



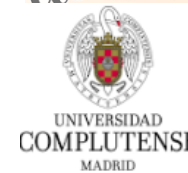
# A FINancial supervision and TECHnology compliance training programme

WP6



Zürcher Hochschule  
für Angewandte Wissenschaften

modefinance



# Objectives and Tasks in WP 6

- Create operational fintech risk management expertise
- knowledge exchange workshops dedicated to fintechs
- Test developed technical solutions (open-source coding examples)
- Same material as SupTechs plus code-based use cases

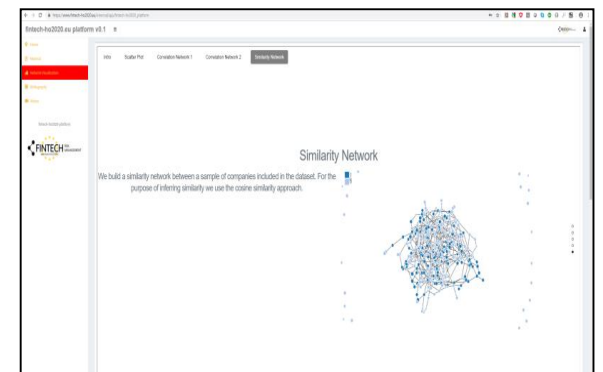
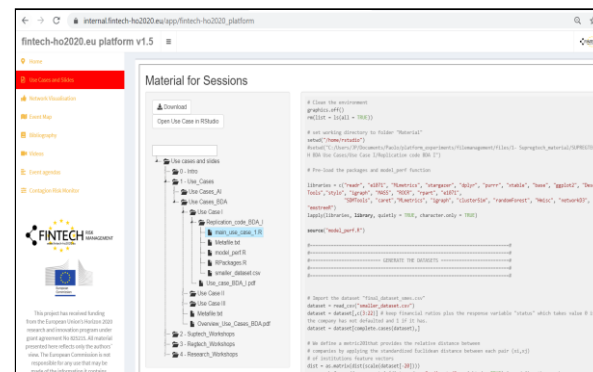
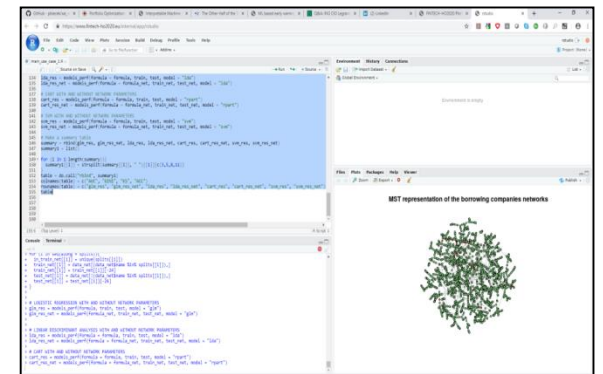
## Tasks

1. Unified content: BDA, AI, BC
2. Research and development environment (manage code, script, GUIs, models, users's access rights, software interaction, workflows)
3. Organisation of RegTech workshops with six partners associated to a fintech hub, in hands-on-code-and-data modality

# Task 2: Research and development environment

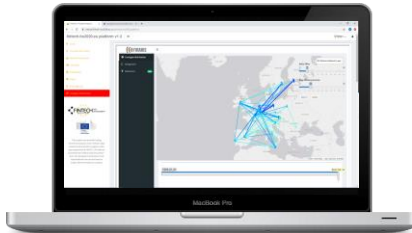
## ‘All-in-one-place’ platform:

- Workshop presentations
- Links and articles
- Model demonstrations and coding use cases
- Videos
- Event maps
- Agendas
- Complex data visualisations

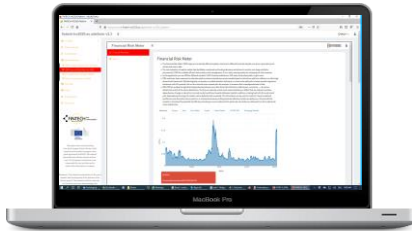


# Dashboard and Open-Source

Dashboard for the  
Contagion Risk  
Monitor (ZHAW)



Dashboard for the  
Financial Risk  
Meter (UBER)



Dashboard for the  
XAI use case



## Docker

is the fundamental technology for universal modular web applications. It separates the functional part from the platform by an abstraction layer and guarantees scalability as well as easy maintenance.



