

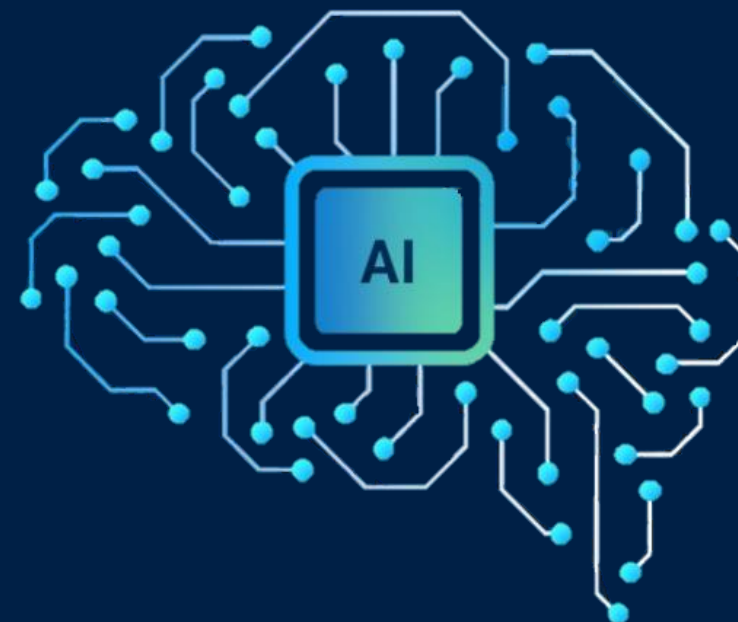
Applying LLM/GenAI

..some prototyping use cases

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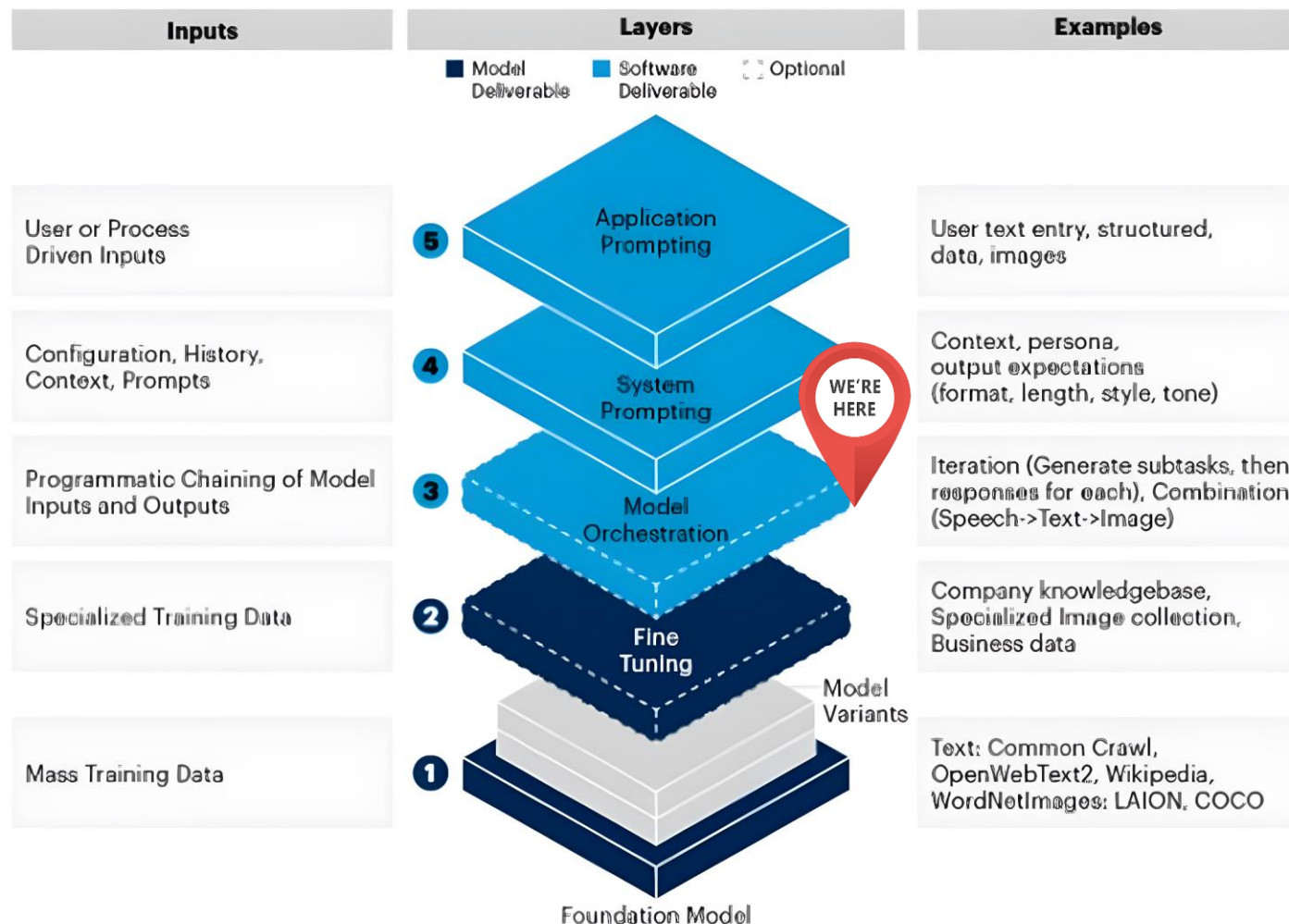
Where are we?

