This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871481

TRUSTS

Trusted Secure Data Sharing Space

H2020 TRUSTS, Trusted Secure Data Sharing Space Supporting the Emergence of Data Markets & Data Economy, January 2020 – December 2022

Leibniz Universität Hannover

L3S Forschungszentrum · Research Center

INTERNATIONAL DATA SPACES ASSOCIATION

Fraunhofer FIT

Fraunhofer ISST

PIRAEUS BANK

eBOS Technologies

relational

SEMANTIC WEB COMPANY

DIO Data Intelligence Offensive

KNOW Center

RSAFG Research Studios Austria Forschungsgesellschaft

KU LEUVEN

TU Delft

DELL EMC

G1 Business Development & Organizational Growth

FORTH

Forthnet

LS TECH

Lack of trusted & secure platforms & privacy-aware analytics methods for secure sharing of personal data

Proprietary, commercial, industrial data hamper the growth of data markets & data economy by limiting data sharing to open data

Diverging technical standards, quality levels & legal aspects

Reinforce trust in data markets by developing **a new platform using the experience of two large national projects**

For a fully operational & **GDPR-compliant** European Data Marketplace for industrial use

TRUSTS will:

Allow the **integration** & **adoption** of **future platforms**

Act **independently** & as a **platform federator**

Investigate the **legal** & **ethical** aspects that apply across the entire data value chain, from data providers to consumers

1 Fully operational & GDPR-compliant European Data Marketplace for personal & industrial use

2 3 use cases for corporate business data in the financial & telecom operator industries, supported by viable, compliant & impactful governance, legal & business framework

Innovation

Legal & ethical framework for sustainability & compliance

Sustainable business model

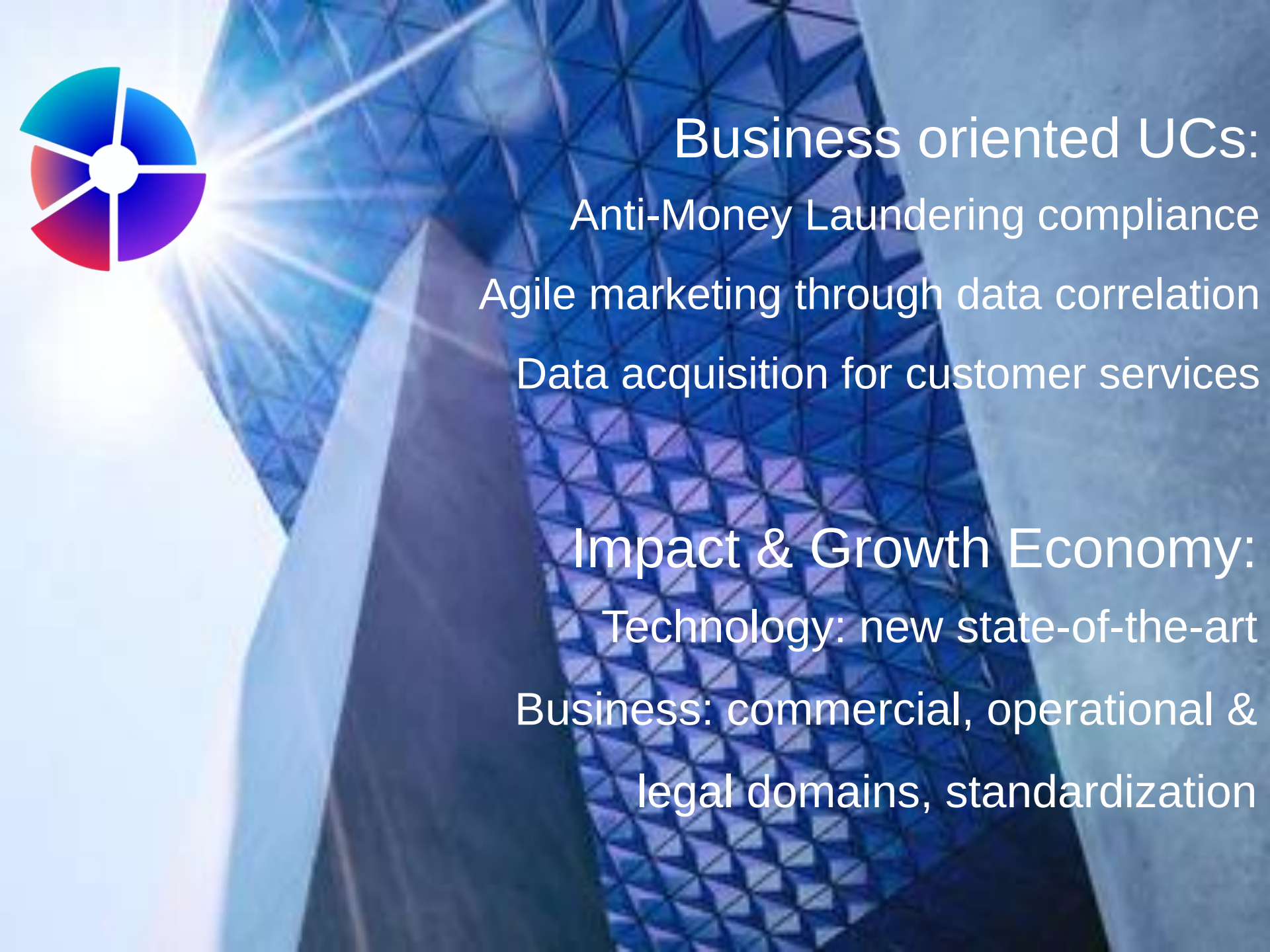
Concurrent, cross-domain, secure, scalable E2E data services

Integration of existing data market technologies

Secure data sharing & federated data processing

Cryptographically secure protocols for data analysis of privacy-sensitive data

Demonstration of the TRUSTS platform in 3 business UCs


Business oriented UCs:
Anti-Money Laundering compliance
Agile marketing through data correlation
Data acquisition for customer services
Impact & Growth Economy:
Technology: new state-of-the-art
Business: commercial, operational &
legal domains, standardization

Ensure an environment of trust & accountability through a predictable legal environment for companies, SMEs, startups & investors while safeguarding the rights of consumers & citizens.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871481

trusts-data.eu

@TrustsData

TRUSTS Trusted Secure Data Sharing Space

Alexandra.Garatzogianni@tib.eu

@AlexandraGaratz

https://www.linkedin.com/in/alexandra garatzogianni/

Anti-Money Laundering Use Case

Gianna Avgousti | Project Manager at eBOS Technologies Ltd

Live Session, 12th November 2020

This project has received funding from the European Union's Horizon 2020
research and innovation programme under grant agreement No 871481

Content

Agenda for today:

- Company Overview
- Money Laundering
- Anti-Money Laundering Compliance
- WiseBOS Enterprise Resource Planning (ERP)
  - WiseBOS Risk Intelligence, Scoring & Compliance module
  - WiseBOS Screening module
- How does WiseBOS ERP modules relate to TRUSTS?

