



Universität
Zürich ^{UZH}

CUREM X-Mas Public Lecture

AI in Real Estate – Navigating the Future Landscape



Program

17.30	Welcome and introduction Jessica Brackmann, University of Zurich – CUREM
	AI in Real Estate: Navigating the Future Landscape Dr. Nikodem Szumilo, Associate Professor, University College London (UCL)
18.15	Q&A Moderated by Alice Hollenstein and Jessica Brackmann, University of Zurich – CUREM
18.30	Apéro with Christmas Music

Dr. Nikodem Szumilo

- Associate Professor
University College London (UCL)
- Director
The Bartlett Real Estate Institute





AI in Real Estate – Navigating the Future Landscape

Niko Szumilo

Dec 2023 – CUREM X-Mas Public Lecture



The Rise of AI: How Artificial Intelligence is changing Real Estate Investment Strategies

Articles: The Rise of AI: How Artificial Intelligence is changing Real Estate Investment Strategies

10 May 2023

Original content provided by [BDO South Africa](#)

7 Structure of the output



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Tech Partner Programme

How AI is revolutionizing the residential real estate industry

06 June 2023



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Artificial Intelligence: Real Estate Revolution or Evolution?

Flexing occupancies



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Technology

AI could replace equivalent of 300 million jobs - report

🕒 28 March

Generative AI

Developing use cases of AI:

- Data analysis
- Marketing and sales (insights and matching)
- Valuation
- Debt financing (analysis)
- Tenant communication
- Compliance
- ESG reporting

Generating first drafts of texts:

- e-mail correspondence
- articles
- press releases
- investment memorandums
- drafts of legal documents

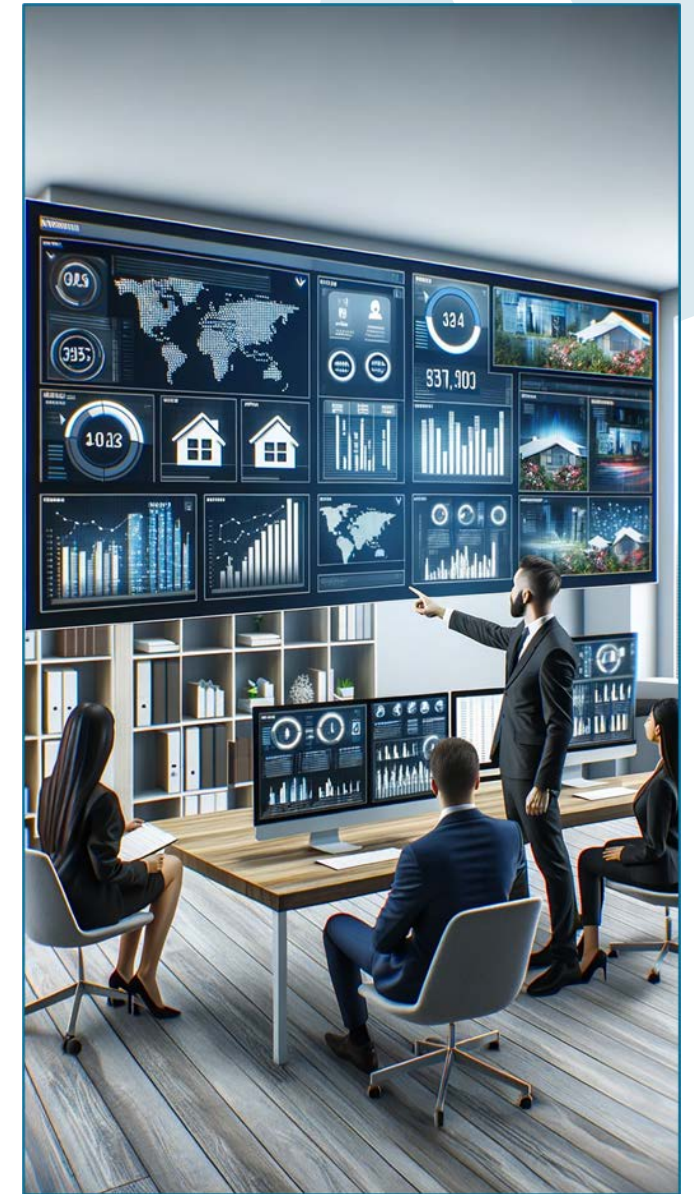


Generative AI

- Capable of creating new content: text, images, files
- Trained on massive amounts of data
- Generate outputs based on training data
- Can learn the underlying patterns and structures in the data