- We are just starting to explore the utilisation of LLM/GenAI to support business processes.

What are we doing?

- Pipelining, with existing available pretrained model.
- Deploying into the app, in prototyping phase.
- Assessing, how is it utilized into some further possible use cases across the business area (e.g. monetary dept, macroprudential dept, etc).

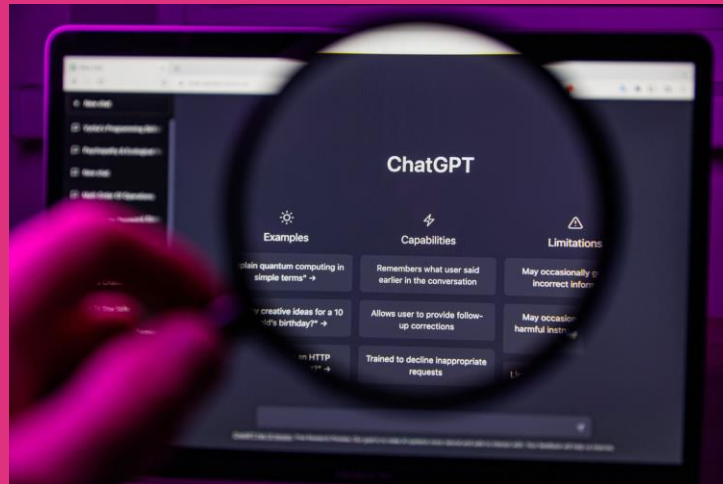
Layers of a Generative AI Solution



Source: Gartner
704260_O

For specific domain, the option of GenAI in the Market..

Public Generative AI



User

asks



LLM

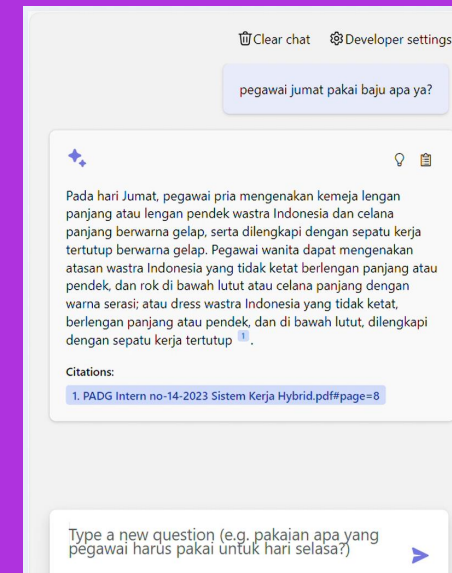
General Answer
(Contextually inaccurate)

Data Might be
Unsecure (public)

Potentiality:
Contextually
Inaccurate

Limited
Modification

Enterprise Generative AI



User

asks



LLM
Enterprise
Data

Enterprise
Answer
(Contextually Accurate)

Data Secured

Contextual
Accuracy

Fine Tuning

We have been doing the utilisation of...

Gen AI use case with

**Hybrid
(Structured +
Unstructured)**

Data



Prototype #1

Narrative Economic Indicator
Generator
(Use case: inflation nowcasting)

Gen AI use case with

Unstructured

Data



Prototype #2

GenAI **Chatbot** [RAG]
Regulation/legal related documents
(ask anything)