Company Overview

eBOS Technologies Ltd

- Established in 2003, Headquarter in Nicosia, Cyprus
- Certified Innovative IT SME
- 2 Departments :
  - Commercial (e-business) Solutions
  - R&D (28 projects in total, 15 active)

Certified Innovative SME

Recognised by the Ministry of Finance of Cyprus

28

Participation in R&D projects

1000+

Partners Worldwide

€300M+

R&D funding raised for all project partners

eBOS Technologies

Core areas of expertise

Physical security & Cybersecurity

Security for data in-flight or at rest, protocols, Data encryption; Software-Defined Networking, Network Functions Virtualisation; Blockchain solutions and applications, IoT security, Security-by-design.

Artificial intelligence

Integration with solutions based on Machine Learning, Deep Learning, Cognitive computing, Neural networks, IoT data processing.

Web applications & Digital maps

Web applications, Advanced digital maps and real-time route visibility applications; Location-driven digital maps.

Digital Innovation & Content Marketing

Exploitation strategies and Plans, Website design, Social channels setup and maintenance, Content writing and marketing.

Intelligent dashboards & Advanced Analytics

Big data analytics, Graph analytics, Interactive Knowledge Bases and Digital content, Data Mining, Interactive Business Intelligence, Dashboards reporting and KPI tracking.

Quality Assurance, GDPR & Data Management

Quality assurance procedures, Compliance for data controllers and processors, Pseudo-anonymisation and data management procedures, Privacy-by-design and by-default.

Risk Assessment and Compliance

Risk assessment, Risk management procedures and automated checks, Front-end visualisation, KPI dashboards.

Cloud, On-Premise & Hybrid architectures

Enterprise Resource Planning Systems and Management, APIs development, integration and interoperability.

Client / Server application development

Client / Server applications, UX / UI design and development, Human-Computer Interaction, Interactive technologies.

Money Laundering

- **Money laundering** is the process of illegal movement of money to hide its original source.
- Money gained through illegal or criminal activities - purpose to ‘hide’ or mix them with legally earned money.
- A white-collar crime, drug trafficking, cash smuggling, gambling venues, trade-based laundering
- Money laundering - Financial crime - Professionals - Anti-Money Laundering

Anti-Money Laundering Compliance

- Fighting Money Laundering - Global concern, security.
- The European Union's **4th Anti-Money Laundering Directive** - 17th June 2017.
- Mandatory for financial institutions, banks, the professional industry, stock exchanges, real estate etc.
- Monitoring of customers' transactions and report on suspicious financial activity.
- AML Screening of customers to identify and eliminate any efforts of money laundering.
- Know-Your-Customer verification and Risk Assessment.

Anti-Money Laundering Compliance

Exactly how:

- AML compliant is a primary source of risk prevention.
- **Automated procedures**
- The AML Policy based on a **secure sharing data space**.
- A solution based on a secure sharing data space, that can assist the Compliance Officer. (legal requirements - internal policies and bylaws)

Benefits

- Minimize exposure to financial fraud & terrorism financial activities.
- Prevention of fines and losses.

Anti-Money Laundering Compliance

Exactly how:

- **Digitalized** solution
- Provision of **efficient - effective risk-based compliance** capability:
  - maintain & fulfil regulatory compliance,
  - Risk level
  - Risks and Onboarding & monitoring of customers.
  - Minimize exposure to financial fraud.

Use Case vision

- New data-driven approach to AML,
- **Innovative solution** – past data
- Artificial intelligence,
- Machine learning technologies,
- **Fraud detection**
- Reduce false positives and therefore increase true positives!
- **Securely share and trade data for AML purposes,**
- Operational effectiveness whilst maintaining or reducing costs.

WiseBOS Enterprise Resource Planning (ERP)

- WiseBOS™ RiSC
  Risk intelligence, Scoring & Compliance
- WiseBOS™ Scr
  Customer Screening Solution

Introduction to WiseBOS RiSC module

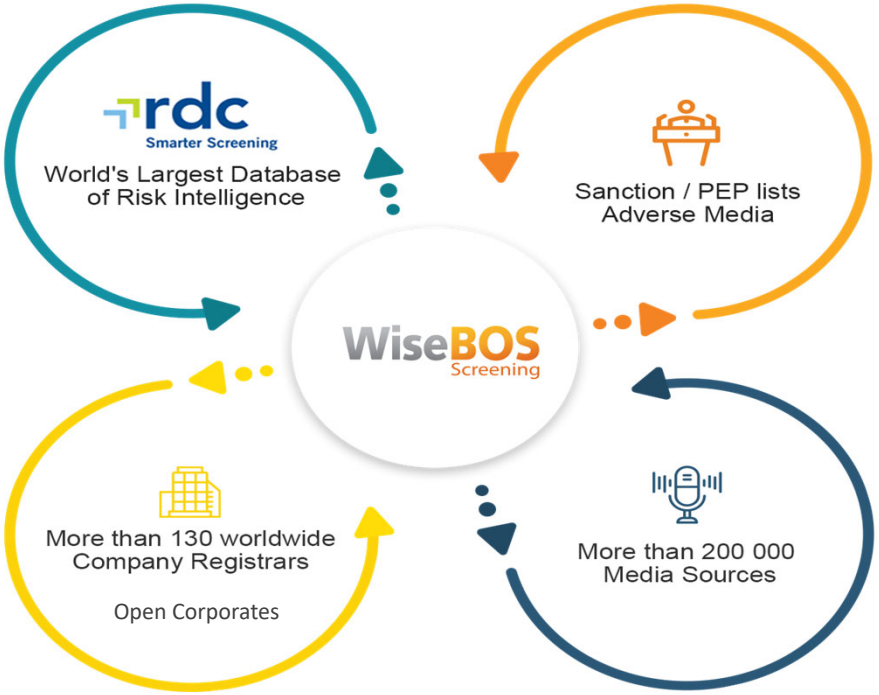
WiseBOS Risk Intelligence, Scoring & Compliance (RiSC)

- All-in advanced innovatory solution,
- Efficient and more effective risk-based compliance capability,
- **Meet & comply with the AML law & regulations,**
- Fully compliant to the latest EU **AML Directive** & fully upgradeable to support future AMLDs.

Introduction to WiseBOS Screening Module

WiseBOS Screening

- Sophisticated Customer Screening solution,
- Technology to efficiently **prevent criminal infiltration,**
- Intelligent customer screening,
- RDC (Regulatory DataCorp) - Coverage in 240 countries, 200 000 media sources,
- Machine Learning enhancing (ultimate compliance, accuracy and performance),
- 95% reduction in False positives (increase of true positives).



How does WiseBOS ERP modules relate to TRUSTS?

The Anti-Money Laundering (AML) compliance use case

- New Artificial intelligent and Machine Learning techniques,
- Integrated with EBOS' existing WiseBOS RiSC AML rules-based model,
- Evolving it into a new next generation Anti-Money Laundering data-driven model.

How does WiseBOS ERP Solution relate to TRUSTS

The Anti-Money Laundering (AML) compliance use case

Establish and validate how data shared via TRUSTS platform can feed into an existing AML solution enhanced with Artificial Intelligence (AI),

provide faster & more accurate detection of financial crime & Money Laundering,

How this enriched data can be securely traded with, via TRUSTS to interested businesses who need to perform AML checks.

AI & ML - Capabilities of TRUSTS Platform as a 'Trusted Secure Data Sharing Space' for AML purposes.

Thank you for your attention!

