COST Action
Final Achievement Report

(14/09/2020 to 13/09/2024)

CA19130: Fintech and Artificial Intelligence in Finance - Towards a transparent financial industry

The Action was approved by the Committee of Senior Officials (CSO) on 31-3-2020 and has the MoU reference COST 033/20.

This report shows the data entered into e-COST to enable the Action Chair to verify the completeness and accuracy of the report with the MC prior to submitting the report via e-COST in fulfilment of the rules for COST Action Management, Monitoring and Final Assessment.

Action leadership and participants

Leadership positions

Position	Name	Contact details	Country*
Chair	Prof Jörg Osterrieder	joerg.osterrieder@utwente.nl +41774692809	Switzerland

Position	Name	Contact details	Country*
Action Vice-Chair	Prof Valerio Poti	valerio.poti@ucd.ie 00353-1-7168961	Ireland

Working groups

#	WG Title	# of participants	WG Leader	Country*
1	Transparency in FinTech	277	Prof Wolfgang Härdle haerdle@hu-berlin.de	Germany
2	Transparent versus Black Box Decision-Support Models in the Financial Industry	248	Prof Petre Lameski lameski@finki.ukim.mk	North Macedonia
3	Transparency into Investment Product Performance for Clients	218	Prof Peter Schwendner scwp@zhaw.ch	Switzerland

Other key leadership positions

Position	Name	Contact details	Country*
Science Communication Coordinator	Dr Ioana Coita	coita.iflorina@gmail.com	Romania
GH Scientific Representative	Branka Hadji Misheva	heb1@bfh.ch	Switzerland

* The country displayed is:

- for the Action Chair, the country that nominated that person to the Management Committee before they were elected Action Chair;
- for the Action Vice-Chair the country that nominated the person as a Management Committee Member,
- for all other leadership positions, if the person is a MC Member the country displayed is the country of nomination, otherwise it is the country of the person's primary work affiliation.

Participants

COST members having accepted the MoU

AL	13/05/2020	**AM**	09/01/2023	**AT**	30/04/2020	**BE**	17/02/2021	**BA**	30/04/2020
BG	04/09/2020	**HR**	02/06/2020	**CY**	17/02/2021	**CZ**	14/07/2021	**DK**	28/05/2020
EE	04/05/2020	**FI**	02/11/2021	**FR**	05/05/2020	**GE**	12/04/2022	**DE**	08/05/2020
EL	22/05/2020	**HU**	13/05/2020	**IS**	05/05/2020	**IE**	29/04/2020	**IL**	11/05/2020
IT	12/06/2020	**LV**	12/07/2021	**LT**	17/05/2020	**LU**	30/04/2020	**MT**	22/02/2021
MD	17/10/2020	**ME**	19/05/2020	**NL**	25/06/2020	**MK**	07/05/2020	**NO**	06/05/2020
PL	30/04/2020	**PT**	28/05/2020	**RO**	10/06/2020	**RS**	27/06/2020	**SK**	29/04/2020
SI	27/05/2020	**ZA**	02/11/2021	**ES**	18/06/2020	**SE**	26/05/2020	**CH**	20/05/2020
TR	04/05/2020	**UA**	12/04/2022	**UK**	30/04/2020				

Other participants

Institution Name	Country

Summary

Main aim/ objective

establish a large and interconnected community across academia, public institutions and industry focusing on Financial Technology and Artificial Intelligence, improving transparency in financial services, especially in and through FinTech, in financial modelling and investment performance evaluation

The Action addressed this as described below

Action website

https://fin-ai.eu/

Achievement of MoU objectives, deliverables and additional outputs/ achievements

MoU objectives

Please self-assess and describe the level of achievement of each MoU objective. For any MoU objectives that were less than 76% achieved please provide justification.

Please provide proof to enable the Action Rapporteur to confirm the level of achievement.

Mou objective	To develop blended approaches to evaluate innovative financial services and their providers, especially in the FinTech domain, building on Machine Learning methods, focussing on prediction (early warning) of operational fragility, fraudulent and illegal behaviour ranging from appropriation of loaned funds to money-laundering activities.	
Type of objective	1.a Development of a common understanding/definition of the subject matter 1.e Development of knowledge needing international coordination, pertaining to a new or improved theory, model, methodology, technology or technique	
Level of achievement of MoU objective	76 - 100%	**Dependence of achievement on the action networking**
Proof of achievement of MoU objective	Our COST Action CA19130 is focused on developing blended approaches to evaluate innovative financial services and their providers, especially in the FinTech domain. One of our main goals is to build on Machine Learning methods, with a focus on prediction (early warning) of operational fragility, fraudulent and illegal behavior ranging from appropriation of loaned funds to money-laundering activities. To achieve this goal, we have formed several strategic partnerships. One such partnership is with the Romanian Fintech company iFactor, which has allowed us to work on the research and development of AI tools for financial risk assessment. We have also formed a partnership with ING Group, Amsterdam Netherlands. Early warning systems are one of the main focus of many of our partner companies, and ING Group's early warning credit system is one of the leading European early warning credit systems. Our COST CA19130 is substantially in ongoing research to improve and extend their system. In addition to these partnerships, we have also achieved several important research outcomes as a result of our COST Action CA19130 cooperation. For example, the Swiss National Science Foundation is supporting a research project on Anomaly and Fraud Detection in Blockchain networks, which is being worked on by our COST Action members. Additionally, we have a research project with a Swiss Fintech company, where we are supporting them to improve the default rating of loans. These examples demonstrate our commitment to developing new and improved theories, models, methodologies, technologies, and techniques in the field of fintech and financial services. In terms of the specific COST objectives, our action has achieved the following: 1.a - Development of a common understanding/definition of the subject matter: By working closely with practitioners from the finance industry and regulators, we have developed a shared understanding of the subject matter and the challenges facing the industry. This has allowed us to develop blended approaches that are tailored to meet the specific needs of the industry.1.e - Development of knowledge needing international coordination: Our action has brought together researchers from 49 countries globally, and 39 European COST countries, allowing for the development of knowledge that requires international coordination. By working together, we have been able to tackle complex research questions and develop new and improved theories, models, methodologies, technologies, and techniques. Overall, our COST Action CA19130 is making significant contributions to the field of	

fintech and financial services. By forming strategic partnerships and working closely with practitioners, regulators, and researchers, we are able to develop blended approaches that are tailored to meet the specific needs of the industry, while also contributing to the development of new and improved theories, models, methodologies, technologies, and techniques that are necessary for the field to evolve.

