



Innovation Lab 3 – Thursday, 16 October 2025

Applying Agentic Artificial Intelligence in Auditing

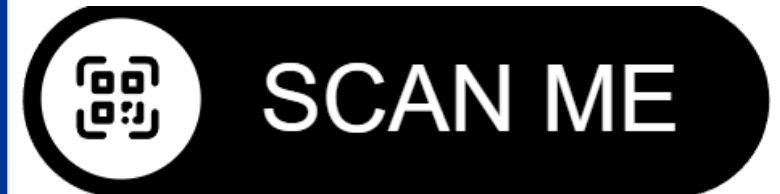
WGEPPP Forum 2025

EIDGENÖSSISCHE FINANZKONTROLLE
CONTRÔLE FÉDÉRAL DES FINANCES
CONTROLLO FEDERALE DELLE FINANZE
CONTROLLA FEDERALE DA FINANZAS
SWISS FEDERAL AUDIT OFFICE



Welcome!

Initial Menti Questionnaire



<https://www.menti.com/al85en69jjfs>

Welcome!

Your Innovation Lab Team



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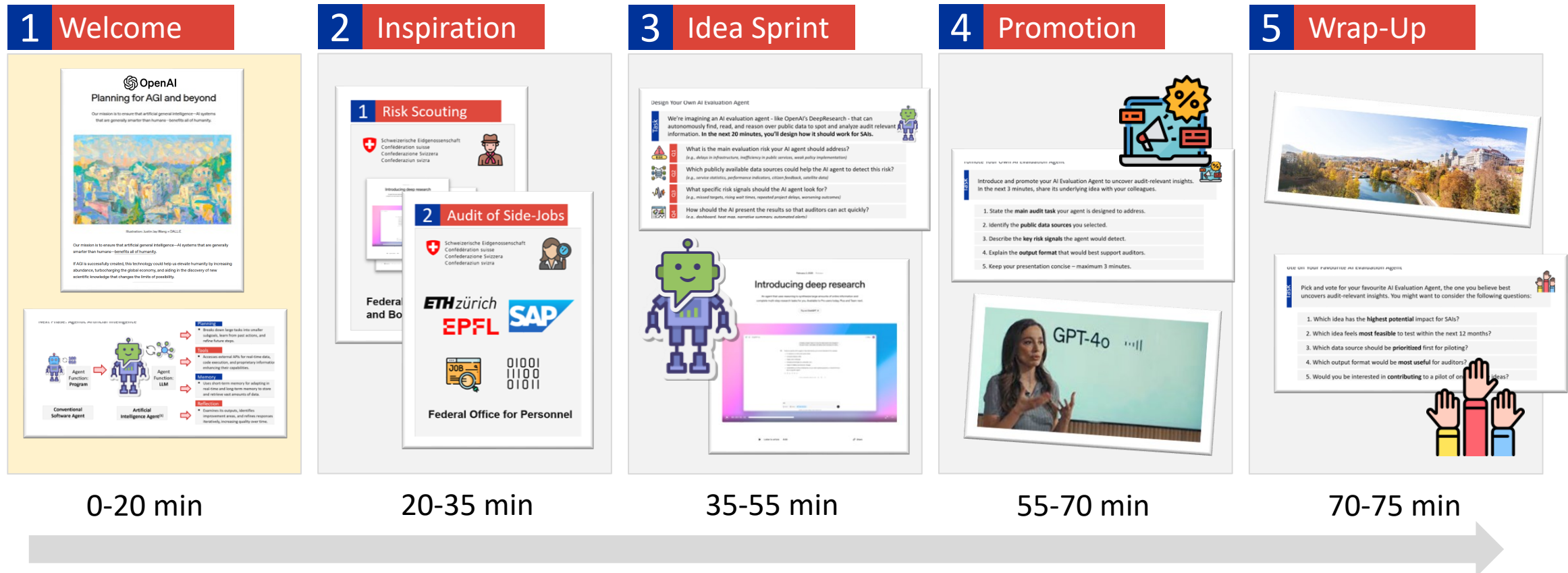


Marco Schreyer

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Welcome

Innovation Lab Agenda



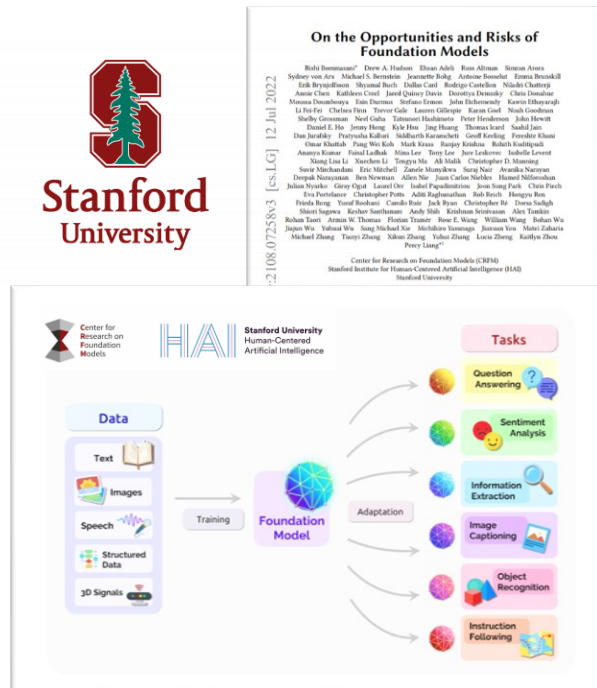
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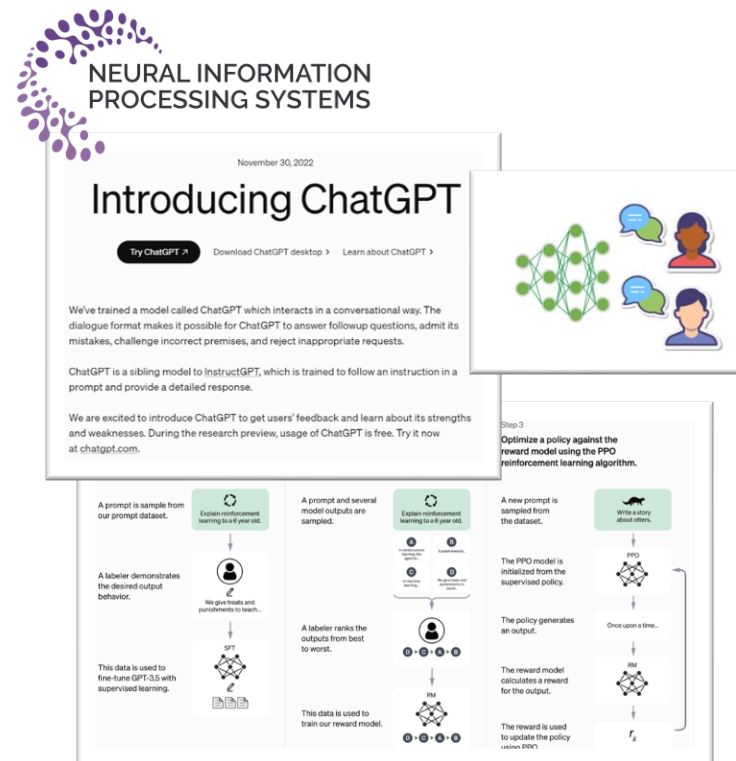
INTOSAI
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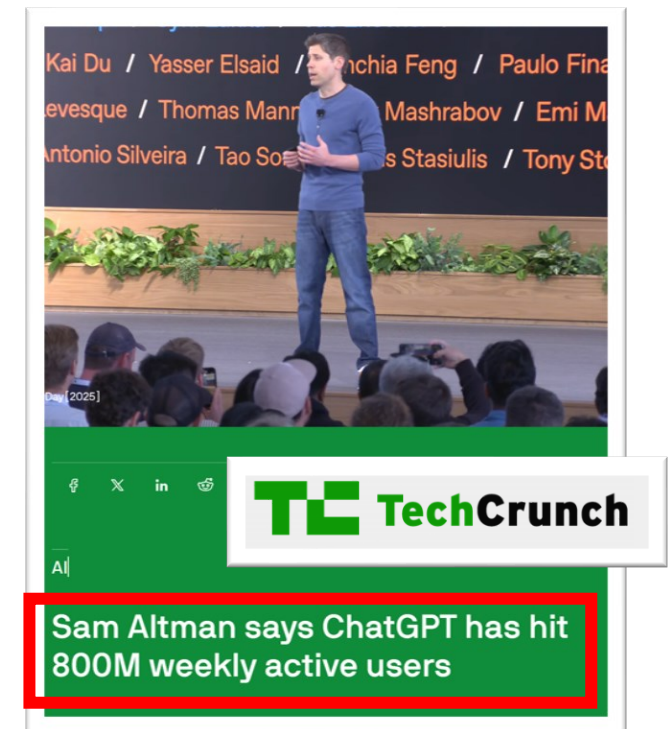
Road to Artificial General Intelligence (AGI)



