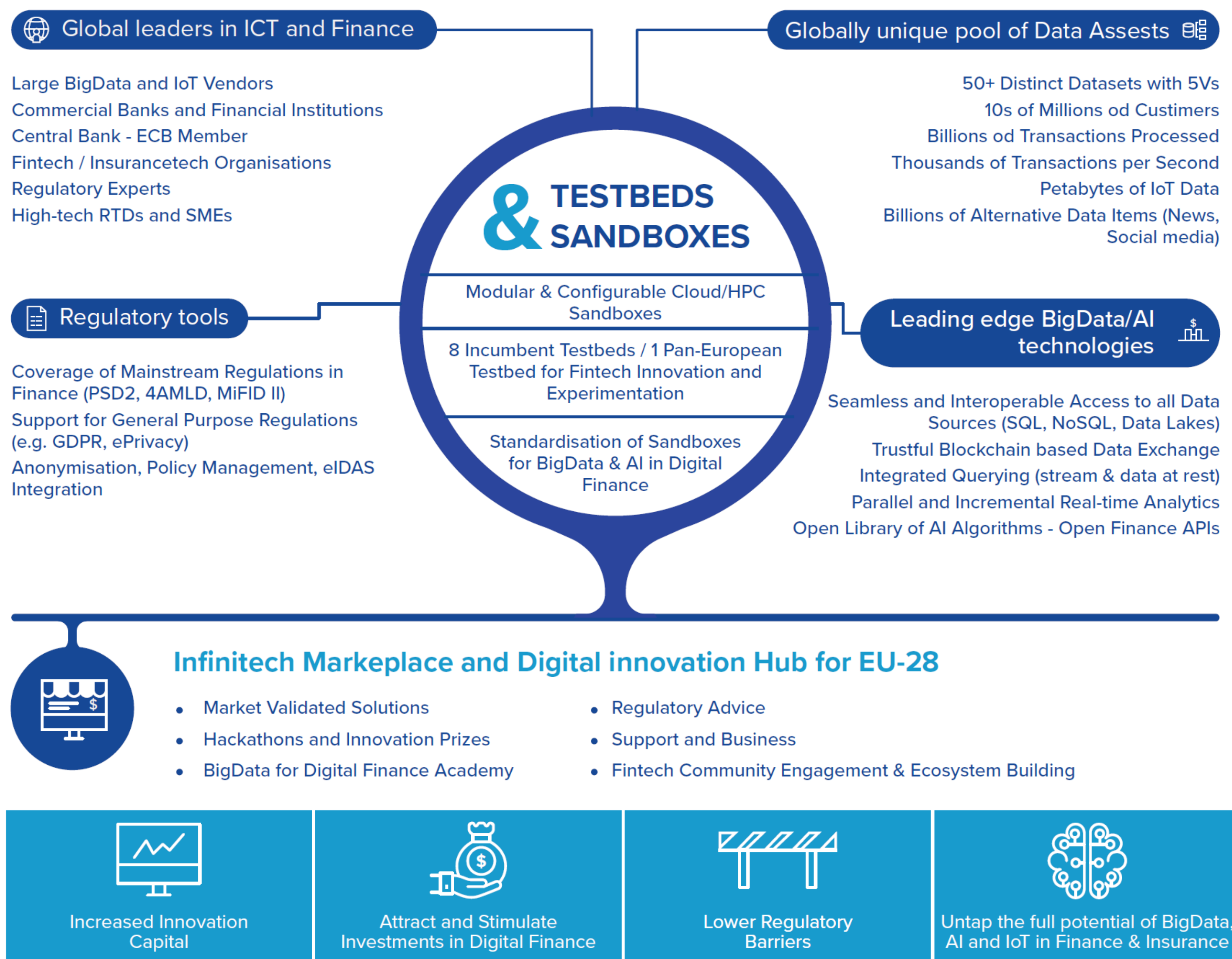# Infinitech

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

What is Infinitech?