## R

is the unbeaten universal environment for statistics, machine learning and all kinds of visualisations. It is also the environment for the Shiny technology.

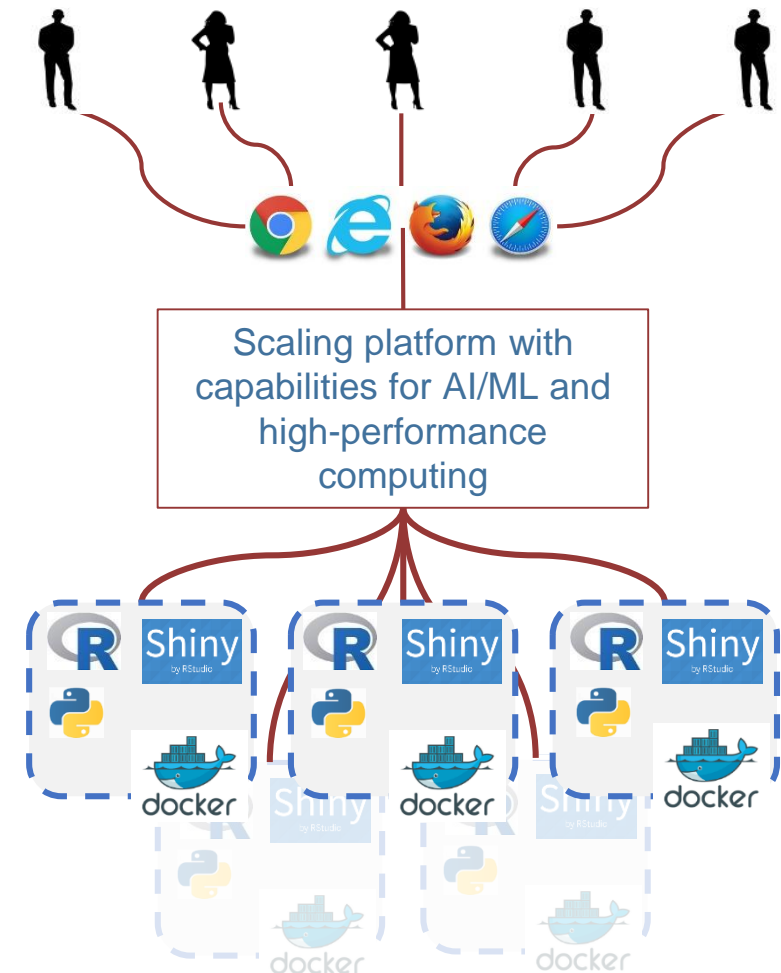


## Shiny

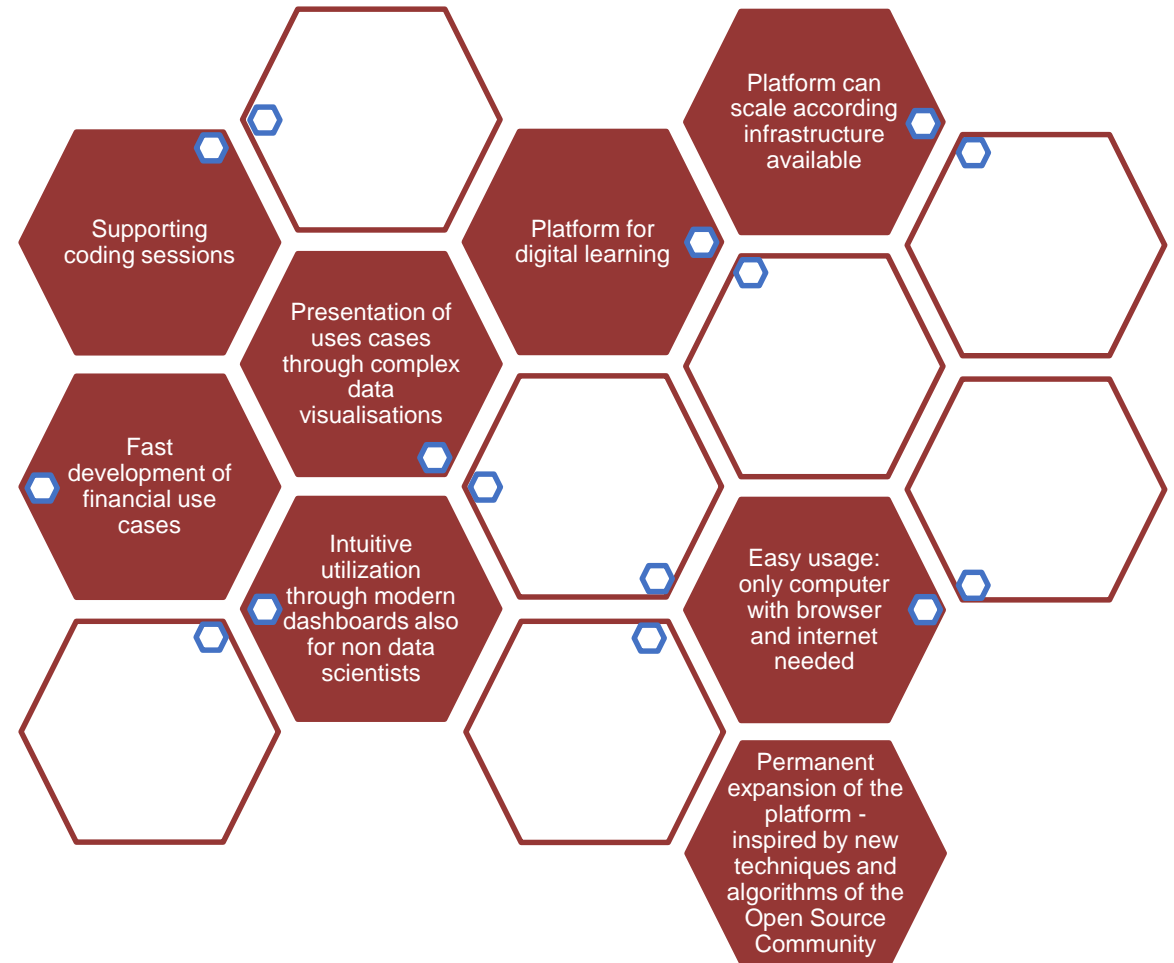
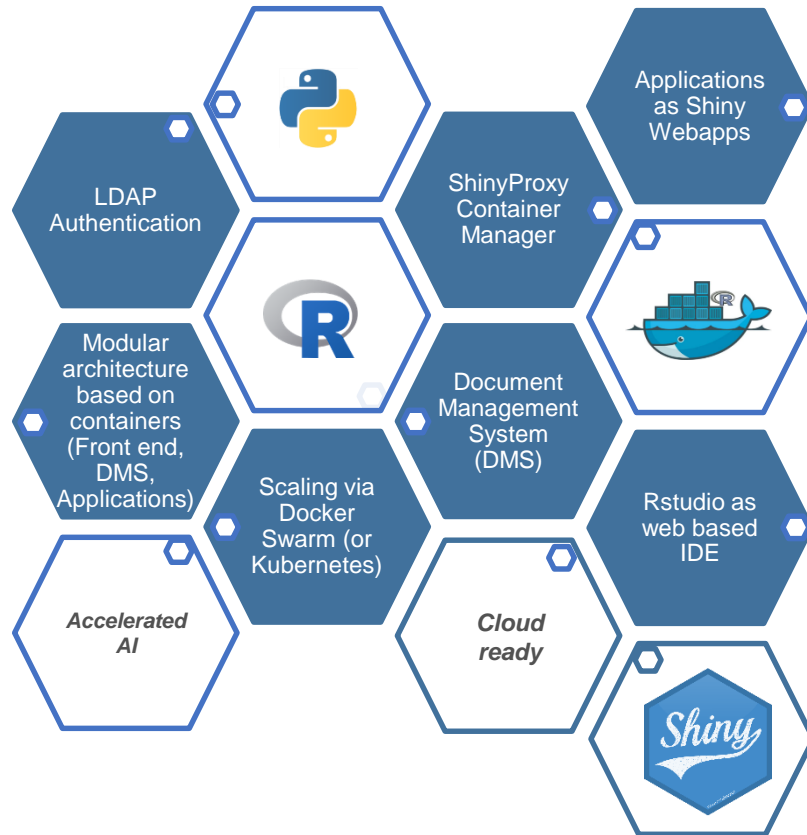
- is an R-based HTML5 / CSS / JavaScript framework that lets you quickly create and publish interactive cross-device web applications with R Backend.
- is a technology from the R environment that turns your analyses into interactive web applications that can be distributed online on a website or in the corporate intranet.

