



beyond *(tr)AI and error learn!*

Swissbau Fokus Klim Bau - 2024


beyondBIM AG
Seestrasse 339A
8708 Männedorf

info@beyondBIM.ch
www.beyondBIM.ch



from data to value

beyondBIM befähigt Eigentümer:innen im digitalen Bestellen und Betreiben von komplexen Immobilien. Dabei stellen wir die Menschen und ihre Prozesse konsequent ins Zentrum und schaffen aus Daten messbare Mehrwerte.



Whitepaper
human2human & human2machine
GenAI – a driver of sustainability?
GenAI – Code and #openBIM
Next...

How Can Generative AI Lead the Building, Construction and Real Estate Industry Toward a More Sustainable Future?



An Investigation with ChatGPT

White Paper, Oktober 2023

by Alar Jost, Christian Ehl, Jugal Makwana, David Bucher, Fabian Cortesi, Isabelle Pryce

With the kind support of

Bauen digital Schweiz / buildingSMART Switzerland and buildingSMART International

Cover picture

Generated with Midjourney AI on Discord

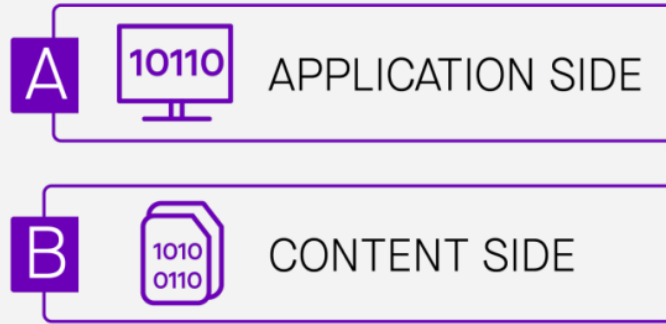
Mappe teilen

Mappe herunterladen

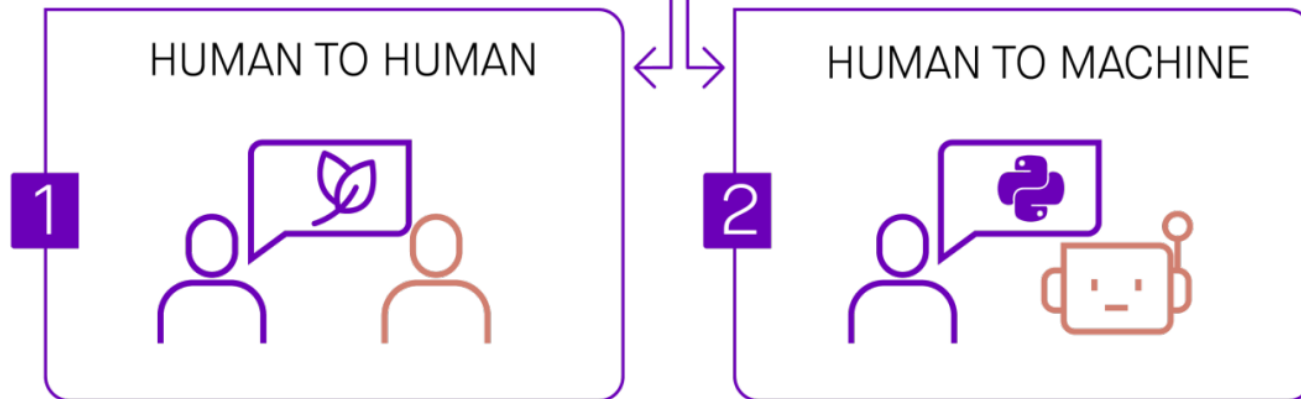
- ▶ White paper outlining how generative AI can help the industry become more sustainable, more digital and more productive.
- ▶ Relating AI to [#openBIM](#) and the need for open standards.
- ▶ Contributors: ETH Zürich (Research & Operations), AI-Experts, Communication Professionals
- ▶ Initiated by AI-Expert [Christian Ehl](#), ETH-Doctorate [David Bucher](#), bSI-Board members [Jugal Makwana](#) and [Alar Jost](#)
- ▶ [Supported by Bauen digital Schweiz / buildingSMART Switzerland](#)



OBJECTIVES



SESSIONS



- 2 layered approach
- 2 sessions



Session 1



«In what capacities, and to what extent, can GenAI be harnessed to navigate the building, construction, and real estate industry toward improved sustainability trajectories?»

