

AI-development @ FIN-FSA

Tuomas Ritola, Chief Specialist

Director General's staff

FIN-FSA

Introduction

- **AI lead @ FIN-FSA**
 - Use case development for all supervisory domains: identifying & prioritizing cases and managing development
- A combination of technical and commercial **background:**
 - ECB SSM Suptech: Project Athena
 - FIU Finland: Financial and criminal intelligence
 - Consultant, startup CEO, researcher



Tuomas Ritola

Chief specialist

Director General's staff

FIN-FSA

FIN-FSA & Bank of Finland

- **FIN-FSA** promotes the stability and confidence of financial markets and the protection of customers, investors and the insured.
 - Approximately 1,000 entities under supervision
 - FIN-FSA operates administratively with the **Bank of Finland**.
- **Analytics Center of Excellence (ACE)** was set up in 2023 for **advancing data science and analytics** development.
 - A horizontal virtual unit that gathers data scientists
 - Forum + tech development + communications + culture development
 - <https://medium.com/spxfiva-data-science>
- An optimal space for applying LLMs!
 - Tasks include lots of a) **analyzing documents**, and b) **producing documents**.



Background: FIN-FSA AI development

- An **IT development project** to enable the large-scale use of artificial intelligence.
 - Project active from June 2024 to December 2025

1. Improving operational efficiency

- Assisting users
- Partly or fully automated expert tasks

2. Improving scope and quality of supervision

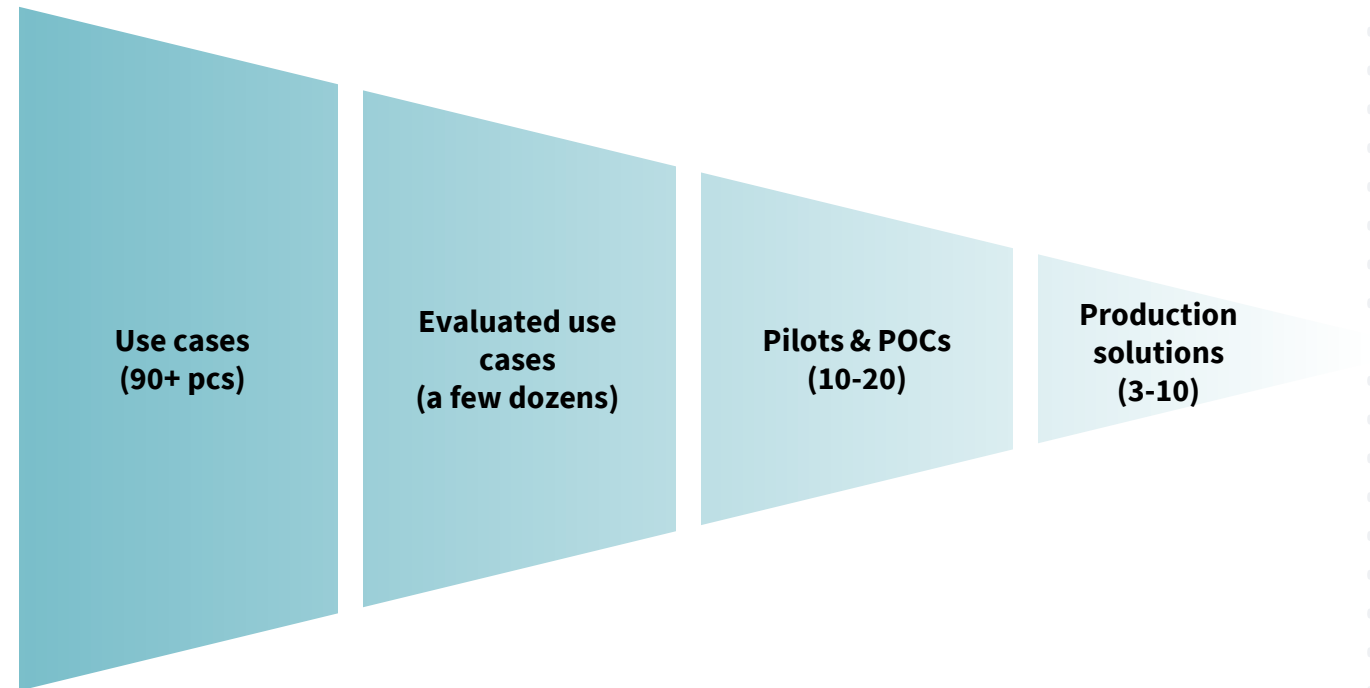
- More comprehensive material searches
- Analyzing data masses
- Automation → Optimizing use of time

3. Development of FIN-FSA AI capabilities

- Building the **capabilities for implementing AI solutions.**

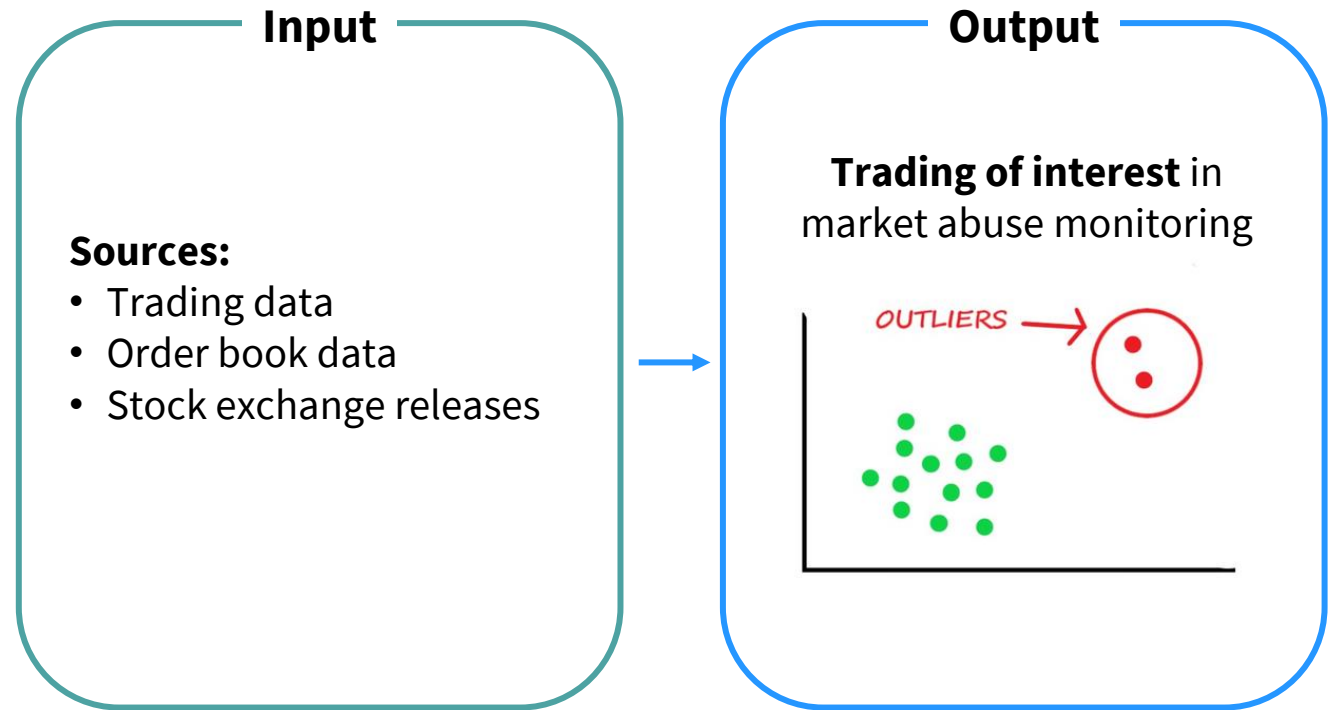
Background: AI development project

- Technology and solution development via the identified **AI use cases**.
- **Ca. 90** identified **use cases**
- **Results** at the end of the project:
 - Implemented AI use case solutions
 - Capability for internal AI development



