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Sarah Bell, Blaise Gadanecz, Leonardo Gambacorta, Fernando Perez-Cruz and Vatsala Shreeti

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Sarah Bell Blaise Gadanecz Leonardo Gambacorta Fernando Perez-Cruz Vatsala Shreeti

Sarah.Bell@bis.org Blaise.Gadanecz@bis.org Leonardo.Gambacorta@bis.org Fernando.Perez-Cruz@bis.org Vatsala.Shreeti@bis.org

Artificial intelligence and human capital: challenges for central banks

Key takeaways

- *Artificial intelligence (AI) is changing how central banks use human capital. Two scenarios illustrate the uncertainty around the trajectory of AI development: "AI copilots", which augment rather than replace human skills, and "AI agents", which automate specific central bank tasks and can act as substitutes for human roles.*
- *Central banks are already integrating "AI copilots" in their daily operations. These tools enhance staff productivity without fundamentally altering how their work is conducted. In contrast, "AI agents" could transform workflows in the next decade, though human oversight will remain essential to ensure their responsible and ethical adoption.*
- *To successfully transition toward AI-intensive workflows under either scenario, a focus on retraining and upskilling existing staff, attracting new talent and fostering a culture that embraces innovation is warranted.*

Introduction

The use of artificial intelligence (AI) will shift the way central banks use human capital, changing how jobs are done and increasing the need for cross-disciplinary collaboration.[1] For instance, tasks like real-time economic forecasting, financial stability monitoring or verifying transactions will increasingly rely on AI, requiring staff to oversee, interpret and refine AI outputs (BIS (2024)). This shift poses significant challenges for talent management, especially in terms of recruiting, retaining and upskilling the workforce, with 83% of central banks reporting increased complexity in workforce planning (CBGN (2024a)). The limited supply of talent with the right mix of AI skills and central banking expertise sharpens these challenges, while the rapidly changing technological landscape requires workforce strategies to constantly evolve.

In this Bulletin, we address the human resource (HR) management implications of AI in central banks. We do so by laying out two potential scenarios for the development of AI and its use. Scenario 1 involves the implementation of copilots based on large language models (LLMs)[2] that augment rather than replace human skills and workers. Scenario 2 considers a more radical possibility that entails the deployment of AI "agents"[3] that can act as substitutes for some human roles. These two scenarios can be seen as existing along a continuum, where copilots become increasingly capable and independent,

[1] Technological advancements have changed the composition of central banks' workforce in the past as well (for example, the reduced need for typists with the adoption of personal computers). What differentiates AI from previous generations of technology is its potential to affect a wide range of roles within central banks.

[2] An LLM copilot is defined as a tool designed to assist humans in performing tasks such as developing software, summarising documents, drafting email and generating images. This is provided in response to natural language prompts given by humans.

[3] Among the various definitions of AI agents, we define an agent as an LLM capable of utilising a computer, eg Claude Computer Use (Anthropic (2024)), Operator (OpenAI (2025)), Mariner (DeepMind (2024)) or Manus AI Agent (Manus (2025)).

ultimately leading to the use of AI agents that replace many human functions. We examine how the workforce and work profiles may change under these two scenarios. We then discuss the challenges central banks face in attracting new talent, training and upskilling existing staff, and adapting to a culture of innovation and experimentation.

Scenario descriptions

The HR implications of AI for central banks will vary depending on the nature of AI use. Given the uncertainty around the trajectory of AI development and use, we consider two potential scenarios and examine the short- and medium-term implications for HR management.

- **Scenario 1: Implementation of LLM-based copilot systems**. In this scenario, LLM-based AI tools are deployed in central banks to assist human experts in their daily tasks. These tools can range from internal chatbots fine-tuned on central banks' documents and policies, to tailored solutions for handling financial data. Other applications of copilots include assisting with data analysis, verifying transactions conducted by central banks, generating reports and coding (see some further examples in online Appendix A). These tools are typically prompted with natural language, and their output can include text, code, images and audio. In this first "copilot scenario", AI enhances human capabilities, rather than replaces them, thereby increasing the effectiveness of central bank staff and allowing them to focus on more complex, high-level tasks.
- **Scenario 2: Implementation of AI agents**. This scenario envisages autonomous AI agents that can replace humans in specific, well defined tasks with minimal human oversight. For example, an AI agent could autonomously gather economic data in real time to produce economic forecasts, continuously update them as new data become available and adapt to changes in the data sources. Another example is an agent that can automatically verify transactions conducted by central banks (an extension of the deal backing check copilot; see online Appendix A). Unlike the copilots in scenario 1, which assist staff, AI agents could include LLMs with the ability to directly utilise a computer. These capabilities would enable a wider range of autonomous tasks.[4] Such agents are currently in beta mode and are undergoing testing at leading AI companies. It is uncertain how good AI agents will turn out to be. Currently, beta versions have shown mixed results in tasks such as booking a flight and arranging itineraries (Perez-Cruz and Shin (2025)). Of course, in all these applications, human oversight will remain crucial. While AI agents can perform narrowly defined tasks independently, a "human in the loop" is still needed to interpret findings and make high-level decisions. In this scenario, some tasks of central bank staff can be performed by AI tools, potentially reducing the need for some roles but creating new tasks at the same time.[5]

