

Technology & Innovation | Overview of AI and its top use cases in Banking

Link'n Learn – 20 March 2024

Getting Started

Here with you today



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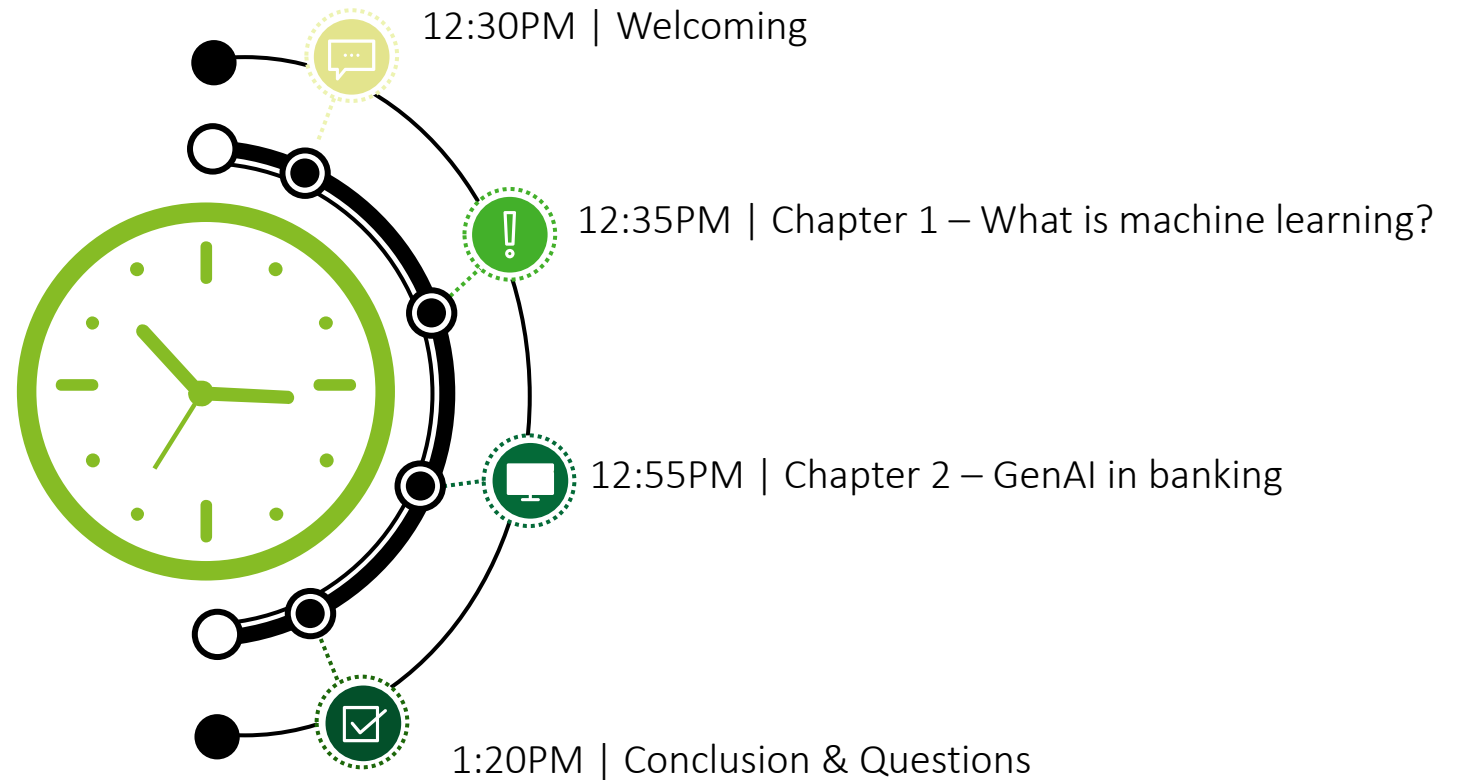


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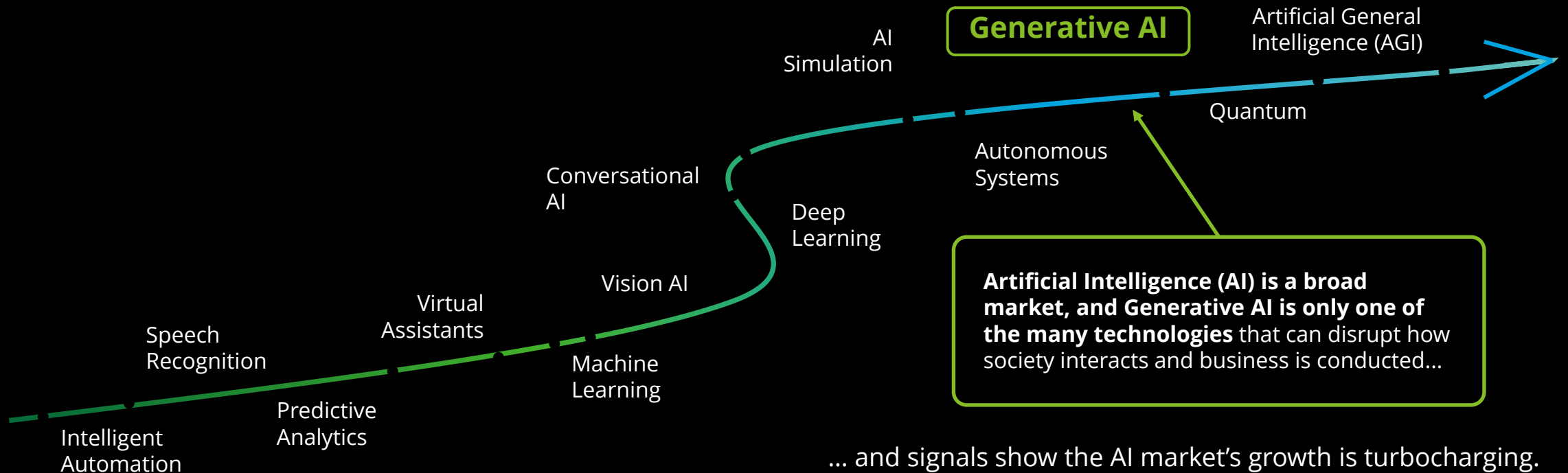
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Agenda



