots are being carried out in the two main services of the product.

2.13.5 Main Business Targets

In order to better reach customers, the following segmentation by type of company in the insurance sector has been carried out, dividing these customer groups as follows:

A. Reinsurers, reinsurers are large multinational companies with a worldwide presence and whose main business is to share the insurance risk that insurers sell to end customers. The purpose of targeting this type of organization is to discover and design new insurance products, which are then offered to insurers.

B. Insurers, companies that cover business risks. With the three modules, profiling, underwriting and Risk Management, in order to increase the level of insurance coverage for individuals and companies and to develop models for fraud reduction and loss control.

C. Banks, depending on the country, a major insurance marketer are the banks, so they will also be part of the target customers.

2.13.6 Outline of Marketing Actions

The marketing strategy is based on two pillars to spread awareness of the brand, the company and our products.
The brand communication pillar is the company's website (https://www.wenalyze.com) supported by social networks where we have an active presence, especially on Linkedin (https://www.linkedin.com/company/wenalyze). In this way we manage to connect with the key people for the entry into the financial institutions. This presence is supported by the monthly sending of a Newsletter and e-mails to key contacts for the dissemination of our image.

We have both a person who manages this presence and an external journalist who distributes press releases to different media in order to have diffusion in both sectorial and general media (https://www.wenalyze.com/wenalyze-reorienta-sus-algoritmos-a-favor-del-covid19/).
The second pillar is the scientific one, through the brand Innovación Aseguradora and its website we publish reports and studies of a more technical and scientific nature that have a great audience in the financial sectors www.innovacionseguradora.com and also in online events, as well as post-pandemic plans to resume our pre-pandemic high level of attendance and participation in face-to-face events. In this way we manage to build a conversion funnel that ensures there is a constant flow of interested people and possible conversion to customers, as reflected in the following image:

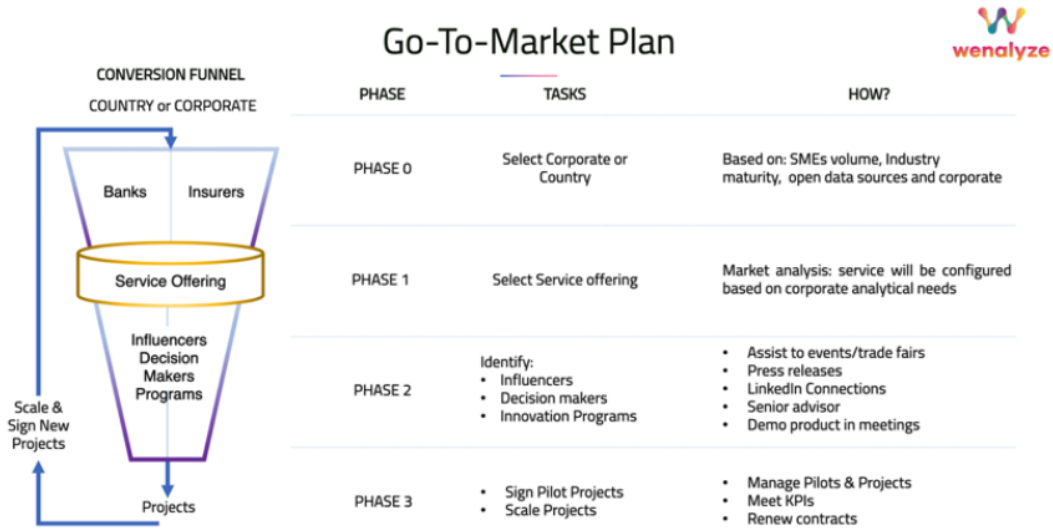

Figure 4 Wenalyze Actions

Given the type of sales and our business-to-business focus and the fact that the clients are large companies and corporations, the most appropriate commercial organization is led by an account manager whose role is to contact the client and carry out the pre-sales and onboarding process until the contract is signed, after which the technical team takes over the day-to-day management of the analytics.

2.14 Pilot#14

2.14.1 Description of Product/Service

INFINITECH Pilot 14 entitled “Big Data and IoT for the Agricultural Insurance Industry” delivers a commercial service module that will enable insurance companies to exploit the untapped market potential of Agricultural Insurance (AgI), taking advantage of innovations in Earth Observation (EO), weather intelligence & ICT technology. EO data derived by Copernicus Sentinel missions, as well as by missions contributing to Copernicus, are used to develop the data products that act as a complementary source to the information used by insurance companies to design their insurance products & assess natural disasters. Furthermore, weather intelligence based on data assimilation is delivered, i.e. numerical weather prediction & ensemble seasonal forecasting is used to verify the occurrence of damaging weather events and to predict emerging risks. The resulting AgI module represents a solution with extensive applicability and scalability. It will be comprised of: a) the INFINITECH Big Data agnosticism capability, which can work with information received from heterogeneous databases (i.e. databases with dissimilar data formats), allowing efficient coupling of EO satellite data with any type of complementary data (from separated drone shots to ultra-high-resolution SAR imagery); and b) a high scalable and powerful geoinformatics development framework, that can combine and process all datasets, transforming them into useful information for each AgI “supply chain” actor (reinsurers, insurers, underwriters, loss adjusters and brokers).

By delivering the **INFINITECH AgI module**, INFINITECH will enable Insurance companies to alleviate the effect of weather uncertainty when estimating risk for AgI products, reduce the number of on-site visits for claim verification, reduce operational & administrative costs for monitoring of insured indexes and contract handling, & design more accurate & personalized contracts.

2.14.2 Market Analysis

AgI companies lack sufficient - unbiased and continuous - data to appropriately estimate risk and personalise their product portfolio to take account of current and new market trends. At the same time, there is a fast-growing need to control rises in AgI's high operational, administrative and monitoring costs, driven by the remoteness and dispersion of agricultural holdings, which complicate making AgI a profitable business. With the competition in the agricultural insurance market increasing, the reduction of insurance process costs regarding e.g. product development, risk mapping and damage assessment is a key factor for success. INFINITECH AgI module has a clear global potential within the fast-growing sector of AgI, for which an increase up to US$50 billion by 2025, is expected. INFINITECH AgI module will become “the competitive advantage” of every AgI player and provide tangible and measurable benefits to the parties concerned and involved in AgI. In this prevailing era of climate change, Agricultural Insurance (AgI) becomes the major risk management tool for securing food producers’ resilience and agricultural production. Due to the challenges introduced by climate change and its effects on agricultural value chains, AgI providers need to quickly adapt to this changing risk environment. For drought, 9 billion US$ of global losses were not covered by insurance in 2020 alone. This so-called **protection gap** also exists for other calamities in Agriculture and offers a large potential for Insurance companies to further develop this field globally. Unpredictable and extreme weather events showcase an increase in their occurrence, which is expected to grow further in future. As an example, climate change has affected production risk in various ways such as: (i) increasing the frequency of loss events, (ii) changing absolute and relative variability of losses, (iii) shifting spatial distribution of losses, (iv) damage function increasing exponentially with weather intensity, (v) abrupt and non-linear changes in losses, (vi) widespread geographical simultaneity of losses, (vii) more single events with multiple correlated consequences, (viii) more hybrid events with multiple consequences. Therefore, the assessment of agricultural risk will not only be accentuated but also become a very complex and cumbersome process necessitating devising new mechanisms and measures to address such risks, bringing AgI to the forefront both for public but also private organisations.

The heterogeneous structure of insurance schemes globally, results in different degrees of crop insurance penetration and coverage. Some countries offer combined and even integral insurance in partially subsidized systems. Moreover, there are many member states in which agricultural systems have already reached a maturity that permits the introduction of income insurance. Overall, it is possible to classify insurance products according to their risk sharing strategy, risk coverage, risk liability and the loss assessment mechanism. Risk-sharing strategies: mutual funds, mutual insurance schemes and individual insurance schemes; Risks covered: (1) yields - valued at constant prices (single, multi and/ or combined peril coverage); (2) revenue - including yields and prices volatility; (3) income - including yields, prices and costs volatility, (4) integral – all natural hazard to a single crop and (5) whole farm insurance – all risks covered on the farm; Risk liability: coverage of risks under the public, public-private, private scheme as well as subsidies coverage; Loss assessment mechanism with index-based insurance or damage (area-yield) based insurance.

Despite the heterogenity of Insurance schemes or Insurance products, the INFINITECH AgI module's provision of High-quality data forms the basis for reliable and sustainable AgI solutions for any type of scheme or product lineup. INFINITECH AgI module will provide high quality data that fulfil AgI market demand for: a) timely and accurate data: easing claims and payment process; b) relevant and location specific data: so that the AgI product offers reliable protection c) compliant to international standards d) available over a sufficiently long-time horizon (time series data). INFINITECH AgI-module offers a multitude of data on top of which impartial indices are derived, which will allow insurers to reduce significantly the time needed for handling and verification of claims and the costs imposed by fraud, moral hazard and adverse selection. INFINITECH AgI-module derived indices will allow and enable the industry to enlarge its market, while delivering a larger portfolio of products at lower costs and serve areas, where classical insurance products could not be delivered.

No market entry barriers have been identified, the only obstacle to overcome is to enhance change and technology use within a “traditional sector”. We aim to address it by supporting innovative business models, e.g., providing freemium versions to AgI actors and involving them in establishing a co-validation process.

2.14.3 Description of Target Market

The INFINITECH AgI toolbox will be developed for markets where agricultural insurance is rather underdeveloped and insurance companies struggle to implement innovations in EO and to improve their portfolio- and risk management through software use. Within Pilot 14, the primary target market is the CEE region. Several factors make this region a good playground to test innovations in AgI: • Importance of primary/agricultural sector for (rural) economies and employment within the countries. • The region is prone to a changing risk landscape with negative impacts of climate change in the future. • Agricultural Insurance is largely underdeveloped, and therefore not slowed down by inflexible legacy systems, and growers' lack of affordable risk transfer solutions. • The AgI markets of today are too small to attract high investments of large technology providers.

Recognizing the importance of AgI as a risk-mitigation tool in food production, the need for more Insurance products, schemes and actors will continue to grow (national governmental subsidies, new CAP developments). Namely, agriculture is inherently risky and AgI is the protection against risks in the whole agricultural supply chain. It explains the fact that AgI schemes have been implemented, both in developed and developing countries across the world, and highly supported by governments. Namely, the research conducted by World Bank in 2007 shows that 104 countries had some form of agricultural insurance in that year . Taking into considerations market trends in the last decade, this number is higher today. More interesting, the AgI landscape globally is showing great diversity, whether in its nature, scheme or the manner of implementation.

INFINITECH AgI module is building its commercial roadmap around the booming AgI market dynamics aiming to leverage on top of the clear business opportunities raised against the current AgI sectoral bottlenecks in their business practices. Thus, AgroApps and Genillard, through INFINITECH are building their business proposition and customize it to the needs and requirements of each user segment: * Insurers – continuous access to information, timely and accurate data, decrease under-

insurance, increase portfolio coverage and diversity, increase productivity/ mitigate risk, decrease uncertainty and risk exposure, understand new markets; * Reinsurers - continuous access to information, timely and accurate data, understand new markets' characteristics, strengthening intra-supply chain relationships, transparent information flow; * Underwriters- new pools of climate data, expand services coverage, estimations of current trends and future climatology and not based on past-historical data. * Customers (insured) – lower/affordable premium, more products, more focused coverage, customer base is widened, new distribution channels open up;

To support the early steps of the INFINITECH AgI module's commercialization journey, across targeted markets in Europe and globally, Pilot 14 is focusing first on early adopters coming from two main segments: a) Public/Private AgI Companies b) Underwriting Companies.

2.14.4 Route to Market / Product Launch

Building upon the already successful delivery of services to the Agricultural market, such as: Crop Growth Monitoring, Crop Yield Estimation, High Resolution Short Range Weather Forecast, Extreme Weather Events Early Warning System, Historical Climate Data, Custom Based Weather Forecasting Services etc., AgroApps goes a step further, delivering core components of INFINITECH AgI module and related EO services to be utilized within the global AgI market. INFINITECH AgI module will result in a close-to-market tool/solution that AgroApps can add to the existing portfolio of provided services and use as a vehicle for its expansion to additional markets in the CEE region, directly, and other emerging markets in partnership with pilot clients from Genillard & Co. To achieve MVP status the INFINITECH AgI module, will validate itself in operational settings of AgI stakeholders involved in pilot cases. In this way, the implementation of such a dynamic co-validation and business refinement process will ensure the best market fit, applicability, and sustainability of INFINITECH AgI module. Moreover, such collaboration with future customers represents an excellent way to discover all major AgI market opportunities, push product branding in all commercially-viable directions, and establish a presence in the whole sector.

Furthermore, the commercial exploitation of INFINITECH AgI module by AgroApps and Genillard & Co, will allow a synergistic effect between the two actors. For markets where the two partners have not already established collaborators, new contractual agreements with resellers and exclusive distribution agreements globally are planned; agreement with pilot partners (AgI companies) for quick commercialisation, are within the possible options/alternatives.

2.14.5 Main Business Targets

In the long run, the cooperation between AgroApps and G&Co aims at becoming the market leader in providing a digital toolbox for AgI companies, where EO and weather data are leveraged to improve business decision making and strategy planning. On a shorter term, we aim to finalize, validate and optimize the AgI toolbox with pilot users, to design and evaluate a pricing model and set up a marketing strategy within the INFINITECH project. Afterwards, the mid-term aims are to validate the marketing strategy by making a first sale to a major actor within 6 months and scaling up to 5 major customers within 18 months after project end.

2.14.6 Outline of Marketing Actions

Pilot 14 is focusing its marketing activities on increasing awareness and on transforming involved AgI companies from prospects into customers. AgI companies are able to use the toolbox to introduce new insurance products and exploit untapped market potential, increase UW efficiency and improve portfolio risk management.The main efforts will be pointed into direct marketing and organization of in-person meetings with potential customers – B2B Marketing. Genillard & Co will implement and capitalize this toolbox and its services in the consulting activities for their existing clients and partners in the AgI industry. Furthermore, all pilot project marketing activities will attempt to turn each potential customer's engagement and early adopters into future revenues. Moreover, Pilot 14 marketing will share success stories, on the basis of pilot and early-adopters project results. In this way, the approach will transform the project activities in industry concrete benefits.

To acquire all planned targets, several up-to-date marketing strategies and principles will be applied in Pilot 14, such as:

• Direct marketing allows businesses to communicate directly to the customer, with methods such as messaging with consent, email, calls, presentations, interactive websites, ads, promotional letters. • Participation at events which the target AgI customers (conferences, meetings, fairs, etc.) attend (e.g. G&Co CISAR Symposium, AIAG congress). • Social media use is considered to be a supporting promotional tool for INFINITECH AgI module in order to engage and inform AgI target audience. Exploitation of websites and social media (i.e. Linkedin, Twitter, YouTube and Facebook etc.) must be consistent. Pilot 14 partners will make optimal use of social media to get its message and services to its future direct and indirect customers. • Sponsorship of an event is a way to generate positive publicity. This might be sometimes a high cost activity; however, it will be considered as an option.

2.14.7 Pilot 14 Business Model

AgroApps strategic planning is to exploit INFINITECH AgI module, in collaboration with Genillard & CO, commercially either through "Software as a Service" (SaaS) commercial model or "Data as a Service" (DaaS) commercial model.

<table>
<tr><th>Key Partners</th><th>Key Activities</th><th>Value Proposition</th><th>Customer relationship</th><th>Customer Segments</th></tr>
<tr><td rowspan="2">•Establish strategic partnership with key AgI actors;
•Establish synergies for indirect sales;
•Establish strategic business relationships to communicate the e-services platform;
•Showcase "Success stories";</td><td>•Data Analysis
•Visualisation and Decision support services</td><td rowspan="2">Information as a service
•Make better Decisions;
•Decrease O&A costs;
•Increase Profitability and customer satisfaction;
•Enable new Ins. products
•Trusted data.

•Covering the whole AgI Supply chain.
•Hassle-free Integration (API, SFTP, Web)</td><td>•Direct contact
•In-App
•Timely and Consistent
•Quality and affordable Services</td><td rowspan="2">AgI Companies
•Re-insurers,
•Insurers
•Underwriters
•Claim adjusters</td></tr>
<tr><th>Key Resources</th><th>Channels</th></tr>
<tr><td></td><td>•Web application development;
•VHR EO DATA;
•Location-based data;
•Numerical Weather Predictions</td><td>Sales Generating
Direct Sales
Indirect sales
Marketing Channels
Offline activities(B2B)</td></tr>
<tr><th colspan="3">Costs Structure</th><th colspan="2">Revenue Stream</th></tr>
<tr><td colspan="3">• Platform Development and Maintenance
• Piloting & Validation of services costs
• Sales and Marketing
• General and Administrative Costs
• Customer Support</td><td colspan="2">Software as a Service (SaaS)
Data as a service (DaaS)
• Direct selling
• Reselling affiliations model
• Industry sector partnerships</td></tr>
</table>

Figure 5 Pilot 14 Business Canvas

2.15 Pilot#15

2.15.1 Description of Product/Service

INFINITECH Pilot 15,"Open Inter-banking Pilot" aims to experiment with advanced document processing,"DE-CODE"(Documents Enhancement & COncept Detector), capable of reading, analysing, filtering and organising banks' internal documents to support the development of an innovative taxonomy. The resulting module represents a solution that will allow the screening of extensive

documentation in real time. This will be a starting point for the optimization of further solutions that every single bank would find it feasible to adopt and adapt in their own context. Based on Machine Learning and Natural Language Understanding paradigms, this prototype will start from the analysis of a subset of process operating documents to attempt the classification of the information contained in them with respect to the ABI Lab taxonomy used by Italian banks to build their business glossary, and in general to support the Enterprise Architecture. By engaging with this DE-CODE model, banks will be able to enrich documents with semantic metadata, thus categorizing documentation based on domain-specific taxonomies, avoiding older and rule-based methods that are static and costly. In addition, banking-process architects could benefit from the solution to support the process design, thus getting real-time useful information during the editing process via searching semantically-relevant text according to the semantic metadata.

2.15.2 Market Analysis

ABI Lab works in a pre-competitive field. As such, as implicitly described by the name of the pilot, the use case has been identified via feedback from the banks participating in the AI Hub, the centre of competence on AI, chaired by ABI Lab. Following the priorities identified by the banks, there was a scouting process of possible use-cases. The heterogeneous need of the banks to simplify the analysis of the large amount of internal documents, to streamline the methodology, to improve the prospective system-wide benefits, made DE-CODE the first choice to experiment with.

2.15.3 Description of Target Market

The definition of a unique glossary of business terms represents a key focus of Data Governance activities. The data, in fact, represents the cornerstone for setting up an Enterprise Architecture model. To this end, a Business Glossary must be i) understandable, i.e. clear and unique information, sensitive to its content and its context, ii) documentable, i.e. describe the chain of use of the data in the banking processes. As such, the primary target markets are the banks' departments involved in Enterprise Architecture and Data Governance.

2.15.4 Route to Market / Product Launch

The results of the De-CODE model will be addressed primarily to the banks taking part to the initiative, which will receive the prototype for further implementing the prototype within their organisations, to advance its TRL and make it an operational service.

2.15.5 Main Business Targets

Pilot 15 will focus on the key stakeholders' part of the pilot execution. On a higher level, the results will be disseminated to the wider public in the banking and finance industry. Pilot 15 business proposition, will be complemented by the benefits of the INFINITECH project e.g. for lowering the barriers for Big Data, IOT and AI-driven innovation in the finance sector.

2.15.6 Outline of Marketing Actions

ABI Lab will mainly focus on disseminating the results of Pilot 15 as well as the relevant success stories of early-adopters project results. This approach aims to transform the project activities into concrete benefits for De-CODE pilot users. To that extent, several communications activities will be implemented, including, but not limited to:

- organisation and participation to events at local and international level that cater for the banking industry
- newsletter
- social media

- website

3 Joint exploitation plan

At the time of writing of the present document, we are exploring productive and high-value ways to combine insights and prospective mass-commercialization opportunities gained in each of the single pilots. This includes achieving the 15 sets of single-pilot joint goals set out in the DoA, But our explorations aim higher, to include focusing on ambitious challenges, e.g. that require the achievement of multi-pilot synergies and solutions that are important to multiple sectors and that magnify possibilities for widespread exploitation actions that include concertation across the H2020 and Horizon Europe programmes. This is our emerging vision for a sustainable and aspirational Joint Exploitation Plan: focused on multi-partner, multi-project wealth-creation and job creation/protection at societal level.

Our road map for the transition from today's interoperable-but-independent pilots to post-M24 sector-relevant innovations and joint exploitation plan is still under development, and our primary focus in the pilots is on the several options for joint commercial exploitation of results anticipated in the DoA. The purpose of this section is to present different scenarios considered for the final joint exploitation plan, based on internal consideration (e.g. partner discussions) and external assumptions (e.g. surveys of expressed and revealed market demand, policy issues such as carbon-neutrality lobbying and end-user concerns). Future developments in the exploitation and sustainability activities will lead to a final decision on which one/s to go for.

The members of the project Consortium propose to work with stakeholders to jointly imagine their potential contexts for collaborating to achieve “good, then better, then best futures”, thereby to save time and effort in exploring a joint exploitation strategy with the possibility to form a new commercial entity which focuses on sustainable exploitation of the results, including a product development, programme and a strategy for innovation management (e.g., using net income from exploitation, to support post-exploitation through the incubation of a new start-up company and to inform and assist the project management committee project research and development). Therefore, the main purpose of the joint Appendix is to describe our joint ways of making decisions about this type of exploitation both during and beyond the project lifetime. Related DOA reports of the project deal with specific needs, exploitation and IP and the technical development of the proposed products.

INFINITECH will also produce a future-state Roadmap for Stakeholders in order to share methods and research findings widely, together with its platform specifications, the use cases and all recommendations. However, it should also protect intellectual property (IP) so that a viable EU-based business can be established.

In this light, a draft Joint Exploitation Agreement is proposed as a base of discussion. At this early stage of the project it is premature to calculate expected costs and return on investment, as shown by the COVID-caused big fall in road traffic and hence car insurance income worldwide.

3.0.1 Exploitation Agreement and Compensation Schemes

One partner can decide on promoting the entire solution on its own and create exploitation agreements as soon as a commercial opportunity arises. The commercial opportunity would be formalized by a kind of exploitation agreement for example through an Enterprise Unique License Agreement (EULA) at the moment with the involved partners, stating the conditions of the exploitation. This is the most feasible option for INFINITECH partners, because it is more flexible: it allows the most suitable combination of results to be applied, and it optimizes resource investments (workforce, legal costs, software maintenance). This agreement is a very flexible vehicle to accommodate different parties’ expectations regarding the potential future commercial exploitation of the project results. It covers key elements of the usual 'expectation space', ranging from the description of the different roles and responsibilities of each of the signing parts, to the distribution of the benefits (if applicable) based on a multi-angle approach which covers any type of activity related to the commercialization of the project results (commercial activities, maintenance, training, etc.). The rationale behind this exploitation agreement is to have the possibility to use it as a template for any commercial opportunity of the consortium developments that may pop up in the near future. It

also provides a major flexibility as it does not need to be signed by all partners, only the ones that would have the intention to participate in a common exploitation of the results (the range of partners to be included goes from bilateral to multilateral agreements). As a summary description of a commercial agreement, it contains, among other considerations:

- Scope and duration of the agreement
- Setting up an Exploitation Committee to coordinate any agreement activity
- Description of the project results and the IPR distribution and a price List
- Definition of the different roles and responsibilities
- Description of the revenue-sharing framework
- Liability of the participants, confidentiality clauses and termination cases

We plan to sign a light version of a pre-commercial agreement (e.g. memorandum of understanding – MoU) that would include obligations such as having a commercial contact point for each INFINITECH.eu asset that could guarantee an answer regarding business co-operation conditions (for information purposes), in the case that a concrete business opportunity arises. At a later stage, where all arrangements are negotiated in more detail, the exploitation agreement could consider this MoU as a starting point. This type of agreement would imply the IP protection of the different assets developed within INFINITECH.

3.1 Bilateral Agreements among Partners

A different option for partners' collaboration considers separately functionalities and ownerships of the INFINITECH.eu assets as well as services such as tailored system integration that might integrate specific INFINITECH.eu components with the pre-existing IT owned by the customer. Given the fact that INFINITECH.eu partners that provide these services are likely to be also the IP owners of the required components, the model fits individual exploitation plans or bilateral agreements between two or three INFINITECH.eu partners. Depending on the actual situation or their internal portfolio, strategy etc, IP owners could open up software code or integrate it into a tailor-made customer's solution.

The advantage of this model is that there is no huge additional investment involved, but the correct estimation of overall project complexity could be easily underestimated, while the close cooperation with customers (or partners outside consortium) in requirements elicitation can also pose some problems. The consortium needs more internal discussions before deciding what is currently the best way to proceed in terms of likelihood of success and economic and resources cost. All these topics will be defined during the 3rd year of the project once the technology developments are defined and on track as planned.

3.2 Business modeling

The project partners are exploring the option to jointly document and exploit the competencies, experiences and results of INFINITECH via bilateral agreements, commercial companies, organizations, and interested parties. In order to have a comprehensive overview of the different possibilities, we describe three models and evaluate these models against three criteria: scalability, profitability and risk (which includes sustainability factors).

3.2.1 The Product Model

This model can be described as a relationship where a business creates a product or service that is sold to customers. The value proposition is strongly transactional. The sale of products or services is well-established, and this is the most common form of business model.

The prerequisites of operating this kind of model are:

- Identifying potential customers e.g., via precision marketing).
- Identifying how to capture awareness and create demand.
- Identifying the mechanisms of monetisation including unit price including discounts.
- Businesses can be structured in a variety of ways including a hierarchical-integrated or as networked partnerships which could include suppliers.

SCALABILITY	Greater volumes typically reduce costs.
PROFITABILITY	When the business achieves scale and there are high entry barriers.
RISK	Copycat or Me2 products especially those with lower costs

3.2.2 The Solutions Model

This model can be described as a relationship in which the business engages with a customer regarding a specific problem or challenge that the customer faces. The business provides an integrated solution to that problem and consequently the value proposition is relational.

Compared to the product model, the solutions-based model requires much greater customer engagement. There needs to be an environment of trust fostered between supplier and customer.

The boundary between the solutions and product model is a matter of degree. The prerequisites of operating this kind of model are:

- Identifying potential customers;
- Creating and maintaining a high level of trust with customers that facilitates the identification of requirements;
- Tailoring the product or service delivery to fulfil those needs in the context of the customer;
- Charging mechanisms are generally value based as opposed to cost based;

SCALABILITY	Scalability is difficult as greater volumes may result in higher unit costs.
PROFITABILITY	Profitability is good among selected customers.
RISK	Developing relationships with customers and tailor-made solutions require upfront investments in time, money, and relationship building

3.2.3 The Matchmaking Model

This comparatively new model can be described as a multi-party arrangement in which a business identifies customer groups and brings them together via a digital or physical marketplace. The value proposition of the business is transactional, and lies in the matchmaking between parties engaging with the marketplace. The prerequisites of operating this model are:

- Identifying potential buyers and potential sellers, and arranging their arrival and onboarding on the marketplace (a double challenge);
- Creating high levels of trust with the groups;
- Establishing a charging mechanisms (normally a fee based on transactions);
- Development of the marketplace and the mechanisms for customer engagement are rarely outsourced.