07/12/2022



11/30/2022



10/06/2025

Welcome



INTOSAI
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INTOSAI Journal Articles on Artificial Intelligence

• Q2 2023

Evolution and Applications of Artificial Intelligence in SAs

By Diego Oliveira Farias, Eric Hans Messias da Silva, Erick Muzart Fonseca dos Santo, Monique Louise de Barros Monteiro and Tiberio Cesar Jocundo Loureiro

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Source: Adobe Stock Images, Shutterstock

Over time, many definitions have been given to the term Artificial Intelligence (AI), and the association of the term with others, such as machine learning and deep learning, has resulted in difficulties for a better

Q2 2023

• Q2 2023

Leveraging AI in Performance Auditing: A Feasibility Study for the State Audit Office of Thailand

By Dr. Sutthi Suntharanurak

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Source: Adobe Stock Images, Tom

The State Audit Office (SAO) of Thailand has embarked on a journey of digital transformation. The objective is to leverage AI to enhance audit performance and foster a data-driven culture within the organization. This initiative is in line with their audit policy, which emphasizes the importance

Q2 2023

• Q2 2023

The Use of Artificial Intelligence (AI) in the Execution of Audits

By Accountability State Authority of Egypt- ASA

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Source: Adobe Stock Images, Lucky AI

In the light of the world's developments in information technology, the term Artificial Intelligence (AI) has been traded in discussions often in recent times. It is considered a modern field that attracts the attention of all societies, which is constantly evolving, and it is expected to play a crucial role in humanity's future. Utilizing AI systems and modern information

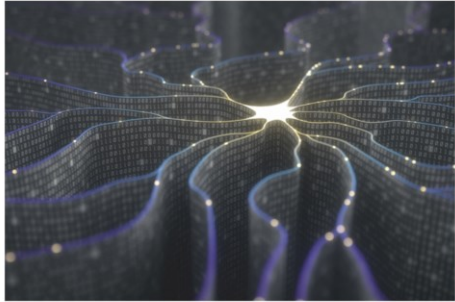
Q2 2023

• Q4 2024

Leveraging AI to Transform the Ex-Ante Audits of Government Procurement Contracts

By Adnene Maali

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Source: Adobe Stock Images, ktsdesign

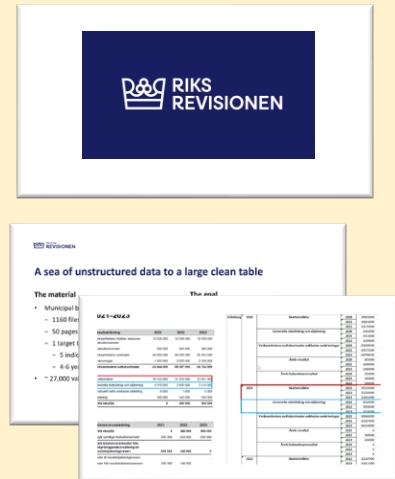
In the government procurement process, multiple bodies play a role in ensuring compliance and accountability before contracts are finalized. Government procurement oversight bodies such as ministries, authorities, and other specialized agencies are often tasked with the ex-ante audit or

Q4 2024

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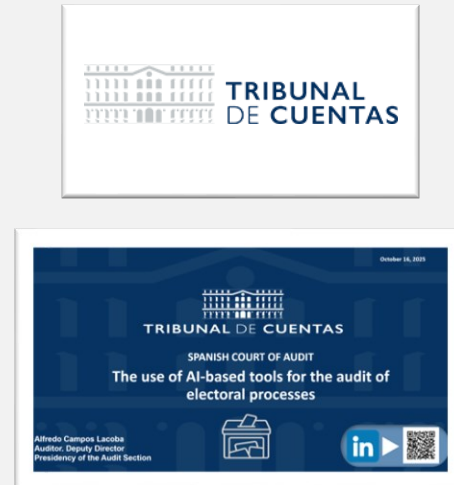
Inspirational AI Use-Case Examples

1 AI Table Extraction



Joakim Hveem
Swedish National Audit Office

2 Using AI-based Tools



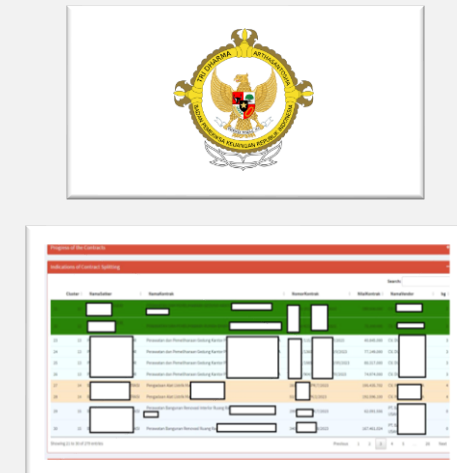
Alfredo Campos Lacoba
Spanish Court of Audit

3 AI PM 2.5 Audit



Dusita Lertkrai
State Audit Office of the
Kingdom of Thailand

4 AI Audit of Biddings



Ari Kristiana
Audit Board of Indonesia

A sea of unstructured data to a large clean table

The material

- Municipal budgets
 - 1160 files (4 years * 290 municipals)
 - 50 pages on average
 - 1 target table with about
 - 5 indicators
 - 4-6 years (outcomes and forecasts)
- ~ 27,000 values



The goal

Municipal	Publishing year	indicator	Year (outcome of forecast)	value	page
Stockholm	2020	Tax revenues	2020	29,823	123
Stockholm	2020	Tax revenues	2021	30,853	123
Stockholm	2020	Tax revenues	2022	32,175	123
Stockholm	2020	Gov. grants	2020	35,420	152
...	...	...	...	...	...

Ekonomisk sammanställning

2021–2023

Resultaträkning	2021	2022	2023
Verksamhetens intäkter, exklusive realisationsvinster	10 328 200	10 558 900	10 830 600
Realisationsvinster	500 000	500 000	500 000
Verksamhetens kostnader	-43 922 200	-44 395 900	-45 234 600
Avskrivningar	-1 850 000	-2 050 000	-2 250 000
Verksamhetens nettokostnader	-34 944 000	-35 387 000	-36 154 000

Skatteintäkter	30 102 000	31 250 000	32 601 000
Generella statsbidrag och utjämning	4 310 000	3 956 000	3 516 000
Finansiellt netto exklusive utdelning	-8 000	1 000	-3 000
Utdelning	540 000	540 000	540 000
Årets resultat	0	360 000	500 000

Balanskravsutredning	2021	2022	2023
Årets resultat	0	360 000	500 000
Avgår samtliga realisationsvinster	-500 000	-500 000	-500 000
Årets balanskravsresultat före ianspråktagande/avsättning till resultatutjämningsreserv	-500 000	-140 000	0
Medel till resultatutjämningsreserv	-	-	-
Medel från resultatutjämningsreserv	500 000	140 000	-
Årets balanskravsresultat	0	0	0

