

# Innovation project: large language model adaptation at Latvijas Banka

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# Table of contents

- *iLab* framework
- *LLM-Lab* project
- Way forward
- Summary

# *iLab* framework

# *iLab* framework

- *iLab* = **Innovation Laboratory**
- A method for targeted and rapid testing of new ideas, solutions, and technologies
- Benefits of *iLab* – **structured innovation**:
  - Work smarter in the long term, not harder
  - Achieve the bank's strategic goals
  - Enhance professional capabilities
  - Foster constructive collaboration with colleagues from other departments
  - Purposefully go the *extra mile*
  - Diversify work life with interesting and exciting projects

# Key principles of *iLab*

- **Permission to Fail**

- Mistakes are allowed, but inaction is not tolerated
- “Fail fast” is considered a positive outcome

- **Structured and Purposeful Work**

- Focused, structured work without unnecessary bureaucracy

- **Deliverables**

- Ends with a deliverable: feasibility of the idea, prototype, potential costs, benefits, or a well-evaluated decision to abandon the idea

# The process of *iLab*

- Submission of ideas
- Voting for submitted ideas
- Approval of *iLab* projects by the Innovation Management Committee
- Project work for three months
- Monthly interim reports
- Final deliverable

# *LLM-Lab* project

# *LLM-Lab* objectives

- **Identify Bank Functions**

- Determine the bank functions where implementing an LLM-based solution would be most beneficial

- **Develop AI Solution**

- Create a generative AI solution within Latvijas Banka



# *LLM-Lab* innovation steps

- Vision
- Technical capacity
- Business problem
- User identification
- Experimenting and prototyping

# Vision for solutions

- Summary creation
- Smart search
- Sentiment analysis
- Text generation
- Compliance assessment

# Business scenarios

- 39 possible business scenarios were identified, some examples:
  - Processing email correspondence with market participants
  - Evaluating EU regulatory projects for compliance with Latvian interests
  - Processing EU questionnaires and preparing responses
  - Generating flowcharts from text to evaluate procedure quality
  - Obtaining information on large monetary transactions that could affect the balance of payments

# Prototypes

- Emission Prospectus compliance checks against the Commission Delegated Regulation (EU) 2019/980 for licensing and sanctions purposes
- Smart search in large documents related with cash instructions and procedures
- Information extraction from letters received from State Police regarding cash issues (**in production**)
- Assistant for drafting specification for green public procurements

# Way forward

# Information classification

	On-premises	Microsoft Azure Cloud	Cloud
Publicly available information	✓	✓	✓
Restricted access information	✓	✓	X
Specially protected restricted access information	✓	X	X

# Technology stack



**Azure AI Services** for hosting OpenAI GPT models in cloud



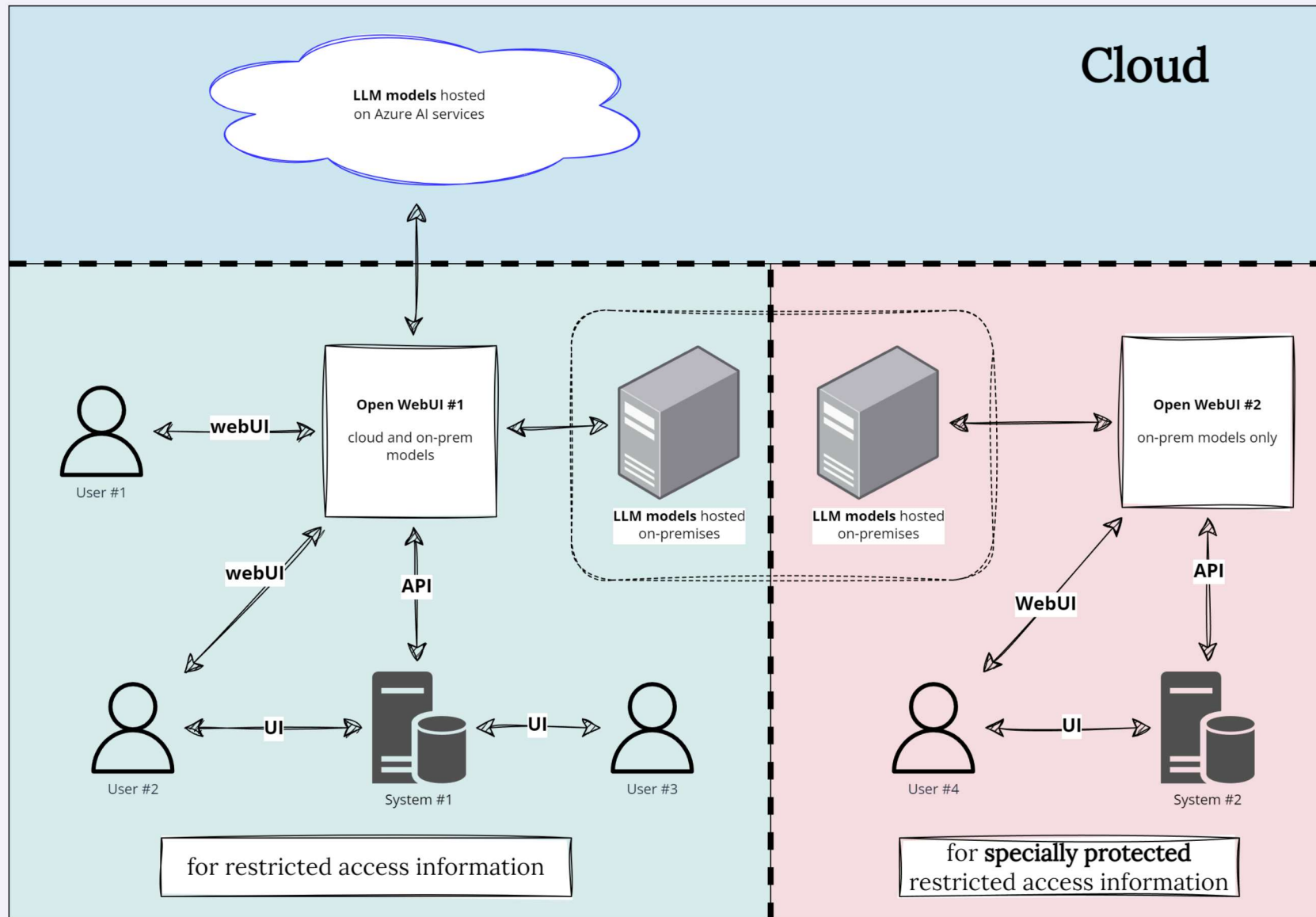
**Ollama** for hosting open-source models on-premises



