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AI and banks.
In conversation
with an AIntern

JESÚS LOZANO BELIO

ARTIFICIAL INTELLIGENCE

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DEAR READER,

As the financial services industry continues to embrace transformation, advanced artificial intelligence models are already being utilized to drive superior customer experience, provide high-speed data analysis that generates meaningful insights, and to improve efficiency and cost-effectiveness.

Generative AI has made a significant early impact on the financial sector, and there is much more to come. The highly regulated nature of our industry, and the importance of data management mean that the huge potential of AI must be harnessed effectively – and safely. Solutions will need to address existing pain points – from knowledge management to software development and regulatory compliance – while also ensuring institutions can experiment and learn from GenAI.

This edition of the Capco Journal of Financial Transformation examines practical applications of AI across our industry, including banking and fintechs, asset management, investment advice, credit rating, software development and financial ecosystems. Contributions to this edition come from engineers, researchers, scientists, and business executives working at the leading edge of AI, as well as the subject matter experts here at Capco, who are developing innovative AI-powered solutions for our clients.

To realize the full benefits of artificial intelligence, business leaders need to have a robust AI governance model in place, that meets the needs of their organizations while mitigating the risks of new technology to trust, accuracy, fairness, inclusivity, and intellectual property. A new generation of software developers who place AI at the heart of their approach is also emerging. Both GenAI governance and these 'Developers 3.0' are examined in this edition.

This year Capco is celebrating its 25th anniversary, and our mission remains as clear today as a quarter century ago: to simplify complexity for our clients, leveraging disruptive thinking to deliver lasting change for our clients and their customers. By showcasing the very best industry expertise, independent thinking and strategic insight, our Journal is our commitment to bold transformation and looking beyond the status quo. I hope you find the latest edition to be timely and informative.

Thank you to all our contributors and readers.

Lance Levy, **Capco CEO**

AI AND BANKS. IN CONVERSATION WITH AN AINTERN

JESÚS LOZANO BELIO | Senior Manager, Digital Regulation, Regulation and Internal Control, BBVA

ABSTRACT

The rapid advancement of artificial intelligence has facilitated the automation of previously challenging tasks. This article explores the opportunities and benefits associated with AI adoption, specifically within the banking sector. It examines how banks are currently utilizing AI, the challenges they face in implementing AI systems, and the role of regulators in supporting AI adoption. Additionally, as this article has been written with the help of some AI tools, it serves as a practical demonstration of AI's applicability in research and information dissemination. While AI demonstrates proficiency in these areas, it is important to note that human expertise and supervision remain essential due to inherent limitations of the technology.

1. INTRODUCTION

Ever since I joined the Digital Regulation team of BBVA in December 2016, where I was tasked with monitoring AI regulatory developments, I felt compelled to make use of AI for my work. Indeed, I coined the term "AIntern" to refer to a tool that was able to perform some of the tasks that an intern in a research department is usually entrusted with, such as compiling data and information, summarizing papers, and helping to write reports.

Unfortunately, I was not able to engage in such a project due to time and resource constraints and I gradually abandoned the idea. However, when generative AI hit the headlines at the beginning of 2023, that idea came back to me and I started to explore the different tools that are available in the market. My objective was to take advantage of these tools to build my own AIntern as soon as I had some spare time.

Sadly, 2023 has resulted in a very prolific year in digital regulation and I had to postpone my plans once again. However, when I was invited to write an article for the Journal of Financial Transformation, I immediately thought of how I could turn my contribution into a proof of concept of my long-awaited AIntern project.

Thus, this article is the outcome of that proof of concept. Its content has been written with the invaluable help of some AI tools that I will refer to in the appendix. The content itself is not revolutionary as it focuses on the opportunity of using AI, the benefits it can bring, how banks are using AI, the challenges linked to AI adoption, how regulators can support the adoption of AI by banks, and some basic steps to take into consideration for the successful adoption of AI.

This article is based on a combination of reports, news, and papers I have written or contributed to and other documents I have read since 2017 that I found interesting, and all of which are publicly available. I gave them to my AIntern and then questioned it about them. What follows is a summary of "the interview" I did with my AIntern.