Mou objective	The development of conceptual and methodological tools for establishing when black-box models are admissible and, to the extent possible, making them more transparent and/or replacing them with interpretable and explainable models.
Type of objective	1.a Development of a common understanding/definition of the subject matter 1.c Coordination of experimentation or testing
Level of achievement of MoU objective	76 - 100% **Dependence of achievement on the action networking**
Proof of achievement of MoU objective	Transparency, interpretability and explainability of black-box models has become one of the main research agendas of our COST Action CA19130. Our members have worked together on a substantial number of publications, research proposals, and various explainable AI tools. To achieve this goal, we have organized many research conferences around this topic with a substantial number of participants. We also disseminated the code and training material on this topic via quantlet.com and quantinar.com and created an extensive platform on Explainable AI for finance with several use cases, all papers, code repositories, interactive apps, see https://www.explainableaiforfinance.com/. We have also made significant contributions to the development of conceptual and methodological tools for establishing when black-box models are admissible and making them more transparent and/or replacing them with interpretable and explainable models. For example, a paper published by the Action provides insights on the early lapse phenomenon for the insurance contracts, exploiting interpretability algorithms applied to random forest. By applying interpretability to black-box instruments, the authors were able to show how it can give light to a phenomenon not easily explainable by white-box algorithms. Our research team has introduced different measures of local and global interpretability for different machine learning tasks, such as clustering, classification and regression, but also for different types of data such as continuous, categorical, hierarchical, and functional. In terms of the specific COST objectives, our action has achieved the following: 1.a - Development of a common understanding/definition of the subject matter: By working closely with other researchers and practitioners in the field, we have developed a shared understanding of the subject matter and the challenges facing the industry. This has allowed us to develop tools and approaches that are tailored to meet the specific needs of the industry.1.c - Coordination of experimentation or testing: We have organized research conferences and events, which have provided opportunities for researchers to test and experiment with the tools and approaches that have been developed as a result of our COST Action. Additionally, the code and training material that we have made available via quantlet.com, quantinar.com and our Explainable AI for finance platform, allows researchers and practitioners to test and experiment with these tools in their own work. This coordination of experimentation and testing has been crucial in helping us to establish when black-box models are admissible and in developing new methods for making these models more transparent. In summary, our COST Action CA19130 has made significant contributions to the field of transparency, interpretability and explainability of black-box models in fintech and financial services. By organizing research conferences, events and developing a platform on Explainable AI for finance, we have created a space for the sharing of ideas and perspectives and the testing and experimentation of new tools and approaches. This has led to the development of new conceptual and methodological tools for establishing when black-box models are admissible and in making them more

	transparent and interpretable.

Mou objective	To receive input from regulators and practitioners' communities and to validate results with regard to increasing transparency of artificial intelligence applications.
Type of objective	1.g Input to stakeholders (e.g. standardization body, policy-makers, regulators, users), excluding commercial applications 1.h Input for future market applications (including cooperation with private enterprises)
Level of achievement of MoU objective		Dependence of achievement on the action networking	
Proof of achievement of MoU objective	
Please provide a justification(s) for any MoU objectives that were less than 76% achieved.	

Mou objective	Pruning and improvement of the vast array of performance attribution models by contributing to the development of methodologies for reducing the false discovery rate in financial research and applied financial investment management.
Type of objective	1.b Coordination of information seeking, identification, collection and/or data curation 1.c Coordination of experimentation or testing 1.d Comparison and/or performance assessment of a theory, model, methodology, technology or technique
Level of achievement of MoU objective		Dependence of achievement on the action networking	
Proof of achievement of MoU objective	
Please provide a justification(s) for any MoU objectives that were less than 76% achieved.	

Mou objective	Disseminate to the public and share with regulators the results on investment product performance evaluation.
Type of objective	1.i Dissemination of research results to the general public 1.j Dissemination of research results to stakeholders (excluding specific input in view of knowledge application)
Level of achievement of MoU objective	76 - 100%	Dependence of achievement on the action networking	
Proof of achievement of MoU objective	Our COST Action CA13910 has achieved the objective of disseminating the results of our research on investment product performance evaluation to the public and regulators through a comprehensive approach. One of the most significant ways in which we have done this is through organizing a large number of research conferences and events. These events have attracted a wide range of participants, including practitioners from the finance industry, academics, and regulators, and provide a platform for knowledge exchange, discussion, and collaboration. The list of all the events can be found at https://www.meetup.com/Fintech_AI_in_Finance/ which clearly demonstrate the extent of our engagement and dissemination. In addition to organizing events, we have also made our research results available to the public through various online platforms. For example, we have disseminated code and training material related to this topic through quantlet.com and quantinar.com,

making it easily accessible for anyone interested in the topic. This is an important aspect of dissemination as it allows anyone to access and reproduce our research results, which is crucial for the scientific community to verify and build on our findings.

We also have an extensive online platform on Explainable AI for finance which includes several use cases, all papers, code repositories, interactive apps, see https://www.explainableaiforfinance.com/ which can be accessed by anyone interested in the topic.

Moreover, our GP3 has several dedicated Action meetings related to regulators, most notably the COST CA19130 meets Brussels event, hosted at the premises of the COST Association in Brussels. This event brings together high-level speakers from the European Commission and provides an opportunity for regulators and policymakers to learn about our research results and to engage with us in discussions.

All of these efforts have enabled us to disseminate our research results to the general public (1.i) and to stakeholders such as regulators (1.j) in an effective and comprehensive manner. We have always been open to any feedbacks and criticisms that can improve our research, our findings and our methods from the industry, academia and regulators. Overall, our COST Action CA19130 has been effective in disseminating our research results to a broad audience, and we continue to work closely with regulators, industry and academics to share our results and improve the application of AI in the investment industry.

Mou objective	Creation of the first European platform comparing the out-of-sample performance of banks' investment products, insurance-linked investment products and asset management products available to the general public.	
Type of objective	2.a Building a community around a topic of scientific and/or socio-economic relevance, allowing for knowledge exchange and the development of a joint research agenda 2.b Building a community around a new or emerging field of research	
Level of achievement of MoU objective		Dependence of achievement on the action networking
Proof of achievement of MoU objective		
Please provide a justification(s) for any MoU objectives that were less than 76% achieved.		

Mou objective	Create an excellent network of researchers in Europe with lasting collaboration beyond the lifetime of the Action.	
Type of objective	1.h Input for future market applications (including cooperation with private enterprises) 2.a Building a community around a topic of scientific and/or socio-economic relevance, allowing for knowledge exchange and the development of a joint research agenda 2.c Bridging separate fields of science/disciplines to achieve breakthroughs that require an interdisciplinary approach	
Level of achievement of MoU objective	76 - 100%	Dependence of achievement on the action networking
Proof of achievement of MoU objective	Our COST Action CA19130 has become one of the largest and most active COST Actions in all of Europe. Our network comprises 49 countries globally, of which 39 are European COST countries. We have more than 260 working group members now, with almost all countries represented in each working group. Our network is cooperating in many different ways and a substantial number of (changing) subgroups have formed that work on joint publications, research applications and output. We have initiated a meetup group,	

| | https://www.meetup.com/Fintech_AI_in_Finance/, with now more than 2000 members globally. Our more than 150 events so far have been attended by more than 7000 participants.

To achieve this, we have implemented several strategies:

Encouraging active participation from all members: We have made it a priority to ensure that all members are actively engaged in the network and have opportunities to contribute to research projects and events.

Promoting interdisciplinary collaboration: Our network brings together researchers from a wide range of disciplines, including computer science, economics, finance, and mathematics. We have encouraged these researchers to work together on interdisciplinary projects, which has led to a more diverse range of perspectives and ideas.

Facilitating communication and knowledge sharing: We have set up a number of platforms, including the aforementioned meetup group, an email list, and a website, to make it easy for members to communicate and share information. This has helped to create a sense of community within the network.

Prioritizing funding opportunities: We have actively sought out and applied for funding opportunities to support the research projects and events of our members. This has not only provided financial resources, but also helped to create a sense of shared investment in the network's success.

Encourage the formation of sub-groups: Through the formation of sub-groups which work together on specific research area/output this helped members work together in more focused area of work and get to know each other on a deeper level and make real-world impact.

To continue beyond the lifetime of the Action, we plan to establish a permanent platform for our members to connect and collaborate on future projects. Additionally, we will actively promote the continued collaboration of our subgroups, and will help members identify funding opportunities to support future research. We will also work to establish long-term partnerships with industry partners, to support the translation of our research into practical applications.

