BIS Innovation Hub

MAS Monetary Authority of Singapore

GenAI in Action: Transforming Data Use in SupTech

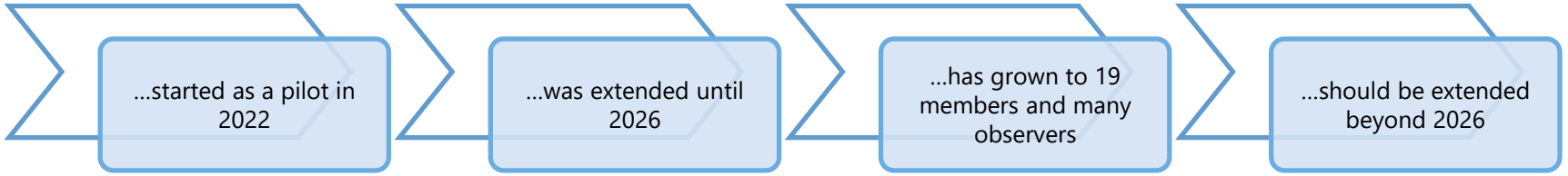
Dr Patrick Hoffmann, Maha El Dimachki, Kenneth Gay, Sivasubramanian Ramanathan, Harry Lee

February 2025

EDKP CC: Innovation through collaboration

- Supervisory activities heavily rely on data, but this data is often template-based and outdated.
- Therefore, central banks and regulatory authorities are increasingly turning to **Generative Artificial Intelligence (GenAI)** to address these challenges.
- The EDKP Collaboration Community, facilitated by the **BISIH Singapore Centre** and the **Monetary Authority of Singapore**, offers a unique way to jointly experiment with new technologies, for instance through knowledge-sharing and pooling of expertise.

Introducing the EKPD Collaboration Community



BIS Innovation Hub

BANK INDONESIA

DeNederlandscheBank
EUROSYSTEEM

BANK OF MAURITIUS

PIDM
Perbadanan Insurans Deposit Malaysia
Protecting Your Insurance And Deposits In Malaysia

Superintendencia Financiera de Colombia

finma

Labuan FSA
Financial Services Authority

BANK NEGARA MALAYSIA
CENTRAL BANK OF MALAYSIA

SUPERINTENDENCIA
DE BANCA, SEGUROS Y AFP
República del Perú

DEUTSCHE BUNDESBANK
EUROSYSTEM

MAS
Monetary Authority of Singapore

South African Reserve Bank

BANCA D'ITALIA

OSFI
BSIF

MAGYAR NEMZETI BANK

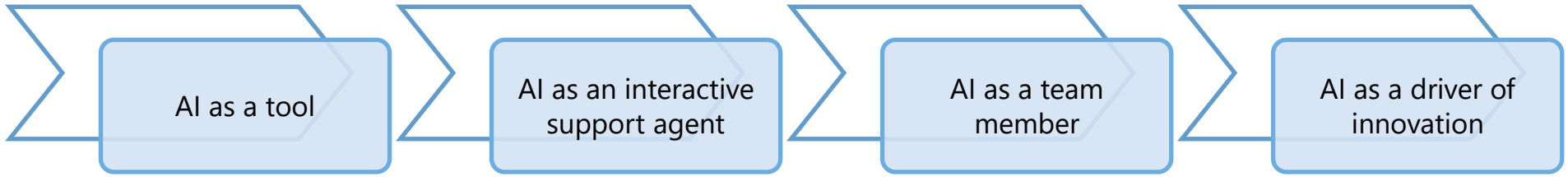
BANK OF JAPAN

BANGKO SENTRAL NG PILIPINAS

Currently, most central banks use AI…

- … as an innovation tool, or
- … as an interactive support agent.

The role of AI in central banking will develop over time with increasing capabilities of AI.

