

# Getting **Value** out of **Data** with Large Language Models



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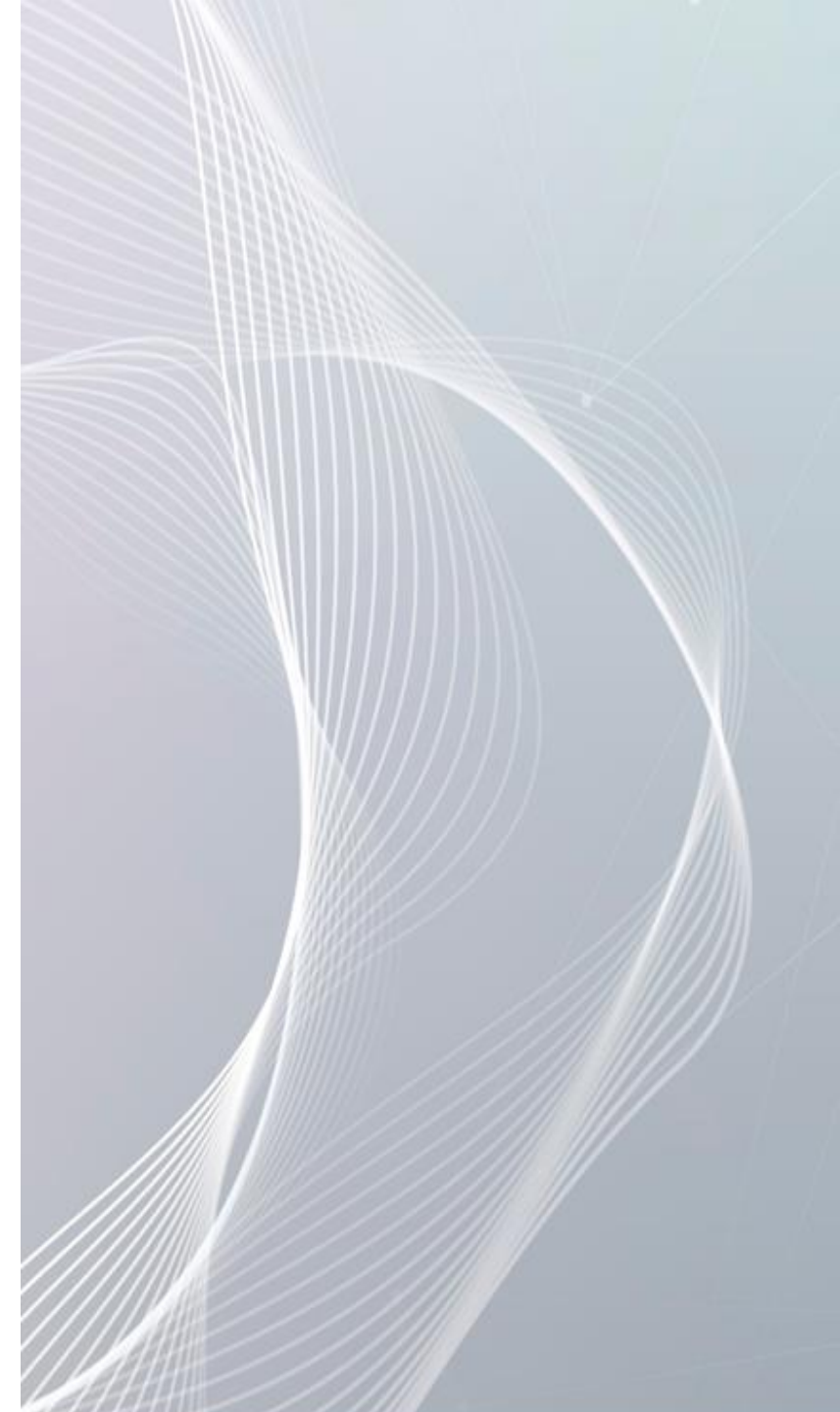
Dr.Sc.comp, Co-Founder and Board Member  
Tilde