Gen AI use case with

Structured

Data

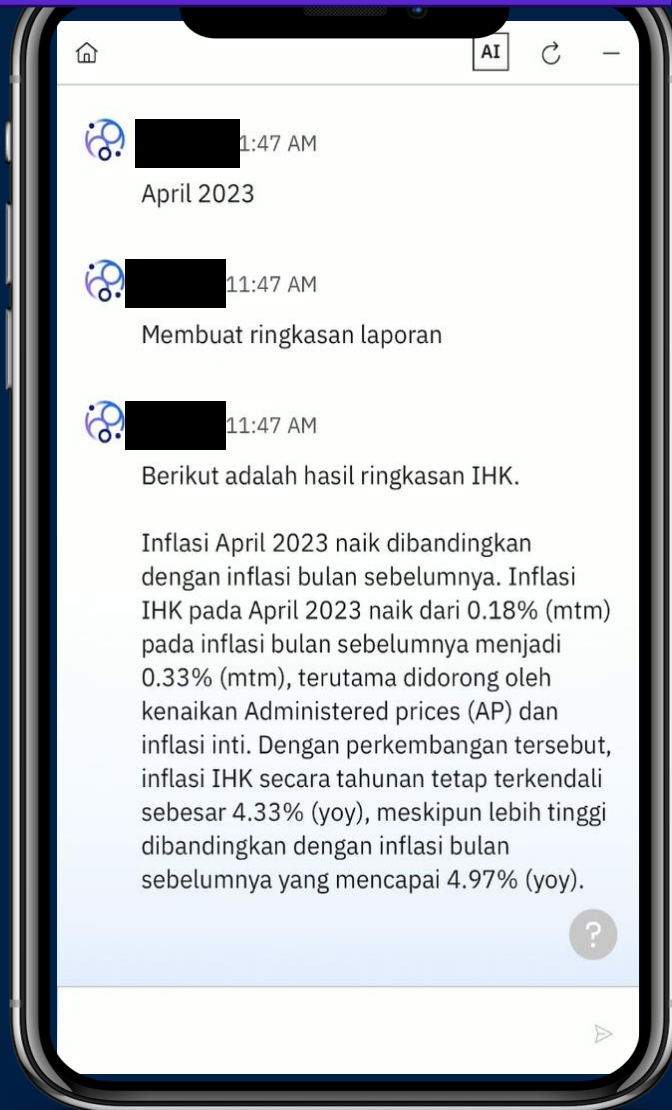


Prototype #3

GenAI **Chatbot**
HR Data

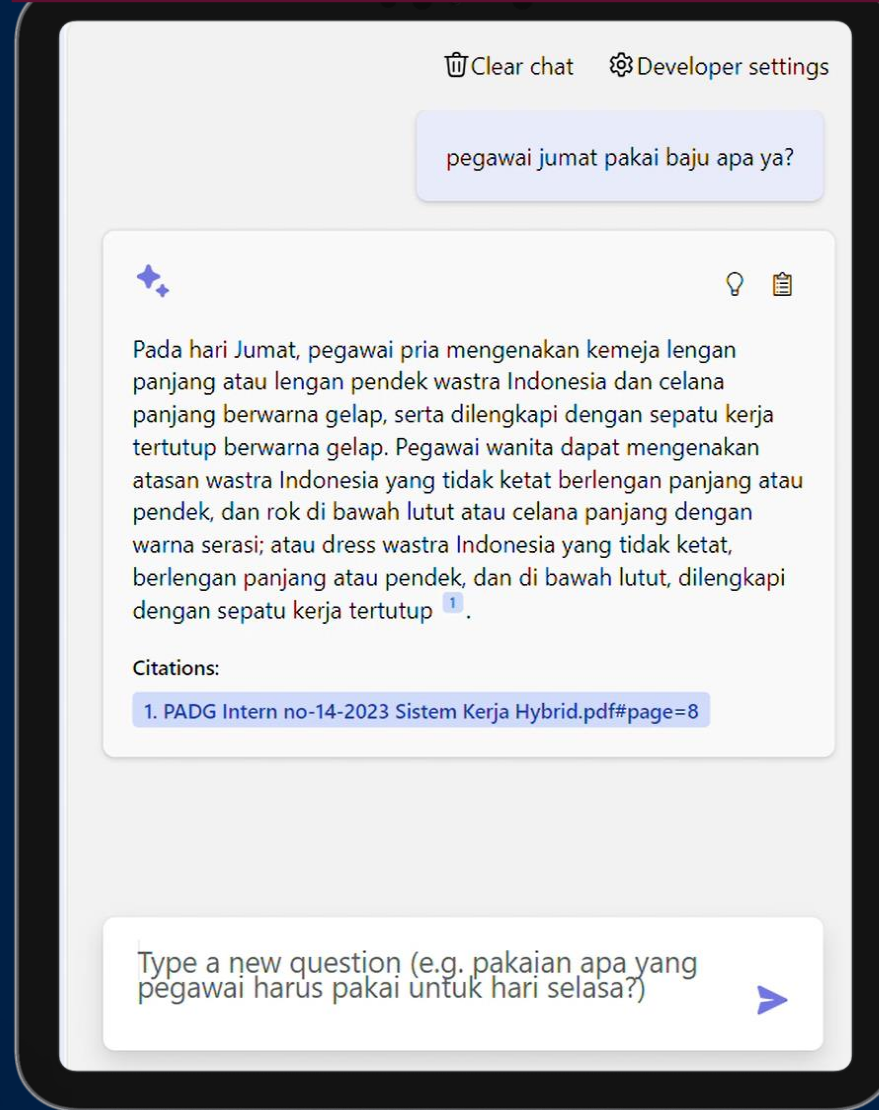
Prototype #1

Narrative Economic Indicator Generator
(Use case: inflation nowcasting)