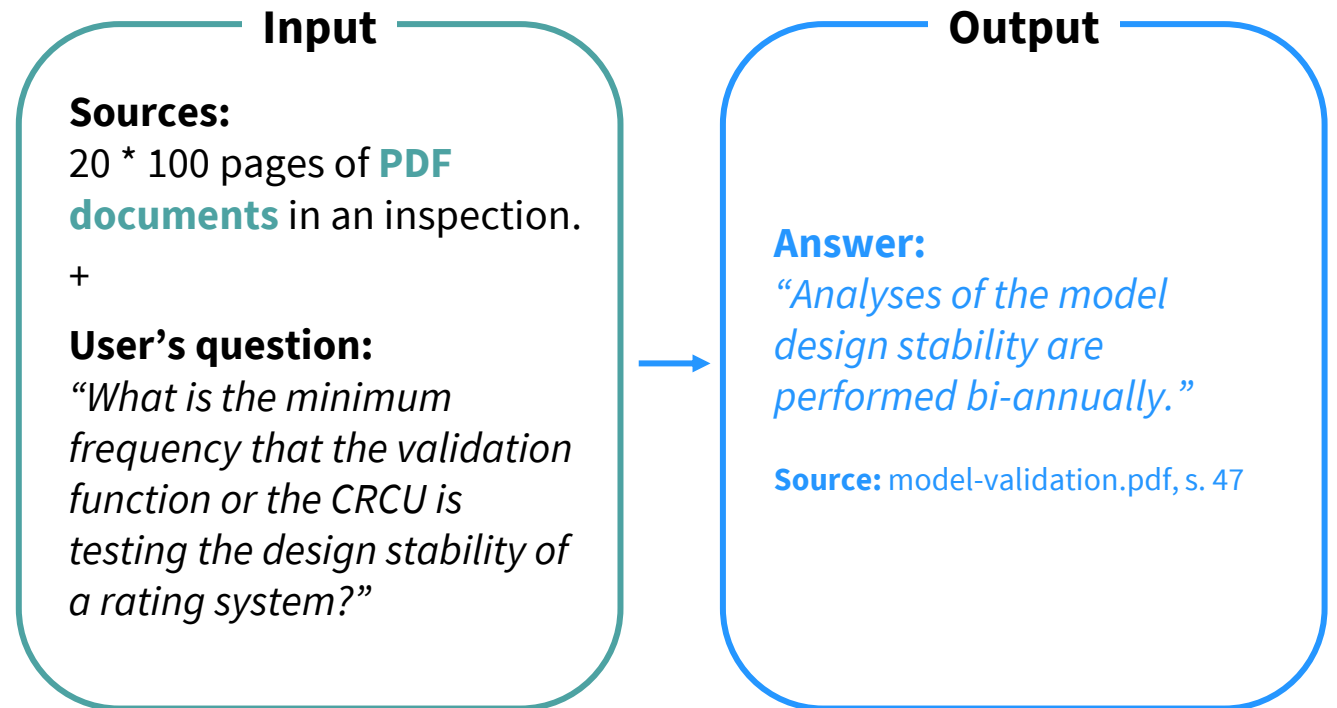
AI use cases @ FIN-FSA

- **Analyzing & combining (big) data**
 - Supervision of securities market trading
 - Anti-Money Laundering



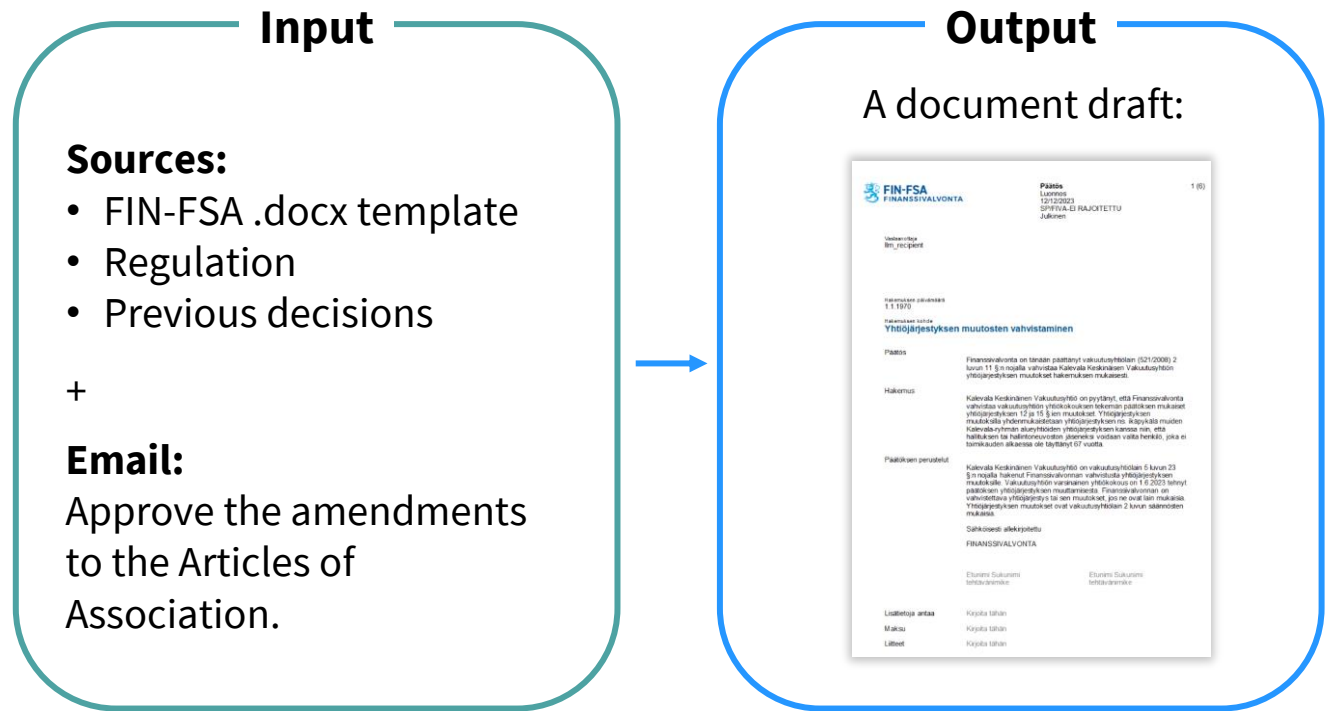
AI use cases @ FIN-FSA

- **Analyzing & combining (big) data**
 - Supervision of securities market trading
 - Anti-Money Laundering
- **Smart document search**
 - E.g. documents in an inspection

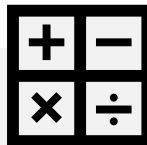


AI use cases @ FIN-FSA

- **Analyzing & combining (big) data**
 - Supervision of securities market trading
 - Anti-Money Laundering
- **Smart document search**
 - E.g. documents in an inspection
- **Automating tasks**
 - Generating documents
 - Preparing materials for a meeting
 - Comparing documents
 - Etc...



