

A digital tunnel visualization with blue data streams and a red outline. The background is a grey, textured concrete wall with a central opening. The opening is filled with a glowing blue digital tunnel effect, consisting of many vertical lines of varying lengths and thicknesses, creating a sense of depth and perspective. A red outline is drawn around the central opening, highlighting it. The overall scene is dimly lit, with the blue light from the tunnel being the primary source of illumination.

# Generative AI With Azure OpenAI

 **ELCA**  
*We make it work.*

# Agenda

- 1 — What is Generative AI?
- 2 — Applications of Generative AI: The RAG
- 3 — Case Studies
- 4 — Call to Action



# What is Generative AI?

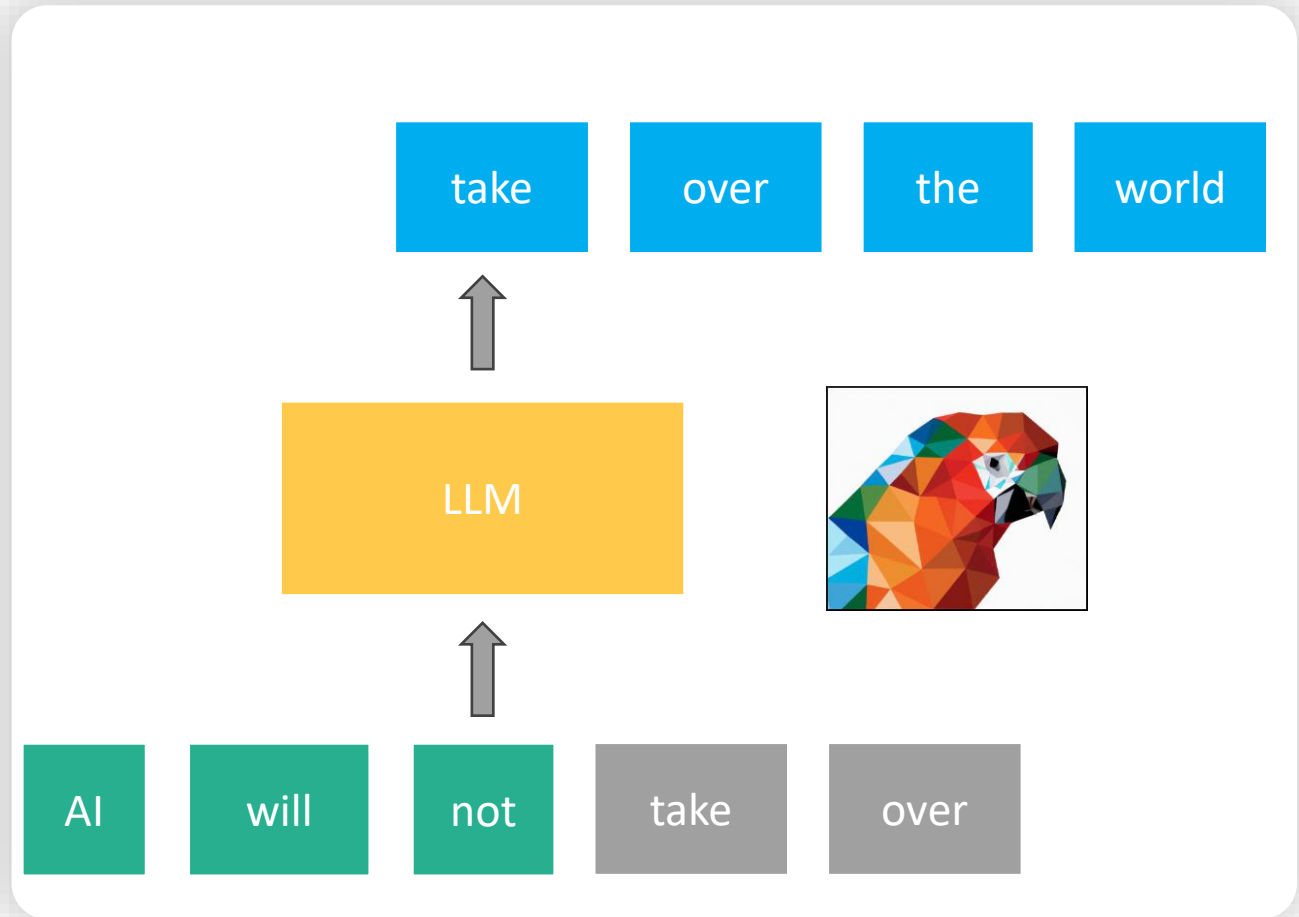
# How does Generative NLP work?