SCALABILITY	Typically high
PROFITABILITY	Margins are typically small as profits rely on volume
RISK	Entry from copycats and envelopment from multisided business models

3.2.4 Methodology

We will apply the following methodology for selecting and adapting the INFINITECH business model and subsequent recommendations:

1. Research into Business Models and how they can be applied to learning platforms, especially Platform Design & Service Design approaches to pervasive learning;
2. The compilation of an inventory of potential revenue models to be integrated within the deliverable D9.13 (as Business Model Canvas);
3. An extensive internal consultation will occur from September to December 2021, followed by a series of individual interviews;
4. The selected models will be further elaborated (D9.y) and refined with a view to further internal consultation with consortium partners;
5. The recommended model will be then used as basis to develop sustainability plans (Dx.x).

3.3 IP strategy

The key principles of INFINITECH IP strategy have been described in the Consortium Agreement. This includes a list of exploitable outputs from the project, which could feed into future exploitation vehicles and identifies areas where there could be IP-related risks. A key feature of INFINITECH strategy is that it is based on a technology-driven IP approach. This includes the use of the accredited specification, to assist in ensuring license compliance at minimal cost, especially when there is an automatic exchange of knowledge between software packages. It can also include the use of Barcode-based IP models and Blockchain-based IP models which embed ownership information with a document or visual etc. The embedded information allows propositions and concepts that require the owner's permission to exploit them to be tracked and ownership correctly ascribed. The use of these methods will facilitate copyright by automatically asserting or clearing a copyright claim where needed, or they could assist in overcoming the lack of protection at an early stage.

Patent procedure. The approach to patents within INFINITECH will be detailed in deliverable D9.x, including the prioritisation process of patent activity across the project as a whole. A factor to consider from the exploitation point of view, is that it would add to the company value if any patent or patents underpin the Unique Service Proposition. Normally the partner or partners making an invention will be the patent owner(s). But full ownership also requires the inventor partner to pay for the costs of taking out a patent. The costs of taking out a patent are high, so if the inventor partner does not wish, or is unable, to pay the costs, another partner (or possibly even a company outside the consortium) could pay the costs and take ownership or joint ownership of the patent. In the case of INFINITECH where the intention is to form a new company, and a patent is to be transferred to the new company, some of the costs of taking out the patent can be deferred until the formation of the new company and presented as an investment option to the company's investors.

3.3.1 IP strategy implementation

INFINITECH IP strategy must be extended fast (first-mover advantage), not only to include the IPR of project partners, but also the 3rd party providers that will allow the ecosystem to grow. A key feature of INFINITECH strategy is that it is based on a technology-driven IP approach. This includes the use of the accredited specification (including RegTech), to assist in ensuring license compliance at minimal cost, especially when there is an automatic exchange of digital artefacts. Barcode-based or Blockchain-based rights ownership tracking information can be embedded in the artefacts. The embedded information allows propositions and concepts that require the owner's permission to exploit them to be tracked and ownership correctly ascribed. The use of these methods will facilitate copyright by automatically asserting or clearing a copyright claim where needed, or they could assist in overcoming the lack of protection at an early stage.

IP and know-how transfer: In the case of forming a project spinoff new company, all the IP and know-how to accomplish the business model will need to be transferred to the new company. The conditions for such a transfer are to be negotiated as part of the exploitation plan.

3.3.2 Joint Exploitation Agreement

In annex 2 we provide a first draft of possible Joint Exploitation Agreement. This will be the basis of discussion among partners from September onwards.

3.4 Types of business

The INFINITECH project takes a broad approach in its objectives and not only develops a platform but also includes an outreach programme. Because of this broad remit, it is possible that several different types of business activity could emerge and be mutually complementary.

Five types of business activity are considered: a solutions company, a software company, a training company, a consultancy and a community/networking company.

3.4.1 Solutions provider

This type of company could develop and supply the INFINITECH platform that is based on an open, vendor-neutral approach and configure solutions for different contexts. The INFINITECH results will be initially developed, maintained and subsequently further developed. A solutions company would have direct access to the companies that are procuring the solution, rather than via an intermediary. It has the opportunity to establish a strong relationship with major industry customers and with existing providers.

3.4.2 Software provider

As a software provider, the proposed company could make the INFINITECH-developed software available to solution providers, perhaps as a Software Development Kit (SDK) and Application Programming Interfaces (APIs). It could also supply software components to providers of other solutions to enhance their products (and so exploit the interoperability features of INFINITECH). Before any software could be confidently sold or licensed, it would need to be thoroughly tested in multiple ways for realistic environments.

3.4.3 Consultancy

Consultancy companies could guide solution developers and system integrators in how to develop and structure their solutions to include pervasive elements. This, on its own, is unlikely to have major impact across Europe and does not take maximum advantage of the capabilities that are being developed in INFINITECH. On the other hand, consultancy could be offered as a supplementary service by the company, for example, on the learning solutions that it provides and on an ‘as needed’ basis. For example, consultancy and training support could be provided by a solutions-provider company as part of an ongoing service level agreement. An alternative approach would be for any of the existing consortium members to provide consultancy in their particular area of expertise as an individual exploitation action if they so choose.

3.4.4 Pervasive financial community

Given the broad basis of the project and the aim to achieve a wide European impact, INFINITECH could aim to establish a sustainable networking community to share information about pervasive learning and related technologies, as well as promote open standards for educational application. The INFINITECH outreach programme provides a springboard for such an initiative. Establishment of a Europe-wide financial technologies community provides perhaps the biggest opportunity for

INFINITECH to openly involve all European stakeholders and so achieve a major European impact. We already started this with the INFINITECH Stakeholder Alliance (ISA), which counts nowadays more than 400 members. There are a number of networking communities that could provide a model for community activities. Services could include Special Interest Groups, each running regular events such as conferences, invited talks, challenges, hackathons as well as a diverse range of value-added services such as a resources recruitment board, a certification procedure and test facilities. Conferences and workshops could provide a forum for businesses, policy makers and users to solve problems and chart the future.

3.4.5 Initial proposal: commercial exploitation partnering

As outlined in the document, a set of assets and value propositions will be produced by the Consortium. The first three of these types of assets would be profit-making activities and would build on the technical expertise developed in the project. At this early stage, the project will not consider to investigate the possible formation of a stand-alone company, but rather to exploit the project assets as a commercial collaboration or Joint Ventures among t(which could be implemented as a business entity). This is an appropriate first step given that the project has over 50 partners including academics.

The fourth activity could lead to a not-for-profit company (NewCoNet) building on the community and networking activities. Given the broad basis of the project and the aim to achieve a wide European impact, this community would share information about INFINITECH technologies and promote open standards application. More information is given in the following section.

3.4.6 Initial proposal: INFINITECH Stakeholders Alliance program

The INFINITECH Stakeholders Alliance (ISA) program started from project partners (and their networks) as well as the large-scale project pilots: it aims to make project results sustainable, by building a community of Alliance Members around the project. The Alliance Members have a partner status of INFINITECH with priority access to results and being allowed to use the methods and technology frameworks in their own context, possibly adapting and enhancing them. The Alliance Members have the opportunity to open their software systems for INFINITECH applications and develop their own learning applications, contributing them back to the project. This lays the ground for further use and exploitation of INFINITECH results beyond the end of the project.

Within the framework of the ISA Program, new prototypes are tested by Alliance Members, as the project aims to receive feedback from potential users during the development phases. Furthermore, INFINITECH aims to get new widgets created by the Alliance Members, which may be new applications or further developments of already existing widget prototypes. To facilitate the development of learning widgets by external developers, specific competitions can be organised.

It is expected that the prototypes developed in INFINITECH will also be tested by the organisational Alliance Members in the last project year. With help of this practical application, INFINITECH will be actively used outside the consortium. A positive side effect would be the dissemination, but also the sustainable multiplication of the INFINITECH technologies.

To recruit members for the Alliance Program, all target groups relevant for INFINITECH, such as BDVA/ DAIRO and GAIA-X and IDSA (industrial dataspace...), are addressed. As an example, it is expected to reach gatekeepers and influencers who include technology and educationally oriented persons, institutions and stakeholders, who are interested in testing and implementing the INFINITECH technology in their processes.

In order to motivate potential members to become a part of the Alliance Program, a wide range of benefits and services giving them further insight into the outcome of INFINITECH Project is offered. Some of these benefits are:

- Early access to actual information, such as project deliverables and white papers;
- Opportunity to try and use INFINITECH software to make experiments;

- Opportunity to develop and provide own tools, services and resources within INFINITECH framework;
- Using INFINITECH source codes and developer documentation (where applicable);
- Getting direct contact to and support from the INFINITECH Partners;
- Staying up-to-date with the INFINITECH Newsletter.

The ISA Program, linked also to large-scale piloting, is integrated in other activities of INFINITECH, such as fairs, conferences and workshops. Therefore, promotional activities for Alliance Program are closely connected with the dissemination activities of the INFINITECH Project as a whole. Additionally, the INFINITECH Alliance Program is actively promoted in online communities as well as through personal contacts by the INFINITECH partners.

4 Individual Exploitation Plans

4.1 GFT Italia Srl

4.1.1 Profile

The GFT Italy serves as a strategic information technology partner, which helps companies to optimize their business processes with intelligent and innovative IT solutions and highly skilled specialists, and to transform cutting-edge technological developments into future-proof business models. GFT Italy belongs to a multinational Group whose operating division GFT Solution is among the world's leading IT service providers in the finance sector. Striving to always improve technological expertise, innovative strength and premium quality for more than 25 years, the GFT group operates from 34 offices in twelve countries with about 5.000 employees. The strategic locations for participation in European research projects are Germany, Italy and Spain: these countries host GFT innovation houses as well as software development teams.

4.1.2 Exploitation

GFT is interested in the exploitation of the whole INFINITECH project and in particular to the technologies related to Big Data Management, Machine Learning Algorithms, and Blockchain based solutions.

In particular, GFT will promote personalized financial assistance, banking sustainability indexes, anti-fraud or anti-money laundering, and other pre-competitive and widely adoptable solutions to customers. The envisaged exploitation path involves advancing the pilot systems towards production deployment, in the scope of B2B agreements to be established with GFT's customers. However, GFT will seek to provide similar solutions to other customers in the finance/banking sector, with the intention of involving and creating partnerships with the pool of partners inside and outside the INFINITECH consortium whilst allowing communication and collaboration.

GFT will exploit INFINITECH's regulatory compliance, sandboxing and experimentation activities through its wide net of customers, including banks, credit cards circuits, insurance companies, merchants and telco operators. In particular, GFT will promote the establishment of related sandbox-development services within the INFINITECH ecosystem, but also outside of it, through its established sales channels and regular marketing activities. GFT has acquired companies in the US, Middle East and Asia and integrated them into its infrastructure. It also has agents in many locations around the world, including Europe, Middle East and South America. Based on these channels the company will promote the INFINITECH ecosystem and services worldwide. Indeed, GFT aims to exploit the INFINITECH platform to propose services that leverages on the building blocks produced by the project, to commercialize development and deployment being facilitated and more cost-effective thanks to the already developed components and/or competencies. As a consequence of the collaboration with ABILAB and the support on their pilot, GFT joined the AI Hub to collaborate on the development of a shared solution among banks being considered in a pre-competitive environment. Thus allowing GFT to reach the wide network of Italian banks participating to the Hub as possible new or existing customers benefitting from the INFINITECH project's results.

GFT has become full members of BDVA/DAIRO and Leader of the Task Force "AI and Big Data for the Financial Sector" (https://www.bdva.eu/task-force-7), together with ABILAB, organizing the activities of the working group to produce results on European Level, as well as delivering a publishing positioning papers and/or researches. Indeed, GFT will be the author of the whitepaper "Big Data and AI for the Financial Sector: Challenges and Opportunities", a report of the state-of-the-art compared with emerging technologies, innovative trends and market analysis of the financial sector.

Moreover, GFT will exploit the project's results through its CODE_n innovation platform, (www.code-n.org). In particular, GFT will use the project's results as a basis in order to motivate startups, technology pioneers and established companies to engage with INFINITECH ecosystem and validate pioneer new business models for BigData and AI applications. Note that most of the banks of the consortium represent existing or prospective customers of GFT, which provides a sound basis for the rapid commercialization of the project's pilots and other results as part of GFT's solutions for these organizations.

GFT will exploit the project also through the marketplace and the VDIH, together with INSO, aiming to both motivate and provide services to startups and other players in the market. Lastly, GFT will exploit the community building activities specifically through the ISA (Infinitech Stakeholders Alliance), involving relevant stakeholders for engaging prospective customers to commercialize projects' pilots, the platform, and other results.

TO INTEGRATE:

- Internal Process
  - Business Evaluation
  - Business Potential
  - Business Strategy (channels)

4.2 ATOS Spain S.A.

4.2.1 Profile

Atos is a global leader in digital transformation with around 100,000 employees in 72 countries and annual revenue of around € 12 billion. The European number one in Big Data, Cybersecurity, High Performance Computing and Digital Workplace, The Group provides Cloud services, Infrastructure & Data Management, Business & Platform solutions, as well as transactional services through Worldline, the European leader in the payment industry. With its cutting-edge technologies, digital expertise and industry knowledge, Atos supports the digital transformation of its clients across various business sectors: Defense, Financial Services, Health, Manufacturing, Media, Energy & Utilities, Public sector, Retail, Telecommunications and Transportation. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and operates under the brands Atos, Atos Consulting, Atos Worldgrid, Bull, Canopy, Unify and Worldline. Atos SE (Societas Europaea) is listed on the CAC40 Paris stock index.

4.2.2 Exploitation

ATOS has faced the COVID-19 crisis using their industry expertise and expanding in digital, cloud, security and decarbonization to increase bookings and grow revenue in 2021. INFINITECH's outcomes effectively support the implementation of this strategy. ATOS DPO solution was initially used in WITDOM project http://www.witdom.eu/content/protection-orchestrator-po. At the end of INFINITECH, ATOS DPO solution will be easily integrated in financial pilots (this solution will be integrated in pilot 12- Personalized insurance products based on IoT connected devices) providing security and privacy to different stakeholders and easing the integration of different security and privacy technologies. DPO will be the basis of the regulatory compliance tools in INFINITECH, that will integrate and orchestrate different data governance mechanisms (such as Anonymization tool). ATOS DPO solution will be ready for easy integration in Atos data-driven analytics offerings such as Atos CODEX (https://atos.net/en/solutions/atos-codex-insight-driven-outcomes) and for Digital Transformation initiatives and consultancy towards large number of Atos customers in different markets (https://atos.net/en/solutions/digital-transformation-factory, https://atos.net/en/solutions/digital-transformation-consulting) and other Industry 4.0 / IoT solutions (https://atos.net/en/solutions/industry-4-0-the-industrial-internet-of-things).

Similarly, ATOS DUOS solution was used in ARIES (https://www.aries-project.eu/) and CYPACK (https://www.eitdigital.eu/fileadmin/files/2020/factsheets/digital-cities/EIT-Digital-Factsheet-CYPACK.pdf) projects and will be integrated in INFINITECH project in pilot 4 - Personalized Portfolio Management ("Why Private Banking cannot be for everyone?") allowing the use of virtual identities from a mobile device. DUOS is one of the Data Governance Mechanisms considered in INFINITECH. ATOS DUOS solution will be ready for integration in Atos Trusted Digital Identities offerings such as https://atos.net/en/solutions/cyber-security/trusted-digital-identities and Digital Transformation initiatives and consultancy towards large number of Atos customers in different markets (https://atos.net/en/solutions/digital-transformation-factory, https://atos.net/en/solutions/digital-transformation-consulting)

Atos offers to its Insurance customers IoT and real-time data analytics to transform car insurance business see https://atos.net/en/customer-stories/global-insurance-company , SmartFleets solution complements this offer as it is applicable in Insurance companies and OEMS. Furthermore, the solution is applicable to other business cases such as Logistic and supply chain, Fleet management (shipping companies , buses, city garbage trucks, smart home and cities and Vehicle as a service) . Connected vehicles could be also integrated as part of wider smart platform elements from the home to the city or community level. SmartFleets is Brand independent (no matter the vehicle manufacturer), other sources of information can be integrated easily ,Multiple services can be offered ,Machine learning models that can be used in other environments. The incorporation of data analytics and AI into ATOS delivery positively affected the company benefits. "EASIER-AI is a Hybrid (Cloud/Edge) platform that facilitates to develop, measure, monitor and deploy AI models. The platform facilitates the data science tasks and it is focused on working on Hybrid Infrastructure and exploiting data generated by IoT. " [1] [1]D2.5 – Specifications of INFINITECH Technologies - I

4.3 IBM Israel Science and Technology Ltd

4.3.1 Profile

For more than seven decades, IBM Research has defined the future of technology with more than 3,000 researchers in 12 labs located across 6 continents. IBM Research breakthroughs helped the company achieve an industry record of 9,043 patents in 2017, marking IBM's 25th consecutive year of U.S. patent leadership and crossing the 100,000- patent milestone. Nearly half of the patents granted to IBM in 2017 were pioneering advancements in AI, cloud computing, cybersecurity, blockchain, and quantum computing. Scientists from IBM Research have produced 6 Nobel laureates, 10 U.S. National Medals of Technology, 5 U.S. National Medals of Science, 6 Turing Awards, 19 inductees into the National Academy of Sciences, and 20 inductees into the U.S. National Inventors Hall of Fame. No matter where discovery takes place, IBM researchers push the boundaries of science, technology, and business to make the world work better. IBM holds a leadership position when it comes to the creation, development, and manufacture of the industry's most advanced information technologies, including computer systems, software, networking systems, storage devices, and microelectronics. IBM participates in and contributes to the work of standards consortia, alliances, and formal national and international standards organizations. Where appropriate, IBM adopts consensus technologies to maintain openness, interoperability, and application portability. IBM Israel Science and Technology Limited, better known as IBM Research – Haifa, was first established in 1972.

4.3.2 Exploitation

Hyperledger Fabric provides an open source, industrial-grade implementation of a private or permissioned blockchain to be used as the blockchain technology for INFINITECH. Today, Hyperledger projects do not use crypto assets, cryptocurrency, tokens, or coin-like constructs as incentive mechanics to establish trust systems. In the scope of the INFINITECH project, Fabric will be extended to include support for digital tokens. Hyperledger Fabric is an agnostic permission blockchain platform. Enriching Fabric with digital tokens for trading of assets in the business network not only

will benefit the financial and insurance sectors in which INFINITECH plays, but also to any other domain in which tokens can provide economic incentives. Therefore, results achieved in the scope of INFINITECH for the sake of the financial sector, can be replicated to any other vertical.

IBM believes that blockchain technologies have the potential to significantly change how organizations do business. IBM recognizes the huge potential to demonstrate leadership in this space and create shareholder value. IBM will strive to leverage outcomes of INFINITECH to enlarge its portfolio of blockchain solutions and services. IBM expects the technologies tested and enhanced during INFITECH work will be integrated into future IBM offerings in blockchain.

IBM believes that leadership in open source is a differentiating value for our clients and work to ensure that open source contributions benefit the ecosystem as a whole. As part of this strategy, IBM plans to release to the open source community code it will develop in the scope of the project.

IBM is involved in the consortium via its research unit, but other units (such as business unit and services) could be involved (after project completion) in the exploitation of the technologies, therefore supporting the exploitation of European-made technology worldwide.

4.3.3 Dissemination

IBM plans to participate in BC related conferences (possible joint papers with other partners) and present outcomes of the project also in internal meetings with IBM blockchain executives from the business units as well as other research labs. Currently, IBM is contributing to one chapter in the INFINITECH Open Access book on consent management blockchain based application.

4.4 FUJITSU Technology Solutions

4.4.1 Profile

Fujitsu Technology Solutions SAS is the French legal entity of Fujitsu EMEIA. In March 2017 Fujitsu announced the creation of a Centre of Excellence (CoE), which is part of Fujitsu Technology Solutions SAS. The activities of this Fujitsu CoE focus on AI technologies in order to address business issues. The CoE offers solutions in the field of the Internet of things, digital marketing, or corporate security, more specifically specialized in retail and industry.

4.4.2 Exploitation

Infinitech is a joint effort from global leaders in ICT and finance toward lowering the barriers for Big Data / IoT / AI drive innovation in the finance sector. As part of this project Fujitsu is developing and integrating data driven algorithms (machine learning, NLP, etc.) to bring value from automated data analysis such as fraudulent transaction or loan application detection or KYC. The outcome of the Infinitech project will be the creation of a platform and of services that can be leveraged by the finance sector rather than the current status where every actors is currently working on its own and from scratch. As of now, Fujitsu's plan of the outcomes exploitation is as follow:

- Embed the algorithms that will have been developed through the Infinitech effort into our portfolio either through the shape of a dedicated finance sector solution or within our existing AI frameworks used for customer solutions development
- Leverage the development for specific customer development projects, where a dedicated or specific platform is required by the customer and if there is a fit with the part developed by Fujitsu
- Depending on further discussion : provides the above services from the Infinitech market platform with a aaS business model or a model to be discussed jointly within the infinitech consortium

4.5 Hewlett Packard Italiana S.r.l.

4.5.1 Profile

Hewlett Packard Enterprise, which operates from Nov 1st 2015 as result of the split of the former Hewlett-Packard (HP) in two different companies, is a global technology leader focused on developing intelligent solutions that allow customers to capture, analyse and act upon data seamlessly from edge to cloud. HPE Pointnext is the business unit in charge of providing advisory and transformation services to HPE customers, and its mission is carrying on applied research, technology transfer and innovative solutions integration in leading edge areas. In Italy, since 1999, Pointnext can rely upon an excellence level team of researchers, consolidated skills and methodologies, and a physical infrastructure supporting project development and demonstration. The related Pointnext main technology focus and competences areas include, among others, some that are core to the INFINITECH project: * Intelligent infrastructures, cloud and edge computing * Big data analytics, AI, Internet of Things * Software engineering, with special emphasis on DevOps and Open Source technologies

4.5.2 Exploitation

Pointnext unit's mission and focus is on technology advisory and consulting, and is not a product development division. Therefore, HPE Italy exploitation of INFINITECH results will not be based on the development of specific software products. It will go through the Pointnext advisory service portfolio, where the know-how acquired in INFINITECH will be duly injected in the best suited services to get a head start in the vertical financial market with respect to the competition. INFINITECH will put HPE in the position to craft and offer to its finance sector customer base new services based on the technologies and the experiments carried on in the project. In particular, HPE Pointnext, as leader of the INFINITECH work package focused on the establishment of the Tailored Sandboxes and Testbeds for Experimentation and Validation, will exploit the architectural and integration expertise achieved in the project on real Sandboxes and Testbeds like the ones in the pilot sites and the one in the INFINITECH blueprint reference infrastructure and DevOps and Continuous Delivery/ Continuous Integration processes, which are led and put in place mainly by HPE for the project. HPE expects its participation to INFINITECH, in synergy with other innovation H2020 finance projects where we're involved (like FINSEC), to significantly boost its business opportunities in the finance domain. Furthermore, HPE will exploit innovative outcomes in certain INFINITECH technologies to enhance its services and reinforce its competitive advantage even in vertical sectors different from the fintech one. Moreover, as a consequence of the project planned collaboration with ABILAB and the support on their pilot and testbed, HPE plans to enforce its business relations with the partner and the involved connected banks, as potential new or existing customers, leveraging from the INFINITECH project results. Finally, HPE has contributed together with other INFINITECH partner to the BDVA Task Force "AI and Big Data for the Financial Sector", supporting the activities of the working group to produce results on European Level, in particular contributing as INFINITECH representative to the delivery of a positioning whitepaper "Big Data and AI for the Financial Sector: Challenges and Opportunities", a report of the state-of-the-art compared with emerging technologies, innovative trends and market analysis of the financial sector.

4.6 Singularlogic S.A.

4.6.1 Profile

Singular Logic is currently the leading Software and Integrated IT Solutions Group in Greece. With a full understanding of the entire range of market requirements, we offer advanced and integrated IT systems as well as full support services, investing capacity and internal infrastructure. This is based on experience, technological know-how and the existence of specialized SingularLogic solutions and

products as well as on an array of companies that collaborate with our Group. SingularLogic is member of Marfin Investment Group. The company offers highly skilled personnel and specialized know-how. With a large product portfolio, large customer install base with 40.000 SME clients and 700 large enterprises, a dynamic distribution network consisting of 400 business partners nationwide and significant implementations of over 400 large and complex IT projects for the private and public sector, SingularLogic is a reliable and credible partner that guarantees the investment of its customers. SingularLogic operates in various South East Europe countries through direct subsidiaries in Bulgaria, Romania and Cyprus, having set the foundations for substantial development in the regions.

4.6.2 Exploitation

Commercial exploitation: Exploit the outcomes of the project to transform the services provided by SILO, enhance our current solutions, increase our market share in Greece in the respective markets and enter new ones abroad. Technology transfer: Enhance its technological know-how in the area of Big Data and IoT. On the same time adopt the implementations of platform components in its own products and projects in the financial domain. Research exploitations: Enhance our cooperation with key players in the field of Big Data and IoT and develop join research activities in the future.

4.7 Engineering Ingegneria Informatica S.p.A.

4.7.1 Profile

About 10.000 employees, 50 sites distributed in Italy, Germany, Spain, Belgium, Republic of Serbia, South America (Brazil and Argentina) and United States, a consolidated revenue portfolio in 2017 of over 1 billion Euros. Engineering has a consolidated presence on all vertical markets and operates through its 4 business units - Public Administration & Healthcare, Telco & Utilities, Industry & Services, Finance - supported by cross-business unit centres of competence and by the Research and Innovation Department which, with its 250 resources, has the dual role of promoting research on software at an international level and transferring innovation to the production cycle of the business structures. The Group operates in the outsourcing and cloud computing market via an integrated network of 4 data centres located in Pont-Saint-Martin (AO), Turin, Vicenza and Milan, equipped with infrastructure aligned to the best technological, quality and security standards. An exclusive asset in Italy is the company's IT & Management School "Enrico Della Valle", that with 200 certified lecturers and 363 courses available provides 20,000 technical, method and process training days per year.

4.7.2 Exploitation

With the emergence of **Big Data and data value** as a market asset, ENG, as a **major ICT player** in Italy and internationally, has already put into place a strong strategy to acquire a leading position in this landscape. Alongside Big Data products and services, ENG has, for instance, integrated the skills of its own analysis and development laboratories with a specific **Big Data & Analytics Competence Center**.

ENG is also an active participant in various Big Data related initiatives such as the **OW2 Big Data Initiative** (www.ow2.org), the BDVA (Big Data Value Association – www.bdva.eu) and FIWARE (www.fiware.org).