# The platform's capabilities

- Only computer with browser and web access needed
- No need for users to install software or coding environment
- Therefore suitable also for non-technical users
- Almost no downtime with high platform availability
- Simultaneous mode: many users run the code at the same time during workshops
  - resource intensive in test and operation, dependent on local web connection
  - more stable is a single presenter mode for events (users repeat same session at home later in platform; create web-recordings of code demo sessions to add to online content)



# Platform features and potential extensions



# Task 3: Organisation of RegTech workshops



# Status of RegTech

All Regtech for BDA and AI completed, by: Modefinance, Firamis, ZHAW, WU. In each all members of fintech hubs have been invited.

## Operational Risks in Blockchain – I



Online event (Oct 23<sup>rd</sup> 2020)

Discussion of XAI use case with Bank of Spain

## Operational Risks in Blockchain – II

Draft agenda	
9:00-9:30	Registration
9:30-10:00	Welcome & Introduction Javier Arroyo & Paolo Giudici
10.00-11.00	Use case I: Initial Coin Offerings: risk or opportunity? (Toma A., Cerchiell P. University of Pavia). Use case II: A Statistical Classification of Cryptocurrencies. (Traian D., Wesselhöfft N., Hårdlec W., Kolossiatis M., Yatracos Y. Bucharest University of Economic Studies, Humboldt University of Berlin, Singapore Management University, Tsinghua University, University of Cyprus).
11.00 – 11.30	Coffee break and discussion
11.30 – 12.30	Use Case III: Libra or Librae? Basket based stable coins to mitigate foreign exchange volatility spillovers. (Giudici P., Leach T. and Pagnottoni P. University of Pavia).
12:30-13:00	Wrap-Up Session – Q&A on all Use-Cases.
13:00-14:30	Lunch
14:30-16:30	Hands on Coding Session & Coding/Data Support
16:30-17:00	Wrap-Up Session
17:00-18:00	Open Discussion with Fingerfood



# RegTech 1

- Modefinance actively collaborated and developed coding for credit risk analysis
- Together with the University of Pavia many different scoring methods
- All model has been implemented in the project platform and explained to the different meeting participant
- exhaustive overview of the most used technologies in credit scoring evaluation has been presented, with a deep comparative analysis with the most modern Artificial Intelligence methods. More than 50 people were attended, from financial institutions, fintechs and regulators.
- Agenda
  - Introduction: Risk evaluation: common problems, history, scope, market trends, innovative solutions, Valentino Pediroda, modefinance co-founder.
  - Fin-Tech project use case I: network-based Credit Scoring models, Branka Hadji Misheva, Zhaw
  - Session 2 – Coding Hands-on: coding the algorithms in R language
  - Results and conclusion: FIN-TECH closing & networking
- Feedback: Thanks to the support of ItaliaFintech (the largest Italian association and community of FinTech companies) and Fintech District-which hosted us-engagement and expectations were high: we saw a large interest coming from different private corporates, institutions and universities, with diverse expertise and skills.
- The feedback we collected after the event was extremely positive, due to the choice of both introducing the argument, during the morning session, and applying theories in the practical hands-on session in the afternoon.
- The workshop has been a very interesting opportunity for everyone to work closely with financial and public institutions, banks, FinTech companies and universities-and it led to several partnership occasions, and different chances for students to be hired in the next few months-resulting from the direct modefinance experience.