Data Spaces Symposium  
Darmstadt, March 12, 2024



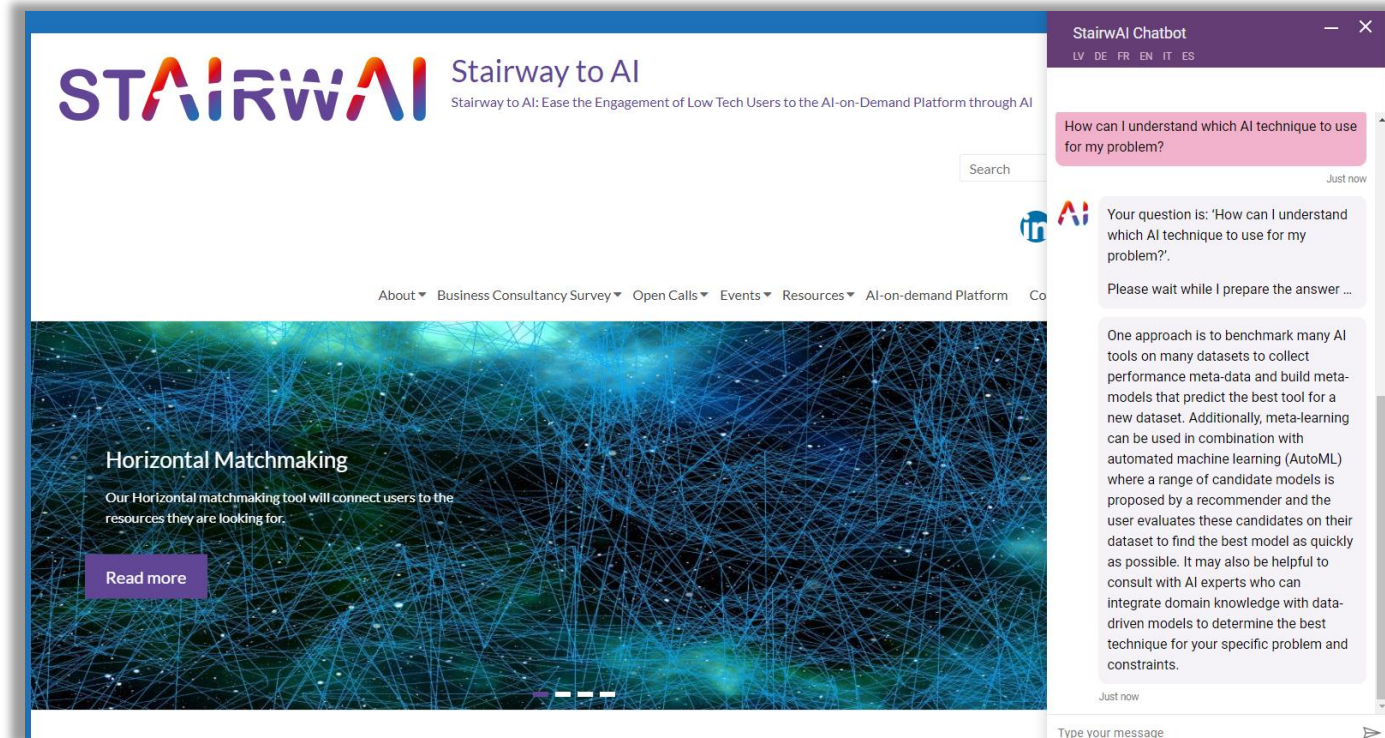
# Retrieval-augmented generation use cases

- Retrieval-Augmented Generation (RAG) combines information retrieval and generative AI to enhance the quality and relevance of generated responses.
- It leverages vast databases or knowledge bases, retrieving information that is most relevant to a query before generating an answer.