In the appendix, some additional information on the questions I asked it, the sources used, and the process to select them, among others, can be found. It is my intention that this appendix helps readers identify some of the considerations that have to be taken into account when using generative AI[1] for these types of tasks.

[1] A brief explanation of this type of AI implementation can be found in McKinsey & Company (2023).

My main takeaway from this proof of concept is that these tools are mature enough to support humans in writing correct and generally accurate text in areas that the human has some previous knowledge of, and, therefore, is able to perform some editorial control. Nevertheless, as you will see in the next section, the responses are reasonably accurate after my "editorial intervention", but they lack the human touch an experienced human could deliver.

Nonetheless, the latter could also be an indication of my limitations as a user of AI applications or of the applications I have chosen and tried, or the need to devote more time in obtaining catchier answers, which would be to detriment of the time saved for producing these texts.

2. THE INTERVIEW

Below, I present some of the questions posed and the answers provided by my AIntern.

2.1 Why is this the right moment for AI adoption?

The response from my AIntern was: The current era is considered the perfect moment for the widespread adoption and application of AI due to three key factors:

- **Technological advancements:** AI technologies, particularly in machine learning and deep learning, have made significant strides in recent years. These advancements have greatly enhanced the capabilities of AI systems, enabling them to process and analyze large volumes of data, recognize complex patterns, and make accurate predictions.

Figure 1: AIntern interview

Image created by the author with AI Picasso app (aipicasso.app) and Imgcreator (imgcreator.zmo.ai)

- **Availability of data:** the exponential growth of digital data and the increasing connectivity of devices have resulted in the availability of vast amounts of data. This abundance of big data serves as a valuable resource for AI systems, allowing them to continuously learn and improve their performance over time.
- **Advancements in computing power:** the development of more powerful and cost-effective computing technologies, such as cloud computing and graphic processing units (GPUs), has provided the necessary computational resources to train and run complex AI models efficiently. This has significantly accelerated the development and deployment of AI systems.

Figure 2: Data availability and computing power are the foundations of AI

Image created by the author with dall-e (openai.com/research/dall-e) – left – and Imgcreator (imgcreator.zmo.ai) – right. Images are the response of each app to a request to produce an image that shows that "data availability and computing power are the foundations of Artificial Intelligence".

In conclusion, the convergence of these factors has created the ideal conditions for businesses, organizations, and individuals across various sectors and industries to increasingly adopt and apply AI to a wider range of activities.

2.2 What are the main benefits of using AI?

AIntern responded that: although the main benefits of using AI are different depending on the application and industry, AI adoption offers businesses a wide range of benefits across four broad categories:

1. **Operational efficiency:** AI improves operational efficiency by automating repetitive tasks, optimizing resource allocation, and streamlining processes. This leads to time and cost savings, enhanced accuracy, and improved quality in data processing and analysis. Additionally, AI systems can scale seamlessly to handle large volumes of data and workloads, ensuring scalability and adaptability to changing business needs. AI also enhances security measures by detecting and mitigating potential vulnerabilities, protecting sensitive data, and ensuring compliance with security protocols.

2. **Enhanced customer experience:** AI enables personalized and tailored customer experiences through chatbots, virtual assistants, and recommendation systems. By leveraging AI algorithms, businesses can provide accurate and relevant information to customers, enhancing the accuracy and quality of interactions. This leads to improved customer satisfaction, engagement, and loyalty.

3. **Risk management and compliance:** AI helps mitigate risks by detecting fraud, identifying anomalies, and ensuring compliance with regulatory requirements. Machine learning algorithms enhance accuracy in risk assessment and management, enabling organizations to make informed decisions and identify potential risks. As this can be done in real-time and proactively, companies are better equipped to detect and prevent cybersecurity threats and protect sensitive information.

4. **Innovation and competitive advantage:** AI fuels innovation by providing data-driven insights, accelerating product development, and enabling businesses to identify new opportunities and, therefore, stay ahead of the competition.