From analytics to GenAI

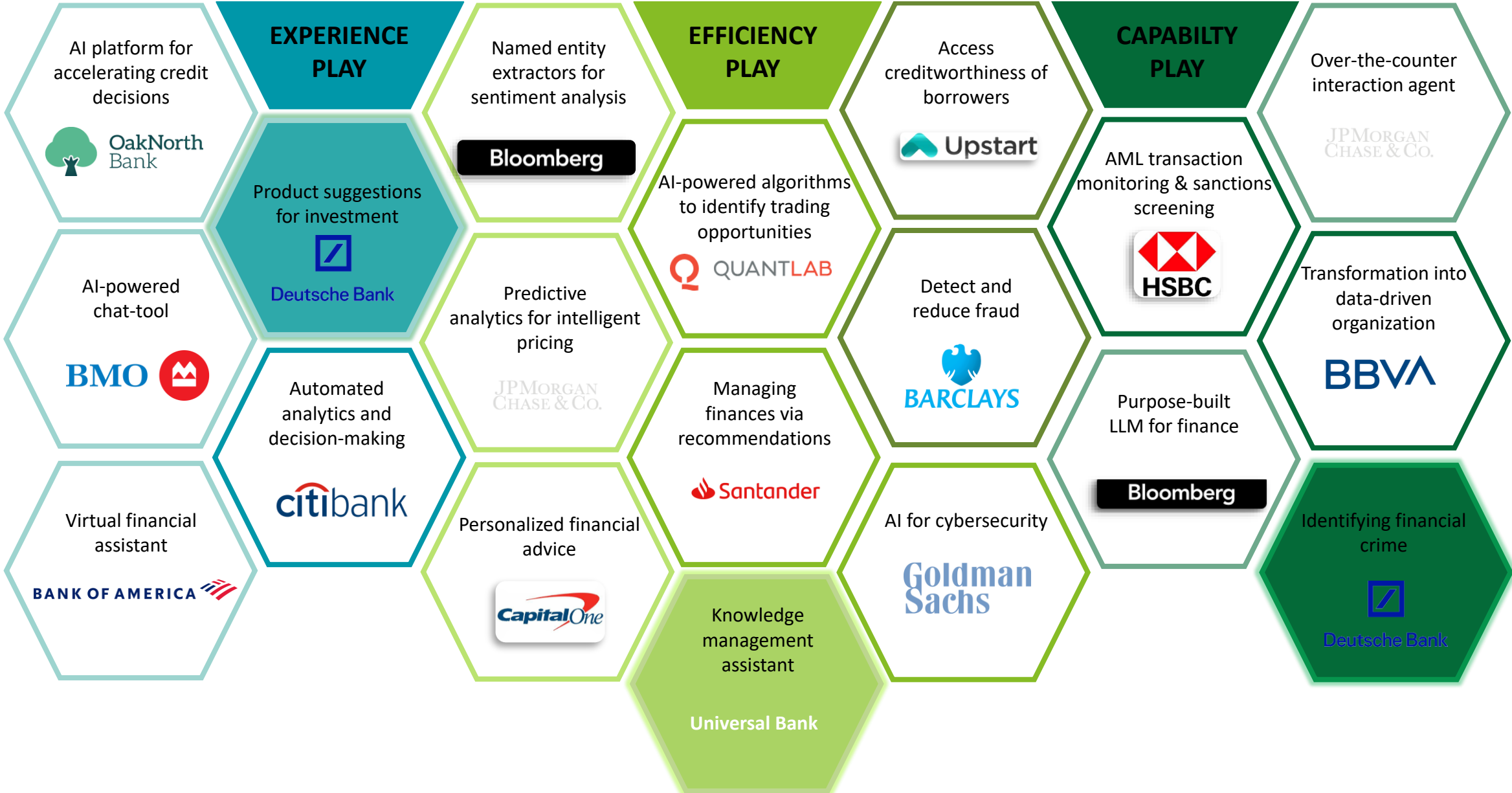
AI includes many technologies, providing innovative solutions to transform society and business



ECONOMIC IMPACT

Generative AI is expected to increase Global GDP by **\$7 trillion** (7% over a 10-year period), with a **1.5% growth in labor productivity**.

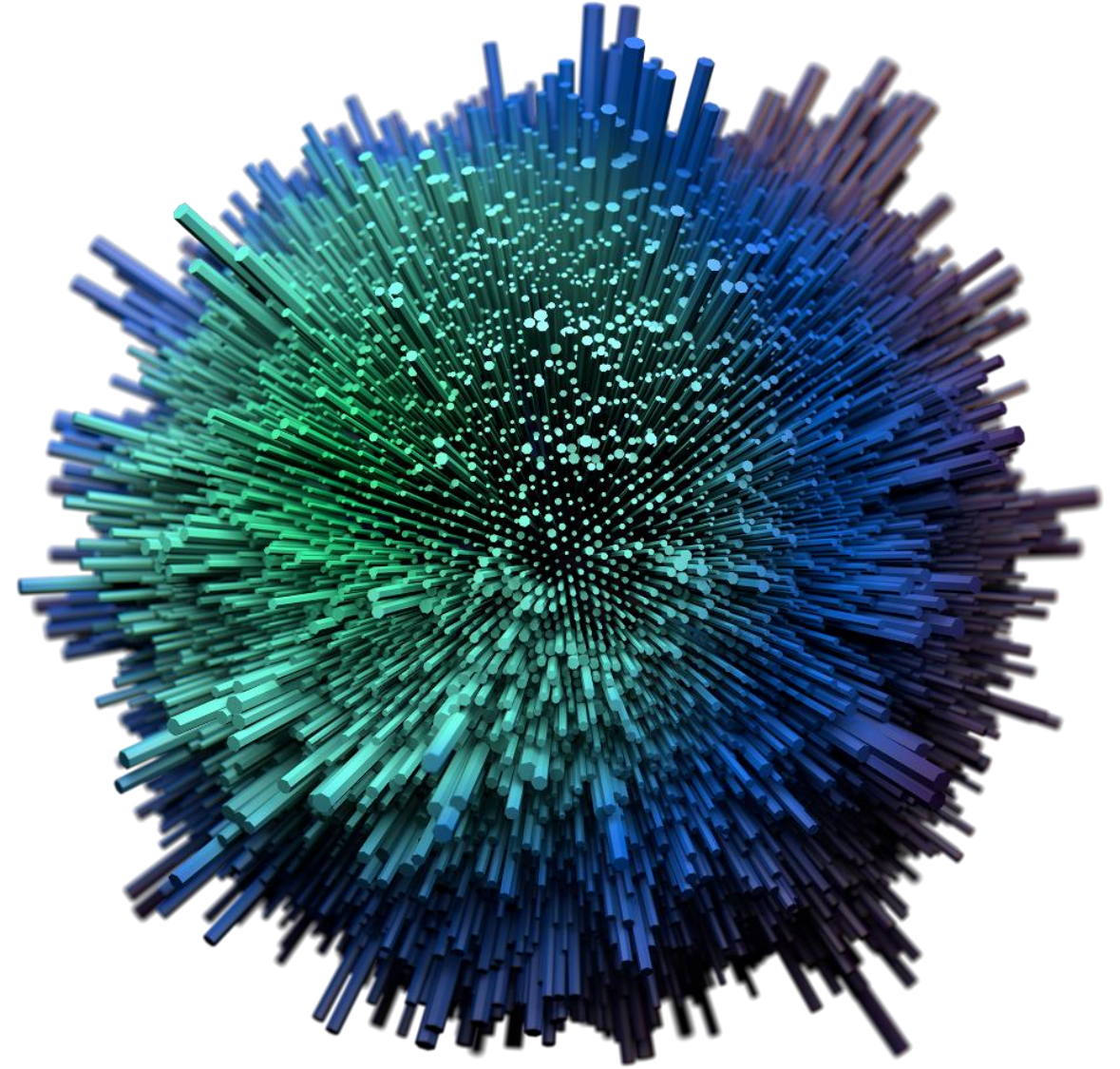
The banking industry is buzzing with AI



Chapter 1 – What is machine learning?