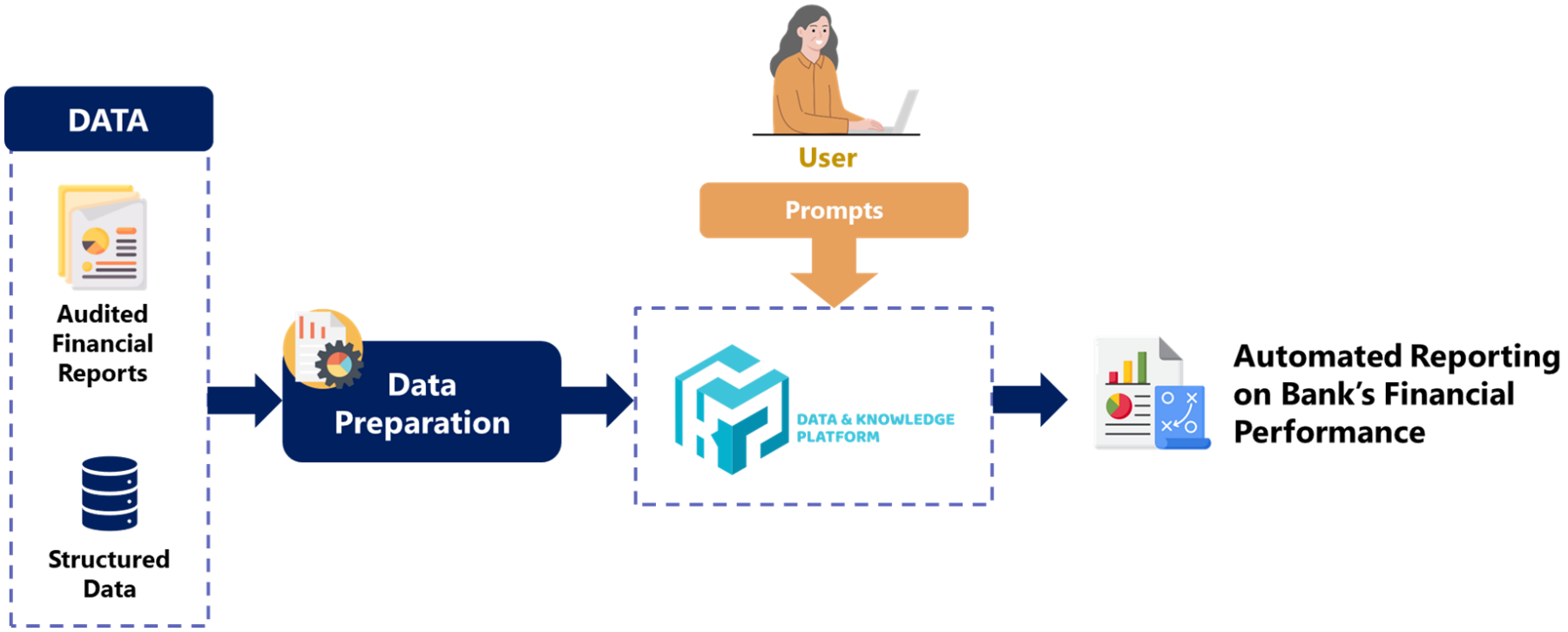


In June 2024, the EDKP CC met for a hackathon in Singapore…

- … Round about 50 people participated in cross-institutional teams to work on six use cases, four of them on GenAI.