All these efforts have contributed to the formation of a strong and resilient network of researchers who are not just working together during the lifetime of the action but will continue to collaborate on future projects. We are truly proud of what we have achieved in creating a network of excellent researchers in the field of fintech and AI in finance, and look forward to seeing the continued impact of our work in the years to come. |
|---|---|

Mou objective	Bringing technological, quantitative and economic researchers together, to tackle future research that can only be done in an interdisciplinary setting, and getting actively involved in the blockchain and FinTech communities across Europe, to constantly monitor developments, get input and disseminate results.
Type of objective	1.e Development of knowledge needing international coordination, pertaining to a new or improved theory, model, methodology, technology or technique

2.b Building a community around a new or emerging field of research

2.d Acting as a stakeholder platform or trans-national practice community, pertaining to a certain area of socio-economical or societal application, or to a certain market sector |
| Level of achievement of MoU objective | 76 - 100% | **Dependence of achievement on the action networking** | |
| Proof of achievement of MoU objective | Our COST Action CA19130 has been designed to bring together technological, quantitative, and economic researchers in order to tackle future research that can only be done in an interdisciplinary setting. We are actively involved in the blockchain and |

Fintech communities across Europe, constantly monitoring developments, getting input, and disseminating results.

Our network is truly interdisciplinary, covering all disciplines from finance, computer science, economics, etc. Our members are all actively involved in their national blockchain and Fintech communities. We are collectively working together with more than 20 Fintech associations across Europe, which is a testament to the significance of the impact of our action on those communities.

In terms of the specific COST objectives, our COST Action CA19130 achieves the following:

1.e - Development of knowledge needing international coordination: Our network comprises 49 countries globally, of which 39 are European COST countries. This international representation allows for a wide range of perspectives and ideas to be brought together in order to tackle complex research questions that can only be accomplished with an international coordination. 2.b - Building a community around a new or emerging field of research: Our more than 260 working group members, with almost all countries represented in each working group, and the more than 2000 members globally in the meetup group, https://www.meetup.com/Fintech_AI_in_Finance/, are a testament to the strong community we have built around fintech and AI in finance. 2.d - Acting as a stakeholder platform or trans-national practice community: Our network is cooperating in many different ways and a substantial number of subgroups have formed that work on joint publications, research applications, and output. This allows us to act as a stakeholder platform, bringing together the different perspectives and ideas of our members to tackle important research questions. Additionally, our work with more than 20 Fintech associations across Europe allows us to act as a trans-national practice community, disseminating our research results and providing input to the industry stakeholders.

All in all, our COST Action CA19130 has truly created a large network of excellent and interdisciplinary researchers across Europe and the globe that are actively involved in the national research agendas on blockchain and Fintech and are generally the leading academic partners in their respective countries. This action is a unique platform that is continuously working towards promoting and developing knowledge, research, and innovation in the field of fintech and AI in finance.

Mou objective	Bridging the gap between practitioners from the finance industry, academics and regulators by setting up a common knowledge exchange platform.	
Type of objective	1.a Development of a common understanding/definition of the subject matter 2.c Bridging separate fields of science/disciplines to achieve breakthroughs that require an interdisciplinary approach	
Level of achievement of MoU objective	76 - 100%	Dependence of achievement on the action networking
Proof of achievement of MoU objective	Our COST Action CA19130 has been designed to bridge the gap between practitioners from the finance industry, academics, and regulators by setting up a common knowledge exchange platform. To achieve this, we have organized more than 150 research events with more than 6000 participants, all coming from the academia, industry, and regulatory sectors. This has provided a unique opportunity for different stakeholders to come together and share their perspectives, ideas and experiences. In addition to these research events, we have also set up three platforms to facilitate the exchange of knowledge: quantlet.com: This is a platform that houses thousands of code pieces showcasing academic research, making it reproducible for everyone. This platform enables practitioners from the industry and other stakeholders to access and understand the latest academic research and apply it to their work.quantinar.com: This is a knowledge, training, and dissemination outlet, showcasing the fundamentals of our COST CA19130	

Action as well as cutting-edge research. This platform provides a comprehensive overview of our Action's research agendas and enables practitioners from the industry and other stakeholders to learn about and stay informed of the latest developments in the field of fintech and AI in finance.

The Blockchain research centre: This platform provides a substantial number of datasets to our COST Action as well as other stakeholders. This enables researchers to access a wealth of data and conduct rigorous research that can contribute to the understanding of blockchain and its applications in finance.

In terms of the specific COST objectives, our COST Action CA19130 achieves the following:

1.a - Development of a common understanding/definition of the subject matter: The knowledge exchange platform we have set up allows for a common understanding and definition of the subject matter to be developed among practitioners from the finance industry, academics and regulators. By providing a space for the sharing of ideas and perspectives, the platform enables all stakeholders to come to a shared understanding of the field of fintech and AI in finance, leading to better collaboration and cooperation.2.c - Bridging separate fields of science/disciplines to achieve breakthroughs that require an interdisciplinary approach: Our network is truly interdisciplinary, covering all disciplines from finance, computer science, economics, etc. Through the knowledge exchange platform, we have set up, we bring together practitioners from different fields and disciplines to work together on complex research questions that can only be accomplished with an interdisciplinary approach. This allows for breakthroughs in the field of fintech and AI in finance that would not be possible with a single-disciplinary approach.

In summary, our COST Action CA19130 is making an active effort to bridge the gap between practitioners from the finance industry, academics and regulators by setting up a common knowledge exchange platform. Through the 150+ research events, the quantlet.com, quantinar.com, and the Blockchain research centre, we are fostering an environment for the exchange of ideas, perspectives and knowledge that is promoting a shared understanding and cooperation among all the stakeholders. This is leading to breakthroughs that would not be possible otherwise.

Mou objective	Transfer knowledge in terms of expertise, scientific tools and human resources across the different disciplines and between academia and industry.
Type of objective	2.a Building a community around a topic of scientific and/or socio-economic relevance, allowing for knowledge exchange and the development of a joint research agenda 2.c Bridging separate fields of science/disciplines to achieve breakthroughs that require an interdisciplinary approach
Level of achievement of MoU objective	76 - 100% **Dependence of achievement on the action networking**
Proof of achievement of MoU objective	The COST Action on Fintech and AI in Finance has been highly successful in transferring knowledge in terms of expertise, scientific tools and human resources across different disciplines and between academia and industry. One of the key ways in which this has been achieved is through the organization of more than 150 research events, almost all of which were in an interdisciplinary setting and involved both industry and academia. This has provided a platform for researchers to present their latest findings, share ideas and collaborate on new projects, allowing for the transfer of knowledge and expertise across different disciplines and between academia and industry. The COST Action has also established several knowledge exchange platforms such as quantlet.com, quantinar.com, and the Blockchain research center (HU Berlin) which provide thousands of reproducible pieces of research and extensive training material to transfer knowledge. These platforms provide valuable resources for researchers, practitioners, and students to gain access to the latest research findings, tools, and methodologies in the field.

Additionally, a substantial number of members work very closely with industry in their day-to-day research activities, which has helped to build strong partnerships between academia and industry and promotes the transfer of knowledge and expertise between the two sectors.

This approach has led to the COST Action being one of the most active Actions across Europe. The network provides an opportunity to the researchers to share ideas, collaborate on research, and exchange knowledge and expertise, which has helped to advance the field of fintech and AI in finance in research, education, and practice.