How will AI change central bank workforces?

In either scenario, job profiles will change, and central banks will need a workforce suited to harnessing the benefits of AI. New work profiles will be needed to build and maintain AI applications, and existing ones will require additional skills to harness AI in their tasks (Reuel et al (2024)). At the same time, some work profiles based on more routine or repetitive tasks may become less important.

[4] The use of an LLM with computers will be carefully controlled through prompts or fine-tuning and will undergo thorough evaluation before the LLM is allowed to perform narrowly defined tasks autonomously.

[5] A third scenario could be the advent of artificial general intelligence (AGI) in the long term. AGI is broadly defined as a system that has sufficient cognitive capacities to perform any task humans can. While some industry leaders believe that AGI or superintelligence could be attained within the next five years (Altman (2025); Amodei (2024)), others argue that significant roadblocks remain (Browning and LeCun (2022); Altmeyer et al (2024)). In this Bulletin, we do not delve into the HR implications of AGI due to the uncertainty surrounding what AGI is and what it will ultimately be capable of.

Work practices will also change in both scenarios. Continuous staff development through training programs, workshops and certifications will be essential to keep up with evolving AI technologies and regulatory changes. Most central banks have taken steps to raise awareness among staff about the use of AI and machine learning (ML), with over a third of survey respondents doing this as part of a comprehensive staff engagement strategy (CBGN (2024b)). In parallel, for staff to use AI effectively, central banks will need to have a clear governance framework for AI, encompassing ethical guidelines, data privacy standards, accountability measures and compliance protocols, to ensure responsible and transparent deployment of AI technologies.[6] In scenario 2 in particular, governance measures will need to be embedded ex ante into the design of AI agents, which would be more autonomous than the scenario 1 copilots.

The copilot scenario will disrupt work practices to a more limited extent but will still require changes. Here, the focus will be on upskilling and reskilling staff to effectively employ AI tools in their daily tasks (Lamarre et al (2023)). The upskilling and reskilling efforts would target AI/ML specifically and would need to occur on a continuous basis due to the rapid advances in the capabilities of AI tools. Experts in statistics, law, finance or economics and professionals in support functions like IT, HR and security will need to incorporate AI tools in their tasks and interpret AI insights. They would also need to make informed decisions and collaborate with technical teams to tailor AI tools to central bank needs. Some examples of how central bank roles may change are reported in online Appendix B.

The implications of the second AI agent scenario could be more disruptive. Here, AI would handle some tasks autonomously, but human oversight will remain crucial for alignment with the responsible AI governance imperatives of the central bank. The focus of the workforce strategy would be on managing the transition and redefining tasks to have a greater emphasis on oversight and supervision. New roles such as ML researchers, ML operations engineers, data engineers, AI ethics officers and AI trainers, while important in both scenarios, may be needed in greater numbers in the AI agent scenario (see online Appendix B). The tasks performed by staff in these roles would also differ in the two scenarios. For example, in scenario 2 a data engineer might focus more on having clean and consistent data sets to ensure effective AI agents.[7] In scenario 2, new staff specialising in AI (ML engineers and researchers) would also require a deeper knowledge of the objectives and functions of central banks so that the use cases they develop correspond to the needs of the central banks. They will need to be well versed in regulations and institutional policies to ensure that the autonomous tools will operate within legal and ethical boundaries.[8] Concurrently, staff who are not AI specialists will need to understand how the ML-based autonomous tools work and what their capabilities and limitations are.