The Engineering group has a strong presence on the outsourcing and cloud computing market via an integrated network of 4 data centers located in Pont-Saint-Martin (AO), Turin, Vicenza and Milan, equipped with infrastructure aligned to the best technological, quality and security standards. In 2016, this activity was led by the D-HUB unit to manage 10 petabytes, 21.000 servers and 230.000 workstations.

The ENG **Big Data market** is quite extensive, covering all the company's core markets. ENG has a wide range of products, including consultancy, big data scenarios and technical training, data mining methods and techniques, data analysis and advanced viewing techniques. ENG further develops various technologies based on open source and released as open source: these are a series of "fertile" results that can be adopted and improved in new programs such as INFINITECH.

From the INFINITECH project ENG expects returns on the one hand the possibility of being able to work on- and access innovative solutions in the finance and insurance sector, in order to possibly channel them to its **Digital Finance market** offerings where it has already a strong **position in Italy and Europe**, and on the other hand to improve its expertise and capabilities in the data management issues IFINITECH will be able to address, not only for the specifics of the finance services sector but also in other sectors where similar problems (format diversification, need for harmonization and transformation, etc.) also exist.

As a consolidated practice for all collaborative projects like INFINITECH, ENG internally adopts a strategy, defined as "**business driven innovation**", in order to capture new ideas and further develop them either internally or in further research projects. In line with such consolidated strategy with research projects, ENG is applying this innovation management approach by having assets and expertise acquired flow into INFINITECH, especially in terms of lower-TRL technology, in order to improve them and adapt them at best to the financial data domain, in turn receiving both technical and commercial feedback, improvements and optimisations.

Concerning the **INFINITECH Assets** being developed, both ones ENG is leading and ones led by other partners, they are all of great interest for ENG both from a technical and commercial point of view and ENG aims to be able to build, together with other partners, strong value propositions around them.

4.8 Innovation Sprint Sprl

4.8.1 Profile

Innovation Sprint Sprl is an SME that has been launched by innovation experts, offering bespoke services to companies and organizations that seek to pivot and add value to their products and services. Innovation Sprint offers innovative products in the Life Sciences / Healthcare domains and professional services by senior consultants with multidisciplinary skills. The offering of the company includes smart services and applications, big data collection, AI on Real World Data and predictive analytics. The company is headquartered in the Brussels Life Sciences Incubator and is part of the lifetech.brussels cluster and Health 2.0 - Brussels chapter. The flagship product of Innovation Sprint is Healthentia, an eClinical solution leveraging on Real World Data and reported outcomes at patient's point of experience offering data driven insights to guide Pharma and Medical Device companies on clinical endpoints. Further to Healthentia, iSprint holds two more healthcare products that target the healthcare sector, namely CloudCare2U and ActionableHealth360, which involve the collection and analysis of patients data in a cloud environment. One of these products is the exploitable outcome of the flagship FP7 eWall project and entails the collection and processing of data from patients based on a wide array of in-home and wearable devices.

4.8.2 Exploitation

At INFINITECH, Innovation Sprint is re-purposing their flagship product, Healthentia, from an eClinical platform, into a RWD collection and coaching product addressing the general population. One step towards this direction is to involve insurance companies on top of healthcare organizations in running studies with Healthentia.

The current exploitable outcomes, foreground in which Innovation Sprint has 100% ownership, are:

- Real-World Data simulator: System simulating the behavior of people based on groups of behavioral profiles.

- Real-World Data measurements in everyday environment: Collect info and symptoms met in the normal lifestyle of people, unlike the medical info collected under the strict clinical environment.
- Risk assessment: Machine learning system, comprising a classifier trained to recognize the short-term outlook, and the use of the classifier in obtaining predictions and their combination across time into risk assessments.

Exploitation is already under way:

- The Real-World Data simulator is already integrated with Healthentia as the core of our in-silico trial generator.
- A new study in the insurance sector using Healthentia is underway with a major insurance company in Europe.

4.8.3 Dissemination

INFINITECH papers:

- A. Pnevmatikakis, S. Kanavos, G. Matikas, K. Kostopoulou, A. Cesario and S. Kyriazakos, “Risk Assessment for Personalized Health Insurance Based on RealWorld Data,” Risks, vol. 9, no. 3, MDPI, March 2021.

4.9 SIA S.p.A

4.9.1 Profile

SIA is European leader in the design, creation and management of technology infrastructures and services for Financial and Central Institutions, Corporates and Public Administration bodies, in the areas of payments, emoney, network services and capital markets. SIA Group provides its services in around 40 countries, and also operates through its subsidiaries in Hungary and South Africa. The company has offices in Milan and Brussels. In 2014, SIA managed 9.2 billion credit transfers and collections and 3 billion card payments, 30.2 billion trading and posttrading transactions and carried 326 terabytes of data on the network. The Group is made up of six companies: the parent SIA, the Italian companies Emmecom (innovative network applications for banks and businesses), Pi4Pay (services for Payment Institutions), and TSP (front-end services for companies and P.A.), Perago in South Africa and SIA Central Europe in Hungary. The Group, which has around 1,500 employees, closed 2014 with revenues of €426.3 million. The company focus regarding innovation includes developing new service offers for sectors such as Retail and Public Administration.

4.9.2 Exploitation

SIA, as Italian leader, and among European leaders, in the design, creation and management of technology infrastructures and services for Financial Institutions, Central Banks, Corporates and the Public Sector, in the areas of Card & Merchant Solutions, Digital Payment Solutions and Capital Market & Network Solutions is natively interested in the exploitation of INFINITECH’s results. SIA will take advantage of the enormous knowledge brought by the wide network of competence and excellence present in the INFINITECH’s consortium, both on the providers side and on the stakeholders and client side, to assess and exploit potential new business models and value proposition to spread the impact on the market, also approaching new targets.

SIA is also interested in the exploitation of experimentation facilities (testbeds & sandboxes) with a specific focus on Machine Learning services and technologies with a potential use to identify hidden patterns of market abuse, trying to assess and evaluate Machine Learning's potential to unveil hidden patterns of market manipulation. Following the INFINITECH's approach, SIA would exploit more dynamic, flexible and intelligence practices, able to unveil potential patterns of abuse and subsequently to recommend to supervisors new control practices, along with actions alleviating market manipulation and safeguard trust towards stakeholders.

4.9.3 Dissemination

Sia will link the Infinitech's website on its corporate Website to report its participation to the Initiative and will relay the relevant news and communications and events. SIA will also present the outcomes and results of Infinitech during internal events and initiatives, like SIA Academy and SIA On Line, and will disseminate Infinitech's results while participating to relevant national and international events. In particular, depending on COVID-19 evolution SIA is willing to present results aa Surveillance Summit (https://www.1lod.com/) and Risk & Compliance Leaders Summit (https://riskcompliance.wbresearch.com/) in 2021-2022.

4.10 Liberbank, S.A.

4.10.1 Profile

Liberbank is the eighth Spanish listed bank and one of the 128 largest European banking groups, subject to the regulation of the European Central Bank.

Founded in 2011 by the Cajastur Group (which includes the Bank of Castilla-La Mancha), Caja de Extremadura and Caja Cantabria, it is a retail bank specialized in the family, SME and autonomous segments, in which it is a leader and a financial institution of reference in the markets of Asturias, Cantabria, Castilla La Mancha and Extremadura.

Liberbank Private and Personal Banking is an exclusive service of Liberbank, oriented to offer equity solutions to customers' financial needs.

4.10.2 Exploitation

Liberbank S.A has retired from the Consortium on March 2020. In the first period of the project however LIB contributed to user stories and requirements. The interest in the innovation is still valid.

LIB is interested in the innovation potential of this pilot to change the operation of PFM based on predictive analytics and deep learning algorithms. Existing PFM as only looking at past transactions for reporting and reviewing purposes. In INFINITECH, the PFM will invert this conventional operation through enabling predictive features. The innovation potential of this predictive PFM is to provide more automation and personalization, as a means of increasing the productivity of customers and the banks. It will directly manifest the project's impact on automation and productivity. LIB will exploit the pilot to compete in the market and to facilitate the financial vision of customers.

4.11 National Bank of Greece S.A.

4.11.1 Profile

National Bank of Greece was established in 1841 and was the first bank to be set up in the Modern Greek State, going on to play a key role in the economy of Greece throughout its 176-year history. Today NBG heads one of the largest financial groups in Greece, playing a key role in the efforts to support the Greek economy and the economic and social transformation of the country. NBG offers a wide range of financial products and services that meet the ever-evolving needs of private and

business customers. The Bank rightly considers itself to be the preferred bank of families in Greece, as it controls ¼ of the retail banking market. Its leading position in savings deposits reflects the trust of its customers who comprise NBG's driving force. With an extensive branch and ATM network comprised of over 542 branches and 1,447 ATMs, NBG covers the entire geographical area of Greece, while it has also developed state-of-the-art e-channels, including Mobile and Internet Banking. Today, NBG's international network includes 119 units, while the Group employs some 11,800 employees (as at 30 September 2017). Within the last 2 years, NBG has taken a series of fintech initiatives from innovative services (P2P/P2B mobile payments, donation crowdfunding, NBG developers' portal with open APIs) to establishing a fintech acceleration program (Be

4.11.2 Exploitation

NBG will exploit the pilot system to be developed in the project, as means of providing personalized and automated investment recommendations to its customers. Prior to preparing for a market roll out of this system it will organize internal exploitation workshops in order to solicit feedback from stakeholders and decision makers. Moreover, NBG will exploit the sandbox to be developed in the project in order to organize hackathons as part of its BeFinnovative accelerator. It will also support the project's VDIH based on the activities of BeFinnovative.

4.12 AKTIF BANK

4.12.1 Profile

An Ecosystem of Financial Technologies

Aktif Bank, the largest privately-owned investment bank in Turkey, maintains its operations as being the largest financial technologies ecosystem in Turkey thanks to the innovative business models, whereby it reinterprets the investment banking, and the investments it has made in technology.

By means of the products, it offers both physically and through the digital channels, Aktif Bank acts not only as the business partner but also the competitor of the FinTech companies in Turkey and all around the globe. Having customer orientation incorporated in its genetic codes, the Bank addresses to its more than 10 million customers within more than 10 business lines at each and every point of the life on 360 degrees basis and within a wide range covering loans insurance, transportation, card services, payment systems and the world of entertainment, together with its subsidiaries and business partners.

With its 12 branches serving all across Turkey, Aktif Bank is mainly focused on corporate banking, investment banking and private banking that require one-on-one communication. Holding a market share of 18 percent in the retail customer market thanks to its effective business partnerships, innovative business models and digital channel investments in retail banking, Aktif Bank serves with its approximately one thousand staff members together with its subsidiaries, at the present.

4.12.2 Exploitation

Aktif Bank will develop an exploitation roadmap in accordance with "4-path INFINITECH Exploitation Plan" itself. Assessment of the new knowledge generated during the project (outputs and other knowledge such as data) will be defined with all consortium members in IPR management meetings and Consortium Agreement. "Path entailing the development of detailed exploitation plans by each individual partner" defined in the Exploitation plan will be grouped under two main topics; "in-house exploitation" and "sectoral exploitation" for Aktif Bank.

In-house exploitation: Aktif Bank will be able to provide solid infrastructure and a platform with "SHARP" characteristics as testbed for upcoming technology development projects. The project outputs will provide an environment for developing effective follow-up plans for growing project results into market-ready products and services and market-adopted standards within Banking sector.

The Project results will be integrated in the business analytics & Big Data offering given to the customer as SaaS Model which will be also integrated with the ongoing development efforts (projects) of predictive analysis tool to provide credit scoring ability/service for 3rd financial institutions/banks etc.

Sectoral exploitation: Within Open Banking, a sufficient user interface will be made open source to ensure adoption by SMEs which will exploit Project outputs commercially. Aktif Bank will enable the Big Data to provide Fintech SMEs to define new products and future services in the area of finance. By this open API/Banking platform, Aktif Bank will provide a playground for fintech start-ups/SMEs in designing innovative and experimental services. Aktif Bank will stimulate internal dissemination, i.e. knowledge transfer especially within the global organization of the large partners, to facilitate exploitation of the results by involving in different stakeholders (e.g. the BDVA and other industrial organizations).

4.12.3 Dissemination

Main dissemination objective(s): Scientific/Business

Target groups: * Bank and Subsidiaries staff, Fintech Start-ups & SMEs, Big data stakeholders

Means of Dissemination: * Establishing an open source interface/ platform for fintech SMEs for developing open banking applications with the help of academic partners- Particularly with BOUN.

- Publishing results in journals such as Data mining and knowledge discovery, Journal of machine learning research etc.
- Aktif Bank will participate relevant scientific and business conference in the area of Big Data such as Crypto Finance Conference, Blockchain Summit etc. and EU Events organized by European Commission such as Eu Industry Day, European Fintech Cluster Conference etc.
- Regarding INFINITECH Project; General information, news items, event announcements, presentations, a publication list, and our public deliverables will be delivered by Aktif Bank and related subsidiary website and social media platforms.

4.13 Bank of Slovenia

4.13.1 Profile

The Bank of Slovenia is the central bank of the Republic of Slovenia and is a member of the European System of Central Banks (ESCB) and a part of the Eurosystem. Striving for financial stability is the Bank of Slovenia's statutory duty and in order to achieve it, the Bank of Slovenia performs different tasks and one of them is also banking supervision. The objective of the supervisory activities is identifying risks in all areas of the operations of its supervised entities (banks and savings banks, electronic money institutions, payment institutions and currency exchange operators) in timely fashion and ensuring the stability of financial institutions and the system through effective action. Supervisory activities of the Bank of Slovenia regarding banks and saving banks might be divided in two types: prudential supervision and non-prudential supervision. Responsibility to conduct prudential supervision is shared between ECB and Bank of Slovenia considering the fact Single Supervisory Mechanism (SSM) has been implemented in November 2014. On the other hand, the responsibility to conduct non-prudential supervision (including AML/CFT) remains fully within the National Competent Authority. Thus, the Bank of Slovenia is fully competent to conduct AML/CFT supervision and according the Act on Prevention of Money Laundering and Terrorist Financing the Bank of Slovenia is supervising 37 financial institutions (16 credit institutions, 17 currency exchange operators, 2 electronic money institutions and 2 payment institutions). For the purpose of AML/CFT supervision, there is a special unit within the Banking supervision department and there are four (4) AML experts fully dedicated to those activities. On-site examinations present a vital part of supervisory activities and according the Risk based approach there are different types of on-site examinations (e.g. comprehensive, targeted, thematic).

4.13.2 Exploitation

Main business target is to develop a prototype that would be possible to be launched as a product and used by the BOS Banking Supervision department (AML/CFT Unit). The BOS will be using developed services in their internal AML/CFT Unit to improve the effectiveness of the existing supervisory activities in the AML/ CFT. The platform should be extendable for further services and analytics development in order to allow covering additional scenarios and external data involvement.

4.13.3 Dissemination

Sharing experience and knowledge gained during the research of Pilot#8 to competent authorities in a common setting of AML/CFT regulation and supervision at national and supranational level. BOS participates in several committees at EU level (ESCB that consist of representatives of the ECB and the national central banks of the Eurosystem, and other competent bodies (such as national supervisory authorities in the case of the Banking Supervision Committee), ECB that through its supervisory mechanisms contribute to the safety and soundness of the European banking system and EBA which works to ensure effective and consistent regulation and supervision across the European banking sector) and at national level (such as Financial Stability Board (FSB) consisting of national supervisory authorities and Ministry of finance as an observer, with the objective of helping to protect the stability of the Slovene financial system) that within their digitalisation strategies promote SupTech development in which also platform within Pilot#8 belongs.

4.14 Poste Italiane - Società per Azioni

4.14.1 Profile

Poste Italiane is Italy's largest service provider and has the most employees of any company in the country. Our group, an important partner to Italian families and businesses for over 150 years, has succeeded in keeping pace with changing times and innovating without compromising its values. We provide post and logistics services and we are among the main players in the financial services and insurance market in Italy. Our network of nearly 13,000 post offices – unparalleled in Italy in terms of its size and reach - and our 30,000 delivery personnel make us a key component of Italian society. The strength of our network allows us to serve local communities and offer equal opportunities to all Italians: we provide our 30 million customers (individuals, companies and the government) with a wide range of simple, transparent, easy-to-use and innovative services designed to improve the lives of citizens and make companies more competitive.

4.14.2 Exploitation

The main potential exploitation activities for Poste Italiane are listed below:

1) Medium term (estimated by December 2021): Poste Italiane is working on the development of a tool for generating datasets containing synthetic information representing very realistic banking transaction flows. We are considering its potential use to test and validate the effectiveness and reliability of cyber-security and anti-fraud systems based on behavioral analysis mechanisms, without using real data which could imply privacy compliance issues and potential risks of data abuse/misuse.

2) Medium term (estimated by December 2021): the pilot on which we are working will be shown to managers, experts and significant representatives from an online bank (Bancoposta) and from a Payment Service Provider (a PISP – namely “Postepay”) members of Poste Italiane’s Group. During a dedicated workshop we will demonstrate that is really possible to adopt the Infinitech technology to run realistic banking and financial services. We will run through realistic cases in which security and trust gets the most of attention. The ambition will be to evaluate the potential adoption of the "Infinitech approach” to the development of the financial and banking systems of the future. In

particular, BancoPosta could be a candidate for the potential adoption of similar strategies in the near future. BancoPosta is one of the Italians biggest banking/financial service provider and carries out various activities:

- engaged in the active management of the banking book, (public and private customer deposits and relative lending activities);
- promotion and management of the postal savings instruments issued by Cassa Depositi e Prestiti (bonds and savings books);
- transaction banking services (payments and collections), such as postal payment slips, F24 tax forms, national and international postal money orders, Moneygram and Eurogiro services;
- promotion and distribution, through its own distribution platform, of financial products issued by third parties or other group companies, such as:
- asset management products (units of open-ended mutual funds established by BancoPosta Fondi SGR);
- asset administration products;
- Poste Vita and Poste Assicura insurance policies.
- third-party financing products and credit cards.

4.15 Banking and Payments Federation Ireland

4.15.1 Profile

Banking & Payments Federation Ireland (BPFI) is the voice of banking, payments and fintech in Ireland. Together with its affiliates, the Federation of International Banks in Ireland (FIBI) and the Fintech & Payments Association of Ireland (FPAI), BPFI has over 70-member institutions and associates, including licensed domestic and foreign banks and institutions operating in the financial marketplace here. The FPAI membership consists of over 120 fintech companies, ranging from start-up firms to large multinational Digital players. Representing these institutions, we mobilise the sector's collective resources and insights to deliver value and benefit to members, enabling them to build competitive sustainable businesses which support customers, the economy and society. Delivering a range of services through our specialist team, BPFI also offers an Associate network through which we offer many of the benefits of membership to the leading professional service firms that provide related advisory and consultancy services.

4.15.2 Exploitation

Commercial exploitation: The BPFI participates in the Irish pilot as the community builder and services requirements expert, and will lead in developing and executing the plan for Community and Ecosystem building.

As a representative body with three distinct memberships consisting of all the Irish Retail Banks, over 25 International banks, and over 100 FinTech companies, the BPFI will promote and educate its members to the objectives and outcomes of Pilot 3.

BPFI's dissemination activities will be mainly focused on discussions with its' member organisations and the participation in industry-based conferences and workshops. BPFI will assist in presentation of the Infinitech project findings at major conferences and online events covering multiple domains such as the Financial Industry, Public Safety\Security and Human Trafficking. BPFI will also engage with peer organisations to gauge potential interest in new solutions\offerings built around the innovations of the project.

4.16 DYNAMIS AEGA

4.16.1 Profile

DYNAMIS Insurance is a Greek, well-organized insurance company that offers a broad range of insurance products, based on strong foundations and the confidence provided by personal contact. The operations of DYNAMIS rely on the creation of long-term relationships with the customers, associates and employees, which are based on consistency, responsibility and respect. At DYNAMIS Insurance the customers, associates and employees have a name, and we know it by heart. The company's acknowledged reliability is endorsed by our loyal and continuously growing clientele, as well as from our long-standing relationships with our agents and associates throughout the country, who support our growth and underline our sustainability. At the same time, we have the privilege of cooperating with reinsurance companies of international prestige, which guarantee the company's ability to provide the highest possible assurance to its customers and associates.

4.16.2 Exploitation

DYNAMIS Insurance has a significant role as the business partner in Pilot#11 (Personalized insurance products based on IoT connected vehicles) and Pilot#12 (Real-world data for novel health insurance). Throughout the period of the Infinitech project Dynamis executives from Operations and Technology departments have the opportunity to communicate with partners from all over Europe coming from different backgrounds, mainly providers of state-of-the-art technology in the field of Big Data and IoT, and promote within the project their vision for the future in motor and health insurance. In both sectors of the insurance industry, there will be developed usage-based and personalized insurance products, which are increasingly requested by the insureds. However, as DYNAMIS is a Property & Casualty (P & C) insurance company, will only get advantage of the outcome of Pilot#11 by introducing in the Greek Motor Insurance market a UBI product with high level of accuracy in risk estimation using the model of Pay How You Drive service not only with real data from the vehicle but also with context information (weather & traffic). This innovative service launched for the first time not only in the Greek market but also worldwide, will assist DYNAMIS to increase their portfolio and their share in the market, by providing to the insureds products adjusted to their needs. Regarding the technology that will be provided as an outcome of the pilots, DYNAMIS will make the necessary adjustments in its infrastructure to accommodate the solutions provided in motor insurance originally to validate them during the project's period and then to integrate them in the solutions provided to their insureds.

4.17 Genillard&Co GmbH

4.17.1 Profile

Genillard&Co GmbH (G&CO) exists since 2003 and currently has 11 employees. Within the company are two business units: Reinsurance Broking and Consulting. Both business units are closely linked in terms of personnel and topics. As an industry insider, it acts as a strong partner for the insurance industry, institutions and governments in the European area as well as the C.I.S-countries. The broking business unit focuses on emerging risks and specialty insurance lines, including terror, cyber, natural hazards and agriculture. The consulting unit combines the know-how in the broking unit with academic skills to consult their clients on especially the areas of

4.17.2 Exploitation

A robust and cost-effective toolbox of functions and services is developed in Pilot 14 to allow agricultural insurance companies to alleviate the effect of weather uncertainty when estimating risk of insurance products. Genillard&Co will exploit the Pilot 14 results in their own established services

for agricultural stakeholders in terms of managing meteorological or hydrological risks resulting from a changing climate. We plan to 1) become a trusted advocate and sales agent in the European market where our partners have difficulties in reaching potential clients; 2) become a change manager for customers and their employees to provide support and expertise during the implementation process; 3) transfer the knowledge gained to an improved design of our existing Agriculture Risk Metrics platform, delivering risk relevant information and analysis in interactive dashboards for public and private institutions; 4) implement and capitalize the developed services and applications in our consulting activities for insurance companies, public institutions, and other stakeholders in the agricultural value chain; 5) facilitate the outreach to these actors based on these newly created structures and associations; 6) provide a knowledge base for agricultural insurance activities using the resulting products, thereby facilitating financial support and planning security for farmers and public institutions.

4.18 JRC Capital Management Consultancy & Research

4.18.1 Profile

JRC Capital Management Consultancy & Research GmbH is a strongly research oriented independent asset management and investment house, specialized in Forex and Derivatives. JRC was founded in Berlin in 1994 and offers services to institutional clients as well as wealthy private individuals in the fields of asset management, brokerage and financial research & development. Today, the company has a total staff of ~20. Its core department, apart from the front office, is the R&D department with its highly skilled team of specialists who combine economic knowledge and financial modelling expertise with mathematical and IT-background is central to the company. Being regulated by the German financial supervisory authorities (BaFin) and under the supervision of Bundesbank, JRC have to comply to the strict regulations like banks and other financial services institutes. These concern in particular the execution of risk monitoring, risk management and control tasks.

4.18.2 Exploitation

JRC, as an asset management company, will make use of project results both through internal and through external exploitation. JRC intend to use the INFINITECH pilot implementations for an in-house exploitation by integrating INFINITECH technology in their current business environment and using the resulting INFINITECH architecture and its components in its investment department, in order to have a competitive technology offering the best solution to its needs and constantly improving its operational environment, in line with its endeavors to enhance the speed and the quality of its business processes and IT infrastructure and to maintain its competitive position under the MiFID regulations targeting at the opening of the European financial services markets.

In addition, JRC will actively promote the project technologies and innovations to the financial industry in order to create an industrial awareness around the INFINITECH solution. Activities will target end-users (encouraging other financial institutions, banks and investors to use the solution), technology partners (encouraging other data or service providers to integrate their solution in, or make it compatible with, the INFINITECH solution) and regulatory players. After a successful validation of the platform for real time risk management the resulting pilot prototype will serve as a reference implementation of the INFINITECH concept within the financial SME domain in Germany and open a market opportunity for the industrial suppliers in the consortium and will recommend the system to their peers.

4.19 Privé Services Europe Ltd. (GmbH)

4.19.1 Profile

Privé Technologies, with its European Holding company Privé Services Europe Ltd.(GmbH) is a software and technology company providing a Portfolio Management Platform called "Privé Managers" with an integrated Order Management solution as a SaaS service, where many of the Asset Management workflows are now integrated within one platform and helps financial institutions to streamline their customer onboarding, customer advisory, analytics, portfolio-management and order management processes within one solution. Privé was in 2012 one of the first FinTechs in that space and is already awarded several times for solutions in Asset Management, Robo Advisory and also for so-called Structured products offerings. Privé Technologies has currently 70 employees globally and app. 60 customers in Europe and Asia. Privé Managers is mainly licensed as a SaaS service to asset managers but also offers API access to Financial Institutions and also the new Robo-Advisors which are then using Privé´s Business Intelligence for building own frontend solutions for own customer journeys.

4.19.2 Exploitation

Commercial exploitation: The during the project created chatbot solution for customer onboarding and the AI based Portfolio Construction offering shall be fully integrated within the existing Privé Managers platform offering as well as for the API solutions for 3rd party frontend providers. Financial institutions will have to digitise most of their current processes within portfolio management for customers in the near future, as income and fee structures will go down significantly. Therefore, nearly all financial institutions will have the demand for one-stop shop and AI based offerings to address end-customers' needs. Privé Technologies will additionally promote the innovations to the global financial industry in order to create an industrial awareness around the INFINITECH solution. Activities will be focused to B2B-users (including Asset Managers, Banks and other financial institutions), and technology partners (like Robo-Advisory platforms). Privé Technologies will be directly involved in the commercialization of its pilot system in a cost-effective way. Privé Technologies aims to integrate INFINITECH technology with its current business environment for asset management. After a successful validation of the AI based portfolio construction the resulting prototype will serve as a reference implementation of the INFINITECH concept within the Asset Management and Advisory market globally and open a market opportunity for the industrial suppliers in the consortium.

4.20 Crowdpolicy Private Capital Company

4.20.1 Profile

Crowdpolicy (www.crowdpolicy.com) established in 2012 and provides solutions based on digital tools, procedures and consultancy methods aiming to activate collaboration amongst individuals, organizations and companies. Since 2012, Crowdpolicy develops innovative solutions for both the Private and the Public sector by utilizing crowdsourcing methods and techniques. Crowdpolicy provides specialized solutions for fintech, civictech and open innovation that include consulting services and implementation of the necessary digital systems.

