A FINancial supervision and TECHnology compliance training programme

RegTech Workshop II: Big Data Analytics, P2P Lending and Credit Risk

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 825215 (Topic: ICT-35-2018 Type of action: CSA)

Fintech Risk Management

- Financial Technology (Fintech) is transforming the business models of financial service providers.

- Meanwhile, incumbent banks and insurance companies are increasing investment in technological innovation by:
  - establishing horizontal units within their organisations;
  - partnering with third parties offering specialised services;
  - acquiring FinTech Startups.

- For those who are involved in FinTech it holds that:

→ Adequate risk management frameworks and processes need to be in place.

Challenges and Scope

□ Specific Challenge

- Increase the role Europe play in Fintech so that EU startups can better scale-up across Europe and at global level.
- Interactions between innovators, supervisors and regulators
- Promote the ordered and safe development of innovative and more efficient financial markets

□ Scope

- Bring together a group of regulators/supervisors to investigate new approaches for piloting innovative Fintech solutions
- Build capacity and expertise for regulators/supervisors, common understanding and interpretation of data-related policies and rules.
- Support the cross-border networking of ecosystems, hubs and accelerators focusing on Fintech, in particular to help startups
- engage with other stakeholders like established financial or insurance firms and to identify opportunities for innovation procurements in Fintech. -> Innovation hubs and regulatory sandboxes
- Envisage possible actions and technical solutions to evaluate the impact of regulation.

What do we do?

- Our goal: the FIN-TECH-ho2020 project, under the EU's Horizon2020 funding scheme, aims to create a European knowledge exchange programme, aimed at providing shared risk management solutions that **automatize compliance of Fintech companies (RegTech)** and at the same time, **increases the efficiency of supervisory activities (SupTech)**.

- Our model: knowledge exchange (SupTech and RegTech) sessions, connecting universities with supervisors and universities with fintechs, discussing the application of emerging technologies in finance (**big data analytics, artificial intelligence and blockchain**), the risks that are associated with their application (on issues related with investor or customer protection) and the state-of-art risk management tools that can address those risk and help build uniform data-driven risk management solutions.

- Our network: **24 research partners,** interacting with supervisors and FinTechs from **all European Union countries plus Switzerland.**

FinTech-h02020 Project

Who are we?

Participant organisation name	Lead	Country
University of Pavia	Prof. Paolo Giudici	Italy
Humboldt University Berlin	Prof. Wolfgang K. Härdle	Germany
ZHAW Applied Sciences	Prof. Jörg Osterrieder	Switzerland
University College London	Prof. Tomaso Aste	UK
Bucharest University	Prof. Vasile Strat	Romania
WU Vienna	Prof. Ronald Hochreiter	Austria
Panteion University	Prof. Veni Arakelian	Greece
INESC-TEC	Prof. Paola Brito	Portugal
University of Paris 1	Prof. Christophe Henot	France
Politecnico of Milan	Prof. Emilio Barucci	Italy
University College Dublin	Prof. Valerio Poti	Ireland
University of Luxembourg	Prof. Radu State	Luxembourg
Jozef Stefan Institute	Prof. Marko Grobelnik	Slovenia
University of Warsaw	Prof. Piotr Wojcik	Poland
University of Rjeka	Prof. Saša Žiković	Croatia
Universidad Complutense de Madrid	Prof. Javier Arroyo	Spain
University of Economics in Bratislava	Prof. Jana Peliova	Slovakia
Kaunas University of Technology	Prof. Audrius Kabasinkas	Lithuania
Masaryk University Brno	Prof. Oleg Deev	Czech Republic
Varna University of Economics	Prof. Stefan Vachkov	Bulgaria
University of Tampere	Prof. Lasse Koskinen	Finland
B-Hive	Dave Remue	Belgium
Modefinance	Dr. Valentino Pediroda	Italy
Firamis	Dr. Jochen Papenbrock	Germany

Network

The project network includes:

