



Big Data and Data Science: Advanced Analytics in Economics and Finance

19–22 May 2020, Royal Berkshire Hotel, England

Course Chair

Per Nymand-Andersen, Adviser, European Central Bank

Series Advisor

Charles Goodhart, Professor Emeritus, London School of Economics

<http://events.centralbanking.com/windsor>





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Institutions have attended



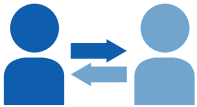
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For over 30 years Central Banking Publications has been a trusted provider of independent, authoritative and relevant information, commentary and analysis to the central banking community. Central Banking's events division is the leading independent organiser of public policy seminars/training courses for the official sector. Since 1999, Central Banking has hosted roundtable seminars and training courses for over 6,500 senior policymakers from central banks, ministries of finance and financial regulatory agencies around the world. Senior officials from more than 140 countries have attended these meetings over the past decade and a half.

Dear Delegate,

In 2020 central bankers and supervisors around the world acknowledge the insights Big Data brings in areas including monitoring of systemic risk build-up, nowcasting of price levels trends, and even financial crime detection. If used effectively, Big Data has the potential to provide an even greater depth and breadth of understanding: strengthening the decision making process in central banks, and thus, making for better policy formulation and implementation.

And this, as central banks acknowledge, is only the beginning. The challenge for central bankers now is how to best use these new technologies, to understand their limitations, and to communicate their findings.

This course, "Big Data and Data Science: Advanced Analytic in Economics and Finance" is designed to equip central bankers to meet these challenges.

The four-day programme of interactive roundtable seminars and workshops offers practical examples of Big Data applications and analytics, as well as questions of organisation and resourcing the function.

The panel of expert speakers will combine practical central banking experience and expertise in the technical aspects as well as views from private sector experts and leading thinkers from academia.

All discussions are held in roundtable format to encourage participants to share their experiences and debate the pressing issues in their field.

This format, as more than 6,500 central bankers and regulators can attest, encourages delegates to quiz panellists, raise issues and discuss solutions to the specific challenges they face.

We look forward to welcoming you to Windsor on May 19th.

Yours sincerely,

Per Nymand- Andersen
Course Chair

Learning outcomes:

By the end of the training course, participants will have gained new knowledge and a more comprehensive understanding of:

- Cloud and data management: innovation and opportunities for central banks
- What is new in Big Data and how can we make sense of it?
- Designing a supervision and surveillance analytics framework
- Visualisation: new insights for central bank communication
- Agent-based modelling in practice
- Using Big Data for nowcasting macro-economic indicators
- New techniques for AML and financial crime detection



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Tuesday 19th May

Emerging Opportunities in Big Data for Central Banking

Big Data analytics in central banking and supervision: building blocks and techniques

Jyry Hokkanen, Head of Statistics, Sveriges Riksbank

- The state of the art of Big Data analytics in 2020
- Overview of building blocks in the fields of data creation, storage, retrieval and analysis
- Examples of frameworks, approaches and techniques for successful application
- *Discussion*: what are the roadblocks that typically prevent the development of a coherent and sustainable Big Data strategy?

Cloud and data management: innovation and opportunities for central banks

Aleksi Grym, Head of Digitalisation, Bank of Finland

- A (very) brief history of cloud computing in central banks
- Standout examples of cloud applications in today's central banking environment
- Opportunities for data managing and advanced analytics
- *Discussion*: what does it take to effectively manage limitations and potential legal and security risks?

What is new in Big Data and how can we make sense of it?

Vincent Hendricks, Professor of Formal Philosophy, University of Copenhagen and Director, Centre for Information and Bubble Studies (CIBS)

- Key forces and dynamics shaping the work of economists, statisticians and data analysts in central banks
- Evolution of data needs for monetary and macro-prudential policy making
- Opportunities and challenges related to new international standards and initiatives
- *Discussion*: how do central banks need to change to make the most of innovation?