Types of data and AI use cases






Quantitative data

- Lots of useful methods
 - From more traditional to neural methods
- Difficulties lie often in **data engineering** – making the data available for the analysis
 - Might need legal considerations, collaboration, or just elbow grease



Text data and documents

- Used to rely on case-dependent models; NER, classification, etc...
- With LLMs, there's often three common steps:

1.  Intent understanding
2.  Smart search
3.  Output generation

Significant overlap between cases



Types of AI use cases: Document search



- **Query example:** "CRR"

- **Intent:** An open-ended search for the term "CRR" in the context of the user's documents



- **Search:**

- Given the user's documents, **find pages** that mention CRR or its synonyms



- **Prompting the LLM** with search results → **Output :**

Capital Requirements Regulation (CRR)

*The **Capital Requirements Regulation (CRR)** is a key part of the European Union's (EU) regulatory framework for the banking sector. It is designed to ensure that banks maintain sufficient capital to absorb potential losses and remain solvent, thereby reducing the risk of financial instability.*

Sources: [\[1\]](#), [\[2\]](#), [\[3\]](#), [\[4\]](#)

Types of AI use cases: **Answering reporting helpdesk questions**



- **Query example:** *"I want to establish an SFTP connection to file reports - what would be needed to set that up?"*
 - **Intent:** The user needs guidance on the requirements and setup process for establishing an SFTP connection specifically for filing reports. This indicates a request for detailed, step-by-step procedural or technical information.



- **Search:**
 - Given reporting guidelines and instructions, **find sections** related to SFTP connection.



- **Prompting the LLM with search results → Output :**

"Steps to Set Up an SFTP Connection:

- 1. Install an SFTP Client (e.g., FileZilla, WinSCP)*
- 2. Enter Server Details - Hostname, Port (usually 22), Username, Password.*
- 3. Connect: Click "Connect" to start the session.*
- 4. Transfer Files: Drag and drop files between your computer and the server.*
- 5. Disconnect: Close the client when done."*

Types of AI use cases: **Document data extraction**



- **Query example:** *”Minimum % of sustainable investments”*
 - **Intent:** The user is requesting to identify the minimum percentage threshold of sustainable investments. The query is specific and seeks detailed quantitative information.



- **Search:**
 - Given the fund’s disclosure document, **find pages, tables or graphs** related to minimum share of sustainable investment.



- **Prompting the LLM** with search results → **Output :**

Does the fund promote ESG characteristics, and does it have a minimum proportion of sustainable investments?

→ Yes

Minimum proportion of sustainable investments?

→ 10%

Types of AI use cases: **Generating automatically .docx documents**



- **Query example:** "Confirmation of the articles of association for an insurance company"
 - **Intent:** The user is seeking for official confirmation of the articles of association. This query focuses on verifying specific changes to a formal legal document.



- **Search:**
 - Given relevant regulation, **find sections** regarding confirming the articles of association for an insurance company.



- **Prompting the LLM with search results → Output :**

decision: "The FIN-FSA has decided, pursuant to Chapter 2, Section 11 of the Insurance Companies Act (521/2008), to approve the amendments to the Articles of Association of the Insurance Company as requested in the application."

application_summary: "The Insurance Company has requested that the FIN-FSA approve the amendments to the Articles of Association as decided by the company's General Meeting. The amendments to the Articles of Association align the so-called age clause in the Articles with those of other regional companies, such that a person who has not reached the age of 67 at the start of the term may be elected as a member of the Board."

justification: "The Insurance Company, pursuant to Chapter 5, Section 23 of the Insurance Companies Act, has applied for the FIN-FSA's approval of the amendments to the Articles of Association. The FIN-FSA must approve the Articles of Association or their amendments if they comply with the law. The amendments to the Articles of Association are in accordance with the provisions of Chapter 2 of the Insurance Companies Act."

...in the end, most cases boil down to:

User's intent > **Smart search** > **Output generation**

User's intent > Smart search > Output generation

Understanding **what the user wants**, and **articulating it** better for the model.

Can be static, manually defined for static use cases

- One-off **prompt design**

Or on the fly for more open-ended use cases, using the capabilities of LLMs

- **Ask the LLM** to break down the user's query, and formulate a better query

User: "nike versus adidas for terrain running".

→ **Model:** The user is looking to compare two specific brands, Nike and Adidas, for terrain running. The core intent is a comparison.

→ **Category:** Comparison

--

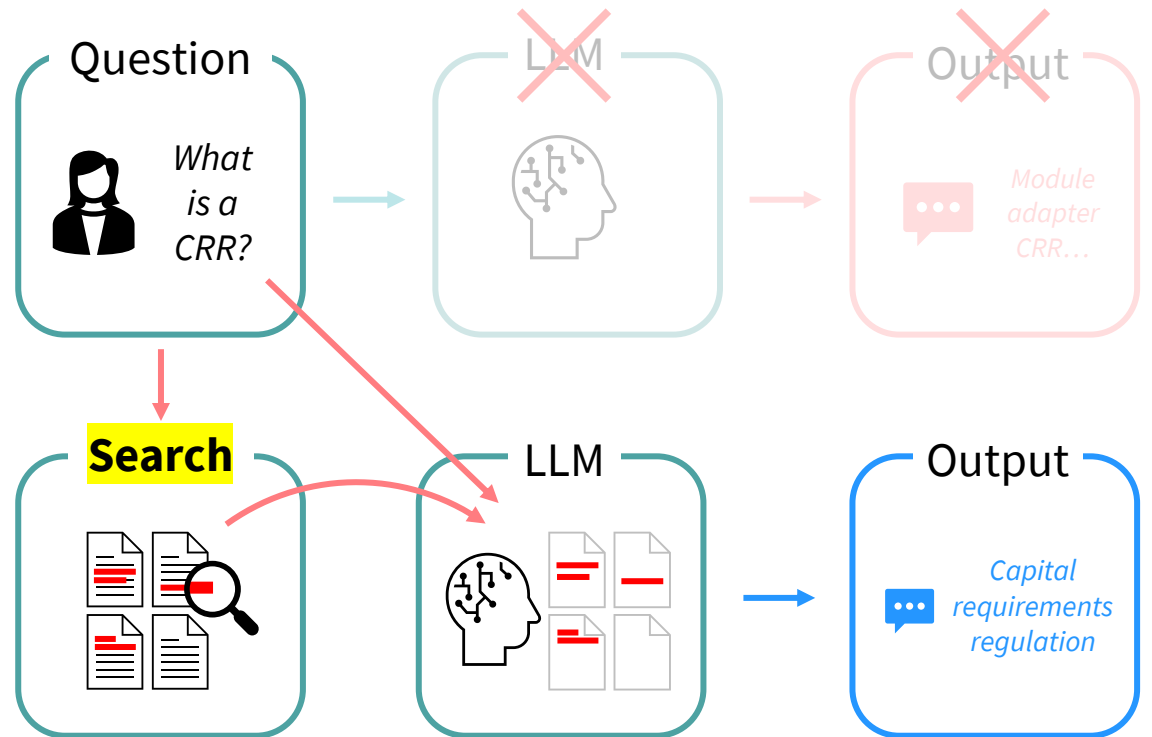
User: "blue shoes".

→ **Model:** The user expresses a general desire for blue shoes. No specific brand, type, or even intended use is mentioned. The query itself is very open-ended.

→ **Category:** Broad

User's intent > Smart search > Output generation

- Searches using LLMs:
 - Easy to generate elegant answers
 - BUT, unusable with **internal data**
- **RAG**, Retrieval Augmented Generation
 - **Text generation** that utilizes internal **search results**
- *Everyone* is testing or developing a version of RAG/Chat with your documents...