# RegTech 2

Location: FinTech Quartier Frankfurt, Organizer: Firamis

Speakers/Panelists from ZHAW, ECB, EBA, EIOPA, KPMG, P2P Industry, FIRAMIS

Some feedback:

- ‘Very pleasant speakers and topics indeed! ‘
- ‘This workshop was very insightful and gave me the opportunity not just to learn about current issues regarding Credit Risk, FinTech and P2P lending but also to get to know various scholars and practitioners. This is a great platform to gain a lot of valuable insights. I am thankful for having the opportunity to attend.’
- ‘great organisationorganization ‘

Parties participating, their roles and their responsibilities:

Allianz, Peer-to-Peer Finance Association, Frankfurt Finance Association, ECB, FinTechs, Banking Software companies, Deutsche Bundesbank, KPMG, Deutsche Börse, Mastercard, Landesbank Hessen Thüringen, Deutsche Leasing, partner and local Universities, Bafin, p2p lending platforms, Volksbank Mittelhessen, Deutsche Bank, Quoniam Asset Management, City of Frankfurt, Mastercard Advisors, Microsoft AI Academy Digital@Investment, Department of Banking, Finance, Insurance, AI & Big Data, Data Science, Int. Finance, Fintech Team, Business Development, Insurance Science, Faculty of Business and Management, Supervisory Oversight and NCA Relations, Research and Development, Faculty of Economics and Business, Digital, Statistics and Econometrics, Department of Statistics and Econometrics, Digital Innovation Unit, Computer science, Management, Product and Sales Management, Business Strategy and Development, Credit Risk Management, Equities Research, Market Analysis and Portfolios, Risk, Computer Science, Sales and Product Management, Economics and Regional Development, Risk Advisory, Treasury, Advisory and Lending Platform, Executive Operations, Compliance, Business Consulting, Research Institute for Computational Methods, Hauptman u. Stadtmarketing, School of Engineering, Department of Software Engineering and Artificial Intelligence (ISIA), Computer Science, JGU, Senior Lecturer, Managing Partner, BDD, Director, Data Scientist, Student, Professor Supervisor, Managing partner, Post-doc researcher, Principal Supervisor, Researcher, Teaching and research assistant, Pre-Sales, Associate Professor, Vice-Dean of BBS, Advisor, Consulting, Consultant, Head of Capital Markets Academy, CEO, Director, Data Science Student, Developer / Founder, Data Scientist-Schulungen & Innovation Manager, Machine learning intern, Senior Advisor, Data Scientist, Project manager International Development and HR Director, Head Business Analyst, Principal Banker, Associate Partner, Capital Market Analyst / Data Scientist, Baltic Risk Manager, Ph.D. Researcher, Manager for corporate customers, Lecturer, Junior Staff, Leadership Voyager, Product Manager, Managing Director, Manager, Junior Consultant, Senior Officer, Consultant, Associate Professor of Finance, BDO, Abteilungsleitung Presse, Researcher, PhD Student.



\*\*\* This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 825215 \*\*\*

# RegTech 3

Location: ZHAW, Winterthur

Speakers/Panelists from AAAccell, Webster Vienna Private University, ZHAW, UCL, National University of Singapore, The Bucharest University of Economic Studies, Panteion University, Università di Pavia.

Some feedback:

- “Great workshop!”
- “Interesting topics covered - many technical details.”
- “The workshop covered the main use cases under the AI framework. The talks were great and very technical.”
- “Nice conference. Many interesting talks. I particularly liked the presentation of scripts and data used for the study.”
- “I truly enjoyed the conference”

Parties participating, their roles and their responsibilities:

Dominik Boos, ZHAW, Bihong Huang, Asian Development Bank Valerio Poti, University College Dublin, Raluca Caplescu The Bucharest University of Economic Studies, Jochen Papenbrock Firamis, Marek Kacer University of Economics in Bratislava, Rui Ren Humboldt-Universität zu Berlin, Ignacio Aranguren Rojas Bnext, Stefan Janecekuni software plus GmbH, Martin Schüle ZHAW, Martin Rehak Bulletproof AI, Sabino Costanza Credimi, Veni Arakelian, Panteion University, Simon Trimborn National University of Singapore, Sandro Schmid AAAccell AG, Branka Hadji Misheva ZHAW, Alex Posth ZHAW School of Management and Law, Wolfgang Breyermann Zürcher Hochschule für angewandte Wissenschaften, Yukun Shi University of Glasgow, Jeremy Turiel University College London, Tomaso Aste UCL, Olga Girvica Aml, Kyc Consultant, My Eco Ltd, Linus Grob ZHAW, Cedric Kueenzi PLEXUS Investments AG, Radoslava Mirkov Prodigy AI GmbH, Wolfgang Ettl Dr. Ettl Aktuariat GmbH & CoKG, Harald Baertschi ZHAW School of Management and Law, Ivan Grzeta Faculty of Economics and Business, University of Rijeka, Ronald Hochreiter WU Vienna University of Economics and Business, Oliver Dr. Schwindler Hochschule Ansbach, Antti Talonen Tampere University, Arianna Agosto University of Pavia, Peter Schwendner Zürcher Hochschule für Angewandte Wissenschaften, Dimitri Marinelli FIRAMIS, Alexander Deierling Firamis, Piotr Wójcik University of Warsaw, Niklas Bußmann, Firamis, Paula Brito INESC TEC, Alexis Bogroff University Paris 1 Panthéon-Sorbonne, Oleg Deev Masaryk University Paolo Giudici University of Pavia, Anca Toma University of Pavia, Paolo Pagnottoni University of Pavia, Daniel Traian Pele The Bucharest University of Economic Studies, Kia Farokhnia, Zhaw - School of Engineering, Piotr Kotlarz ZHAW, Adrian Stefan, Bernd Novotny