In both scenarios, central banks need alternative staffing options to address resourcing gaps as they arise. These options include relying more on consultants, contractors or temporary workers, or outsourcing in certain areas requiring skills in high demand.[9] This might be the case especially in scenario 2. However, such arrangements come with difficulties related to continuity, maintaining a cohesive internal culture, information security and, in some cases, legal restrictions. As a result, they may be best suited for closing short-term gaps or supporting specific projects. In both scenarios, a balanced approach that leverages the strengths of permanent staff and agency staff contractors is likely to be most effective. Permanent staff provide stability, institutional knowledge and long-term adaptability, while contractors offer specialised skills, flexibility and cost-effective solutions for specific projects. Online

[6] CGRM (2025) provides guidance on the governance and risk framework of AI adoption in central banking.

[7] In scenario 1, humans may be able to provide feedback on the quality of data more easily as they use copilots and spot errors. Agents might not be able to automatically recover from data errors, including formatting issues or malfunctioning weblinks.

[8] At the same time, regulatory boundaries might evolve concurrently with AI developments.

[9] AI may also allow for better use of foreign teleworkers by central banks that can leverage such resources. Baldwin and Okubo (2024) provide preliminary evidence that AI and remote working by foreigners are acting as complements in many office occupations, suggesting a future where AI-driven tools and remote work are increasingly intertwined.

Appendix C discusses the potential choices and implications for central banks concerning data and IT infrastructure.

AI-related human capital challenges

In the light of the evolving skills needed to leverage new tools, central banks face significant challenges in attracting and retaining talent. A recent BIS survey highlights some of these challenges. Almost 90% of the surveyed central banks reported that recruiting staff had become more difficult in the last five years (see Graph 1.A). It is particularly difficult for central banks to hire in areas such as cyber security, IT, fintech, data science and AI/ML (Graph 1.B).[10] One reason is that the high demand for these roles across the economy means that public institutions may be unable to match private sector salaries for top AI talent. Another challenge may be the perception of limited opportunities for career progression. In addition, while central banks may be an employer of choice among candidates with economic and policy expertise, this may be less the case for early career professionals and those with technological expertise. To appeal to AI experts in high demand, central banks can leverage their mission-driven nature and unique value proposition, including access to data, opportunities to work on impactful cutting-edge projects and a variety of non-financial compensation, such as training and educational opportunities.

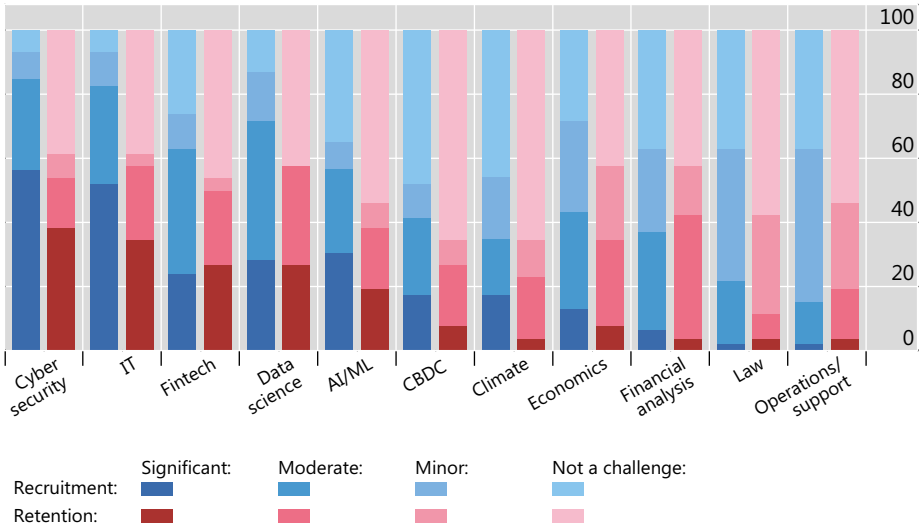
As the adoption of AI tools increases within central banks, the premium on attracting the right mix of skills will only grow, and central banks will need to employ multiple strategies to manage capability gaps (Graph 2.A). Attracting and retaining talent will be a challenge across both scenarios, particularly in the second one. A specific hurdle for some central banks is legal or regulatory restrictions on recruitment,