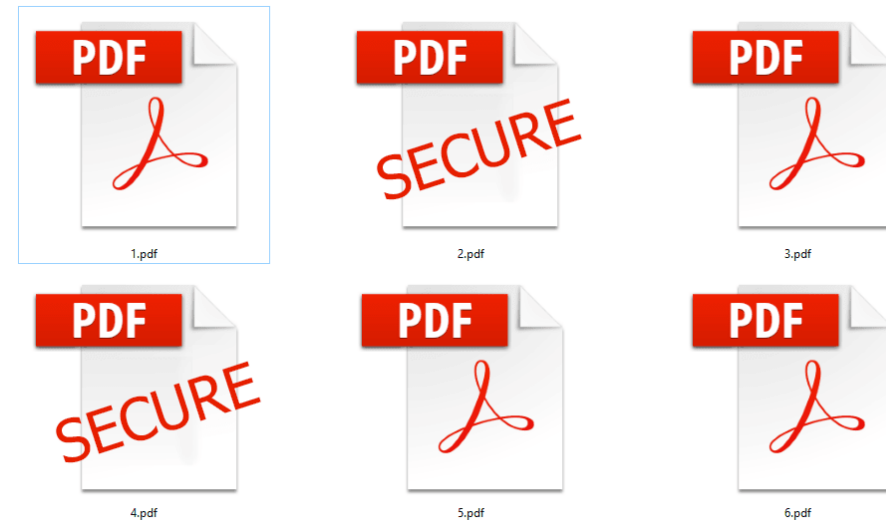
User's intent > Smart search > Output generation

Documents and data (esp. in finance) often **PDFs**, containing lots of **visual data**.

→ Easy for a human – **difficult to extract programmatically!**

The fundamental problem:

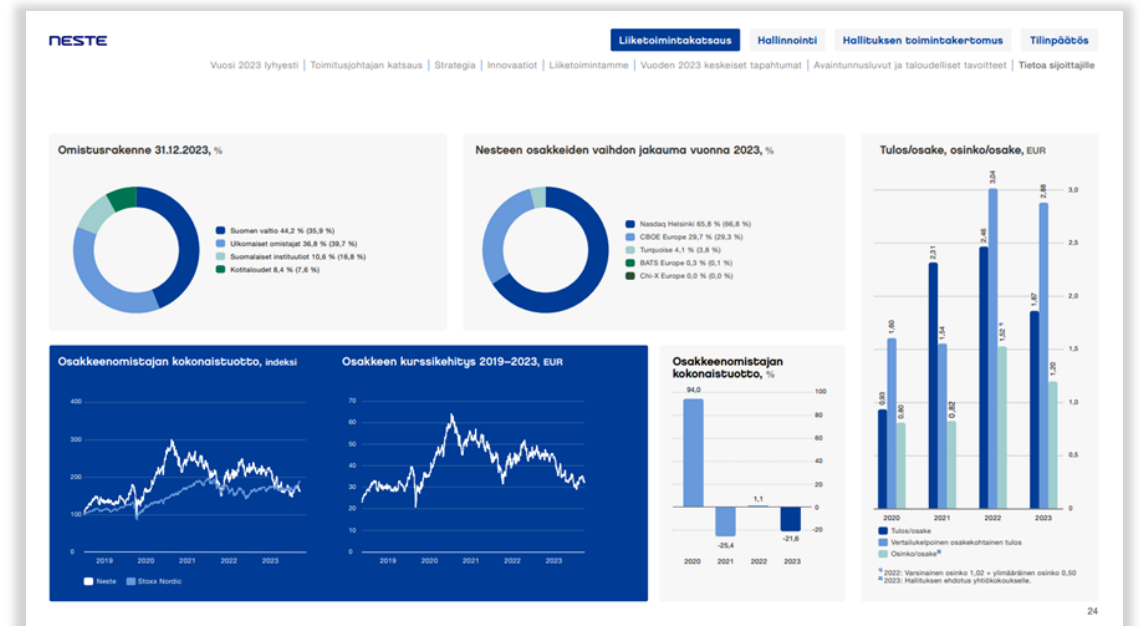
- **PDFs are not a content format**, but a print layout format that *became* a storage format.
- *What you see ≠ what you search*



User's intent > Smart search > Output generation

What makes searches for document **difficult**?

- **Text extraction** from docs



What makes searches for document **difficult**?

- **Text extraction** from docs
- **Splitting text** for LLMs (chunking)

189 artikla

Hallinnointi- ja ohjausjärjestelmä

1. Laitoksen johdon tai sen alaisen valiokunnan sekä toimivan johdon on hyväksyttävä luottoluokitus- ja estimointiprosessin kaikki olennaiset osat. Edellä mainittujen osapuolten on ymmärrettävä yleisellä tasolla laitoksen luottoluokitusmenetelmä sekä syvällisesti niihin liittyvä johdon raportointi.

2. Toimivan johdon on täytettävä seuraavat vaatimukset:

a) sen on ilmoitettava ylimmälle johdolle tai sen alaiselle valiokunnalle vakiintuneisiin käytänteisiin tehtävistä olennaisista muutoksista tai niistä poikkeamisesta, jos tällä on olennainen vaikutus laitoksen luottoluokitusmenetelmien toimintaan;

b) sen on oltava ymmärrettävä hyvin luottoluokitusmenetelmien rakenne ja toiminta;

c) sen on jatkuvasti varmistettava, että luottoluokitusmenetelmät toimivat asianmukaisesti.

Toimivan johdon on saatava luottoriskin valvontayksiköiltä jatkuvasti tietoja luokitusprosessin toiminnasta, eri osa-alueiden parannustarpeista sekä edistymisestä aiemmin havaittujen puutteiden korjaamisessa.

3. Sisäiseen luottoluokitukseen perustuva analyysi laitoksen luottoriskiprofiilista muodostaa keskeisen osan johdon raportoinnista näille tahoille. Raporteista on käytävä ilmi ainakin luottoluokkien riskiprofiilit, siirtymät luokkien välillä, luottoluokkien keskeisten riskiparametrien estimaatit sekä toteutuneiden maksukyvyttömyysasteiden ja, siltä osin kuin käytetään omia estimaatteja, toteutuneiden LGD-lukujen ja luottovasta-arvokertoimien vertailu odotusarvoihin ja stressitestien tuloksiin. Raportoinnin tiheys riippuu siitä, minkä tyyppisiä ja kuinka merkittäviä tiedot ovat, ja millainen tietojen vastaanottajien asiantuntemuksen taso on.

User's intent > **Smart search** > Output generation

What makes searches for document **difficult**?

- **Text extraction** from docs
- **Splitting text** for LLMs (chunking)
- What **type of search** – symbolic, neural, hybrid?

AML \neq Anti-Money
Laundering

User's intent > Smart search > **Output generation**

- Search/retrieval is hard – **output generation is easy.**
 - I.e. if you have found good data for the model to work with, **models do well with synthesizing data.**
- Model output usually structured text, like **json**
 - Easy to transform as needed
- Good quality outputs require often trial and error
- **User experience:**
 - Integration to an existing system?
 - A document – e.g. xlsx, docx?
 - PowerBI report?
 - Web app?



Open AI



Claude 3



Mistral



Llama

Use case deep dive: **Analyzing SFDR documents**

Use case: Data extraction & analysis – SFDR template validation

A generic use case/need, where a **question set** is run over a **document set**.

Analyzing documents from the perspective of **supervisory questions**.