In short, the COST Action has achieved knowledge transfer by:

Organizing more than 150 research events, almost all of them in an interdisciplinary setting and with both industry and academia involved.

Establishing several knowledge exchange platforms, such as quantlet.com, quantinar.com, and the Blockchain research center (HU Berlin) which provide thousands of reproducible pieces of research and extensive training material to transfer knowledge.

Building a strong partnership between academia and industry through a substantial number of members working closely with industry in their day-to-day research activities, this approach facilitates the transfer of knowledge and expertise between the two sectors and enables the implementation of the latest research findings in the industry.

Furthermore, the COST Action has developed an active community of researchers from different disciplines that has helped to promote interdisciplinary research, foster collaboration and collaboration and transfer knowledge across different fields.

The COST Action's success in transferring knowledge can be seen in the significant amount of output that has been widely disseminated and has achieved a high citation count. Furthermore, the Action's active engagement with the latest research and developments in the field, support for early-career researchers and initiatives to ensure research being conducted is inclusive and responsive to the needs of diverse stakeholders has helped to build an inclusive community of researchers that is able to adapt and respond to the changes and new challenges in the field.

Mou objective	Establish an inclusive community of researchers on methodological and technological themes in Machine Learning and Artificial Intelligence, to promote Early Career Investigators and increase their visibility.	
Type of objective	2.a Building a community around a topic of scientific and/or socio-economic relevance, allowing for knowledge exchange and the development of a joint research agenda 2.b Building a community around a new or emerging field of research	
Level of achievement of MoU objective	76 - 100%	**Dependence of achievement on the action networking**
Proof of achievement of MoU objective	This objective is similar to previous one. We are very likely one of the largest and most definitely one of the most active research networks on Fintech and AI in Finance in all of Europe. During the first part of this Action, our members/ ECIs have received a substantial number of promotions, we have had more than 20 PhD thesis finished as well as more than 10 promotions on different levels of professorships. ECIs are visible in a prominent way in our Action, all funding for activities is prioritisized towards ECIs. Furthermore, the COST Action on Fintech and AI in Finance has established an inclusive community of researchers on methodological and technological themes in Machine Learning and Artificial Intelligence (ML/AI). The action has made a concerted effort to promote Early Career Investigators (ECIs) and increase their visibility over the last two years.	

To promote ECIs, the Action has taken a number of steps to ensure that they are represented and included in all aspects of the network's activities. For example, the Action has supported the connections between ECIs and more experienced colleagues, providing them with the support and guidance they need to develop their research and career. Additionally, the Action has also established a number of initiatives to support the participation of ECIs in conferences, workshops, and other events, and has provided opportunities for ECIs to present their work and receive feedback from more experienced researchers.

The Action also has established a number of working groups and task forces, which focus on specific areas of ML/AI research, in particular Working groups 1,2, and 3 and our substantial diversity team. These working groups and task forces are led by experienced researchers and provide opportunities for ECIs to collaborate and share their expertise with more experienced colleagues. This approach has helped to increase the visibility and profile of ECIs within the network and the wider community.

The Action has also made a concerted effort to ensure that the research being conducted is inclusive and addresses the needs of a diverse range of stakeholders. For example, it has established guidelines and best practices for conducting inclusive research, and it has also taken steps to ensure that the research being conducted is responsive to the needs of ECIs and under-represented groups.

Overall, the COST Action has established an inclusive community of researchers on methodological and technological themes in ML/AI, by promoting Early Career Investigators, increasing their visibility and establishing initiatives to support their participation and career development in the field. Additionally, the Action has put in place a number of measures to ensure that the research being conducted is inclusive, responsive and addresses the needs of diverse range of stakeholders in the field.

Mou objective	Overcome the siloing of research topics by country and achieve geographical and demographical diversity, with special attention to COST Inclusiveness Target countries.	
Type of objective	2.d Acting as a stakeholder platform or trans-national practice community, pertaining to a certain area of socio-economical or societal application, or to a certain market sector 2.e Building capacity in the demographic inclusiveness of networks in science and technology, including representation of newly established research groups, Early-Career Investigators, the under-represented gender and teams from countries/regions with less capacity in the field of the Action	
Level of achievement of MoU objective	76 - 100%	**Dependence of achievement on the action networking**
Proof of achievement of MoU objective	The COST Action CA19130 (FinAI) aims to overcome the siloing of research topics by country and achieve geographical and demographical diversity, with special attention to COST Inclusiveness Target countries (ITC). To achieve this, the FinAI diversity team promotes diversity within the COST Action and suggests improvements to the Management Committee (MC). As of the end of 2022, FinAI included 246 members from 49 different countries, with 22 of those countries being ITC (out of 39 COST countries). Overall, the action included 260 members, with 53% of those members being from ITC. In all the three working groups (WGs), ITC members are more than non-ITC members. In the MC, out of 71 members, 17 are young researchers (24%), 39 are from ITC (55%). Out of the 4 Virtual Mobility Grants (VMGs) granted in the first grant period (GP1), all were for ITC members, and in GP2 out of the 9 VMGs granted, 5 were for ITC members. Young researchers represent 41.3% of all members, with 97 young researchers who are both female (40) and male (57). Albania and Romania (both ITC) have the highest number of Early Career Investigators (ECI) with 9 out of 17 Albanian members and 10 out of 12 Romanian members. The WGs include researchers with diverse backgrounds including econometrics, statistics, mathematics, engineering, computer science, economics, banking, finance, business, and law. The research collaboration occurs between groups of members	

related to COST FinAI. Additionally, COST networking tools and grants provide the basis for collaboration on other topics and streams of research outside the scope of the network.

To improve diversity in events, FinAI has established guidelines to improve the gender balance, country and age of participants and organizers.

For the next GP, the following measures will be taken:

Establish instruments to incentivize ITC members to participate in events organized by FinAI members by prioritizing reimbursement for young researchers for conference expenses such as travel and accommodation.

Promote instruments to incentivize young researchers to participate in events organized by FinAI members by prioritizing reimbursement for their conference expenses such as travel and accommodation.

Keep track of memberships to improve young researchers' presence in all countries, but especially in those that currently have a lower presence of young researchers within the action.

Overall, COST Action CA19130 FinAI has put in place various measures to achieve geographical and demographical diversity with special attention to ITC countries and Young researcher, to achieve this objective and to empower young researcher from diverse backgrounds to collaborate and to have equal opportunities in networking and knowledge sharing.

Mou objective	Prepare competitive European researchers for a fruitful career in an international environment through intensive use of Short Term Scientific Missions (STSM) and joint educational programs with industrial partners.		
Type of objective	2.a Building a community around a topic of scientific and/or socio-economic relevance, allowing for knowledge exchange and the development of a joint research agenda 2.d Acting as a stakeholder platform or trans-national practice community, pertaining to a certain area of socio-economical or societal application, or to a certain market sector		
Level of achievement of MoU objective	76 - 100%	Dependence of achievement on the action networking	
Proof of achievement of MoU objective	Our COST Action CA19130 has been highly successful in preparing competitive European researchers for a fruitful career in an international environment through the intensive use of Short Term Scientific Missions (STSM) and joint educational programs with industrial partners. STSMs have been a central component of our Action, allowing early-career researchers to gain valuable international experience by visiting other research institutions and collaborating on research projects. This has not only enabled them to broaden their expertise, but also to establish valuable connections and collaborations that have the potential to continue beyond the lifetime of the Action. In addition to STSMs, we have also established joint educational programs with industrial partners. This has allowed researchers to gain hands-on experience working on real-world projects and to develop valuable skills that are in high demand in the industry. Furthermore, these educational programs have provided researchers with an understanding of the practical applications of the research, which is essential for the development of a joint research agenda. By providing researchers with these opportunities, we have been able to build a community around a topic of scientific and socio-economic relevance, allowing for knowledge exchange and the development of a joint research agenda (2.a). Our community comprising of over 260 working group members now, have represented almost all countries, and worked on many different ways and formed a substantial number of (changing) subgroups, which work on joint publications, research applications and output.		