“ Contrary to how it may seem when we observe its output, a language model is a system for [...] stitching together sequences of linguistic forms it has observed in its vast training data, according to probabilistic information about how they combine, but without any reference to meaning: a **stochastic parrot**.”

– **Emily M. Bender**

## Idea:

Given a sequence of tokens (text), learn to predict the most probable next word.



# Managed Service Generative AI APIs



## OpenAI API

- GPT-3.5, GPT-4, ChatGPT language models and interfaces (text and code use cases)
- DALL-E for image use-cases
- Whisper for speech (audio) use cases
- Chat completions (conversation)



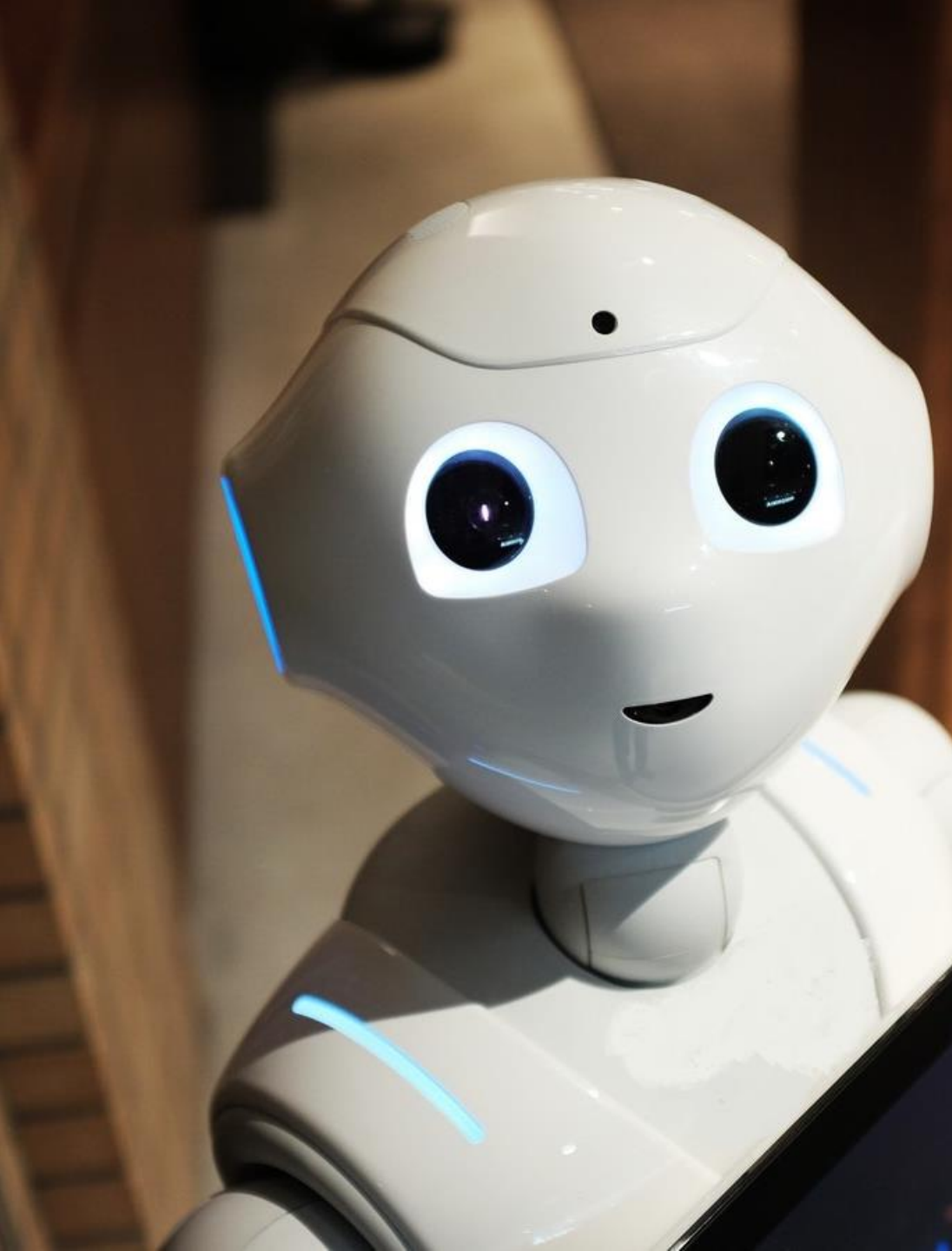
## Azure OpenAI Service

- Integrates OpenAI models with Azure Services and Microsoft Power Platform Services
- Data protection features
- Deployed in your Azure subscription