Recent breakthroughs:

- Ease of communication (chat)
- Public availability
- Quality of generated content (text, images and videos)
- Logical thinking
- Original content
- Internet access



Main Models – comparison



ChatGPT (OpenAI)

- Best overall and for coding and complex operations
- Requires paid subscription to access full capabilities



Bing (Microsoft)

- Best for quick searches, free high-quality output and images
- Combines GPT-4 with Internet access and DALL-e (image AI)



Bard (Google)

- Best for: unknown – expected to beat ChatGPT4
- Has access to Google's search index, Knowledge Graph and YouTube data



Claude 2 (Anthropic)

- Best for large volumes of text, writing, reasoning
- Focused on safe and honest AI





Basic data processing and visualisation

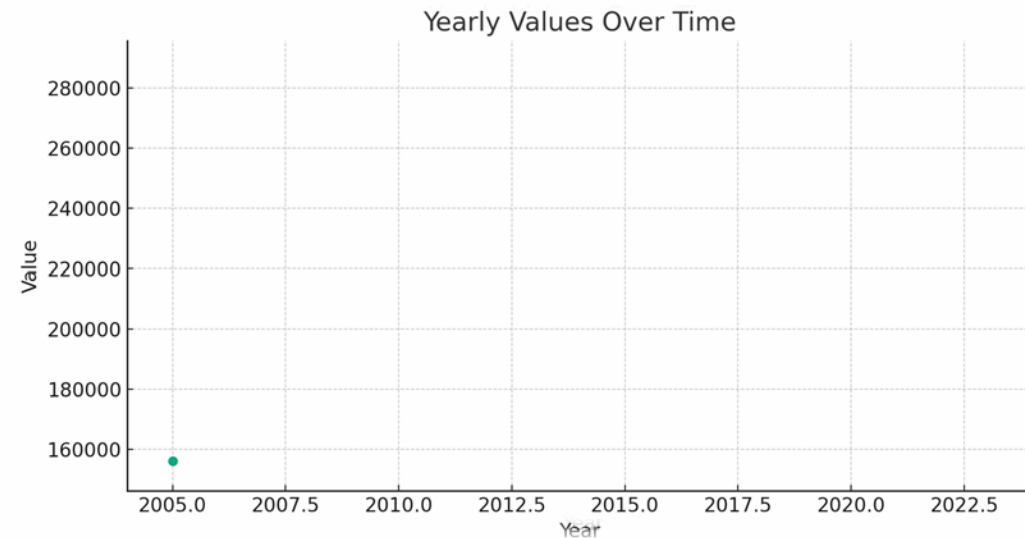
Animations



1. Make a graph of this data:

Year	Price
2005	156236.25
2006	168513
2007	185196.3333
2008	176852.75
2009	161147.9167
2010	170364.5833
2011	167888.4167
2012	168555.6667
2013	172889.6667
2014	186769.75
2015	197890
2016	211724.6667
2017	221402.6667
2018	228354.0833
2019	230611.8333
2020	237217.5833
2021	258430.25
2022	283721.3333
2023	285776.5