kommun	år	indicator	year	value	page
Göteborg	2020	Skatteintäkter	2020	29823000	123
			2021	30853000	123
			2022	32175000	123
		Generella statsbidrag och utjämning	2020	3542000	123
			2021	3313000	123
			2022	3199000	123
		Verksamhetens nettokostnader exklusive avskrivningar	2020	-33038500	123
			2021	-33573500	123
			2022	-34748500	123
		Årets resultat	2020	805000	123
			2021	1040000	123
			2022	1040000	123
		Årets balanskravsresultat	2020	305000	123
			2021	540000	123
			2022	540000	123
	2021	Skatteintäkter	2021	30102000	152
			2022	31250000	152
			2023	32601000	152
		Generella statsbidrag och utjämning	2021	4310000	152
			2022	3956000	152
			2023	3516000	152
		Verksamhetens nettokostnader exklusive avskrivningar	2021	-34944000	152
			2022	-35387000	152
			2023	-36154000	152
		Årets resultat	2021	0	152
			2022	360000	152
			2023	500000	152
		Årets balanskravsresultat	2021	0	152
			2022	0	152
			2023	0	152
	2022	Skatteintäkter	2022	32147000	185
			2023	33411000	185
			2024	34606000	185

```
class Name(str, Enum):
    """Datamodell over possible indicators."""
    TAXREV = "Tax revenues"
    GOV_GRANT = "Government grants"
    NET_EXP = "Net operating expenses excluding depreciation"
    PROFIT = "Profit for the year"
    BALANCE_REQ = "Balance requirement result for the year"

class YearValue(BaseModel):
    """Data model for the year and value pairs."""
    year: str = None
    value: Optional[int] = None

class Indicator(BaseModel):
    """Data model for an indicator."""
    indicator: Name = Field(
        description="Selecting the correct predefined indicator name."
    )
    values: List[YearValue] = None

class Indicators(BaseModel):
    """Data model for an indicator."""
    indicators: List[Indicator]

IND="\n* ".join([i.value for i in Name])
```

```
def system_prompt(budgetår, kommun, rapport_typ, IND):
    t = int(budgetår)
    t1 = t + 1
    t2 = t + 2

    prompt = f"""
    You're a helpful AI assistant who reads, compares, and stores
    information from tables. If there are minus signs (-) at the beginning of
    numbers, keep it.

    You will get a page from a {rapport_typ} for {kommun}.

    You must find and structure information according to the schedule you
    have received for the years {t}, {t1}, {t2} on the following indicators:
    * {IND}
    """

    return dedent(prompt)

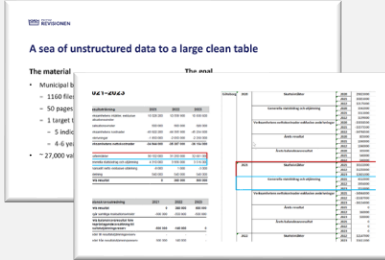
def get_financial_indicators(text: str, system_prompt:str):
    """Get financial indicators from a text."""
    completion = client.beta.chat.completions.parse(
        model=MODEL,
        temperature=0.2,
        messages=[
            {"role": "system", "content": dedent(system_prompt)},
            {"role": "user", "content": text}
        ],
        response_format=Indicators,
    )

    return completion.choices[0].message.parsed, completion
```

Welcome

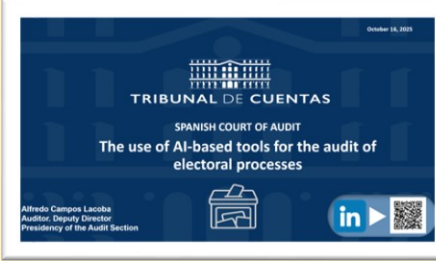
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Ari Kristiana
Audit Board of Indonesia





Need to automate the processing of documents: workflow

1 Electronic submission

Political parties submit documentation by the Electronic Site

2 Election expenses

Invoices for election expenses (over 1,000 €) and mailing expenses are submitted, along with bank receipts for payment.

3 Manual classification and data entry

Audit teams must classify all documentation and copy their information to the working papers in order to carry out the checks.

4 Big data volume

227 political parties and more than 10,000 invoices were audited

5 Seasonality

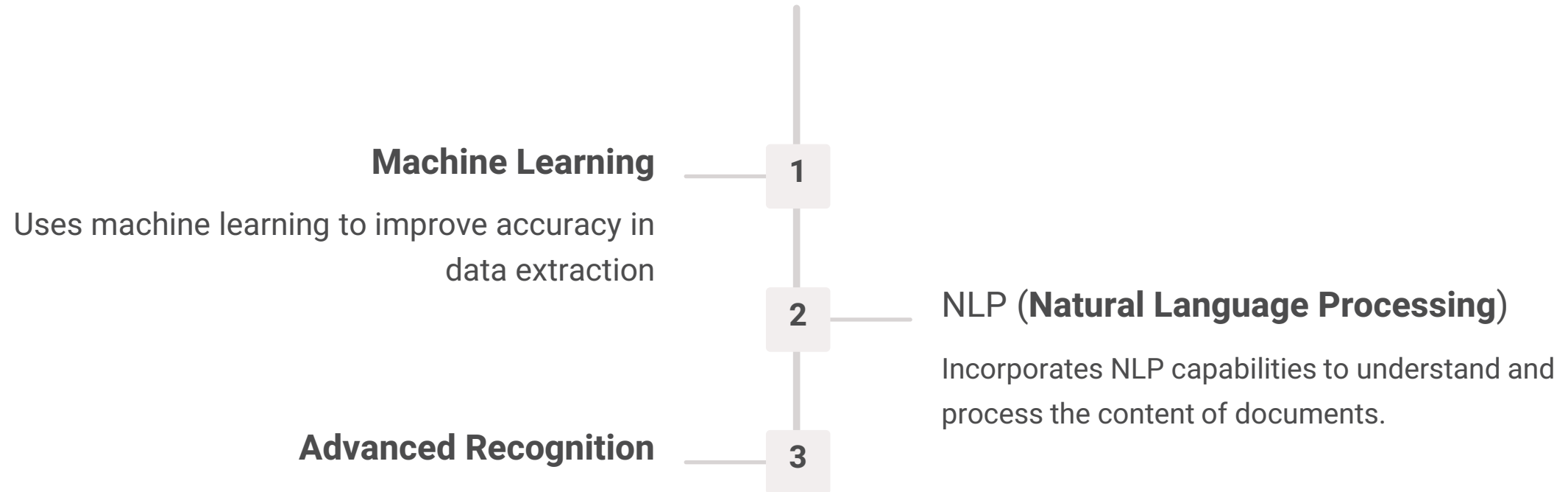
Audit on electoral process is seasonal, which generates peaks in work

It's important to use tools to check election expenses quickly and make sure they follow the legal requirements

Need to automate the processing of documents: solution with machine learning

SCA invests in a risk-project to automate reading of the invoices and documents: **AI-software “THEIA”**

THEIA is a software designed to help manage various types of documents using machine learning, NLP (natural language processing) and advanced recognition capabilities. THEIA performs automatic training per vendor and improve accuracy.



Need to automate the processing of documents: key benefits

Focus on high Value Tasks

Automation allows employees to focus on tasks of greater value added to the organization.

Mistakes Reduction

It reduces errors from manual data handling, so you won't need to copy this information to the working papers.

Process Acceleration

Speed up the verification of electoral expense documentation to consider them as justified and eligible for subsidies.



Welcome

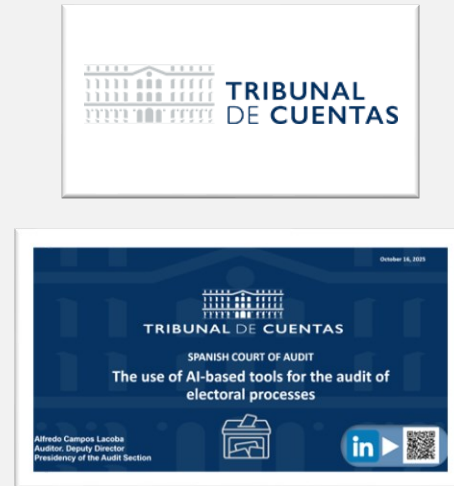
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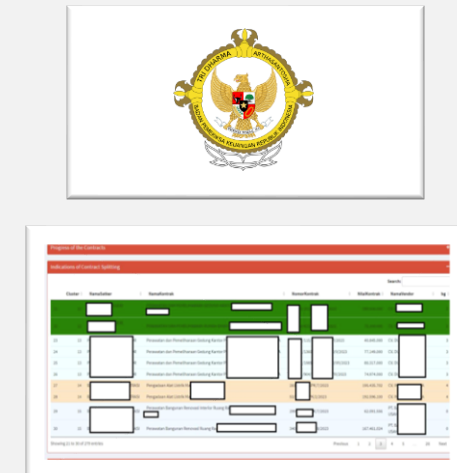
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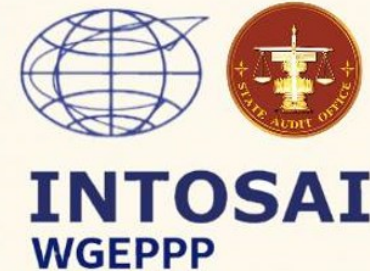
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Ari Kristiana
Audit Board of Indonesia



Using AI to Audit Thailand's PM 2.5 Mitigation Plan



The Evaluation Challenge

Over the past decade, Thailand has faced severe PM.5 pollution, much of it caused by farmers burning sugarcane before harvest.

- The government spent **over 25 billion baht** and aimed to eliminate burnt cane by 2024.
- The challenge was to evaluate *why* this happened and whether government measures were effective.

Thailand's AI Audit

The AI Approach



Google Earth Engine (GEE): analyzed 25 years of satellite data (AOD → PM₅) and NASA VIIRS fire hotspots.



Churn analysis tracked whether farmers stopped burning after receiving subsidies.



Churn analysis tracked whether farmers stopped burning after receiving subsidies.



For Policymakers
Technology subsidies alone are insufficient.