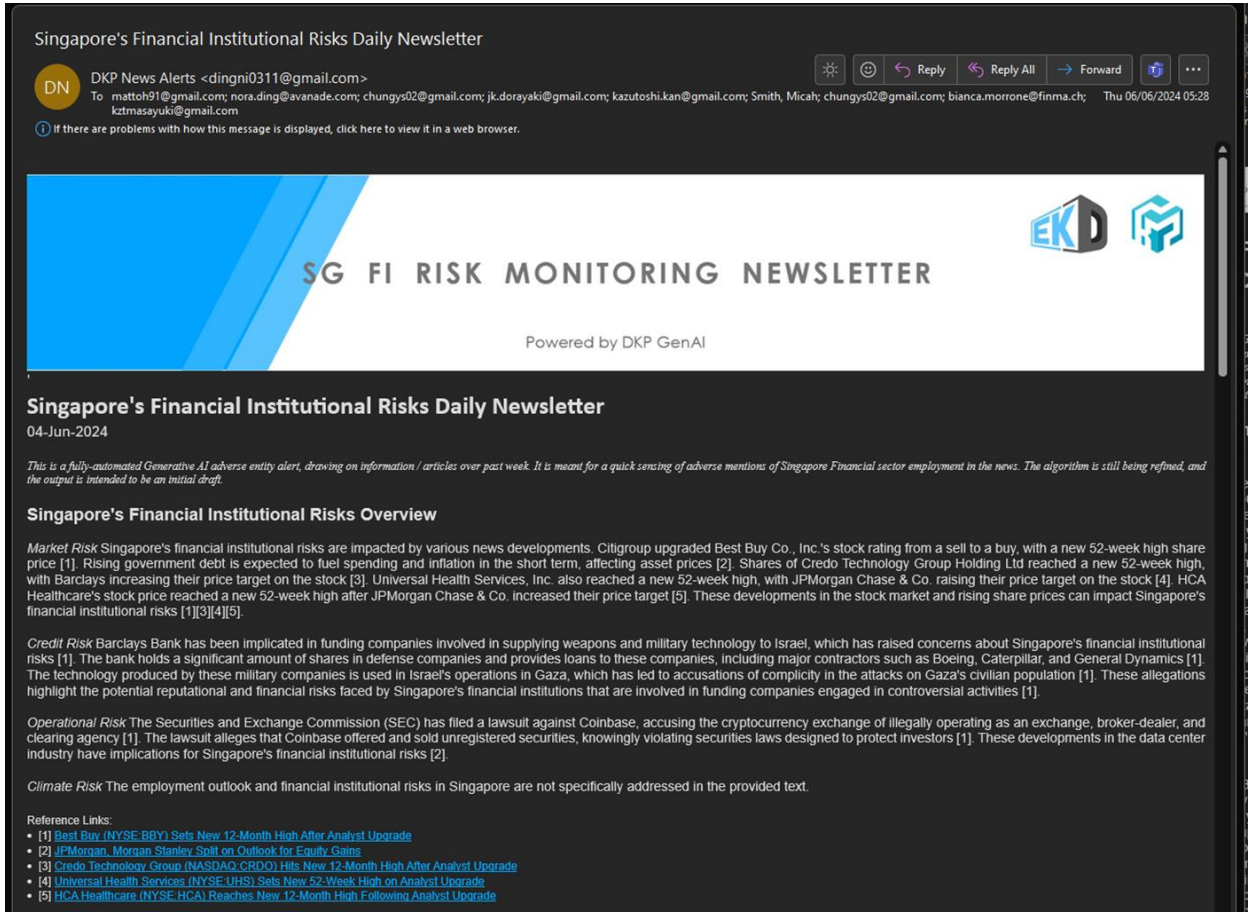
EDKP CC Hackathon - GenAI use case 1

- **AI-Powered Regulatory Insight:** Team 1 explored the application of GenAI in summarizing and analyzing regulatory reports and disclosures. The team aimed to develop a system capable of extracting insights regarding a bank's financial condition and generating automated reports that summarize financial statement assessments.



EDKP CC Hackathon - GenAI use case 2

- **AI-Driven Financial Newsletters:** Team 2 investigated the potential of GenAI in scanning information feed for information of interest. The team focused on developing a system that automatically generates and distributes newsletters containing only articles that covered topics of interests (e.g. credit risks), thereby reducing manual effort and mitigating information overload for recipients.



Singapore's Financial Institutional Risks Daily Newsletter

DKP News Alerts <dingni0311@gmail.com>
To mattoh91@gmail.com; nora.ding@avanade.com; chungys02@gmail.com; jk.dorayaki@gmail.com; kazutoshi.kan@gmail.com; Smith, Micah; chungys02@gmail.com; bianca.morrone@finma.ch; kztmasayuki@gmail.com
Thu 06/06/2024 05:28

If there are problems with how this message is displayed, click here to view it in a web browser.

SG FI RISK MONITORING NEWSLETTER

Powered by DKP GenAI

Singapore's Financial Institutional Risks Daily Newsletter

04-Jun-2024

This is a fully-automated Generative AI adverse entity alert, drawing on information / articles over past week. It is meant for a quick sensing of adverse mentions of Singapore Financial sector employment in the news. The algorithm is still being refined, and the output is intended to be an initial draft.