**Open WebUI** as user and application interface for LLM models

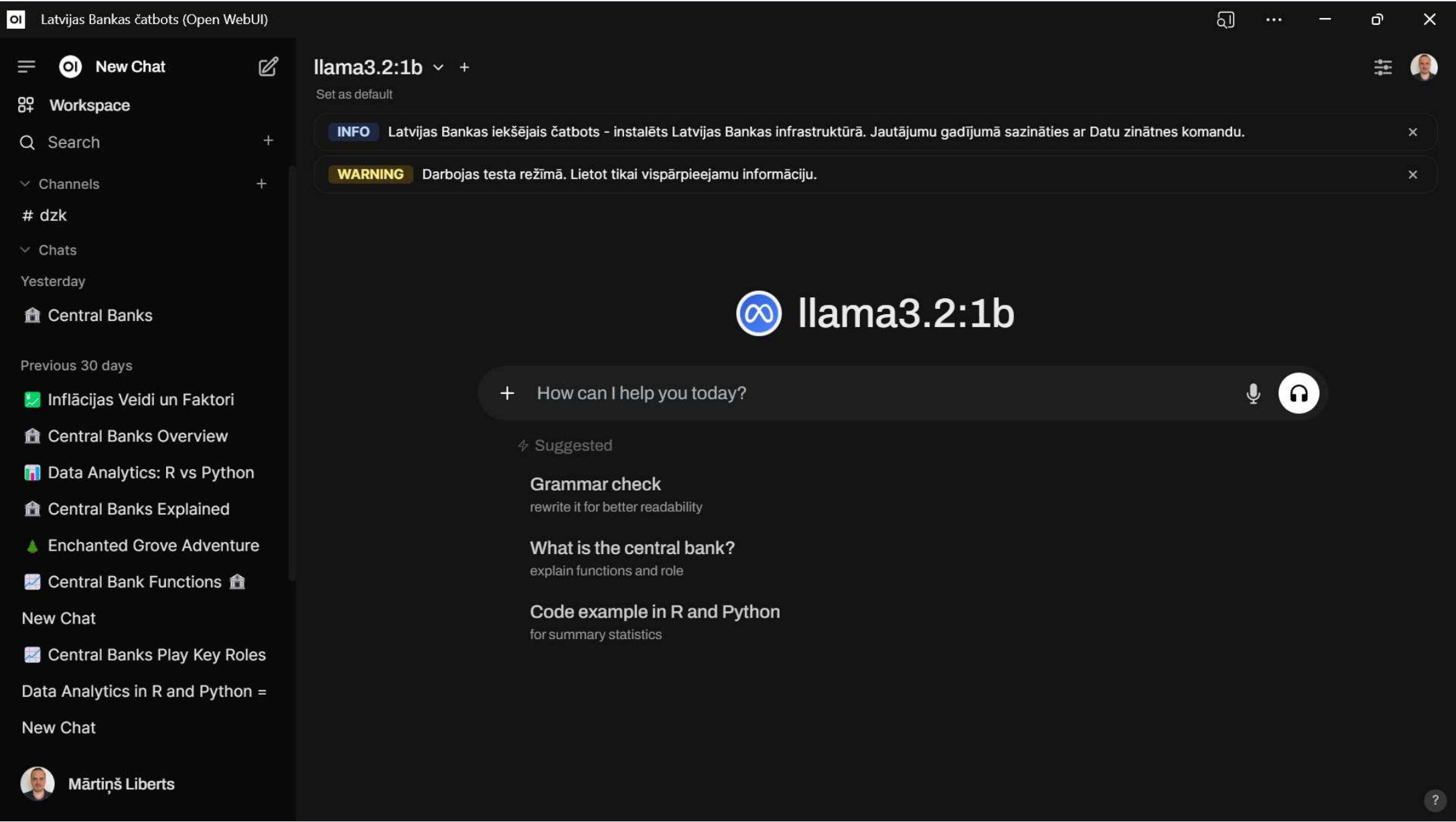
- Unified Interface: Simplify interactions with different LLMs through a single, integrated platform.
- Ease of Implementation: Quick start integration with comprehensive documentation and community support.
- Custom models built by prompting and retrieval-augmented generation (RAG)

# Architecture sketch





# UI example



# Summary

# Summary

- *iLab* framework – a method for targeted and rapid testing of new ideas, solutions, and technologies
- *LLM-Lab* project – the first step for implementing an LLM-based solutions
- Hybrid architecture with LLM models hosted on-premises and in cloud accessible through an unified interface provided by the Open WebUI

**Thank you!**