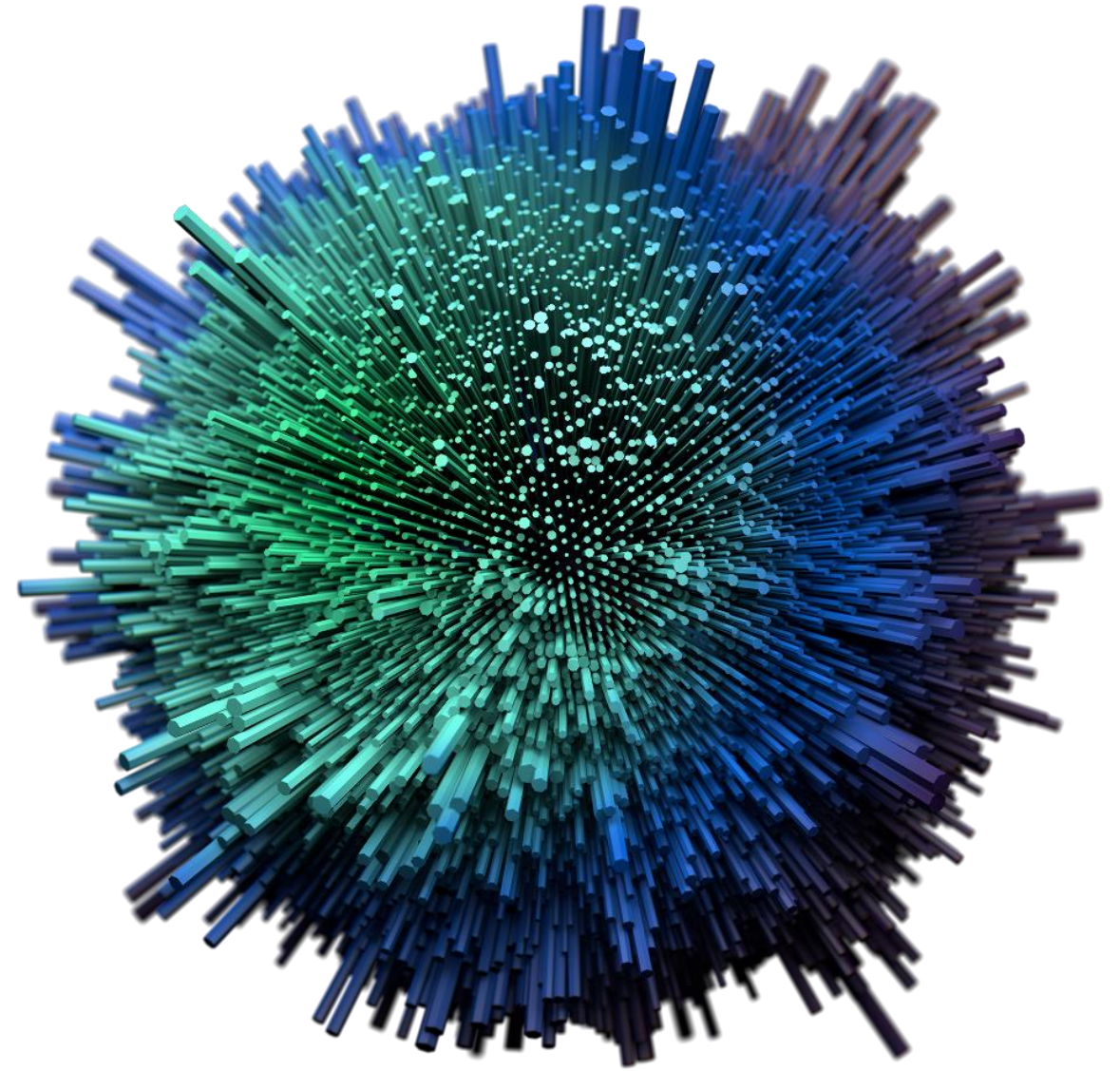
Brief introduction to AI & Machine Learning

How would you define Artificial intelligence?

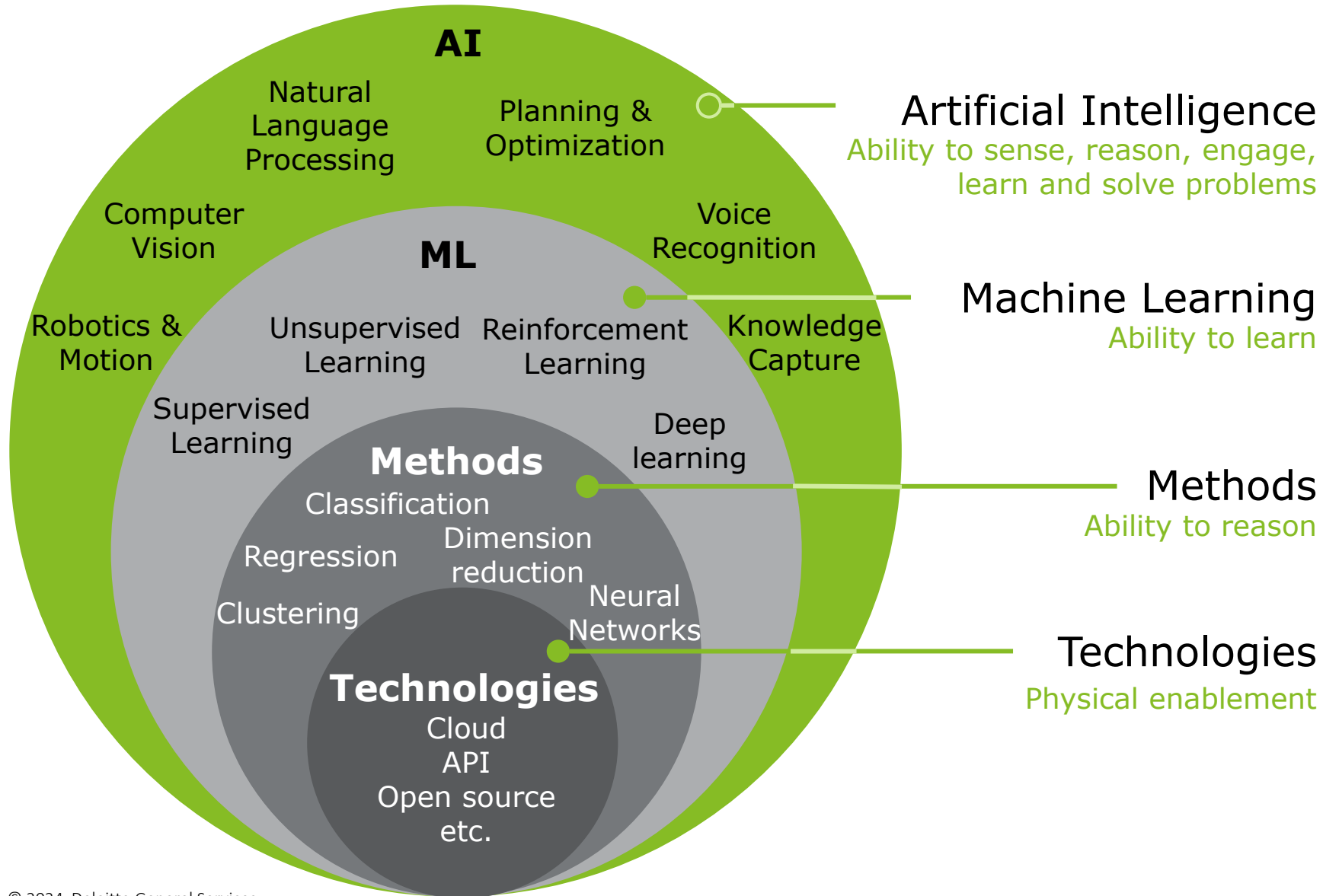


How would you define Artificial intelligence?

The field of **computing** where intelligent machines ethically augment **human cognitive capabilities** and **experiences**.