Singapore's Financial Institutional Risks Overview

Market Risk Singapore's financial institutional risks are impacted by various news developments. Citigroup upgraded Best Buy Co., Inc.'s stock rating from a sell to a buy, with a new 52-week high share price [1]. Rising government debt is expected to fuel spending and inflation in the short term, affecting asset prices [2]. Shares of Credo Technology Group Holding Ltd reached a new 52-week high, with Barclays increasing their price target on the stock [3]. Universal Health Services, Inc. also reached a new 52-week high, with JPMorgan Chase & Co. raising their price target on the stock [4]. HCA Healthcare's stock price reached a new 52-week high after JPMorgan Chase & Co. increased their price target [5]. These developments in the stock market and rising share prices can impact Singapore's financial institutional risks [1][3][4][5].

Credit Risk Barclays Bank has been implicated in funding companies involved in supplying weapons and military technology to Israel, which has raised concerns about Singapore's financial institutional risks [1]. The bank holds a significant amount of shares in defense companies and provides loans to these companies, including major contractors such as Boeing, Caterpillar, and General Dynamics [1]. The technology produced by these military companies is used in Israel's operations in Gaza, which has led to accusations of complicity in the attacks on Gaza's civilian population [1]. These allegations highlight the potential reputational and financial risks faced by Singapore's financial institutions that are involved in funding companies engaged in controversial activities [1].

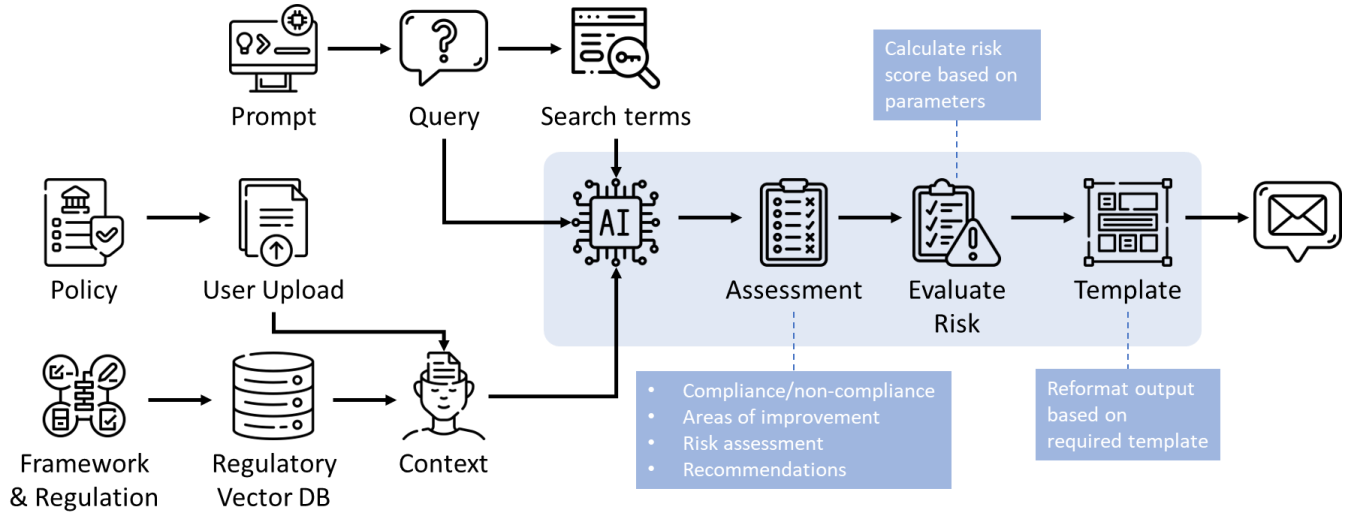
Operational Risk The Securities and Exchange Commission (SEC) has filed a lawsuit against Coinbase, accusing the cryptocurrency exchange of illegally operating as an exchange, broker-dealer, and clearing agency [1]. The lawsuit alleges that Coinbase offered and sold unregistered securities, knowingly violating securities laws designed to protect investors [1]. These developments in the data center industry have implications for Singapore's financial institutional risks [2].

Climate Risk The employment outlook and financial institutional risks in Singapore are not specifically addressed in the provided text.