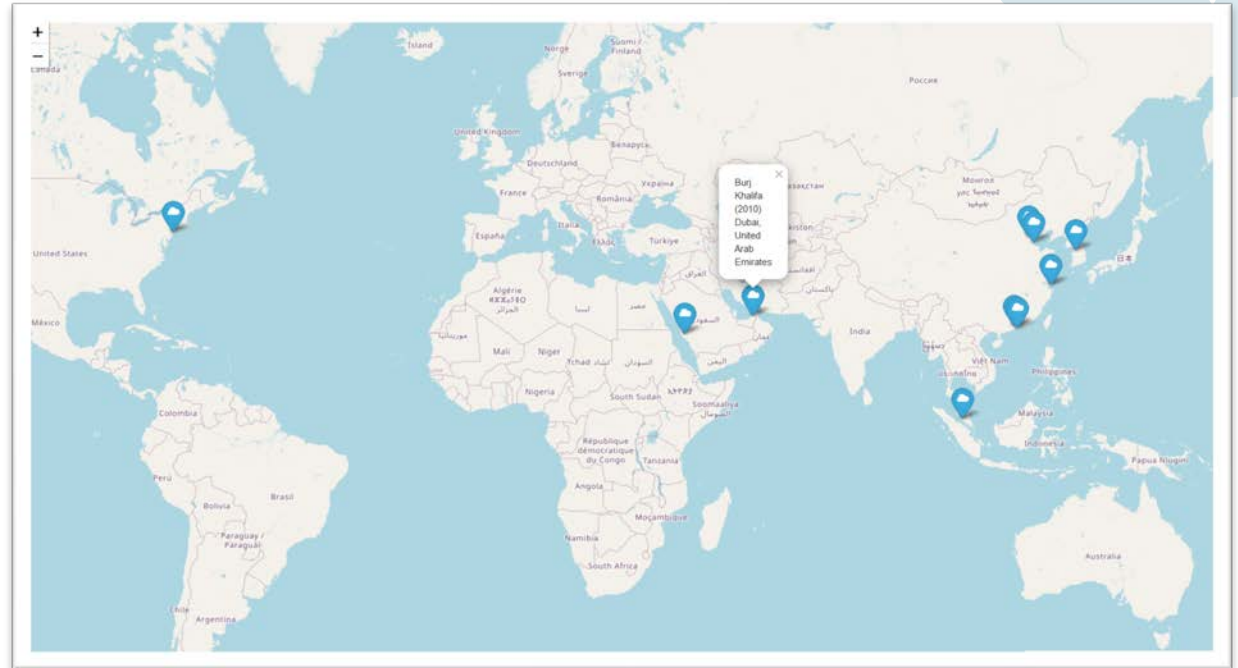
2. Animate it. I want each year to appear sequentially.



Interactive map (points)

Give me a file with an interactive map plotting the following points. Use Folium.

[Tallest buildings in the world Wikipedia](#)





Cash flow

Current level and assumptions

What are the current rents and vacancy rates in Zurich office markets?

I'm doing a cash flow analysis and I need to forecast the two variables over the next 5 years. Based on the sources you found, give me your best guess of what those values could be.

Can you give me these in a table?



Certainly! Below is a simplified forecast table for rents and vacancy rates over the next 5 years based on a hypothetical scenario. Please note that these numbers are illustrative and should be adjusted according to your detailed analysis and the specific conditions of your project.

Year	Forecasted Vacancy Rate	Forecasted Rent Growth
2024	9.5% - 10.5%	1.0% - 2.0%
2025	9.0% - 11.0%	1.5% - 2.5%
2026	8.5% - 11.5%	2.0% - 3.0%
2027	8.0% - 12.0%	2.5% - 3.5%
2028	7.5% - 12.5%	3.0% - 4.0%