# RAG Use Case: StairwAI Virtual Assistant

- StairwayAI: Ease the Engagement of Low-Tech Users to the AI-on-Demand Platform through AI
- Matchmaking to provide necessary AI tools, resources, computing power
- A virtual assistant that helps low tech users to navigate through the StairwAI platform

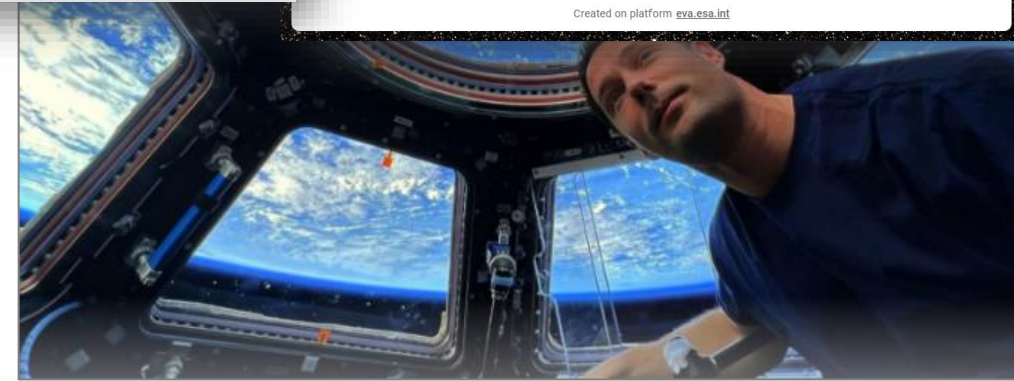
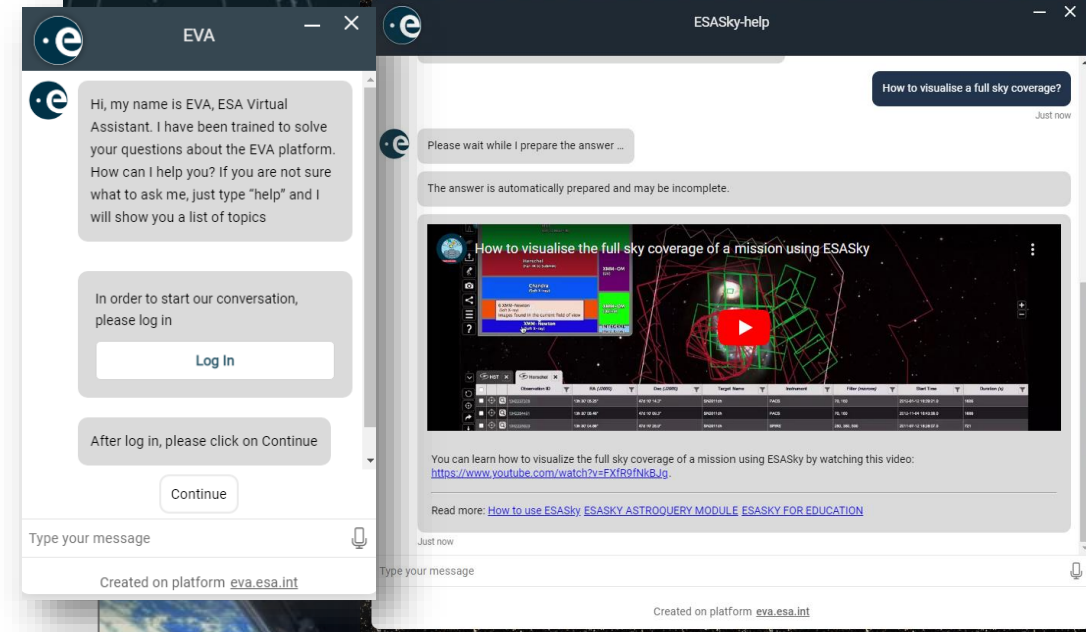


<https://stairwai.nws.cs.unibo.it/>

- Uses RAG to answer questions about the StairwAI platform and general topics on AI

