

## 4th IFC and Bank of Italy Workshop on “Data Science in Central Banking”

18-20 February 2025, Rome, Italy

**Conference location on 18-19 February 2025:** Centro Carlo Azeglio Ciampi (Via Nazionale, 190 – 00184 - Roma)

**Conference location on 20 February 2025:** Sala Emeroteca, Banca d'Italia (Via Nazionale, 91 – 00184 - Roma)

### Programme<sup>1</sup>

#### Day 1: 18 February 2025

Time (CET)	Topic	Presenter marked in bold
10:00 – 10:20	IFC welcome	<b>Alberto Naudon</b> , IFC Chair, Central Bank of Chile
10:20 – 11:20	<b>Keynote speech:</b> Tailoring small language models for enterprise use cases	<b>Julien Simon</b> , Chief Evangelist at Arcee.ai
11:20 – 12:35	<b>Session 1.1 – Adoption of generative AI in central bank operations</b>	Chair: <b>Eric Anvar</b> , OECD
	<ul style="list-style-type: none"> <li>Results of IFC survey on central banks’ use of artificial intelligence and machine learning</li> </ul>	<b>Alberto Naudon</b> , IFC Chair, Central Bank of Chile
	<ul style="list-style-type: none"> <li>Harnessing generative AI: the strategic roadmap of Bank of Spain</li> </ul>	<b>Mónica Molés Ramos</b> , Bank of Spain
	<ul style="list-style-type: none"> <li>Innovation project: large language model adaptation at Latvijas Banka</li> </ul>	<b>Mārtiņš Liberts</b> and Rihards Ostrovskis, Bank of Latvia
	<ul style="list-style-type: none"> <li>A natural language processing toolbox for the National Bank of Romania</li> </ul>	<b>Claudia Voicilă</b> , National Bank of Romania
12:35 – 14:00	Lunch break	
14:00 – 15:00	<b>Session 1.2 – Natural language processing tools for enhanced text analysis</b>	Chair: <b>Roeland Beerten</b> , National Bank of Belgium

<sup>1</sup> Timing: 15 minutes per presentation; Q&A at the end of the session.

	<ul style="list-style-type: none"> <li>Transforming survey analysis: tools for central banks</li> </ul>	Nicholas Gray and <b>Dominic Jones</b> , Reserve Bank of Australia
	<ul style="list-style-type: none"> <li>From text to insights: AI-based topic modeling for central banking applications</li> </ul>	Felix Marx, <b>Marlena Pietsch</b> , <b>Diana Sola</b> , Michaela Vollmer and Babak Zandi, Deutsche Bundesbank
	<ul style="list-style-type: none"> <li>Efficacy of AI RAG tools for complex information extraction and data annotation tasks on bank documents</li> </ul>	<b>Nicholas Botti</b> , Flora Haberkorn and Shaun Khan, Board of Governors of the Federal Reserve System
15:00 – 16:00	<b>Session 1.3 – Generative AI for summarisation and information extraction</b>	Chair: <b>Bruno Tissot</b> , BIS
	<ul style="list-style-type: none"> <li>BankGPT: the use of Large Language Models in official communications</li> </ul>	Claudia Biancotti, Carolina Camassa, Marco Fruzzetti, <b>Luigi Palumbo</b> and Myriam Portaluri, Bank of Italy
	<ul style="list-style-type: none"> <li>Extracting economic issues from news data: with the help of generative AI</li> </ul>	<b>Younghwan Lee</b> , Bank of Korea
	<ul style="list-style-type: none"> <li>What skills are employers looking for? Applying generative AI to Danish job postings</li> </ul>	<b>Per Andersen</b> and <b>Erik Grenestam</b> , Danmarks Nationalbank
16:00 – 16:45	Coffee break	
16:45 – 17:45	<b>Session 1.4 – Text analysis for market monitoring and monetary policy purposes</b>	Chair: <b>Giuseppe Bruno</b> , Bank of Italy
	<ul style="list-style-type: none"> <li>The global database for central bank communications</li> </ul>	<b>Cory Baird</b> , Fitch Group / GeoQuant, Jonathan Benchimol, Bank of Israel, Vira Vyshnevskaya, KDI School, Igor Vyshnevskiy, and Wook Sohn, Woosong University
	<ul style="list-style-type: none"> <li>Read between the headlines: can news data predict inflation?</li> </ul>	Alan Chester Arcin, Ma. Ellysah Joy Guliman, Genna Paola Centeno, Jacqueline Margaux Herbo, Sanjeev Parmanand and <b>Cherrie Mapa</b> , Bangko Sentral ng Pilipinas (Philippines)
	<ul style="list-style-type: none"> <li>The impact of monetary surprises on exchange rates: insights from a textual analysis approach on a panel of countries</li> </ul>	<b>Jean-Charles Bricongne</b> , Bank of France, and <b>Louis Marolleau</b> , Lille University
17:45	Close of day 1	