Firms have already realized these benefits and are adopting AI technologies in many activities. Consequently, this has brought about a paradigm shift in many industries.

2.3 How are banks adopting AI?

AIntern's response was that: the banking sector is also part of this trend and is adopting AI through a combination of in-house development, partnerships with technology vendors, and collaborations with fintech startups. In order to effectively leverage the potential of AI, banks are investing in AI talent, infrastructure, and data management capabilities.

As not all banks pursue the same goals and have the same priorities, each bank is adopting AI differently. Nevertheless, there are some areas where most banks are adopting AI.

Fraud detection is probably the activity where AI is most pervasively used by banks and one of the areas where they have been using this technology for decades. Indeed, AI has already proved to be a valuable tool in this domain. AI algorithms can analyze vast amounts of data in real-time, identifying patterns and anomalies that indicate fraudulent activities. By continuously monitoring transactions and user behavior, AI-powered systems can detect and prevent fraudulent activities, protecting both the bank and its customers. This not only helps in reducing financial losses but also strengthens the trust and confidence of customers in the banking system.

Further to fighting against fraud, banks are using AI also for **risk management and compliance**. AI technologies help automate anti-money laundering (AML) and know your customer (KYC) processes, streamline and enhance regulatory compliance, improve risk assessment accuracy, and strengthen cybersecurity measures, among others. Machine learning algorithms analyze data to identify patterns, detect anomalies, and provide real-time insights for risk mitigation.

All the above helps banks to **improve efficiency and reduce costs**. Moreover, AI helps banks automate various processes such as back-office operations, including data entry, document processing, and record keeping, which were previously time-consuming and prone to errors. This not only improves efficiency and reduces costs in the long run, but it also allows employees to focus on higher-value activities.

With regards to the commercial activities of banks, AI allows banks to improve conversion rates and customer satisfaction. Thanks to the ability of AI to analyze customer data, market trends, and financial indicators, banks can extract valuable insights for better decision making. Thus, AI helps **identify business opportunities, optimize marketing strategies, develop personalized products, predict customer behavior, and offer personalized recommendations**. Moreover, **chatbots** powered by AI allow banks to provide round-the-clock customer support, answer frequently asked questions, and assist with basic banking transactions.

Finally, **AI is also revolutionizing the main banking activity of credit**. Thanks to AI, banks are able to enhance credit scoring and decision-making processes. Sophisticated algorithms allow banks to analyze vast amounts of data, including both traditional credit information and alternative data sources. This enables banks to assess creditworthiness more accurately, make faster and more informed lending decisions, expand access to credit for individuals with limited credit history, and reduce the risk of defaults.

Moreover, AI plays a crucial role in automating credit underwriting processes, improving risk assessment models, and optimizing loan pricing. Additionally, AI-powered systems have the capability to monitor and detect early signs of credit delinquency, empowering banks to take proactive measures and mitigate potential risks.

2.4 Which ethical, privacy, and societal considerations does AI raise for banks?

AIntern's response was that: it's important to note that while AI offers numerous benefits, it also raises ethical, privacy, and societal considerations that need to be addressed for responsible and sustainable AI implementation by banks. These considerations include:

1. **Privacy and data protection:** banks handle sensitive customer data, and the use of AI raises concerns regarding data privacy and protection. It is crucial for banks to ensure that AI systems comply with relevant data protection regulations and implement robust privacy measures to safeguard customer information.

2. **Bias and fairness:** AI algorithms can inadvertently reflect biases present in the data used to train them, leading to discriminatory outcomes that in the most extreme case could have wider societal implications, including exacerbating existing social inequalities. Banks must, therefore, ensure that AI systems are developed and trained in a way that minimizes biases and promotes fairness in decision making, particularly in areas such as loan approvals and credit scoring.

Figure 3: How banks are using AI

Image created by the author with Imgcreator (imgcreator.zmo.ai) and MS PowerPoint.
Images are responses of Imgcreator (imgcreator.zmo.ai) to request of creating images on the topics indicated.

Figure 4: AI's ethical, privacy, and societal considerations

Image created by the author with Imgcreator (imgcreator.zmo.ai) and MS PowerPoint.