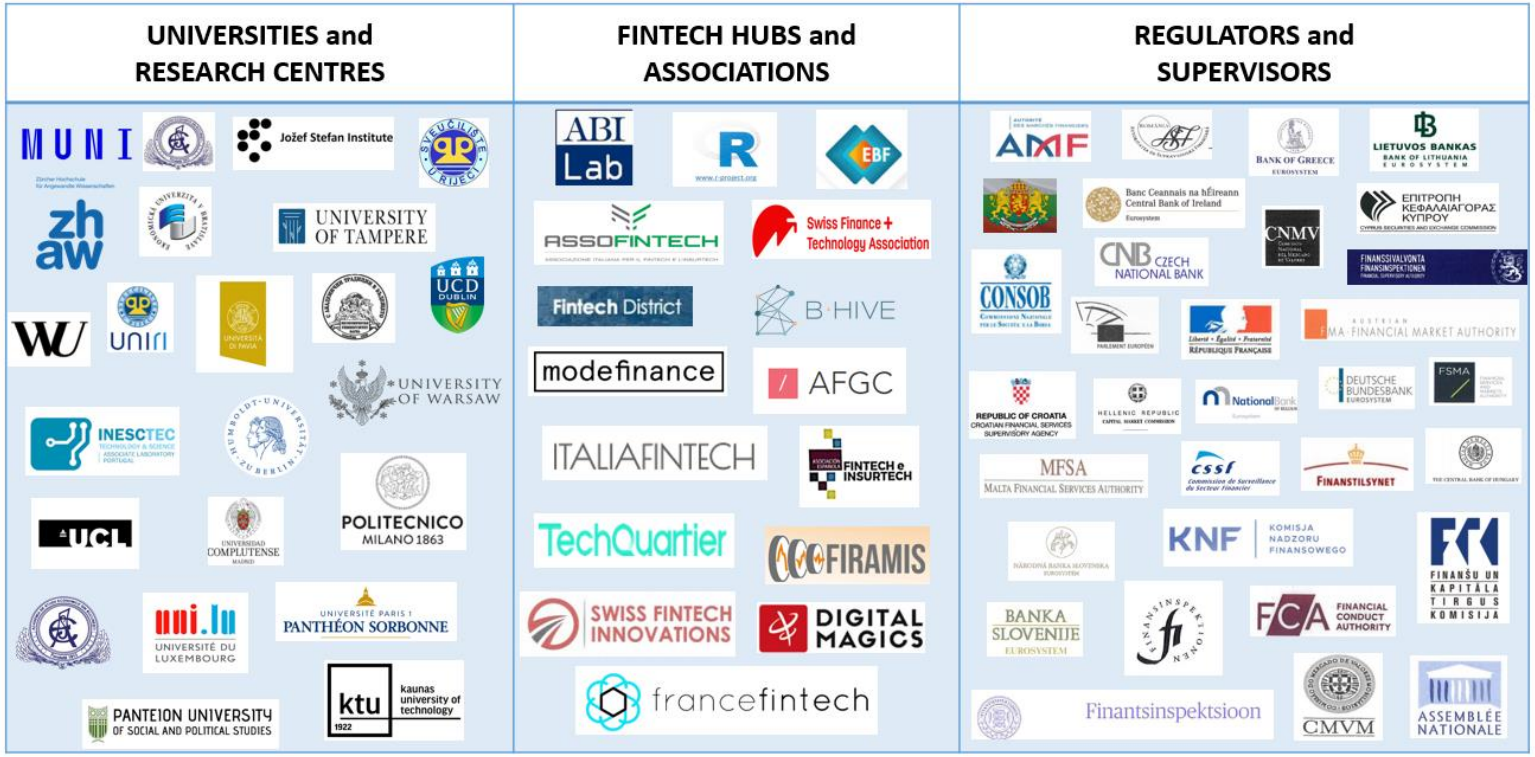
i) 24 research universities and centres

ii) 16 European fintech companies and fintech hubs

iii) The national supervisors of all 28 EU countries

iv) The international regulators (BIS, IMF, OECD, EC, EBA, ESMA, EIOPA, ECB)

v) International advisory board members



FinTech-ho2020: The Model

- Bridge the gap between fintechs and regulators concerning the risks that emerge from the fast adoption of emerging technologies in (support of) the provision of financial services, i.e.:

  - Big Data Analytics
  - Artificial Intelligence
  - Blockchain

- Introducing **fintech risk management tools that can address the identified risks**.

Building blocks

RESEARCH FRAMEWORK:

6 RESEARCH WORKSHOPS

3 HORIZONTAL WORKSHOPS, TO DEVELOP USE-CASES BASED ON REGULATORS' PRIORITIES

3 VERTICAL WORKSHOPS, TO VALIDATE THE DEVELOPED USE CASES

SUPTECH FRAMEWORK:

3 X 29 SUPTECH WORKSHOPS

EACH WORKSHOP CONSISTS OF **16 HOURS OF TRAINING** FOR THE CORRESPONDING NATIONAL SUPERVISOR, BASED ON THE **USE-CASES** DEVELOPED BY THE PROJECT

REGTECH FRAMEWORK:

6 REGTECH WORKSHOPS

EACH WORKSHOP CONSISTS O**F 6 HOURS OF PRACTICAL TRAINING ,** WHERE FINTECHS AND BANKS CAN REPLICATE THE PROJECT'S **USE CASES** THROUGH CODING SESSIONS

EVALUATION FRAMEWORK:

ALL PROJECT'S WORKSHOP FEEDBACKS ARE ELABORATED INTO AN INTERMEDIATE AND A FINAL EVALUATION REPORT.

ALL PROJECT'S DELIVERABLES ARE EVALUATED BY A PANEL OF ADVISORS WHO ELABORATE AN OVERALL EVALUATION REPORT

COMMUNICATION FRAMEWORK:

A DEDICATED PLATFORM INTEGRATES ALL PROJECT DELIVERABLES (RESEARCH PAPERS, USE CASES AND TRAINING SLIDES)

THE WEBSITE IS LINKED WITH **SOCIAL NETWORK CHANNELS**, TO ENGAGE ALL STAKEHOLDERS.

Research Framework

Collection of Use Cases

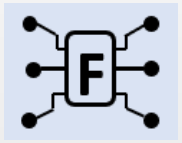
- [ ] Identify main applications
- [ ] Identify main risks [customer/investor protection, financial stability]
- [ ] Develop fintech risk management tools that address the identified risks

Knowledge Exchange Framework

Dissemination

- [ ] SupTech Trainings
- [ ] RegTech Workshops
- [ ] International Research Workshops

Knowledge Exchange Platform: Individual Formats

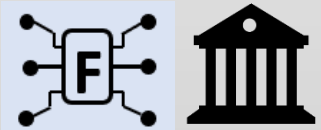


FinTechs

- Collection of use cases (business models/applications/regulatory concerns)
- RegTech Workshops (practical implementation of solutions that help address specific risk or regulatory concerns)

Regulators

SupTech Workshops (overview of emerging technologies, **presentation of use cases (business models/applications/regulatory concerns**, risk concerns, state-of-art risk management tools)



Joint

- Research Workshops [on Big Data Analytics, AI and Blockchain]
- Joint Platform

Knowledge Exchange: Summary Stats

- 84 SupTech Workshops (some are open events)
- 6 RegTech Workshop
- 3 International Research Workshops [joint discussion between regulators, fintechs and academics]

4TH SEPTEMBER 2019 in Winterthur
REGTECH WORKSHOP - AI-BASED SOLUTIONS FOR FINANCE

8.30 – 09.00	Registration
9.00 – 09.30	Opening
09.30 – 10.15	AI-based solutions in Finance: An Overview
10.15 – 11:15	Coding Session: Use Case I - On the Effectiveness of Portfolio Composition Techniques to Build Stable and Sound Robo Advisory Portfolios
11.15 – 11.45	Coffee Break
11.45 – 12.45	Coding Session: Use Case II - Convergence and Divergence in European Bond Correlations
12.45 – 13.00	Q&A and Discussion
13.00 – 14.30	Lunch

AI-BASED SOLUTIONS IN FINANCE

This workshop coding session part of the European Project "Fin-Tech HO2020", set up to explore the opportunities offered by **Artificial Intelligence applied to portfolio management and robo-advice.**

The coding session will demonstrate how to implement open source scripts on: asset allocation, MIFID risk profile and compliance risk management.