## AI IN FINANCE

This workshop coding session part of the European Project “Fin-Tech HO2020”, set up to explore the opportunities offered by artificial intelligence and network models applied to: portfolio management, robo-advice and market structures.

The coding session will demonstrate how to implement open source scripts on: portfolio management and asset allocation; convergence and divergence of European bond correlations and market structure discovery.

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

# RegTech 4

- The fourth RegTech event took place at the WU Vienna University of Economics and Business on February 26th, 2020. The venue was the impressive main building designed by Zaha Hadid.
- The day before the RegTech event, the intermediate review by the European Commission took place on February 25th, 2020. Most of the RegTech speakers presented their talks also during the review and could therefore fine-tune the content.
- Good implementation of concept: presenting complex theory in the morning and using the project platform to conduct hands-on, related coding sessions

# RegTech 4

Four quite heterogeneous AI use cases have been selected:

- Use case I: Convergence and Divergence in European Bond Correlations
- Use case II: Network models to improve robot advisory portfolio management
- Use Case III: Explainable Artificial Intelligence in credit risk management
- Use Case IV: Artificial Intelligence for robo advisory to compute optimal asset allocations
- The audience highly enjoyed this format and were actively participating throughout the whole afternoon. The participants were mostly young and dynamic BSc and MSc students as well as young FinTech startup founders.



# SPECIAL WORKSHOP FOR BANKERS & INSURERS - BDA AND AI



With the friendly support of the Representation of the State of Hessen to the EU



## AGENDA

**SPECIAL WORKSHOP FOR BANKERS & INSURERS I BDA AND AI**  
Fin – Tech HO2020 project

**Tuesday, November 26th, 2019**  
**Representation of the state of Hessen to the EU,**  
**Rue Montoyer 21,**  
**1000 Brussels, Belgium**

09.30 – 10.00	<b>Registration and welcome FIN-TECH coffee</b>
10.00 – 10.30	<b>Opening</b> Jochen Papenbrock & Prof. Paolo Giudici – The FINTECH project Felix Holefleisch, Head of Unit- Hessian Ministry of Economics, Energy, Transport and Housing, Representation of the State of Hessen to the EU
10.30 – 11.15	<b>Perspective of a European regulator / supervisor on modern Big Data and AI approaches</b> Gilles Bouvier, ECB
11.15 – 11.30	<b>FIN-TECH coffee</b>
11.30 – 12.15	<b>EBA's report on Big Data and Advanced Analytics</b> Andreas Papaetis, EBA

12.15 – 13.00	<b>Big Data Analytics and Artificial Intelligence – risks and opportunities</b> Sébastien de Brouwer, EBF
13.00 – 14.00	<b>FIN-TECH lunch</b>
14.00 – 14.45	<b>The concept of Explainable AI</b> Jochen Papenbrock, FIRAMIS Dimitri Marinelli, FIRAMIS
14.45 – 15.00	<b>FIN-TECH coffee</b>
15.00 – 16.00	<b>Panel</b> Moderator: Sebastian Fritz-Morgenthal, Bain & Company Gilles Bouvier, ECB Andreas Papaetis, EBA Barak Chizi, KBC Davide Corda, Intesa Sanpaolo Peter Neu, DZ Bank