Key Lessons Learned

For Audit Practice, AI and

- satellite data transformed audit work from report checking to evidence verification from **space**.
- Data visualization improved communication and accountability.

For Policymakers

- Technology subsidies alone are insufficient.
- Behavior change, enforcement, and collaboration between farmers and sugar mills are essential.

Closing

This project showed that when auditors embrace AI, we can see beyond numbers — we can see signals of change in real



 AI-generated content

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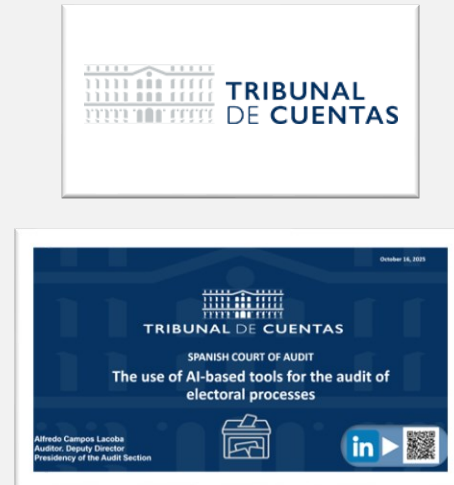
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State Audit Office of the
Kingdom of Thailand

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Ari Kristiana
Audit Board of Indonesia

USING ARTIFICIAL INTELLIGENCE EFFECTIVELY FOR DATA ANALYSIS

Idea	Tools	Benefits	Lesson Learned
▪ Government procurement valued at more than Rp 200 million shall be carried out through a bidding process, while smaller ones may be conducted through a direct appointment mechanism. ▪ Recurring audit finding: contract splitting, where a large procurement is intentionally divided into smaller ones to bypass the competitive bidding threshold. ▪ Increase the risk of corruption and collusion	Natural Language Processing (NLP) NLP is a field of AI that focuses on enabling computers to understand, interpret, and generate human language. NLP helps computers read, listen, and talk like humans	• Speed up the audit process • Produce more accurate audit results	• Not all auditors are familiar with NLP • SAI must conduct training to many more auditors • Substantive testing is still required to gain stronger audit evidence.

Progress of the Contracts



Indications of Contract Splitting



Search:

Cluster	NamaSatker	NamaKontrak	NomorKontrak	NilaiKontrak	NamaVendor	bg
21	13	PERAWATAN DAN PEMELIHARAAN GEDUNG KANTOR P	115/2023	199.500.000	CV. DU	3
22	13	PERAWATAN DAN PEMELIHARAAN RUMAH DINAS	1360/2023	70.200.000	CV. DU	3
23	13	Perawatan dan Pemeliharaan Gedung Kantor P	115/2023	40.845.000	CV. DU	3
24	13	Perawatan dan Pemeliharaan Gedung Kantor P	1360/V/2023	77.149.000	CV. DU	3
25	13	Perawatan dan Pemeliharaan Gedung Kantor P	1985/2023	80.317.000	CV. DU	3
26	13	Perawatan dan Pemeliharaan Gedung Kantor P	904/2023	74.974.000	CV. DU	3
27	14	Pengadaan Alat Listrik Ma	281/PK/7/2023	195.435.702	CV. IN	4
28	14	Pengadaan Alat Listrik Ma	53/PK/2/2023	192.596.100	CV. IN	4
29	15	Perawatan Bangunan Renovasi Interior Ruang Ra	299/K/7/2023	62.091.556	PT. B USAH	0
30	15	Perawatan Bangunan Renovasi Ruang Ra	340/8/2023	167.461.024	PT. B USAH	0

Showing 21 to 30 of 279 entries

Previous

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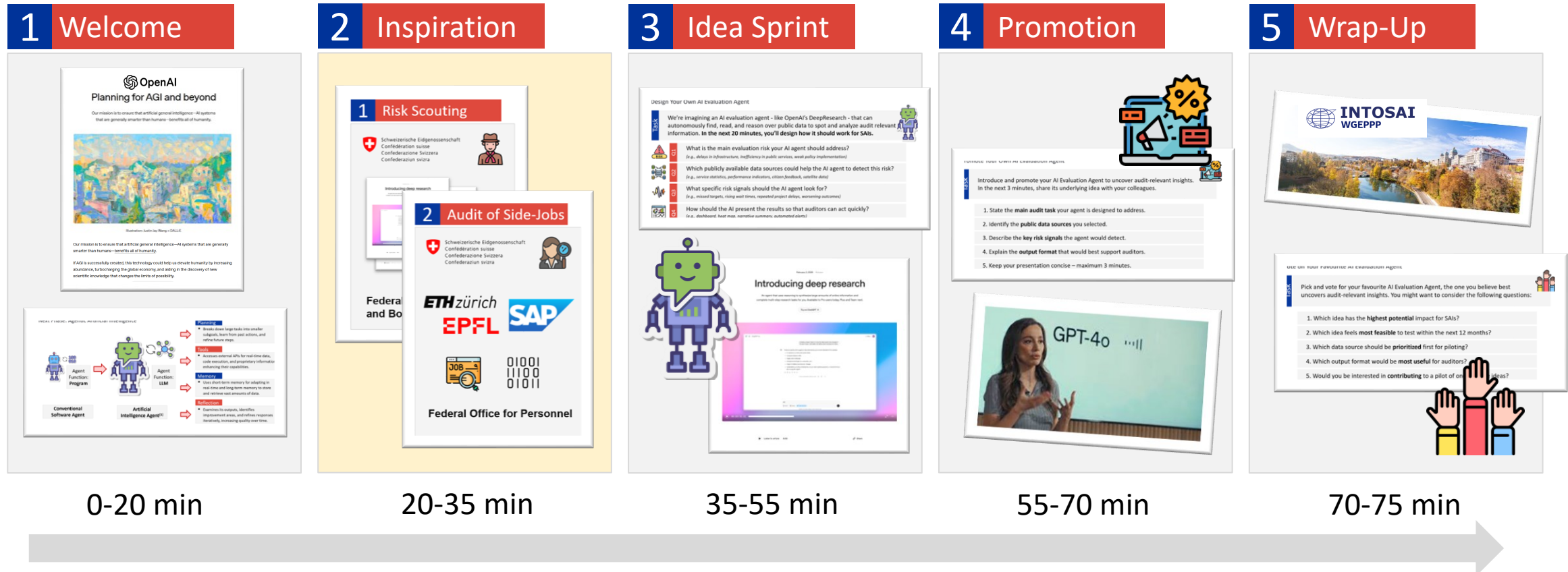
Next

Top Kontrak



Inspiration

Innovation Lab Agenda



Inspiration



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Road to Artificial General Intelligence (AGI)

 **OpenAI**

Planning for AGI and beyond

Our mission is to ensure that artificial general intelligence—AI systems that are generally smarter than humans—benefits all of humanity.



Illustration: Justin Jay Wang × DALL·E

Our mission is to ensure that artificial general intelligence—AI systems that are generally smarter than humans—benefits all of humanity.

If AGI is successfully created, this technology could help us elevate humanity by increasing abundance, turbocharging the global economy, and aiding in the discovery of new scientific knowledge that changes the limits of possibility.

02/24/2023

NEWS / TECH / ARTIFICIAL INTELLIGENCE

OpenAI's Sam Altman says 'we know how to build AGI' / The company is now working towards the 'glorious future' of superintelligence – which sounds a lot like how it used to describe AGI.

By Jess Weatherbed, a news writer focused on creative industries, computing, and internet culture. Jess started her career at TechRadar, covering news and hardware reviews.

Jan 6, 2025, 3:15 PM GMT+1

15 Comments (15 New)



Image: Cath Virginia / The Verge; Getty Images

OpenAI CEO Sam Altman says that the company is confident that it knows "how to build AGI as we have traditionally understood it."

01/06/2025

Research Scientist, Post-AGI Research

London, UK [Apply](#)

 **Google DeepMind**

Snapshot

At Google DeepMind, we've built a unique culture and work environment where long-term ambitious research can flourish. We are seeking a highly motivated Research Scientist to join our team and contribute to groundbreaking research that will focus on what comes after Artificial General Intelligence (AGI). Key questions include the trajectory of AGI to artificial superintelligence (ASI), machine consciousness, the impact of AGI on the foundations of human society.

The role

We are seeking a Research Scientist to explore the profound impact of what comes after AGI. Key responsibilities include defining critical research questions within these domains, collaborating with cross-functional teams to develop innovative solutions, and conducting experiments to advance our mission.