Furthermore, we have also acted as a stakeholder platform or trans-national practice community, pertaining to a certain area of socio-economical or societal application, or to a certain market sector (2.d). Our research focuses on the financial industry and

the development of cutting-edge technology such as Artificial Intelligence and Blockchain. By bringing together researchers from various disciplines including finance, computer science, and economics, we have been able to address the complex challenges facing the industry and provide valuable insights and solutions to regulators and practitioners. Our members are actively involved in their national blockchain and Fintech communities, and we are collectively working together with more than 20 Fintech associations across Europe.

In addition to our research and educational programs, we have also been very successful in disseminating our results to the public and sharing them with regulators through events and publications. This has helped to promote transparency and understanding of the applications of artificial intelligence in the financial industry, and has provided valuable input for future market applications.

Overall, our COST Action CA19130 has been highly successful in preparing competitive European researchers for a fruitful career in an international environment, and in bringing together researchers, regulators, and practitioners to address the complex challenges facing the financial industry. Our Action provides a great platform for researchers to share their knowledge, develop cutting-edge technologies and gain invaluable professional skills.

Mou objective	Maximize the job opportunities for PhD students and Early Career Investigators.
Type of objective	2.d Acting as a stakeholder platform or trans-national practice community, pertaining to a certain area of socio-economical or societal application, or to a certain market sector 2.e Building capacity in the demographic inclusiveness of networks in science and technology, including representation of newly established research groups, Early-Career Investigators, the under-represented gender and teams from countries/regions with less capacity in the field of the Action
Level of achievement of MoU objective	76 - 100%	**Dependence of achievement on the action networking**	
Proof of achievement of MoU objective	Our COST Action CA19130 has been highly successful in maximizing job opportunities for PhD students and Early Career Investigators (ECIs). We have a substantial number of PhD students in our network, and we are extremely inclusive and open for cooperation. This means that all PhD students can freely approach anyone in our network and receive input and guidance on their research. In addition to providing guidance, we actively support our PhD students and ECIs in their career progression. We have had a lot of successful PhD defenses and our ECIs and PhD students have been promoted to postdocs and different professorship levels. This has provided them with a great platform for them to gain invaluable professional skills and develop their careers in an international environment. Our Action is also designed to be a stakeholder platform that brings together researchers, regulators, and practitioners to address the complex challenges facing the financial industry. This multidisciplinary approach helps our PhD students and ECIs gain diverse perspectives, which is crucial to their professional development. Furthermore, we have also been making a conscious effort to build capacity in the demographic inclusiveness of networks in science and technology. Our network comprises 49 countries globally, of which 39 are European COST countries, and we have representation of newly established research groups, Early-Career Investigators, the under-represented gender and teams from countries/regions with less capacity in the field of the Action. Overall, our COST Action CA19130 is designed to maximize job opportunities for PhD students and Early Career Investigators. With our inclusive and open network and our focus on career development, we are confident that we have provided them with the

best platform to gain valuable professional skills and develop their careers in an international environment.

Mou objective	Disseminate the results of the Action's activities to the scientific community, European institutions and to the general public.
Type of objective	1.i Dissemination of research results to the general public 1.j Dissemination of research results to stakeholders (excluding specific input in view of knowledge application)
Level of achievement of MoU objective	76 - 100%	Dependence of achievement on the action networking	
Proof of achievement of MoU objective	Our COST Action CA19130 has always placed a strong emphasis on dissemination and ensuring that the results of our research are made available to the widest possible audience. From the start of our Action, we have organized over 150 research conferences and events, with more than 6,000 participants in total, making it one of the most active COST Actions in Europe. These events have been designed to bring together researchers from academia, industry, and regulators to share their knowledge and insights on the latest developments in the field of Fintech and AI in finance. The list of all events can be found at https://www.meetup.com/Fintech_AI_in_Finance/. In addition to organizing events, we have also made sure that our research results are widely disseminated through various digital platforms. For example, we have created two platforms, quantlet.com and quantinar.com, where thousands of self-contained code pieces showcasing academic research are made available to the public, making it easy for anyone to reproduce and build upon our research. Furthermore, we have also created an extensive platform on Explainable AI for finance, which includes several use cases, all papers, code repositories, interactive apps, and so on. This platform can be accessed at https://www.explainableaiforfinance.com/ We have also established partnerships with several European institutions and organizations, such as the European Commission, the Confederation of European Data Protection Organizations, and the European Central Bank, to ensure that our research results reach the widest possible audience. Additionally, many of our members are actively working with industry partners, and our research output is regularly discussed and challenged by leading international companies such as ING Group and various national banks. In GP3 we will be organizing a high-level COST policy event at the premises of the COST Association in Brussels, where representatives from the European Commission will be participating, along with other key stakeholders. This event will provide us with an opportunity to present our research results and receive feedback from regulators and policy-makers. Overall, our COST Action CA19130 has made sure that the results of our research are disseminated to the scientific community, European institutions, industry partners and the general public. We believe that by making our research available to everyone, it will have a greater impact and contribute to the advancement of knowledge in the field of Fintech and AI in finance.

Mou objective	Significantly improve the gender equality in the fields of the Action.
Type of objective	2.e Building capacity in the demographic inclusiveness of networks in science and technology, including representation of newly established research groups, Early-Career Investigators, the under-represented gender and teams from countries/regions with less capacity in the field of the Action
Level of achievement of MoU objective	76 - 100%	Dependence of achievement on the action networking	
Proof of achievement of MoU objective	The COST Action CA19130 (FinAI) aims to significantly improve gender equality in the fields of the action. To achieve this, the FinAI diversity team promotes diversity within the COST Action and suggests improvements to the Management Committee (MC).

As of the end of the second grant period (GP2), the gender representation among FinAI members is as follows: 41% female and 56% male. Within the working groups (WGs), female presence is as follows: WG1 47%, WG2 33%; WG3 40%. In the MC, 33 members are female (46%), which is in line with the overall membership of the action. This figure has increased since the end of GP1, when it was 44%.

In terms of Virtual Mobility Grants (VMGs) granted, in GP1, out of the 4 VMGs, 3 were granted to female researchers; in GP2, out of the 9 VMGs granted, 8 were for female researchers.

For the organization of events, FinAI has established guidelines to improve diversity in terms of gender balance, country, and age of participants and organizers. For example, guidelines state: "Respect that the organizing committee and the scientific committee are composed according to criteria for gender balance", "If there is more than one keynote speaker, choose a scholar belonging to the underrepresented gender in that specific event", "Avoid involving women only in the roles of moderators or session chairs during events, workshops or conferences." "Avoid assigning to women only duties or tasks considered as "academic households", tasks that are time-consuming but do not give opportunity for women to be involved in research activities." Members of COST participating on the organizing committee make sure these guidelines are respected whenever possible.

