

François Villeroy de Galhau: Innovation by central banks - the sooner the better

Speech (virtual) by Mr François Villeroy de Galhau, Governor of the Bank of France, at the BIS Innovation Summit 2024, Basel, 6 May 2024.

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Ladies and Gentlemen,

It is a great pleasure for me to speak today as Chair of the BIS at this Innovation Summit, especially to tackle a dilemma that all of us have to face: should we adopt new technological innovations now, or wait for them to mature further? None of us has a crystal ball: we cannot know for sure which innovations will flourish or when, nor what impacts they will have on the economy and financial sector. The electric car, for example, was first invented in the nineteenth century, only to be overtaken by gasoline cars, but these days it is back in the spotlight again. Of course, as central banks, we are not innovating for innovation sake. And innovation has a cost: the closer an innovation stands to the current "technological frontier", the higher its costs.

However, as central banks, we must keep up with developments if we are to remain benchmark players. In addition to the question of when is the "right time", this raises a more specific challenge: how to overcome the apparent innovation / stability oxymoron (I). I will then focus on a new high priority area: artificial intelligence (II).

I. Central banks must innovate in order to remain benchmark players in a fast-moving financial world

Central banks and supervisors are directly interested in innovation, not only to keep pace with their private partners, but also to channel innovation towards the common good. That said, taking advantage of new technologies involves: 1 active monitoring, to identify worthwhile innovations 2 analysis, to detect their potential risks and vulnerabilities, and 3 anticipation of future threats. Take the example of quantum computing: the technology may not be mature yet, but we have to prepare now for the consequences it will have on cryptographic methods. That is why last June the Banque de France launched and successfully conducted an experiment with a private partner to develop post-quantum algorithms.

Innovation means movement, change and ultimately, a certain degree of risk-taking. Hence the oxymoron and apparent contradiction with central banks' mission of monetary and financial stability. Winston Churchill once said: "Without tradition art is a flock of sheep without a shepherd. Without innovation it is a corpse." This is admittedly a strong way of putting it, but I believe there is a large part of truth in this. Innovation without stability will lack trust, and stability without innovation would result in stasis.

Historically central banks have not only been followers or adopters, but innovators themselves, for the greater public good – think of the Eurosystem's infrastructures that have made enhanced financial integration possible in Europe. Money is and will remain a public-private partnership that has to evolve.

The way we make central bank money available has to be geared to the 21st century to ensure that central bank money maintains its fundamental role: this role is not to be the dominant means of payment, but a stability anchor for the financial system. This is why I believe that, sooner or later, we will need a central bank digital currency (CBDC) for wholesale as well as for retail purposes. We are preparing accordingly at the ECB and the Banque de France; and commercial banks need not be fearful.

Let me broaden the view about the future of payments. The landscape here is evolving rapidly, with many new elements: some are "solid", almost set in stone – like the G20 objectives on improving cross-border payments or regulating cryptos. Others are more "liquid" albeit very promising: the interconnection of successful fast payment systems like UPI in India, PIX in Brazil and – possibly – TIPS in Europe; the tokenisation of assets – and let me insist here that European banks shouldn't lag behind in the domain of tokenised deposits –; and yes, CBDC. One could even argue that there are still "gaseous" elements such as AI, which I will come back to. What we need now is not to choose such and such a technology or path, but to articulate these as part of a global picture or vision. We must both follow innovation with humility and openness, but also lead and reflect on it in a holistic manner. Here, the idea of a "unified ledger", proposed in the latest BIS annual report and developed in a recent paper by Agustin Carstens and Nandan Nilekani,ⁱ may prove more than just a promising technology: a rallying concept.

Accordingly, the BIS recently launched Agoraii, a major project to explore tokenisation of cross-border payments that brings together seven central banks worldwide, including the Banque de France which represents the Eurosystem, and a large group of private financial firms. A necessary step towards such a global infrastructure could be to build regional unified ledgers – one of which would be European.

II. Artificial intelligence: a high priority area starting from now

Let me now turn to artificial intelligence (AI), which has gained widespread public attention thanks to exponential leaps in its performance over the last few years – especially generative AI. For sure, there is still more "talk than walk", and the "AI hype" could be followed by some disappointment.