4.20.2 Exploitation

CP will exploit knowhow and expertise from its participation in the technology developments of the project in order to broaden the client base and market share of its enterprise chatbots development services, based on Botakis platform. Existing chatbot development services of the company will be enhanced on the basis of functionalities for personalized finance management services for both retail

and SMEs clients. Also more functionality will be added to the existing chatbot platform including investment recommendations, as well as any additional functionality that will be developed as part of the INFINITECH Project that is related to Financial Services domain.

Furthermore, CP will take advantage of its participation in the INFINITECH in order to offer some of its existing services (i.e. Bootcamps and innovation labs, Innovation marathons – crowd hackathons, Business accelerators and Community activation services) to financial institutions,insurance companies, fintechs and insurtechs of the INFINITECH ecosystem and VDI.

CP can become a main provider of training and Open APIs development services as part of the VDIH, providing to fintechs, developers or anyone interested access to Open APIs sandbox environment. Also, as part of the Open Banking APIs development services of VDIH of INFINITECH Project, CP will provide controlled access to aggregation, SDK services that will allow to enhance the current clientele and build more innovative offerings in the Open Banking services era.

4.20.3 Dissemination

Crowdpolicy will disseminate the project's results through the hackathon and workshop that it organizes as part of its business activities. These activities include collaboration with consortium partners (e.g., NBG) but extend to many other accounts of the company mainly in Greece and Cyprus, but all over Europe as well (see: http://crowdpolicy.com/customers-partners/). CP will also disseminate the project's results through press releases and in joint events with the Hellenic Blockchain Association. CP will also disseminate the project's results to government bodies, including local, regional and central government in Greece and Cyprus. Finally, CP will pay emphasis on promoting the project's VDIH and the services it will offer to FinTech and RegTech innovators in terms of the development of new BigData/AI based innovative products and services.

4.21 Wenalyze Sl.

4.21.1 Profile

The company is constituted in January 2018 and is based in Valencia, being the totality of its Spanish capital. Wenalyze is primarily engaged in software development and business consulting services. It is a company that provides services to insurance and reinsurance companies. Wenalyze, despite his short career and youth, accumulates the experience in technology and insurance of its expert promoters who accumulate more than 30 years of experience in the sector and in the technological development applied to it. The objective of Wenalyze is the research, development and commercial application of machine learning techniques and big data in the insurance sector.

4.21.2 Exploitation

The main objective of Wenalyze is to implement a data analysis platform applying machine learning and artificial intelligence technologies to better predict the insurance needs of SMEs. In this context, the platform will generate a risk map of the SMEs based on their daily activities and will predict how the risk will vary on time. Therefore, the pilot will design and implement a service that effectively monitors the current risks of SMEs, as well as their risk variance in the future, in order to improve the control of the accident rate, the renewal of insurance policies and offer personalised insurance cover.
SME Profiling. Through this platform module, a detailed study of the SME's risks is carried out, which makes it possible to offer personalized insurance and banking products based on their needs, increasing the conversion into sales by the insurance and banking entities, as well as better and more adequate insurance for the SME.
SME Underwriting. Module aimed at automating processes for the issuance of insurance and banking products that allows to shorten processes and increase the efficiency of financial institutions. In addition, this module allows these entities to increase their knowledge of their clients through KYC (Know Your Client) techniques to improve compliance with legal requirements and those of the regulator.

The market for the developed product will be insurance carriers and reinsurance companies that operates in European Union and over the world.

In order to better reach customers, the following segmentation has been carried out by type of company in the insurance sector, dividing into two such groups of clients: A. Reinsurers, as a large multinational companies with a worldwide presence and whose main business is to share the insurance risk that insurers sell to end customers. The purpose of targeting this type of organization is to discover and design new insurance products, which are then offered to insurers.
B. Insurers, companies that cover business risks. With the three modules, profiling, underwriting and Risk Management, in order to increase the level of insurance coverage for individuals and companies and to develop models for fraud reduction and loss control.
C. Banks, depending on the country, a major insurance marketer are the banks, so they will also be part of the target customers.

The exploitation model will be based on the data or number of analytics consumed by customers. The type of contracts we are looking for are medium to long term contracts for 2-3 years with financial institutions, banks and insurance companies. The expected average annual ticket is between 100k and 300k euros.

Both inbound and outbound strategies will be used for the marketing strategy.

SME’s are quite relevant for the insurance industry in European Union. The market volume of these enterprises reaches to 41,8 billion euros. Market size is based on the number of SMEs in the company's two priority areas of expansion and service, Europe and the US. Together, both markets add up to more than 50 million SMEs susceptible to analysis by Wenalyze's financial institution clients.

Technology transfer: The project, although based on technology, is not the main reason for the development of disruptive technologies. Its purpose is to develop an analytical model (Algorithm + Technology + Business model) that: *Expand the sources of information used to determine the SME's insurance needs* Automate the recommendation of insurance products *The deployment of fast quoting systems that allow the quoting of an insurance price without the user entering risk data.

Research exploitations: The pilot utility will not only end up in the best knowledge of the SME from the point of view of insurance and market optimisation, but it serves as a basis for the development of new plications such as chatbot, simulators, comparators and especially for the take-off of the sale online of this type of insurance products.

4.22 Finance Innovation

4.22.1 Profile

Paris Europlace - FI is a global business and research cluster dedicated to financial services, a wide-scope initiative of the Paris financial marketplace banks, insurance companies, asset management firms, consulting firms, service providers to financial institutions, universities, and research centres. Its goal is to draw upon the strengths of the Paris financial marketplace in order to create new high added value industrial and research projects to increase the market share of the French financial services industry in the European and international competition. Founded in 2007 by the French Public Authorities, Paris Europlace - FI is the unique cluster for innovation in the French financial sector. It has directed concrete actions to accelerate the creation and development of innovative projects devoted to economic, societal and environmental challenges in the service of growth and employment. We focus primarily on projects concerning strong economic, social, and environmental issues to promote growth and employment. With over 500 members (our members are primarily innovative SMEs, bank and insurance corporation but also major universities, research labs, public authorities), Paris Europlace - FI seeks to address the key barriers and opportunities in the financial ecosystem.

4.22.2 Exploitation

Knowledge exploitation

FI is one of the leaders in supporting FinTechs, Insurtechs, and the digital transformation of the French financial sector. Our goal is to help companies in these fields forge links between national and international partners; raise public and private funds to accelerate their growth; and promote win-win partnerships between large companies and SME's. The INFINITECH project will allow all members of our cluster, i.e. Fintechs/Insurtechs, big accounts, incubators, accelerators, investors, consultants etc., to monitor and be aware of the European technological solutions on big data and artificial intelligence. FI will be able to capitalize on the public information surrounding the project and use it internally to challenge its employee's technological know-how and set a benchmark for current French innovations. Furthermore, use cases will be valuable information in monitoring new and emerging technologies. This project will be promoted as one the biggest H2020 Digital Finance projects and will be an example of great working collaboration amongst universities, start-ups, big technological companies, clusters, etc. This will allow FI to position itself as an important player in the European ecosystem in the field of digital finance. To this end, INFINITECH will also promote different European regulatory environments and how it has been implemented in every country within the Consortium. This will help to extend the French regulatory vision.

Commercial exploitation

FI's commercial exploitation will inspire our partnership with the GAIA-X Project. For this project, FI proposes cybersecurity, open data, and GDPR compliance services that are held by GAIA-X to its members. For the purpose of this project, FI will be able to propose INFINITECH testbed and sandbox solutions to its members as French Fintechs need a secure and compliant environment for their clients. Additionally, start-ups and big companies will be able to test their own innovation under an exclusive environment. For instance, in accordance with the consortium, FI can propose freemium access to its members and a fee for access to the complete services that will be available.
Above that, for one-on-one commercial meetings with customers, FI will also present the Marketplace. If a strong interest from French stakeholders is discovered, in accordance with the consortium, FI may consider adding the Marketplace as part of its official list of services for its members. Furthermore, FI could also act as a relevant business player for the project. FI can connect interested members to partners of the consortium in order to develop partnerships or other forms of collaboration. For instance, French Fintechs could propose their services to the INFINITECH project and generate a win-win collaboration.

Plan and actions

In order to thoroughly utilize the INFINITECH project results, an in-house market analysis will be conducted and the identification of potential competitors in France will be studied by FI. Subsequently, FI will communicate their findings about the Marketplace to their community i.e. Fintech/Insurtech, banks, insurance companies, asset managers, investors, incubators/accelerators, and consultants, etc. As FI is very active on social media, the INFINITECH project will benefit from this visibility. The INFINITECH book could be added to our website under the tab “publications” where all our white books are published in accordance with the consortium. This will target the potential non-scientific French audience and media. A communication campaign, concerning some chapters of the book (eg. videos in French) for the French ecosystem, could also be organized.

4.23 Copenhagen Fintech

4.23.1 Profile

Copenhagen Fintech is a non-profit public-private fintech innovation-organization established in 2016 with the purpose to create growth and innovation within the fintech-ecosystem. Copenhagen FinTech has established a huge global network of fintech startups and fintech stakeholders and have established partnerships with similar fintech hubs from around the globe.

4.23.2 Exploitation

Our stronghold is that we have close relationships to regulators, academia, incumbents and startups. Further, we also have the capacity to do follow-ups with the winners of the hackathons from the project in our incubator, which we have done successfully prior to this or hosting foreign startups in our fintech lab as part of our Nordic Fast Track program. We will aim to share results of the projects directly with relevant stakeholders, incumbents and academia, as well as marketing the project's results directly to our eco-system, in order to make the Infinitech project more visible in a Danish/ Nordic setting.

4.24 Reportbrain Limited

4.24.1 Profile

Reportbrain is a convenient, thorough, real-time cognitive processing resource that analyzes, monitors and reports global news and social media. RB’s products provide an intuitive, interactive, global solution that delivers market insights to help businesses make efficient, data-driven decisions with confidence. RB’s singular technology uses machine learning and deep learning that disambiguate natural language to produce highly accurate search results and sharp analytics that reveal relationships between people and organizations.

4.24.2 Exploitation

RB is already active in the area of Natural Language Processing and high-volume and speed text-analytics and is particularly interested in enriching product portfolios with the know-how acquired during the project. More specifically, RB is interested in exploiting INFINITECH results to integrate Reportbrain API offering product suite. Becoming a leading provider of such services requires R&D and RB envisions INFINITECH as such opportunity and proactively adapt to market needs and conditions. The INFINITECH results will undoubtedly contribute with differentiated benefits to RB’s service offering, therefore making that offering more visible in different contexts and sectors. Additionally, RB views INFINITECH results as an upgrade of solutions offered to existing customers.

Commercial exploitation: Proposed pilots are by themselves stand-alone end-products. Especially regarding the results and products/technologies developed for the pilot “Smart and Automated Credit Risk Assessment for SMEs” Reportbrain has the capability to create a competitive product and monetize by selling to more than 50 Credit Rating agencies throughout Europe as well as financial institutions in the region. Distribution will be primarily Internet based, accompanied by local-language support and integration teams as well as account managers.

Technology Transfer: End-products will remain accessible on a limited basis to the R&D community and on commercial basis to other third-parties to enhance or develop new products and services

Research exploitations: Reportbrain intends to further invest from its own equity, in the enhancement and localization of end-products to cover more languages and address local peculiarities.

Reportbrain analyses the News in real-time, providing an additional completely independent variable for Risk Assessment of either existing portfolios or for future investments. More specifically Reportbrain provides the sentiment on the News of any underlaying asset for investments and therefore is able to fine-tune further the investment focus with information that had not been previously taken into account.

Therefore this feed of information provided via an API, will be valuable addition to the worlds of financial institutions from retail banks to portfolio managers and even hedge funds. Reportbrain aims at exploiting this distributing the service online and via well selected partners across the world. More specifically, RB is interested in exploiting INFINITECH results to integrate Reportbrain API offering product suite. Becoming a leading provider of such services requires R&D and RB envisions INFINITECH as such opportunity and proactively adapt to market needs and conditions. The INFINITECH results will undoubtedly contribute with differentiated benefits to RB’s service offering, therefore making that offering more visible in different contexts and sectors. Additionally, RB views INFINITECH results as an upgrade of solutions offered to existing customers.

4.25 LeanXScale SL

4.25.1 Profile

LeanXcale is a spinoff company from the Technical University of Madrid (Universidad Politecnica de Madrid - UPM), developing an ultra-scalable transactional database that is full-SQL with Analytical capabilities (HTAP database). Founded in 2015, LeanXcale is established on deep technical research into distributed systems and data management. The professors leading the Distributed Systems Lab (LSD) at UPM, co-founders of LeanXcale, decided to discard over 15 years’ worth of research and start from scratch to conceive and architect a radically different transactional manager that could scale without limits. Over the course of nine months, the LeanXcale co-founders produced the first version of the algorithm with highly successful results – the delivery of the perfect solution for solving the biggest and most problematic bottleneck in databases for decades. The first generation of the database was produced in 2010 with further iterations produced through to 2015 and the company founding. The company team now has 15 people and is seeking to expand its business development team and hire additional database experts within the project. LeanXcale has been coached by EIT Digital acceleration program and had the offices at EIT Digital Madrid node from incorporation in 2015 to late 2016. Currently, the offices are at the startup greenhouse at UPM technological campus. The CEO of LeanXcale has a 15-year experience in European projects having participated in 10 of them, 5 of them as project coordinator (Stream, Adapt) or technical coordinator (CumuloNimbo, CoherentPaaS, LeanBigData, INFINITECH), and with relevant position in several others such as Scientific Director in NEXOF-RA and chief-editor of the research agenda in NESSI-Grid. LeanXcale team has also a 10-year experience in participating in EU projects including the aforementioned ones and others such as GORDA, BigDataStack, CYBELE, ClouDBAppliance, CrowdHEALTH, PolicyCLOUD, Exploitation Plan LeanXcale strategic goal for exploitation is to commercialize the customization of its database technology for the fintech market and the project will enable to perform the large-scale piloting necessary to mature the technology and be able to

4.25.2 Exploitation

LeanXcale strategic goal for exploitation is to commercialize the customization of its database technology for the fintech market and the project will enable to perform the large-scale piloting necessary to mature the technology and be able to go to market. The target market is the operational and analytical databases that according 451 Research will reach $65 Billion by 2020. The financial sector is a sector of $731 Billion. The business model will be a product that can be deployed on premise, and a cloud service, providing innovative technology solutions. The company is expected to duplicate its size from 15 people to 30 people. One patent application might be filed to protect the results from the project.

Towards this direction, during the first phase of the project, the dual SQL/NoSQL interface, implemented under the scope of T3.1, is ready to go into production. Two first customers have been contracted in the area of Finance and insurance, exploiting the outcomes of this task, leaded by LXS. More precisely, CESCE and Informa Dun & Bradstreet. CESCE is the 4th biggest world company in surety insurance with Santander and BBVA as shareholders among others. Informa on the other hand, is the Spanish leader in credit scoring and partner for Spain, Portugal and Colombia for Dun and Bradstreet the world leader in credit scoring.

CESCE success story lies in using LeanXcale as real-time analytics to compute the maximum incurred risk. Before they had a PL/SQL process that took more than two months without processing the largest two customers for the initial loading and more than one day for the daily update. With LXS using the same hardware as Oracle, it took 5.5 hours the initial load (250+ times acceleration) and the daily load was reduced to 30 minutes. This means now the process can be done in a continuous fashion. With Informa, they a few tens of applications for which they produce a weekly snapshot during the weekend. The process was performed with Oracle and took over 30 hours. When something went wrong (many times along the year), they could not finish the process over the weekend and they had a week without delivering data to customers. With LeanXcale the process was reduced to 22 minutes with half the hardware resulting in a 72 times acceleration for a given hardware. Now this process can be performed at any time. Informa bought an Unlimited License Agreement to use LeanXcale for all their several tens of applications and will substitute their data lake strategy using LeanXcale as operational data lake. In the case of Informa, we are using the Kafka integration also developed within the project, under the scope of T3.3. Basically, they store the data in kafka and we use the Kafka consumer to extract data in parallel from kafka and inject it in parallel into LeanXcale.

Now LXS is developing its OLAP engine under the scope of T3.1. Currently the OLAP is half way and all algebraic operators below a join are pushed down into KiVi. The current step lies in writing a new query engine in C. LXS is implementing first the infrastructure and joins. After, they will be parallelized to have a full OLAP as well as complete the push down from any algebraic operator above joins. With this the current query engine in Java will be discarded since it is one of the weak points of LeanXcale. The query engine in Java forces to split the memory between the C and Java side, while having everything in C will avoid splitting the memory across the two runtimes. Additionally, the Java implementation gets periodically stuck due to the garbage collection process while in C memory is reused and the problem avoiding without any overhead. The outcomes of T5.3 which can be summarized as the online aggregates have been implemented during the first phase of the project and the seamless online aggregates are in their way to be completed and be tested and tried in the different pilots within the project. This will increase their TRL level so that they can be brought into production. At this point, this functionality has raised a lot of attention and the target goal for LXS is to commercialize it with potential customers, exploiting the outcomes of the work that is being carried out in T5.3 and validated with the pilots of the project.

Moreover, under the scope of T3.3, LXS is contributing with the integration of the Apache Flink as the backend core streaming platform, with its native interface, in order to allow integrated query processing which involved streaming data with data at-rest. This is planned to be delivered in the next few months. For the moment, the Apache Flink is integrated with the JDBC interface of LXS, which

allows to take advantage of the online aggregates developed under T3.5 and is being tested with specific pilots of the project. The goal is the same, to further exploit these technologies and explore potential customers in the finance and insurance sector, having to deal with the same challenges.

This and next year the goal is to find a few more customers to finalize the validation in production environments so after the project we can enter into a large scale validation of the product extensions across many 10s of customers. Another goal is to exploit the current pilot deployments as PoC that can be used either for exploring further synergies with partners of the INFINITECH consortium, or as a reference by LXS business development unit.

4.26 Ubitech Limited

4.26.1 Profile

UBITECH is a leading, highly innovative software house, systems integrator and technology provider, established to provide leading edge intelligent technical solutions and consulting services to businesses, organizations and government in order to allow the efficient and effective secure access and communication with various heterogeneous information resources and services, anytime and anywhere. UBITECH enables real-time valid information processing and decision-making, the realization of intelligent business environments, and B2B and B2C transactions by providing high added-value business –oriented and –based solutions. UBITECH has been established in Athens, Greece back in 2005, concentrated initially in the Greek and Balkan market and acquiring several EC and national grants for novel R&D initiatives. Currently, UBITECH has extended its operations with targeted international activities through its subsidiaries, representation offices, business partners and affiliated companies in Limassol (Cyprus), Madrid (Spain), Buenos Aires (Argentina) and Guayaquil (Ecuador), concentrating mainly in the Spanish-speaking countries of Central and Latin America.

4.26.2 Exploitation

Commercial exploitation: UBITECH aspires to reinforce its solutions portfolio through the offering of innovative and specialised applications and services not yet present in the market or through the expansion and optimization of its current services and prototypes (in particular, the UBITECH Big Data Workbench that handles the complete big data lifecycle from data collection, data harmonization to data analysis and the ICARUS Big Data Analytics Environment for secure analytics workspaces), exploiting the acquired know how and the technological results of the project in order to proceed to the implementation of integrated vertical solution in the field of insurance and finance services. In particular, UBITECH aspires to exploit the blockchain-enabled applications developed within the context of the project, as well as the data collection and Open API single-entry point mechanisms, among other technological results, to increase its competitiveness, targeting in both the public and private sectors and especially the industry. Thus, UBITECH aspires to include the proposed project' exploitable outcomes to the overall corporate offerings and promote, exploit and commercialize the developed framework and mechanisms to its existing clients list as well as to the Spanish-speaking countries of Central and Latin America wherein UBITECH operates through its subsidiary in Buenos Aires (Argentina) and its business partner in Guayaquil (Ecuador). Technology transfer: UBITECH intends to play an active role in this process as a system integrator, so its target is to identify opportunities for technology transfer into industry, e.g. by transferring technological know-how and/or integrating the software components developed in the proposed project in future collaborations with industrial partners, e.g. software development SMEs, Big Data solutions vendors and consultants, in Balkans and East Europe. On the other hand, UBITECH intends to proceed with the direct exploitation of the project's results in Spanish-speaking countries of Latin America, though targeted, focused marketing activities and business partnerships. Research exploitations : The development of further technological exploitation of the innovative aspects of the developed technologies in new collaborative research projects and initiatives.

4.26.3 Dissemination

UBITECH plans to disseminate the project's objectives and results to a wide range of stakeholders in the finance and insurance sectors, targeting the relevant business, industrial and research communities. In particular, UBITECH will leverage the following dissemination channels to disseminate the project's outcomes: (a) publication on its corporate website and company newsletter, (b) active participation to EU organized events and conferences, (c) scientific publications in topic-specific journals, conferences and workshops, (d) editing and publication of brochures, press releases and announcements.
UBITECH has also already contributed and presented in the INFINITECH project's stakeholders' workshop entitled "Blockchain Applications for Digital Finance" the project's blockchain related preliminary results along with other partners from the project. Additionally, UBITECH is also contributing to the INFINITECH Open Access book that currently under development.

4.27 Innov-Acts Limited

4.27.1 Profile

Innovation Acts Ltd (Innov-Acts) is a Cyprus-based company, established in 2016 (http://innov-acts.com/aboutus/). Innovation Acts Ltd. is a unique ICT and business consulting firm, which offers (among others) software development and business consulting services consulting, project management and software development for services for different sectors, with particular emphasis on FinTech. Its consulting services are based on the founders excellent know how in IoT, BigData/AI, blockchain and Cyber-Security technologies. The FinTech consulting services of the company include business modelling, business planning and techno-economic analysis services, as well as design and implementation of financial services solutions based on distributed ledger technologies. As a FinTech start-up, Innov-Acts is developing novel products and services in the areas of FinTech services personalization and personal data management, but also regarding the use of blockchain technologies for financial services such as e-invoicing.

4.27.2 Exploitation

The exploitation plan of INNOV-ACTS spans multiple compementary dimensions in-line with the business and research strategy of the company. From a business perspective, INNOV-ACTS exploits INFINITECH results towards enhancing and reinforcing its existing service, while also creating new services. Specifically, INNOV's business exploitation plan focuses on the following directions: 1) **Provision of new Services around Value-at-Risk (VaR) calulcation**: Leveraging the results of INFINITECH Pilot 2, INNOV plans to create a new VaR cacluation service for enterprises in the finance and insurance sectors. INNOV plans to offer a VaR as a Service risk calculation service for marketing and demonstration purposes, while rolling our a VaR caclulation product/service based on a B2B licensing model. The latter will be promoted to financial organizations and insurance companies from INNOV's business network in Cyprus, Greece, Italy, Belgium and UK. During the INFINITECH lifetime, INNOV will work towards creating the above VaR solution/service and making it available as an offering from the INNOV-ACTS web site. 2) **Expansion of the Digital Finance Academy Services and of the Finsecurity.eu platform of the company**: INNOV-ACTS is offering training and consulting services to financial organizations, including tailored courses and copyrighting services on the security of finance infrastructures, as well as on relevant areas like regulatory compliance. In the scope of INFINITECH WP8, INNOV-ACTS is currently enhancing these services with courses and offerings relating to blockchain technology, emphasizing blockchain applications in finance beyond cryprocurrencies. Specifically, the company is developing blockchain training materials and demonstrators, such as the blockchain-based KYC solution developed in WP4. Furthermore, INNOV will leverage these enhancements in order to expand the finsecurity.eu platform that is has developed and maintains as part of the FINSEC project. This platform (i.e. finsecurity.eu) will be used as one of the promotional channels for INNOV's services. INNOV-ACTS will pursue the above

directions during the INFINITECH project and beyond the project's lifetime. During the project, INNOV-ACTS will undertake concrete pre-marketing actions such as the **description of the solution(s) in INNOV-ACTS site and in finsecurity.eu**, the **preparation of whitepapers about these solutions/ services (e.g., about the VaR service)**, as well as the **organization of direct meetings/presentations to potential customers** in the finance/insurance sector. For the latter direction (i.e., direct presentations) a initial list of potential customers from the INNOV's customer database has been already compiled.

4.27.3 Dissemination

Since the beginning of the INFINITECH project, INNOV-ACTS has actively engaged in the following dissemination and communication activities: (i) Contribution to the project's general (top-down) dissemination strategy through blog posts, contributions to the INFINITECH newsletter etc; (ii) Dissemination of the project through the social media channels of the company; (iii) Leading role in the synergies of INFINITECH with other relevant projects such as FINSEC and FIN-TECH, based on joint events and communication actions, as well as knowledge sharing; (iv) Organization of stakeholders' workshops, such as the workshops on Blockchain Applications (04/03/2021) and AI for portfolio risk assessment (16/03/2021) virtual events that were both organized by INNOV-ACTS; (v) Contribution to the setup and promotion of the INFINITECH marketplace and the assets therein; (vi) Leading role in editing the Open Access book titled: "BigData and Artificial Intelligence in Digital Finance", which will contain a collection of articles/chapers based on INFINITECH results and is destined to be published by Springer later in 2021; (vii) Preparation of publications for the Open Access Book and for other scientific fora based on the project's results where INNOV-ACTS is involved. INNOV-ACTS will continue contributing in the project's dissemination activities in all of the above directions (i.e. workshops, Open Access Book editing, scientific publications, dissemination in social media, marketplace dissemination), while enhancing these activities with premarketing activities aiming to boost the commercial exploitation of INFINITECH's results. During the second half of the project, INNOV-ACTS will streamline the above-listed activities to its exploitation strategy, towards boosting/supporting its commercialization targets. In this direction, a whitepaper will be produced about the VaR solution and more workshops will be organized.

4.28 Unparallel Innovation, Lda

4.28.1 Profile

UNPARALLEL (Unparallel Innovation, Lda) is a Portuguese technological SME (Small and Medium-sized Technological Enterprise) that develops digital technologies and provides consulting services on digitisation with a strong foundation on research. The company was founded on May 11th, 2012, by two engineers/researchers from the Faculty of Science and Technology of the New University of Lisbon. UNPARALLEL presently employs 14 individuals (12 men; 2 women) and its Research & Innovation Department is located in the Greater Lisbon region. UNPARALLEL develops new products ranging from hardware devices, software/web solutions, or mobile applications, and provides high-value consulting services on technology development, strategic insights, market intelligence, etc. Research is at the core of the company as it guarantees a continuous innovation for our products and services based on up-to-date scientific-technical knowledge. Main target markets include (but not restrict to): Internet of Things, Industrial IoT, Smart Cities, Smart Water Management, Smart Factories/Manufacturing, Consumer Products, Mobile Apps.