Working alongside **ZHAW's team,** participants will learn how to **apply data science in the development of predictive models for risk evaluation**, improving their coding and analytics skills.

SKILLS REQUIRED

In order to provide a worthwhile experience to all participants, desired background and skills are:

- math, physics, statistic or engineering background

- coding knowledge: R

- ideally numerical analysis competences

European Commission

FINTECH RISK MANAGEMENT

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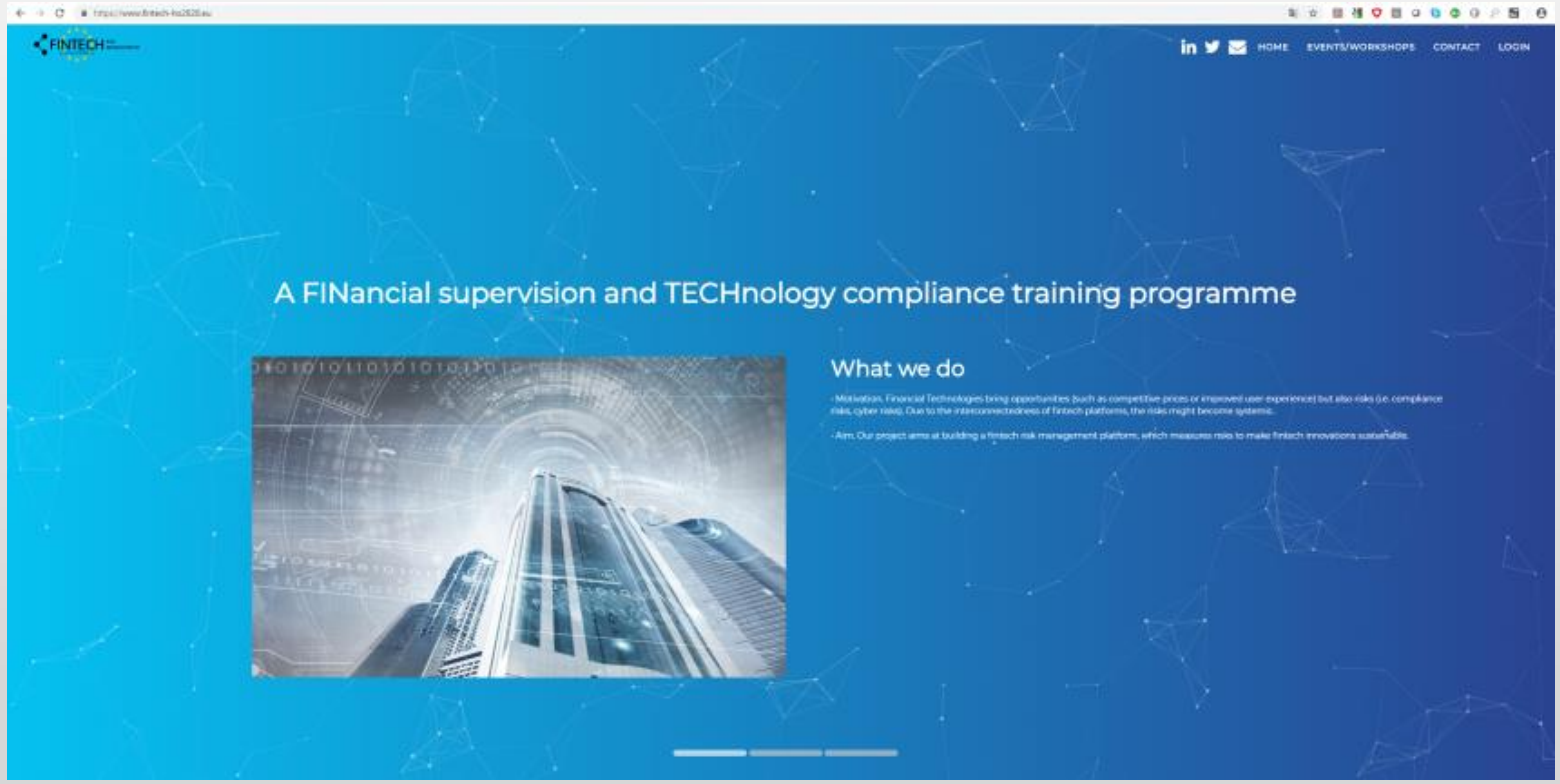
To register your attendance, please visit the following link