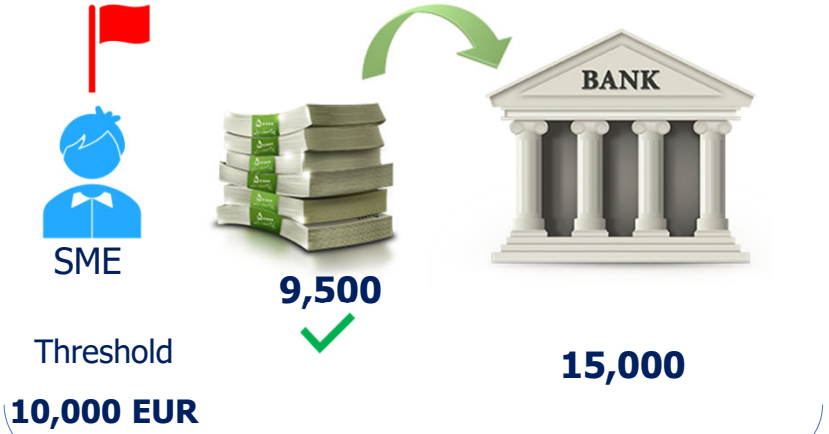
eBOS Technologies

Gianna Avgousti

giannaa@ebos.com.cy

www.ebos.com.cy

Existing rule-based process Vs TRUSTS concept



Existing rule-based process

TRUSTS

Thank you!

eBOS Technologies

Gianna Avgousti

giannaa@ebos.com.cy

www.ebos.com.cy

TRUSTS
Trusted Secure Data Sharing Space

TRUSTS in the Financial Industry / Webinar

The data acquisition to improve customer support services

Christos V. Roupas | Director of R&D | 12/11/2020

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871481

The Company

1

RELATIONAL SA…

…is an international software developer and integrator. It was founded in Athens, Greece in 1995.

Since then, the firm has grown from being one of the most promising independent software vendors of 230 employees in Greece, to an International software developer and integrator with offices in 6 European countries and a client base all over Europe, Northern and Sub Saharan Africa and the Arab Peninsula.

2

Our Vision..

… is to provide superior quality consulting, services, and products that enable momentous improvements to government and commercial organizations' value, efficiency, and productivity, and to improve their competitiveness

The Company

3

Relational has three main business lines:…

1 Since 1995 we develop critical business software solutions for the, telecoms, banking, retail, and government sectors.

2 Since 2000: we deliver integrated Business Intelligence, Data warehousing and Business Service Management solutions in cooperation with a number of leading international software vendors.

3 Since 2000 Relational through its Professional Services offers vertical market expertise to help businesses rapidly implement innovative solutions. Relational offers a range of consulting services - from developing complete technology strategies and providing product implementation assistance, to conducting specific technology and architecture assessments that support the distribution of information throughout the enterprise.

COMPANY EVOLUTION

ESTABLISHED IN

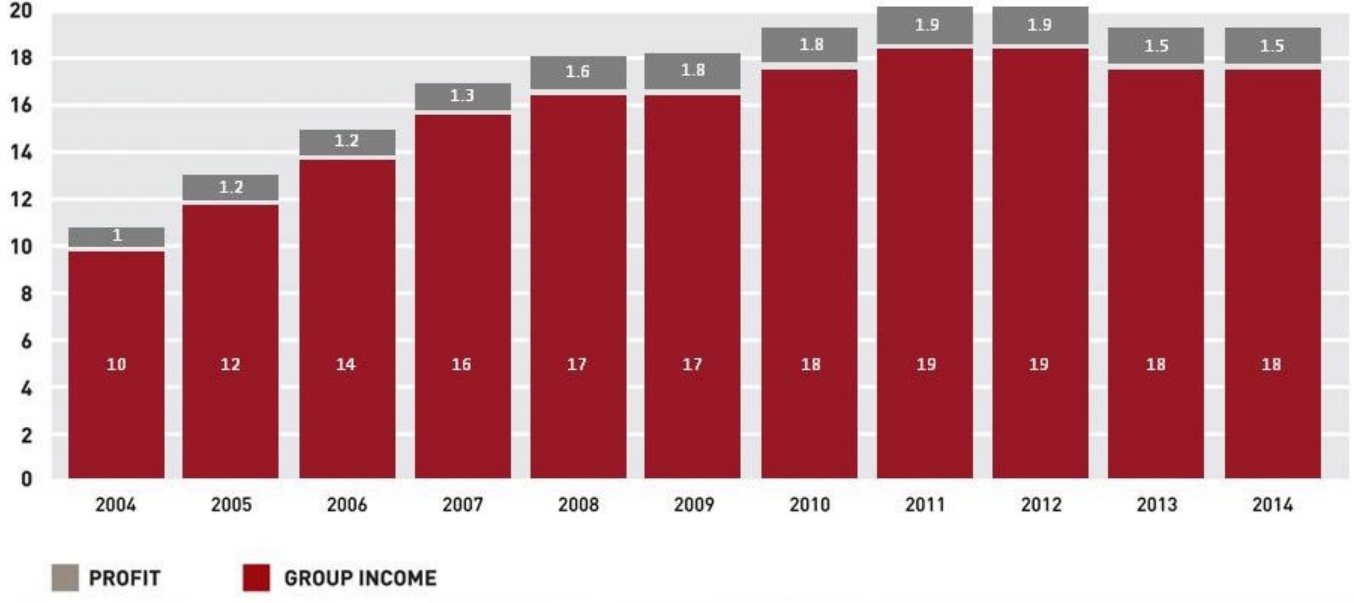
1995

STEADY GROWTH

MILESTONE:
EXPANSION ABROAD

7M €

2013 SUBSIDIARIES' CONTRIBUTION



INTERNATIONAL PRESENCE

TRUSTS
Trusted Secure Data Sharing Space

AroTRON Description

- AroTRON™ is a comprehensive solution for streamlined, customer-centric Collections and Recoveries management, covering all stages of the arrears lifecycle. AroTRON™ makes full use of advanced productivity features, such as the Decision Engine module, management dashboards and MIS reporting, along with unified automated communication through automated dialing, SMS and e-mail.
- AroTRON™ is considered market leader in Greece, with over 30 successful implementations in 5 countries,deployed in some of the biggest and most prestigious Banks, Financial institutions, and Legal firms, supporting over 1.500 business users.

KEY CHALLENGES

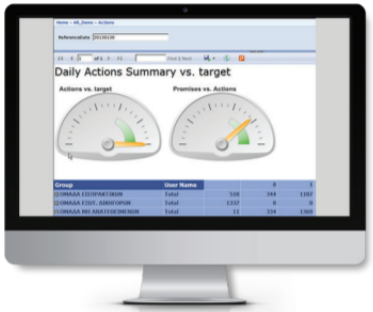
Information resides in heterogeneous systems and under different business models requiring special handling regarding:

- Customer-centric approach
- Data quality
- Data identification
- Decisions & strategies rely in processing large amounts of data.
- System availability must be maximized for round- the-clock process support.
- Complex legal processes in association with lack of automation resultin in low productivity and low recoveries from cases in litigation

ON-LINE METRICS & DASHBOARDS

Selected metrics that are defined as On-Line can be monitored by supervisor personnel using the On-Line Monitoring Grid and Graph environment.