4.28.2 Exploitation

Commercial exploitation: UNPARALLEL will focus exploitation activities in the development of a business plan for sustainable commercialisation of its foreground in the project: the IoT and blockchains solutions Marketplace for the finance & insurance sector. To, this, a stepwise approach to exploitation will be followed, aiming to ensure the maximum exploitation of the outcomes developed

during the project, namely: "1. Investigation of the finance & insurance market sector, considering the marketing studies and socio-economic research and carrying out complementary primary research where required;" "2. Analysis of related, complementary, and competing products and services in the market and wider community;" "3. Setting up deployment scenarios, market and business models, specifying collaboration roles, costs, revenue flows, thus enabling calculation of net return over time for each type of market player;" 4. Validation of business models and deployment scenarios within the scope of INFINITECH.

4.29 Roessingh Research and Development B.V.

4.29.1 Profile

Roessingh Research and Development (RRD) is a research and development SME in the area of rehabilitation technology and telemedicine with strong formalized links to one of the largest rehabilitation Centres in the Netherlands (Roessingh Rehabilitation Centre) and the University of Twente. The mission of RRD is to carry out scientific research and contribute to its commercialization and implementation in clinical practice. RRD has extensive experience in many aspects of the development of innovative technology supported health and care services from initial scenario development and requirements elicitation with all stakeholders, technology development (ambulant sensing, IT services platform, Decision Support, personal context aware coaching systems), user studies focused on usability, acceptance and user satisfaction, and large scale clinical evaluation studies up to implementation of new services in daily clinical practice. This experience has been gained in many large national and international projects.

4.29.2 Exploitation

Commercial exploitation: RRD is seeking to strengthen its position on the Dutch and European market in the area of health behaviour monitoring and coaching and is seeking for new business opportunities of offering eHealth services to the health insurer market. Through the collaboration in INFINITECH, RRD aims to enrich its eHealth data integration platform by integrating a modular and dynamic informed consent module, based upon the INFINITECH output. This will improve the platforms value proposition for customers looking for a eHealth data integration platform that is developed via the privacy by design principle. Technology transfer: RRD foresees to develop, as foreground in the project, a modular and dynamic informed consent module that can be integrated in the Healthentia platform, but also works as a stand-alone service. This modular and dynamic informed consent module is considered an important potentially exploitable outcome for RRD. Research exploitations: As a Research & Development focused entity, RRD aims to validate important research questions around the large-scale application of health monitoring tools and aims to gain insights in the effects of various motivational tools on user's health behaviour.

4.30 Fondazione Bruno Kessler

4.30.1 Profile

Top Research institute in Italy, Fondazione Bruno Kessler is a research non-profit public interest entity. Being the result of a history that is more than half a century old, through 2 scientific hubs, 7 research centres, 410 researchers, 2 specialized libraries, 7 laboratories, FBK aims to results of excellence in science and technology with emphasis on interdisciplinary approaches an/d to the applicative dimension. FBK achieves this thanks to our constant attention to collaborations and exchange activities with research organizations, both institutional and corporate, national and international, which extend our innovation capability and involve the community and the local economy in the circulation of knowledge and technologies.

4.30.2 Exploitation

Fondazione Bruno Kessler (FBK) is a research non-profit and public interest entity, recognized as a top research institute in Italy. FBK has the goal of pursuing results of excellence in science and technology with an emphasis on interdisciplinary approaches and to the applicative dimension. FBK achieves this thanks to our constant attention to collaborations and exchange activities with research organizations, both institutional and corporate, national and international, which extend our innovation capability and involve the community and the local economy in the circulation of knowledge and technologies.

FBK is participating in the project INFINITECH with the Digital Society research center and more precisely with its research unit MobS and the support unit on technology maturation. The Digital Society center is formed by a multidisciplinary team of more than 100 researchers, technologists, managers, and PhD students organized in 13 research units dedicated to specific research areas in the ICT and AI domains, and 2 support units focusing on project management and technology maturation. Within the center, an area of paramount relevance is the one dedicated to digital finance.

Commercial Exploitation: FBK is mainly interested in the commercial/business exploitation of the developed technologies related to machine learning/deep learning in general, with a particular focus on the technologies the MobS team is developing on safe and federated machine learning (leading the Task 4.5) and on machine learning approaches for fraud detection (within the Pilot 7). To this end, these technologies will be integrated in the Digital Society platform to become an asset to leverage with corporate partners in collaborations and consultancies as well as in future European projects. Moreover, FBK is planning to leverage the technologies developed in the context of the co-innovation lab "Digital Finance Innovation Lab (DFIL)", a joint laboratory between GFT Italy and FBK, thus also leveraging the network of customers of GFT Italy.

4.30.3 Dissemination

As a research institution, FBK plans to disseminate the obtained results in top-ranked journals and conferences on digital finance, machine learning, and data science. A first example is the following paper under submission to EPJ Data Science: Tovanich, N., Centellegher, S., Seghouani, N.B., Gladstone, J., Matz, S., and Lepri B. "Inferring Psychological Traits from Spending Categories and Dynamic Consumption Patterns". Submitted to EPJ Data Science. At the same time, FBK plans to disseminate its results, jointly with GFT Italy, also in the context of the BDVA/DAIRO activities as well as in other dedicated events co-organized with INFINITECH partners (in particular, corporate partners).

4.31 National University of Ireland Galway – INSIGHT Center

4.31.1 Profile

National University of Ireland Galway (NUIG) ranks among the top 1% of Universities in the world, with prestigious history spanning for 175 years. At the core of research and with well build, international recognition, is the Insight Centre for Data Analytics, former Digital Enterprise Research Institute (DERI), established as one of the major academic players in research and development of Web, Linked Data, Analytics and Semantic Technologies in the world. NUIG-Insight performs research in the Linked Data, Semantic Web, Sensor Network and IoT platforms, Linked Streams, social networks, and Semantic Web Services and applies its research results to solve integration problems in various application-oriented projects in eLearning, eGovernment, eBusiness, and eHealth.

4.31.2 Exploitation

The Insight Centre for Data Analytics, a research centre at the National University of Ireland Galway (NUIG) is an academic non-profit research organization that has a dedicated team working on IoT, stream processing and intelligent systems. The team's main research focus is on emerging technologies and Big Data and IoT-related topics that range from semantic interoperability and privacy, security and trust to interactive technologies and middleware platforms. NUIG-Insight will mainly exploit the experience in the INFINITECH project by introducing research results into the academic programs at the university and research institutions providing that this is a strong modality for benefiting from the experience on deploying and implement practical and experimental experience for education in Financial Sector Scenarios. Exploitation plan focuses on including the project results in teaching material (reaching over 100 students per year) and the University's external stakeholder and education groups modules (reaching 50+ industrial experts / professionals per year).

By participating in INFINITECH NUIG-Insight will develop new competency and experimental research experience on demonstrating use cases that will lead to new short-courses and postgraduate courses on fintech solutions. Alongside NUIG and its educational institutes and research centres, envisage INFINITECH experience to be exploitable through the provision of professional and collaborative models strengthening participants' expertise, while also developing and gaining access to material covering leading edge topics on research and experimentation. The material generated from INFINITECH can be also exploitable, when possible, in the form of rewarded publication and/or technical reports in industrial environments (consultancy and mentoring) as a mechanism for ensuring that the insights gained from innovation actions will be taken up and used.
NUIG-Insight and particularly the UIoT research unit has a defined strategy towards largely support open-source initiatives and since the release of the OpenIoT (the awarded open-source platform released to the community of IoT researchers, developers, and the industrial community) has contributed continuously to the expansion of the IoT software and solutions using one or another FOSS license strategy.

In INFINITECH project, NUIG-Insight is focused on data modelling, graph modelling, data processing and stream processing and all the related aspects to data management and contributed contributes with the software development providing expertise in semantic and relevant tasks in relation to open-source expertise. NUIG-Insight's trajectory on continuous collaboration for open-source projects and professional research inputs in the areas of data modelling and semantic interoperability was used extensively in the project and included as part of the main expertise and reflected in the contributions committed in the INFINITECH project. NUIG-Insight also plans to offer its AI and analytics knowhow to future INFINITECH deployments of similar pilots, as part of the SSC and GENNI exploitation strategy, while at the same time gaining track record in terms of their data integration, processing and interoperability systems.

NUIG-Insight has an exploitation strategy from the experience in participating in INFINITECH project that will lead to new outcomes on investigating industrial solutions and engineering deployments/ implementations. This experience will allow us to expand the offer to further contribute and establish relationships with other organizations and companies that are not that familiar with the topic and facilitate technological transfer and targeted projects. Beyond the listed contributions and alongside the exploitation and use in NUIG-Insight in its educational institute programs, we envisage INFINITECH project experience as an asset that is exploitable through the provision of academic and professional material and also collaborative models strengthening participants' expertise, while also developing and gaining access to material covering leading edge topics on research and experimentation in reference for finance.

4.31.3 Dissemination

"Tailored IoT & BigData Sandboxes and Testbeds for Smart, Autonomous and Personalized Services in the European Finance and Insurance Services Ecosystem" INFINITECH project presentation, at Workshop on promoting a data-driven finance and insurance sector. A workshop organised by European Commission, DG CONNECT, Unit G1 - EC DG CONNECT , Room EUFO 00/10, 10 Rue Stumper, Luxemburg, July 02, 2019

"Horizons for BigData, IoT and AI Technologies for the FINTECH Sector" INFINITECH Project presentation at the Big Data and AI in Finance Session at the Big Data Value Association (BDVA) Forum 2019- Big Data and AI in Finance Session, Nautica Room, Marina Convention Center, Helsinki , Finland.October 15, 2019

"The BIG Data Stack in the Financial Sector: Identifying the opportunities that AI and Big-Data offer to Innovate the Single Digital Market Strategy for the FinTECHs industry". INFINITECH Project presentation at the Big Data Value Forum Kyenote Talk Berlin Germany. November 5, 2019

4.32 UNINOVA - Instituto de Desenvolvimento de Novas Tecnologias

4.32.1 Profile

UNINOVA is a multidisciplinary, independent, non-profit research institute located in the metropolitan area of Lisbon, Portugal. UNINOVA has managed and participated in many national (QREN, FCT, etc.) and international research programmes (FP4, FP5, FP6, FP7, H2020, IMS, etc.) during the last 30+ years. UNINOVA pursues excellence in scientific research, technical development and advanced training and education. UNINOVA operates close to industry for ensuring proper technology transfer of results and alignment of RTD work to industry needs. UNINOVA has strong links to academia for creating continuous knowledge loops in between research and education on advanced technologies.

4.32.2 Exploitation

UNINOVA is a non-profit research organization, the project results will provide the basis for both academic and pre-commercial exploitation activities like: (1) further technology developments and integration in subsequent research activities within UNINOVA, (2) creating a path and research roadmap to drive future research projects, (3) research publication of project results in high-quality conferences and scientific journals, and participation in international benchmarking activities, (4) open licensing of certain pieces of software, to stimulate further technology developments in the greater research community, (5) learning from the project outcomes about new data integration, data processing and data sharing strategies, technologies and methodologies accepted by the several pilots within the project, finally (6) using the project outcomes in teaching materials at University's external stakeholders and education groups modules.

By being a member of the consortium, UNINOVA is interested in the data integration and semantic interoperability framework. In particular in envisioning how semantic interoperability techniques, knowledge graphs and ontologies can be easily deployed within real world scenarios. The financial and insurance sector is only the starting point of the research since the same techniques, methods, methodologies and tools/technologies will be applied in other domains such as manufacturing and critical infrastructure management in line with the more recent research directives from EU concerning the design and development of a European data infrastructure(see GAIA-X project) on the top of eight domain-specific data spaces, namely: i) Industry 4.0,/SMEs, ii) Healthcare, iii) Finance, iv) Public sector, v) Smart living, vi) Energy, vii) Agriculture and viii) Mobility. Technology transfer: UNINOVA is making novaEDGE available as open-source software enabling both a fast technology transfer to application and further developments to de made by related communities of interest. UNINOVA will further explore a technology transfer mode of exploitation based on royalties for the

use of the technology in industrial application domains. Research exploitations: UNINOVA expects to participate in new collaborative research and innovation activities to develop additional features and advanced technological components to the novaEDGE technology. This especially in industrial domains of application where UNINOVA is quite successful in capturing research funds.

4.33 BOGAZICI UNIVERSITESI

4.33.1 Profile

Founded in 1863, Bogazici University has approximately 155 years of experience as an academic institution. Bogazici University ranks among the first 401-500 universities within The Times Higher Education 2018 World University Rankings and 67th in Asia University Rankings. Additionally, Bogazici University ranks in the first 201-250 universities in the Times Higher Education 2018 Computer Science Rankings. Aiming to become a research-intensive and graduate training institution, the university has participated in several European Framework Programme projects, both as a partner institution and as a coordinator. Bogazici University is also one of the leading campuses attracting several Marie Skłodowska-Curie Reintegration Grant recipient researchers. Bogazici University researchers also take part in various USA based NIH and NSF projects both as a partner institution and/or sub-contractor, and as a coordinator.

4.33.2 Exploitation

Commercial exploitation: Blockchain transaction graph analysis product can be offered as a software-as-a-service (SaaS) or Application Platform as a Service (aPaaS) to banks, financial institutions, governmental agencies and end-ıusers for tracing fraudulent crypto-currency and ERC20 token activities on public blockchains such as Ethereum and Bitcoin.

Technology transfer: Technology on high performance transaction graph analysis can readily be used in other areas since graphs are used in many areas such as optimization and social networks. Smart contracts can be used to implement standardized token protocols that can be used to represent virtual assets.

Research exploitations: Further research and funding opportunities on the blockchain related work will result since blockchain technologies are new.

4.33.3 Dissemination

1) B. Kılıç, C. Özturan and A. Sen, "A Cluster Based System for Analyzing Ethereum Blockchain Transaction Data," 2020 Second International Conference on Blockchain Computing and Applications (BCCA), Antalya, Turkey, 2020, pp. 59-65, doi: 10.1109/BCCA50787.2020.9274081.

2) Analysing Blockchain Transaction Graphs for Fraudulent Activities, presentation by Alper Sen, Boğaziçi University, at the “Blockchain Applications for Digital Finance” Innovative Blockchain Applications for Finance beyond Cryptocurrencies" Workshop, March 24th. (Online Event).

4.34 Institut “Jožef Stefan”

4.34.1 Profile

Jožef Stefan Institute (JSI) is the leading research institution for the natural sciences in Slovenia with over 900 researchers within 25 departments working in the areas of computer science, physics, and chemistry and biology. The Artificial Intelligence Laboratory, with approximately 50 researchers, is one of the largest European research groups working in the areas of machine learning, data mining, language technologies, semantic technologies and sensor networks. The key research direction is combining modern statistical data analytic techniques with more semantic/logic-based knowledge

representations and reasoning techniques with the purpose to make progress in solving complex problems such as text understanding, large scale probabilistic reasoning, building broad coverage knowledge bases, and dealing with scale. The members have developed several software tools for multimodal data analysis, among others: the TextTGarden suite of text mining tools, the OntoGen system for ontology learning, the DocumentTAtlas for complex visualization, the AnswerArt system for semantic search over large textual databases, the Enrycher system for the semantic enrichment of textual data, the SearchPoint system for visual and contextualized Web browsing, XLing for cross-lingual matching and categorization across 100 languages, and EventRegistry for global real-time media observatory.

4.34.2 Exploitation

JSI being a public research organization, the project results will provide the basis for academic exploitation activities like: (1) further technology developments in subsequent research activities within JSI, (2) pursuing new research projects, (3) research publication of project results in high-quality conferences and scientific journals, and participation in international benchmarking activities, (4) open licensing of certain pieces of software, to stimulate further technology developments in the greater research community. Moreover, all components that will be developed in the frame of the project will become a part of the JSI textgarden library of OSS code. In particular, JSI is interested in the cognitive infrastructure deployment since this will add lots of value on to the existing intelligence framework. Continuation of the research in the large-scale networks and complex systems. JSI is interested to implement its technologies in the network business and smart cities, intelligent transport and mobility, energy networks and social media networks industry. Continuation of the research stream in using knowledge, semantics and cognitive systems technologies in different scenarios.

4.35 EDEX - Educational Excellence Corp. Ltd. (University of Nicosia)

4.35.1 Profile

The University of Nicosia (UNIC) is the largest university in Cyprus, with its UNIC is, by most measures, the leading university globally in the digital currency and blockchain field. As the first university to offer a course on cryptocurrency, a free online course Introduction to Digital Currencies, taught by Andreas Antonopoulos and Antonis Polemitis, the MOOC has enrolled over 20,000 students from 83 countries since 2014. UNIC's MSc in Digital Currency was the first academic degree programme in the world in this field. UNIC is the first university in the world to offer instant, electronic authentication of its certificates. Each certificate fingerprint has also been added to Bitcoin's blockchain. This leading role in academia has been recognized by blockchain industry publications in their evaluation of UNIC's position among universities involved in the field – CoinDesk (#1, 2016), the Merkle (#1, 2017). UNIC organized DECENTRALIZED 2017 and 2018, a major conference in Europe focused on the business and political implications of blockchain technologies.

4.35.2 Exploitation

The exploitation plan of UNIC addresses three main areas, namely, **education, research** and **external collaborations**.

Regarding **education**, the knowledge gained by the INFINITECH project will be integrated with the related education programmes: (a) A free online course "Introduction to Digital Currencies", (MOOC). the MOOC has enrolled over 20,000 students from 83+ countries since 2014.; (b) UNIC's MSc in Digital Currency which the first academic degree programme in the world in this field, and graduates from this programme have been involved in leading blockchain organizations worldwide. Over 200 students from around the world have enrolled in the programme. Information and knowledge gained from INFINITECH, including use cases and pilots, will be shared with our students via various

communication tools such as social media and blog posts. A lot of the workshops organized by INFINITECH stakeholders are also of particular interest to our students and that's why these workshops are being promoted accordingly.

Regarding **research**, UNIC aims to publish academic articles in high impact international journals as well as major blockchain-related conferences and workshops. In this context, we also aim to support a number of MSc and PhD theses focusing on the application of blockchain technologies in areas including healthcare, energy, supply chains, etc.UNIC is actively participating in academic-related activities of the INFINITECH project and participates in the upcoming INFINITECH Open Access Book to be published during 2021.The INFINITECH book will be added to the university's library as soon as it's published, so that faculty and students can have access to it and possibly use it as a reference to their work.

Furthermore, UNIC will seek **collaborations** with local and international authorities at the public sector as well as with other organizations and experts from the private sector. UNIC is a partner in many blockchain-related projects like the EU Blockchain Observatory and Forum and is utilizing knowledge gained from INFINITECH workshops such as the "Blockchain Applications for Digital Finance".

4.35.3 Dissemination

UNIC's dissemination strategy is based on different communication channels such as newsletters, blog posts, press releases and social media. UNIC publishes posts on the INFINITECH blog and promotes them and other INFINITECH material across its social media platforms. UNIC participates in the upcoming INFINITECH book titled:"BigData and Artificial Intelligence in Digital Finance". UNIC will contribute with two articles, namely: a) "Central Bank Digital Currencies and a Euro for the Future" b) "A Historic Overview of Blockchain Interoperability & Future Outlook towards Blockchain Interoperability"

UNIC will also disseminate the INFINITECH book and the project's results within the university's community and via various events such as blockchain conferences and webinars.

4.36 University of Glasgow

4.36.1 Profile

The School of Computing Science at the University of Glasgow (GLA) is a world-class research centre, which has celebrated its 60th anniversary in 2017. In the Computer Science subject area, the University of Glasgow was ranked 6th in the UK in terms of research intensity in the most recent research evaluation (2014). The School has the foremost Information Retrieval (IR) group in Europe (created back in 1984), one of the largest academic groups in IR (~30 researchers) and has an unrivalled experience in developing and evaluating large-scale search engines and recommender systems. For instance, its renowned state-of-the-art open source search engine Terrier (terrier.org) is widely used across the world in both academia and industry and has been downloaded over 60,000 times since its initial open source release in 2004. Within Infinitech, GLA brings extensive experience in developing BigData analytics solutions, and state-of-the-art recommendation technologies that are both efficient and effective for supporting financial investment decision making.

4.36.2 Exploitation

The University recognises the need to work with industry and facilitates commercial engagements through an easy-Access IP model, allowing easier exploitation of GLA's background IP by interested companies. Indeed, it is envisaged that such an agreement will be reached regarding state-of-the-art recommendation technologies will be signed with the National Bank of Greece to facilitate production usage of the technologies developed within the project to continue to be used post-project. The

University also encourages the creation of spin-out companies built on the research expertise of its academics and researchers. The University of Glasgow also has an integrated research and impact strategy, that fosters knowledge transfer and impact generation. Additionally, further exploitation of the knowledge acquired in INFINITECH can be supported by the Scottish Funding Council (SFC) through their newly formed Innovation Centres. In particular, The Data Lab Innovation Centre, which has a business hub hosted within the School of Computing Science, supports and facilitates the exploitation of Scottish Universities' research in Big Data, to generate economic, social and scientific value from their research and technologies.

4.36.3 Dissemination

GLA plans to contribute a range of high-quality research papers and articles in the area of financial investment recommendation and related technologies in major recommender systems conferences. These papers will form part of the outcome of research and development in collaboration with partners within Pilot 6.

4.37 Association ORT France

4.37.1 Profile

ORT France is a member of World ORT which is a non-profit organization specialized in digital education, training and IT services, it is the largest non-governmental education organization in the world with 450 centres in 58 countries, and more than 1.5m students in the world. The ORT France network of excellence is a world-renowned science and engineering research and education institution, where extraordinary faculty and students seek answers to complex questions, discover new knowledge, lead innovation, and transform our future.

4.37.2 Exploitation

Exploitation Goals: Playing the one stop shop approach to drive and monitor developments, insights, and the human capital development and expertise on the domain. Topics/Domain: Open banking, insuretech, blockchain, AI, security. Approach and Activities : master classes, hackathons, specific events, meet ups based on future developments, sprint design.

4.38 Fundación para la Promoción de la Innovación, Investigación y Desarrollo Tecnológico en la Industria de Automoción de Galicia

4.38.1 Profile

CTAG is a private, non-profit R&D technological automotive centre devoted to support automotive industry in its research, development and innovation needs. CTAG is present in the different stages of product development, from initial advanced research to the product life. The fields of competence where CTAG concentrates its activities are Safety, Manufacturing process and new materials, Environment, Electronics and ITS (Intelligent Transport Systems), HMI, Ergonomics and Comfort. In the area of Electronics and ITS, CTAG's Electronics Division is formed by an interdisciplinary team of experienced engineers, technicians and specialists, working on the following topics: Driver Assistance Systems and Automation, Communication and mobility (including C-ITS), HMI, Electronic Architecture and Validation. A transversal department devoted to Quality Assurance and Functional Safety is supporting the developments performed in the Electronics Division.

4.38.2 Exploitation

Apart from other products and services, in CTAG ITS & Electronics Connectivity department, we are currently focused on C-ITS development, deployment and continuous improvement. C-ITS platform is continuously gathering, receiving, redistributing and publishing data to/from the Cooperative Intelligent Transport System actors. Big data analysis is key to enhance the services offered by the C-ITS platform and to create new ones to improve the user's experience. The participation in INFINITECH will allow CTAG to keep exploiting the C-ITS related achievements from previous and ongoing projects, and to delve into other business verticals by analyzing weather the processing of the data generated could be useful or of interest for other sectors such as banking, insurance.

4.38.3 Dissemination

CTAG plans to participate with high quality papers and posters in related National and International conferences presenting the outcomes of the project in terms of how to receive and publish Big Data from Cooperative Intelligent Transport System to a C-ITS platform. CTAG will contribute to the dissemination of the project results by participating in the content published in the Chapter 19 "Usage Based Automotive Insurance" of the Open Access book "BigData and Artificial Intelligence in Digital Finance" to be published by Springer during 2021.

4.39 Fundación Centro Tecnolóxico de Telecomunicacións de Galicia

4.39.1 Profile

GRADIANT is a private non-profit Research and Technology Organization based in Vigo, Spain. GRADIANT's focus is on applied research and technology transfer of ICT to industry and society. GRADIANT began its activity in 2008. Since then, it has grown a client portfolio of over 100 industrial companies, a turnover of EUR 5.2 (2017), and a staff of ca. 100 engineers (Q4 2018). GRADIANT's track record in EU projects includes participation in 14 FP7 and H2020 projects since 2010, two of them as project coordinator, and another two as technical coordinators. GRADIANT is a founding member of ECSO (European Cyber Security Organisation), AIOTI (Alliance of Internet of Things Innovation), board member of RENIC (Spain's National Excellence Network for the Research on Cybersecurity), and member of the Digital Skills and Jobs Coalition. GRAD's ICT research and innovation activity spreads over three pillars: Connectivity, Security and Intelligence. GRADIANT's focus on industry and market has already produced a few success stories of security technology transfer with important market players (Telefonica, Samsung, and a few cases in the banking sector).

4.39.2 Exploitation

4.39.3 Commercial exploitation:

GRAD is interested in using INFINITECH as a pre-commercial reference for further commercial pilots or proofs-of-concept that demonstrate the case for return on investment for relevant commercial leads. The results of the project, along with the know-how gathered from the practical implementation and demonstrations planned in INFINITECH will help improve GRAD's value proposition for the target customer: businesses or institutions holding large volumes of data that are not exploitable under the restrictions imposed by GDPR unless properly treated. Examples of such target customers are financial institutions, insurance companies, telco operators or large retail businesses.

4.39.4 Research exploitations:

GRAD's target in the project is to mature the current prototype in order to incorporate new metrics and algorithms that allow to use the component in more scenarios, applications and sectors, as well as to improve the efficiency of the component. Within INFINITECH, the component will be validated in two sectors (health and car insurance). This will serve as base to generalize the development for other sectors (banking, smart cities, or any other scenario that requires the outsourcing of sensitive data).

4.39.5 Technology transfer:

GRAD is an RTO with a clear focus on technology transfer to industry, and thus seeks to improve and expand its technology portfolio with the results gathered from INFINITECH: anonymization techniques and their application to large volumes of data. GRAD's preferred exploitation modalities involve standard procedures that range from simple technology licensing, project-type service provision for integration, adaptation, further developments (often in combination with the licensing modality), up to full ownership transfer.

4.39.6 Dissemination

GRAD plans to participate in related conferences and present the outcomes of the project in terms of improvement of anonymization algorithms for location data. GRAD is contributing with one chapter in the INFINITECH Open Access Book to be published during 2021. In addition, GRAD is planning to contribute to ISO/IEC WD 27559: Privacy enhancing data de-identification framework.

4.40 DWF Germany Rechtsanwaltsgesellschaft mbH

4.40.1 Profile

DWF Germany Rechtsanwaltsgesellschaft mbH (DWF) is an international full-service law firm with a firm emphasis on catering for businesses legal needs. DWF is based in three locations in Germany, Berlin, Cologne and Munich. Furthermore, the DWF Group maintains an additional 24 locations on 4 continents. Some of DWF's main areas of practice are finance and insurance, as well as intellectual property law and information technology law.