That said, this is a typical example of an innovation where central banks would be mistaken to wait until they have gained absolute certainty. Earlier this year the IMF ventured a preliminary estimate: almost 40% of jobs around the world (and up to 60% in developed economies) may be affected, with AI acting either as a substitute to or as a complement to labour.³ One striking feature is that while the automation enabled by previous innovations had thus far concerned only simple or routine tasks, AI may also impact highly-skilled jobs. However, according to a recent report coordinated by Anne Bouverot and Philippe Aghion in France,⁴ only 5% of jobs are at risk of being fully replaced.

As pointed out in an IMF paper co-authored by Daron Acemoglu⁵, one of the key challenges is to make sure that a "human AI" complements humans instead of replacing them. The pioneering European AI Act⁶, which is expected to be adopted in the coming weeks, is designed specifically to foster trustworthy AI in Europe and beyond. And we should be careful not to repeat the mistakes of the past: an excessive concentration of AI players would be detrimental on many levels. This danger may

increase further if too few AI models lead to a loss in information diversity and to misalignment between human cognition and AI algorithms.⁷

Here again, for central banks, learning by doing is of the essence. Today we at the Banque de France have already deployed AI in several different areas. To give a few examples, we use machine learning to help detect fraud in transactions with the French Treasury that are managed by the Banque de France; "neural networks" help staff analyse the probabilities of default of non-financial corporations in our proprietary rating system; and natural language processing tools enhance analytical capabilities within the ACPR, the French banking and insurance regulator. We will step up this activity this year with the support of our innovation LAB, and scale-up our use of AI. To do this, we have been reflecting on a "doctrine" that can hopefully also serve other central banks.

Firstly, understand and master: we need to ensure that we thoroughly understand the models and their outputs in order to maintain full control over our activities. Having state-of-the-art domestic AI platforms available on the market would be very beneficial in this regard, given the sensitivity of some of the data we handle and it is therefore quite high up on my wishlist. In France and in Europe, we have the expertise and resources needed to compete with the major current incumbents, as recently stressed in a speech by Christine Lagarde.⁸ The proposed idea of a "European AI Community"⁹ could foster the emergence of domestic players. This would benefit all countries around the world: the more AI providers we have, the less risky our use of that AI will be – diversification is an effective risk management tool. However, the current situation does not prevent us from moving forward and we can gradually expand our use – starting with the least sensitive data, while developing appropriate in-house solutions to deal with more sensitive ones.

Secondly, buy-in: in line with the principle that AI should complement human labour and expertise, gradualism is also needed in the way we integrate AI. This will help to ensure employee buy-in. The challenge should not be underestimated: we have to find the "right" kind of human-machine interaction, i.e. efficient, positive and unbiased interactions. In practice, this means training, feedback and continuous improvement; all good reasons to tackle the learning curve as early as possible.

Last but not least, cooperate: we need to move ahead together by enhancing cooperation, not only between central banks and financial supervisors, but with other authorities as well, both domestically and across borders, in different fields: competition, cyber resilience (AI is used by hackers to detect security weaknesses in IT systems), fundamental and personal rights, climate transition-. I am convinced that if Keynes and the other founding fathers of the Post-War international order were to start over today, they would create a WDO (World Digital Organisation) to cooperate, stimulate and regulate. In the absence of such an organisation, we will need to be creative.

To conclude and to tackle today's question in an even more straightforward way: yes, central banks must rapidly start adopting new technological innovations – including AI – in a rational, clear-headed and controlled way. As Seneca wisely said as early as in the Roman Empire: "It's not because things are difficult that we dare not venture. It's because we dare not venture that they are difficult". Thank you for your attention.

- [1](#) Carstens (A.) and Nilekani (N.), Finternet: the financial system for the future, BIS working paper, 15 April 2024
- [2](#) BIS (Bank for International Settlements), Project Agora: central banks and banking sector embark on major project to explore tokenisation of cross-border payments, 3 April 2024
- [3](#) IMF, AI Will Transform the Global Economy. Let's Make Sure It Benefits Humanity., 14 January 2024
- [4](#) Commission de l'intelligence artificielle, 25 recommandations pour l'IA en France, report coordinated by Anne Bouverot et Philippe Aghion, 13 March 2024 (French version only to date, English version to be released soon)
- [5](#) Acemoglu (D.) and Johnson (S.), Rebalancing AI, December 2023
- [6](#) European Commission, AI Act
- [7](#) Acemoglu (D.), G30 Spring Lecture 2024, 19 April 2024
- [8](#) Lagarde (C.), Unlocking the power of ideas, speech at Yale University, 22 April 2024
- [9](#) Le Maire (B.), speech at the "Europe 2024" conference, 19 March 2024