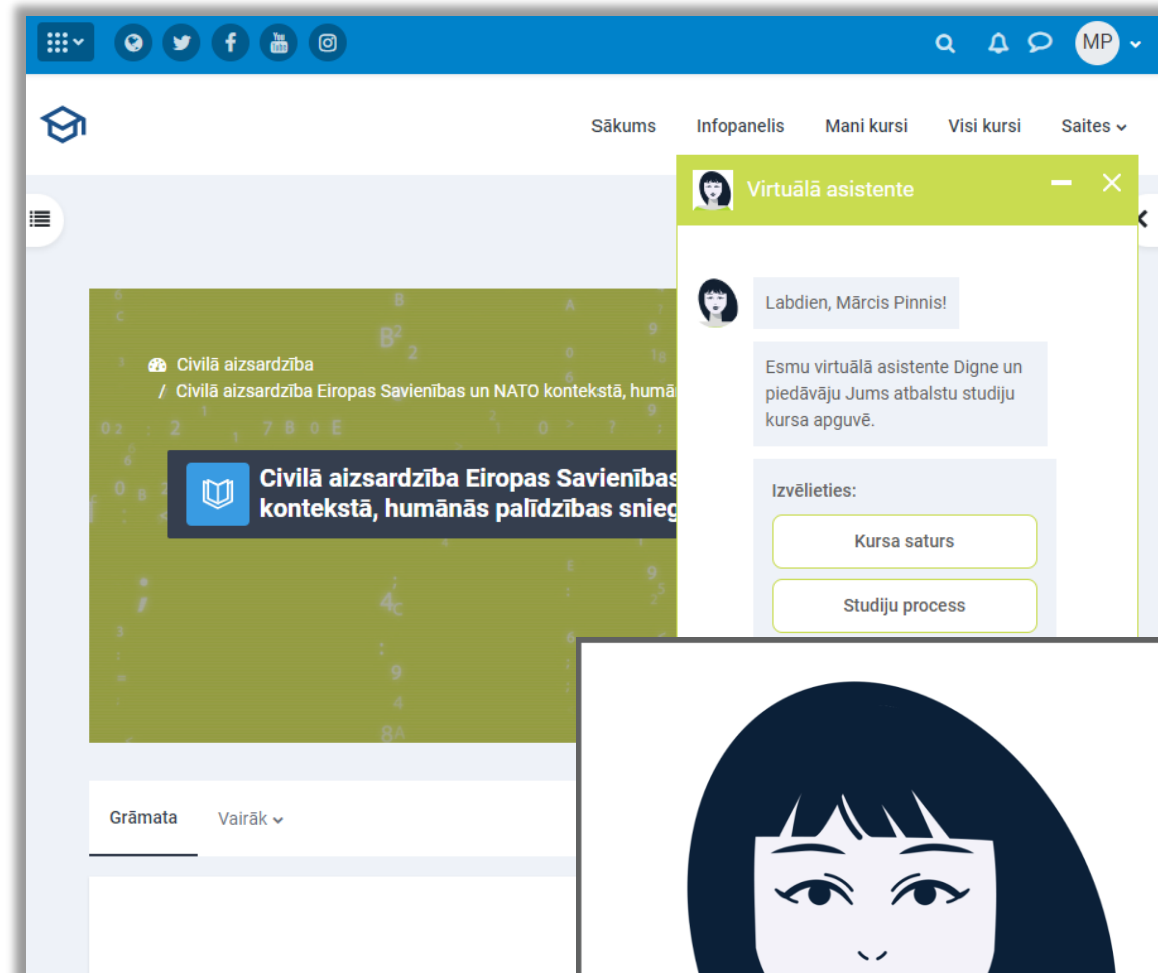
# RAG Use Case: ESASky Virtual Assistant

- ESASky – online platform for finding, visualizing and downloading public astronomical data
- Virtual assistant finds the necessary data based on the natural language dialog
- Helps navigating through the ESA Sky system
- Answers questions on how to use the ESA Sky system using RAG



# RAG Use Case: Virtual assistant for academic courses

- Virtual assistant trained on university course materials
- The first virtual assistant in Latvia implementing retrieval-augmented generation
- Can answer almost any question about the course in question