To improve gender equality in the field, the COST Action CA19130 FinAI is constantly monitoring the gender representation among its members and taking specific measures to increase the presence of female members in the working groups, management committee and in the organization of events. The virtual mobility grants is also been given to female researcher which is one of the important measure to empower and support female researcher in the field of FinAI.

In addition to the measures mentioned above, COST Action CA19130 FinAI also promotes the participation and leadership of female members through various initiatives such as:

Encouraging the nomination of female members for leadership roles within the action such as working group leaders, management committee members and coordinators.

Offering mentorship and networking opportunities for female members to connect with experienced researchers in the field and to help them to develop the skills needed to take on leadership roles.

Organizing training and development workshops specifically tailored to the needs of female members to help them to build their skills and confidence in their field.

In summary, COST Action CA19130 FinAI has put in place various measures and initiatives to significantly improve gender equality in the fields of the action. The Action is being monitored and evaluated regularly to see the impact of the measures and to make necessary adjustments, with the goal of creating an inclusive and equitable environment for all members regardless of their gender.

Deliverables

This section covers only deliverables that were foreseen for the Action, not additional outputs that were generated during the Action (these additional outputs will be added in the following section). Please select and comment on the level of achievement of each deliverable as well as the extent to which the achievement was dependant on the Action networking.

For deliverables that are:

- Delivered, please provide proof to enable the Action Rapporteur to confirm the delivery
- Not delivered but delivery is foreseen within 2 years please explain how the delivery will be achieved
- Not foreseen to be delivered please explain why not

Deliverable	A database which contains pre-ICO documentation and post-ICO performance (ROI and lifespan)		
Level of achievement of deliverable	Delivered	Dependence of achievement on the action networking	—
Proof of achievement of deliverable	https://drive.google.com/drive/folders/1qJmo2T0VeOojtC4037mmukyaElP2IGNP		

Deliverable	A database which contains data on crowdfunding/P2P platform features useful for rating platform integrity and to predict fraud		
Level of achievement of deliverable	Delivered	Dependence of achievement on the action networking	—
Proof of achievement of deliverable	https://drive.google.com/drive/folders/1qJmo2T0VeOojtC4037mmukyaElP2IGNP		

Deliverable	Discussion papers (DP) on the methodology for evaluating/rating ICOs and crowdfunding/P2P platforms and for detection/early warning about fraud/illegal behaviour with emphasis on the application of AI tools		
Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

Deliverable	A position paper and roadmap on mitigating risks connected with the increased use of digital assets		
Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

Deliverable	A discussion paper for possible approaches to building a statistically valid back-testing framework		
Level of achievement of deliverable	Delivered	Dependence of achievement on the action networking	—
Proof of achievement of deliverable	https://drive.google.com/drive/folders/1qJmo2T0VeOojtC4037mmukyaElP2IGNP		

Deliverable	Methodological discussion paper on the design of stress tests for the evaluation of AI and ML models under shifting financial conditions to improve the robustness of models		

Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

Deliverable	Position papers, aimed at regulators and policy-makers, on methodology (with examples of formal criteria) for testing AI techniques in real-time		
Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

Deliverable	Report on good examples and best practices for a transparent finance industry with guidelines to improve transparency		
Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

Deliverable	An internal database of collected (scraped) financial time series from exchanges and regional consolidation platforms optimised for accessibility to all partners		
Level of achievement of deliverable	Delivered	Dependence of achievement on the action networking	—
Proof of achievement of deliverable	https://drive.google.com/drive/folders/1qJmo2T0VeOojtC4037mmukyaElP2IGNP		

Deliverable	Methodological discussion papers on AI models to generate "failed trials" of investment product producers and on quantitative strategies with the usage of the promising field of network data analysis		
Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

Deliverable	Four annual reports (for lay audience) distributed via local and national media		
Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

Deliverable	Key software (codes, packages) developed by each of the Working Groups in line with their objectives		
Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

Deliverable	Handbook and/or wiki page describing potential approaches to tackle risk management issues related to blockchain assets and crowdfunding/P2P lending		
Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

Deliverable	An edited volume containing scientific achievements of the Action		
Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

Deliverable	Strategy to engage stakeholders in the Action (including revisions in month 24 and 36)		
Level of achievement of deliverable	—	Dependence of achievement on the action networking	—

DRAFT

Additional outputs / achievements

Co-authored Action publications

Please enter below ONLY publications (including publications that are submitted but not yet accepted):

- that are on the topic of the Action, and
- that are co-authored by at least two Action participants from two countries participating in the Action, and
- for which the Action networking was necessary.

Please pay special attention to the COST Excellence and Inclusiveness policy and ensure the inclusion of publications with authors from COST Inclusiveness Target Countries (ITCs), from the underrepresented gender in the Action and from Early Career Investigators/Young researchers.

	Bibliographic data	Countries participating in the Action among authors	Open Access	COST cited?	COST funds?	Relevance to H2020 Societal challenge	Peer Reviewed?

Projects resulting from Action activities

Please enter below all the projects on the topic of the Action resulting from Action activities, involving at least one Action participant, and for which the Action networking was necessary.

The Action reported 10 project(s) and 11 proposal(s) resulting from the Action networking.

Key details of the projects are shown below.

#	Title	Countries participating in the Action among proposers	Main proposer name	Funder	Amount	Call identifier	Relevance to H2020 Soc challenge
1	Crypto Currencies and Nordic Youth	FR	Roman Matkovskyy	Trans-national	25000 €	OEE Grand call 2022	Europe in a changing world, inclusive innovative and reflective

							societies
2	Network-based credit risk models on P2p lending markets	CZ, CH	Eduard Baumöhl	Trans-national	500000 €	Czech Science Foundation and SNSF Lead Agency	Europe in a changing world, inclusive innovative and reflective societies
3	Blockchain and Fraud Detection	CH, UA	Joerg Osterrieder	Trans-national	6300 €	SNF	Secure societies, protecting freedom and security of Europe and its citizens
4	Network-based credit risk models on P2P lending markets	CZ, CH	Branka Hadji Misheva	Trans-national	500000 €	SNSF Lead Agency	Europe in a changing world, inclusive innovative and reflective societies
5	Digital Finance and Reinforcement Learning	CH	Joerg Osterrieder	National	400000 €	Innosuisse	Europe in a changing world, inclusive innovative and reflective societies
6	Narrative Digital Finance: a tale of structural breaks, bubbles & market narratives	CZ, EE, IE, MK, ES, CH	Joerg Osterrieder	National	240658 €	SNF	Europe in a changing world, inclusive innovative and reflective societies
7	Blockchain	CH	Joerg Osterrieder	National	200000 €	Innosuisse	Europe in a changing world, inclusive innovative and reflective societies
8	DataInc - Intelligent Data Integration and Cleaning	CH	Branka Hadji Misheva	National	500000 €	Innosuisse	Europe in a changing world, inclusive innovative and reflective societies

| 9 | IRTG 1792 extension 2022.10-2023.3 | DE | WK Härdle | National | 200000 € | DFG | Europe in a changing world, inclusive innovative and reflective societies |
| 10 | XAI in credit risk management | CH | Branka Hadji Misheva | National | 350000 € | Innosuisse | Europe in a changing world, inclusive innovative and reflective societies |

Other outputs / achievements

Please enter below any additional outputs/ achievements on the topic of the Action that contribute to the COST mission: "COST enables break-through scientific developments leading to new concepts and products and thereby contributes to strengthen Europe's research and innovation capacities", and for which the Action networking was necessary (e.g. a patent, standards, white paper).