Key responsibilities

- Spearhead research projects exploring the influence of AGI on domains such as economics, law, health/wellbeing, AGI to ASI, machine consciousness, and education.
- Develop and conduct in-depth studies to analyze AGI's societal impacts across key domains.
- Engage in collaborative efforts with cross-functional teams, including external partners, to drive research forward.
- Dive deep into specific areas to improve our understanding of the impact of AGI, and create the map of potential outcomes.
- Build and refine measurement infrastructure and evaluation frameworks for a systematic evaluation of AI's societal effects.

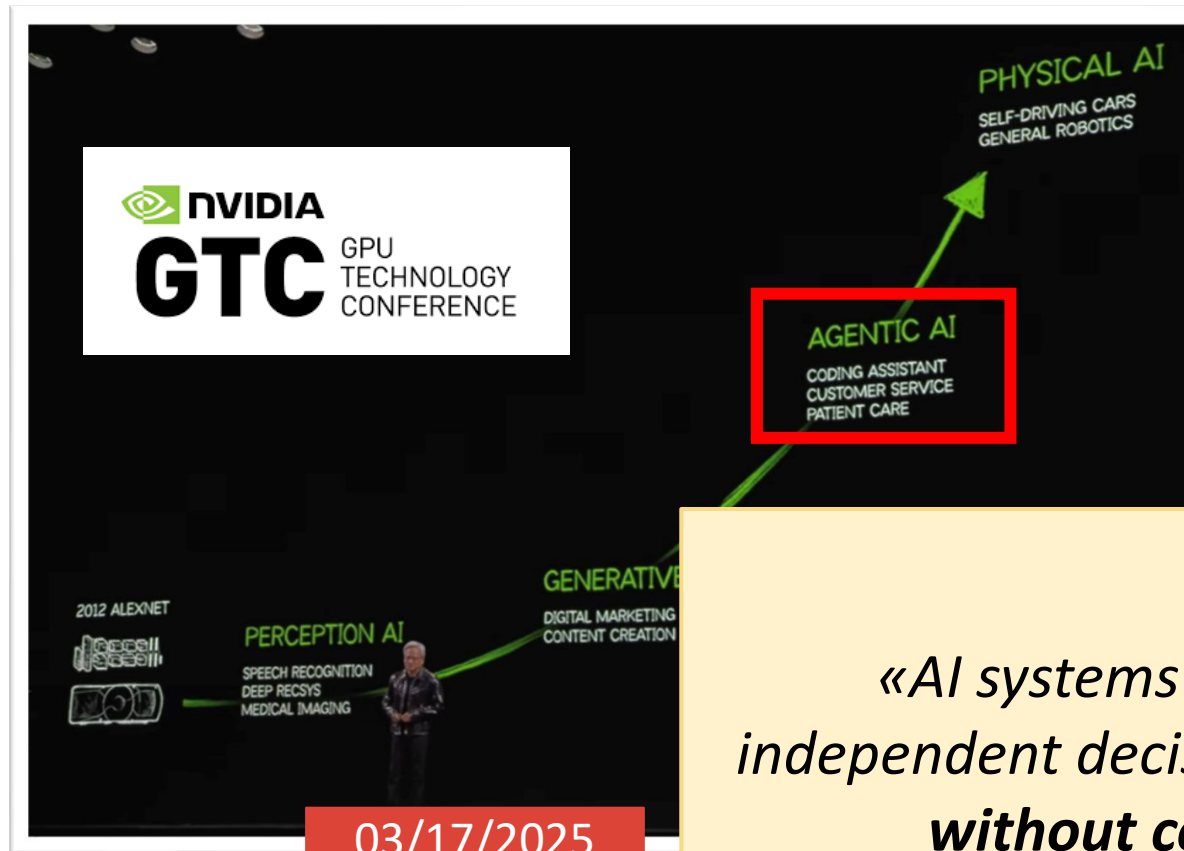
About you

We seek out individuals who thrive in ambiguity and are eager to contribute to evolving projects. We frequently develop innovative solutions and adapt to changing priorities, so flexibility is essential.

04/24/2025

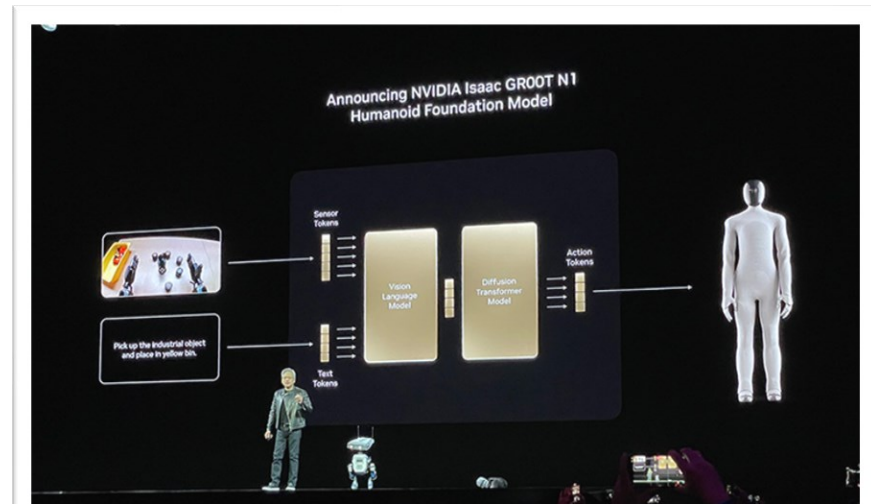
Agentic Artificial Intelligence

Next Phase: Agentic Artificial Intelligence



Source: <https://www.nvidia.com/gtc>

03/17/2025



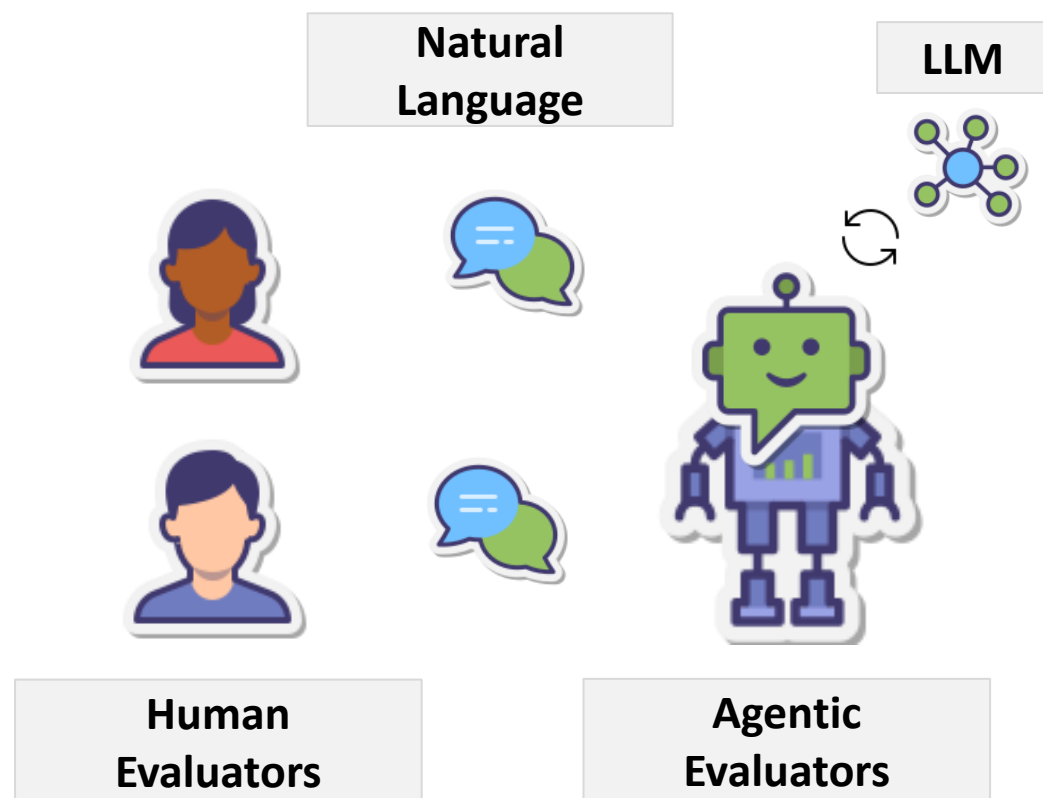
Agency:

*«AI systems that **act autonomously**, making independent decisions to achieve predefined objectives **without constant human intervention.**»*

Russell, Stuart J., and Peter Norvig. Artificial Intelligence: A Modern Approach. Pearson, 2025.

Agentic Artificial Intelligence

A Novel «Digital Audit Workforce»?



Planning



- Breaks down large tasks into smaller subgoals, learn from past actions, and refine future steps.

Tools



- Accesses external APIs for real-time data, code execution, and proprietary information, enhancing their capabilities.

Memory



- Uses short-term memory for adapting in real-time and long-term memory to store and retrieve vast amounts of data.