Infinitech is a **flagship EC Horizon 2020 project** targeting **Big Data in Finance and Insurance**. It is one of two such Flagship projects, and forms the groundwork for a new Finance theme in Horizon Europe. It has 43 partners from 16 countries, along with a 21 million euro budget.

Drivers & Motivation

A set of challenges have to be overcome for improving the efficiency of business processes and optimizing decision making in the finance & insurance sectors:

- Limited blueprints and lack of validated business models for BigData & IoT
- No adequate support for AI & real-time analytics
- Lack of datasets & interoperability ("data-silos")
- Limited testbed resources for innovation (data assets & sandboxes)
- Regulatory barriers, due to a complex and volatile regulatory environment
- Lack of validated business models for BigData & IoT in Finance & Insurance

Infinitech Vision & Value proposition

Infinitech project will allow to tackle with these challenges, providing a 360° coverage to fully leverage the benefits of IoT, BigData and AI in the financial & insurance sectors. It will provide:

- Reference Architecture & Blueprints for BigData, IoT and AI applications
- Interoperability & Data Exchange solution
- Seamless Data Management & Real-time Analytics – OpenAPIs
- Experimentation facilities (testbeds & sandboxes)
- Advanced Business Models, Market platform & VDIH
- A whole new range of SHARP (Smart, Holistic, Autonomy, Personalized and Regulatory Compliance) applications, with a shift towards autonomous (i.e. automated and intelligent) processes

- Catalyst for increased investments in BigData & IoT Digital Finance Applications
- Lower & fewer barriers to Innovation and experimentation leading to shorter Innovation cycles
- Flexible and cost-effective regulatory compliance

How is Infinitech Structured?

Global leaders in ICT and Finance

- Large BigData and IoT Vendors
- Commercial Banks and Financial Institutions
- Central Bank - ECB Member
- Fintech / Insurancecetch Organisations
- Regulatory Experts
- High-tech RTDs and SMEs

Globally unique pool of Data Assests

- 50+ Distinct Datasets with 5Vs
- 10s of Millions od Customers
- Billions od Transactions Processed
- Thousands of Transactions per Second
- Petabytes of IoT Data
- Billions of Alternative Data Items (News, Social media)

TESTBEDS & SANDBOXES

- Modular & Configurable Cloud/HPC Sandboxes
- 8 Incumbent Testbeds / 1 Pan-European Testbed for Fintech Innovation and Experimentation
- Standardisation of Sandboxes for BigData & AI in Digital Finance

Regulatory tools

- Coverage of Mainstream Regulations in Finance (PSD2, 4AMLD, MiFID II)
- Support for General Purpose Regulations (e.g. GDPR, ePrivacy)
- Anonymisation, Policy Management, eIDAS Integration

Leading edge BigData/AI technologies

- Seamless and Interoperable Access to all Data Sources (SQL, NoSQL, Data Lakes)
- Trustful Blockchain based Data Exchange
- Integrated Querying (stream & data at rest)
- Parallel and Incremental Real-time Analytics
- Open Library of AI Algorithms - Open Finance APIs

Infinitech Marketplace and Digital innovation Hub for EU-28

- Market Validated Solutions
- Hackathons and Innovation Prizes
- BigData for Digital Finance Academy
- Regulatory Advice
- Support and Business
- Fintech Community Engagement & Ecosystem Building

Increased Innovation Capital	Attract and Stimulate Investments in Digital Finance	Lower Regulatory Barriers	Untap the full potential of BigData, AI and IoT in Finance & Insurance

Infinitech Partners

Use-Cases

1. Smart and Automated Credit Risk Assessment for SMEs [#1]

A Big Data platform integrating an AI and Blockchain-based system for credit risk scoring of SMEs. The platform will introduce a novel approach for assessing the credibility and facilitating access to finance of SMEs, while decreasing the risks and the back-office costs of financial organizations.