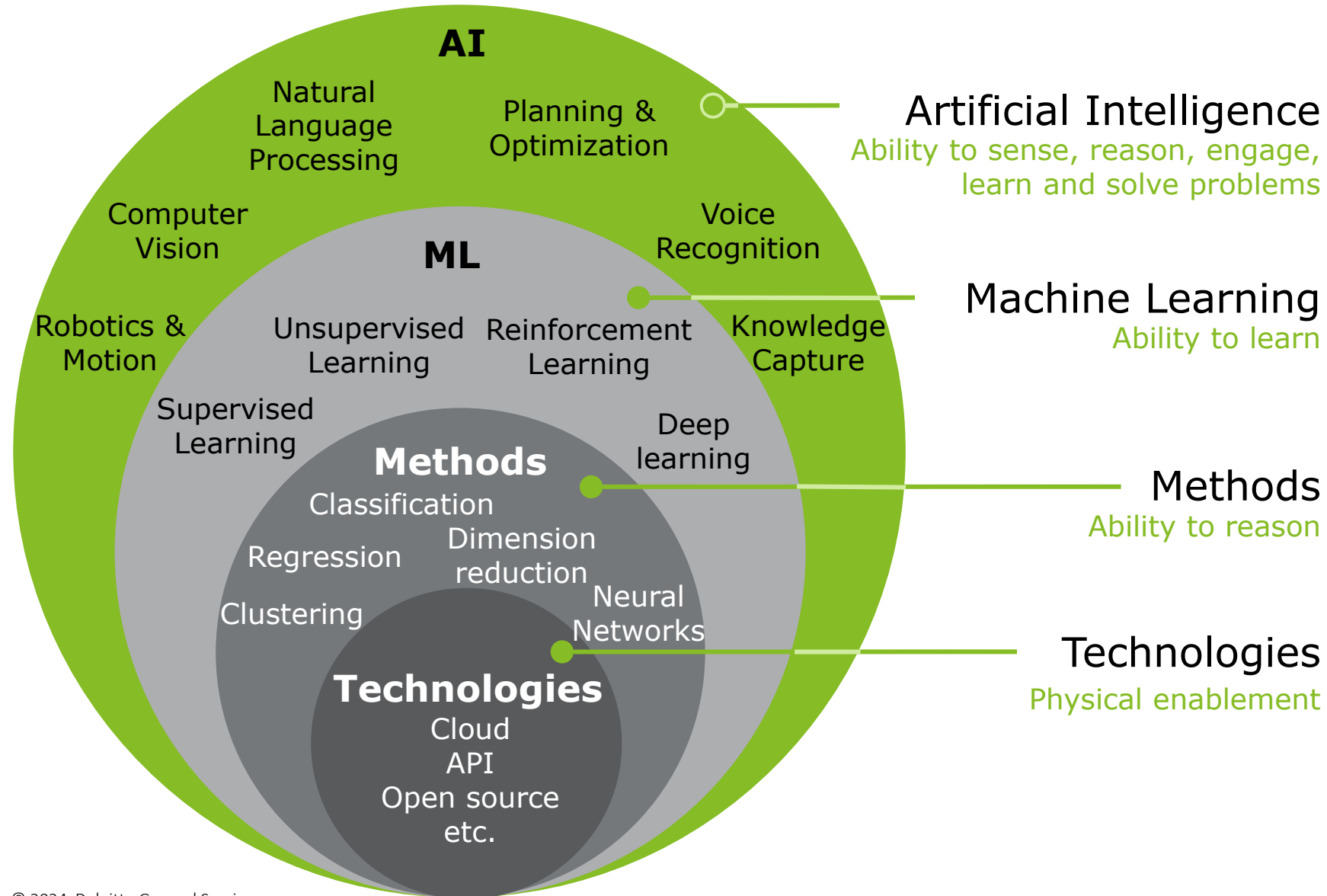


Artificial intelligence (AI) & Machine Learning (ML)



How would you define Machine Learning?

Artificial intelligence (AI) & Machine Learning (ML)

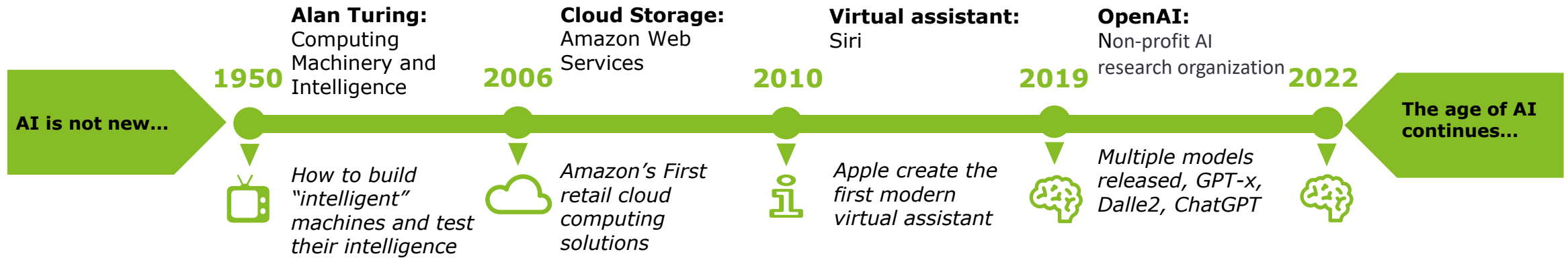


How would you define Machine Learning?

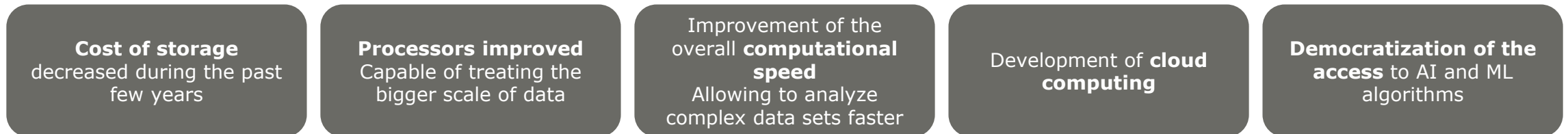
The **algorithmic ability** of a **machine** or computer system to **learn from data** and use it to **predict** outcomes; i.e., **automatically improve** or get smarter based on its **own experience**

Why is AI arriving now?

The technical development of computing technology and the democratization of hardware and algorithms, created the perfect environment for AI to develop due to the need for businesses to reinvent themselves



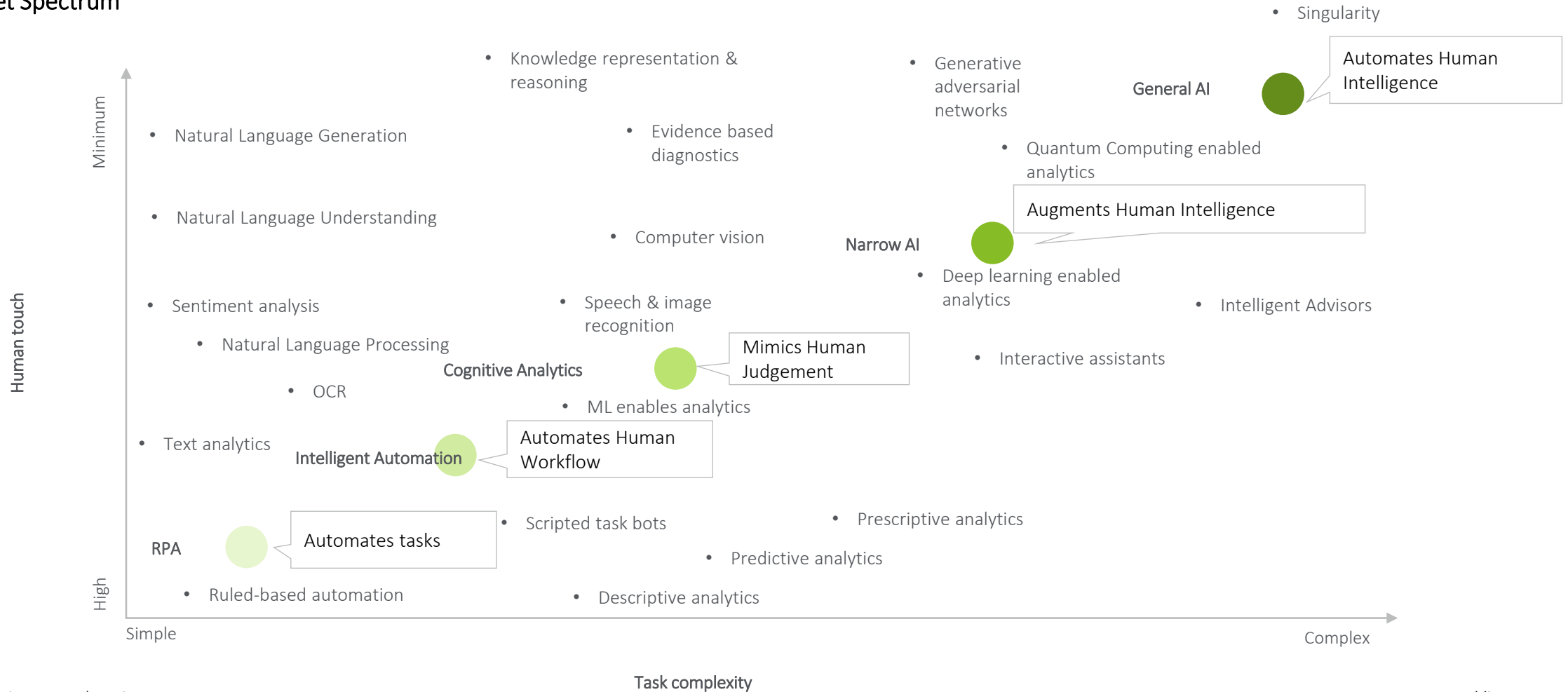
Why implement AI now?