Reflection



- Examines its outputs, identifies improvement areas, and refines responses iteratively, increasing quality over time.

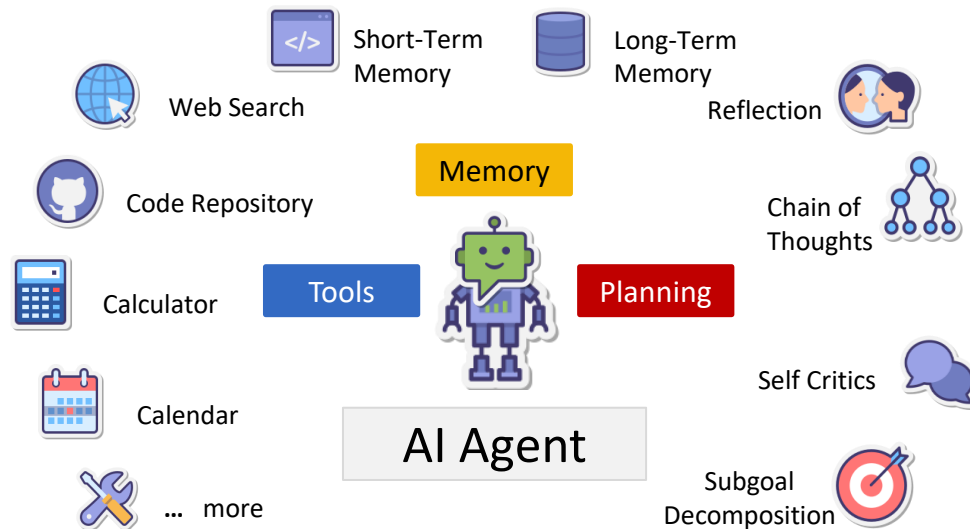
Agentic Artificial Intelligence



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Next Phase: Agentic Artificial Intelligence



[2] Schreyer, Marco, Hanchi Gu, Kevin Moffitt, and Miklos A. Vasarhelyi. "Artificial Intelligence Agentic Auditing." Available at SSRN 4909147 (2024).

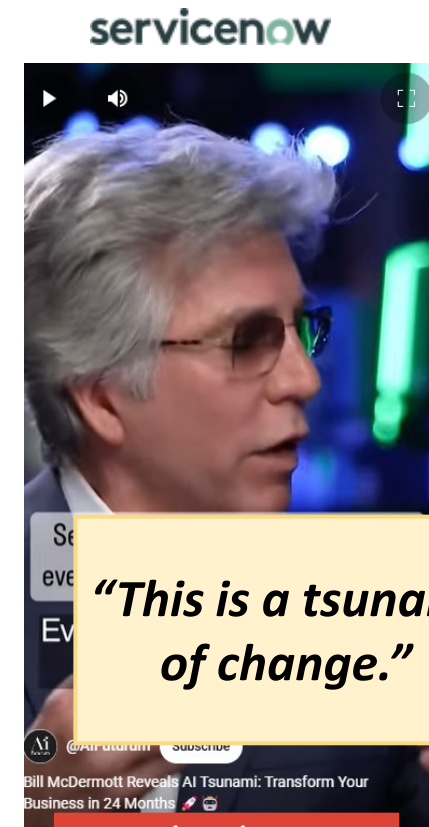
Agentic AI-Capabilities

- Intelligent agents handle complex tasks.
- Autonomous execution with minimal supervision.
- Dynamically adapts to changing environments.