- E.g. **compliance** vs. **non-compliance**
- Or, **collect indicators/values** from docs

ANNEX II
Template pre-contractual disclosure for the financial products referred to in Article 8, paragraphs 1, 2 and 2a, of Regulation (EU) 2019/2088 and Article 6, first paragraph, of Regulation (EU) 2020/852

Product name/Legal entity identifier:
Industrial & Infrastructure Fund Investment Corporation (IF) (LEI: 353800WCHFY6VYKYC15)

Environmental and/or social characteristics

Does this financial product have a sustainable investment objective?

Yes No

It will make a minimum of sustainable investments with an environmental objective: %

It promotes Environmental/Social (E/S) characteristics and while it does not have as its objective a sustainable investment, it will have a minimum proportion of ___% of sustainable investments

in economic activities that qualify as environmentally sustainable under the EU Taxonomy

with an environmental objective in economic activities that qualify as environmentally sustainable under the EU Taxonomy

in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy

with an environmental objective in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy

It will make a minimum of sustainable investments with a social objective: ___%

It promotes E/S characteristics, but will not make any sustainable investments

What environmental and/or social characteristics are promoted by this financial product?

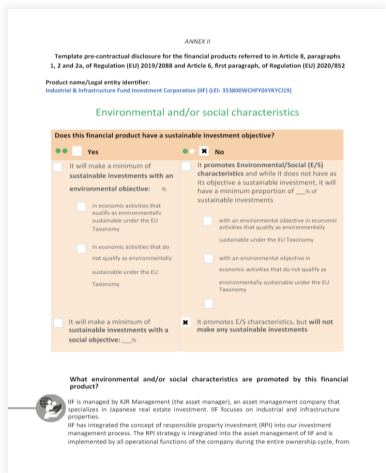
IF is managed by KJR Management (the asset manager), an asset management company that specializes in Japanese real estate investment. IF focuses on industrial and infrastructure properties.

IF has integrated the concept of responsible property investment (RPI) into our investment management process. The RPI strategy is integrated into the asset management of IF and is implemented by all operational functions of the company during the entire ownership cycle, from



VALIDATION			
name	description	value	comment
Table filled correctly?	Check that the boxes in the table are ticked (and % if sustainable investments).	TRUE	
'No significant harm' statement provided?	If the product promotes environmental features you should add this statement. Standard mustoinen!	TRUE	
Description for planned asset allocation added?	Answer to question 'What is the asset allocation planned for this financial product?' should be provided.	TRUE	
Percentage of aligned assets min 70%?	Percentage of assets aligned with E/S characteristics should be provided and at least 70 %.	TRUE	
EU Taxonomy alignment indicated?	If you promote environmental features, you should indicate to what extent sustainable investments are in line with the EU taxonomy. If not committed to taxonomy compliant investments should fill in 0%. Either way, the answer should contain a %.	TRUE	
Compliance with EU taxonomy specified in pie charts?	If the fund makes sustainable investments, the extent to which they comply with the EU taxonomy should be indicated using pie charts.	TRUE	Information not required, no sustainable investment objective.
Minimum share of sustainable investments with social objective disclosed?	If the product invests in sustainable investments with a social objective, it should be disclosed what their share is.	TRUE	Information not required, no social objective.
Other investments specified?	If the product invests in other investments 'other' should be given in the question details.	TRUE	
Promoted E/S characteristics indicated?	The description should indicate whether the fund promotes E and S or both.	TRUE	Products promotes environmental and social characteristics.
Consistent sustainability indicators?	The indicators should be consistent with the previous question.	FALSE	The provided indicators focus on carbon footprint measurement, adherence to social legislation, and greenhouse gas intensity, along with the percentage of holdings violating UN Global Compact principles. However, while these indicators might measure environmental and specific social characteristics, there is no information on how these indicators are used to ensure the promotion or attainment of these characteristics. Additionally, the indicators do not cover the full range of potential environmental and social characteristics a financial product might aim to promote. More comprehensive indicators and context of application are needed to ensure adequacy.
	If the table on the first page indicates that the fund makes	TRUE	

Use case: SFDR Data extraction & analysis - BEFORE



```
{
  "checkbox_objective_YES": False,
  "checkbox_objective_NO": True,
  ...
}
```

ANNEX II
 Template pre-contractual disclosure for the financial products referred to in Article 8, paragraphs 1, 2 and 2a, of Regulation (EU) 2019/2088 and Article 6, first paragraph, of Regulation (EU) 2020/852

Product name/Legal entity identifier:
 Industrial & Infrastructure Fund Investment Corporation (IIF) (LEI: 353800WCHF04YKYC19)

Environmental and/or social characteristics

Does this financial product have a sustainable investment objective?
 Yes
 It will make a minimum of sustainable investments with an environmental objective:
 in economic activities that Qualify as environmentally sustainable under the EU Taxonomy
 %
 in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy
 %
 No
 It promotes Environmental/Social (E/S) characteristics and while it does not have as its objective a sustainable investment, it will have a minimum proportion of ___% of sustainable investments
 with an environmental objective in economic activities that qualify as environmentally sustainable under the EU Taxonomy
 with an environmental objective in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy
 It will make a minimum of sustainable investments with a social objective:
 * It promotes E/S characteristics, but will not make any sustainable investments

What environmental and/or social characteristics are promoted by this financial product?
 IIF is managed by KJR Management (the asset manager), an asset management company that specializes in Japanese real estate investment. IIF focuses on industrial and infrastructure properties.
 IIF has integrated the concept of responsible property investment (RPI) into our investment management process. The RPI strategy is integrated into the asset management of IIF and is implemented by all operational functions of the company during the entire ownership cycle, from

ANNEX II
 Template pre-contractual disclosure for the financial products referred to in Article 8, paragraphs 1, 2 and 2a, of Regulation (EU) 2019/2088 and Article 6, first paragraph, of Regulation (EU) 2020/852

Product name/Legal entity identifier:
 Industrial & Infrastructure Fund Investment Corporation (IIF) (LEI: 353800WCHF04YKYC19)

Environmental and/or social characteristics

Does this financial product have a sustainable investment objective?
 Yes
 It will make a minimum of sustainable investments with an environmental objective:
 in economic activities that Qualify as environmentally sustainable under the EU Taxonomy
 %
 in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy
 %
 No
 It promotes Environmental/Social (E/S) characteristics and while it does not have as its objective a sustainable investment, it will have a minimum proportion of ___% of sustainable investments
 with an environmental objective in economic activities that qualify as environmentally sustainable under the EU Taxonomy
 with an environmental objective in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy
 It will make a minimum of sustainable investments with a social objective:
 * It promotes E/S characteristics, but will not make any sustainable investments

What environmental and/or social characteristics are promoted by this financial product?
 IIF is managed by KJR Management (the asset manager), an asset management company that specializes in Japanese real estate investment. IIF focuses on industrial and infrastructure properties.
 IIF has integrated the concept of responsible property investment (RPI) into our investment management process. The RPI strategy is integrated into the asset management of IIF and is implemented by all operational functions of the company during the entire ownership cycle, from



1. Input: PDF-document



2. Visual content with OCR



3. Text content with a Python-library



4. Splitting text with custom logic



5. Answering questions

➡ ...And yet some of the human-understandable information remains untapped!

Visual models to the rescue!