- A number of filters are provided to support efficient monitoring of:
- Call center agent activity
- Specific team activity
- Specific branch / unit activity
- Specific agent activity



DOCUMENT AUTOMATION MANAGEMENT

- It supports the generation of all company document templates in Microsoft Word.
- It generates documents automatically with the push of a button and combines all the information that has been entered in AroTRON™ relating to a specific customer case.
- The system also generates a unique code number to ensure proper identification and matching of documents. Documents that can be supported include sales documents, offer documents, mass mailing documents, etc.
  - Documents are generated server-side so no full license of MS Word is required for each agent
  - Integration with i-Apply Document repository

Use Case 3 Analysis

The data acquisition to improve customer support services use case

The TRUSTS Data Marketplace vision through UC3 is todemonstrate the capabilities of the TRUSTS Platform to create an out-of-the-box analytics solution for the anonymisation and visualization of Big Financial Data, **specifically to advance new ways of human-computer interaction currently in their infancy, such as chatbots that can act as automated assistants to allow customers to converse about the management of their debt at their own pace and with a personalized experience, through the integration of Big Data.**

The **actors** involved in Use Case 3 are:

Data Provider/End User (Banking Organization/Creditor: Alpha Bank): Provider of financial/personal data, purchase of anonymised telecommunication customer data and targeted marketing analysis. Anonymization of data for privacy preservation. Data cleaning and pruning to reduce noise and useless entries. Model training and iteration of extraction/cleaning process if needed.

Service Provider (REL): Extraction of key data from core banking systems, REL main contribution is to provide and advance in their products Relational Romania will bring the AroTRON Collection & Recoveries to test and validate improved and more natural ways of communications and debt collection for banks. REL will be the leading partner of WP2 on Natural Interaction and will coordinate the work under this demonstrator. REL is an experienced partner both in terms of coordination and management of collaborative European projects as well as software provider to the finance and banking sector.

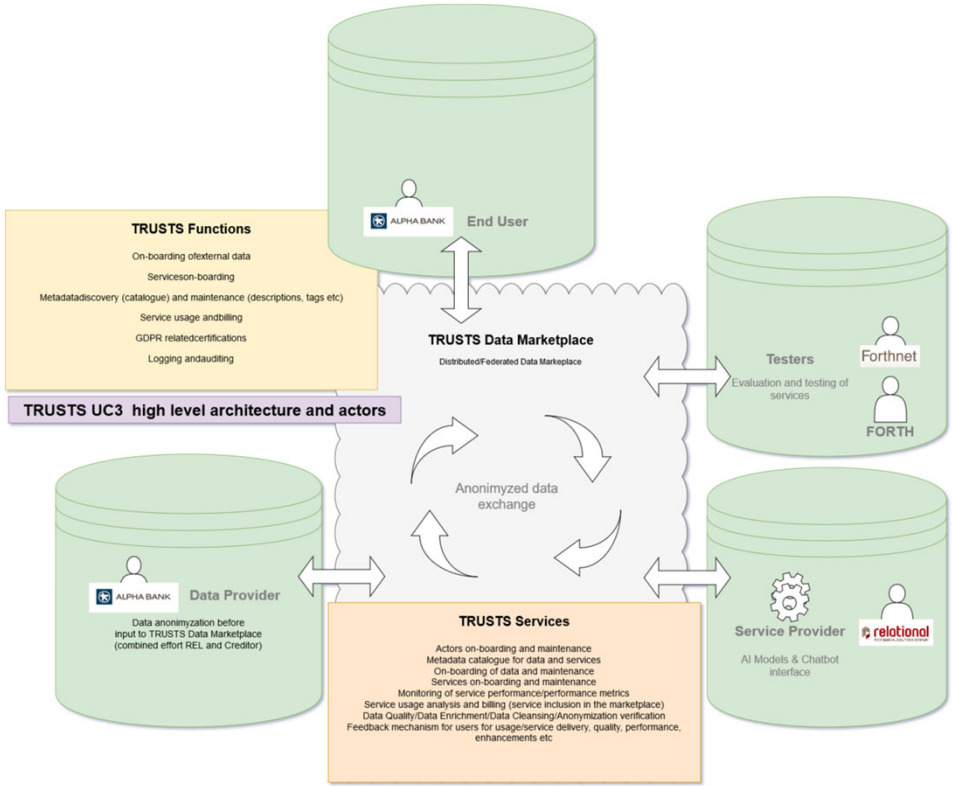
FNET (Tester): Will provide to the new communication channel data from custom web and mobile clients for the end customers as well as a customer support module for the agents that will allow them to handle many conversations with end-customers at the same time.

FORTH (Tester): Will contribute to the improvement of the conversational UI's provided by the virtual agents that will be employed for the realization of the use case, providing tailored-made for social interaction, customer motivation and encouragement and assisting. FORTH will also devise the necessary anonymization and data correlation services for data interchange and interoperability between the virtual agents and the provider (e.g., FNET).

To this end, FNET will use the REL service in order to evaluate it for technical usability. FNET agents will evaluate this service.

Use Case 3 Analysis

The data acquisition to improve customer support services use case



Use Case 3 Analysis

The data acquisition to improve customer support services use case

UC3 Process

Relational (REL), in collaboration with the Creditor/Banking Organization will perform data anonymization/masking techniques that will protect and anonymize input data owned by the Creditor, just before any interaction with TRUSTS data marketplace to prevent any issues regarding data privacy.
According to our existing preliminary analysis, the AI models can be trained on anonymized data and we expect to deliver the KPIs without access to personal data.
REL will provide AI models related to debt collection that will get trained and will evolve using all input data available on the marketplace, related to Use Case 3.

In the context of UC3 scope, REL will **develop the following two services:**

- Automated decision making on the next-best-action for curing the debt collection issue using AI models trained from the data retrieved from the Marketplace.
- Automate communication with debtors using chat-bot technologies. Bot interactions again will utilize both the behavioural history but also would need a history of chat/messaging interactions.

Use Case 3 Analysis

The data acquisition to improve customer support services use case

TRUSTS operational functions/operations

In order to sustain its operation TRUSTS should support the following operational functionality:

- On-boarding of external data
- Services on-boarding
- Metadata discovery (catalogue) and maintenance (descriptions, tags etc)
- Service usage and billing
- GDPR related certifications
- Logging and auditing

Use Case 3 Analysis

The data acquisition to improve customer support services use case

Use Case 3 specific services

The required TRUSTS services for UC3 are:

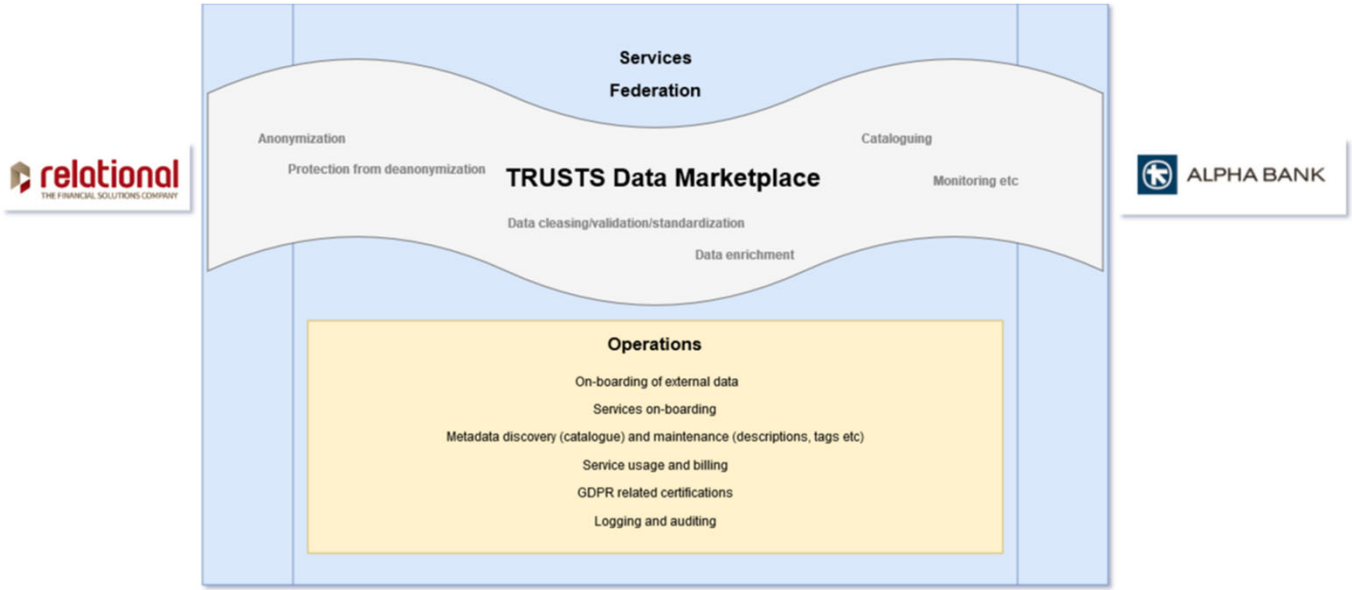
- Actors on-boarding and maintenance
- Metadata catalogue for data and services
- On-boarding of data and maintenance
- Services on-boarding and maintenance
- Monitoring of service performance/performance metrics
- Service usage analysis and billing (service inclusion in the marketplace)
- Data Quality/Data Enrichment/Data Cleansing/Anonymization verification
- Feedback mechanism for users for usage/service delivery, quality, SLA performance, enhancements etc

The services listed above will be implemented on and **will benefit from TRUSTS federated infrastructure**, by the following ways:

- Multiple data providers will offer their data, so, especially for UC3 this will be very important for the quality of the results (the more data, the better AI built models).
- Change of business model that will transform an on premise based service to the model of SaaS.
- Standardization of data and their supporting metadata.
- Common service re-use (anonymization, secure data exchange, data correlation, data cleansing/validation/enhancements/standardization etc).

Use Case 3 Analysis

The data acquisition to improve customer support services use case



THANK YOU!!