2. Real-time risk assessment in Investment Banking [#1]

A HPC platform that implements a real time risk assessment and monitoring procedure for two standard risk metrics – VaR (Value-at-Risk) and ES (Expected Shortfall). This results in real-time calculations and changes anticipations on on-line trading data, aiming to overcome the current practice of risk applications.

3. Collaborative Customer-centric Data Analytics for Financial Services [#2]

An AI-based support tools for new customer services. Three main features: (i) a KYC system based on data sharing, (ii) a credit scoring system and (iii) an AML system based on semantic technologies and a Blockchain-based data sharing. By utilizing global social media platforms, these tools can enhance the ability of a bank to serve customers from another jurisdiction with no history.

4. Personalized Portfolio Management ("Why Private Banking cannot be for everyone?") [#2]

A mechanism for AI-based Portfolio construction for Portfolio Management Services for Wealth Management in general, regardless which amount is to be invested. This could create online automated offerings for private investors using AI and Big Data technologies for generating optimized portfolios.

5. Smart and Personalized Pocket Assistant for Personal Financial Management [#2]

A personal pocket assistant for consumer, based on the development of an AI-enabled personal financial management (PFM) software. Predictive analytics and DL algorithms will enable predictive features and personalized recommendations on the basis of automatized processes aiming to reduce further transaction costs and increase customer satisfaction.

6. Personalized Closed-Loop Investment Portfolio Management for Retail Customers [#2]

A system providing effective and automated personalized investment recommendations, leveraging on large customer datasets and alternative data sources (e.g. social medias). The high innovation lies in the development of a closed-loop system that improves itself continuously.

7. Operation Whitetail – Avoiding Financial Crime [#3]

Comprehensive and near real-time picture of suspicious behaviour in the Financial Crime remit will be created using ML, Super Computing and advanced modelling. The ambition is to create a holistic crime risk profile of a customer improving detection of financial crime reducing losses to banks and society.

8. Platform for Anti Money Laundering Supervision (PAMLS) [#3]

A platform that will improve the effectiveness of the existing supervisory activities (analysis reports, risk assessment and screening tool) in the area of AML and CTF by processing Big Data. The ambition is to automatize these processes while using the platform as a distribution channel.

9. Analyzing Blockchain Transaction Graphs for Fraudulent Activities [#3]

A scalable and high performance Blockchain transaction graph analysis system for investigating whether account transactions can be traced to fraudulent or non-compliant activities. Real-time analytics and ML algorithms will led to automation detecting problematic customers for denying banking services to them.

10. Real-time cybersecurity analytics on Financial Transactions' BigData [#3]

AA sophisticated tool that will analyse in real-time the financial transactions of a home and mobile banking system, applying ML models in combination with analytics techniques on high-volume data streams, enabling proper and prompt countermeasures to anomalies.

11. Personalized insurance products based on IoT connected vehicles [#4]

An IoT-based system for personalized usage-based insurance ("Pay as you drive"), improving the capabilities in terms of fraud detection and fraudulent claims. Outcomes will be new business models for the whole value chain of Big Data vehicle and disruptive insurance products.

12. Real World Data for Novel Health-Insurance products [#4]

An IoT platform based on a tool that estimates the health-related risk of customers using a customer kit that exploits several medical devices (e.g. blood pressure, SpO2). Insurance companies will reduce their risks and the citizens will receive rewards based on their achievements.

13. Alternative/automated insurance risk selection - product recommendation for SME's [#5]

An insurance product configuration platform for SMEs that automates the data extraction processes from different sources (also external) and bases on high-performance analytics and ML algorithms, to improve fraud detection, risk estimation and product recommendation.

14. Big Data and IoT for the Agricultural Insurance Industry [#5]

A decision intelligence framework that will offer to the Agricultural Insurance sector several service indicators weather-related using ML libraries and computational frameworks. Geo-spatial data related to the hazard will be used to identify areas with increased risks and provide a concrete base to insurance companies.