3. **Transparency and explainability:** AI models often operate as black boxes, making it difficult to understand the reasoning behind their decisions. Banks need to prioritize transparency and explainability, ensuring that AI systems provide clear explanations for their outputs, especially when they impact customer interactions or financial decisions.

4. **Accountability and liability:** as AI systems make autonomous decisions, determining accountability and liability becomes complex. Banks must establish mechanisms to assign responsibility for AI-related actions and ensure appropriate governance and oversight frameworks are in place.

5. **Customer trust and engagement:** the use of AI in customer interactions, such as chatbots and virtual assistants, raises concerns about customer trust and engagement. Banks need to strike a balance between automated AI interactions and maintaining personalized and human-centric customer experiences.

6. **Ethical use of customer data:** AI applications rely on vast amounts of customer data. Banks must use data ethically, ensuring they have an appropriate basis for processing those data, and using it solely for legitimate purposes while maintaining transparency about data collection and usage practices.

7. **Robust security and safety measures:** AI systems can be vulnerable to attacks and manipulation, posing risks to the security and safety of banking operations and customer data. Banks should invest in robust cybersecurity measures to protect against AI-related threats and ensure system integrity.

Addressing these ethical, privacy, and societal considerations requires banks to establish clear policies and risk mitigation frameworks that ensure the responsible and ethical use of AI technology.

Indeed, regulation can help banks to develop policies and frameworks that ensure responsible AI adoption, customer protection and risk management and, at the same time, maintains financial system stability and integrity.

Nevertheless, it is important to strike a balance in the regulation of AI, ensuring that it addresses potential risks and ethical concerns while allowing for innovation, competition, and the realization of AI's potential benefits.

2.5 What can regulators do to support the adoption of AI by banks?

AIntern's response was that: a flexible and adaptive regulatory approach that promotes responsible AI development and use is crucial for fostering a thriving and sustainable AI ecosystem. In order to realize this approach regulators shall:

- Provide **clear guidelines and standards** that outline the expectations for AI adoption in the banking sector. This would help banks understand the compliance requirements and facilitate the implementation of AI systems.
- **Collaborate and actively engage** with banks and other stakeholders in the development of AI regulations and policies. Collaboration between regulators and banks allows for a better understanding of the opportunities and challenges associated with AI adoption. Regular dialogue and consultation can help regulators stay informed about technological advancements and evolving industry practices.
- **Support experimentation and innovation** through the creation of sandboxes or innovation hubs where banks can test and experiment with AI technologies in a controlled environment.
- Adopt a **flexible and proportionate approach** towards AI adoption. They can tailor regulatory requirements based on the complexity and risk profile of each potential use case.
- **Collaborate with their international counterparts** to promote consistency and harmonization in AI regulations. This collaboration will help to avoid fragmentation and conflicting regulations, facilitating cross-border adoption of AI technologies by banks. Regulatory cooperation can also enable the sharing of best practices and experiences, fostering a global regulatory environment supportive of AI adoption.
- **Continuously monitor** the use of AI in banks and evaluate its impact on the financial system. This monitoring helps identify emerging risks, potential biases, and ethical concerns associated with AI adoption. Regulators can then update guidelines and regulations to address these issues, ensuring that AI adoption remains aligned with regulatory objectives.

By providing clear guidance, fostering innovation, and maintaining an open dialogue with banks, regulators can support the responsible adoption of AI in the banking sector, promoting efficiency, competitiveness, and customer protection.

2.6 What do banks need to do to adopt AI successfully?

AIntern's response was that: to adopt AI successfully, banks need to take the following steps:

1. **Develop a clear strategy:** banks should define their goals and objectives for adopting AI and align them with their overall business strategy. This includes identifying areas where AI can add value, such as customer service, risk management, fraud detection, or process automation.
2. **Invest in data infrastructure:** AI relies on large amounts of high-quality data. Banks should invest in data infrastructure to collect, store, and process data effectively. This may involve implementing data management systems, data governance frameworks, and data integration capabilities.
3. **Build internal expertise:** banks need to build a team of AI experts, including data scientists, machine learning engineers, and AI researchers. They can hire new talent or upskill existing employees through training programs. This internal expertise is crucial for developing and deploying AI models effectively.
4. **Collaborate with external partners:** banks can collaborate with external partners, such as fintech companies or technology providers, to access specialized AI capabilities or innovative solutions. Partnerships can help banks accelerate their AI adoption and stay ahead of competitors in the rapidly evolving AI landscape.