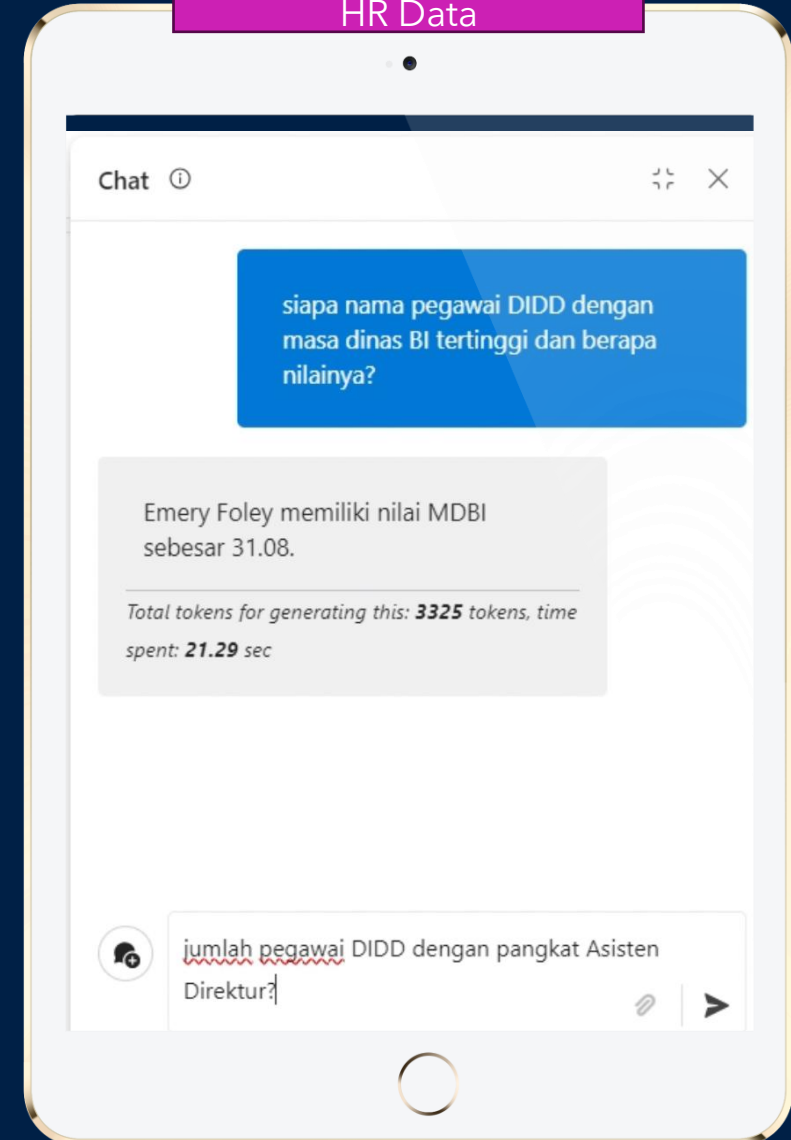
Prototype #2

GenAI **Chatbot** [RAG] Regulation related documents
(ask anything)



Prototype #3

GenAI **Chatbot**
HR Data



Problem Statement

Narrative Indicator analysis is periodically produced as one of the main source of board of the governor meeting. GenAI should help to produce analytical notes depending on the condition resulted from economic data (i.e. nowcasting result, transaction data, statistics, etc)