- Regulatory compliance (SOC2, HIPPA, ISO27001)

# Value Proposition

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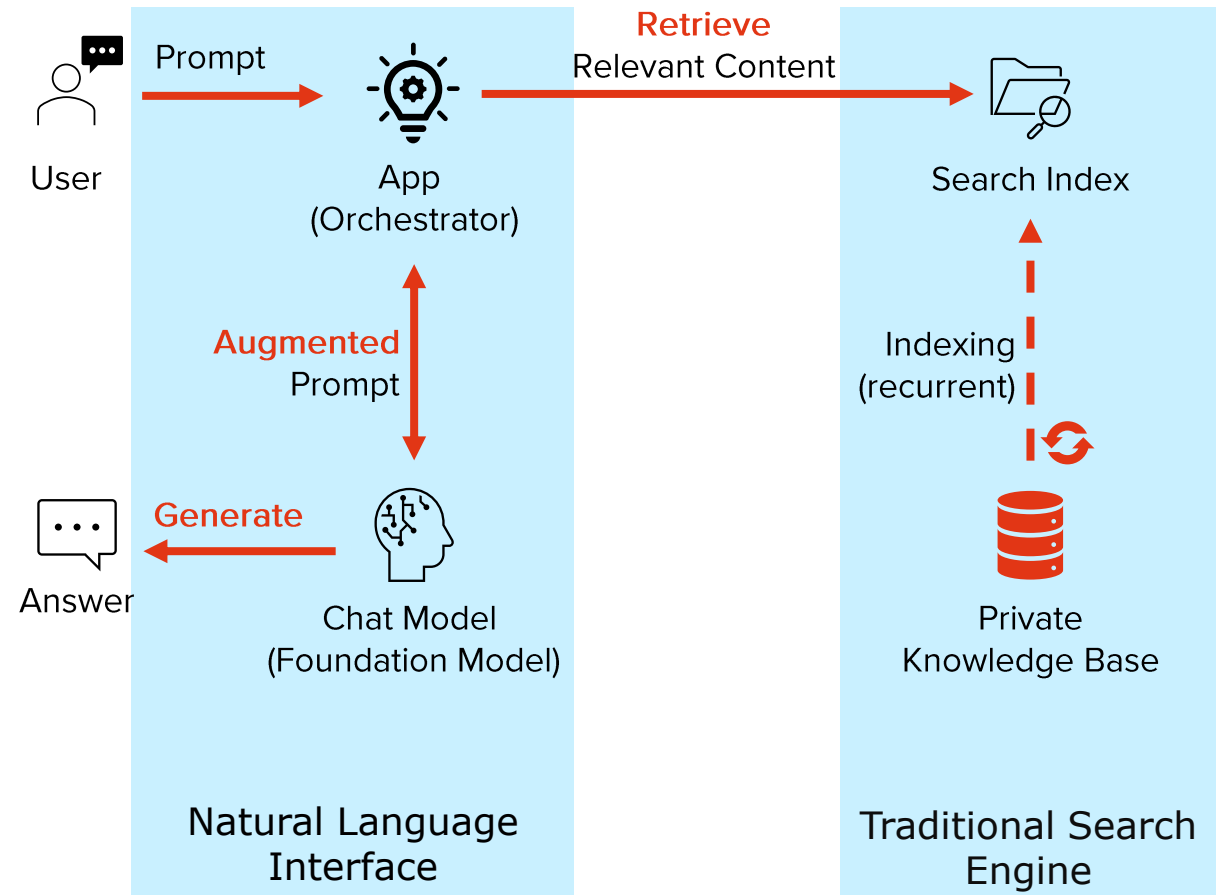
- **Automation and Efficiency:** Generative AI can automate repetitive tasks, freeing up time for human creativity and innovation.
- **Creativity Enhancement:** Generative AI can assist in creative endeavors, generating new ideas, designs, and concepts.
- **Innovation Catalyst:** Generative AI can drive innovation by exploring new possibilities and uncovering hidden patterns in data.
- **Personalization and Customization:** Generative AI can personalize experiences and tailor products or services to individual needs.
- **Augmented Decision-Making:** Generative AI can provide insights and recommendations to support informed decision-making.
- And **many others** that come to your mind