Reference Links:
- [1] Best Buy (NYSE:BBY) Sets New 12-Month High After Analyst Upgrade
- [2] JPMorgan, Morgan Stanley Split on Outlook for Equity Gains
- [3] Credo Technology Group (NASDAQ:CRDO) Hits New 12-Month High After Analyst Upgrade
- [4] Universal Health Services (NYSE:UHS) Sets New 52-Week High on Analyst Upgrade
- [5] HCA Healthcare (NYSE:HCA) Reaches New 12-Month High Following Analyst Upgrade

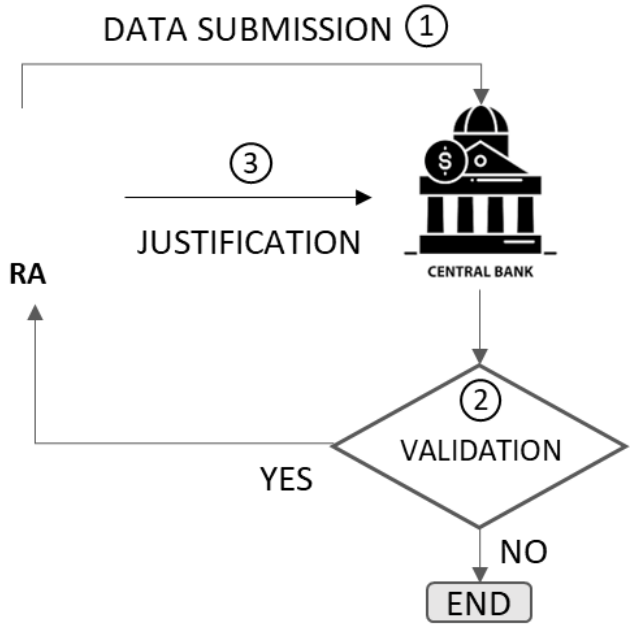
EDKP CC Hackathon - GenAI use case 3

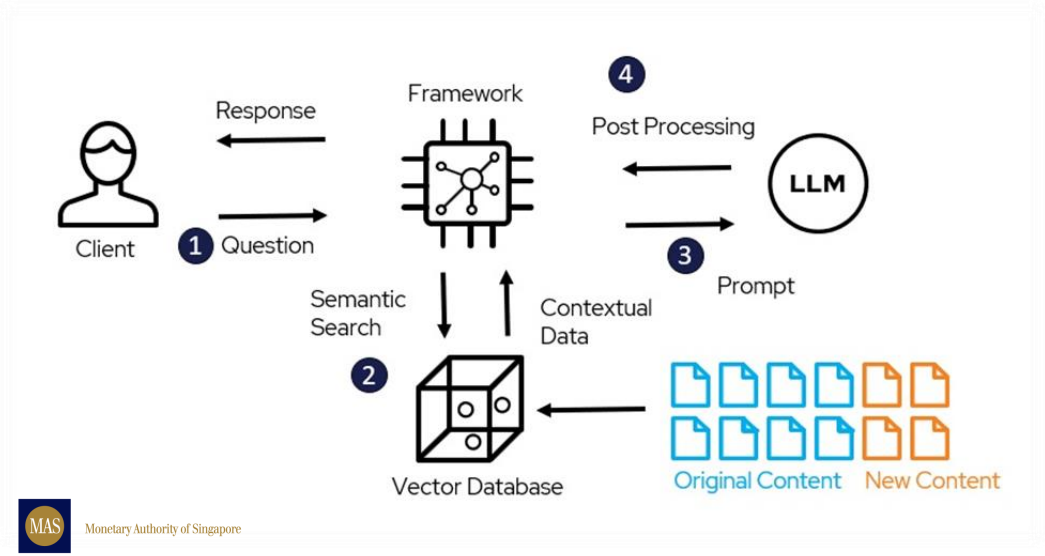
- **Navigating Supervisory Frameworks with AI:** Team 3 developed the "Artificial Intelligence Hybrid Analysis Supervision" (AIHAS) system. This system functions as an intelligent assistant for bank supervisors, leveraging supervisory and regulatory data to provide rapid responses to queries and generate comprehensive assessments. AIHAS also aims to automate the evaluation of bank documents for compliance with relevant policies and regulations, identifying potential risks associated with banking operations, and enhancing productivity by automating repetitive tasks.