Data Input

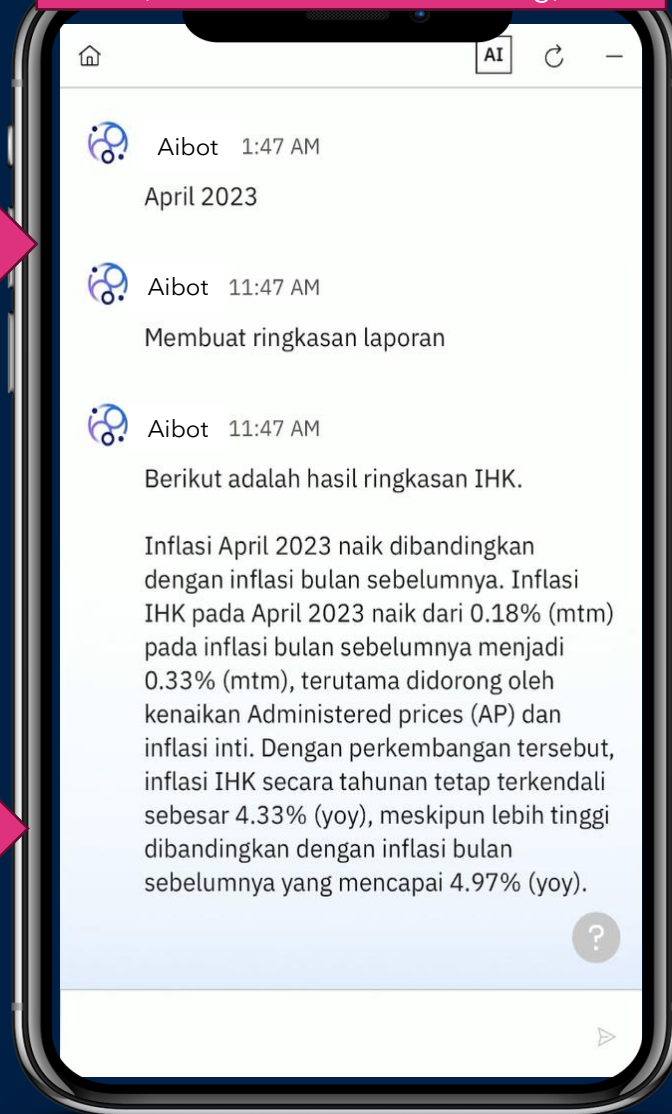
Structured
(e.g. Inflation, price commodity)

Unstructured
(inflation press release document)

Prototype #1

Narrative Economic Indicator Generator

(Use case: inflation nowcasting)



Output

Indicator Analysis Document is updated automatically as the source (input) for board of governor meeting or press release.

Text
(narrative descr)

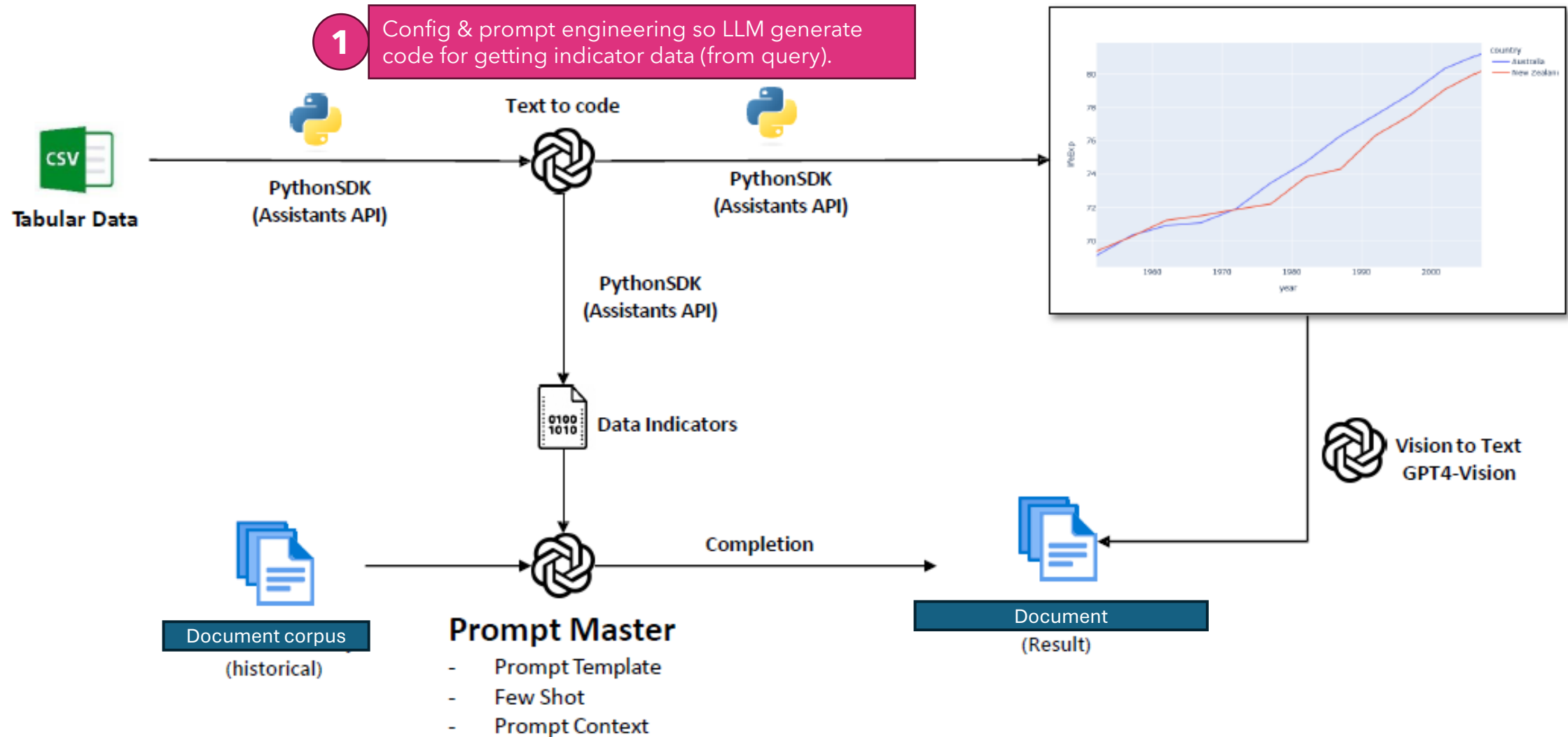
Image
(chart)