The AI market spectrum indicates endless possibilities

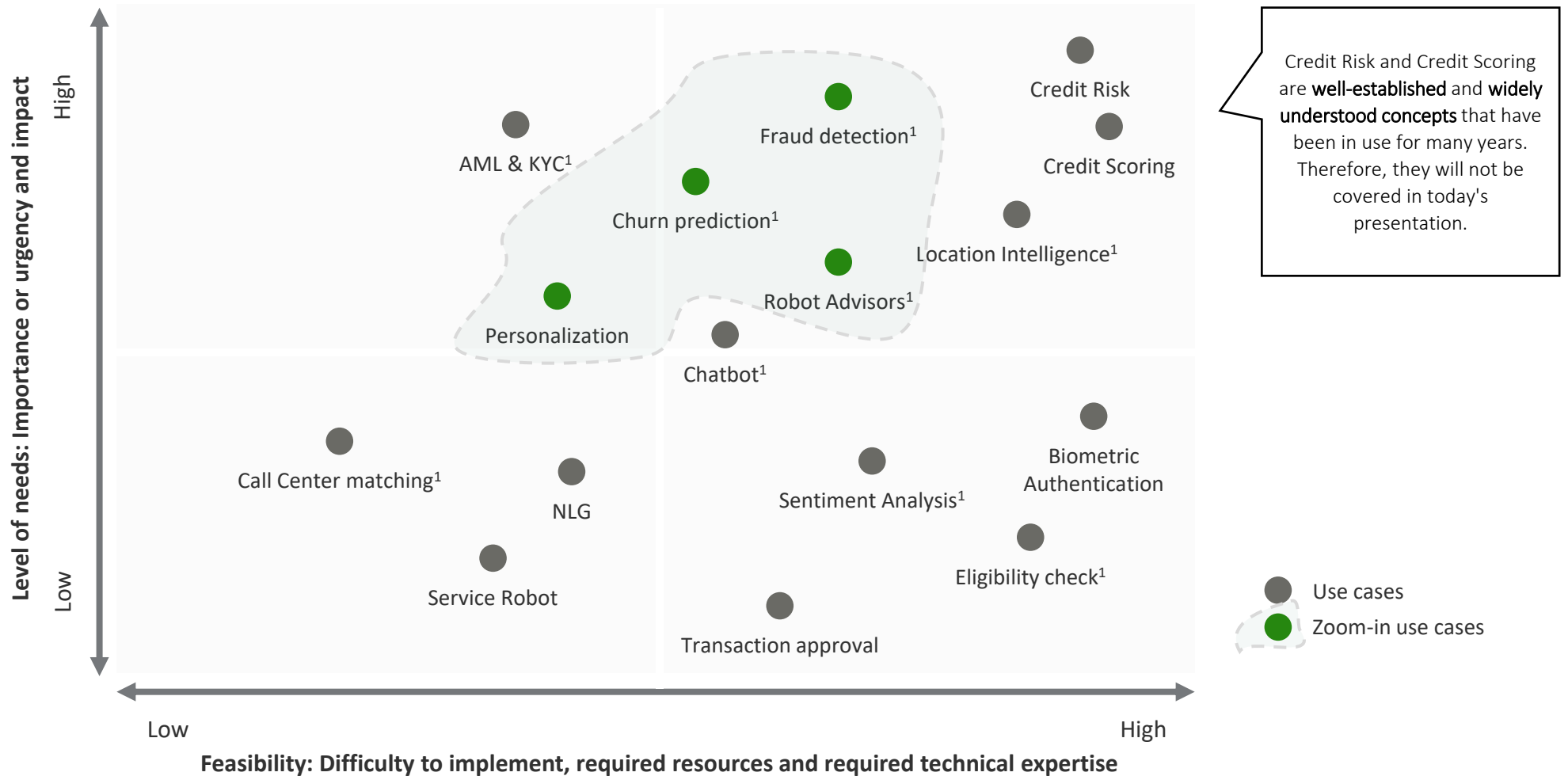
Artificial Intelligence can be seen as the ability to sense, reason, engage, learn and solve problems. This large field has multiple application areas, and the AI market spectrum can be a roadmap to navigate through the possibilities

AI Market Spectrum



Real-World Use Cases and Benefits

Unlocking New Possibilities with Machine Learning





Personalization

Use AI for end-to-end client insights, including Customer Segmentation & Personalization, and Next Best Action

Through an AI-driven customer 360 experience, banks can **expand their revenue opportunities** by recommending products such as checking accounts and credit cards that are tailored towards a customer's needs



Number of banking users increased by 20% from 2014 to over 160 million digital banking users in 2019.

The clients are more and more exigent and other competitors are doing personalization of communication, advices, proposed services..

AI intelligent application and ML models can :

- Improve the **accuracy of customer recommendation** by using historical and real-time data
- Enhance personalization and improve the **interactions and retargeting**



CUSTOMER JOURNEY PERSONNALIZATION

Use machine learning with customer data (IP, cookies...) to enhance and personalize their journey (website, mobile app)



PERSONNALIZED COMMUNICATION

Using machine learning algorithms to analyze customer data and create personalized marketing campaigns, product recommendations, and interactions based on individual customer behavior and preferences



INTELLIGENT RETARGETING

Use customer's journey data with machine learning to understand their behavior for targeted advertising and drive revenue growth

Robot Advisors

Aid consumers in managing their finances, and negotiate collections

Banks can use AI to provide clients with **personalized financial investment plans and products** that are tailored to their needs and goals more accurately and efficiently than a human advisor.



Experience



Increased **demand for consumers to be able to manage** their finances remotely and efficiently

Robot advisors use data analysis and regression models to:

- **Analyze a user's current financial situation**, goals, and investment interests
- Give **tailored financial recommendations**



FINANCIAL PLANNING

"Putting 70€ into savings this month based on your forecasted expenses."



INVESTMENT ADVICE

Visualize the potential gains and losses of the customer's investments over time and adjust the plan when needed



TAX OPTIMIZATION

Help customers to minimize their tax liability by providing insights into tax-efficient investment strategies and recommending tax-saving options.



Retention

Customer Churn Prediction

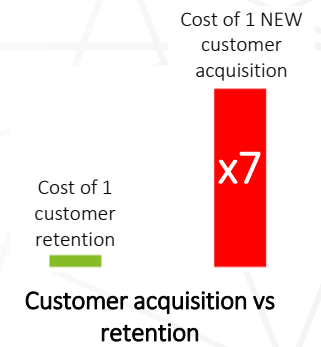
Use AI for end-to-end client insights, including Customer Churn Prediction/Prevention, Customer Lifetime Value (CLV) Estimation, Marketing optimization

To maintain customer loyalty and expand revenues, banks can adopt AI technologies to **understand the customers and their evolving expectations**



High customer cost acquisition and many challenges to identify the **causes of churning** and how to prevent it.