# Applications of Generative AI: The Retrieval Augmented Generation

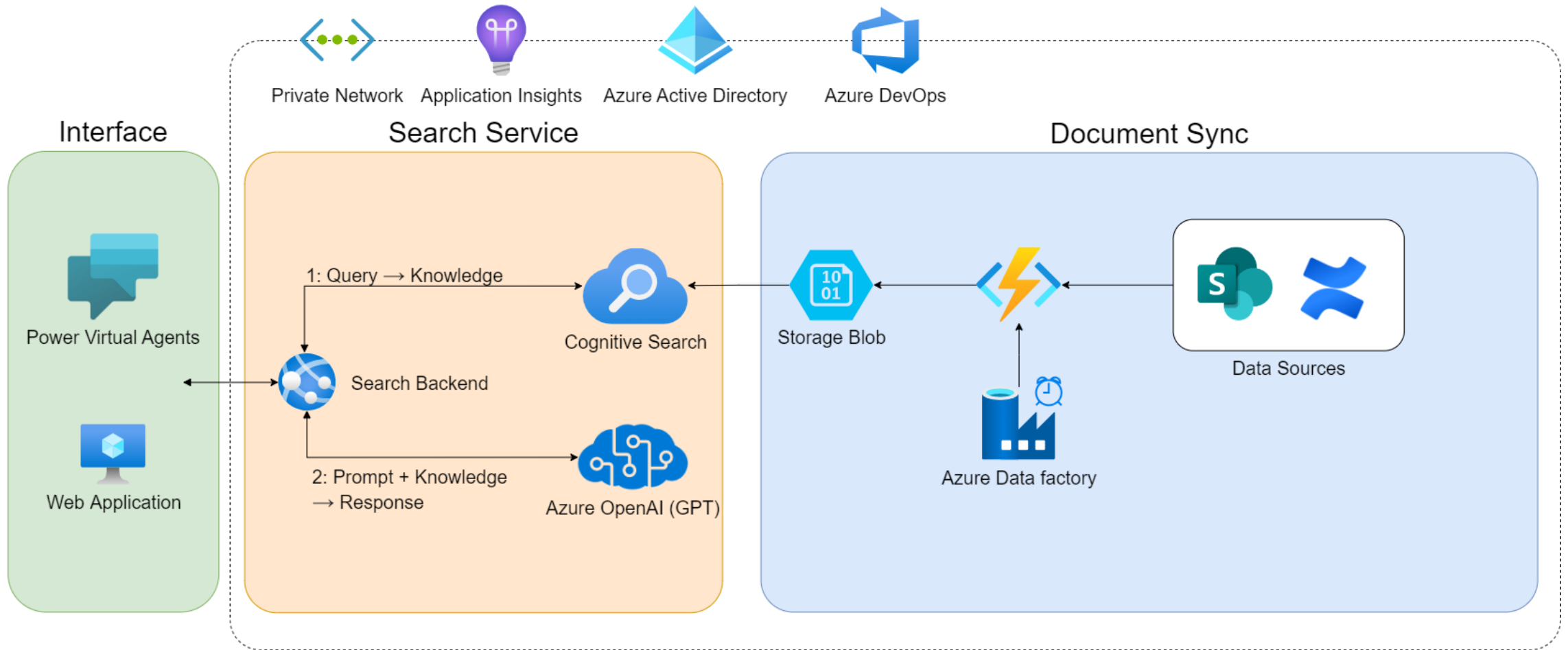
# RAG (Retrieval Augmented Generation)