!by no means intended as advertising



Successfully prototyped with:





2 Config & prompt engineering agar LLM learn the pattern of numeric data, use document for the textual reference.

Problem Statement

So many documents related to regulation/legal. Finding a particular regulation may be exhaustive/difficult/inefficient.

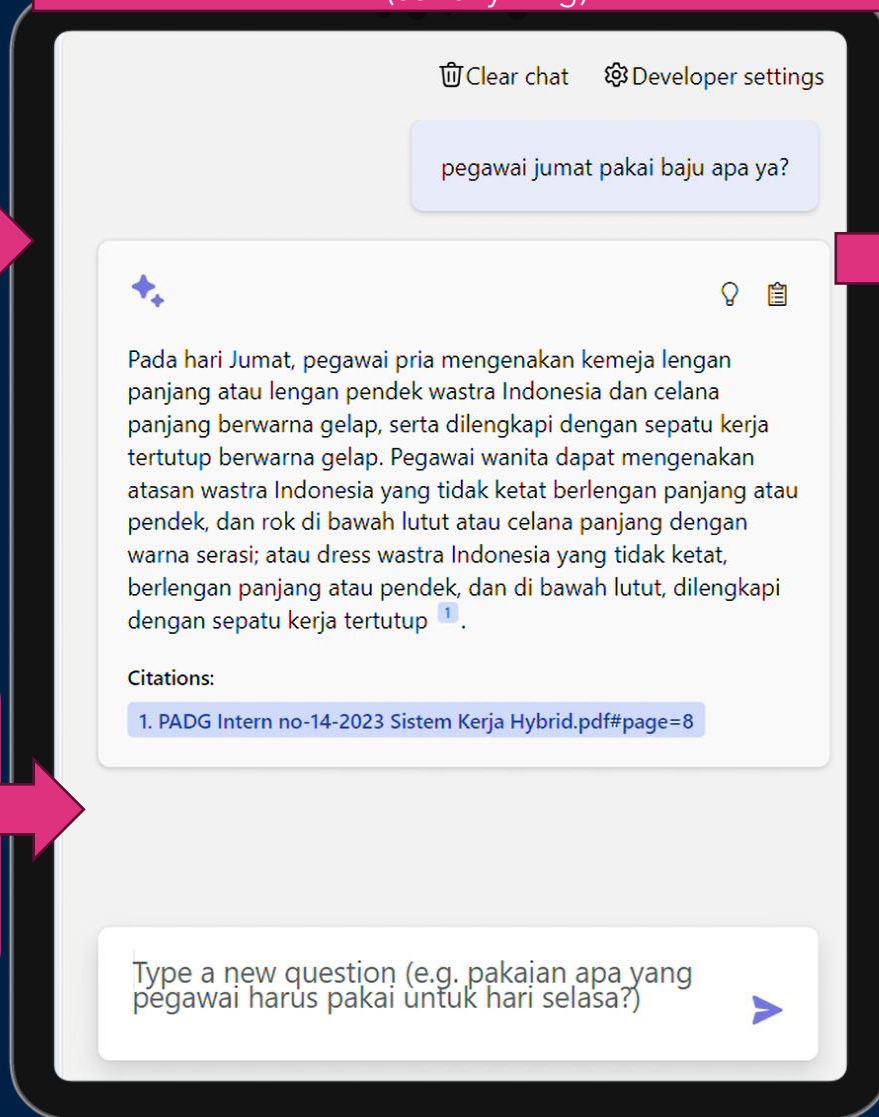
→ GenAI for Chatbot, for more efficient and interactive search.

Data Input

Unstructured
BI regulation related docs (pdf)- may be general.

Prototype #2

GenAI **Chatbot** [RAG] Regulation/legal related documents (ask anything)



Clear chat Developer settings

pegawai jumat pakai baju apa ya?