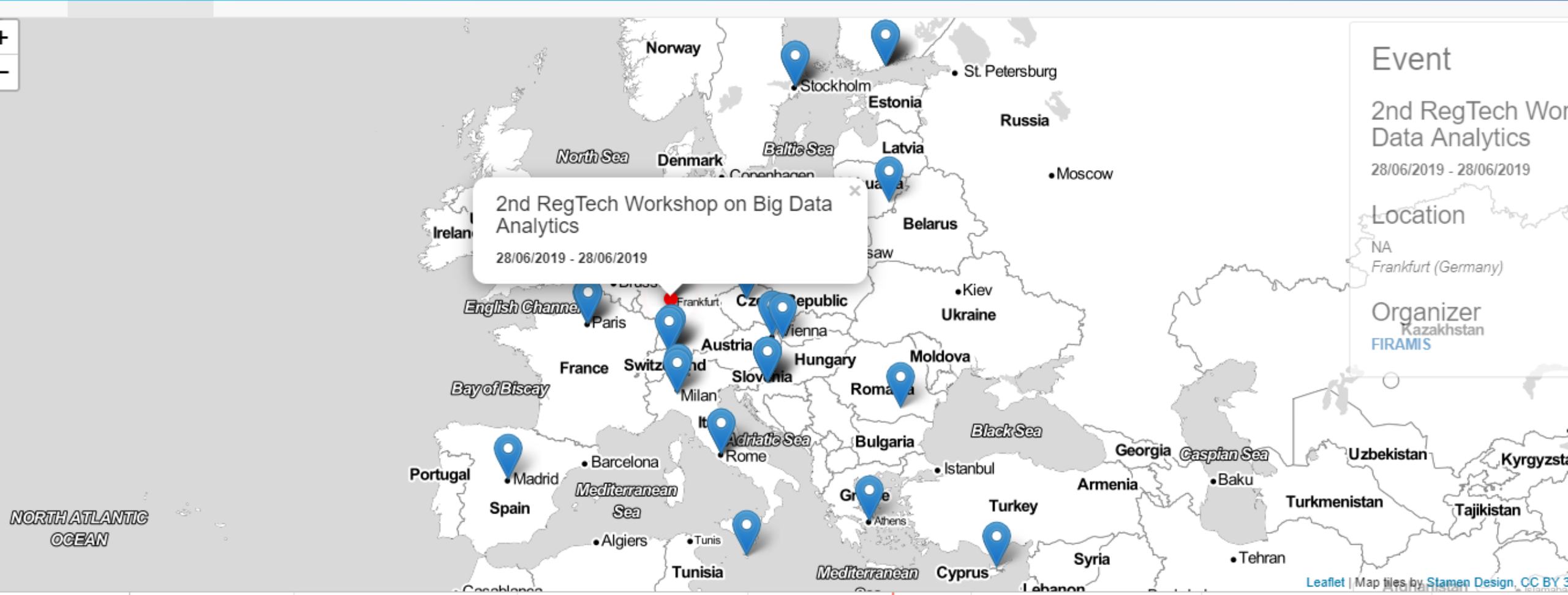
- 1st European Workshop on Risk Management and Big Data Analytics
- 3rd September 2019
- ZHAW, Winterthur

	Panel: The FinTech Disruption
09.30 – 11.00	I New approaches for piloting innovative Fintech solutions; Opportunities for big data analytics adoption by the financial sector, particularly in the context of risk management I **Speakers from the European Banking and Fintech sector**
11.00 – 11.30	**Coffee Break**
	Panel: Regulatory Perspective
11.30 – 13.00	I The emerging landscape of FinTech regulation; Challenges to financial regulation and stability I **Speakers from the Bank for International Settlements, Financil Stability Board, Asian Development Bank, European Central Bank.**
13.00 – 14.30	**Lunch**
	Panel: Academic Perspective
14.30 – 16.30	I Presentation of Use Case - State of the art risk management models that increase the effectiveness and efficiency of supervisory activities, while facilitating regulatory compliance for FinTechs; Discussion on Future Research I **Speakers from University of Pavia, University of Paris 1 Pantheon-Sorbonne, University Collage London**

Joint Platform

www.fintech-ho2020.eu



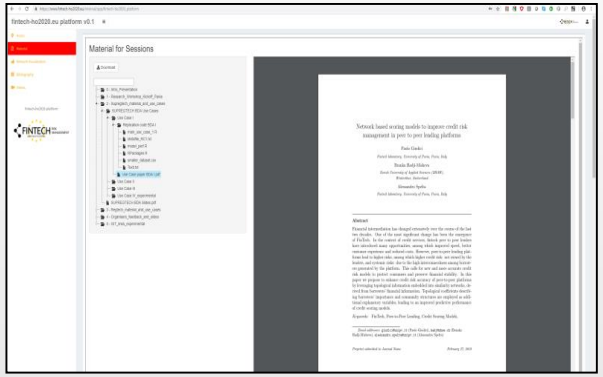


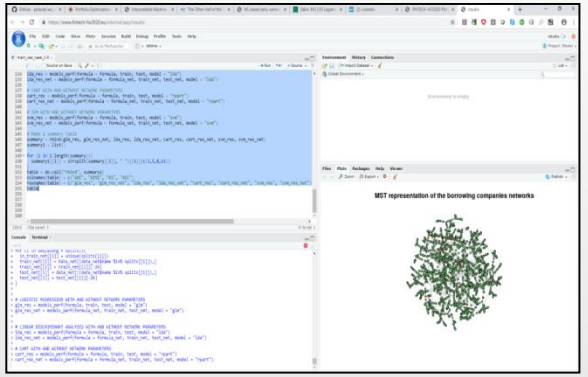
gTech Workshop
RegTech Workshop on Big Data Analytics
2nd RegTech Workshop on Big Data Analytics
3rd RegTech Workshop on AI in Fina
search Workshop
BDA Model Validation
Tech Workshop
n-Project Event
Apr
May
Jun
Jul
Aug
Sep
2019

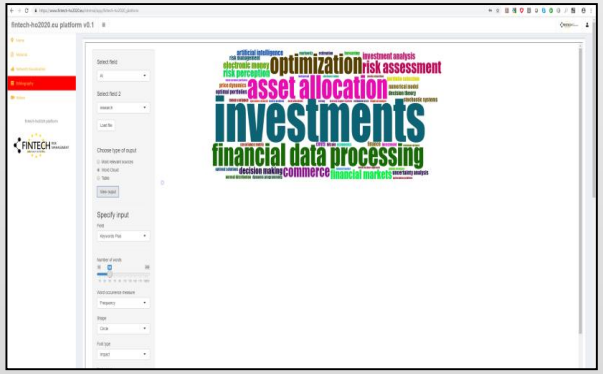
Events

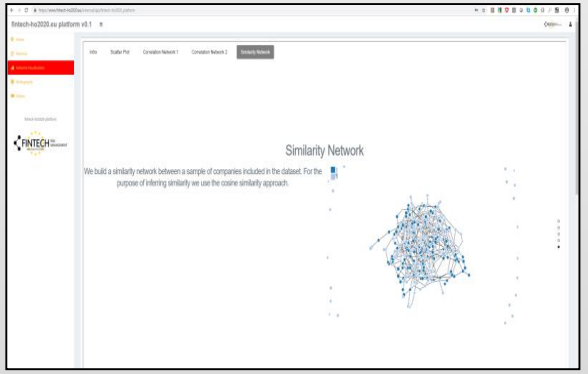
https://www.fintech-ho2020.eu/internal/login