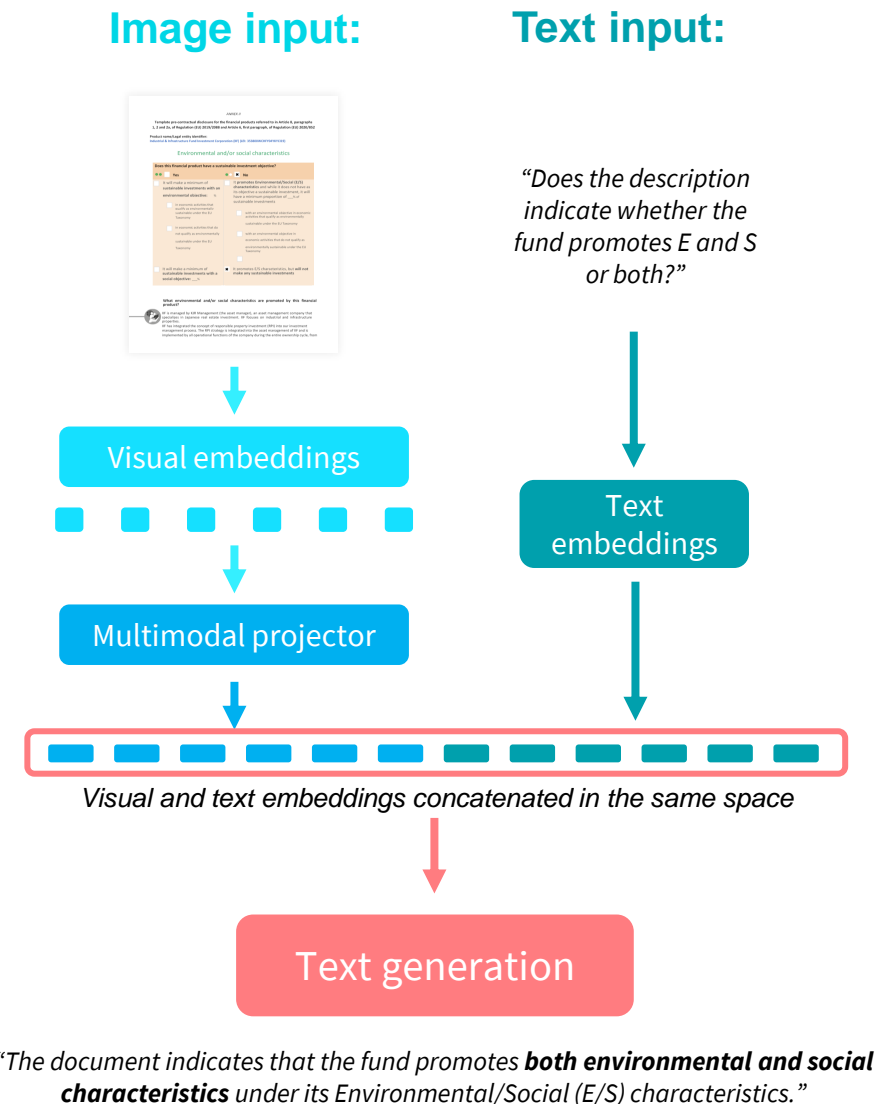
Document analysis in a **visual format** – i.e. **as an image, similarly as humans!**

- Instead of breaking the document into individual parts,
→ have the model **interpret the entire page as an image**,
preserving both
- **context** and
 - **layout**.

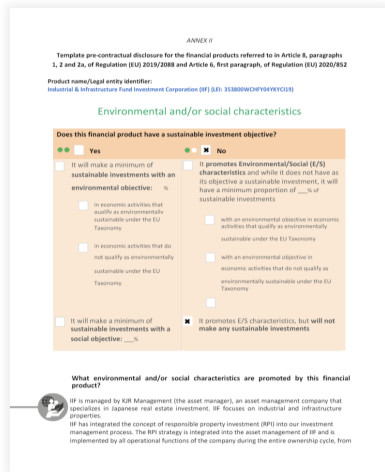
Simply another way of using the (newer) LLMs!

The development towards visual model **makes sense!**

- OCR'd text ≈ enjoying music via notation alone...



Use case: SFDR Data extraction & analysis – using visual LLMs:



```
{
  "checkbox_objective_YES": False,
  "checkbox_objective_NO": True,
  ...
}
```

Processing documents natively as images!

ANNEK I
Template pre-contractual disclosure for the financial products referred to in Article 8, paragraphs 1, 2 and 2a, of Regulation (EU) 2019/2088 and Article 6, first paragraph, of Regulation (EU) 2020/852

Product name/Legal entity identifier:
Industrial & Infrastructure Fund Investment Corporation (IF) (LEI: 333800WCHP041KYC19)

Environmental and/or social characteristics

Does this financial product have a sustainable investment objective?

Yes

It will make a minimum of sustainable investments with an environmental objective:
in economic activities that qualify as environmentally sustainable under the EU Taxonomy

%

In economic activities that do not qualify as environmentally sustainable under the EU Taxonomy

It will make a minimum of sustainable investments with an environmental objective in economic activities that qualify as environmentally sustainable under the EU Taxonomy

with an environmental objective in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy

It will make a minimum of sustainable investments with a social objective:

* It promotes E/S characteristics, but will not make any sustainable investments

What environmental and/or social characteristics are promoted by this financial product?

IF is managed by KJR Management (the asset manager), an asset management company that specializes in Japanese real estate investment. IF focuses on industrial and infrastructure properties.

IF has integrated the concept of responsible property investment (RPI) into our investment management process. The RPI strategy is integrated into the asset management of IF and is implemented by all operational functions of the company during the entire ownership cycle, from

ANNEK I
Template pre-contractual disclosure for the financial products referred to in Article 8, paragraphs 1, 2 and 2a, of Regulation (EU) 2019/2088 and Article 6, first paragraph, of Regulation (EU) 2020/852

Product name/Legal entity identifier:
Industrial & Infrastructure Fund Investment Corporation (IF) (LEI: 333800WCHP041KYC19)

Environmental and/or social characteristics

Does this financial product have a sustainable investment objective?

Yes

It will make a minimum of sustainable investments with an environmental objective:
in economic activities that qualify as environmentally sustainable under the EU Taxonomy

%

In economic activities that do not qualify as environmentally sustainable under the EU Taxonomy

It will make a minimum of sustainable investments with an environmental objective in economic activities that qualify as environmentally sustainable under the EU Taxonomy

with an environmental objective in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy

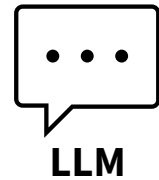
It will make a minimum of sustainable investments with a social objective:

* It promotes E/S characteristics, but will not make any sustainable investments

What environmental and/or social characteristics are promoted by this financial product?

IF is managed by KJR Management (the asset manager), an asset management company that specializes in Japanese real estate investment. IF focuses on industrial and infrastructure properties.