Pada hari Jumat, pegawai pria mengenakan kemeja lengan panjang atau lengan pendek wastra Indonesia dan celana panjang berwarna gelap, serta dilengkapi dengan sepatu kerja tertutup berwarna gelap. Pegawai wanita dapat mengenakan atasan wastra Indonesia yang tidak ketat berlengan panjang atau pendek, dan rok di bawah lutut atau celana panjang dengan warna serasi; atau dress wastra Indonesia yang tidak ketat, berlengan panjang atau pendek, dan di bawah lutut, dilengkapi dengan sepatu kerja tertutup ¹.

Citations:

1. PADG Intern no-14-2023 Sistem Kerja Hybrid.pdf#page=8

Type a new question (e.g. pakaian apa yang pegawai harus pakai untuk hari selasa?) ➔

Output

Chatbot can “**understand**” the context of the question and answer based on what has been learnt.

!by no means intended as advertising 😊

Successfully prototyped with:



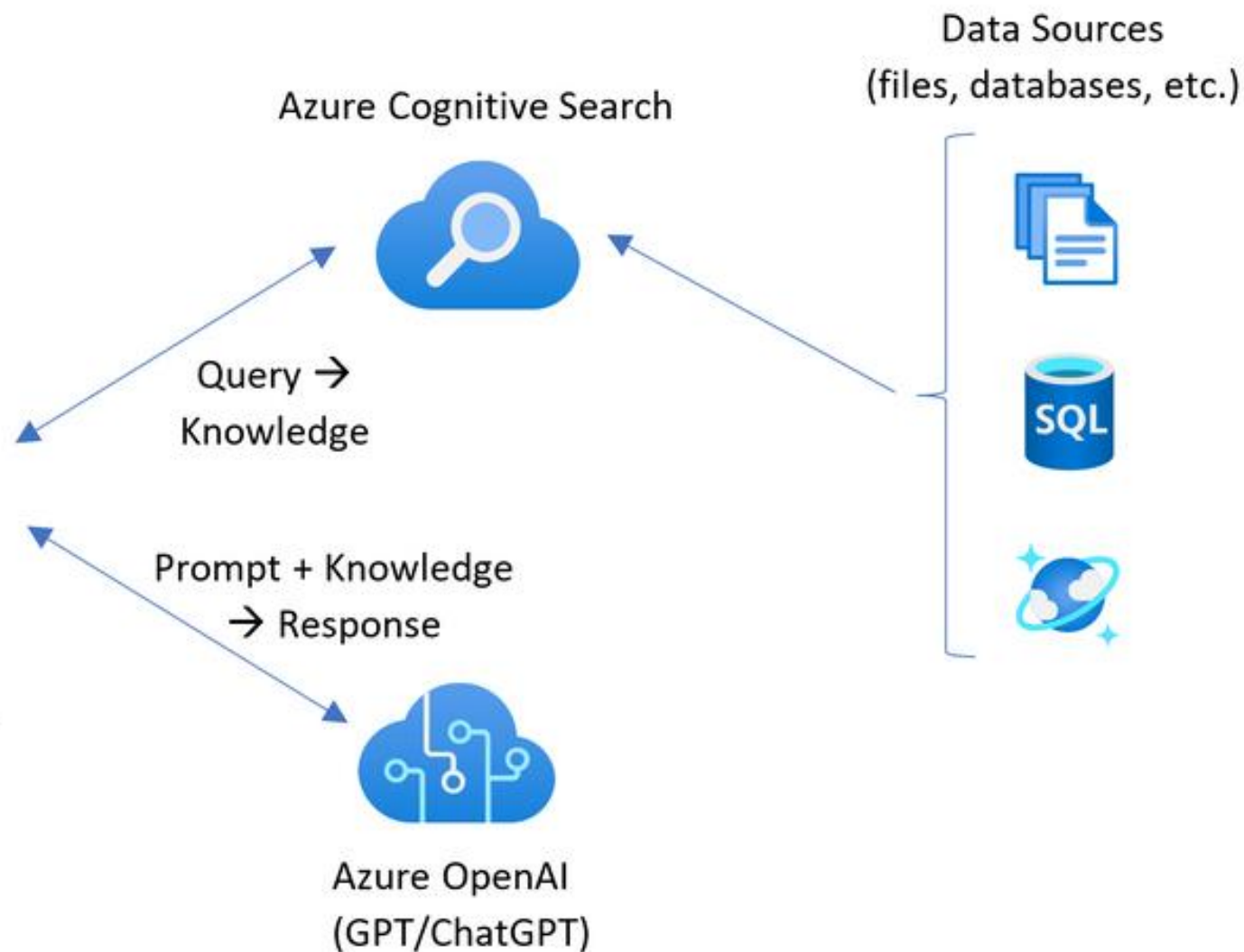
- 1 Vector transformation of legal docs (as the base knowledge) and query.
- 2 Matching query vector vs doc vector.
- 3 Select top n relevant docs.