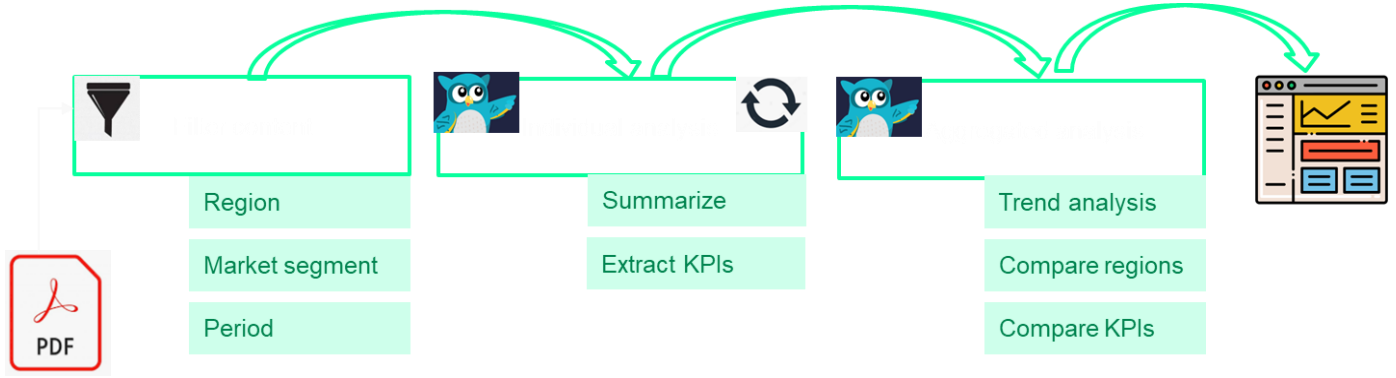


EDKP CC Hackathon - GenAI use case 4

- **Enhancing Supervisory Reporting:** Team 4 focused on several aspects of supervisory reporting, including the development of systems for question answering, retrieval and summarization of official documents, and automation and scaling of text similarity assessments in regulatory reporting to streamline compliance analysis. Additionally, the team explored the application of AI in conducting market analysis of commercial real estate reports.