About the course chair

Per Nymand-Andersen is an adviser to Senior Management in Directorate General Statistics at the European Central Bank (ECB). He has developed his expertise in financial markets, securities settlement systems, statistics, big data and communication. Mr Nymand-Andersen is the key editor of the ECB's Statistics Working Paper Series and a lecturer at the Goethe University in Frankfurt am Main in Central Banking Policy and Transparency. He has an MBA in Economics and Management Science from Copenhagen Business School, Denmark. Prior to joining the ECB, Mr Nymand-Andersen provided market research consultancy services for Eurostat, Luxembourg. He is author of several articles and publications regarding financial markets, statistics and communication.



Wednesday 20th May

New Tools and Frameworks for Supervisory and Regulatory Analysis

Designing a supervision and surveillance analytics framework

Allan Kearns, Head of Function, Prudential Analytics, Central Bank of Ireland

- Key features of effective risk-based supervision in 2020
- Technological foundations of surveillance analytics
- Applications in risk assessment and stress-testing programmes
- Tips for overcoming data collection and processing issues

Machine Learning and AI: utilizing Big Data

David Bolder, Head of Capital and Credit Portfolio Risk, Nordic Investment Bank

- Overview of methods and practices for combining available technologies and digital platforms
- Management of key operational and ethical risks and challenges
- Implications for institutional organisation and resources
- *Hands-on exercise*: combining Big Data and Machine Learning for systemic risk identification and containment

Visualisation: new tools and techniques for visualising new data sets

Lyndsey Pereira-Brereton, Data Visualisation Editor, Bank of England

- Data visualization: state of the art
- Overview of machine-learning based tools and techniques
- Applications in financial data analytics
- Opportunities for central banks' communications

Text mining: applications in economic analysis

Paola Cherciello, Professor of Statistics and Big Data Analytics, University of Pavia

- Taxonomy of data derived from textual datasets on central banking
- Overview of tools and methods for their systematic analysis
- Examples of applications in predictive models
- *Case Study*: textual analysis for monitoring macroeconomic developments

Agent-based modelling in practice

Kimmo Soramäki, Founder and CEO Financial Network Analytics and founding Editor-in-Chief, *Journal of Network Theory in Finance*

- The state of the art of agent based modelling in 2020
- Strategies to overcome design challenges
- Implications for institutional organisation and resources
- *Hands on exercise*: how to build a successful agent-based model

Thursday 21st May

Making the Most out of Big Data (Lab Workshops)

Using Big Data for now casting macro-economic indicators

Per Nymand-Andersen, Adviser, European Central Bank

- Overview of emerging trends in regulatory Big Data
- Opportunities and challenges of Big Data applications for financial stability and systemic risk analysis
- Examples of good practice in combining Big Data from the internet, administrative and commercial sources
- *Case study:* European Central Bank's use of Google search data in autoregressive now-casting models

Applying Big Data techniques to a central credit register: turning micro into macro

Murat Topkaya, Expert, Statistics Department, Central Bank of the Republic of Turkey – (invited)

- New Taxonomy of central credit register data
- Applications in detecting risk build-up and concentration
- Examples of new Big Data based techniques and methods
- *Case study:* building a new central credit register framework

New techniques for AML and financial crime detection

Moad Fhami, Special Advisor, FinTech, Bermuda Monetary Authority – (invited)

- Overview of key financial crime risks of the digital era
- Examples of Blockchain and Machine Learning applications in KYC and KYCC
- The role of international and public-private cooperation and coordination
- Hands-on exercise: automated vs manual fraud and AML investigation

Past attendees include:

Banco De La Republica, Colombia • Bangko Sentral ng Pilipinas • Bank For International Settlements • Bank Indonesia • Bank Negara Malaysia • Bank of Algeria • Bank of Canada • Bank of Finland • Bank of Ghana • Bank of Haiti • Bank of Italy • Bank of Jamaica • Bank of Korea • Bank of Mexico • Bank of Mozambique • Bank of Portugal • Bank of Thailand • Bank of Uganda • Bank of Zambia • Bermuda Monetary Authority • Cayman Islands Monetary Authority • Central Bank of Aruba • Central Bank of Bahrain • Central Bank of Barbados • Central Bank of Belize • Central Bank of Brazil • Centrale Bank van Curaçao en Sint Maarten • Central Bank of Estonia • Central Bank of Ireland • Central Bank of Kenya • Central Bank of Lesotho • Central Bank of Liberia • Central Bank of Luxembourg • Central Bank of Malaysia • Central Bank of Nigeria • Central Bank of Oman • Central Bank of Republic Turkey • Central Bank of Sri Lanka • Central Bank of Swaziland • Central Bank of the Philippines • Central Bank of the Republic of Turkey • Central Bank of the UAE • Central Bank of Trinidad & Tobago • Deutsche Bundesbank • Eastern Caribbean Central Bank • European Banking Authority • European Central Bank • European Investment Bank • Federal Reserve Bank of Philadelphia • Federal Reserve Bank of Richmond • Federal Reserve Bank of St Louis • Hong Kong Monetary Authority • International Monetary Fund • Magyar Nemzeti Bank • Maldives Monetary Authority • Monetary Authority of Singapore • National Bank of Belgium • National Bank of Cambodia • National Bank of Poland • Norges Bank • Norwegian Ministry of Finance • Palestine Monetary Authority • Reserve Bank of India • Saudi Arabian Monetary Authority • South African Reserve Bank • State Bank of Pakistan • Swiss National Bank

Friday 22nd May

Towards Good Governance and Successful Outreach

Good governance: how should central banks manage Big Data

John Bottega, Executive Director, EDM Council & former Chief Data Officer, Federal Reserve Bank of New York (invited)

- Key approaches and challenges to successful governance of Big Data
- Framework for effective management of Big Data
- Strategies to balance oversight and promote innovation
- *Discussion*: how effective is existing data governance in coping with Big Data in delegates home jurisdictions?

Rightsourcing: an interdisciplinary approach to setting up a Big Data lab

Nick Vaughan, Data Analytics and Modelling & Adrian Waddy, Designer, Technology Delivery, Bank of England

- Overview of the latest developments in Big Data resourcing in central banks
- Challenges of building Big Data infrastructure for sustainable scalability and flexibility
- Strategies and frameworks for the effective integration of new datasets into policy analysis and decision-making procedures
- *Case study*: how did the Bank of England embrace Big Data technologies to support better data analysis

Delegate actions points and course conclusion

Led by the chair, **Per Nymand-Andersen**

- Summary of the training course
- Discussion of the observed trends and case studies
- Application of learning points in the delegates' home organisations
- Preparation of action points

What delegates say about us

■ ■ A great experience. Different from other seminars I've participated in – in a good way. ■ ■

Rasmus Mansberg, Economist, National Bank of Denmark



Windsor Training Series 2020:

Week One: 19th – 22nd May



FinTech: Innovation in Payments and Settlements

Course chair: Richard Heckinger, former Vice President and Senior Policy Adviser, Federal Reserve Bank of Chicago



AML/CFT: Implementing the Risk-Based Framework

Course chair: Richard Chalmers, former Co-Chair, FATF's Evaluation and Compliance Group



Macro-prudential Policy: Implementing the Financial Stability Mandate

Course Chair: Maria Nieto, Advisor in the Directorate of Financial Stability, Regulation and Resolution, Bank of Spain



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Week Two: 25th – 28th May



Strategic Planning and Management: Delivering Change and Meeting Objectives

Course Chair: Janet Cosier, former Adviser on Strategic Planning and Risk Management, Bank of Canada



Central Bank Board: Good Governance, Resilience and Enhancing Performance

Course Chair: John Jussup, former General Counsel and Corporate Secretary, Bank of Canada



Communications, Media Relations and Engagement

Course Chair: Marek Petruš, Central Bank Communications Consultant and former Director of the General Secretariat, Czech National Bank



Good Practice in Banknote and Currency Management

Course Chair: Antti Heinonen, Chairman, Banknote Ethics Initiative



Internal Audit: Moving at the Speed of Innovation

Course chair: Klaus Gressenbauer, former Director, Internal Audit, European Central Bank and Chairman of the Internal Auditors Committee European System of Central Banks



Booking details

4-Day (3 nights) residential course

Course fee includes: accommodation at the Royal Berkshire, meals, refreshments, course documentation and a complimentary copy of the most recent issue of the Central Banking journal. Substitute delegates can be accepted should the registered delegate be unable to attend; please let us know prior to the event.