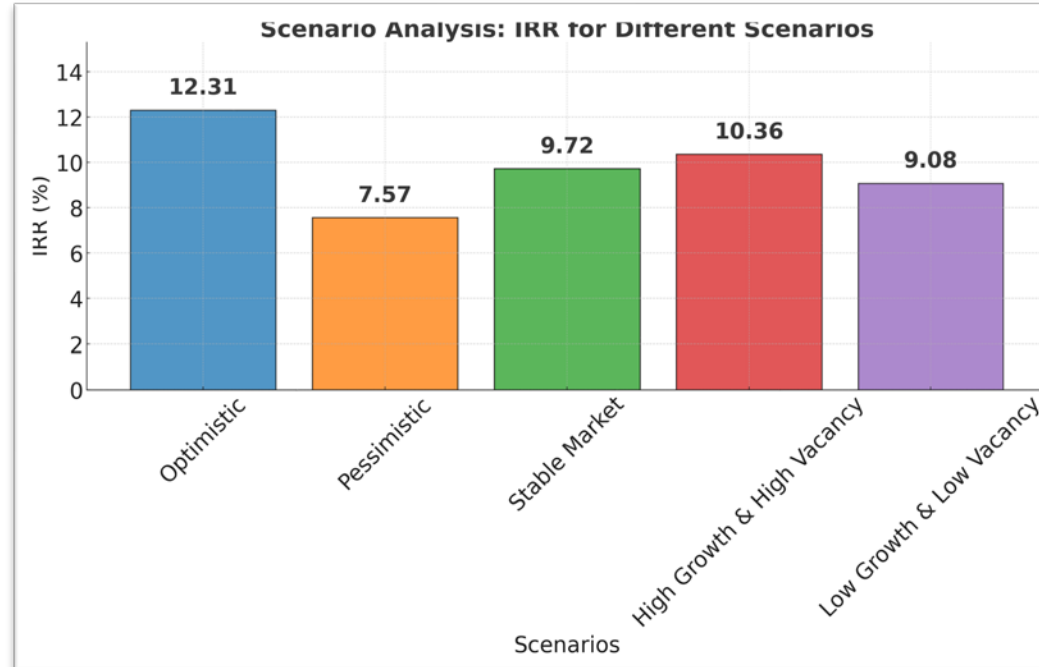
Assumptions:

- The vacancy rate is expected to fluctuate as the market adjusts to economic conditions and new supply.
- Rent growth is projected to be conservative, reflecting a gradual recovery from the current 'rental recession' and aligning with inflation and economic growth.
- The ranges allow for variability due to uncertain economic conditions and market responses.

Please adjust these figures based on real-time market analysis and expert advice.

Scenario analysis

Flex a set of assumptions and report the outcome.



1. Optimistic Scenario:

- Higher market rent growth rates in the earlier years.
- Lower vacancy rate.
- Lower yield at disposal.

2. Pessimistic Scenario:

- Lower market rent growth rates in the earlier years.
- Higher vacancy rate.
- Higher yield at disposal.

3. Stable Market Scenario:

- Consistent, moderate market rent growth rates throughout.
- Moderate vacancy rate.
- Moderate yield at disposal.

4. High Growth & High Vacancy Scenario:

- High market rent growth rates throughout.
- High vacancy rate.
- Moderate yield at disposal.

5. Low Growth & Low Vacancy Scenario:

- Low market rent growth rates throughout.
- Low vacancy rate.
- Moderate yield at disposal.

Scenario analysis

Have a conversation about scenarios and corresponding assumptions.

Use qualitative data (inc. environmental risk) for scenario building.

Worried about interest rates staying higher for longer?

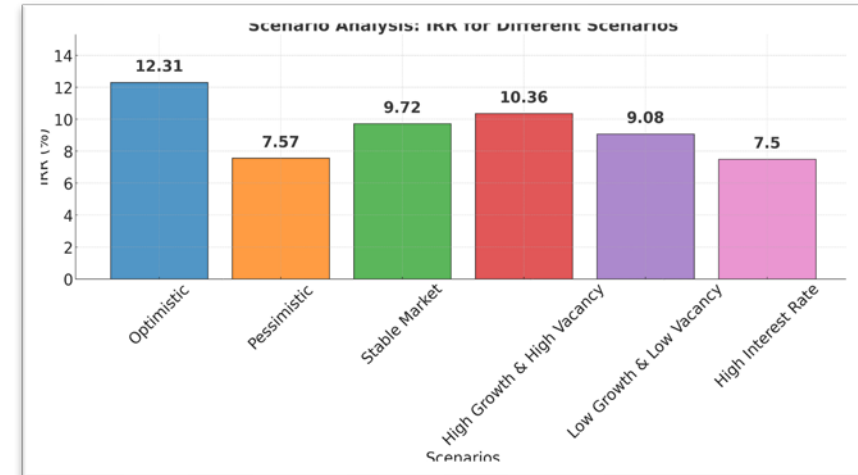
Not sure about the longevity of the office market and the exit yield?