5. **Ensure regulatory compliance and ethics:** banks need to comply with relevant regulations and industry standards when implementing AI. They should also consider ethical implications and ensure an appropriate level of transparency, fairness, and accountability in their AI systems.

6. **Start with pilot projects:** banks can start with small-scale pilot projects to test and validate AI solutions before scaling them up. This iterative approach allows banks to learn from initial deployments, make improvements, and mitigate risks.

7. **Monitor and evaluate performance:** banks should continuously monitor and evaluate the performance of their AI systems. This involves measuring key metrics, analyzing outcomes, and making adjustments as needed. Ongoing evaluation helps banks optimize their AI models and ensure they deliver the expected benefits.

8. **Foster a culture of innovation:** banks should promote a culture of innovation and encourage experimentation with AI. This involves creating an environment where employees feel empowered to explore new ideas, take calculated risks, and learn from failures. Innovation should be ingrained in the bank's DNA.

By following these steps, banks can adopt AI successfully and leverage its capabilities to enhance customer experiences, optimize operations, and drive competitive advantage in the digital banking landscape.

Figure 5: How banks can successfully adopt AI

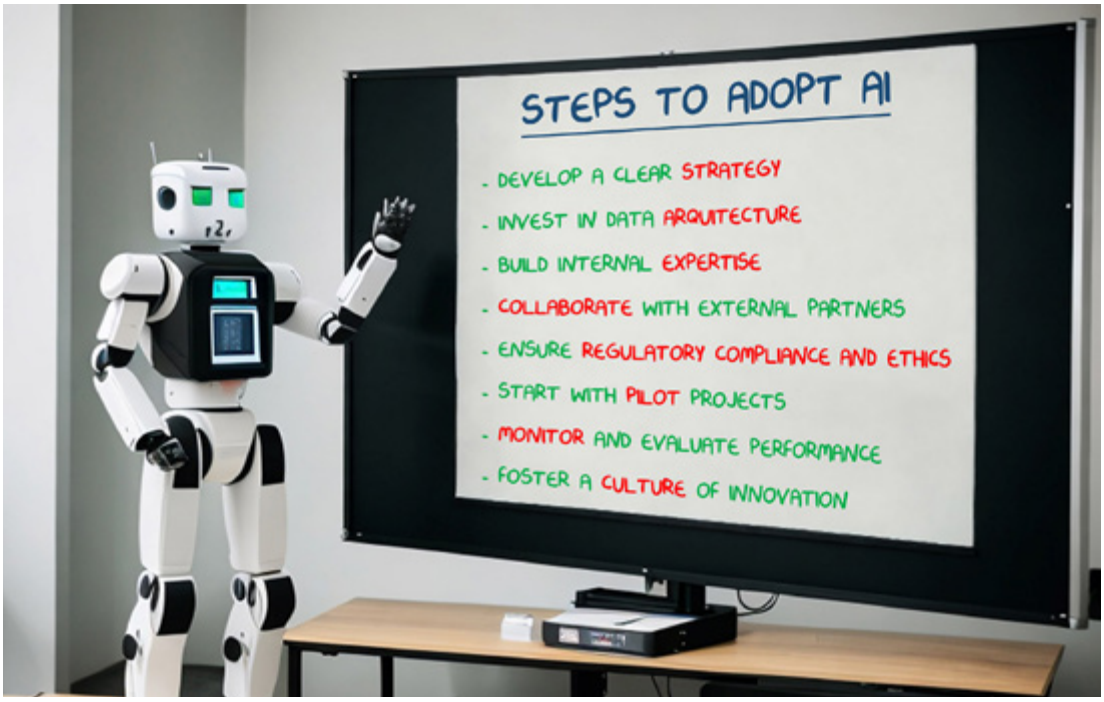

Image created by the author with Imgcreator (imgcreator.zmo.ai) and MS PowerPoint.