- Workshop presentations
- Links and articles
- Paper repositories
- Model demonstrations and coding use cases
- Workshop videos
- Event maps
- Digital learning tools
- Complex data visualisations





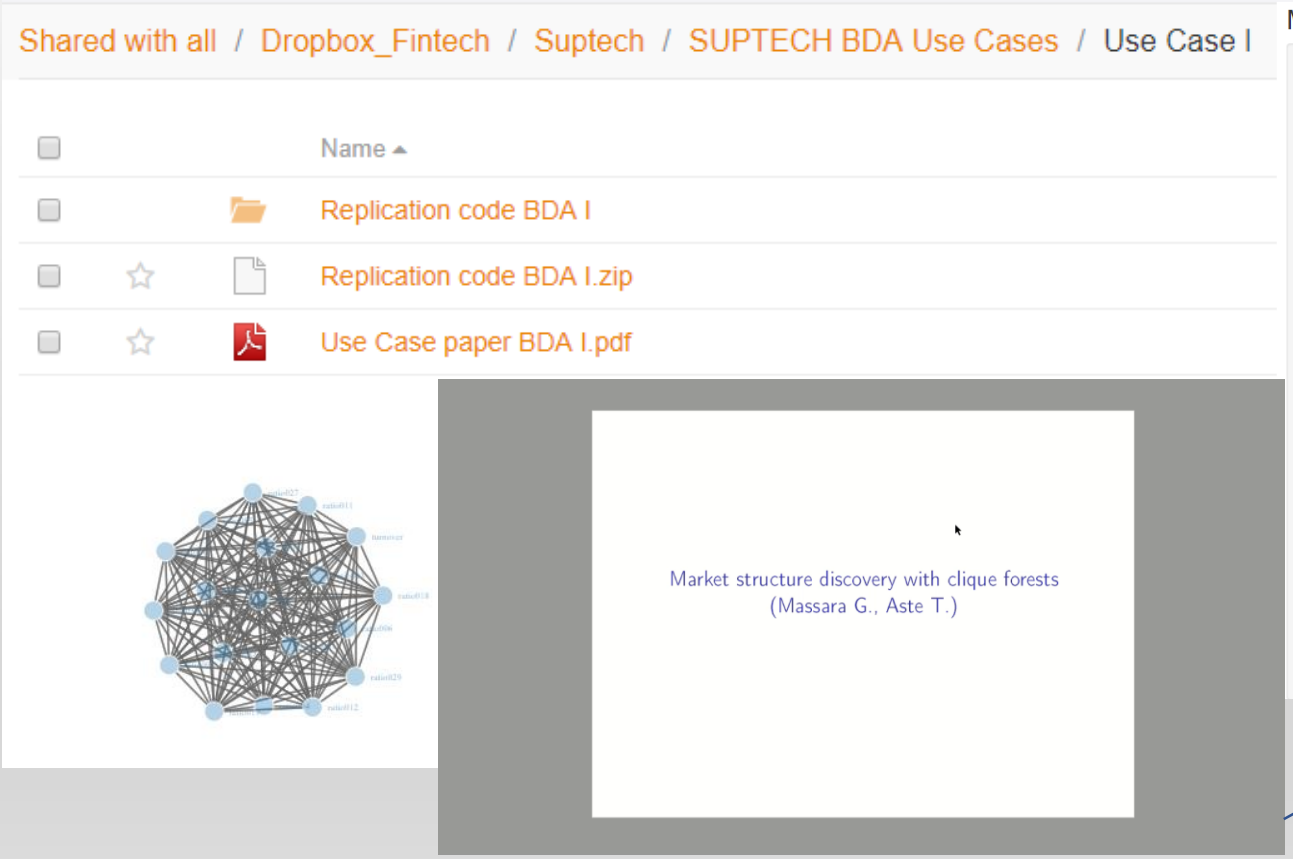


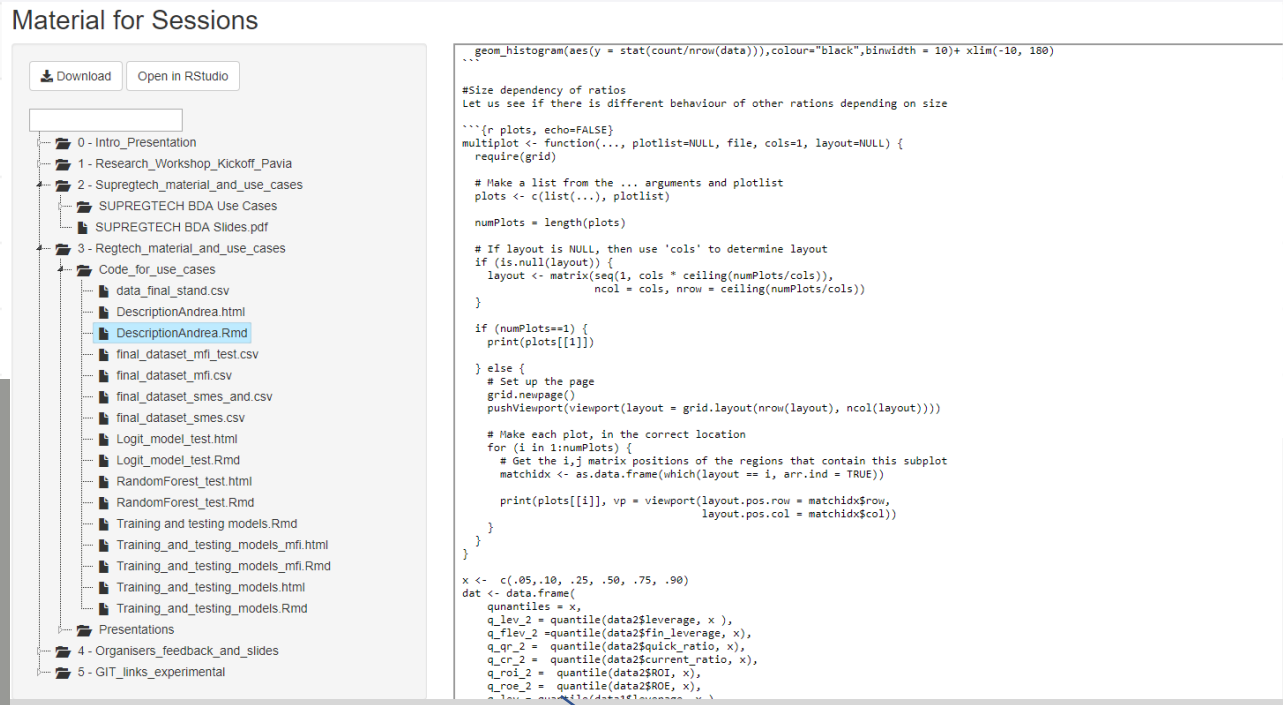


Knowledge and Coding Platform

Knowledge Exchange

- Online platform accessable to all stakeholders





AI-based solutions in Finance

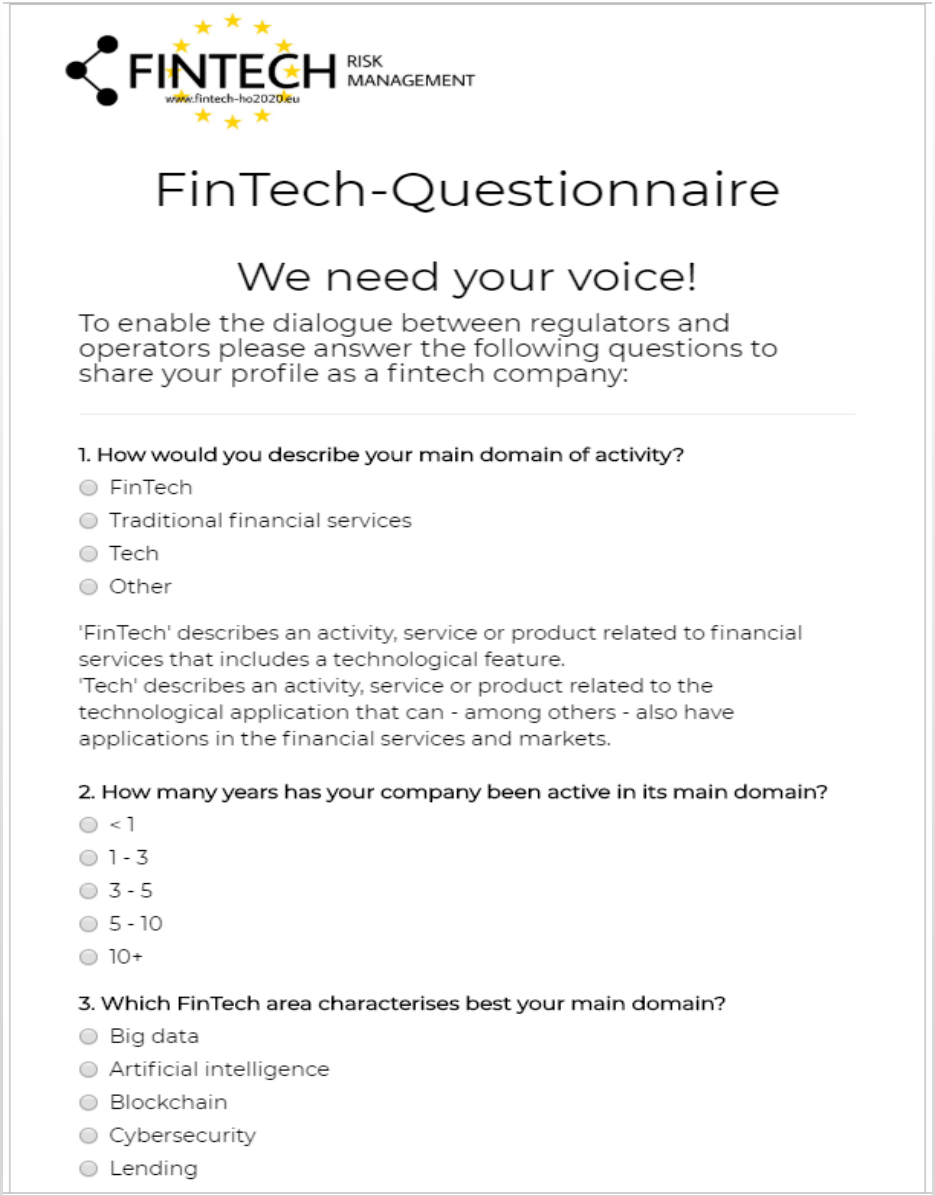
Improving Scoring Model

Questionnaire for Fintechs

- Dialogue between regulators and fintechs
- Express opinions, viewpoints
- shed light on the areas of improvement and the criticalities in the relation with regulators and supervisors

https://www.fintech-ho2020.eu/free/app/survey_impact_regulation

Obstacles to fintech scaling →



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FinTech-Questionnaire

We need your voice!