IF has integrated the concept of responsible property investment (RPI) into our investment management process. The RPI strategy is integrated into the asset management of IF and is implemented by all operational functions of the company during the entire ownership cycle, from



LLM

1. Input: PDF-document

2. Visual content with OCR

3. Text content with a Python-library

4. Splitting text with custom logic

5. Answering questions

In practice:

1. Determine supervisory questions

- Questions generated for each section of the disclosure.
 - Validating the quality
 - Extracting ESG metrics

ANNEX I
ANNEX II

Template pre-contractual disclosure for the financial products referred to in Article 8, paragraphs 1, 2 and 2a, of Regulation (EU) 2019/2088 and Article 6, first paragraph, of Regulation (EU) 2020/852

Product name: [complete] Legal entity identifier: [complete]

Environmental and/or social characteristics

Does this financial product have a sustainable investment objective? *[tick and fill in relevant, the percentage figure represents the minimum commitment to sustainable investments]*

Yes No

<p><input type="checkbox"/> It will make a minimum of sustainable investments with an environmental objective: ___%</p> <ul style="list-style-type: none"> <input type="checkbox"/> in economic activities that qualify as environmentally sustainable under the EU Taxonomy <input type="checkbox"/> in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy <p><input type="checkbox"/> It will make a minimum of sustainable investments with a social objective: ___%</p>	<p><input type="checkbox"/> It promotes Environmental/Social characteristics and while it does not its objective a sustainable investment, it will have a minimum proportion of ___% of sustainable investments</p> <ul style="list-style-type: none"> <input type="checkbox"/> with an environmental objective in economic activities that qualify as environmentally sustainable under the EU Taxonomy <input type="checkbox"/> with an environmental objective in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy <input type="checkbox"/> with a social objective <p><input type="checkbox"/> It promotes E/S characteristics, but will not make any sustainable investments</p>
---	--

What environmental and/or social characteristics are promoted by this financial product? *[indicate the environmental and/or social characteristics promoted by the financial product and whether a reference benchmark has been designated for the purpose of attaining the environmental or social characteristics promoted by the financial product]*

- **What sustainability indicators are used to measure the attainment of each of the environmental or social characteristics promoted by this financial product?**

1

Sustainable investment means an investment in an economic activity that contributes to an environmental or social objective, provided that the investment does not significantly harm any environmental or social objective and that the investee companies follow good governance practices.

The EU Taxonomy is a classification system laid down in Regulation (EU) 2020/852, establishing a list of environmentally sustainable economic activities. That Regulation does not include a list of socially sustainable economic activities. Sustainable investments with an environmental objective might be aligned with the Taxonomy or not.

Sustainability indicators measure how the environmental or social characteristics promoted by the financial product are attained.

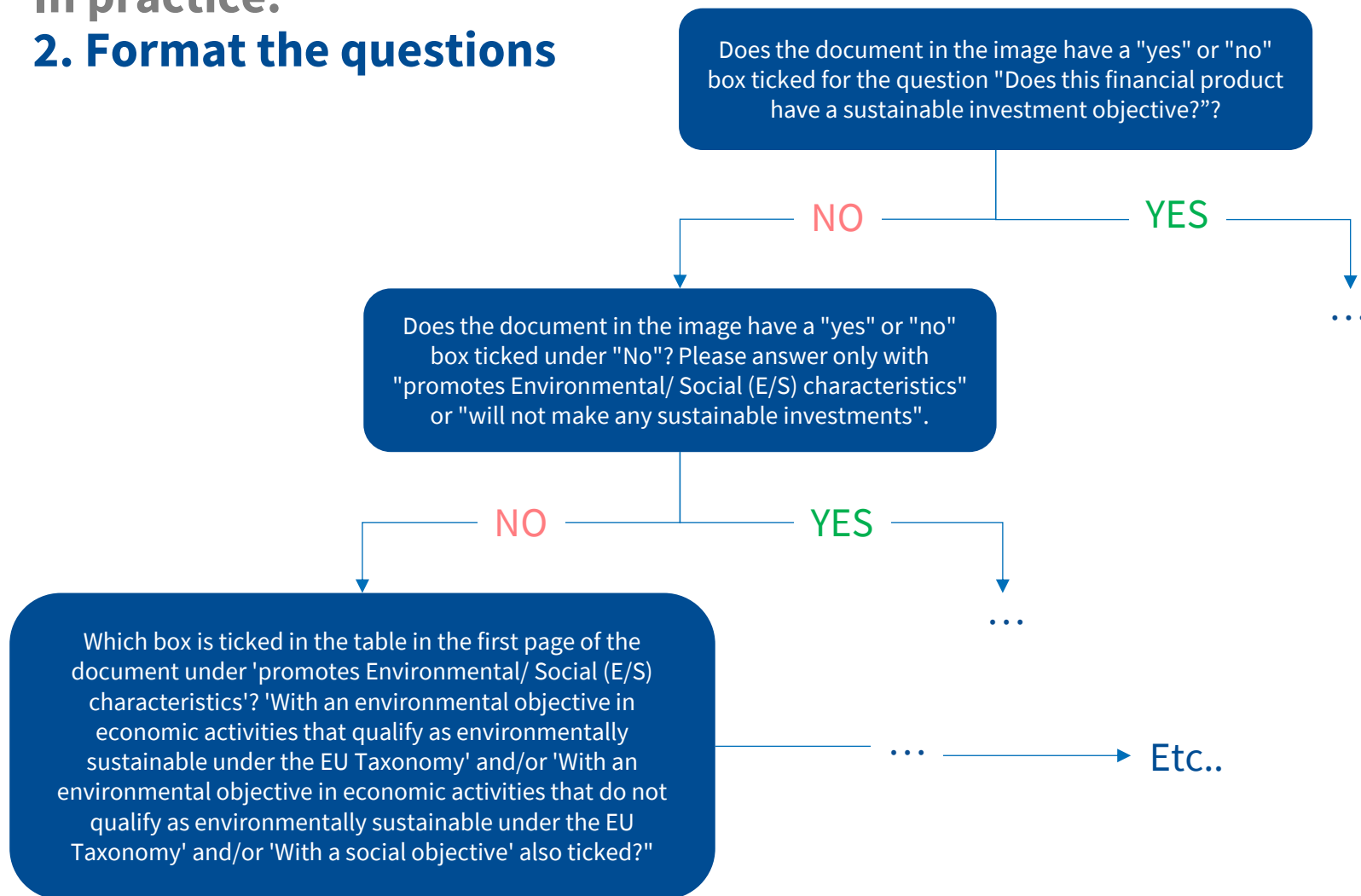
1. Check that the boxes in the table are ticked (and % if sustainable investments).

2. No text should be inserted below

3. The description should indicate whether the fund promotes E and S or both.

4. The indicators should be consistent with the previous question.

In practice: 2. Format the questions



In practice:

3. Document + questions to VLM → Generate output

ANNEX II

Template pre-contractual disclosure for the financial products referred to in Article 8, paragraphs 1, 2 and 2a, of Regulation (EU) 2019/2088 and Article 6, first paragraph, of Regulation (EU) 2020/852

Product name/Legal entity identifier:
Industrial & Infrastructure Fund Investment Corporation (IIF) (LEI: 353800WCHFY04KYK119)

Environmental and/or social characteristics

Does this financial product have a sustainable investment objective?

Yes No

<input type="checkbox"/> It will make a minimum of sustainable investments with an environmental objective: %	<input type="checkbox"/> It promotes Environmental/Social (E/S) characteristics and while it does not have as its objective a sustainable investment, it will have a minimum proportion of ___% of sustainable investments
<input type="checkbox"/> In economic activities that qualify as environmentally sustainable under the EU Taxonomy	<input type="checkbox"/> with an environmental objective in economic activities that qualify as environmentally sustainable under the EU Taxonomy
<input type="checkbox"/> In economic activities that do not qualify as environmentally sustainable under the EU Taxonomy	<input type="checkbox"/> with an environmental objective in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy
<input type="checkbox"/> It will make a minimum of sustainable investments with a social objective: ___%	<input checked="" type="checkbox"/> It promotes E/S characteristics, but will not make any sustainable investments

What environmental and/or social characteristics are promoted by this financial product?

IIF is managed by KJR Management (the asset manager), an asset management company that specializes in Japanese real estate investment. IIF focuses on industrial and infrastructure properties. IIF has integrated the concept of responsible property investment (RPI) into our investment management process. The RPI strategy is integrated into the asset management of IIF and is implemented by all operational functions of the company during the entire ownership cycle, from



You will be given an image of a PDF page with information about an entity. Read the text carefully and return its name, legal entity ID, article number of Regulation (EU) 2019/2088 and which pages have images or graphics.