CHRISTOS V. ROUPAS

For Questions please contact:
Christos.Roupas@relationalfs.com

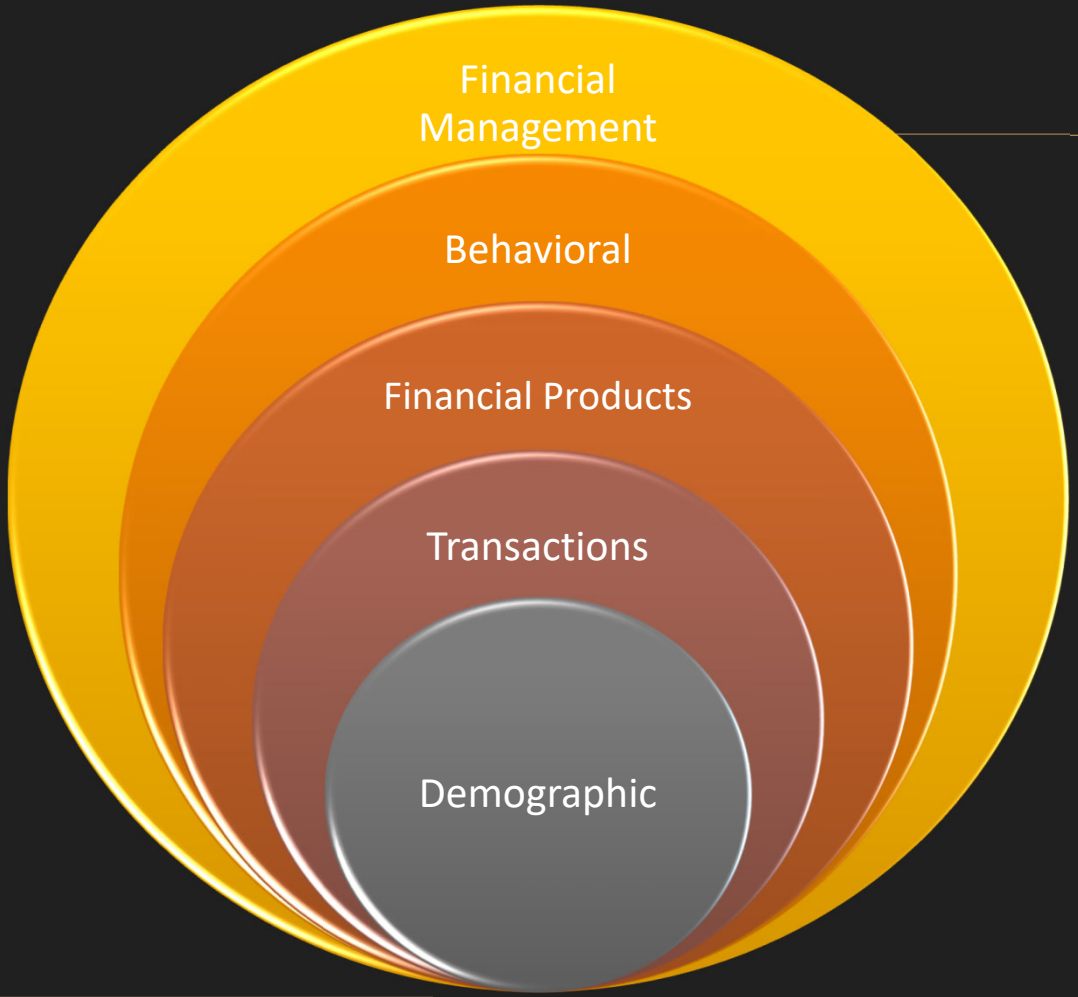
PIRAEUS BANK

TRUSTS in the Financial Industry / Webinar

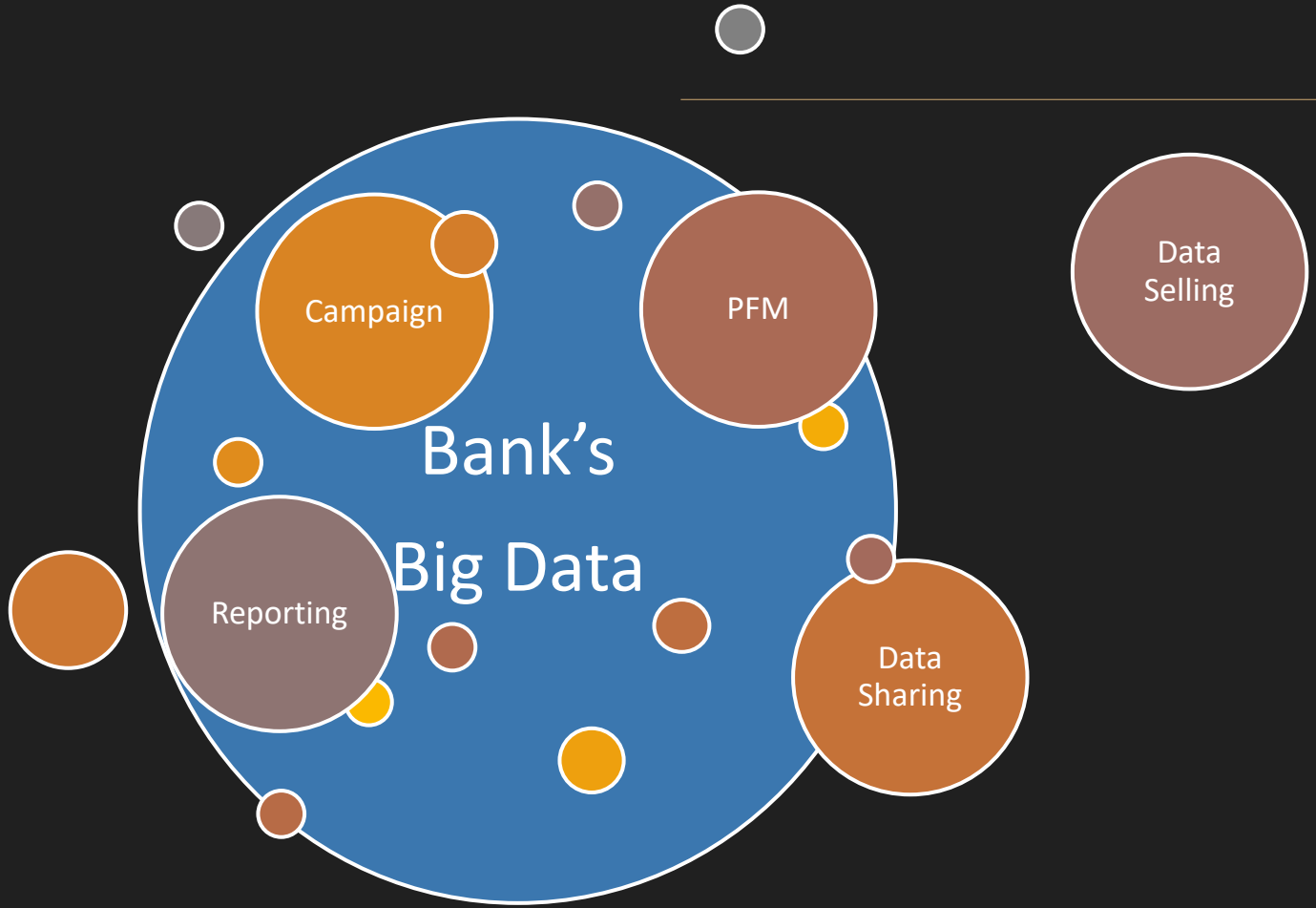
George Kostopoulos, Customer Innovation, Digital Business