## Day 2: 19 February 2025

<i>Time (CET)</i>	<i>Topic</i>	<i>Presenter marked in bold</i>
09:00 – 10:00	<b>Session 2.1 – Using text analysis for novel economic insights</b>	Chair: <b>Giuseppe Bruno</b> , Bank of Italy
	<ul style="list-style-type: none"> <li>Turbulent times: capturing social unrest in the news</li> </ul>	<b>Flora Haberkorn</b> , April Patel and Zach Proom, Board of Governors of the Federal Reserve System
	<ul style="list-style-type: none"> <li>Evaluating the effect of geoeconomic fragmentation on cross-border equity fund flows in the EMEAP region</li> </ul>	<b>Paul Luk</b> , Johnny Cheung and Ronald Yip, Hong Kong Monetary Authority
	<ul style="list-style-type: none"> <li>Indexing and visualization of climate narratives using BERT and causal extraction</li> </ul>	<b>Noriyasu Kaneda</b> , Bank of Japan, and Hiroki Sakaji, Hokkaido University
10:00 – 10:30	Coffee break	
10:30 – 11:30	<b>Session 2.2 – AI in supervisory technology and financial regulation</b>	Chair: <b>Douglas Araujo</b> , BIS
	<ul style="list-style-type: none"> <li>GenAI in action: transforming data use in SupTech</li> </ul>	<b>Patrick Hoffmann</b> , Maha El Dimachki, Kenneth Gay, Sivasubramanian Ramanathan, and Harry Lee, BIS Innovation Hub
	<ul style="list-style-type: none"> <li>AI-driven legal summarization for financial regulation monitoring</li> </ul>	<b>Diana López Avilés</b> and <b>Isidora Díaz Jorquera</b> , Central Bank of Chile
	<ul style="list-style-type: none"> <li>A novel multi-step prompt approach for LLM-based Q&amp;As on banking supervisory regulation</li> </ul>	<b>Daniele Licari</b> , Canio Benedetto, Daniele Bovi, Praveen Bushipak, <b>Alessandro De Gregorio</b> , Marco De Leonardis and Tommaso Cucinotta, Bank of Italy
11:30 – 12:30	<b>Session 2.3 – Advanced forecasting and data analytics techniques</b>	Chair: <b>Juri Marcucci</b> , Bank of Italy
	<ul style="list-style-type: none"> <li>Project Neo - gaining economic insights with AI and novel data</li> </ul>	<b>Rachel Arulraj-Cordonier</b> , Marko Nanut Petric, Flurina Strasser, BIS Innovation Hub
	<ul style="list-style-type: none"> <li>Enhancing external debt nowcasting: a data-driven approach using advanced analytics</li> </ul>	<b>Candra Puspita Dewi</b> , <b>Aditya Wisnugraha Sugiyarto</b> and <b>Sony Panji Wicaksono</b> , Bank Indonesia