***"Everybody is
a programmer."***

02/12/2024

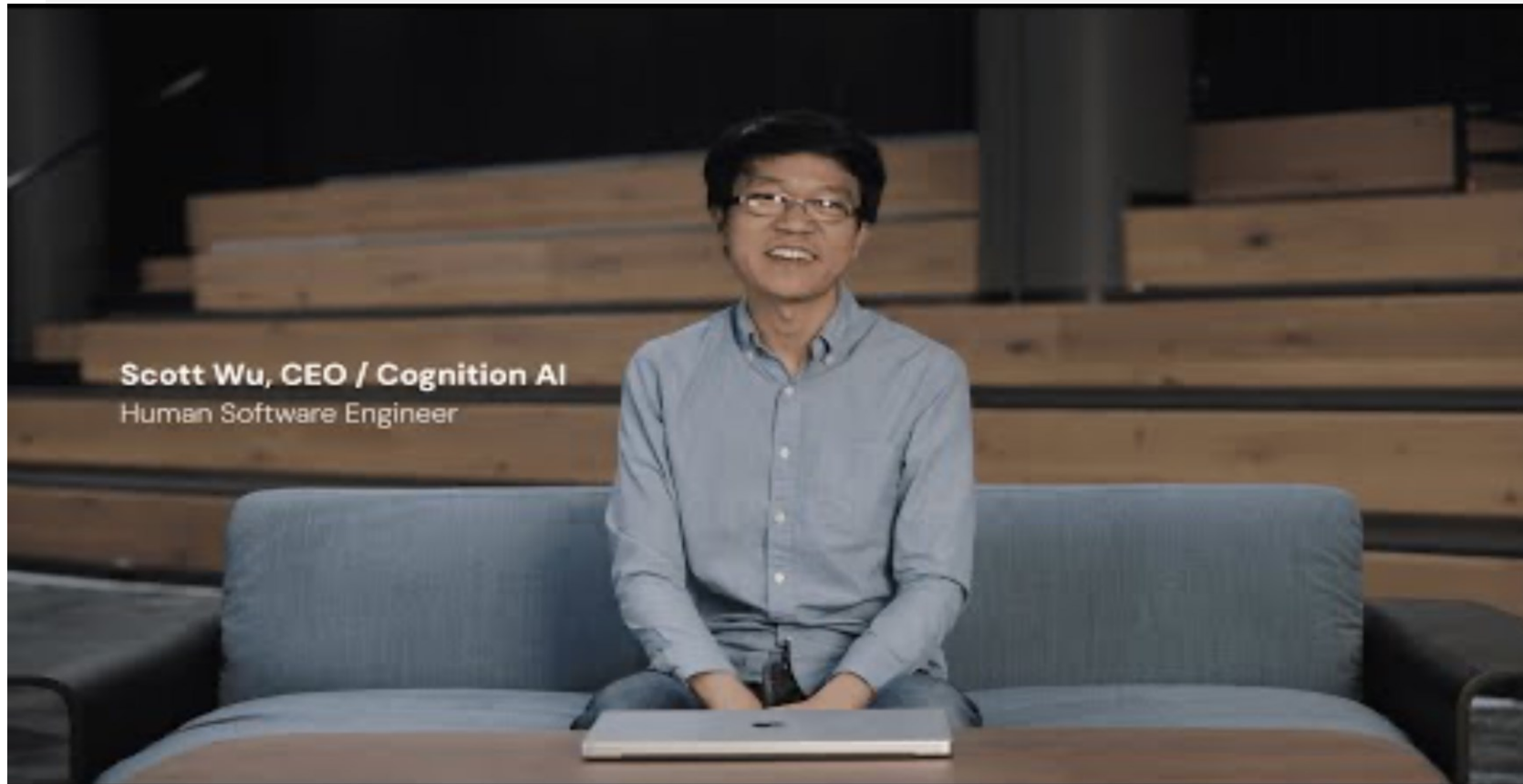


***"This is a tsunami
of change."***

05/20/2024

Agentic Artificial Intelligence

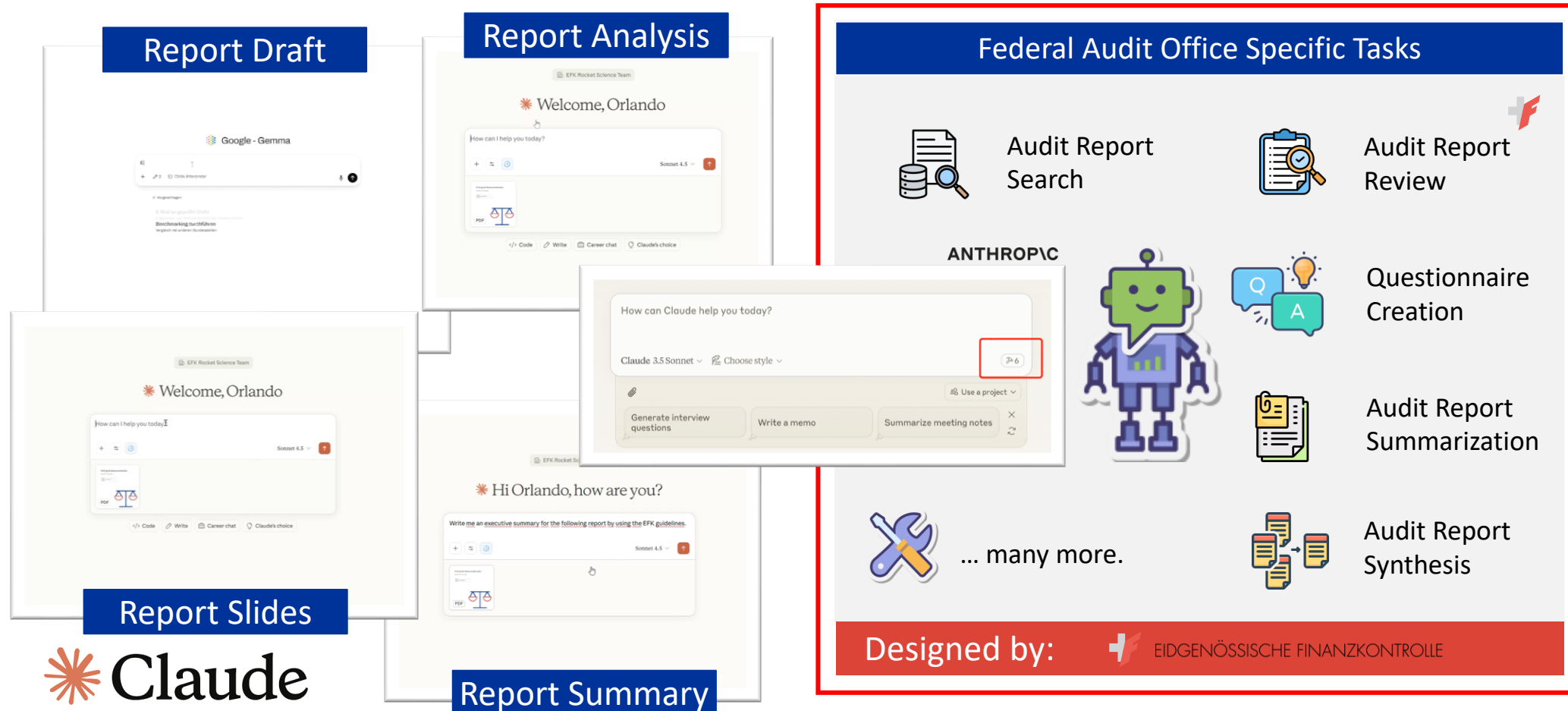
Next Phase: Agentic Artificial Intelligence



Source: Devin – the first AI software engineer, Cognition AI, San Francisco, USA

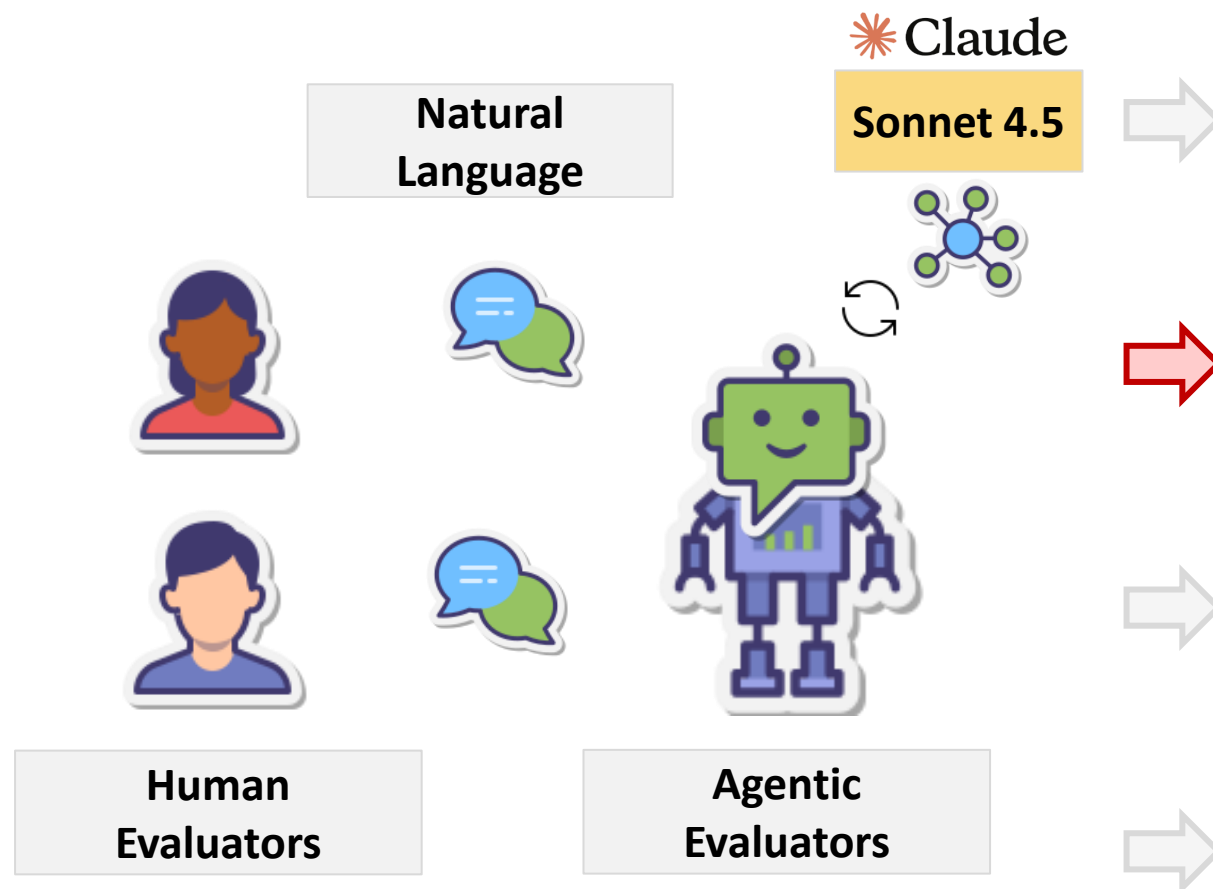
Agentic Artificial Intelligence

Building Agentic Auditing Capabilities



Agentic Artificial Intelligence

A Novel «Digital Audit Workforce»?



Planning



- Breaks down large tasks into smaller subgoals, learn from past actions, and refine future steps.

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- Accesses external APIs for real-time data, code execution, and proprietary information, enhancing their capabilities.

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Reflection



- Examines its outputs, identifies improvement areas, and refines responses iteratively, increasing quality over time.

Agentic Artificial Intelligence

 **Claude**

 Model Context Protocol

 EFK Rocket Science Team

 Hi Orlando, how are you?

Write me an executive summary for the following report by using the EFK guidelines.

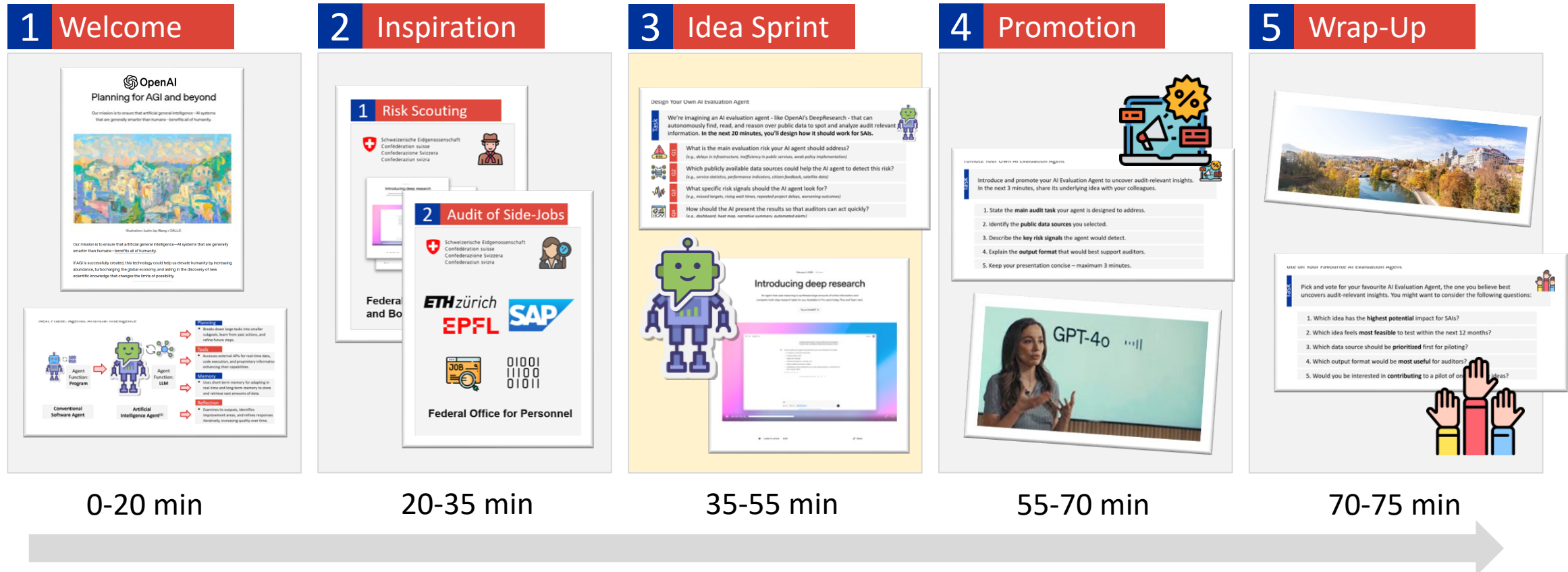


Sonnet 4.5



Idea Sprint

Innovation Lab Agenda



Idea Sprint

Design Your Own AI Evaluation Agent

Task

Imagine your own AI evaluation agent - like Devin's AI Software Engineer - that can autonomously find, read, and reason over public data to spot and analyze audit relevant risks. **In the next 20 minutes, you'll design how it should work for SAIs.**



Q1

What is the main evaluation risk your AI agent should address?