Here is the most important information for working with the data extraction from documents:
 1. Output in json
 2. Give visual elements a coherent description or label, and describe their information content in text, such as "a tick box, ticked"
 3. When unsure as to what to output, display the text to the user verbatim

Please make sure that you output all the textual and also descriptions of non-textual elements on the page as text output.

Questions:
 "Does the document in the image have a "yes" or "no" box ticked for the question "Does this financial product have a sustainable investment objective?" Please answer only with "yes" or "no"."

If the answer to the first question in the table = 'no'
 "Does the document in the image have a "yes" or "no" box ticked under "No"? Please answer only with "promotes Environmental/ Social (E/S) characteristics" or "will not make any sustainable investments"."

If the answer to the first question in the table = 'no' & it is stated that the fund "promotes Environmental/ Social (E/S) characteristics"
 "Which box is ticked in the table in the first page of the document under 'promotes Environmental/ Social (E/S) characteristics'? 'With an environmental objective in economic activities that qualify as environmentally sustainable under the EU Taxonomy' and/or 'With an environmental objective in economic activities that do not qualify as environmentally sustainable under the EU Taxonomy' and/or 'With a social objective' also ticked?"

If the answer to the first question in the table = 'no' & it is stated that the fund "promotes Environmental/ Social (E/S) characteristics" & 'activities that do /do not qualify' as environmentally sustainable under the EU Taxonomy. Read the content of the pictures and answer these questions:
 2: Is the 'No significant harm' statement issued? If so, where is it?
 3: Is the percentage of assets aligned with Environmental and / or Social characteristics at least 70%? Where is that stated?
 4: Is it stated the minimum proportion of sustainable investments? What is it?
 5: Are there any pie charts indicating which investments fulfil the EU taxonomy? Explain them and identify where it is stated.

Etc...



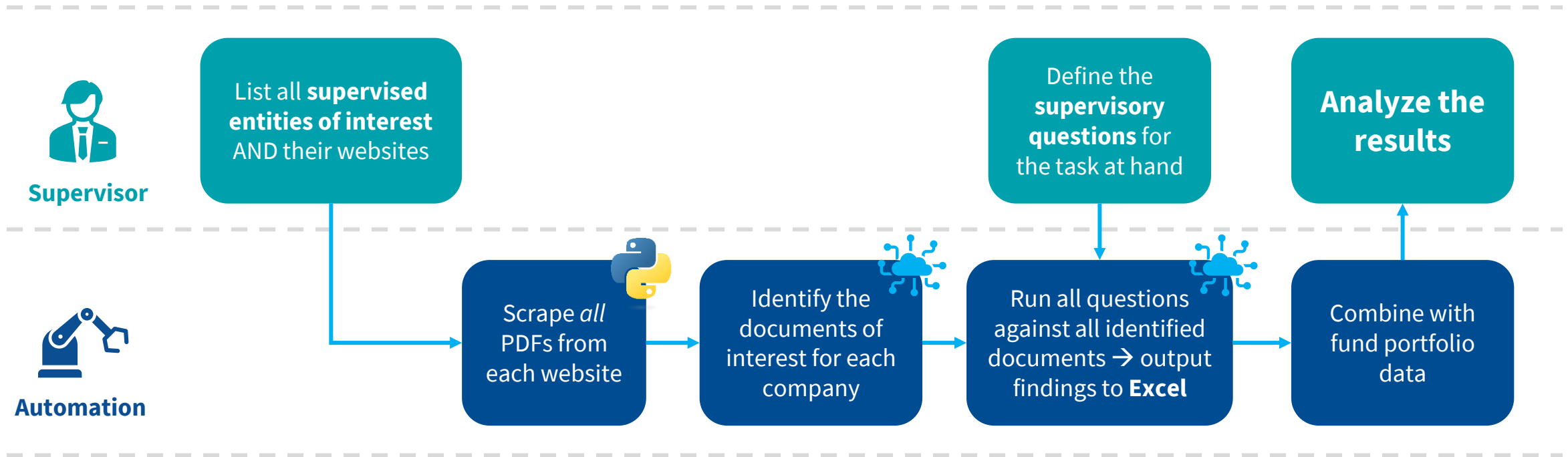
VALIDATION			
name	description	value	comment
Table filled correctly?	Check that the boxes in the table are ticked (and % if sustainable investments).	TRUE	
'No significant harm' statement provided?	If the product promotes environmental features you should add this statement. Standard mutoinen!	TRUE	
Description for planned asset allocation added?	Answer to question "What is the asset allocation planned for this financial product?" should be provided.	TRUE	
Percentage of aligned assets min 70%?	Percentage of assets aligned with E/S characteristics should be provided and at least 70 %.	TRUE	
EU Taxonomy alignment indicated?	If you promote environmental features, you should indicate to what extent sustainable investments are in line with the EU taxonomy. If not committed to taxonomy compliant investments should fill in 0%. Either way, the answer should contain a %.	TRUE	
Compliance with EU taxonomy specified in pie charts?	If the fund makes sustainable investments, the extent to which they comply with the EU taxonomy should be indicated using pie charts.	TRUE	Information not required, no sustainable investment objective.
Minimum share of sustainable investments with social objective disclosed?	If the product invests in sustainable investments with a social objective, it should be disclosed what their share is.	TRUE	Information not required, no social objective.
Other investments specified?	If the product invests in other investments "other" should be given in the question details.	TRUE	
Promoted E/S characteristics indicated?	The description should indicate whether the fund promotes E and S or both.	TRUE	Products promotes environmental and social characteristics.
Consistent sustainability indicators?	The indicators should be consistent with the previous question.	FALSE	The provided indicators focus on carbon footprint measurement, adherence to social legislation, and greenhouse gas intensity, along with the percentage of holdings violating UN Global Compact principles. However, while these indicators might measure environmental and specific social characteristics, there is no information on how these indicators are used to ensure the promotion or attainment of these characteristics. Additionally, the indicators do not cover the full range of potential environmental and social characteristics a financial product might aim to promote. More comprehensive indicators and context of application are needed to ensure adequacy.
	If the table on the first page indicates that the fund makes	TRUE	

Given a document...

...and questions / prompt...

...the VLM outputs a document.

Next iteration: Scraping + visual analysis + gathering results

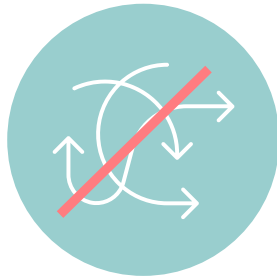


Summary 1/2

*“Instead of trying to convert human-readable documents into **machine-readable formats**, train models that **understand documents in the same way people do.**”*

- Visual models work really well for document analysis **already now!**
- And, model performance **will improve** during the next 6 months!
- VLMs = **simply newer LLMs** - nothing fancy, nothing difficult, not (significantly) more expensive.

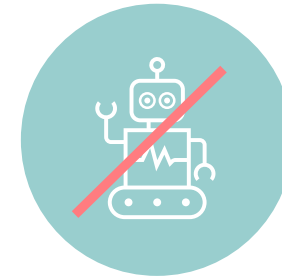
Summary 2/2



LLMs simplify analysis pipelines.



A lot of use cases, a lot of overlap.



OCR is dead, long live **VLMs**!

Kiitos!

tuomas.ritola@finanssivalvonta.fi