	<ul style="list-style-type: none"> <li>Generalised weighted framework for synthetic data evaluation</li> </ul>	<b>Chiung Ching Ho</b> , Central Bank of Malaysia
12:30 – 14:00	Lunch break	
14:00 – 15:15	<b>Session 2.3 - continued -</b>	
	<ul style="list-style-type: none"> <li>Dynamic consumer cash inventory model</li> </ul>	<b>Kim P. Huynh</b> , Alex Shcherbakov and André Stenzel, Bank of Canada
	<ul style="list-style-type: none"> <li>Istanbul electricity demand forecast with artificial neural networks</li> </ul>	<b>Hayriye Yasak Özkal</b> , Buse Kaylan, Meltem Sipahi, Prof. Dr. Muammer Altan Çakir, Central Bank of the Republic of Türkiye / Istanbul Technical University
	<ul style="list-style-type: none"> <li>Forecasting influenza-like illness in Italy using Wikipedia: a principal component regression approach</li> </ul>	<b>Gianluca Mura</b> , Bank of Italy
	<ul style="list-style-type: none"> <li>A Foundational Model for Macroeconomic Time Series Forecasting and Nowcasting</li> </ul>	Batuhan Koyuncu, Byeungchun Kwon, Marco Lombardi, <b>Fernando Perez-Cruz</b> and Hyun Song Shin, BIS
15:15	End of presentations	
17:00 – 19:00	<b>Cultural event</b>	
19:00 – 22:00	<b>Social dinner</b>	
22:00	Close of day 2	

### Day 3: 20 February 2025

<i>Time (CET)</i>	<i>Topic</i>	<i>Presenter marked in bold</i>
09:00 – 09:15	<b>Special feature:</b> Data science: the role of statisticians	<b>Elisabetta Carfagna</b> , International Statistics Institute (ISI)
09:15 – 10:15	<b>Session 3.1 – Data privacy and anonymization</b>	Chair: <b>Adam Cap</b> , BIS
	<ul style="list-style-type: none"> <li>Data anonymization principles at Banco de Portugal</li> </ul>	Ana F Carvalho, <b>Francisco Fonseca</b> , <b>Mário Lourenço</b> and Ricardo Marques, Banco de Portugal

	<ul style="list-style-type: none"> <li>Generative AI in payments: secure synthetic data and more</li> </ul>	<b>Ajit Desai</b> , Colin Jones and Masoud Nasari, Bank of Canada
	<ul style="list-style-type: none"> <li>Data sharing conundrum? In fully homomorphic encryption we (must) trust</li> </ul>	Mirko Avantaggiato, <b>Adriano Baldeschi</b> , Giuseppe Bruno and Andrea Capitanelli, Bank of Italy
10:15 – 11:30	<b>Session 3.2 – Metadata and data integration with SDMX</b>	Chair: <b>Rafael Schmidt</b> , BIS
	<ul style="list-style-type: none"> <li>Metadata integration as a key enabling technique for AI and ML</li> </ul>	<b>Thomas Gottron</b> and Daniel Suranyi, European Central Bank (ECB)
	<ul style="list-style-type: none"> <li>SDMX chatbot – a trustworthy assistant to navigate the SDMX documentation</li> </ul>	<b>Samuel Melm</b> and Brian Buffett, BIS
	<ul style="list-style-type: none"> <li>sdmx.io – where tools and learning resources come together to address official statistics use cases</li> </ul>	<b>Brian Buffett</b> and <b>Douglas Araujo</b> , BIS
	<ul style="list-style-type: none"> <li>SDMX enabled users' processes at the Bank of Italy</li> </ul>	<b>Attilio Mattiocco</b> and <b>Valentino Pinna</b> , Bank of Italy
11:30 – 12:00	Coffee break	
12:00 – 13:00	<b>Session 3.3 – AI assisted data search and retrieval</b>	Chair: <b>Mónica Molés Ramos</b> , Bank of Spain
	<ul style="list-style-type: none"> <li>Supporting users in seeking data on the ECB data portal: a use case for retrieval augmented generation</li> </ul>	<b>Luca Petracca</b> , Alessandro Cortese, <b>Simone De Benedictis</b> , Thomas Gottron, Zlatina Hofmeister, ECB
	<ul style="list-style-type: none"> <li>Using RAG and LangChain to drive chatbots for interactive economic data analysis and insight</li> </ul>	<b>Seah Boon Keong</b> , Eilyn Chong and Max Chew, Central Bank of Malaysia
	<ul style="list-style-type: none"> <li>Leveraging generative AI for granular credit data utilization: a multi-agent approach</li> </ul>	<b>Nontawit Cheewaruangroj</b> , Kawinwish Laobundit, Peranut Nimitsurachat, Supachai Saengthong, Skunpoj Thanarojsophon and Anak Yodpinyanee, Bank of Thailand
13:00 – 13:15	Closing remarks	<b>Paolo Angelini</b> , Deputy Governor of the Bank of Italy
13:15	End of workshop	