- No reliance on model-internal knowledge
- LLM used for general language understanding and generation capabilities
- Advantages:
  - Can cite information source
  - Hallucinations less likely
  - Use up-to-date data
  - Extendable workflow
- Limitations:
  - Quality depends on retrieval
  - Context-size limitations imposed by model





# Custom Solution Architecture on Azure





# Use Cases

**Case Study**

**Chat with your Data**

# What is it?

A conversational agent powered by Large Language Models (LLMs) that performs tasks on data in a knowledge base.



## Enterprise search

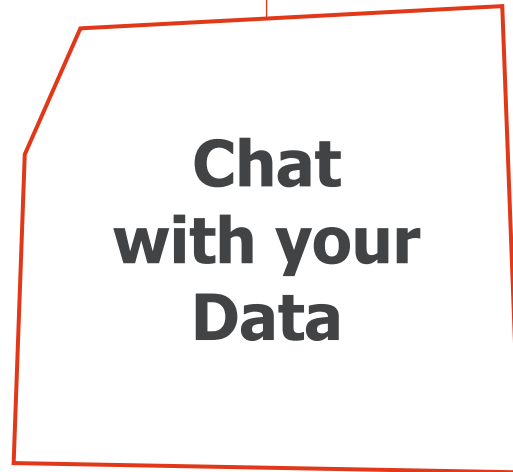
Search potentially private knowledge bases using natural language



## Information extraction

Extract structured information about single data items or collections

Ex: "Extract employees who have XYZ skills"



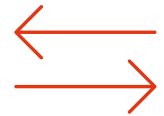
**Chat  
with your  
Data**



## Question answering

Extract unstructured information from data items or collections.

Ex: "How can I apply for a bank loan?"



## Transformation

Translate content to another language, format, style.

Ex: "Summarize this story. Answer in Spanish"

# Benefits and Added Value



## **Multi-Language**

Users do not have to speak the language of your website



## **Generic agent with domain knowledge**

Cover wide range of questions  
No manual conversation tree maintenance



## **Easy to update**

Simply reindex updated website content

## Annoncer mon arrivée à l'OCPM

### 2. Annonce d'arrivée à Genève pour les Suisses

#### Pour qui

Toute personne suisse qui arrive à Genève pour y prendre domicile doit annoncer son arrivée.

Les Confédérés non genevois qui entendent séjourner ou exercer une activité lucrative indépendante à Genève doivent également s'annoncer.

#### Quand

L'annonce doit être transmise dans les 14 jours qui suivent l'arrivée.

#### Quoi

Les Confédérés genevois reçoivent un courrier confirmant l'enregistrement de leur arrivée dans le registre de la population.

Les Confédérés non genevois reçoivent:

- En cas de **séjour temporaire\***, un certificat de séjour, valable 5 ans et renouvelable si les conditions de son obtention sont toujours réalisées.

\* En cas de **séjour permanent\*\***, un certificat de domicile d'une durée de validité indéfinie qui

I moved to Geneva from the UK, do I have to register my arrival? Can I work here?