ChatGPT's proposals for more sustainability

- **Economic Models:** Emphasize innovative economic models that integrate social, environmental, and economic factors.
- **Information Balance:** Adopt a two-layered approach for filtering complex data into actionable insights. Layer 1 is a repository of all necessary information, while Layer 2 focuses on specific use cases like facility services.
- **Human-Machine Interaction:** Create tools that facilitate seamless collaboration between humans and machines.
- **Holistic Approach:** Consider the interplay between people, processes, systems, and Life Cycle Data Management (LCDM).
- **Simulation:** Use simulations for design optimization, risk reduction, and process improvement.
- **Interoperability:** Prioritize system compatibility and continuous optimization in project operations with open data standards.
- **Data Models:** Use comprehensive building lifecycle data models for better decision-making and resource allocation.
- **Adaptability:** Prepare for emerging technologies and trends.

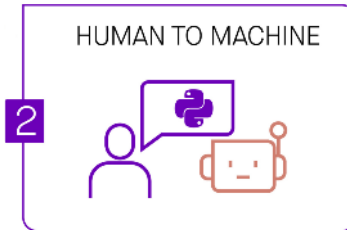
Session 1



GenAI – a driver of sustainability?

SWISSBAU 2024 – KI IM BAU

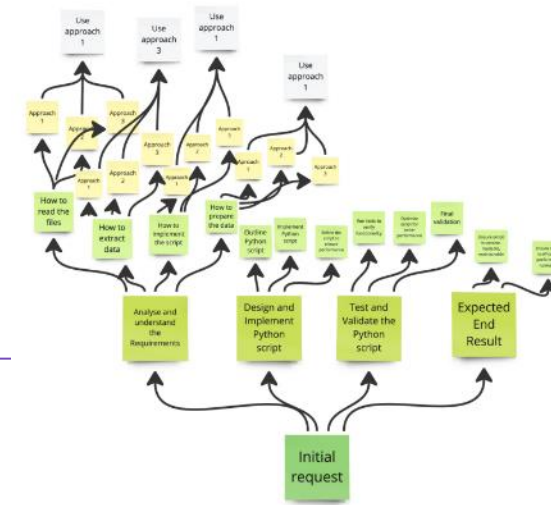
Session 2



« Rather than immediately aiming for the final output, our starting natural language prompt aimed to generate a JavaScript Object Notation (JSON) model output, an easily readable code, to be used as our tree-of-thought prompt, which explores multiple solution paths and guides us to the desired outcome in the Python programming language. »

The Process of Result Validation

- Identification of Human Request / Business Need
- Transformation of the identified human request or business need into an initial data model
- Refinement of the data model by examination and potential integration of prebuilt models or code snippets
- Implementation of reasoning methodologies
- Generation of the final script
- Rigorous testing of the script to confirm its functionality and accuracy, ensuring it's ready for deployment



Session 2



SRF ARCHIV

[Selbsttipp-Kassen bei der Migros \(1965\) | Self-Scanning | SRF Archiv - YouTube](#)