App UX



App Server,
Orchestrator



Problem Statement

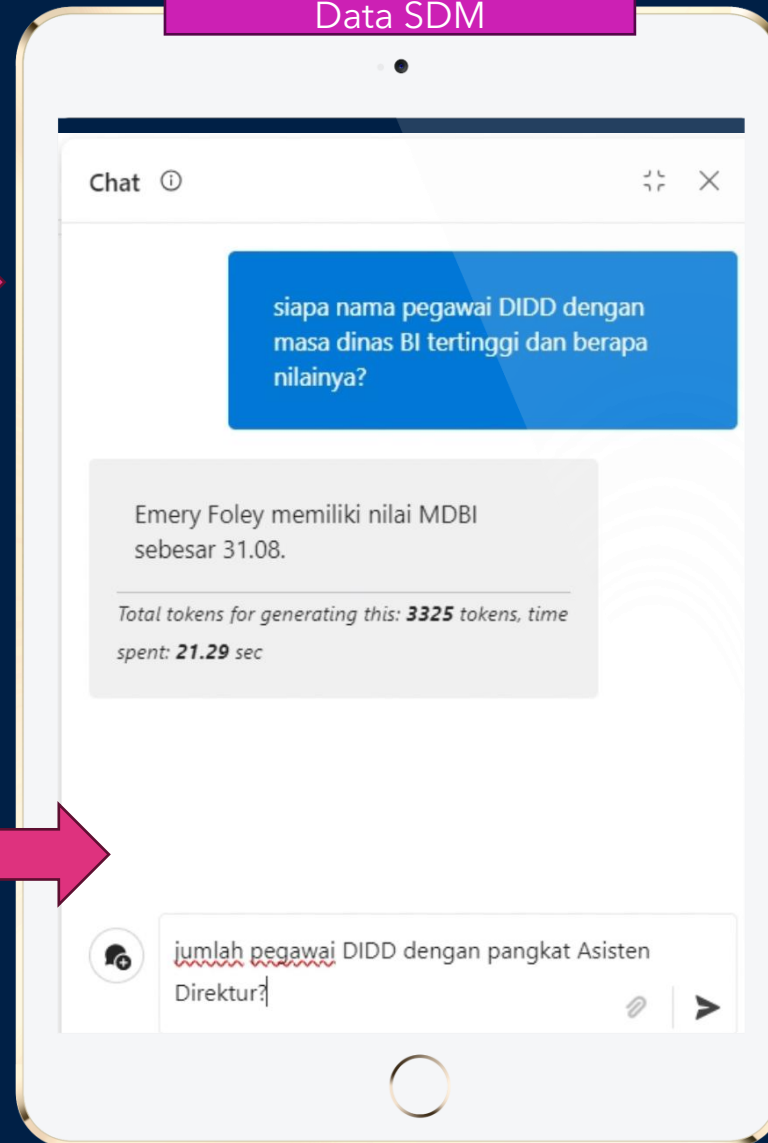
How to help management level analyse the HR data?

GenAI (with Chatbot), can help answer based on the available data (mostly tabular).

Data Input

Structured
Granular Tabular HR Data

Prototype #3 GenAI Chatbot Data SDM



Output

Q/A HR information, given tabular HR data.

!by no means intended as advertising 😊

Successfully
prototyped with:



1 Tabular data that is usually queried with SQL

2 Config & prompt engineering so that LLM understand the metadata (of tabular data)

Data Source (RDB)



Azure AI Studio



4 Querying to RDB by generated SQL script.



5 Textual generation by LLM on queried data based on the question (from user) given.



App UI

3 LLM understands the question (from user) and generate SQL script to retrieve the data

Possible future use cases

Content Generation

Insightful Narrative Generation

Assessment Generator for AIU RDG [Mon. & MacroPrud. Dept]

Macroprudential policy dissemination report generator
[MacroPrud. Dept]

RDG Press release generator [Mon. Dept]

AI for Central Bank Communication Generator [Mon. Dept]

Chatbot

Knowledge QnA

Chatbot for Monetary Policy Research and Assessment [Mon. Dept]

Chatbot Pro-Market Monetary Operation Policy [Mon. Operation Dept]

Chatbot Economy Data and Insight Q&A [Mon. Dept]

Chatbot for Macroprudential Policy Research (DWP Assistant 1.0)
[MacroPrud. Dept]

Chatbot Macroprudential Policy for Publik [MacroPrud. Dept]

Chatbot Employee Experience and FAQ (HR Super Apps) [HR Dept]



Human in the loop

Some [Potential] Challenges

- Data Privacy and Security
- Resources on local language (for further LLM application usages)
- *On premise LLM compute **needs** GPU, which is expensive and takes time to procure*

Thank you