**Notes: the program is subject to changes.**

The participation to the workshop I is free but subject to limited availability. On line registration is MANDATORY to attend. To register, please use the registration link below:

**Registration-Link:** <https://www.fintech-ho2020.eu/free/app/registration-special-brussels>

\*\*\* This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 825215. All material presented here reflects only the authors' view. The European Commission is not responsible for any use that may be made of the information it contains. \*\*\*

# SPECIAL WORKSHOP FOR BANKERS & INSURERS - BDA AND AI

Parties participating, their roles and their responsibilities:

European Central Bank  
 AREA42 - Credendo  
 CredaRate Solutions GmbH  
 ESBG  
 Professional Risk Managers International Association / FIS GLOBAL  
 European Central Bank  
 Austrian Savings Banks Association  
 European Banking Federation  
 National Bank of Belgium  
 NVIDIA GmbH Germany  
 European Commission  
 European Banking Federation  
 Deutsche Börse AG  
 Deutsche Bank AG  
 Landesbank Hessen-Thüringen  
 DZ BANK  
 Allianz SE  
 ESBG  
 NORD/LB  
 Oliver Wyman GmbH  
 Austrian Savings Banks Association  
 Cicero Group  
 European Association of Co-operative Banks  
 ICLA In-house Competition Lawyers' Association  
 AML  
 BBVA  
 European Banking Authority  
 Intesa Sanpaolo  
 Tetralog systems AG  
 Banca MPS  
 Bain & Company  
 Ernst & Young GmbH  
 ESBG-WSBI  
 Intesa Sanpaolo  
 KBC

Departments:  
 Banking Supervision  
 Innovation  
 Internal Rating Models  
 Digital, Retail and Markets  
 Regulation  
 Risk Management  
 DG-MSII  
 European Affairs  
 Policy  
 Banking supervision  
 Sales  
 WWFO  
 DG Connect  
 Policy  
 Department of Economics and Management  
 Capital Markets Academy  
 Regulatory Affairs  
 Risk controlling  
 Strategy & Corporate Development  
 Group Regulatory and Public Affairs  
 Regulatory Affairs  
 Department  
 Risk Control  
 Commission  
 Financial Services  
 Brussels Office  
 EU Public Affairs  
 Retail Banking, Payments and Financial Markets  
 Competition  
 Risk and compliance  
 European Public Affairs  
 CEO Office  
 Banking Markets, Innovation and Products Unit  
 Group Data Office  
 Partner  
 Organization Area  
 Economics  
 Global Risk  
 Machine Learning  
 Management  
 Intys FSA  
 FSO Advisory - Quantitative and Analytics Services  
 Regulatory Affairs  
 European Regulatory and Public Affairs  
 BDA and AI  
 fintech partnerships  
 KBC  
 Bacon  
 Algo Trading

Positions:  
 • Analyst  
 • Manager  
 • CEO  
 • Digital & Retail policy adviser  
 • Managing Director  
 • Supervisor  
 • Head  
 • Chief Policy Officer  
 • Financial & Risk Analyst  
 • Account Manager  
 • Sr. Solution Architect FSI-EMEA  
 • Policy Officer  
 • Policy Adviser  
 • Assistant Professor  
 • Team Head  
 • Regulatory Policy & Advocacy - Digital  
 • Head of portfolio methods  
 • Division Head, Managing Director  
 • Head of European Affairs Office  
 • Legal Advisor  
 • Senior Financial Services Correspondent  
 • Head of RiskLab  
 • Policy officer  
 • Partner  
 • EU Adviser  
 • Associate (focused on Fintech)  
 • Senior Adviser, Retail Banking and Consumer Policy  
 • ICLA Italia Chairman  
 • Software architect  
 • Head of EU Digital Public Affairs  
 • CEO  
 • Policy expert  
 • Head of Data Transformation  
 • Research Consultant  
 • Head of Process Innovation  
 • Professor  
 • Head of Global Risk  
 • Data scientist and quantitative analyst  
 • CLO  
 • Manager  
 • Partner  
 • Adviser  
 • Policy Adviser  
 • General manager big data, data analytics and AI  
 • partner  
 • GM AI and Big Data  
 • Producer  
 • Asst Vice President