4.40.2 Exploitation

DWF's exploitation plan for INFINITECH will be developed around the expert regulatory advice service that will be offered as part of the project's virtualized innovation hub. In particular, DWF will aim to offer this service in a viable and sustainable way following the end of the project. Beyond the offering of this service, DWF will exploit experience and knowhow gained in the project in order to improving its existing regulatory support & advice services that it offers for the FinTech/InsuranceTech sectors. Likewise, DWF will also explore the possibility of broadening its existing portfolio of regulatory advice services, including their links to specific emerging technologies that are used in INFINITECH, as well as the specific data use and combination of data pools.

4.41 Bankia SA

4.41.1 Profile

Bankia is a Spanish financial entity with headquarters in Madrid and Valencia and branch offices all over the national territory. Born in 2010, Bankia is listed on the Madrid Stock Exchange and is a constituent of the IBEX 35, is a selected member of the Euro Banking Association and is considered

the 4th largest Bank in Spain according to the EU wide transparency exercise in 2018 by the European Bank Authority. Bankia has more than 8 million clients and is organized into seven business areas: Retail Banking, Business Banking, Private Banking, Asset Management and Bancassurance, Capital Markets and Investees and Sustainable Business and Financing; and Since 2016, Bankia runs BANKIA FINTECH, the largest open innovation program in Spain in the financial sector and the 1st Fintech Accelerator at national level. Since its creation, the Bankia Fintech Program has attracted more than 400 startups and entrepreneurs from more than 20 international ecosystems, of which 50 have been accelerated and have developed a Proof of Concept (PoC) and Minimum Viable Product (MVP) for the bank. The Bankia Fintech Program has become a reference both for its innovative methodology and for the success rates recorded up to date.

4.41.2 Exploitation

Bankia runs since 2016 the major Fintech Program in Spain, from where it develops hand in hand with the selected start-ups and SMEs the best fintech solutions for the bank. Up to date, Bankia has accelerated 65 start-ups that have co-created solutions with Bankia to shape the future of the bank. In 2019, Bankia has created Bankia Fintech Venture, its own investment fund provided with 20 million Euros for the next 5 years to continue further co-creating and co-developing services and applications for the bank. Thanks to INFINITECH, Bankia is enriching its methodologies and service portfolio for the development of fintech solutions in the above program. In particular, Bankia is benefiting from INFINITECH architecture for the experimentation and validation of its pilot, having access to both technical (infrastructure, datasets, business validation in appropriate sandboxes…) and organizational (training, new processes…) advantages and receiving the evaluation and feedback from INFINITECH experts. In particular, Bankia pilot is receiving appropriate evaluation at different levels: technical evaluation, techno-economic, usability, customer satisfaction, etc.
As regards the specific exploitation strategy of the “Invoice Processing Platform for a more Sustainable Banking Industry” product/ service developed by Bankia within INFINITECH, the plan includes the future commercialization of the solution among other banks, financial institutions and any potential customer of the solution. In particular, this refers to any entity “massively” using notary services, mainly related to mortgages, both public and private, in Spain and, potentially in other countries.

4.41.3 Dissemination

Bankia’s individual dissemination plan for INFINITECH will target the different networks and working groups the bank belongs to, as well as the main financial and innovation events Bankia participates at on a permanent basis (Slush, Web Summit, South Summit; Fintech Week London; Mobile World Congress FYF4; Paris Fintech Forum). Special attention will be given to disseminate INFINITECH at international level through the network of startups, SMEs, IT providers and experts in the financial sector that belong to the ecosystem of the Bankia Fintech Program; as well as among Bankia’s institutional relations with other banks and relevant institutions like the European Investment Bank or the European Investment Fund. Finally, Bankia will use its own communication channels and social networks to increase the impact of INFINITECH and will resort to local, regional and national press and media channels to promote the INFINITECH project and disseminate pilot #1.

4.42 Bank of Cyprus Public Company Ltd

4.42.1 Profile

The Bank of Cyprus Group is the leading banking and financial services group in Cyprus, providing a wide range of financial products and services which include retail and commercial banking, finance, factoring, investment banking, brokerage, fund management, pivate banking, life and general insurance. The Bank of Cyprus Group operates through a total of 108 branches in Cyprus. Bank of Cyprus also has representative offices in Russia, Ukraine and China. The Bank of Cyprus Group

employs 4,155 staff worldwide. At 30 June 2019, the Group's Total Assets amounted to €21.9 bn and Total Equity was €2.5 bn. The Bank of Cyprus Group comprises Bank of Cyprus Holdings Public Limited Company, its subsidiary Bank of Cyprus Public Company Limited and its subsidiaries. Bank of Cyprus has been named among the top digital banks in Western Europe for 2019 by the Global Finance magazine. This international acclaim validates that the Bank's ongoing efforts and investment in its digital transformation program are yielding results. Additionally, Bank of Cyprus understands the burden of its responsibility to promote technological and cultural change in the Cyprus market. Enhancing BOCs Services, the Digital Transformation of the Bank aspires to influence the capital uptake in Cyprus and promote the Digital Economy across the island.

4.42.2 Exploitation

The INFINITECH Business Financial Management (BFM) tools pilot project addresses vital SME needs. The pilot project vision is to create an SME Smart Virtual Advisor engine that generates actionable insights contributing towards SME financial health. This initiative is also aligned with the Bank of Cyprus (BOC) strategy to significantly enhance the SME customer experience.

Following the completion and positive pilot evaluation BOC will explore its production deployment potential in its totality or even parts of it. For this purpose the potential adoption of the INFINITECH Big Data Reference Architecture will also be considered as well as the utilization of INFINITECH analytical services technology components, i.e. that enable real-time actionable insights generation based on large structured and unstructured data utilizing AI.

The overall goal is to make the developed BFM tools offering available through the banks Mobile app as well as the Internet Banking channels. By doing so the banks objective is to (a) strengthen its existing SME customer base and (b) attract new SME customers from within the Cyprus market.

Pursuing an innovative BFM product offering will not only encourage BOC SME customers to engage on a more frequent basis but also result into a wide range of other benefits with the main ones being

Increased SME Customer Loyalty The product offering has the capability to transform the banks relationship with SMEs from being an necessity towards a trusted SME business partner. **Improved SME Financial Health** BFM tools on one hand drive digital adoption and more frequent use of digital channels improving efficiency/productivity and on the other side empower SMEs decision making that potentially leads to lower Non Performing Loans (NPLs) & reduced Credit Risk cost that in turn will allow the bank to provide the SME with more favourable loan conditions. **New Revenue Streams** BOC intents to generate new revenue streams through subscription fees for BFM premium features as well as integration with other BOC product offerings.

After successful introduction of the offering into the SME market a possible extension towards other domains e.g. retail/corporates will be considered.

4.43 ABI LAB Centro fi Ricerca e Innovazione per la Banca

4.43.1 Profile

ABI Lab is the Research and Innovation Centre founded on the initiative of the Italian Banking Association (ABI) with the aim of creating a network between banks and ICT companies. Today, ABI Lab is an important Centre of research and professional training on technology and innovation for the banking sector, carrying out research on technologies applied to banking processes, producing analyses and models, developing pilot projects and case studies and representing a communication channel between banks and ICT companies to increase the knowledge of innovation and creating better market conditions. ABI Lab strongly collaborates with several Institutions to develop regulation and to consider common infrastructure solutions; it organizes info/training activities on technological subjects, to share knowledge produced during the research activities. ABI Lab plays a key role in the European Banking Federation [EBF] with specific reference to the R&D activities directly connected to the digital banking and cybersecurity. ABI Lab promotes, disseminates and discusses the key topics for

the Italian banking sector together with the banking community, organizing more than 80 meetings and 20 events per year, gathering around 5.000 representatives from the Italian and European banking community and business sector.

4.43.2 Exploitation

ABI Lab is the Banking Research and Innovation Centre promoted by the Italian Banking Association, that provides thought leadership through its research in the area of banking and financial services. The main purpose of the ABI Lab Consortium is to foster collaboration between banks and ICT companies on innovative technology to strengthen the efficiency of the financial services. At international level, ABI Lab is active on several European working groups, contributing to the development of shared frameworks and guideline to promote a common EU advanced framework in the financial sector.

In the context of the project, ABI Lab will leverage on its observatories and in particular its Centre of Competence on Artificial Intelligence (AI Hub), a community of AI talents and experts from banks, companies, and academia working together to identify in-depth insights into critical trends of AI.
ABI Lab will promote the project technologies and innovations to the financial industry, targeting its network of potential end-users (banks), technology partner, and regulatory institutions.

In line with its business model, after the validation of the platform across Pilot 15, the resulting prototype will be provided to the banks taking part in this experimental activity, while the general outcomes of the experimentation will be disseminate across the banking sector both at national and international level. Lastly, ABI Lab will also contribute to disseminate the INFINITECH results and activities across its large network of banks and financial Institutions.

4.44 AGRO APPS I.K.E.

4.44.1 Profile

Founded in Thessaloniki, AgroApps is a dynamic company that focuses on providing developing real-life agricultural ICT solutions and providing specialised agricultural consultation services. Passionate about applying ICT, the company uses, combines and integrates remote sensing technologies, compound algorithms, GIS and other datasets to build multi-functional web-based platforms and mobile applications, decision-making tools, workflow systems and other software solutions. All solutions are supported by an effective consultation framework, always aiming at enhancing efficiency in the use of natural resources, and at supporting successful integration of various agricultural aspects. Delivering excellence and sustainability is the key to each stage of AgroApps end-to-end provided services. Going beyond mere ICT, AgroApps innovates by integrating technologies to develop custom-built software solutions in response to specific requirements and needs. “Co-creation” is one of its favourite words, since its approach regards users as key-actors in our software production process. Indicatively

4.44.2 Exploitation

"Commercial exploitation: AgroApps is a dynamic company, providing innovative agricultural applications and services to the market. AgroApps aims to address the increasing AgI market need for better tools and more efficient management of risk within the different schemes of AgI provision; as well as to lower perceived barriers and enable the provision of AgI services by already established Insurance companies. AgroApps by leveraging upon cumulative market and research knowledge coming from its involvement in Agriculture market applications and in several EU funded projects, is in position to successfully deliver solutions that match current market needs but also bring added value to its recipients." Within INFINITECH AgroApps aims to validate and refine the INFINITECH AgI module and make the first introduction of such Big Data derived services in the AgI sector. Thus, by the end of the project AgroApps aspires to be in position to commercially exploit the INFINITECH AgI

module under a synergetic scheme. Building on top of a commercialisation agreement, to be established between the business partners: AgroApps and Genillard & CO, as well as any third interested party, AgroApps aims to deploy in the market the INFINITECH AgI module under a specific roadmap and specific binding rules, focusing on the EU due to the immediate market accessibility, to which a network base has already been established. The commercialisation agreement will describe in detail the commercialization plan as well as the markets for which each of the SME's/involved parties will have leading market exploitation and exclusive distribution rights

4.45 University of Piraeus Research Center

4.45.1 Profile

The University of Piraeus was founded in 1938 under the title of the "School for Industrial Studies", by the Industrialists and Tradesmen Association. Today, the following nine Departments are run by the University of Piraeus: i) Economics, ii) Business Administration, iii) Statistics and Insurance Science, iv) Financial Management and Banking, v) Industrial Management, vi) Maritime Studies, vii) Informatics, viii) Digital Systems and ix) International and European Studies. The Department of Digital Systems covers the areas of digital/network services, broadband (wireless and optical) networks, as well as the security of digital systems. The department's research staff consists of 25 faculty members, 20 postdoctoral researchers and 75 PhD candidates, whose collective expertise covers many key areas in distributed systems and services. The University of Piraeus Research Center (UPRC) facilitates the research activities of university members in different programmes and initiatives. In this context, the Department of Digital Systems (through UPRC) has been actively involved and coordinated a significant number of: (i) EU funded R&D projects, (ii) National projects funded by the Greek Ministry of Development and the General Secretariat of Research and Technology, and (iii) Projects developed in collaboration with enterprises (both international and national).

4.45.2 Exploitation

UPRC, as a non-profit academic institution, intends to be involved in challenging, real-life problems that extend its research interests to new areas and thus advance and proliferate scientific knowledge. Nonetheless, UPRC members aim at actually exploiting the outcomes of research projects, by developing and releasing "products" that meet a set of quality requirements such as software tested, accompanied documentation, installation guidelines and best practices. The goal of this strategy is twofold: (i) showcase through tangible results the expertise of the UPRC team and the added-value that could be brought based on these results in different domains (e.g. data analytics in healthcare and maritime), and (ii) provide the ground for spin-off companies that will further exploit these results (based on the outcomes obtained initially through their applicability in different domains as explained previously). The exploitation plan of UPRC addresses different domains, both in terms of focus and in terms of target groups. With respect to focus, UPRC targets multi-disciplinary domains by developing research outcomes into a form that can be used in different contexts (e.g. a monitoring mechanism initially developed for cloud applications has been utilized in the context of cultural heritage assets monitoring). Such contexts are mainly: smart cities (through the established collaboration with the Municipality of Piraeus), financing / banking, maritime and healthcare. Regarding target groups, UPRC (as a university) addresses researchers in the domain of software engineering and distributed computing and IT companies that aim to bring research outcomes into their business. UPRC exploitation will be in the context of UPRC's strategic plans in the areas of: (i) Education: the INFINITECH results will be proliferated among the attendants of the University activities, mainly among postgraduate and continuing education programs due to the advanced nature of the topics, (ii) Technology transfer to the Greek IT industry that includes a wide portfolio of financial and insurance institutions, offering technology transfer services to companies and public bodies through joint projects, and (iii) Technology promotion in the Greek industry as part of an effort to increase the adoption of INFINITECH technologies. Moreover, UPRC has close and strong collaboration with commercial, industrial and public organizations providing specialized scientific

expertise and innovation to improve and enhance products and services and in INFINITECH contributes to the pilot in collaboration with Bank of Cyprus which is expected to provide the ground for potential joint exploitation. Additionally UPRC develops the INFINITECH marketplace, which will be sustained after the project end in order to deliver the products and services developed both in INFINITECH and in other research projects as an additional exploitation channel.

4.45.3 Dissemination

UPRC researchers will disseminate the results of INFINITECH primarily through scientific publications in various conferences, workshops, and journals. Additionally, the university collaborates continuously with national organizations, including: (i) the General Secretariat of Research & Technology (GSRT), (ii) the National Documentation Centre (NDC), and (iii) the Technical Chamber of Greece (TEE-TCG). Collaborating with those organizations, UPRC will disseminate the results of INFINITECH at a national level towards the general public and the industrial community being represented in the aforementioned groups. UPRC is also directly involved in various national and European research projects and collaboration groups, which will act as consumers of the project results through specific collaboration and communication activities. UPRC members will actively disseminate project results through different means: (i) scientific publications in high-impact journals and conferences, (ii) participation in events / exhibitions and organization of targeted sessions with respect to INFINITECH research focus, (iii) organization of workshops in major conferences, and (iv) training sessions / lectures in post-graduate programmes.

4.46 Assentian Europe Ltd.

4.46.1 Profile

Assentian Europe Limited is located in Ireland with a sister company in the United Kingdom. Assentian is a Cyber Security and Blockchain Innovation lab working with clients and partners to address current business challenges by exploring the potential of emerging technologies. They also advise their clients on the requirements of regulation, standards and directives and how they impact business processes and solutions. They have experience of working with a number of public authorities throughout Europe and the Far East, the world's leading financial institutions, fintech's and global technology companies. They have collaborated on Cyber Security and Blockchain Projects in Europe and North America in the areas of critical infrastructure protection, financial services, Digital Identity, Healthcare and Supply Chain Traceability. They have existing collaborations in this area with a number of global technology companies. They have many cumulative years of experience in applying emerging technologies like AI, Machine Learning, Internet of Things and Blockchain to enhance business processes and/or improve service provision.

4.46.2 Exploitation

Assentian is a cyber security and blockchain lab working with Financial Services providers in Europe, North America and South East Asia. Participation in this project will allow us to enhance our know-how on specific applications of regulatory frameworks to new innovative digital solutions. We will leverage this know-how to enhance our services and solution offerings to existing customers and partners. Furthermore, we will utilise this new know-how to position ourselves to exploit new opportunities and partnerships with digital transformation teams in financial institutions and in FinTech companies to support them with the design phase of new applications to ensure they are built in line with the requirements of all relavent regulatory requirements and standards. The overall strategy will involve the Promotion of the project to current customers and partners in Financial Services and Governments/Regulators which will be done by organizing one-to-one meetings where possible to grow engagement. Alongside this we will host a series of on-line webinars and physical workshops (current restrictions allowing) promoting new innovation and knowledge from the project to clusters like Cyber-Ireland and the Whitechapel Think Tank, (both of which Assentian are

members), which has vast diverse memberships including global financial institutions, global system integrators, consultancies and government departments and agencies. This will help to reach a wider network of interested parties and potential customers.

4.46.3 Dissemination

Assentian will disseminate project activities and results in line with the strategic exploitation and new business development goals. This means we will plan to target large global fintech events like the ones held each year in London, New York and Singapore to reach the widest audience of organisations with an interest in digital technologies in financial services and fintech through single events. Whilst this will help us reach a wide audience it might not provide us with the desired level of engagement required to decelop any long term collaborations and/or partnerships which can then be used to explore new business development potential. As a result, we will organise workshops to present the main outcomes of the project to targetted audiences, have one-to-one meetings to provide more in-depth detail and produce a series of blogs and articles which will be published on-line and we will use our existing network and collaborations to enhance wider distribution of them. Assentian will participate in conferences such as FinTech World Forum and Global Blockchain Expo to further our dissemination reach.

4.47 Clear Communication Associates Ltd

4.47.1 Profile

CCA is a SME with extensive experience of joint R&D with pioneers in IT, Complexity, Business Model Innovation, Change Management, Security, Technology-Enhanced Training (it co-funded and advises a finalist in the 2021 Xprize) and Precision Marketing and Communication. It was founded to speed up the dissemination and commercialisation of publicly-funded research. It has offices in UK and Portugal.

4.47.2 Exploitation

CCA is a key influencer in KET (Key Enabling Technologies) and Open Knowledge communities (e.g. Open Standards, Open Innovation), while maintaining a network of leading IT vendors, plus partners' networks of technology-transfer and spin-out offices in research universities, institutes, hubs and foundations. Its 2021 dissemination and exploitation plans towards these communities are focused on our high-level contacts in ministries and corporations in energy-rich countries that are major targets for cyber-attacks by state-level actors, e.g. by Iran and other adversaries of the West. In 2021 we are sub-contractors in KSA, delivering innovation-relevant components of the Crown Prince's vision for 'Saudi Arabia in 2030', which requires radical transformation of capacity-development in the whole country, and many $billions in pilots. Our exploitation opportunities for INFINITECH partners and contacts include co-developing INFINITECH-relevant business model innovations for Saudi Arabian ministries, centres of excellence and education and training networks.

4.47.3 Dissemination

In April 2021 we have a Ministerial invitation to give keynote talks on 2030-compatible roadmaps for national innovation and transformation contracts across KSA.

4.48 Caixabank

4.48.1 Profile

CaixaBank is the third largest financial institution in Spain and it is currently the leading force in Spanish retail banking. It has a network of more than 5,000 branches, more than 9,500 ATMs, and a workforce of over 32,400 employees. CXB has the largest customer base in Spain – 14 million people – and is the main bank for 1 in every 4 Spanish customers. It was awarded the "Best Bank in Spain 2016" and "Best Bank in Digital Transformation in Western Europe" awards for excellence by Euromoney and "2019 Best Bank in Western Europe" (Global Finance). The innovative effort inherent in the culture of the enterprise to be a reference company in technology in the financial market, based on criteria of accessibility and usability. Similarly, technological innovation is one of the strengths of CXB, constantly striving for the innovation, necessary for an organization in order to enhance the services it offers to its valuable customers along with the whole community in general. Moreover, it has been participating in several H2020 projects related to cybersecurity and big data (CONCORDIA, EU-SEC, I-BIDAAS) and it is awarded to start two new projects in 2020, ENSURESEC and TRAPEZE, respectively related to the development of tools for secure ecommerce ecosystem and clients' identity management and privacy preserving.

4.48.2 Exploitation

CXB plans to exploit the pilot and use cases developed in INFINITECH during and beyond the lifespan of the project. The approach for taking profit from the pilot after the project unfolds in three phases. First, CXB employees from the Digital Security department plan to use the models extracted from Pilot#7 use cases in its day-to-day fraud detection and prevention operations. The data and models extracted will be evaluated by that department and the Security Operations Center (SOC) employees in order to enhance current cybersecurity policies and controls to identify and prevent operations leading to potential financial fraud. In a second phase, CXB plans to deploy part of the INFINITECH platform and use cases in its Information Security Garage Lab. This infrastructure is a sandbox especially designed to evaluate innovative tools' integration into the Digital Security department's day-to-day operations. It is already defined and under deployment, which will be finished in the first quarter of 2021. The deployment of some of those tools inside CXB premises, even in a laboratory environment, will allow to refine the models extracted in the first phase based on synthetic or anonymized data. INFINITECH platfom testing will be listed in the set of solutions to be deployed and evaluated inside this testing and training environment of CXB. The INFINITECH platform or the set of tools necessary to deploy pilot#7 will be deployed as a proof-of-concept in that environment in order to test the tools with real clear data, and evaluate the benefits of this approach on the model definition. More concretely, the objective is to undertake an extended evaluation of the platform and the use cases in the provision of agile and personalised advanced analytics of financial fraud potential cases. Even if the access to this environment will be open to other departments beyond the Digital Security department, this evaluation will also study the possibility to skip some security and data privacy processes, and to which extent the data synthetization or anonymization of the use cases can be avoided, directly with real clear data when running inside this environment or other locations from CXB. Moreover, other additional fraud detection use cases could be considered besides the ones already evaluated in the framework of INFINITECH pilot#7. Third, supposing the second evaluation is positive, CXB plans to integrate the INFINITECH platform (again, the platform as a whole or the specific subset of tools that allows to deploy pilot#7 use cases) inside the premises of the entity, replicating the resources and security processes tested in the Information Security Garage Lab and defining the governance model of the tool within the entity. That will open the platform to be used by other departments and experiment with different use cases beyond financial fraud prevention and detection. Moreover, during second and third phases, training with the INFINITECH use cases will be also been done with Digital Security employees, providing them step-by-step guidelines for using each of the use cases and doing several sessions with them.

4.49 Insomnia Consulting SOCIEDAD LIMITADA

4.49.1 Profile

Insomnia is a Digital Innovation Hub located in Spain with more than 15 years of experience working to foster innovation both at public and private levels. With main headquarters in Valencia and Madrid, we have our own collaborative spaces (+4000 m2) where we work to promote digital transformation in the most important productive sectors (fintech, legalteh, insurtech, proptech, industry 4.0, logistics and ports) and key verticals (i.e. Artificial Intelligence, ML, IoT, Big Data, Blockchain, Cloud, etc.). In 2019, Insomnia's accelerator has been designated "the leading business accelerator in Spain" by Forbes. Insomnia acceleration and digitisation model is based on open-innovation and free-equity, as well as turning B2C models into B2B and B2B2C by connecting the startup/SME/entrepreneur talent with the innovation needs of big corporations and public administrations.

4.49.2 Exploitation

Insomnia, as Business Accelerator and Digital Innovation Hub focused on the Fintech and Insurtech sectors will, thanks to INFINITECH, enrich its innovation and digital finance ecosystem (accelerators, incubators, SMEs, big data and IoT providers, banks…), at the same time that it will improve the services offered by the DIH under the different fintech and insurtech programs it carries out with corporations. Insomnia will contribute to the exploitation of INFINITECH by connecting the project to The Talent Route, the 1st Fintech Accelerator Network created by Insomnia with more than 15 accelerators from 11 countries; as well as its innovation ecosystem composed of more than 1 000 startups, SMEs and innovators in Spain, the EU, Europe, LATAM, Israel, Australia, USA, etc. In 2021, Insomnia has been proposed by the Spanish Ministry of Industry as candidate of the future network of European Digital Innovation Hub under the Digital Europe Program. If Insomnia is finally selected, INFINITECH project will be connected to the future EDIH network gaining visibility all over the EU and being connected to all DIHs in Europe.

4.49.3 Dissemination

Insomnia will play a key role engaging public and private stakeholders of both the financial and insurance sectors that are likely to be interested by the INFINITECH platform and solutions developed and VDIH. As a Digital Innovation Hub and as the Spain's first FinTech accelerator, INSOMNIA will use its wide network of bank partners, and of more than 1.500 start-ups, technological centres, public entities, research institutes at EU, national and local levels to present the INFINITECH project, activities, results, tools and solutions developed to potential end-users. Insomnia will also contribute to increase the impact of the project by participating at key financial and innovation events (i.e. Slush, Web Summit, South Summit; Fintech Week London; Mobile World Congress FYF4; Paris Fintech Forum, etc.) and disseminating the project among its international and European network (The Talent Route, EIT Digital, Digital Europe, H2020, S3 Platform…); and will resort to local, regional and national press and media channels to disseminate and promote the project activities and results.

5 Assets Exploitation and Sustainability

5.1 Key Exploitable Results

5.1.1 Initial List of INFINITECH Exploitable Results (M1-M18)

The exploitable results (ER) are presented in a table that describes:

- The **ER Number**
- The **ER Name**
- An **ER description** including the marketable/exploitable value.
- the **main partner involved** in each ER.
- The ERs' **general impacts**, specifying if **Medium (M)**: sustaining the development levels of involved partners; or **Significant (Si)**: accelerating the development levels of involved partners.
- The ERs' **Impact type**, specifying if **Economic (E)**: if the results are expected to improve the economy; or/and **Social (S)**: if the results are expected to improve the social aspects.
- The ER's **type of innovation**, specifying if **Incremental (I)**: Improving existing technology to increase customer value (features, design changes, etc) within an existing market; or **Disruptive (D)**: Applying a new technology or processes in an existing market.
- **M18 Status**, specifying if **Planned (P)**: if the exploitable result still needs development in the project timeline; or **Delivered (D)**, if the exploitable result is reached and market ready.

The exploitation assets are clustered based on whether they concern:

- ***INFINITECH Pilots***: The project's pilots, with emphasis on the pilots that have already a proof concept or demonstrator available.
- ***Blockchain Demonstrators***: The project's blockchain demonstrators developed in WP4 of the project.
- ***Individually Exploitable INFINITECH Components and Technologies:*** Components and technologies developed in the project to empower the project's pilots.
- ***Background Tools of the Partners supporting INFINITECH Developments:*** Background tools of the partners that are customized, used and in several cases advanced in INFINITECH.
- ***VDIH Exploitable Assets and Results***: Exploitable assets of the INFINITECH Virtualized Digital Innovation Hub (VDIH).

Note: The Exploitable Results in the following tables represent an initial set of assets that will be revised and expanded in the coming periods of the project, as the project's developments become more mature.