Yes, you have to register your arrival in Geneva. You can work in Geneva, but you need to obtain a work permit.

Can my family come here as well?

If you wish to bring your family to Geneva, the conditions for obtaining a residence permit for your relatives depend on your nationality, family ties, and your status in Switzerland. For more information, please refer to the source: [demander-permis-sejour-ma-famille-regroupement-familial](#)

# Etat de Genève: Q&A Chatbot

- **Context:** Website in French, international users
- **Goal:** PoC to evaluate the potential of «chat with your data» based on generative AI
- **Benefits:**
  - Generic chatbot with domain knowledge
  - Multi-lingual chatbot out of the box
  - Easy to update knowledge base
- **Methodology:**
  - Scrape website and index it in a search engine
  - Back-end based on RAG architecture, with custom prompt-engineered LLM (large language model)
  - Custom UI
- **Results:**
  - Very promising technology with big benefits
  - Limitations: Context size, reliability (errors hard to spot), robustness (sensitive to small input variations)

# Case Study

# Competitive Intelligence

# Market Intelligence Framework



Set of collectors specialized per use-case

AI-powered enrichments

Search for information  
or subscribe to topics

Gain actionable insights





# Benefits and Added Value



Save effort and cost with automatic information collection and processing



Maintain accurate and up-to-date information on topics of interest.

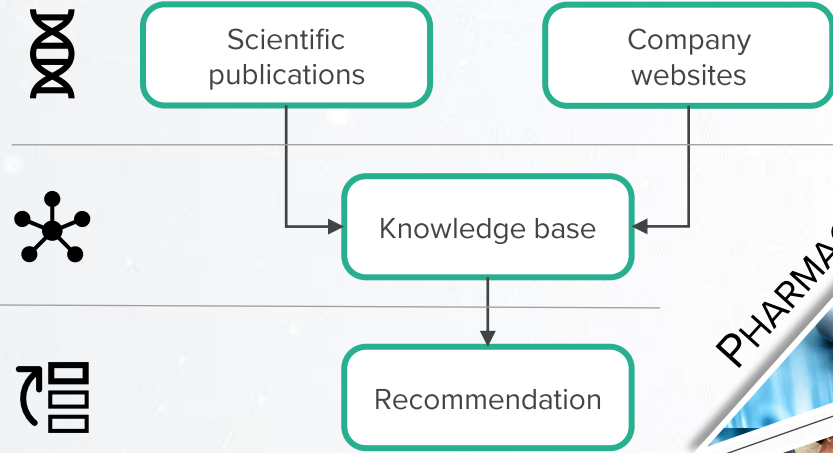


Enable domain experts to gain actionable insights from a custom knowledge base

# Success Stories

## Automatic detection of interesting companies

Parse scientific publications and websites to detect interesting companies not yet known to the client.



## Generation of project leads from Swiss press

Retrieval, classification and clustering of relevant project opportunities from non-specialized Swiss press.



## Advanced content search for corporate communication

Automate news and content research to provide a journalistic angle on cross-cutting industry concerns.





# Conclusion

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- Generative AI is a transformative technology with the power to revolutionize various industries.
- Its ability to generate new content, enhance creativity, and drive innovation holds immense potential.
- By embracing Generative AI, organizations can:
  - Automate tasks and improve efficiency
  - Enhance creativity and drive innovation
  - Personalize experiences and tailor products
  - Gain data-driven insights and make informed decisions
- Generative AI is not just a technology of the future; it is a tool for shaping the future.

# Your Generative AI Journey with ELCA



## Production / MVP

**Quickstart**  
Small Proof-of-Concept  
Reduce uncertainty  
Identify opportunities

Feature-complete  
Integrated  
Robust  
MLOps



## Conception

Identify use-cases  
Define KPIs

## (Extended) Proof-of-Concept

Develop core use-case  
Customizations  
Experimentation & Evaluation  
Towards integration

# Ready to take the plunge into Generative AI with us?



*We make it work.*

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