- AI & ML customer churn prediction models can:
- o **Estimate Customer Lifetime Value (CLV)**
 - o **Predict propensity** for a customer to churn, given their profile and transaction data and other type of data (audio, text...)



SPEECH RECOGNITION & NLP
 Analyze recorded conversations and different communication logs (chat, email, etc..) to detect signals of dissatisfaction and potential churn



ANOMALY DETECTION
 Analyze customer behavior over time: number of physical/online visits, frequency of use of payment methods, etc..



Fraud Detection

Leverage ML and AI to detect transactional and account take over fraud across the banking value chain

Banks can use AI-enabled fraud detection models to significantly reduce overall fraud, thereby increasing **customer's trust and overall experience**



The finance industry incurred about \$2.2 billion in **losses in fraud** in 2016. In 2018, this value increased to about \$2.8 billion.

- AI & ML models can help to:
- **Identify suspicious activity**
 - **Flag Consumer Transaction Fraud**



PAYMENT FRAUD DETECTION

AI algorithms can analyze transaction data and detect suspicious activity such as unusual spending patterns in a short period of time.



INSURANCE FRAUD DETECTION

AI algorithms can analyze claims data and detect patterns that may indicate fraud, such as false or exaggerated claims, duplicated claims, and fraudulent billing practices.



PREVENT CYBER ATTACKS

AI can also detect suspicious user activity, such as multiple failed login attempts, unusual transactions, and unexpected changes to account information, helping to prevent fraud and reduce the risk of cyberattacks.

Chapter 2 – Generative AI in Banking

Different usage of Gen AI in general and in Banking

Overview on Generative AI

Generative AI can provide businesses with new opportunities to improve their products and services, automate repetitive tasks, and create new and innovative customer experiences

WHAT is generative AI

Artificial intelligence that creates **original content across various modalities** (e.g., text, images, audio, code, voice, video) that would have previously taken human skill and expertise to create

HOW does it work

Using artificial intelligence generative models such as Generative Adversarial Network (GAN), transformers (BERT, GPT, etc.) & stable diffusion for example. These models **identify patterns in datasets** and generate similar original content

WHY now

Innovations in **machine learning** and the **cloud tech stack**, coupled with the **viral popularity** of publicly released applications, such as **Chat GPT, DALL-E2 & Midjourney** have propelled Generative AI into the zeitgeist

WHO are involved

Big Tech is building—and enabling access to— foundation models; **start-ups** are developing user applications on these underlying models; and **companies** are beginning to adopt

BUSINESS IMPACT

The **marginal cost of producing initial versions of knowledge-intensive content** — such as IT code, marketing copy, and creative design — **can fall to ~ zero**

Expected gains through GenAI



Compared to those without AI support, GenAI users finished:



12.2%
more tasks
on average



completed tasks
25.1%
more quickly



produced results of
40%
higher quality

Source: BCG The Social Economics of Work and Productivity | BCG

AI Innovation Lab at an European Bank

Details about the lifecycle of AI Initiative project



1. Promote

Help the business teams identify gaps in their processes with the objective to **automatize** tasks and **enhance** the decision-making process.

2. Explore

We look into alternatives to analyze its **complexity** and **appropriateness** for technically feasible solution.

3. Brainstorm

We discuss our approach with the solution and the underlying technology to **align** with business perspective.

4. Deliver PoC

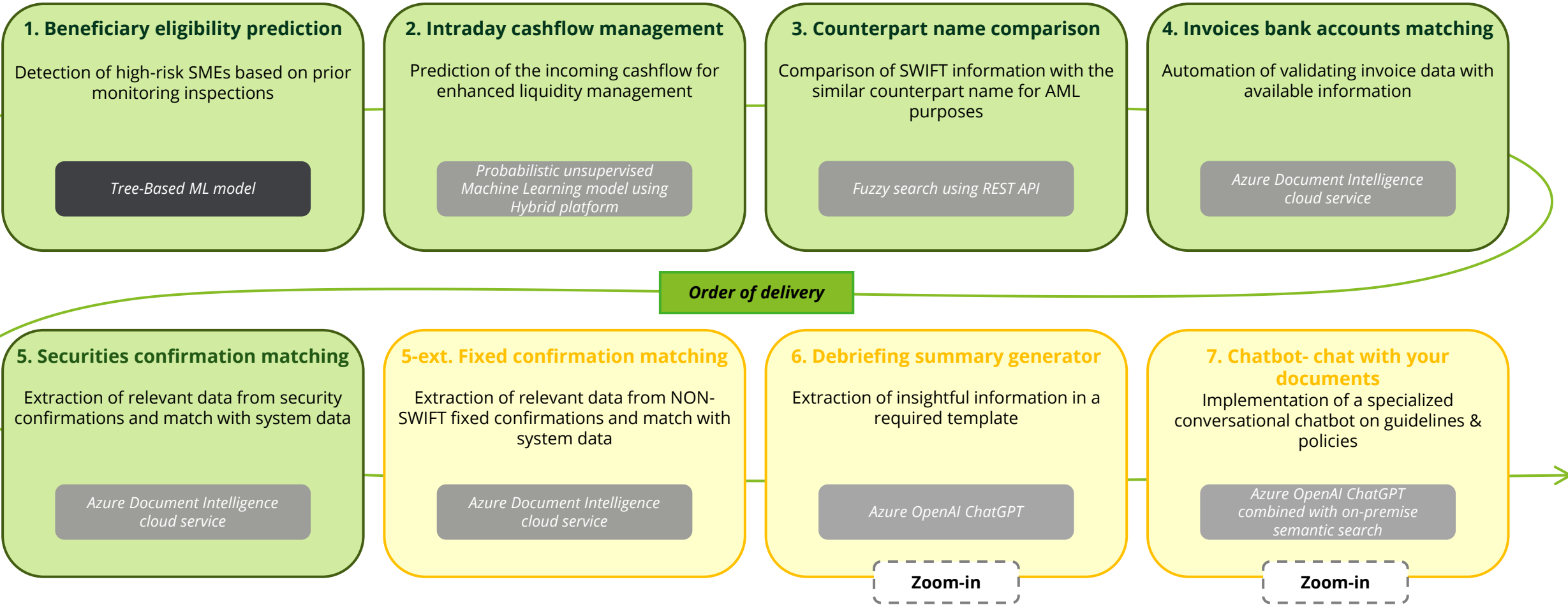
We develop AI models with an **agile approach** and produce **tangible PoC** for business validation.

5. Operationalize

We ensure that the model is **integrated** into the business process, utilized and maintained in **production**.