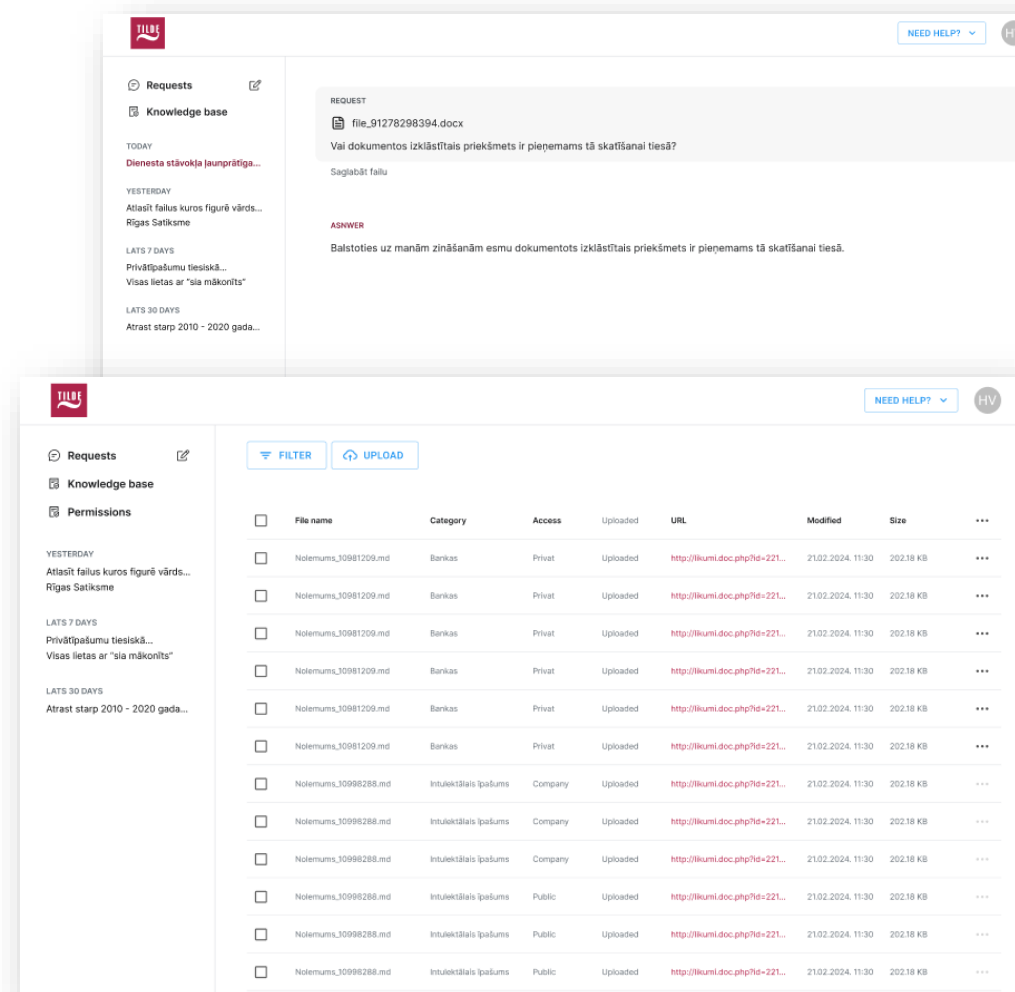
<https://estudijas.lu.lv/>



**DIGNE**

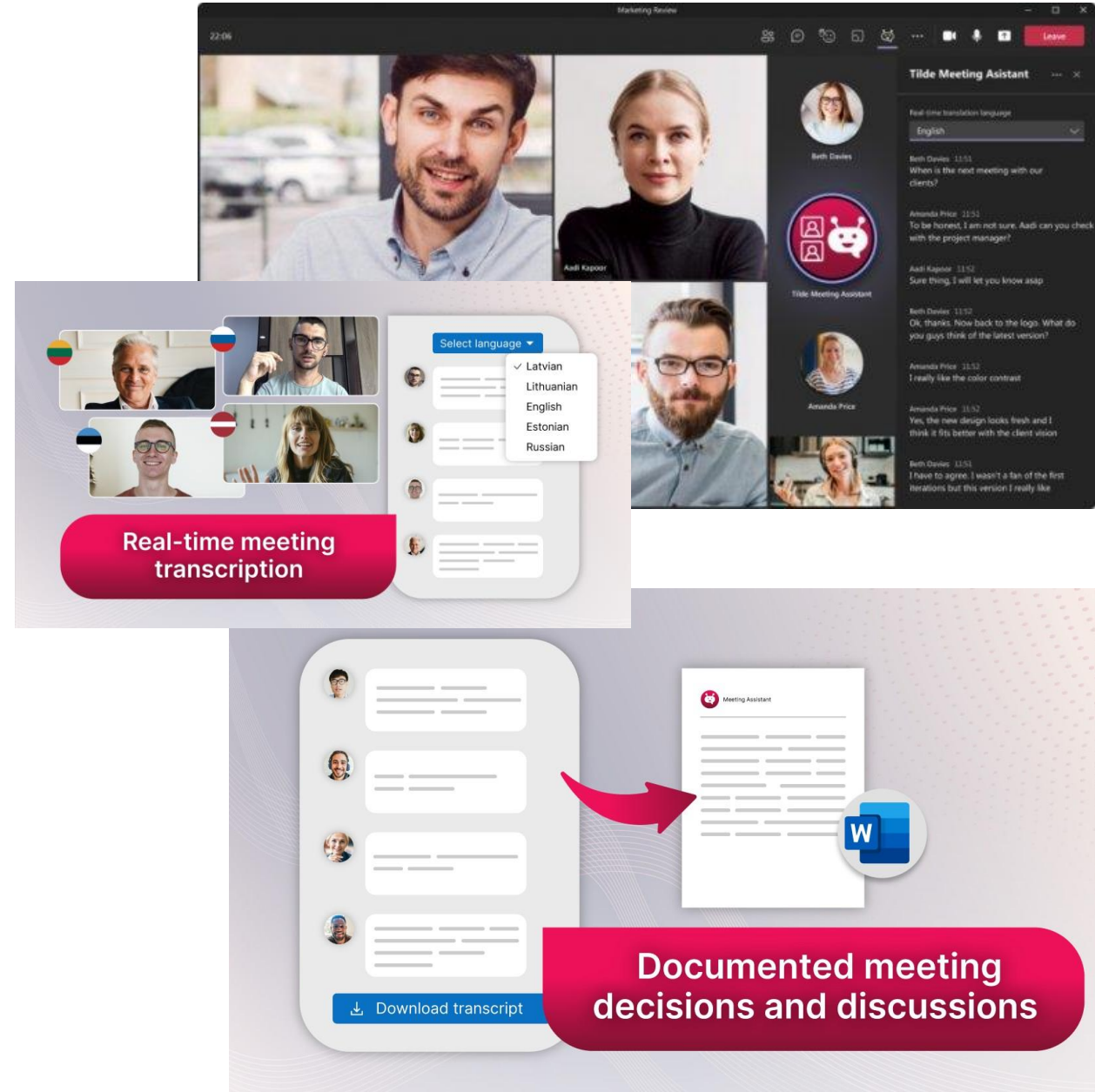
# RAG Use Case: Virtual Assistant for Enterprise Data

- An employee's query is analyzed to understand its intent
- The RAG system searches an enterprise's databases, documents, and other data sources for relevant information
- Can use the context of a single document or the whole archive
- Generative AI is used to synthesize the retrieved information and generate a coherent, contextually relevant response