Ask ChatGPT to generate a scenario.



Given these factors, we can model a "High Interest Rate" scenario with the following adjustments to our original assumptions:

1. **Lower Rent Growth:** Reflecting potentially slower economic growth.
2. **Higher Vacancy Rate:** Reflecting potential decrease in tenant demand.
3. **Higher Yield at Disposal (Cap Rate):** Reflecting potential decrease in property values.



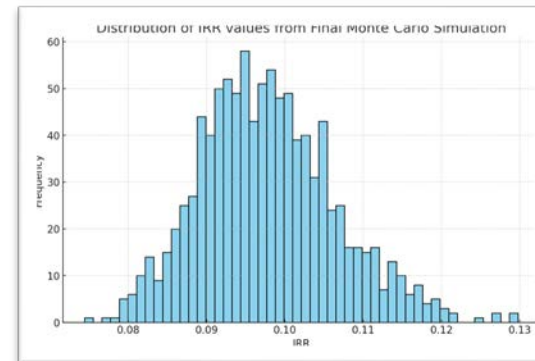
Monte Carlo Analysis

Run a Monte Carlo simulation and show the distribution of the IRR.

Automatically makes assumptions about which assumptions to flex and their distributions.

Here's a proposed approach:

1. **Initial Investment:** We can assume this to be a fixed value as provided.
2. **Growth Rates:** We can introduce variability by assuming each growth rate follows a normal distribution around its mean (the originally provided values) with a specified standard deviation (e.g., 1% or 2%). This will allow for some randomness in the growth rates while still adhering to the general trend.
3. **Vacancy Rate:** Similarly, we can assume the vacancy rate follows a normal distribution around its mean (the provided 25%) with a specified standard deviation (e.g., 5%).
4. **Yield at Disposal:** We can also introduce variability into this parameter by assuming it follows a normal distribution around its mean (the provided 5%) with a specified standard deviation (e.g., 0.5%).





Research, analysis and strategy

Large content analysis

78 pages

Read this report. Summarise what it means for real estate professionals in Switzerland.

Make it more specific to Switzerland.



Large content analysis

78 pages

Read this report. Summarise what it means for real estate professionals in Switzerland.

Make it more specific to Switzerland.

Give some recommendations for real estate investors in Zurich.

1. **Focus on Sustainable Developments:** Emphasize ESG-compliant properties, as Zurich is forward-thinking in sustainability.
2. **Diversify in Property Types:** Explore opportunities in residential, commercial, and mixed-use developments, catering to a diverse market.
3. **Leverage Technology:** Implement smart technologies in properties to enhance efficiency and appeal to modern tenants.
4. **Respond to Market Trends:** Adapt to the changing needs in office space due to hybrid work models.
5. **Monitor Regulatory Changes:** Stay informed about local real estate regulations and zoning laws to optimize investment strategies.

Large content analysis

Tell me more about point 2. Make recommendations like an expert analyst. Give examples and use chain of logic.

- **Residential Investments:** Given Zurich's status as a global city, there is consistent demand for high-quality residential properties. Investors could focus on areas poised for growth or regeneration, offering long-term value appreciation.
- **Commercial Real Estate:** With the evolving nature of work, properties that can adapt to hybrid and flexible work models are increasingly valuable. Investment in office spaces with potential for conversion or redesign to meet these new norms can be a prudent choice.
- **Mixed-Use Developments:** These are becoming more popular due to their ability to cater to diverse needs, combining residential, retail, and office spaces. Such developments can offer resilience against market fluctuations, as they are not reliant on a single sector.
- **Logistics and Warehousing:** As e-commerce continues to grow, investing in logistics hubs around Zurich can be lucrative, given its strategic location in Europe.