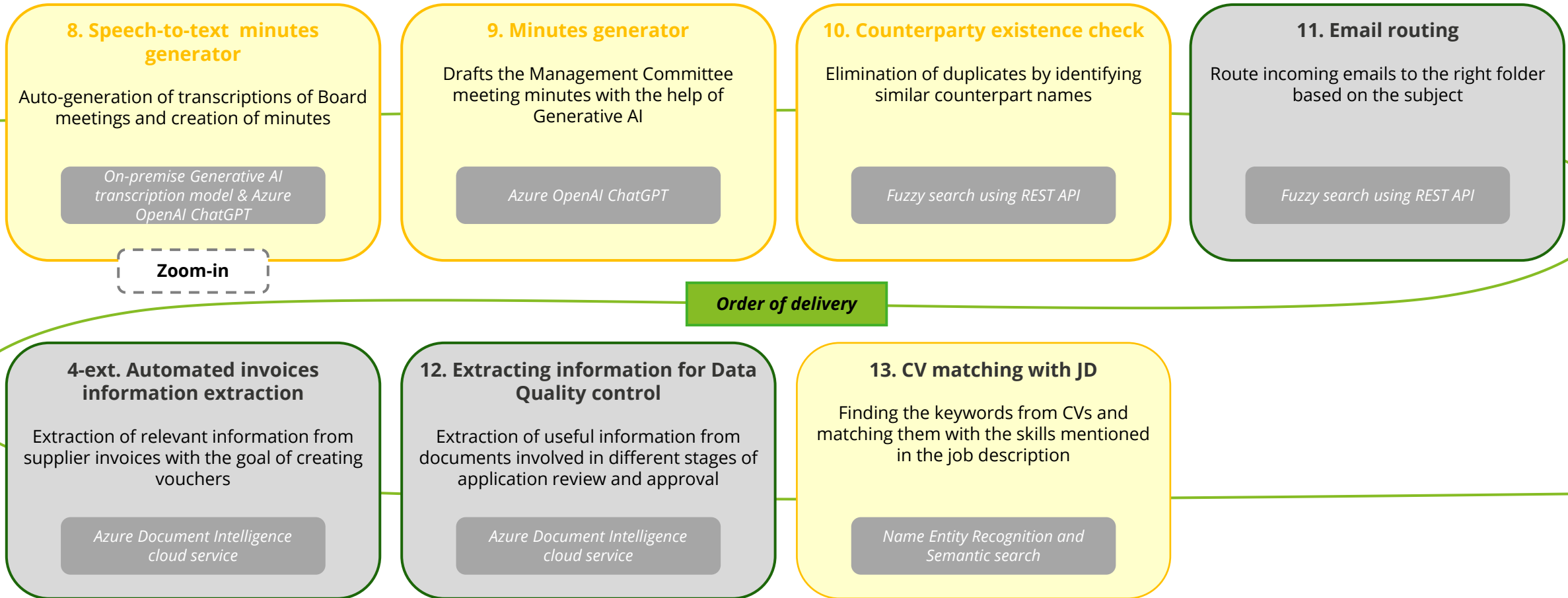
Harnessing AI: Unveiling Ongoing and Operationalized Use Cases 1/2

Details about the AI Initiative project



Harnessing AI: Unveiling Ongoing and Operationalized Use Cases 2/2

Details about the AI Initiative project



Chatbot – chat with your documents

Extracting useful information with the chat services for question and answers

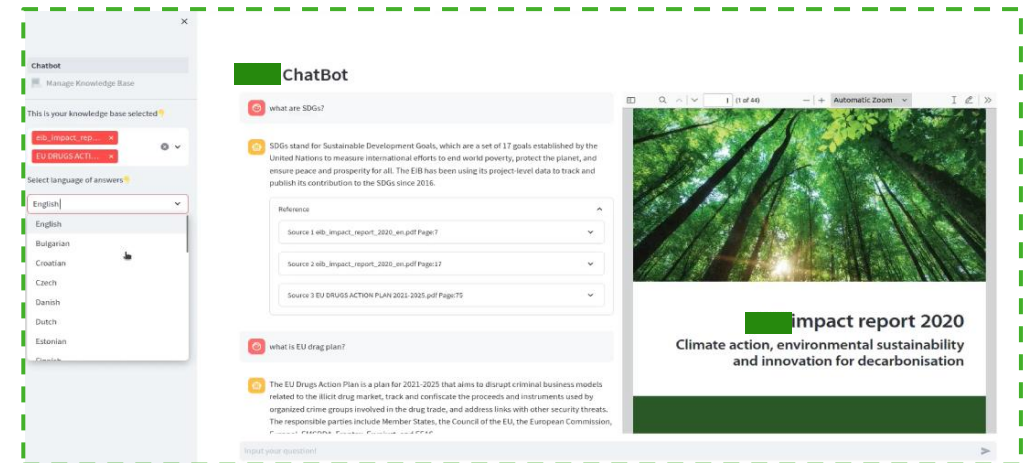
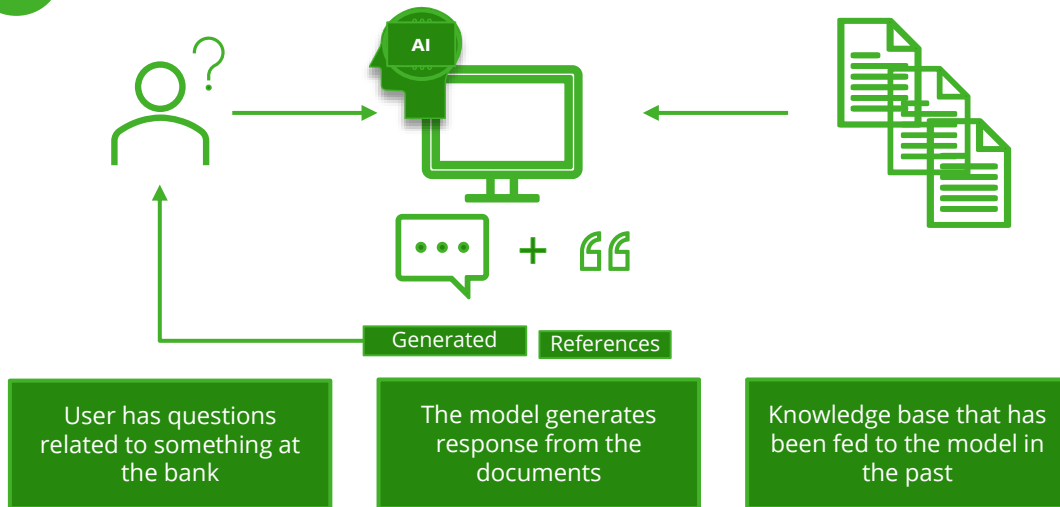
Business need

- When a user is required to find information from documents at the bank, they have to go through the entire file and merge all relevant pieces as an answer to one question.
- This could also include locating the most appropriate documents, comparing content from multiple different files for similar or related information.
- On average, 4 hours are spent per week per person to find the information from different documents that are available to them

Solution and benefits

- Can provide quick results for questions based on a single / set of documents
- Provide comprehensive information gathered from multiple sources with references for transparency
- QnA can be performed in multiple languages and translated
- Automate repetitive tasks and support everyday business activities

Process enhancement



Chatbot – chat with your documents – Demo

Extracting useful information with the chat services for question and answers

The screenshot shows a web application interface for managing a chatbot's knowledge base. On the left, there is a sidebar with a 'Chatbot' header and a 'Manage Knowledge Base' button. The main content area features a green square logo, the title 'ChatBot - Manage Knowledge Base', and a prompt 'Choose your pdf files'. Below this is a large light blue box with a cloud icon and the text 'Drag and drop files here' and 'Limit 200MB per file • PDF'. To the right of this box is a 'Browse files' button. Below the drop zone are two buttons: 'Create Knowledge Base' and 'Remove Knowledge Base'. At the bottom left of the main area, it says 'Made with Streamlit'. A close button (X) is in the top left corner of the sidebar, and a menu icon (three dots) is in the top right corner of the main area.