3. CONCLUSION

The rapid advancements in technology witnessed in recent years, coupled with the increased availability of data and computing power, have facilitated the rapid development of AI. This transformative technology is revolutionizing various industries, including banking, by automating complex tasks such as research and content generation, as exemplified in this article.

The adoption of AI by companies is already yielding numerous benefits, including improved operational efficiency, enhanced customer experiences, and more effective risk management, compliance, and innovation.

In line with this paradigm shift, banks are increasingly adding AI to various processes and services. However, it is crucial for banks to acknowledge the limitations of AI and proactively address the ethical and legal considerations associated with its implementation.

The approach of authorities to AI is essential in shaping those legal considerations. In addition to establishing legal safeguards and potentially prohibiting high-risk applications, authorities should actively engage with companies and organizations on their AI journey. This engagement should involve the issuance of clear guidelines and standards, the provision of a safe environment for AI experimentation, and international collaboration.

Should such a clear and flexible regulatory framework be provided, banks will be able to design medium and long-term strategies that encompass investments in infrastructure and human capital, as well as a gradual and responsible adoption of AI.

APPENDIX: HOW I WROTE THIS ARTICLE

NR	STEP	OBSERVATIONS
1	Choose the topic of the article: "The use of AI in banks. Benefits, challenges, and regulatory considerations"	
2	Choose the questions to be asked: 1. Why is this the moment for AI? 2. What is needed to extract value from data and/or AI? 3. How can banks take advantage of AI? 4. Which banking activities would benefit more from the application of AI? 5. How are banks adopting AI? 6. What is the role of Regulation in the bank's adoption of AI? 7. What do banks need to do to adopt AI successfully? 8. What can regulators do to support the adoption of AI by banks?	
3	Select reports, papers, and articles: I chose reports, news, and papers I have written or contributed to and other documents I have read since 2017 that I found interesting, and all of which are publicly available	Need to take into consideration copyright of material to be uploaded and the terms and conditions of the AI tools to be used, since they can store and use the documents uploaded for purposes banned by the copyright of the material.
4	Search for additional sources: elicit.com and you.com	Although the average quality of papers that can be found in elicit is arguably higher, most of the material located through elicit is subject to distribution and usage restrictions.
5	Upload sources (in pdf format) in AI tool: ayfie.com	I located ayfie in humanalternative.com, a site that curates AI tools to automate several different tasks. I chose ayfie.com because it allows users to upload up to 1,000 files and query all files at a time or a group of them.
6	Ask questions listed in 2 through the chat functionality	When the answer did not meet my expectations (because it was too long or too short, or it missed a piece of information that I considered relevant), I refined the question or added additional conditions and submitted it again.
7	Copy and edit satisfactory answers in a separated document	The answers provided are not attributed to specific sources, so it is not clear how they have been produced. It is important to review the text to remove erroneous and redundant information. Be aware of hallucinations of facts, especially in topics you are not an expert in.
8	Merge answers and improve drafting if necessary: Chatsonic functionality in writesonic.com	Answers tended to be lists of items that reiterated some ideas.
9	Review and edit the text again and add new content, if necessary	The author must feel comfortable with the final text.
10	Add charts and images that support text. www.aipicasso.app, imgcreator.zmo.ai, and openai.com/research/dall-e	Getting the correct images and charts requires practice and accuracy. I used some output images as input for other tools and I retouched the final output with traditional software.

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ABOUT CAPCO

Capco, a Wipro company, is a global technology and management consultancy focused in the financial services industry. Capco operates at the intersection of business and technology by combining innovative thinking with unrivalled industry knowledge to fast-track digital initiatives for banking and payments, capital markets, wealth and asset management, insurance, and the energy sector. Capco's cutting-edge ingenuity is brought to life through its award-winning Be Yourself At Work culture and diverse talent.

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