5.1.1.1 INFINITECH Pilot Systems

Table 3 KER Pilot Systems

ER No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
1	Invoices Processing Platform for a more Sustainable Banking Industry	Data-intensive system that extracts information from notary invoices towards: (i) Establish the sustainability index of each notary based on the number of physical copies that are issued; (ii) Providing financial institutions with indexed information about the documents that are generated by notarial services; (iii) Promotes notarial services from those with the higher sustainability score.	BANKIA, GFT	SI	E, S	D	P
2	Real-time risk assessment in Investment Banking	Enables near real-time calculation of risk metrics for high-frequency trading and investments	JRC, INNOV	SI	E, S	D	P
3	Collaborative Customer-centric Data Analytics for Financial Services	Enables integrated and faster development of highly personalized banking services leveraging on the semantic integration of multiple sources of customer data across the customers' lifecycle	BOI, BPFI, NUIG	SI	E, S	D	P
4	Personalized Portfolio Management Platform	Platform for Personalized Asset Management of Customers leveraging AI-based profiling and recommendations	PRIVE	M	E, S	I	P
5	Business Financial Management (BFM) tools delivering a Smart Business Advise	Finance Planning and Management System for Small Medium Enterprises, including Predictive and Intelligence features	BOC, UPRC	M	E, S	D	P
6	Personalized Closed-Loop Investment Portfolio Management for Retail Customers	Personalized Investment Recommendations Platform for Retain Customers leveraging the customers' risk profile and other features	NBG, CP, GLA	M	E, S	I	P
7	Avoiding Financial Crime	AI powered system for accurate, comprehensive and near real-time pictures of suspicious behaviour in Financial Crime, Fraud, and cyber-physical attacks with the final objective of stealing the bank customers' identity and money	CXB, FUJITSU	M	E, S	I	P
8	Platform for Anti Money Laundering Supervision (PAMLS)	System for the analysis of Financial Transactions of the Eurosystem (TARGET2 transactions) towards boosting compliance and combating Money Laundering	BOS, JSI	M	E, S	I	P
9	Analyzing Blockchain Transaction Graphs for Fraudulent Activities	Graph analysis of cryptocurrencies (Bitcoin, Ethereum) activities towards fraud detection	BOUN, AKTIF	M	E, S	D	P
10	Real-time cybersecurity analytics on Financial Transactions' BigData	Platform enabling the identification of security-related anomalies based on the real-time analysis of financial transactions of a home and mobile banking system.	POTE, ENG	M	E, S	D	P
11	Personalized insurance products based on IoT connected vehicles	Usage based insurance system, which leverages real-world driving data from connected vehicles to calculate risk premiums	DYN, GRAD, ATOS	M	E, S	D	P

ER No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
12	Real World Data for Novel Health-Insurance products	Usage based insurance system, which leverages real-world from end-users to calculate risk premiums in healthcare insurance	DYN, iSPRINT, RRD	M	E, S	D	P
13	Alternative/ automated insurance risk selection - product recommendation for SME	Personalized Insurance Product Recommendations for SME leveraging BigData analytics over datasets stemming from multiple sources (including alternative data)	WEA	M	E, S	D	P
14	Big Data and IoT for the Agricultural Insurance Industry	Commercial service enabling insurance companies to exploit the untapped market potential of Agricultural Insurance (AgI), taking advantage of innovations in Earth Observation (EO), weather intelligence & ICT technology	GEN, AGRO	M	E, S	D	P

5.1.1.2 INFINITECH Blockchain Demonstrators

Table 4 KER Blockchain Demonstrators

ER No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
1	Decentralized Consent Management Platform	Blockchain based platform for Decentralized management of Stakeholders' Consent for data-intensive services in the finance sector	UBI	M	E, S	I	P
2	Decentralized Know Your Customer (KYC)	Blockchain-based platform for Decentralized management of KYC processes, aimed at accelerating the customer on boarding process and increasing its security and resilience	INNOV	M	E, S	I	P
3	Personal Data Market based on Blockchain Tokens	Decentralized and federated blockchain-based machine learning framework enabling secure run of ML algorithms over personal data without accessing the source data. It leverages tokenization to incentivize users to share their data through the platform.	FBK, IBM, INNOV	M	E, S	D	P

5.1.1.3 Individually Exploitable INFINITECH Components and Technologies

Table 5 KER INFINITECH Components and Technologies

R No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
1	Car data ingestion	This technology is tasked with the capture, homogenization, distribution and storage of the datasets that support the connected car pilot. It comprises IoT agents that adapt the data available from the Vehicle and deploys the necessary modules for data storage and distribution.	CTAG, ATOS	M	E	I	P

R No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
2	Data Protection Orchestrator (DPO)	Enabler for embedding and automating the assurance of security and privacy by design and by default in heterogeneous and complex business flows. Orchestrates various privacy and security management functions (such as access control, encryption and anonymization).	ATOS	M	S, E	I	D
3	Digital User Onboarding System (DUOS)	Solution for dealing with virtual identities in a mobile device. It provides remote user registration using eID or passport	ATOS	M	E	I	P
4	Driver profile classifier	System using high-quality vehicle data allows insurance companies to offer customized products. Leverages supervised machine learning techniques is proposed to classify drivers' profiles which generates a customized insurance premium. The resulting model is then deployed with TensorFlow serving and integrated as part of the cloud platform with a wrapper, achieving an accuracy of 85.7%.	CTAG, ATOS	M	E, S	I	P
5	Distributed near-real-time HPC processing and exchange of IoT streaming data	AI algorithms' optimization exploiting GPUs capabilities; Accelerates AI pipelines execution in the finance sector	ATOS, CTAG	SI	E	I	P
6	Data Layer and REST API For Secure Data Models	A Data Layer to support Security Data Model with REST API based on a not relational database (MongoDB). Supports heterogeneous sources. Developed upon FLASK-Python3 framework and dockerized to be deployed on Kubernetes infrastructure.	ATOS	M	E, S	I	P
	End-to-end framework for the definition and production of ML-based microservices.	This framework allows for the definition and instrumentation of machine learning pipelines in a standardized manner, on top of MLFlow, to produce a ready to use, deploy, and publish of machine learning models as microservices.	FBK	M	E	I	P
8	Polyglot Database Management System	Polystore database that provides access to different and heterogeneous datastores via a common interface. It allows for the data user to submit a query, whose scan operators can request data that are stored in external datastores, and combine their intermediate results with data coming from other sources, either LXS internal datastore or others.	LXS, UPRC	SI	E	D	P

R No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
9	HTAP Database for the financial and insurance sector	Ultra-scalable SQL Database and real-time big data platform that revolutionize the business database management systems by introducing the next generation business database that can scale in any of the three Vs of Big Data (Volume, Velocity and Variety). Provides an ultra-scalable transactional management system that can scale out to 100s of nodes. It additionally exposes an interface for direct access of its key-value storage engine, thus providing a dual access without downgrade transactional semantics. It offers OLTP and OLAP integration, thus providing support for HTAP that allows for analytical queries over operational data. Finally, it enables for the execution of polyglot query processing across different and heterogeneous data sources.	LXS	SI	E	D	D
10	AgroApps Weather Intelligence Engine	Weather Intelligence Engine, is a numerical weather prediction and atmospheric data assimilation processing chain, based on the WRF numerical weather prediction model. Weather Intelligence Engine is producing operationally all the needed weather data products (Near-real-time, medium-range weather forecasting, subseasonal to seasonal forecasts) by AgroApps offered services	AgroApps	Si	E	I	D
11	Partitioned and Distributed Transaction Graphs	Transaction Graph Analysis system on Ethereum and bitcoin public blockchain transaction datasets.	BOUN	SI	E, S	D	D
12	Blockchain tokenization	Hyperledger Fabric blockchain support for tokens, including Fungible Tokens (ERC20 Compliant) and Non-Fungible Tokens (NFT). Note: while the ERC20 is already demonstrated, the support for non-fungible tokens (NFT) is still under development (planned).	IBM	SI	E	I	D
13	Scalable Relational Database for Real-Time Business Analytics	This component consists in the central data repository of the platform. It enables transactional semantics and provides capabilities for query processing based on standard SQL statements. It can scale out on the runtime while continuing serving operational workloads. It can support analytical processing in combination with operational data modifications with the level of isolation to be snapshot isolation. That is, it enables real-time business analytics.	LXS	M	E	I	D

R No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
14	Polyglot Query Processing (for Finance Sector Applications)	Enables query execution over more than one datastore in seamless manner. The data user can submit a single statement and let this component to execute the query by pushing it down to the target database. By doing this, it can process the data on premise, and retrieve only the results, thus it is convenient for cases where data cannot be loaded the platform and they need to be accessed from an external datastore.	LXS, UPRC	SI	E	D	P
15	Incremental Analytics (for Finance Sector Applications)	This component enables the query execution in an incremental fashion. The data user will be able to submit a continuous query to the datastore, which will be continuously and incrementally validated. This means that the initial results will be retrieved first, and as data arrives to the data repository, they will be validated against the submitted query, and if it validates the statement, it will be returned to the user.	LXS	SI	E	D	P
16	OneHotEncoder	Service to represent categorical variables as binary vectors	LXS	M	E	I	D
17	Stream Processor	This component will provide streaming processing capabilities. The data user can declare continuous queries that will be executed over the data stream. It will also allow to combine streaming data with data at-rest and also enable the storage of data streams even when injected in very high rates.	LXS, UPRC	M	E	I	D
18	Online Aggregates	This component allows for the execution of aggregate processing operators in an online manner. This way, the definition of the aggregate operations can be defined, and the result of the execution can be pre-calculated in an online manner, preserving data consistency and transactional semantics. When requested, the result of this execution can be retrieved with a GET operation, removing the need to scan the whole dataset/	LXS	M	E	I	P
19	Anonymization tool	The anonymization tool modifies data in order to preserve privacy. It is especially indicated in those cases where a dataset contains personal data and it has to be outsourced or shared with a third party. The tool includes different anonymization algorithms that aim at avoiding the appearances of data combinations that could lead to a possible re-identification of the data subjects. It also includes a set of privacy and utility metrics that allow to measure the risk that remains after anonymizing the dataset, and the impact of the anonymization process on the quality of the data.	GRAD	M	E	I	P

R No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
20	Blockchain Data Visualizer	Queries and displays information about blocks, transactions, chaincodes and transaction families, network name, status and nodes list, organizations list and peers list. The specific component is part of a Blockchain chaincode. As the chaincode is tightly connected to the business operation that is performed on top of different business objects, different flavours of the chaincode exist depending on the business use cases (Consent Management, Know Your Customer / Know Your Business, Asset Tokenization).	BOUN	M	E	I	D
24	Blockchain Transaction Dataset Preparation Component	This component will be responsible for retrieving raw transaction blocks from the Bitcoin and Ethereum blockchains and parsing the blocks in order to extract Bitcoin, Ethereum and major token transactions. After retrieving all the blocks up until now, this component will be run periodically to retrieve newly generated blockchain blocks during the period.	BOUN	M	E	I	D
25	Scalable Transaction Graph Analysis Component	This component will be responsible for taking massive bitcoin and ethereum public transaction data. Since transaction graph size massive and growing, it will use parallel algorithms to achieve scalability. It will utilize graph and machine learning algorithms to analyse fraudulent transactions	BOUN	M	E	I	D
26	Semantic Streams Analyzer Middleware-Engine – SeSAME	The SeSAME component is a data mashup builder for the financial sector that can be used as a data processing component for your data management application, it enhances the capacity to process financial and insurance data in the form of batches and provides a single output, it is ideal when multiple sources have different data formats, it is built to be compatible with the most common data formats in the financial and Insurance sector i.e. FIBO, FIGI and LKIF and additionally it uses INFINITECH Core Graph Data Model to enhance performance.	NUIG	M	E	I	P

R No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
27	Enhanced Distributed Semantic Reasoner over FinTech Ontologies - EnDoRFIN	Enhanced Distributed Reasoner over FinTech Ontologies - EnDoRFIN Semantic Reasoner, Enhanced Distributed Reasoner over FinTech Ontologies - EnDoRFIN Semantic Reasoner, The EnDoRFIN component is a tool for inferring knowledge from data streams, it uses some rules as conditions for defining logics conditions and as a result logical consequences are provided as outcomes. The inference rules are defined based on the most commonly used financial and insurance vocabularies i.e. FIBO, FIGI and LKIF and the way to process the rules is using APIs for defining the logical descriptions for the data applications it is introduced. This component allow the use of other languages but need to be upgraded to the target vocabulary and additionally the EnDoRFIN uses INFINITECH Core Graph Data Model to ensure the inference is applicable to all the involved domains in FINTECHs.	NOVA NUIG	M	E	I	P
28	INFINITECH GRAPH Data Model - Online Ontology Mapping Framework and Toolkit	Set of online tools referring to the graphs, formats, vocabularies and ontologies used in the INFINITECH project. The INFINITECH GRAPH Data Model is provided in the form of a set of online accessible files, schemas and metadata model diagrams that represent the way the INFINITECH data can be organised and structured, it also contains the metadata in two different formats, json-ld and owl. The Ontology Mapping Ontologies section contains online machine-readable files both in OWL and JSON-LD format for online accessibility, both files are maintained and updated regularly to keep the latest version of the ontology files up to date using a versioning method.	NUIG	M	E	I	P
29	Semantic Annotator-Preprocessing	Semantic Annotator-Middleware Preprocessing Layer for FinTechs - SAMPLe-FIN, The INFINITECH SAMPLe-Fin is the support online tool for transforming datasets into RDF-compatible format, beside the online available tool, a set of documentation is provided providing the necessary steps to transform data sets from any data-exchange format i.e. CSV, XLS, etc into RDF.	NUIG	M	E	I	P
30	Smart Fleet (IoT Context Management and Historical data component)	FIWARE-Based framework designed to capture, homogenise, process and distribute real time traffic and smart vehicle's information. Implements Pub/ Sub mechanisms and support Geolocation and Time series tools. Additional tools to build custom dashboards will be included.	ATOS	M	E	I	P
31	Pay As You Drive Service	Classifies the drivers' behaviour while driving according to the data collected from their car and exploiting the Driver Classyfier/Driving Profiling ML Models	ATOS	M	E&S	D	P

R No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
32	Investment Recommendation Engine	Financial Instruments Personalized Investment Recommendation engine suitable for each customer and his/her investment risk profile, based on Market Index & Financial Instruments Sentiment data.	NBG, GLA	M	E	I	P
33	Cash Flow Prediction	ML/AI model used to indicate and predict the available working capital (operating cash flow) of the SME (AS-IS & near term future).Alerts/notifications to be pushed to the respective SME in case of potential lack of liquidity and/or balance moving below a threshold.	BOC, UPRC	M	E	I	P
34	Budget Prediction	AI (ML) model is used to support the budget target setting for the various categories used by the respective SME. Doing so by providing budget predictions for each utilized category. The underlying model will take into consideration the cash flow analysis output, benchmark, macroeconomic and other available SME data (Business Plan).	BOC, UPRC	M	E	I	P
35	(SMEs) Transaction (Txn) Monitoring	A dynamic complex event processing (CEP) mechanism that monitors the transactions of the user. In case transaction amount or type deviates from normal behaviour the user will be informed of abnormal transactions in order to be safeguarded from double payment mistakes and potential fraud attempts. Expense patterns are also analysed to identify potential savings for instance multiple subscription spending or high ATM fees.	BOC, UPRC	M	E	I	P
36	(SMEs) Transaction (Txn) Categorization	Smart transaction auto-classification which would also allow the user to manually override the given transaction category and define a new one (re-classify). The categorization performed is based on the needs of the SME.	BOC, UPRC	M	E	I	P
37	SME Invoice Processing	Processes transaction data and ERP data in order to keep record of the invoices which have been partially or fully paid by the SME. Provides insights regarding the respective VAT amount payable and the optimization of cash flow by providing background info on invoices such as paying a invoice at the ''right'' time.	BOC, UPRC	M	E	I	P
39	Open API Gateway	Single point of entry for the added-value functionalities (such as the Machine Learning (ML) / Deep Learning (DL) analytics functionalities) of INFINITECH which are based on microservices. The component enables the discovery and invocation of the dynamically registered microservices, effectively handling the incoming requests towards these microservice instances.	HPE	M	E	I	P

R No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
40	User Interface for Blockchain Transaction Reports and Visualization Component	Responsible for providing user interaction with the Scalable Transaction Graph Analysis component within the bank and collect/manage user as well as annotated blacklisted blockchain addresses. Utilizes OpenAPIs (REST APIs) to submit queries consisting of customer blockchain addresses and blacklists to transaction graph analysis component and generate web based reports and visualization based received results	BOUN	M	E	I	P
41	INFINISTORE	Genetic DataStore implementation for the INFINITECH Project as a microservice on top of a noSQL DB (MongoDB) instance. It is fed by different data ingestions servers and supports all other services.	LXS	M	E	I	P
42	UI Risk Assessment based on VaR	Web application to monitor portfolio risk in real time, perform what-if analysis, providing also several statistics of the underlying financial assets.	INNOV	M	E	I	P
43	Pseudo-anonymization tool	A tool that pseudo-anonymize data in order to preserve privacy. The component needs a specific configuration/ development for each pilot in which it is used.	JSI	M	E	I	P
44	Health insurance risk assessment service	Algorithm yielding risk based on user Real World Data and a pre-trained classifier. Implemented as a Python script	iSPRINT	M	E&S	I	P
45	Health insurance fraud detection service	Algorithm detecting fraudulent behavior of insurance company customers. Implemented as a Python script	iSPRINT	M	E&S	I	P
46	ML-Based Well-being outlook classifiers	Classifiers to be used by the health insurance risk assessment algorithm. The current set includes Random Forest, Logistic Regression and Neural Network classifiers of varying complexity. The format of the classifier depends on its type.	iSPRINT	M	E&S	I	P
47	BADP (Big data analytics platform)	Platform that collects and process information from multiple open data sources regarding SMEs and apply cognitive algorithm to detect risk and changes in financial needs.	WEA	M	E	I	P
48	INFINITECH Marketplace Platform	The platform that supports the INFINITECH Marketplace	UNP, UPRC	M	E	I	D

5.1.1.4 Tools supporting INFINITECH Developments (customized & enhanced in INFINITECH)

Table 6 KER Tools for Developments

ER No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
1	Healthentia LifeSciences / E-Clinical Platform	BigData platform that provides data sources aggregation and management, as well as tools for analytics and visualization.	iSPRINT	M	E	I	D

ER No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
2	Wenalyze Big data analytics platform	Platform that collects and processes information from multiple open data sources regarding SMEs and applies cognitive algorithms to detect risk and changes in financial needs.	WEA	M	E	I	D
3	Botakis Chatbot Development Network	A tool for rapid development of chatbots applications.	CP	M	E	I	D
4	EASIER-AI	EASIER-AI is an Hybrid (Cloud/Edge) platform that facilitates to develop, measure, monitor and deploy AI models.	ATOS	M	E	I	D
5	Terrier Information Retrieval Platform	Search Engine for BigData sets that offers integration with Spark for distributed processing	GLA	M	E	I	D
6	Octopush geospatial enabling framework	Octopush is a geospatial enabling framework, allowing the collection, pre-processing, post-processing and distribution of geospatial data products and services, either referred to remote sensing (satellite, drones) acquisitions or multidimensional data outputs from numerical simulations. Octopush allows users to have access through a centralized access point to decentralized services, while Octopush SDK enables IT developers, to easily adapt or expand the provided geospatial services. Octopush was created by AgroApps aiming to adders the company/operations and services need for a modular system, independent from any third-party service provider (excluding those offering raw data like Copernicus, NASA etc.), a framework that will be easily adapted to the market needs and follow the service-oriented business model of the company. Octopush is the baseline framework that addresses the AgI companies need in geospatial information, either through the development of new services and data models or the adaptation of the existing ones.	AgroApps	M	E, S	I	D
7	Sentiment Analysis Tool	Reportbrain Sentiment analysis tool uses application programming interface (API) calls to search existing news article index - Elastic Search Index. The results of the search are processed in Reportbrain's Sentiment Analyzer and the outcome is returned to the caller as a REST API response. Articles that are requested by an authorized caller are evaluated in real-time for sentiment and returned to the API caller. Sentiment evaluation describes sentiment as 0 for neutral, -1 for negative or +1 for positive.	RB	M	E	I	D

ER No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
8	ALIDA	A micro-service based platform for composition, deployment, optimisation, execution and monitoring of big data analytics workflows (covering ingestion, preparation, analysis and visualization). It is designed and developed on top of the most cutting-edge open source Big Data technologies and framework.	ENG	M	E	I	D
9	Text Analysis Tool	Reportbrain text analysis tool generates insights from both structured, semi-structured and unstructured text data using natural language processing (NLP). Such insights include sentiment analysis, key phrases, language, and entities, among others.	RB	M	E	I	D
10	Event-registry	Real-time cross-lingual global media monitoring service for modelling global social dynamics (eventregistry.org) developed by the JSI. ER aggregates and analyses news content for over 120,000 news sources published globally in 100+ languages. Events mentioned in the news are identified and relevant information about them is automatically extracted and stored in a searchable form. The data can be accessed directly on the platform or via the API. ER supports various analytics including deep analytics of the events and correlations between events, extracted entities and financial data extracted from the main financial indexes.	JSI	M	E	I	D
11	Stream Story	Stream-Story multi-resolution modelling and explanation of (possibly real-time) streaming data: (1)Exploratory data mining - A system for the analysis of multivariate time series. It computes and visualizes a hierarchical Markov chain model which captures the qualitative behaviour of the systems' dynamics.; (2) Multi-scale representation -The hierarchical model allows users to interactively find suitable scales for interpreting the data; (3) Real-time monitoring Visualizes streaming data by mapping it to the hierarchical model.	JSI	M	E	I	D
12	Qminer	QMiner is an analytics platform for large-scale real-time streams containing structured and unstructured data. It is designed for scaling to millions of data points on high-end commodity hardware, providing efficient storage, retrieval and analytics mechanisms with real-time response.	JSI	M	E	I	D
13	SSC - Super Stream Collider	SSC is a multiformat Data Management and Query System. The SSC enables distributed cloud- based high-performance processing of semantically linked streams i.e., it is an enabler for semantic analytics.	NUIG	M	E	I	D

ER No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
14	The Global Engine with Neural Network Intelligence (GENNI)	AI Engine executing DL (deep neural networks) algorithms over semantically annotated streams.	NUIG	M	E	I	D
15	Open Banking Aggregator Solution	Crowdpolicy Open Banking Aggregator Solution is a modular architecture (UIs, connectors & APIs) platform so that it can be integrated into web / mobile banking applications, by the existing provider of the Bank in the form of API integration, but also as a separate application that is made available to the users of Bank's online services Compatibility with best known market standards based on the European PSD2 Directive (Berlin Group, Open Banking UK, STET) Support for PISP & AISP services based on the PSD2 European Directive: - Payment Initiation Services - Account information Services	CP	M	E&S	I	D
16	BetaRecSys (For Investment Recommendations)	Provides a practical data toolkit for building end-to-end recommendation systems in a standardized way. It accelerates the process of developing and optimizing recommendation systems through testing, benchmarking and comparing nine different recommendations algorithms, and facilitating the selection of the best one.	GLA	M	E	I	D
17	Psychometric-Profiling and Personalization Engine (for KYC Processes)	AI-driven engine that extracts four categories of behavioural features, grouped according to the type of spending behaviour they capture: (i) overall spending behaviour, (ii) temporal spending behaviour, (iii) category-related spending behaviour, and (iv) customer category profile. The engine uses these features to predict the personality of customers in the scope of KYC Use Cases.	FBK	M	E	I	D

5.1.1.5 INFINITECH VDIH (Virtualized Digital Innovation Hub) Assets and Services

Table 7 KER VDIH

ER No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
1	Catalogue of Training Courses in AI/ BigData/ Blockchain Digital Finance	Single Entry Point to an Extensible Catalogue of Training Courses/Programs in the areas of AI, BigData, IoT and Blockchain applications for Digital Finance. The Catalogue is part of the VDIH	INNOV, INSOMNIA, UNP	M	E	I	P
2	Catalogue of FinTech Accelerators, Digital Finance DIH and Related Programs	Single Entry Point to an Extensible Catalogue of DIHs, FinTech Accelerators and related Innovation Management Programs and Services for FinTechs. The Catalogue is part of the VDIH	INNOV, INSOMNIA, UNP	M	E	I	P

ER No.	ER name	ER description	Main partners involved	General Impact	Impact type	Type of innovation	M 18 Status
3	INFINITECH Training Courses	A series of Courses on Blockchain and AI in Digital Finance to be made available in the INFINITECH Academy Section of the Marketplace and to be exploited in the context of the VDIH	INNOV, UNP, UPRC, Others	M	E	I	P
4	Introduction to Digital Currencies	The World's first MOOC (Massive Open Online Course) on Cryptocurrencies and Blockchain technology, and the first course of the MSc in Digital Currency degree programme of the University of Nicosia. Taught by world leading experts George Giaglis, Andreas Antonopoulos and Antonis Polemitis, and attended by over 40,000 students. It covers both a technical overview of decentralized digital currencies like Bitcoin, as well as their broader economic, legal and financial context. Through this free online course, students get first-hand knowledge of what they are, why they exist, why they are so important for improving financial services, and more. *https://www.unic.ac.cy/blockchain/free-mooc	UNIC	M	E	I	D
5.	Decentralized Finance (DeFi) webinar	A webinar focused on the present and the future of DeFi. Decentralized Finance (DeFi) builds on the disruptive character of blockchain technologies for the creation of new financial systems.https://www.youtube.com/watch?v=jfvbueaLizA	UNIC	M	E	I	D

5.2 VDIH Exploitation and Sustainability

As Task Leader of the INFINITECH VDIH, a structure that provides one-stop shop services helping Digital Finance and Insurance practitioners to become more competitive, Insomnia has defined an exploitation strategy based on specific actions to attract customers to the VDIH services according to the different types of services offered: "Training Catalogue", "DIH & Accelerator Catalogue", "Training Programs", "Technical and Business Support Services" and "Link to INFINITECH Partners' services". For this purpose, we will utilize the following networks and assets for the dissemination and consequent exploitation of the VDIH in an effort to give maximum visibility to the VDIH among core targets and gain business customers that contribute to the future sustainability of the services VDIH:

1. European Fintech and Insurtech Communities: INFINITECH partners will work to attract start-ups and scale-ups into the VDIH by conducting specific dissemination actions and exploiting relevant activities like hackathons. As a starting point, it is proposed to address partners' start-up communities such as the "Fintech and Insurtech Galaxy", the major Fintech and Insurtech ecosystem created by Insomnia in 2020, composed of more than 1,000 start-ups and 300 solutions already tested in the market.
2. European Digital Innovation Hub network: INFINITECH VDIH services will be connected to the DIH Catalogue of the Smart Specialisation Strategy of the European Commission (+600 DIH) and the future EDIH network to be created under the 2021-2027 Digital Europe Programme (+200 DIH), as well as other DIH communities like DIHNET. Partners like Insomnia will play a special role on this task, as current fully operational DIH under the S3 platform and candidate to the Digital Europe EDIH Network.
3. Fintech and Insurtech Accelerators and Hubs: INFINITECH partners will address their exploitation efforts also at Fintech and Insurtech Accelerators and Hubs that could become subscribers of the VDIH services among their own start-up communities and bank/ insurance

clients as well as becoming potential clients. As an example, cooperation agreements will be signed with The Talent Route Network (the major Fintech and Insurtech Accelerator Network in Europe, Israel and LATAM composed by more than 15 accelerators) or the Blockchain Innovation Hub of the RMIT University.