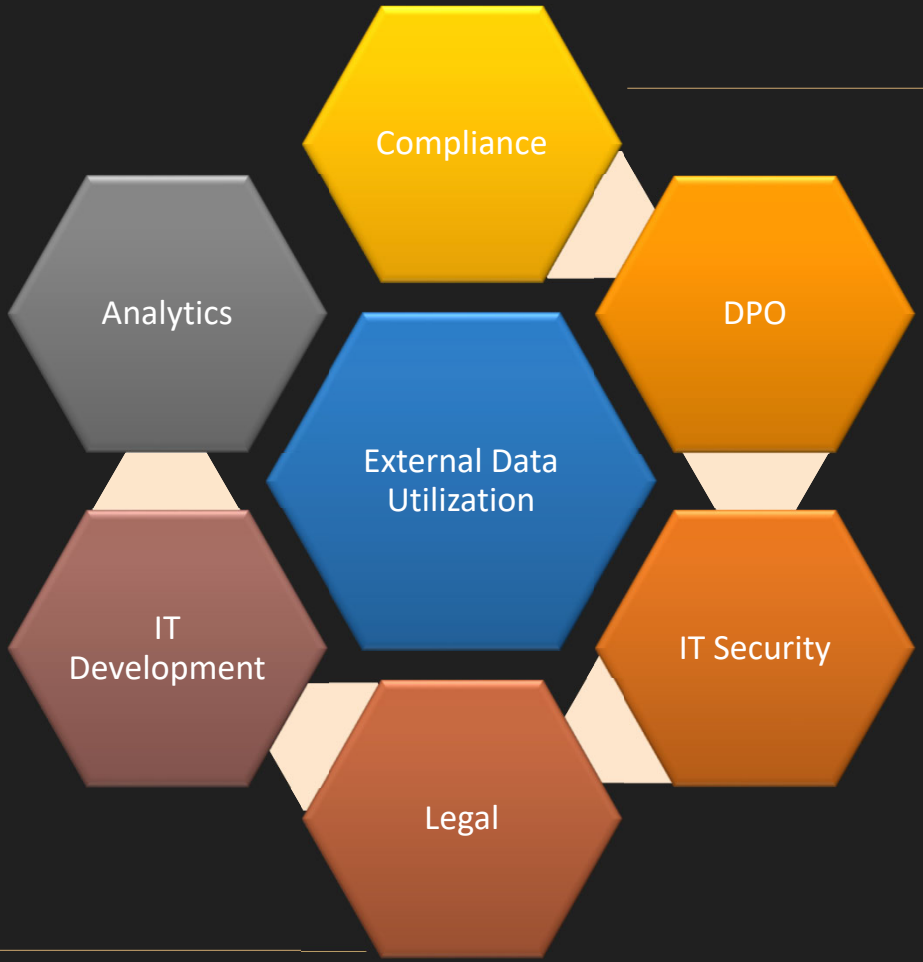
Piraeus Bank

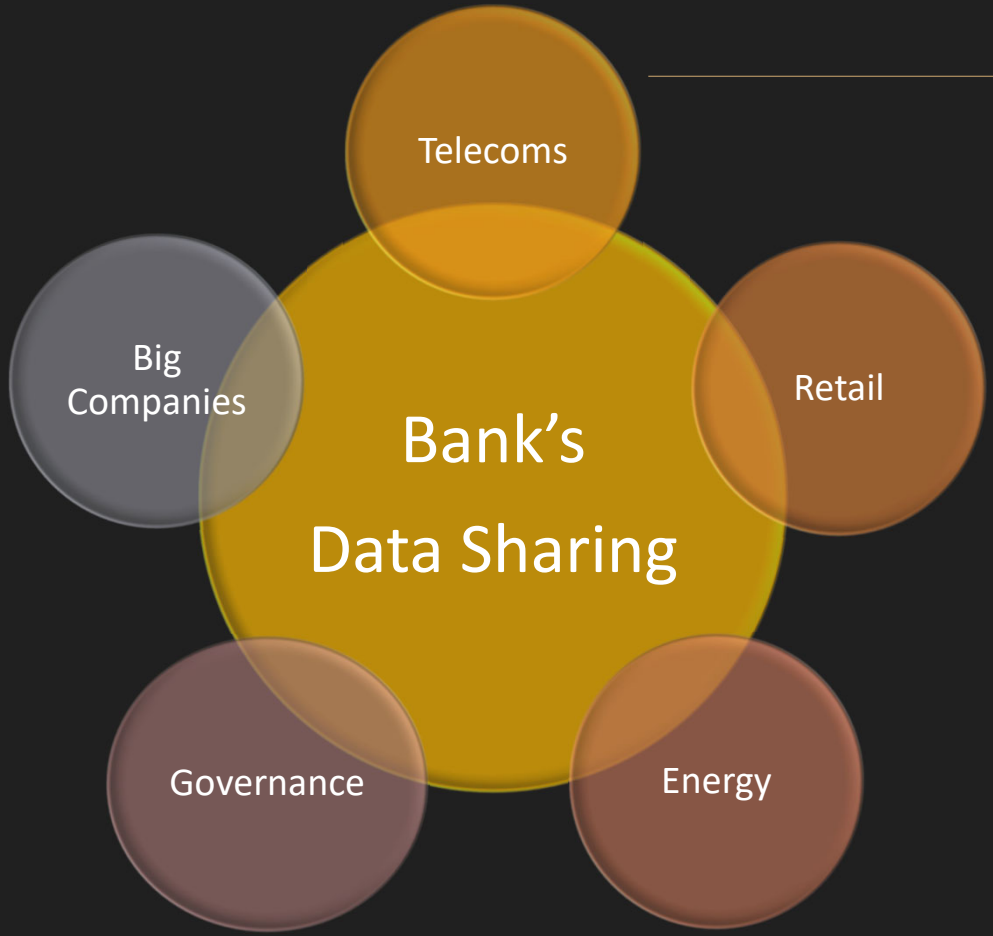
Data Exploring


Financial Management
Behavioral
Financial Products
Transactions
Demographic

Big Data


Campaign
PFM
Data Selling
Bank's
Big Data
Reporting
Data Sharing


Compliance
Analytics
DPO
External Data Utilization
IT Development
IT Security
Legal


Telecoms
Big Companies
Retail
Bank's Data Sharing
Governance
Energy

THANK YOU

Enabling data protection and data sovereignty mechanisms in TRUSTS

Benjamin Heitmann

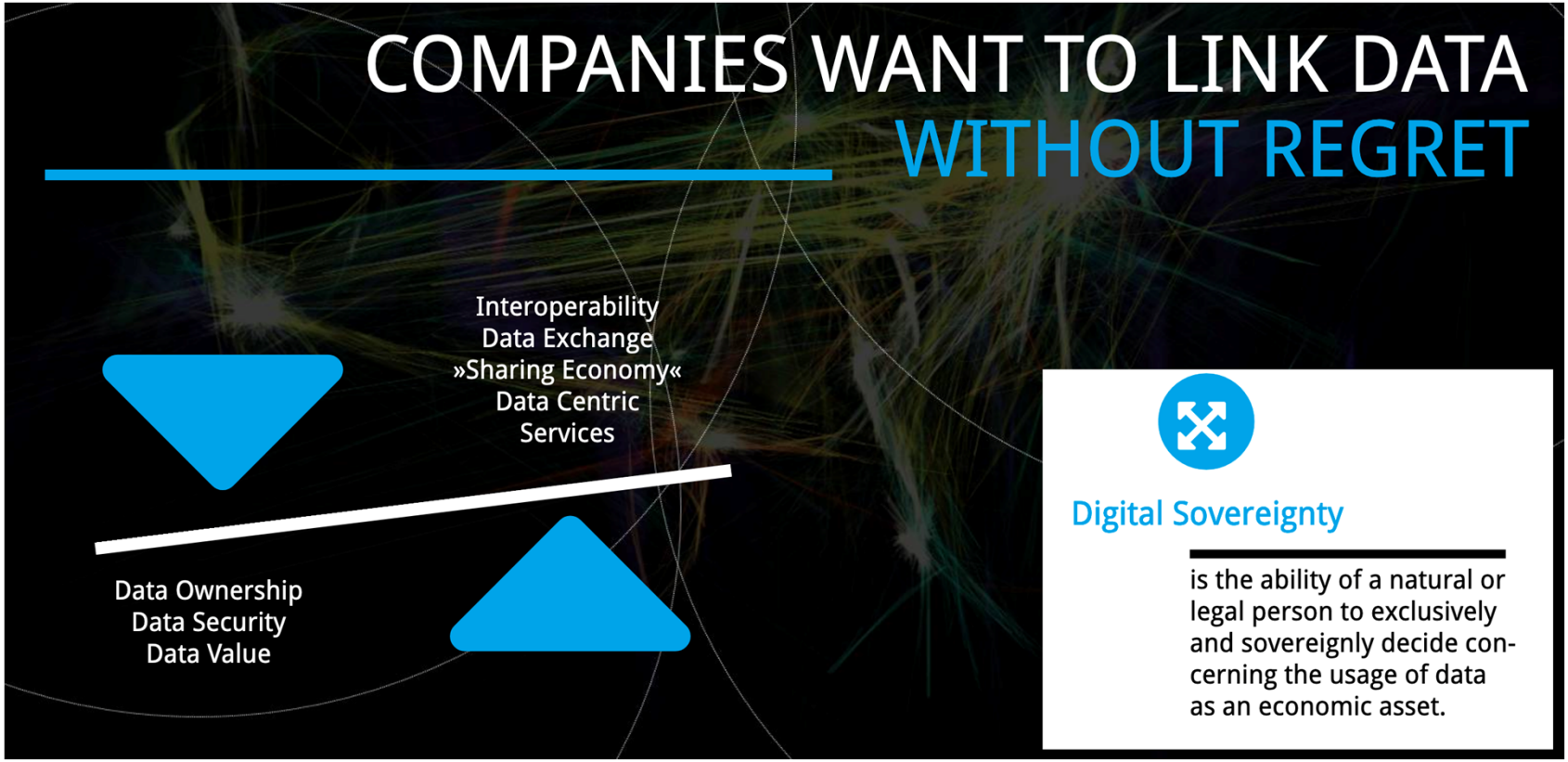
Institute for Applied Information Technology FIT, Germany.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871481

TRUSTS technical foundation: data market infrastructure

- Data sovereignty will become a critical success factor for data sharing.
- TRUSTS is built on experiences and technology of two European data market places:
  - International Data Spaces (IDS) from Germany
  - Data Market Austria (DMA) from Austria
- Novel developments:
  - Addition of approaches for enabling and maintaining data sovereignty
  - Data governance based on semantic technologies
  - Designed for interoperability with other data market places

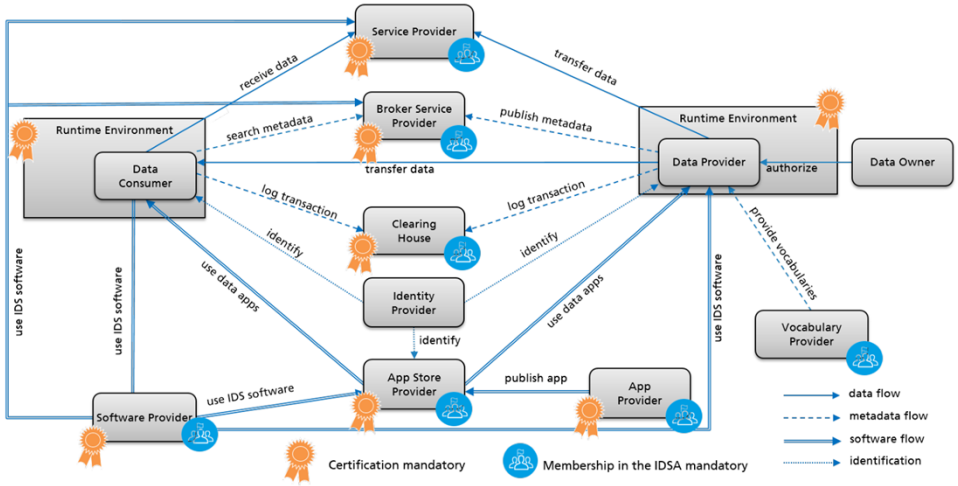
What is data sovereignty?