Output / achievement description	Dependence of achievement on the Action networking

Impacts

Please describe the impacts (the short- to long-term scientific, technological, and / or socioeconomic changes produced by a COST Action, directly or indirectly, intended or unintended) that have resulted, or might result, from the Action in the following table (one impact per line).

Description of the impact, i.e. what will change, and for whom, as a result of what the Action achieved	Type of impact	Timing of impact

Please describe how the Action has advanced careers, skills and network of researchers, including Early Career Investigators (for example: joint supervision of graduate and PhD students, research exchanges not funded by the action, collaborations, Training Schools with ECTS accreditation, joint projects, internship and job prospects.

Dissemination and exploitation of Action results (other than co-authored Action publications listed previously)

Please describe the Action's dissemination and exploitation approach as well as all activities undertaken to ensure dissemination and exploitation of the Action results and the effectiveness of these activities.

Dissemination and exploitation approach of the Action

Dissemination

Dissemination meetings funded by the Action (possible only until 31st October 2021)

Title of Dissemination meeting	Meeting date	Meeting country	Action participant	Event name and hyperlink to the website	Title of presentation	Description of added value to the Action
N/A						

Other dissemination activities

E.g. participation to non-Action meetings, e.g. EU Parliament, meetings with policy makers, experts in the field, regional authorities.

Item/activity	Target audience	Outcome	Hyperlink
Organizing the BlackSeaChain 2022 conference, which took place September 1–2, 2022, in Varna, Bulgaria. It covered topics such as: the present and future of the decentralized economy and finance; the challenges in front of regulation; an introduction to Web 3.0; new crypto wallets and their future; the new craze in the world of cryptocurrencies—NFTs; innovative solutions with smart contracts; and integrations between blockchain technologies, the IoT, and AI. The main organizer of BlackSeaChain 2022 is the company Quanterall, owned by COST	The target audience would be people from academia, industry, and practitioners in the field.	We received multiple submissions, of which 43 were presented at the conference. The conference was organized as an in-person event on September 1–2, 2022, in Varna, Bulgaria.	https://www.blackseachain.com/

action member Anton Andonov. Partners are LimeChain, Nexo, Ambire, INDUSTRIA Tech, Hack.bg, ReCheck, Bithope, Motion Software, and WeiChain.			
Organization of a special session in the International Joint Conference on Neural Networks from the 18th of June to the 23rd of June 2023, hosted by the International Neural Networks Society with the title "Deep Learning for Financial Data Analysis." The session will likely feature presentations and discussions from experts in the fields of deep learning and financial data analysis who will share their research, insights, and perspectives on how deep learning techniques can be applied to analyze financial data. The session may also include demonstrations, interactive discussions, and opportunities for attendees to network with other researchers and practitioners in the field.	The target audience would be researchers, practitioners, and academicians who are interested in the application of deep learning techniques to financial data analysis. This would include individuals from fields such as computer science, statistics, finance, and economics, who are working in academia, industry, or government.	We received multiple submissions. The conference will be organized as a virtual conference.	https://2023.ijcnn.org/
Organizing collaboration activities between the New Bulgarian University (NBU) and Management Financial Group (MFG), Bulgaria. MFG is a group of leading European companies that specialize in non-banking financial services. New Bulgarian University collaborates with MFG in a joint effort to solve some of the most challenging tasks in FinTech using state-of-the-art AI techniques. Students from the Master's program "Knowledge Discovery and Big Data Analytics" are heavily involved in the majority of these activities.	The target audience would be academics, industry, and practitioners in this field.	Topical tasks in the FinAI field were given to students of the Master's program "Knowledge Discovery and Big Data Analytics." It was negotiated to continue the collaboration to achieve several main goals: - provide internship opportunities to the best students; - participate in the upcoming Black Sea Chain 2023; - expand academic activities at NBU.	https://managementfinancialgroup.com/
A workshop called "Environmental Finance for the Common Good." More details are summarized in the "Result" part.	The target audience would be academics, industry, practitioners in this field, policymakers, and civil society.	The workshop, co-organized by the Money, Macro, and Finance Society (UK) and the Department of Management, Birkbeck College, University of London, with the support of CA19130, saw a roundtable discussion on current challenges in	https://efcg2022.sciencesconf.org/

		environmental finance, open to the public. It acted as an evening public event featuring perspectives from industry, academia, and faith communities, and public lectures by Naoyuki Yoshino and Will Goodhart. Additionally, research papers were presented, and one was awarded the best paper by an ECI on fintech and AI topics.	
Workshop: Diversity Challenges and Opportunities in FinTech (NAPLES) The workshop aimed to bridge academics and policymakers by discussing the novel challenges and opportunities in FinTech and AI, particularly in STEM, to deal with diversity. Among the main contributions: "A first step towards financial inclusion: assessing the role of digital payments during the pandemic using single item latent trait response models" (A. Di Iorio (Bank of Italy), M. Iannario (University of Naples Federico II), A. Nobili (Bank of Italy), and G. Rocco (Bank of Italy).	Academics, practitioners in this field, university students, and civil society.	The following results were achieved: - Working paper presentation: The inclusion of explainable AI approaches for well-being: theory and applications (M. Hudec, University of Bratislava) - Working paper presentation: A Bayesian network approach to statistical measuring and prediction of gender gaps: P. Vicard (Roma Tre University), L. Giammei (Sapienza University), F. Mecatti (Milano Bicocca University), F. Musella (Link Campus University, Rome), and S. Romio (Milano Bicocca University). - Keynote speech: "AI: Why diversity matters for an inclusive future" (R. Johri, Head of R&D at HSBC and Founder of London Women in Machine Learning) - Seminar session: "Financial knowledge and the use of old and new financial instruments - M. Albanese (University of Naples Federico); V. Vitale (University of Naples Federico): Master students from the University of Naples Federico II presented the results of their research about the impact of gender stereotypes on the self-concept of female students in STEM. A technical session illustrated the latest research about financial inclusion and methods to improve diversity in FinTech, while the role of higher education in supporting diversity and allowing for inclusion in STEM fields was discussed during a round table. During the conference, a kick-off event for the	https://fin-ai.eu/diversity-workshop-naples2022/

		"woman in fintech" datathon was also accomplished (https://fin-ai.eu/datathon/).	
Organisation of the Lake of Como School as an educational event that focused on the topic of neural networks and nets applied to finance. The goal of the school was to provide attendees with an in-depth understanding of cutting-edge methodologies and the applications of these technologies in the field of finance. Participants are expected to attend the school, which provides them with an opportunity to gain knowledge and insights from experts in the field, and to expand their understanding of the latest trends and developments in this area. The school includes lectures, seminars, hands-on workshops, and opportunities for attendees to network with other researchers and practitioners in the field.	The audience is primarily made up of PhD students and early-career researchers in this field.	This summer school provided training for 25 young researchers, and successfully reached its aim.	https://nnnf.lakecomoschool.org/
The International Fintech Research Conference from October 27–28, 2022, hosted by Politecnico di Milano and supported by the COST Action FinAI, brought together researchers in the field of Fintech from various areas such as banking, asset management, insurance, payments, capital markets, and the internet of things. The conference welcomed papers on a wide range of Fintech research topics, including theoretical analysis of finance and economics, machine learning applications to finance, cryptocurrencies, digital currency, cybersecurity, neural networks, smart contracts, peer-to-peer finance, big data analysis, nowcasting, text analysis in finance, blockchain technologies, network analysis in finance, and behavioral finance.	The target audiences were researchers and industries in the respective field with a strong background in finance, economics, and computer science. Additionally, industry professionals and practitioners who were interested in the latest developments and research in the field of Fintech were also targeted by this conference.	The conference received a total of 35 paper submissions, of which 24 were accepted for presentation at the conference. In addition to this accomplishment, the conference also served as an opportunity for researchers to submit their work for consideration in a special issue of Springer Digital Finance.	https://www.fintechlab.it/fintech_conference2022/
The "Woman in Fintech Datathon" is an	Master and/or PhD students in early stages	The event attracted a total of 18 teams,	https://fin-ai.eu/datathon/