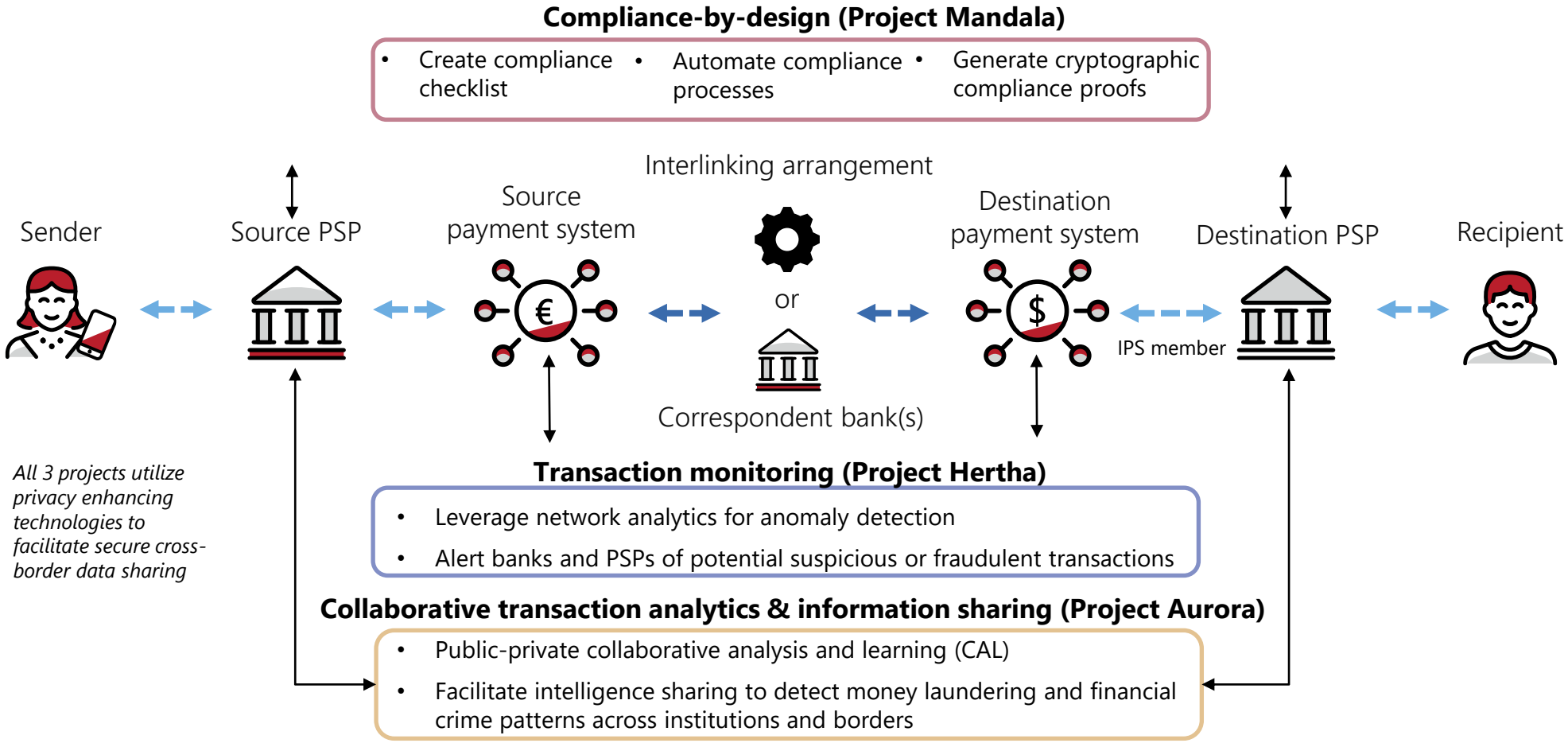




EDKP CC Hackathon - Lessons learned

- **A common theme emerges from these diverse use cases:** the need to efficiently and accurately extract meaningful insights from large volumes of data.
- Whether it is analyzing financial reports, identifying information of interest, or automating compliance checks, the ability to process and understand data is paramount in financial supervision.
- The participating institutions, representing a global cross-section of regulatory bodies, are increasingly looking towards GenAI as a potential solution to this challenge.
- GenAI, with its capacity to analyze unstructured data, and generate human-like text, holds promise for automating tasks, improving decision-making, and ultimately enhancing the effectiveness of financial supervision.

The path forward: Potential and challenges for GenAI in SupTech – Combating financial crime