(e.g., delays in infrastructure, inefficiency in public services, weak policy implementation)



Q2

Which publicly available data sources could help the AI agent to detect this risk?

(e.g., service statistics, performance indicators, citizen feedback, satellite data)



Q3

What specific risk indicators should the AI agent look for?

(e.g., missed targets, rising wait times, repeated project delays, worsening outcomes)



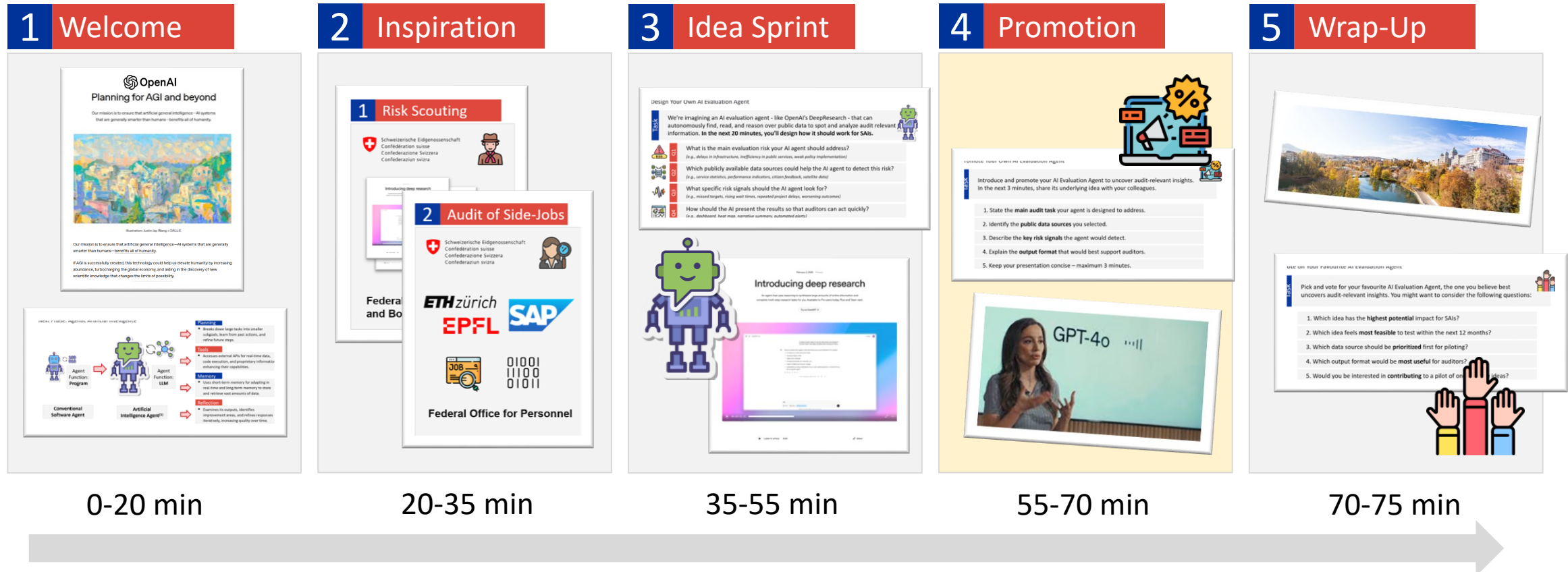
Q4

How should the AI present the results so that auditors can act quickly?

(e.g., dashboard, heat map, narrative summary, automated alerts)

Promotion

Innovation Lab Agenda



Sharing & Discussion

Promote Your Own AI Evaluation Agent

Task

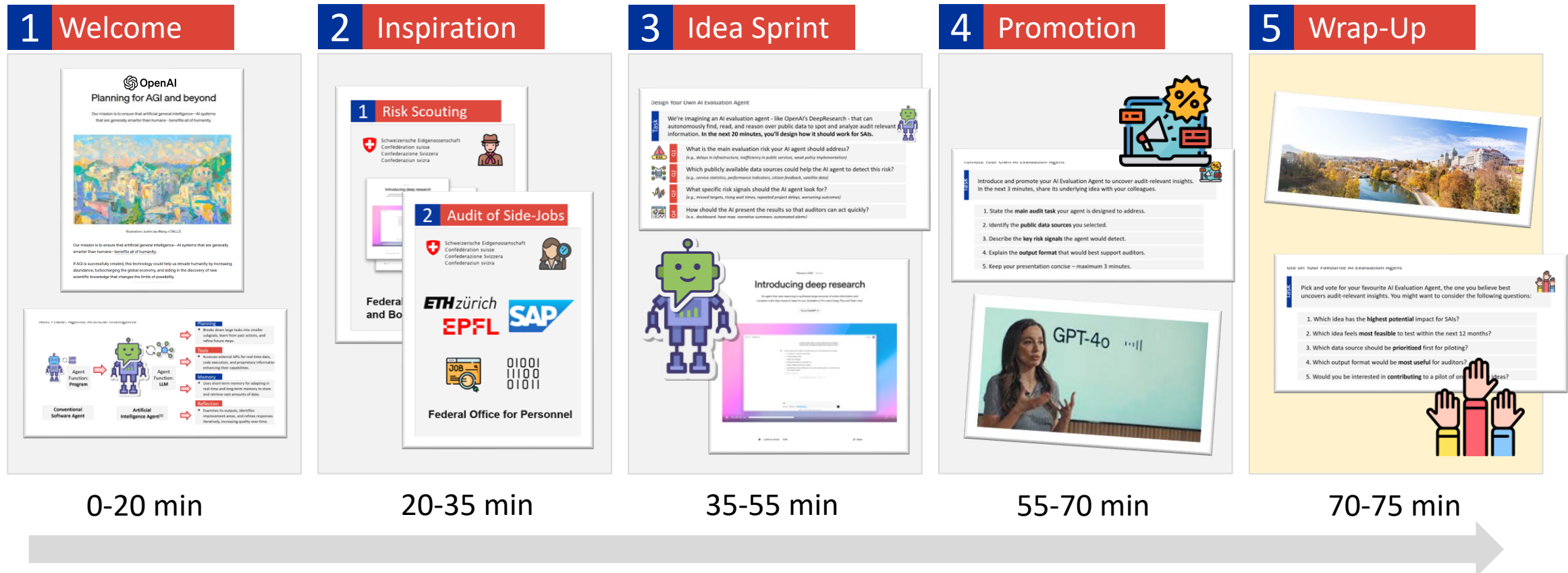
Introduce and promote **your AI Evaluation Agent** to uncover audit-relevant insights. In the next 90 seconds, pitch its underlying idea to your colleagues.



1. State the **main risk** your agent is designed to address.
2. Identify the **public data sources** you selected.
3. Describe the **key risk signals** the agent would detect.
4. Explain the **output format** that would best support auditors.
5. Keep your presentation concise – maximum 90 seconds.

Wrap-Up

Innovation Lab Agenda



Wrap-Up

Vote on Your Favourite AI Evaluation Agent

Task

Pick and vote for your **favorite AI Evaluation Agent**, the one you believe best uncovers audit-relevant insights. You might want to consider the following questions:



1. Which idea has the **highest potential** impact for SAIs?
2. Which idea feels **most feasible** to test within the next 12 months?
3. Which data source should be **prioritized** first for piloting?
4. Which output format would be **most useful** for auditors?
5. Would you be interested in **contributing** to a pilot of one of these ideas?

Thank you!

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