Adoption and skills

Analysing cash flows with AI

The future of AI work

How work is done

- AI allows skilled people to complete their work much faster
- Virtually every job will benefit from AI

What work is done

- More decision-making focus
- More demand for data collection/cleaning
- Less time for analytical work

Who does the work

- More work for seniors (decisions) and juniors (data/technical work)
- Less work for mid-level professionals (senior/specialised analysts, managers)
- More work for skilled AI professionals

Who captures value

- Data owners
- Senior decision makers
- AI experts



Threats and Opportunities

Firms

Opportunities

- Higher productivity
- More analytical profession
- New business (solutions and support)

People

- Higher productivity
- More analytical approach
- New roles (prompt engineer)

Threats

- Errors
 - Ethics/security
 - Lack of regulation
 - Obsolescence
- Errors/overdependence
 - Ethics
 - Obsolescence
 - Ignorance



AI adoption strategy

Bottom-up beats top-down:

- real estate doesn't like innovation
- the market environment doesn't support big investments
- there are some big gains to be made cheaply

1. Start Small and Scale Gradually
2. Leverage Existing AI Tools and Platforms
3. Outsource AI Expertise
4. Focus on Data Management
5. Employee Training and Engagement
6. Prioritize Quick Wins
7. Monitor Industry Trends and Competitors
8. Plan for Gradual Expansion



Source: https://www.linkedin.com/posts/nikodem-szumilo-0928b335_aiinrealestate-aiadoption-innovation-activity-7137425311062749184-5YWj?utm_source=share&utm_medium=member_desktop

Faster but not always better

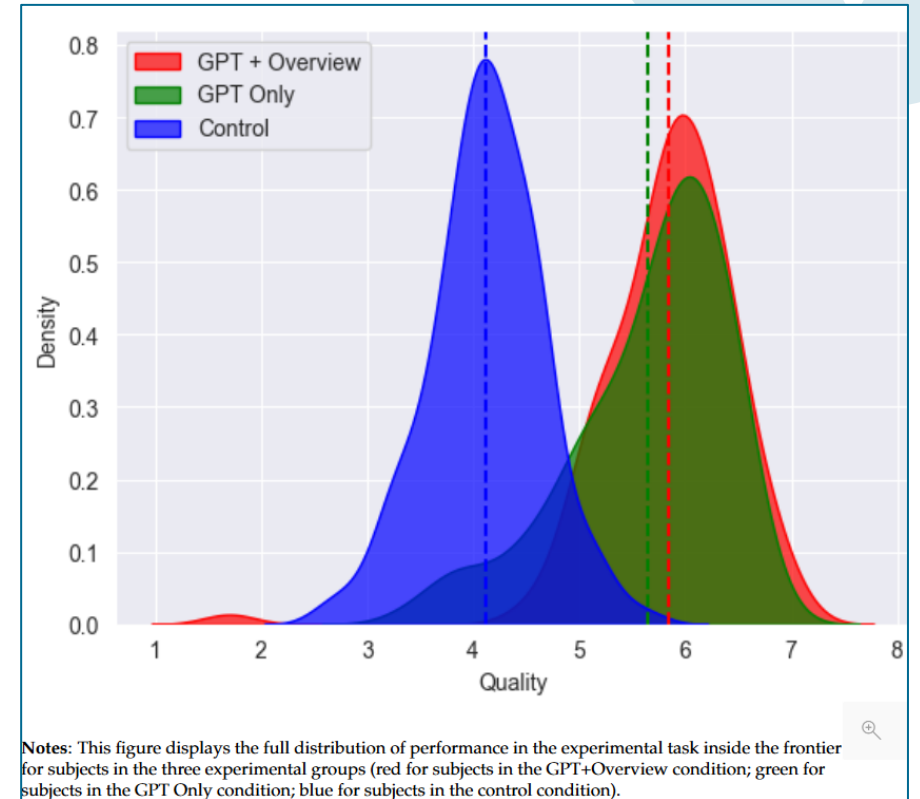
Harvard + BCG study

Consultants using AI:

1. finished 12.2% more tasks on average,
2. completed tasks 25.1% more quickly,
3. produced 40% higher quality results.

Those with training at using AI were even better.

For tasks that AI is not designed to be good at, consultants were faster but made more mistakes.







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THANK YOU

Q&A



Apéro ;)