Challenges in recruitment and retention

As a percentage of respondent central banks[1] Graph 1

A. Has recruitment or retention become more difficult in the past five years?

B. For which areas or skills has recruitment/retention become more difficult?[2]



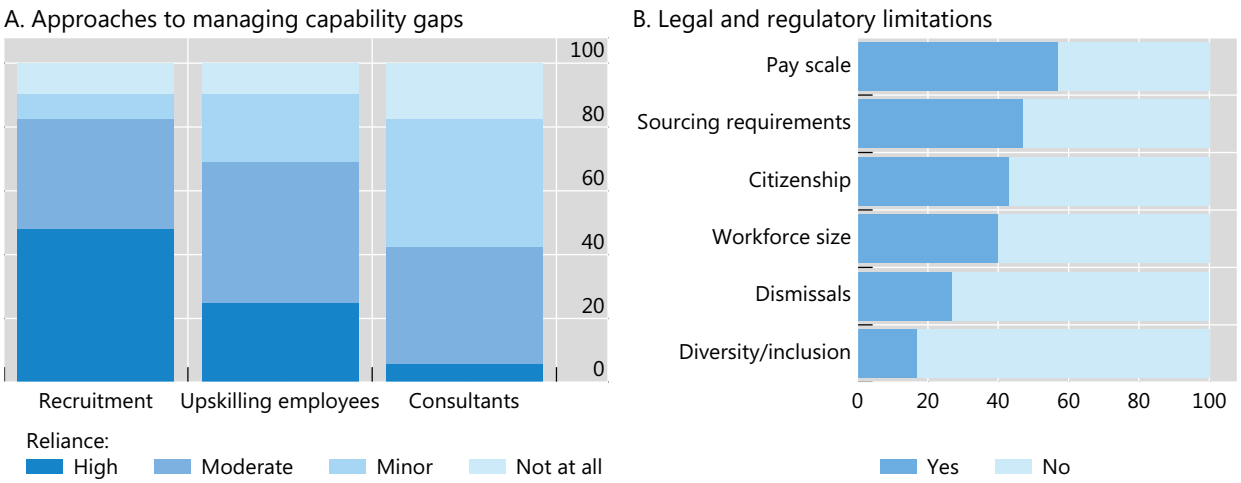
[1] Based on a survey of 52 members of the Central Bank Governance Network conducted in May 2024. [2] Shares based on the subset of central banks experiencing more difficulties with recruitment and/or retention.

Source: CBGN (2024a).

[10] The rapid progress in generative AI is adding new dimensions to cyber risk. At the same time, it is also providing new tools to combat these risks (Aldasoro et al (2024)). In terms of workforce planning, this implies that central banks need to enhance capacity in the area of cyber defence.

Managing capability gaps: legal and regulatory limitations and approaches

In percentage of central banks — Graph 2



Source: CBGN (2024a).

faced by 58% of CBGN survey respondents. For instance, sourcing requirements (eg recruiting only via civil service exams) were cited by 47% and citizenship requirements by 43% (see Graph 2.B).

Another challenge facing central banks will be to manage the transition to a more AI-intensive workflow. Many central banks expressed concern about the ability of experienced staff to acquire new skills and ways of working (CBGN (2024a). Several central banks noted challenges in acquiring sufficient digital, AI or advanced data analytics skills at the needed pace, which may hinder adoption of new tools. Successfully integrating AI into central bank operations requires upskilling existing staff, particularly in scenario 1. Internal and external experts will be needed to retrain staff to use AI tools. The type of training required will depend on the scenario. In the copilot scenario, training will focus on enhancing collaboration skills and integrating AI insights. In scenario 2, the emphasis will be on advanced technical skills, system management and supervision of AI tools.

The transition to a more AI-intensive workflow requires effective change management strategies. Central banks can benefit from communicating the advantages of AI, addressing potential disruptive effects and fostering a collaborative environment for staff with different skills. Central banks can also emphasise the importance of development plans for both teams and individuals, considering the need for a balance between generalists and specialists. For example, they can conduct regular workforce planning meetings to discuss issues such as development of successors and mobility, as well as design training and development plans for key positions and profiles.

With a new mix of skills in the workplace, central banks will need to embrace a culture of innovation and experimentation. This requires building diverse teams and including different working styles (Maechler (2024)). This would certainly be a challenging process, especially in scenario 2. Central banks have highlighted the importance of fostering a culture of greater innovation to leverage AI technology, while recognising that this may happen at a more cautious pace at central banks than in the private sector, given their lower risk appetites and need for broad stakeholder engagement.[11]

[11] A crucial challenge for central banks will be developing governance frameworks for AI to ensure it is implemented in a responsible manner (see CGRM (2025)).

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