Debriefing summary generator

Leverage generative AI capabilities to automatize tasks for document analysis



Business need

- A lot of time has to be spent in order to go through entire document and derive the gist of it. This includes large files, meeting notes, etc.
- Facilitation of information sharing across different units/teams can get quite tedious and there could be a potential loss of essential information

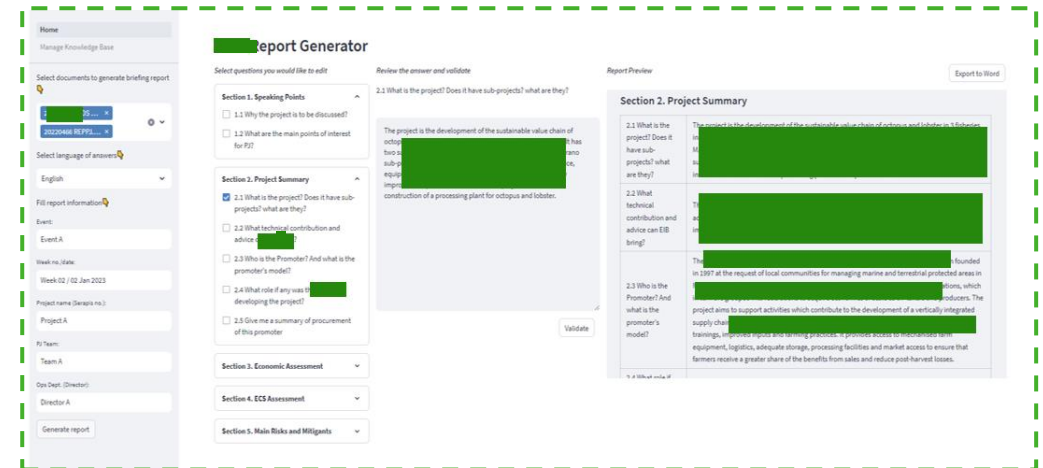
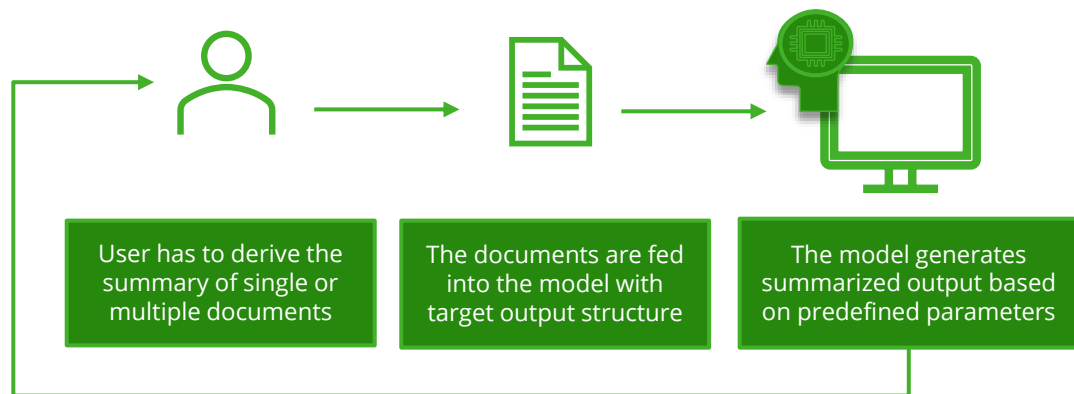


Solution and benefits

- Increase the time efficiency as the key findings from single or multiple documents can be done within seconds
- Can be combined with other solutions in different scenarios – transcribed meeting notes can be summarized almost simultaneously, brief information can be extracted from the long email chain, etc.
- It can generate output with defined length of summary, with translation for predefined languages and in specified format



Process enhancement



Debriefing summary generator –Demo

Leverage generative AI capabilities to automatize tasks for document analysis

The interface is divided into several main sections:

- Home / Manage Knowledge Base:** A sidebar on the left containing document selection and configuration options.
- Select documents to generate briefing report:** Two documents are selected: '20220466 REPPJ...' and another partially visible document.
- Select language of answers:** A dropdown menu set to 'English'.
- Fill report information:** Fields for 'Event: Event A', 'Week no./date: Week 02 / 02 Jan 2023', 'Project name (Serapis no.): Project A', 'PJ Team: Team A', and 'Ops Dept. (Director): Director A'. A 'Generate report' button is at the bottom.
- Report Generator:** A central panel with a title bar and a list of sections:
 - Section 1. Speaking Points:** Two questions are listed, both unchecked.
 - Section 2. Project Summary:** Five questions are listed, with the first one checked.
 - Section 3. Economic Assessment** (dropdown)
 - Section 4. ECS Assessment** (dropdown)
 - Section 5. Main Risks and Mitigants** (dropdown)
- Review the answer and validate:** A preview of the answer for question 2.1: '2.1 What is the project? Does it have sub-projects? what are they?'. The answer text is partially obscured by a green box. A 'Validate' button is at the bottom right.
- Report Preview:** A table showing the generated report content. The table has two columns: the question and the answer. The answer for question 2.1 is: 'The project is the development of the sustainable value chain of octopus and lobster in 3 fisheries...'. The table includes questions 2.1 through 2.4.
- Export to Word:** A button in the top right corner of the report preview area.

Speech-to-text minutes generator

Using AI capabilities for automatically speech to text conversion and meeting minutes generation



Business need

- Management Committee (MC) meetings are organized on weekly basis in the bank for 8 hours, and there are 2 FTEs who are dedicated to transcribing the meeting notes
- These meetings are highly confidential and therefore, the cloud platforms cannot be used for transcription services



Solution and benefits

- Reduction in the manual tasks performed by employees to note meeting minutes
- This solution can be combined with other developed solutions in order to provide the final meeting note in the required template



Process enhancement



Board meetings minutes generator

Meeting Notes

Upload file

Generate notes

0:02 / 0:17

Meeting Minutes

Generate minutes

Download

The conversation between Speaker 1 and Speaker 2, who is President Hoyer, revolves around European development policy and the role of the European Investment Bank (EIB) in promoting development in the global south. Speaker 1 raises the concern that European development policy may benefit Europeans more than their partners in the global south. President Hoyer acknowledges this perception and suggests that the donor-recipient mentality needs to be overcome. He emphasizes the need for more eye-level thinking and strategic partnerships with developing countries.

The conversation then shifts to the role of EIB Global, the new arm of the EIB group, in promoting development in the global south. President Hoyer believes that EIB Global can make a big leap forward in development and play a crucial role in the Global Gateway Initiative, a new game changer in the strategic cooperation between the European Union and its neighbors outside. He notes that EIB's strong position on the capital market and ability to leverage limited budgetary resources is needed to attract private sector financing for the projects that must be developed and delivered on the Global Gateway Initiative.

The Global Gateway Initiative is about strategic cooperation between the European Union and its members to think more strategically and in terms of connectivity in the widest sense. President Hoyer believes that EIB has a great opportunity to play a significant role in this initiative, particularly when it comes to the link to climate and environment where EIB is the leading institution among the modular to relevant banks.

The conversation then turns to the energy crisis and the security of supply. The EIB has turned itself into the EU climate bank partly by moving away from investment in fossil fuels. President Hoyer

Speaker 1: President Hoyer, who actually benefits from European development policy? There's a lot of critical voices that suggest sometimes that the Europeans are benefiting more than their partners in the global south.

Speaker 2: I hated it for a while as well, and also today. And if that is true, if that perception is there, then we Europeans, or we northerners might ask ourselves, self-critically, whether we should not do more and overcome this donor-recipient mentality. There's still pervasive everywhere, and I think would be very useful to overcome this. In particular, now that it's quite obvious that we need our partners in the developing world much more as strategic partners. So I think a little bit more eye-level

Speech-to-text minutes generator – Demo

Using AI capabilities for automatically speech to text conversion and meeting minutes generation

The screenshot displays the 'MC meetings minutes generator' web application. The interface is divided into two main sections: 'Meeting Minutes' and 'Report Generation'. On the left, there is a sidebar with a toggle switch and a speaker icon. The 'Meeting Minutes' section contains an 'Upload file' button and a 'Generate minutes' button. The 'Report Generation' section includes radio buttons for 'Local model' and 'Cloud model', with 'Cloud model' selected. Below these are 'Generate report' and 'Download' buttons. The footer contains the text '© 2024, DELTA GENERAL SERVICES' on the left and 'Public 28' on the right.

Closure

Questions



Next Link'n Learn webinar:

Date: 10/04/2024

**Topic: L&L | Investment Funds | Fund
Tax update on latest trends**





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