To enable the dialogue between regulators and operators please answer the following questions to share your profile as a fintech company:

1. How would you describe your main domain of activity?
- FinTech
- Traditional financial services
- Tech
- Other

'FinTech' describes an activity, service or product related to financial services that includes a technological feature.
'Tech' describes an activity, service or product related to the technological application that can - among others - also have applications in the financial services and markets.

2. How many years has your company been active in its main domain?
- < 1
- 1 - 3
- 3 - 5
- 5 - 10
- 10+

3. Which FinTech area characterises best your main domain?
- Big data
- Artificial intelligence
- Blockchain
- Cybersecurity
- Lending

https://www.fintech-ho2020.eu/free/app/evaluation-regtech-frankfurt

https://www.fintech-ho2020.eu/free/app/evaluation-regtech-frankfurt

FINTECH RISK MANAGEMENT

A FINancial supervision and TECHnology compliance training programme

REGTECH WORKSHOP II Big Data Analytics , Frankfurt, June 28th 2019 , TechQuartier
Evaluation Form

Role *

Consortium partner

Please evaluate the contents of the workshop with comments on specific parts and suggestions for future events.

Please indicate which use case was best (if there was more than one) *

- 1
- 2
- 3
- no use case covered

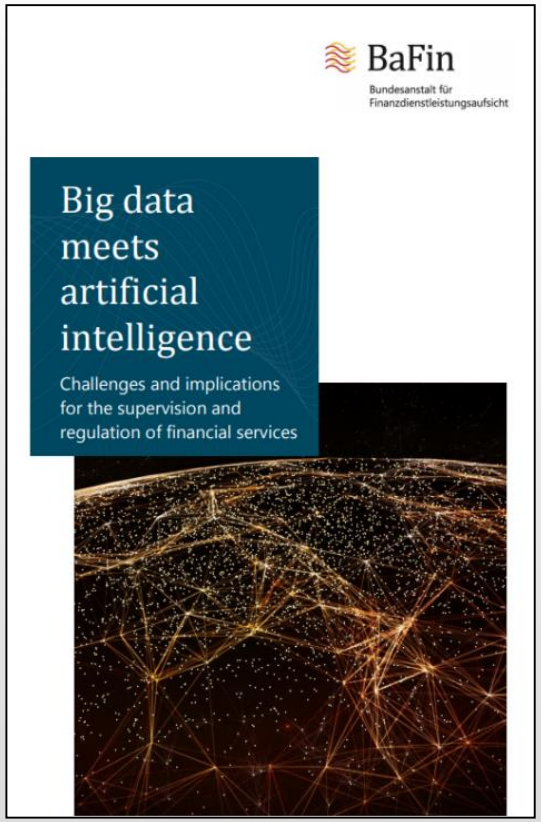
Please evaluate the use cases' explainability on a 1-5 scale (1=low; 5=high) *

- 1
- 2
- 3
- 4
- 5
- no use case covered

Please evaluate the use cases' predictive acccuracy on a 1-5 scale (1=low; 5=high) *

- 1

Evaluations



Black box models will not be accepted.

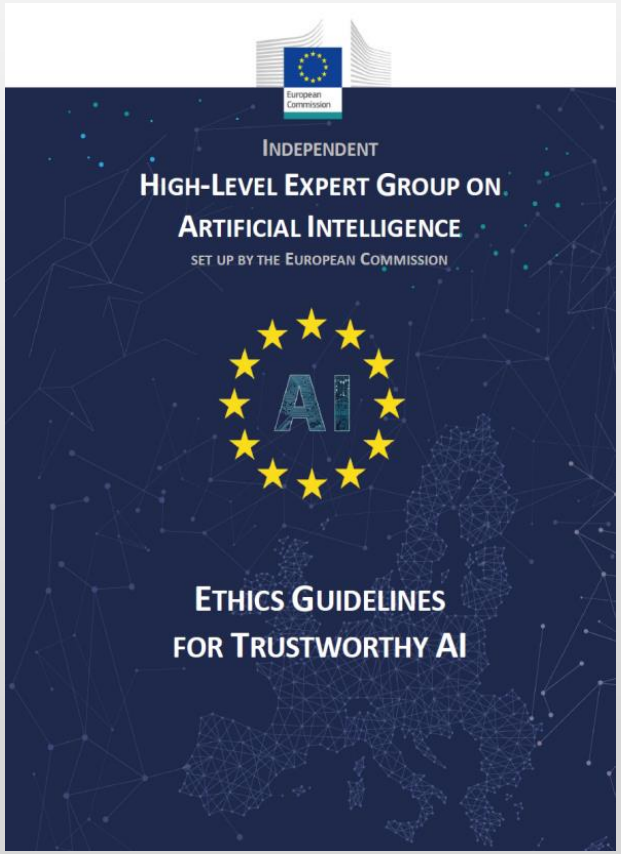
Explainable AI can help!

Explainable AI (XAI):
businesses must justify how their models arrive at their decisions. To build trust with users and stakeholders, application leaders must make these models more interpretable and explainable.

- common level of model understanding of all stakeholder
- model validation
- benchmarking

Black Boxes and XAI

Trustworthy AI



FinTech-h02020 Project

FIRAMIS

FINTECH RISK MANAGEMENT

The role of Firamis in this project

The role of Firamis in this EU project

- member of the executive committee
- work package leader for dissemination, evaluation, coding infrastructure and model implementation
- event and workshop organisation: the 6 RegTech workshops, financial industry workshops, SupTech workshops
- enhance the project network and co-represent the project

Firamis team involved

Alexander Deierling

Dr. Alla Petukhina

Niklas Bussmann

Dr. Dimitri Marinelli

www.fintech-ho2020.eu

LinkedIn: https://www.linkedin.com/company/fintech-ho2020-eu

Twitter: @fintech_ho2020

info@fintech-ho2020.eu

Contact and Social Media

08.30 – 09.00	**Registration and welcome FIN-TECH coffee**
09.00 – 09.45	**Opening and introduction into the EU project 'Fintech Risk Management'** Dr. Jochen Papenbrock, Firamis GmbH Branka Hadji Misheva, ZHAW Zurich University

BRANKA HADJI MISHEVA is a Scientific Assistant at ZHAW (Zurich University of Applied Sciences) at the School of Engineering and a PhD fellow in Data Science at the University of Pavia. Currently she works on developing and introducing a network-based credit scoring model for Peer-to-Peer lending platforms. She is research author on several papers in the field of financial incentives, network models, predictive performance of scoring models and lead behavior in crypto markets.