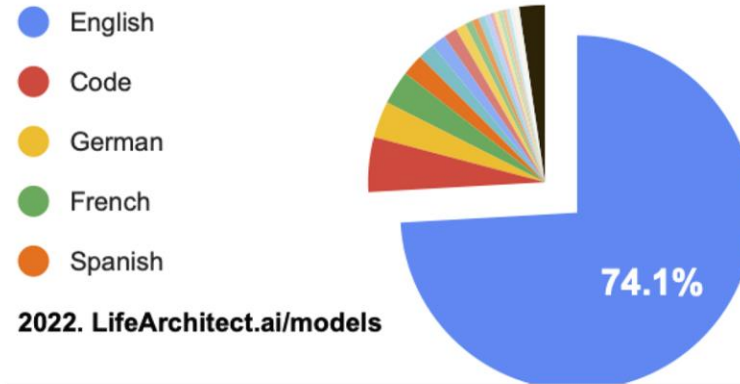
# Use case: Meeting notes and summaries

- Transformation of spoken language into written language
- Automatic post-processing of speech transcripts
- Automatic generation of meeting transcripts and summaries
- AI generated outline of the key points discussed, opinions expressed, decisions made in meeting minutes

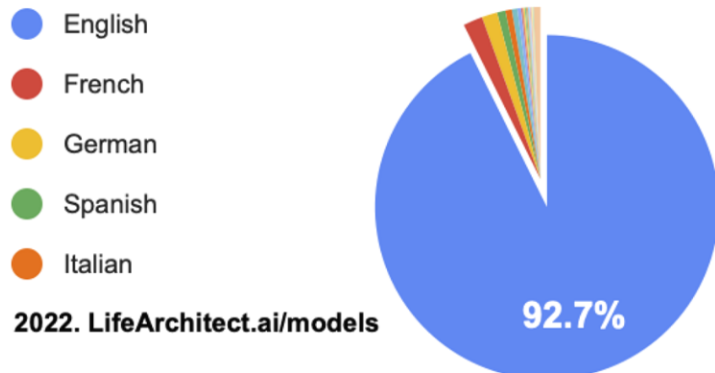


# Language disparity in Large Language Models

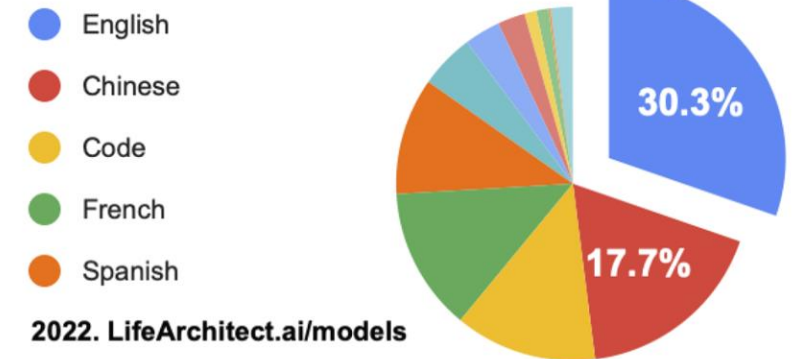
PaLM - 122 languages



GPT-3 - 90 languages



BLOOM - 46 languages





# Creating Large Language Models for Less Supported EU Languages

- **Language Technology Initiative project in Latvia** - creating synergy between higher education, science and industry to promote innovation in language technology:
  - Preparing specialists in language technology
  - Creating **Large Language Models for Latvian** and other advanced language technologies



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- Preparatory work on a comprehensive, open-source LLM specifically designed for Balto-Slavic languages, with over 30 billion parameters, tailored for the unique linguistic features of Balto-Slavic languages



**EUROPEAN  
LANGUAGE  
DATA SPACE**

## Objective

Develop and deploy a European platform and marketplace for the collection, creation, sharing and re-use of multilingual and multimodal language data

## Salient features

Governance framework, technical architecture and infrastructure, openness, promotion

## Stakeholders

Industry, research, public administration, cultural associations, NGOs and citizens

## Sustainability

Towards long-term sustainability: ongoing work on supporting EU Member States in creating ALT-EDIC (Alliance for Language Technology European Data Infrastructure Consortium)





# Thank you!



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