SELF-SCANNING IN DEN 60ER JAHREN

GenAI – Code and #openBIM
SWISSBAU 2024 – KI IM BAU



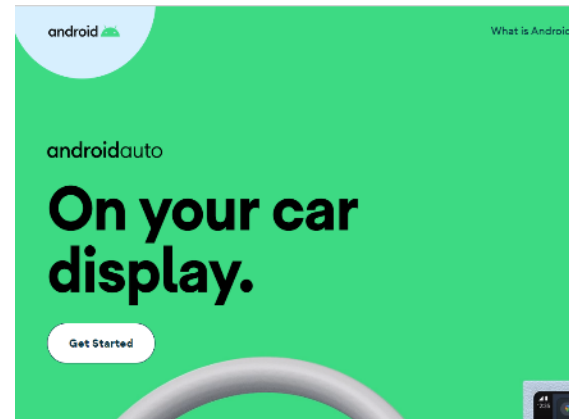
1965



2011



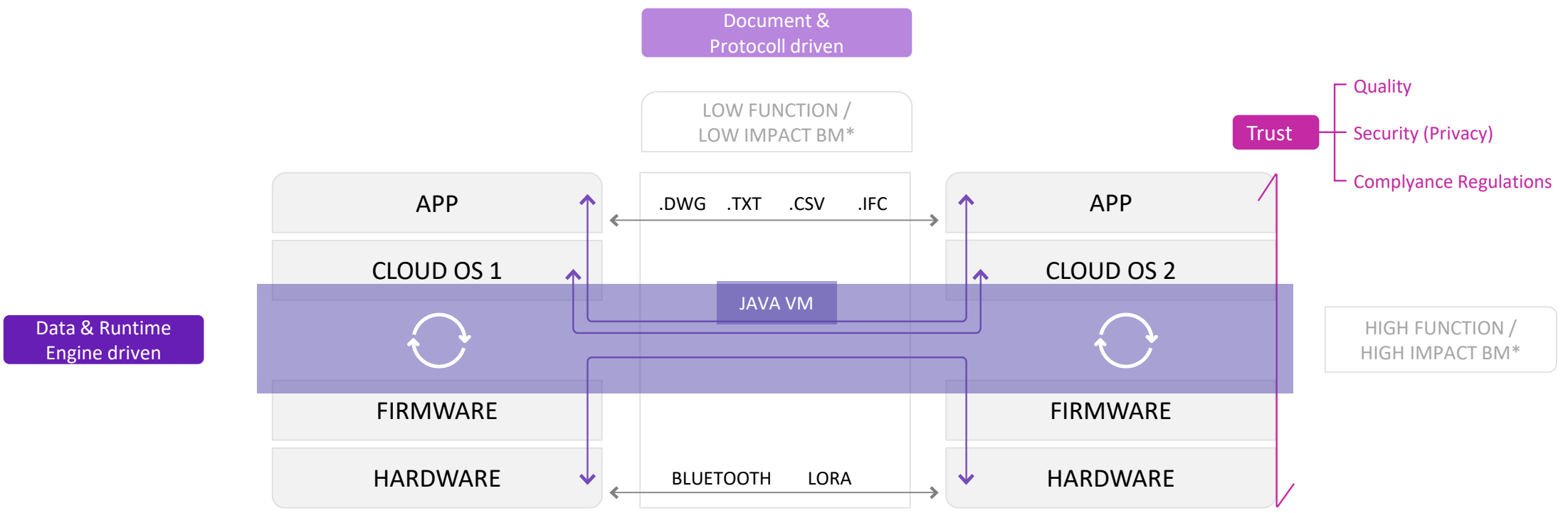
2020



Nov. 2022

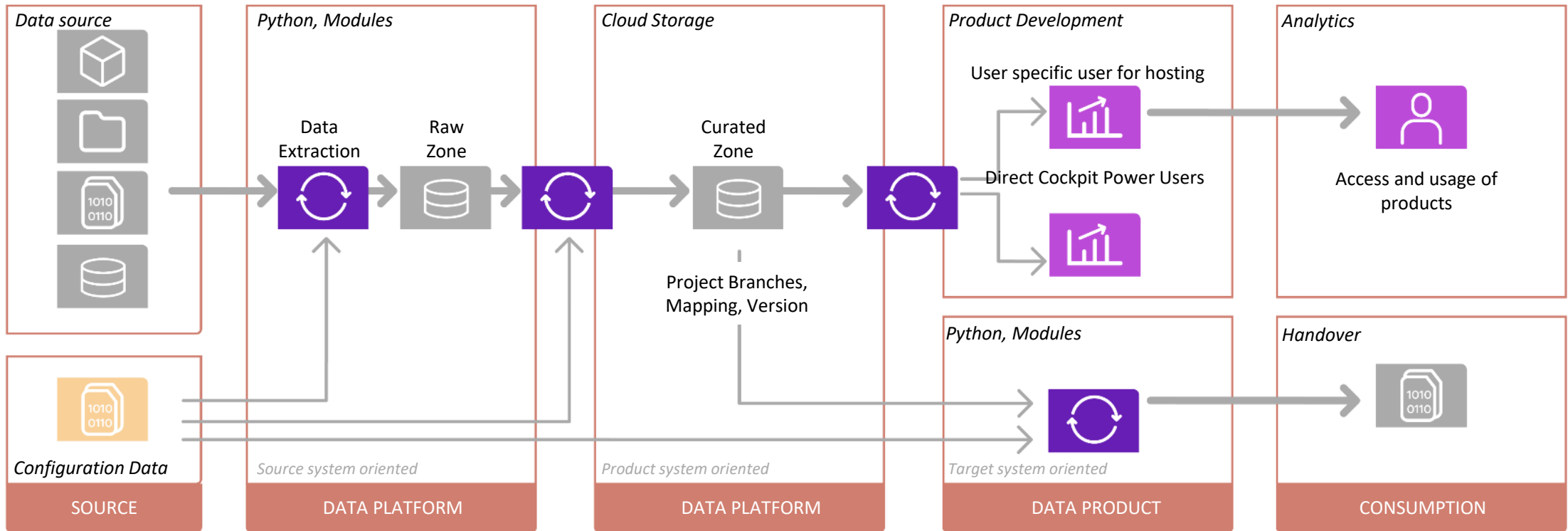


Run Time Environment (?)
SWISSBAU 2024 – KI IM BAU



GenAI – Code and #openBIM

SWISSBAU 2024 – KI IM BAU



competition

collaboration



2000



2024

NEXT...

SWISSBAU 2024 – KI IM BAU

bimhub.ai ^{beta} Log In

Ein gemeinschaftliches AI-Modell für Inhalte rund um BIM

bimhub.ai ist ein Large Language Model (LLM) auf ChatGPT Basis, das durch seine Nutzergemeinschaft um Inhalte erweitert und so kontinuierlich verbessert wird. Mit dir und deinen Fragen kann das bimhub.ai Modell wachsen, denn bimhub.ai setzt auf eine gemeinsame Gesprächshistorie aller Nutzer. Und durch das Hinzufügen von neuen Quelldokumenten ermöglichst du es auch anderen noch mehr Inhalte schnell und effizient zu finden. Und das beste ist, bimhub.ai ist kostenlos. Melde dich jetzt an, um bimhub.ai zu nutzen.

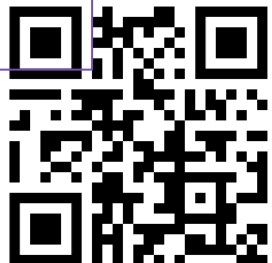
Anzahl beantworteter Fragen:
6



made by **beyond
bim**

bimhub.ai

- Free «Learning Platform» to engage with AI & BIM matters
- Upload documents, ask & learn (from GenAI and each other)



NEXT...

SWISSBAU 2024 – KI IM BAU

Wir haben keinen Plan.



DANK

SWISSBAU 2024 – KI IM BAU

Automation in Building Technology:

- Early-stage building technology can leverage AI to utilize architectural spatial models for efficient system design, going beyond traditional IT skills to a fundamental AI competence. This integration streamlines processes like distribution system design and model creation, significantly enhancing efficiency.

Efficient Building Design Calculations:

- AI rapidly offers initial dimensioning assessments for building systems using basic architectural parameters, eliminating the need for extensive simulations. This facilitates quicker decision-making, demonstrating AI's capacity for efficient and accurate data analysis.

Streamlined Building Documentation:

- Building documentation, often challenged by effort and quality issues, can be revolutionized with AI. By training AI models with project documents, QA processes become less resource-intensive. This is particularly beneficial for stakeholders reviewing contractor documentation, ensuring thorough formal and substantive quality checks.