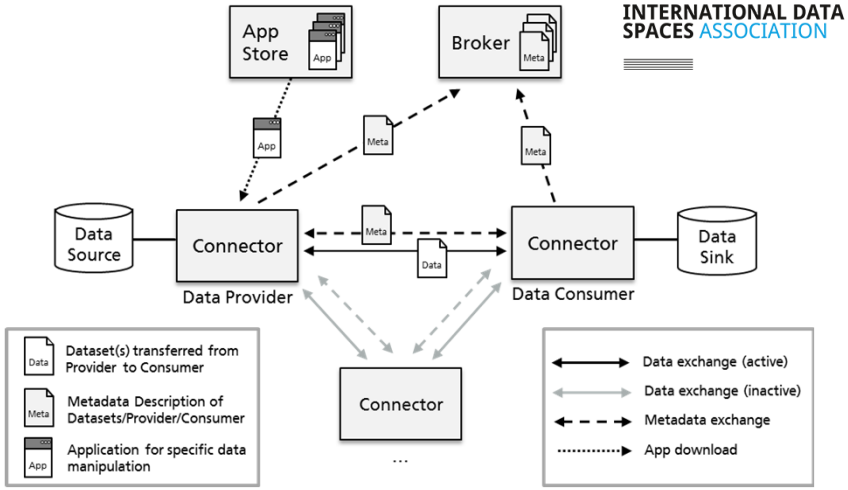


Source: International Data Spaces Association

International Data Spaces (IDS): an Architecture for Sovereign Data Exchange

- Standards-based software architecture for trusted, secure, semantically interoperable data exchange across organisations
- Digital sovereignty via data usage control (as specified by data owner; enforced technically, not just legally)
- Preparation and continued R&D by Fraunhofer since 2014, national funding since 2015, EU since 2018
- International Data Spaces Association (IDSA) founded 2016, now 100+ members





Source: International Data Spaces (IDS) Reference Architecture Model (RAM)

The role of data sovereignty in TRUSTS

- TRUSTS uses data sovereignty to unlock the value of data which currently can not be shared.
- The IDS describes different ways to achieve data sovereignty:
  - Legal contracts
  - Certification
  - Technical means:
    - Authentication and authorisation
    - Usage policies
    - **Usage enforcement**
- How to implement **usage enforcement** is a focus of TRUSTS.
- TRUSTS adds **cryptographic and statistic approaches** to IDS, in order to enable data sovereignty during data analytics and artificial intelligence processes.

TRUSTS technical foundation: enabling and maintaining data sovereignty

- Providing the components for privacy preserving data analytics is one of the most important technical goals for the project.
- Building blocks:
  - Anonymization and assessment of deanonymization risk
  - Secure Multi-Party Computation (SMPC)
  - Homomorphic Encryption (HE)
- Integrated into a framework for adapting algorithms to preserve privacy and security using the above building blocks

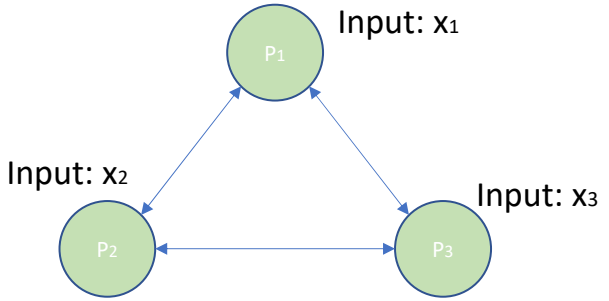
TRUSTS building block: Anonymisation

- Share data among different organization without leaking any personal data (Data owner privacy)
- Many Techniques:
  - k-Anonymity, l-Diversity, t-Closeness
  - Differential Privacy

Pros	Cons
Works well for releasing aggregate information	Not suitable for releasing granular information
Techniques are usually efficient	Hard to prevent correlation attacks with external data source, background knowledge

TRUSTS building block: Secure Multi-Party Computation (SMPC)

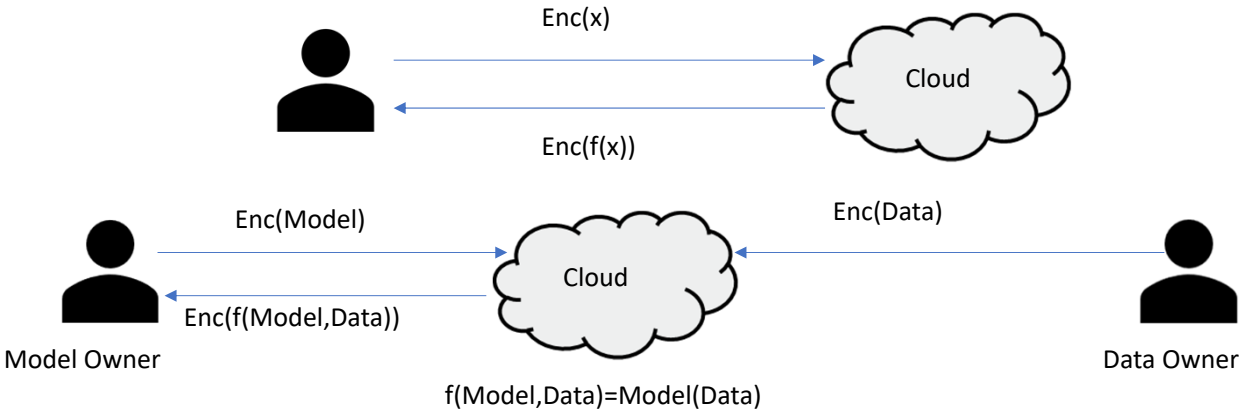
- Goal: Input privacy and correctness
- Decentralized and computation done using an interactive protocol without trusted third party
- Example:
  - f1(x1, x2, x3) = x1+ x2 + x3
  - f2(x1, x2, x3) = Max(x1, x2, x3)



Compute a function f with private inputs:
f(x1, x2, x3) = y
private public

Pros	Cons
High security guarantee with full utility	Current SMPC technologies scales poorly with large number of computational parties
Any functionality	Interactive and High communication complexity

TRUSTS building block: Homomorphic Encryption (HE)



Pros	Cons
Non Interactive, Arbitrary Functionality	State of the Art HE still not practical large data sizes
Practical solution exists if data size is small	Ciphertext size, evaluation time can be very large

Standardisation in TRUSTS

- TRUSTS will contribute to standardization efforts in the following areas:
  - Data sharing.
  - Data market places.
  - Interoperability of data market places.
- Recommendations to appropriate standardization bodies in those areas will be made.
- There will be two dedicated workshops for representatives of standardization bodies.