How to book

There is a booking form overleaf. Please use one of the following methods to book your place:

Online: <http://events.centralbanking.com/windsor>

Call: George Johnson on +44 (0)207 316 9136

Email: training@centralbanking.com

Fax: Attention of Central Banking Training to +44 (0)207 681 3401

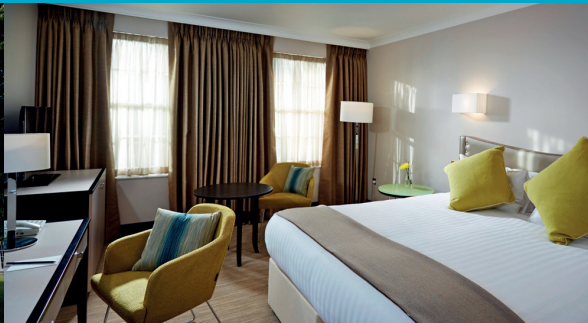
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The venue

Central Banking's 2020 Windsor Training Series will take place in the heart of Berkshire, the royal county with a history spanning over 1,000 years. Amidst its countless historical monuments, ancient forests and stunning horticultural displays, the Royal Berkshire Hotel is one of the historical seats of the Churchill family and, since 1971, the home to a traditional British country hotel. The venue (located less than 30 minute from Heathrow airport) is fully equipped for modern events and occupies a relaxed location offering guests the opportunity to step back from their day-to-day work, to think strategically and to learn from their peers in central banks around the world. It is also near to the sights of the Windsor Castle and the Great Park, the independent school of Eton College, and Runnymede – where the Magna Carta was signed.



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19–22 May 2020

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Delegate details: PLEASE WRITE IN CAPITALS and return to training@centralbanking.com

MR/MRS/MS: _____ SURNAME/FAMILY NAME: _____

FIRST NAME: _____

JOB TITLE: _____ DEPARTMENT: _____

ORGANISATION: _____

ADDRESS: _____

_____ POSTCODE: _____

TELEPHONE: _____ FACSIMILE: _____

EMAIL 1: _____

Please provide us with the direct email address of the delegate and an additional email address if possible. This is very important because all correspondence with delegates is by email.

EMAIL 2: _____

Accommodation: The course fee includes 3 nights accommodation at The Royal Berkshire Hotel. Please indicate if you think you may need **extra (nights) accommodation** at the venue (Yes/No). Please confirm whether you have received financial approval to attend? (Yes/No). Do you require a VISA to travel to the UK? (Yes/No)

Early Bird Offer (Ends 21st February 2020): £3,100. Standard Rate: £3,550

Payment details:

Invoice: If you select this option an invoice will be sent to you by email and by post. If you would like to provide different details to the above for the invoice please notify us when sending back the booking form.

Credit card: please charge £3,100 / £3,550 to my Visa Mastercard American Express

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Cardholder name: _____ Expiry date: _____

Cardholder address (if different from above): _____

Signature: _____ Date: _____

I have read and agree to the terms and conditions below.

Signature: _____ Date: _____

By returning this registration form, you agree to allow us to contact you as required for the organisation and administration of the event, using the submitted details. We will comply with the terms of our Privacy Policy (URL below) when we handle your registration details and any other of your personal information. We have exciting offers and news about our products and services that we hope you'd like to hear about. We will use your information submitted above to predict what you might be interested in so that our marketing is relevant. Please note that this event will be photographed for advertising or promotional purposes. By attending you consent to being photographed at the event. Our privacy policy can be found here: <https://www.infopro-digital.com/terms-conditions/privacy-policy/?lang=en>. Our terms and conditions can be found here: <https://www.infopro-digital.com/terms-conditions/event-admission/?lang=en>