Dr. JOCHEN PAPENBROCK is a German Fintech-Entrepreneur and Financial Data Scientist. He has a diploma and doctorate at Karlsruhe Institute of Technology in "financial technology engineering". He worked as a Quantitative Modeler and Risk Management Consultant in the Financial Industry. He is Founder and CEO of the B2B Fintech startup FIRAMIS. Besides that he is editor, speaker and ecosystem shaper for Financial Data Science and AI.

Agenda

09.45 – 10.30	**Perspective of a European regulator / supervisor on modern Big Data and AI approaches** Gilles Bouvier, ECB
10.30 – 10.45	**FIN-TECH coffee**

GILLES BOUVIER is an experienced Supervisor at the ECB's SSM Fintech team, and is actively involved in ECB's work in the area of Fintech/Regtech. He has an economic background and professional experience both in the private banking sector and in public institutions such as the National Bank of Belgium and the ECB. Gilles was one of the first colleagues to join the work on the ECB Fintech Licensing Guide which was published in March 2018. He is an enthusiast communicator in the languages English, Dutch, French and German.

Agenda

10.30 – 10.45	**FIN-TECH coffee**
10.45 – 11.30	**Credit risk in banking** Dr. Jan-Alexander Posth, ZHAW Zurich University

Dr. JAN-ALEXANDER POSTH is a senior lecturer at the Institute for Wealth and Asset Management at the ZHAW School of Management and Law. He has more than 12 years' of professional track record in the financial industry, where he gained extensive expertise as a risk manager, quant and portfolio manager. Jan-Alexander holds a PhD in theoretical physics.

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für Angewandte Wissenschaften

Agenda

11.30 – 12.45	**Overview P2P lending industry and Coding Session:** • **Use case I - Network-based Credit Scoring models** • **Use case II - Clustered scoring models** • **Use case III - Spatial regression scoring models** Branka Hadji Misheva, ZHAW Zurich University Thomas Leach, University of Pavia, Italy Prof. Daniel Felix Ahelegbey, University of Pavia, Italy
12.45 – 13.45	**FIN-TECH lunch**

BRANKA HADJI MISHEVA is a Scientific Assistant at ZHAW (Zurich University of Applied Sciences) at the School of Engineering and a PhD fellow in Data Science at the University of Pavia. Currently she works on developing and introducing a network-based credit scoring model for Peer-to-Peer lending platforms. She is research author on several papers in the field of financial incentives, network models, predictive performance of scoring models and lead behavior in crypto markets.

THOMAS LEACH is currently a PhD student in the FinTech SandLab at the University of Pavia. He has previously worked at the European Central Bank's FinTech Lab and at blockchain software firm, R3.

Dr. DANIEL FELIX AHELEGBEY is an Assistant Professor of Financial Mathematics at the University of Pavia, Department of Economics and Management. He was a faculty member of Boston University as a Postdoctoral Associate (2015-2017). His areas of research include network models for macroeconomic modeling and forecasting, financial markets and risk analytics, and advancing data-driven techniques to solve analytical problems. His current research interest also involves application of network-based segmentation models for Peer-to-Peer credit risk management.

Agenda

13.45 – 14.30	**Explainable AI / Smart Governance for Fintech Solutions and Data driven Management** Alexandra Yaroslavtseva, TME AG Dr. Jochen Papenbrock, FIRAMIS Dr. Dimitri Marinelli, FIRAMIS
14.30 – 14.45	**FIN-TECH coffee**

Dr. DIMITRI MARINELLI is a postdoc researcher at FIRAMIS with research focus on Machine Learning and Finance.
He is an expert in applying advanced mathematical methods in quantitative systems, nowadays focusing on Portfolio Risk analysis.
His current position at FIRAMIS is sponsored by the Marie Skłodowska-Curie Action through an Individual Fellowship within the EU HO2020 program.

Dr. JOCHEN PAPENBROCK is a German Fintech-Entrepreneur and Financial Data Scientist. He has a diploma and doctorate at Karlsruhe Institute of Technology in "financial technology engineering". He worked as a Quantitative Modeler and Risk Management Consultant in the Financial Industry. He is Founder and CEO of the B2B Fintech startup FIRAMIS. Besides that he is editor, speaker and ecosystem shaper for Financial Data Science and AI.

Agenda

14.45 – 16.30	**Panel: Fintech** Gilles Bouvier, ECB Julian Arevalo, EIOPA Dr. Michael Jünemann, Bird & Bird Carsten Zecher, KPMG Thorsten Seeger, P2P industry expert Moderators: Branka Hadji Misheva, ZHAW Zurich University Dr. Jochen Papenbrock, Firamis GmbH
16.30 – 17.00	**Discussion and Feedbacks**

Agenda

Panel discussion with…

Thorsten Seeger

Experienced financial services professional

Julian Arevalo

Senior Expert on Financial Innovation at EIOPA. Involved in FinTech/Insur-Tech and Big Data Analytics.

Gilles Bouvier

Supervisor at the ECB's SSM Fintech team

Dr. Michael Jünemann

Heads the German Banking & Finance practice of Bird & Bird LLP, advises on all aspects of banking regulatory and finance law.

Carsten Zecher

Senior Manager at KPMG, he focuses on Non-Financial Risk Management in Financial Services.

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