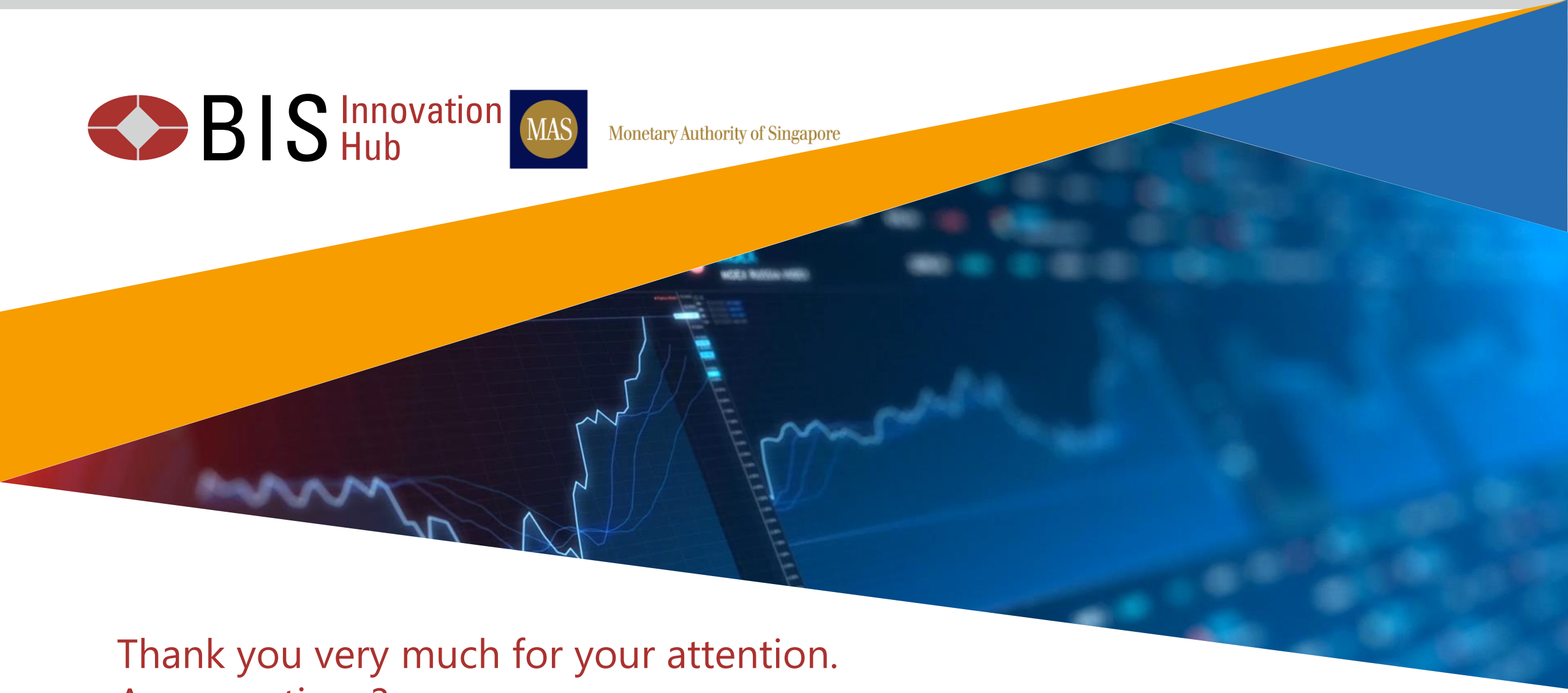


The path forward: Potential and challenges for GenAI in SupTech – Analyzing and visualizing climate risk

- Supervisors face challenges accessing and analyzing unstructured, underutilized environmental data impacting financial institutions.
- **How AI Helps:**
  - Processes unstructured environmental data at scale
  - Identifies patterns and correlations in complex datasets
  - Generates initial risk assessments and automated reports
  - Provides actionable insights as a foundation for deeper analysis
- **BISIH's Goal:**
  Develop a Digital Twin MVP that leverages AI to enable supervisors to interactively assess physical climate risks using the most up-to-date data, enhancing decision-making.

BIS Innovation Hub

MAS Monetary Authority of Singapore



Thank you very much for your attention.
Any questions?

Dr Patrick Hoffmann, Maha El Dimachki, Kenneth Gay, Sivasubramanian Ramanathan, Harry Lee

February 2025

References

- Alonso-Robisco, A., Marques, J. M. (2024). Finding the balance with technology. OMFIF SPI Journal.
- Araujo, D., Doerr, S., Gambacorta, L., Tissot, B. (2024). Artificial intelligence in central banking. BIS Bulletin (84).
- Ashley, J., Papenbrock, J. (2023). Modern computing platforms as key technology for central banks, financial supervisors, and regulators. IFC Bulletin (59).
- Bank for International Settlements (BIS) (2022): Project Ellipse: An integrated regulatory data and analytics platform. www.bis.org/publ/othp48.pdf.
- Bank for International Settlements (BIS) (2023): Ellipse and DKP collaboration community – Terms of reference. www.bis.org/pdf/EDKP_License_Agreement.pdf.
- Bank for International Settlements (BIS) (2024): Annual economic report. https://www.bis.org/publ/arpdf/ar2024e.pdf
- El Dimachki, M. (2024). Fintech regulation in practice: Navigate the complexities and opportunities of regulation. Kogan Page.
- Hoffmann, P.; El Dimachki, M.; Gay, K.; Grisey, L.; Bossert, Z. (forthcoming). Introducing the work program of the BIS Innovation Hub Singapore Centre on green finance and climate risk data. IFC Bulletin.
- Ramanathan, S., Hoffmann, P., Gay, K., Lee, H. (2024). Project Viridis: A blueprint for managing climate-related financial risk. OMFIF SPI Journal.