4. Fintech and Insurtech Innovation/ Acceleration Programs: INFINITECH partners will work to scout and identify the main Fintech and Insurtech Innovation/ Acceleration Programs in Europe that could be linked to the VDIH both by enriching the VDIH offer and finding potential clients. Some examples of relevant programs are: VISA Innovation Program by CrowdPolicy; Caixabank Fintech by Insomnia; Open Insurtech Hub by Insomnia.
5. Fintech and Insurtech-related Training Programs: INFINITECH partners will also create synergies between the INFINITECH VDIH and the existing Data/ ML/ Blockchain courses like “University of Glasgow Information Retrieval” or “University of Nicosia Blockchain Programme”, both including all these training assets into the VDIH Training Catalogue and bringing the attention of their participants/ students (HEI students, start-ups, investors, consultants…) into the VDIH.

All the above strategies are aimed at bringing mainly two types of customers into the INFINITECH VDIH:

- Fintech and Insurtech Start-ups/ Developers/ Consultants: that could be interested in using INFINITECH services: training, PoC definition, business development, connection with DIH and Accelerators, experimentation services, demos, funding opportunities, links with INFINITECH partners’ programs/ services.
- Banks and Insurances: looking for new and already validated Fintech and Insurtech solutions that could be useful for their own businesses and innovation/ acceleration programs. This target will be key to the exploitation of the VDIH and INFINITECH pilot themselves, as the VDIH will be a perfect window to show the success of pilots’ solutions and connect INIFINITECH providers/ partners with relevant clients.

5.3 The INFINITECH Marketplace as an Exploitation Channel

5.3.1 The INFINITECH Marketplace

Both in the INFINITECH project and in the other research and industrial initiatives of its partners, INFINITECH's data scientists develop innovative AI models and data analytics algorithms to address the needs of FinTech applications. The availability of (open-source) libraries and their direct linking and exploitation also in analytics frameworks (e.g. MLlib in Apache Spark) showcases the need for utilizing as a ground-specific analytics and building on top the required application-specific algorithms by either enhancing the existing ones or utilizing them in data analytics pipelines.

In this context, one of the key requirements is the availability of such algorithms that can be directly exploited by domain experts – i.e. data scientists. To this end, INFINITECH will deliver a marketplace that will serve this need, thus hosting and offering ready-to-use algorithms and AI solutions. On top of that, the marketplace will offer additional assets that are of major importance in the data analytics domain: validation datasets, training and evaluation outcomes for algorithms, and complete analytics pipelines. The latter is of interest since they actually refer to turn-key solutions that are widely used and required by the research and industrial communities (for example NodeRED offers ready-to-use graphs addressing different domains through its corresponding library: https://flows.nodered.org/).

The INFINITECH marketplace will also host innovation management services, (https://flows.nodered.org/) the so-called Virtualized Digital Innovation Hub - VDIH services that can be exploited by FinTech and InsuranceTech and other practitioners. These services reflect an additional proposition (as offerings) of the market platform that complements and provides additional value to the assets described above (e.g. algorithms, validation datasets, etc).

Additionally, the INFINITECH marketplace is expected to facilitate wide exploitation of project results, since it will act as a multi-sided environment, addressing both providers of assets (i.e. owners / actual contributors of specific assets such as a data scientist that has developed an algorithm, a data owner making a specific dataset available or a service owner that provides a containerized service to be directly deployed and exploited) and consumers of these assets. Consumers might be data scientists that would like to obtain machine learning and AI algorithms, experiment, evaluate and build their solutions on top of them; or might be solution providers that retrieve assets (most probably as containerized services) and utilize them. The INFINITECH services i.e. the sandboxes that will host services from the different pilots of the project, can also be consumers of the offerings and assets of the marketplace, by directly obtaining the respective assets.

5.3.1.1 Sustainability Plan & Market Path

To ensure that the INFINITECH marketplace serves the needs of an additional exploitation channel, it is deployed on a public cloud provider and delivers the required services to the end users (producers and consumers of assets). Its sustainability plan lies on the assets it will be offering, thus it will be populated with several services and assets while also emphasis will be put on serving as a data marketplace for financial and insurance services. The latter will allow the provision of datasets (e.g. including synthetic datasets) and approaches for their analysis (e.g. proposed algorithms, expected added-value outcomes as actionable information, utilization in different scopes, potential combination with other assets, etc). This data marketplace will be a key for stimulating a data economy in the finance and insurance sectors.

Towards fostering the business elements of the marketplace, the INFINITECH marketplace is expected to deliver assets through different ways: (i) Fully open with open datasets, open-source AI models, etc; (ii) Based on membership fees for specific assets that will not be open to public; and (iii) On a pay-per-use case for specific assets or solutions (including also the case of VDIH).

Thus, the INFINITECH marketplace will aim at creating and attracting a community of different types of users, which can be directly utilized by project partners (both technical / research partners, and pilot partners) in order to foster exploitation possibilities for the respective innovative outcomes.

6 Conclusions and Future Work

The World has not recovered yet from the COVID-19 health crisis, which has revealed many partly-unanticipated scenarios that directly affect many actors in sectors central to INFINITECH (e.g. some insurance underwriters declared that the pandemic entitled them to rewrite their existing contracts without consultation with customers, to reduce or even eliminate the coverage of travel insurance or health cover or business interruption insurance). However, as addressed in the emerging Joint Exploitation Plan, insurers who include a change-of-coverage consultation process can win substantial new business if they can handle new underwriting risks because they have easy-to-change platforms and processes. Readiness to innovate usually increases in a crisis, and there is already some initial data on how companies are accelerating investment in new technologies that were already spreading such as big data, or artificial intelligence for process automation and decision support.

In this environment, INFINITECH has an unprecedented level of importance as a ubiquitous "Lighthouse".

The COVID-19 pandemic has served to greatly increase readiness of major actors to collaborate to try to prevent or limit the consequences of events with global impact (better to share insights that affect all of us, than to plan for a last-man-left-standing approach like a Tontine winner-take-all in insurance), and to highlight how harmful it would be to have a pervasive technological crisis at such a delicate moment in time. In some of our scenarios, it is envisaged that a simultaneous cyber attack on multiply-connected sectors of the economy (e.g., energy, banking, insurance, supply chains, e-commerce) could be the source of the next crisis, and IT departments are already preparing to deal better with security threats.

In a the Finance and Insurance sectors, INFINITECH has the opportunity to position as a modular, versatile set of technologies that can be configured in different ways to solve specific problems of the sector. This versatility and mobility results in economic costs, allowing the partners to offer solutions that are modular, scalable, efficient.

After 18 months of the project, the exploitation task was centred on analysing the market in which it operated and identifying the individual developments being carried out by the software developers of the project, in the second period the main objective has been to cover the gap between the research and the market for a full set of solutions and a way to approach problems (the INFINITECH WAY), and to identify specific cases of exploitation that can be found in the financial sector, and which in a later marketing step could be considered products or services. For this purpose, we have focused on the different tools that each of the pilots would require to reach or exceed its DOA targets for TRL, and we have analysed the use cases of each of them identifying their value proposition, understood as the added value for which the identified target would be willing to pay.

In the deliverable we have described 15 Pilots, which demonstrates the clear marketing potential offered by INFINITECH, and its high capacity to offer numerous value-added proposals adapted to the problems exposed by customers.

We also provide a first picture of the integrated-IPR approach, finding a mix of Open Source licenses for the INFINITECH components, and IPR-Registered tools that offer specific functionalities (such tools are usually protected under license, and several are offered as proprietary).

In the remaining year we believe that INFINITECH's main objective should be to develop a sustainability strategy and associated Business Model Canvas for each pilot and its sector, e.g. disruption in the insurance sector https://www.alexandria.unisg.ch/254391/1/InsurTech%20Business%20Models%20and%20Disruptive%20Potential.pdf).

In early October 2021 a one-day exploitation workshop will be held online with all partners represented. The partners will use the business model canvas to develop an exploitation model for the INFINITECH Ecosystem. The attendees will split into groups who will focus on the 9 parts of the canvas. Later the responses will be consolidated based on majority voting. The Business Model Canvas approach describes a business model using basic building blocks, covering four areas of business: customers, offer, infrastructure and financial aspects [2].

Finally, the partners aim to design a roadmap that sets out guidelines to extend the life of the project beyond its official end, and to establish the basis for the partners to exploit the results with sufficient legal coverage should a business opportunity arise.

7 Annex 1: Joint Exploitation Agreement

Joint Exploitation Agreement Concerning the Intellectual Property of INFINITECH Project Tangible Outcomes

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Joint Exploitation Agreement (the “JEA”)

Concerning the Intellectual Property of

INFINITECH Project Tangible Outcomes

This Joint Exploitation Agreement (“JEA”) is effective as of xxxx by and among

1 _____

2 _____

3 _____

hereinafter, jointly or individually, referred to as ”Parties” or ”Party”

I. Scope

WHEREAS, the project, INFINITECH’ (‘Action’), has completed the development period which was partially funded by the European Commission, on xxx, and Parties who have contributed to the tangible outcomes to varying nature and degrees acknowledge that they each have intellectual property rights in the Action.

WHEREAS, the Parties acknowledge that the “tangible outcomes” resulting from the execution of the Action, are original and derivative works, created by the contributing Parties, including transferred information, inventions, reissues, divisions, continuations, renewals, extensions and continuations improvements, trade secrets, proprietary information, know-how, technology, specifications, methodologies, processes and technical data of any form, whether in development or prototyped.

WHEREAS, the Parties acknowledge that the subject matter of this JEA consist of the tangible outcomes derived from the Action, as construed to be the intellectual property of the Parties. The Parties also acknowledge that all published articles and all deliverables of the Action that are in “public status” as indicated and submitted to the Commission and its subsequent updates are public information and cannot be copied as is, but utilised for any purpose. Accordingly, the Final Report, Test Reports, Data Management Plans, the Demonstrators and the Exploitation Strategy are those deliverables that are confidential and that are not in the public domain.

WHEREAS the contributing Parties have identified the list of innovations and the broad extent of their contributions in the Final Report, dated xxxx.

WHEREAS, the Parties wish to establish a commercial entity to use the deliverables and/or tangible outcomes which are subject to the contributing Party’s intellectual property rights, for various intentions mentioned in the Final Exploitation Plan deliverable (D9.x) and each party, subject to the terms and conditions of this hereby JEA, mutually agrees to give written consent. Further responsibilities and benefits that the commercial entity entails for each of the contributing Parties will be clarified by the foundational documents of the entity. In case some of the Parties do not sign this JEA for any legitimate reason, the Parties who sign can nevertheless pursue the joint exploitation intentions without using or by replacing the intellectual properties of the Parties who did not sign.

The Signatories to this Joint Exploitation Agreement, declaring their consents and intentions concerning the use of outcomes described below, have reached the following understanding:

II. Declaration of the Intentions for Exploitation and Mutual Consent of the Parties

A commercial entity is designed to take up a number of exploitation roles, some of which are as follows:

1. Solution provider: In this role the entity will develop and supply the INFINITECH ecosystem that is based on an open, vendor-neutral approach and configure solutions for different contexts. A solutions provider would have direct access to the companies that are procuring the solution, rather than via an intermediary.
2. Software provider: The proposed company could make the INFINITECH-developed software platform available to solution providers, perhaps as a Software Development Kit (SDK) and Application Programming Interfaces (APIs). It could also supply software components to providers of other solutions to enhance their products (and so exploit the interoperability features of INFINITECH).
3. Consultancy provider: In this role the company can guide solution developers and system integrators in how to develop and structure their learning solutions to include pervasive elements.

In order to realize any of these roles, the commercial entity is planned to own or have the right to use, and be responsible to maintain and advance all the components of the ecosystem. Central to the ecosystem is the INFINITECH marketplace. These three can be a part of a sustained INFINITECH portal or they can be added to in-use educational platforms. The central components enable the use of a set of repositories and services.

Subject to the terms of this JEA as detailed herein, each party mutually consents and agrees to give effect to the intentions including granting relevant intellectual property rights as may reasonably be required for the above-mentioned entity to fulfil their intentions. This JEA is valid and effective solely for the declared intentions hereto. The Parties shall agree by separate legal agreements for further additional and different intentions. The previous contractual arrangements signed by the Parties will be valid and effective for different intentions until separate legal agreements are signed. Nothing in this JEA will detrimentally affect the Access Rights as provided for and as survived by the terms and duration of the Consortium Agreement, which was made between the parties before the Action started. Access Rights in the Consortium Agreement are granted on the requirement of fulfilling the obligations of the Contract with the European Commission. In accordance with the purpose of this JEA, access rights solely concern the exercising of the intentions given above. In case further access rights than those granted in the Consortium Agreement are needed by one or more Parties to exercise the above intentions, such rights will separately be sought with subsequent agreements that relate to the foundation of the commercial entity.

Any and all tangible outcomes transferred by one Party to the other Party during joint software development activity, as also any copies, reproductions or duplications duly authorized and made for the sole purposes of the achievement of this JEA and all rights related thereto shall remain in any case the property of the Contributing Party.

IV. Intellectual Property

A. Acknowledgement. The Parties acknowledge that "Intellectual Property" means, including but not limited to, all intellectual and industrial property rights owned or held under license by a Party in any jurisdiction, including all such rights in, to, or arising out of any municipal law or foreign (i) patents (including design and utility patents) and applications therefor and any and all reissues, divisions, continuations, renewals, extensions and continuations-in-part thereof; (ii) inventions (whether patentable or not), invention disclosures, improvements, trade secrets, proprietary information, know-how, technology, specifications, methodologies, processes and technical data; (iii) copyrights whether registered or proclaimed, copyright registrations and, applications therefor, and all other rights corresponding thereto including but not limited to methodologies, algorithms and deliverables under the Project; and (iv) any trade names, trademarks, service marks, logos, slogans, trade dress, indicators of origin and similar rights; in each case whether in development, production form or otherwise, and including all goodwill associated with the foregoing, and all claims and defences, and all rights in any agreement related to the foregoing, yet covering only such that is following out of the INFINITECH project .

B. Obligations. The following clauses concerning the Intellectual Property rights of this JEA are valid and effective unless the Parties agree with separate license agreements:

a) Where either Party has any Intellectual Property right in any material that is used by the Parties in connection with this JEA, then those Intellectual Property rights remain vested in that Party.

b) Notwithstanding the joint contribution of the parties to the various tangible outcomes as detailed in the Final Activity Report, unless the Parties otherwise agree, no other Intellectual Property right will be jointly owned unprompted by them and the Parties must establish a system to identify those things in which Intellectual Property rights exist and determine the owner or joint owners of the Intellectual Property right in accordance with this clause.

c) Each party agrees to do such further things as may reasonably be required of it to give effect to the exploitation intentions of the Parties regarding ownership of Intellectual Property rights as expressed in this clause (including, without limitation, by executing such assignments and licenses of Intellectual Property rights as may reasonably be required).

V. Term and Termination

This JEA will be retrospectively valid starting xxxx and shall survive for 5 years or until separate legal agreements are signed. If such agreements cover the scope of this JEA only partially or expire before the 5 years validity term is over, then for the rest this JEA will still be valid.

VI. General Provisions

A. Nature of the Agreement. It is agreed that this JEA establishes a contractual relationship but does not create any legal structure such as a partnership, joint venture or any agency relationship between the Parties, nor shall either Party hold itself out as such contrary to the terms hereof by advertising or otherwise, nor shall either Party be bound or become liable because of any representation, action or omission of the other Party

B. Warranties, Liabilities and Indemnities. Neither Party will be liable to the other under or relating to this JEA for any direct or indirect, special, economic or consequential loss or damage or loss of revenue, profits, goodwill, bargain, opportunities or loss of anticipated savings whether caused by negligence or otherwise and whether or not that Party was aware or should have been aware of the possibility of such loss or damage (b) Neither Party shall be liable to the other for any defects within any information, know-how, technologies, services, background technology, interfaces and prototypes provided to the other Party hereunder, except to the extent that such liability is incapable of exclusion at law (c) Neither Party shall be liable to the other if any information, know-how, technologies, services, background technology, interfaces and prototypes provided to the other Party hereunder infringe the Intellectual Property Rights of any third party, except to the extent that such liability is incapable of exclusion at law.

C. Rights of Parties. The Parties accept that this JEA will not limit the freedom of members of the Parties from engaging in activities and research within the same field that is covered by this JEA.

D. Contacts.

Xxxx

E. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of Belgium, excluding the conflicts of law, and the Parties hereto irrevocably submit to the exclusive jurisdiction of the Courts of Belgium, with respect to such claim or dispute. Each Party represents that it has, or will have in place, agreements with its employees or others, including subcontractors, whose services the Party may require, sufficient to enable such employees or others to comply with all the provisions of this Agreement.

F. Confidentiality of the JEA. Neither Party shall use any name, trade name or other designation of the other Party (including any contraction, abbreviation or simulation of the foregoing), or reference or disclose the contents of this JEA, without the prior written consent of the other Party, except for legal inquiries and communications with the European Commission.

G. Separability. If any term or provision of this JEA shall, in any jurisdiction and to any extent, be finally held to be invalid or unenforceable, such term or provision shall be ineffective only to the extent of such invalidity or unenforceability, without invalidating or rendering unenforceable any other term or provision of this JEA, so long as the remainder of this JEA still effectuates the essential purposes of this JEA. If such essential purposes cannot be effectuated, this JEA shall either be renegotiated or terminated without cause by either Party.

H. No Waiver. The failure of a Party to insist upon strict adherence to any term of this JEA on any occasion shall not be considered a waiver, nor shall it deprive that Party of the right to insist later on adherence thereof, or thereafter to insist upon strict adherence to that term or any other term of this JEA. Any waiver must be in writing to be effective.

I. Interpretation. The headings in this JEA is intended solely for convenience of reference and shall be given no effect in the construction or interpretation of this JEA. The terms "herein", "hereof", "hereunder" and any similar terms used in this JEA or refer to this JEA (as the case may be), and all reference to "this JEA " refer to this instrument and the Exhibits hereto, as amended from time to time. The terms "including" or "include" shall mean "including, without limitation", or "include, without limitation".

J. No Assignment. Neither Party may assign any of its rights, privileges or obligations hereunder without the express written consent of the other Party. Where either Party experiences (i) the sale by that Party of all or substantially all its assets, liabilities and business in a single transaction to a single Person, or (ii) a merger of a Party with or into another Person, then the other Party retains all license rights granted under this JEA. Any unauthorized assignment of this JEA is void.

K. Freedom of the Parties. Each Party is an independent contractor of the other and this JEA does not create an agency relationship between Parties or between Parties' personnel. Neither Party assumes any liability or responsibility for personnel of the other. Each Party shall be responsible for the supervision, control, compensation, withholdings, health and safety of its personnel.

JEA Each Party agrees that this JEA will not restrict the right of a Party to enter into agreements with any third party for the same or similar efforts, or to make, have made, use, sell, buy, develop, market, or otherwise transfer any products or services now or in the future, to any market, as long as such products or services does not threaten fair competition rules pertaining to the Articles 81 & 82 of the European Treaty.

The Parties will continue to be bound by the confidentiality obligations in Section IV and will not use any of the other Party's Intellectual Property except as provided in this JEA.

L. Notices. All communications and notices between the Parties concerning this JEA and any other operations shall be in writing and delivered either in person or by mail to the person specified in Sections VI Article D and the address specified in front page.

M. Force Majeure. Neither Party shall be responsible for failure to fulfil its obligations under this Agreement due to fire, flood, war or other such cause beyond its reasonable control and without its fault or negligence, provided it promptly notifies the other Party.

O. Entirement. This JEA entered into hereunder shall be the complete and exclusive statement of the agreement of the Parties respecting the Intellectual Property and exploitation intentions hereof, until separate legal agreements are signed. If such agreements cover the scope of this JEA only partially, or expire before the 5 years validity term is over, then for the rest, this JEA will still be valid. This JEA has been prepared in accordance with the provisions of the prior legal agreements between or among the Parties. However, in the event of any conflict the previous legal agreements shall prevail. Other than those legal ones, this JEA shall supersede all prior agreements and understandings, oral or written, between or among the Parties regarding the subject matter hereof, as long as the provisions for Access Rights provided by the terms and duration of the Consortium Agreement are not limited.

P. Amendment. This JEA may not be changed or terminated orally by or on behalf of any Party. Any amendments to this JEA shall be in writing and signed by authorized representatives of the Parties.

R. Publication. Neither Party will issue a press release regarding this JEA without the written consent of the other Party. The Parties will issue a joint press release announcing this collaboration at a mutually acceptable time.

VII. SIGNATURES

IN WITNESS WHEREOF, each of the Parties has caused this JEA to be executed in duplicate originals by its duly authorized representative on the respective dates entered below. The original copies of the JEA consist of xx pages plus the signature page “xx+1” which will be reproduced as many as the number of Parties. Each signature page contains a table that states the identity of the person who signs underneath.

Organisation:

Name:

_____

Title:

_____

Date:

_____

Address:

_____

8 Annex 2: Canvas Templates

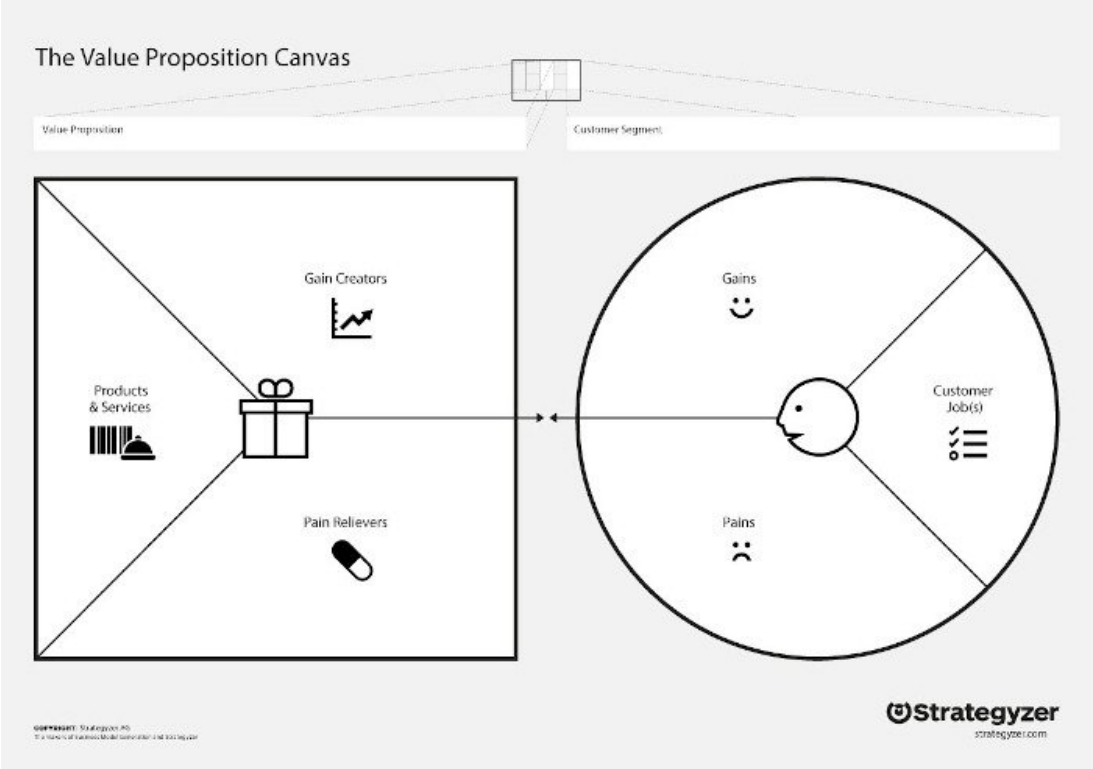

Figure 6 Value Proposition Canvas

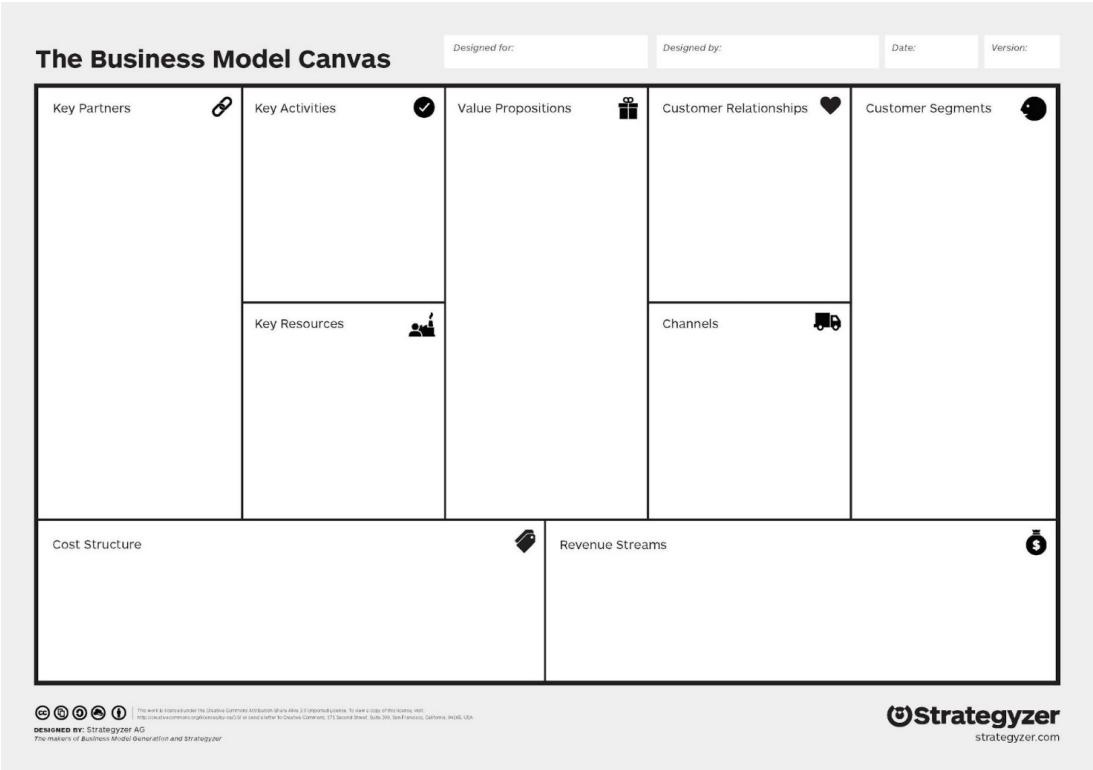

Figure 7 Business Model Canvas

9 References

[1] Osterwalder, A., Pigneur, Y. at al (2010). 'Business Model Generation', self published

[2] Osterwalder, Alexander; Pigneur, Yves. (2013). Business Model Generation. Hoboken, NJ: Wiley.