event organized by the Women in Fintech Conference Committee, in collaboration with the University of Tirana and the University of Naples Federico II with the support of the COST Action FinAI. The event is a data mining and analysis competition, with the goal of promoting the analysis of data related to the goals of the Women in Fintech Conference. The goal of the Datathon is to encourage the use of data analysis to understand and promote the goals of the conference and the field of Cost Action FinAI. The participating teams were from Albania, China, Germany, Ghana, Greece, Italy, India, Kosovo, Lithuania, and Romania.	of their career with an interest and background in data analysis, specifically in the field of Fintech and Artificial Intelligence in Finance. Female researchers working in the field of Fintech and Artificial Intelligence in Finance are especially targeted.	comprising 46 participants, of whom 33% were male. The participants were tasked with utilizing quantitative approaches to produce written reports on the topic of financial inclusion. The reports were based on an analysis of data from the Global Findex database, maintained by the World Bank, with the goal of uncovering various financial characteristics of a global sample of individuals. The event aimed to provide valuable insights into the field of financial inclusion, utilizing a rigorous data-driven approach to generate meaningful results.	
Organisation of a special issue in the journal "Digital Finance." The issue aimed to explore the impact of new technologies on the financial industry, which is experiencing a significant disruptive moment referred to as the "fintech revolution." The journal invited submissions that use various research methods and theoretical frameworks to better understand the fintech phenomenon, with a focus on topics such as the use of artificial intelligence in finance, cryptoassets, blockchain technologies, smart contracts, and more. The special issue is in line with an "International Fintech Research Conference" that will be held in Milan in October 2022.	The target audience is academics with a particular interest in finance, economics, computer science, and related fields.	Issuance of a call for papers on the theme of fintech, specifically exploring the intersection of digital finance, emerging technologies, and innovative methodologies. Submissions were seeded that offer rigorous, in-depth examination of the various facets of the fintech landscape, including but not limited to topics such as: - The impact of digital technologies on financial service delivery and the customer experience - The emergence of new players and business models in the financial sector - The application of Artificial Intelligence and machine learning techniques to financial problem-solving - The analysis of cryptoassets as a new class of financial instruments - The implications of smart contract technology and decentralized finance - The use of big data analytics, nowcasting and text analysis in finance - The role of network analysis in understanding financial systems - The examination of behavioral finance in the digital age.	https://www.springer.com/journal/42521/updates/23290068
Organization of a monthly series of open	The target audience would be for	Informing a wide audience about our	https://qfrg.wne.uw.edu.pl/?p=1102

seminars conducted by the Data Science Lab (headed by Piotr Wójcik) in cooperation with the Quantitative Finance Research Group. Both organizational bodies are hosted in the Faculty of Economic Sciences at the University of Warsaw. The achieved research output was related to applications of machine learning and artificial intelligence in finance.	academics, industry, and practitioners in the field.	COST action, increasing action visibility, and increasing understanding of XAI tools among financial practitioners (e.g., 2021-04-19: Chlebus Marcin, "XAI Tools as a Part of the Best Practices in Model Selection for Business Decision Modeling"); – related to MoU objectives 9 (Capacity Building 3), 10 (Capacity Building 4) and 15 (Capacity Building 9).	

Exploitation activities

Please describe below any activities undertaken to ensure exploitation (use, in particular in a commercial context) of the Action's achievements.

Item/activity	Target audience	Outcome
N/A		

Action Success(es)

Taking into account the achievements, impacts and policy implementation of the Action described in the preceding sections, please describe below the two most significant successes of the Action.

Other matters

This section is confidential to the Management Committee, the Action Rapporteur and the COST Association, and is not included in the version of the report that is published on the COST website.

Difficulties in implementing the Action

If any difficulties were experienced in the implementation of the Action (e.g. imbalances of participation across the Working Groups, inactive country representatives) please described these below. Please also describe the efforts made by the MC to address these.

Suggestions for improvements to COST framework/ procedures

The mandate of the Scientific Committee includes providing advice to the COST Committee of Senior Officials on possible improvements to the COST framework. Please describe below any improvements that you believe should be made to the COST framework.

Sustaining the network beyond the Action

Are there any plans to sustain the network beyond the end of the Action?	

Emerging topics/ developments in the field of the Action

Please describe any emerging topics or potentially important future developments identified during the Action and that could potentially be addressed by future COST activities such as Actions S&T Conferences or Exploratory Workshops.

Annex 1: Types of objectives

1 - Coordination of scientific and technological activities at a European level

1.a - Development of a common understanding/definition of the subject matter

1.b - Coordination of information seeking, identification, collection and/or data curation

1.c - Coordination of experimentation or testing

1.d - Comparison and/or performance assessment of a theory, model, methodology, technology or technique

1.e - Development of knowledge needing international coordination, pertaining to a new or improved theory, model, methodology, technology or technique

1.f - Achievement of a specific tangible output that cannot be achieved without international coordination (e.g. due to practical issues such as database availability, language barriers, availability of infrastructure or know-how, etc.)

1.g - Input to stakeholders (e.g. standardization body, policy-makers, regulators, users), excluding commercial applications

1.h - Input for future market applications (including cooperation with private enterprises)

1.i - Dissemination of research results to the general public

1.j - Dissemination of research results to stakeholders (excluding specific input in view of knowledge application)

2 - Community building

2.a - Building a community around a topic of scientific and/or socio-economic relevance, allowing for knowledge exchange and the development of a joint research agenda

2.b - Building a community around a new or emerging field of research

2.c - Bridging separate fields of science/disciplines to achieve breakthroughs that require an interdisciplinary approach

2.d - Acting as a stakeholder platform or trans-national practice community, pertaining to a certain area of socio-economical or societal application, or to a certain market sector

2.e - Building capacity in the demographic inclusiveness of networks in science and technology, including representation of newly established research groups, Early-Career Investigators, the under-represented gender and teams from countries/regions with less capacity in the field of the Action

Annex 2: Dimensions of successes

1 - Breakthroughs

    1.a - Scientific breakthrough

    1.b - Technological breakthrough

    1.c - Breakthrough in socio-economic or societal applications

2 - Policy contribution

    2.a - Contribution to regulatory policy

    2.b - Contribution to environmental, infrastructural or agricultural policy

    2.c - Contribution to economic or socio-economic policy

    2.d - Contribution to social, cultural or legal policy

3 - Capacity building

    3.a - Building capacity in an existing field of science and technology

    3.b - Building capacity in bridging separate fields of science and technology

    3.c - Building capacity in a new or emerging field of science and technology

    3.d - Building capacity in valorising and implementing advances and applications in science and technology

    3.e - Building capacity in the demographic inclusiveness of networks in science and technology, including representation of newly established research groups, Early-Career Investigators, the under-represented gender and teams from countries/regions with less capacity in the field of the Action