How AI can bridge the ESG data gap in valuations

PROJECT:
AI research

COMPANY:
JLL

LOCATION:
Europe

Challenge

Valuers are required to consider ESG in valuations and provide commentary on how it impacts their opinion of value. However, issues around the availability, reliability and transfer of ESG data poses a significant roadblock to this.

ESG is an umbrella term which encompasses a broad range of building chacteristics. As such, ESG data can come in the form of many types of unstructured documents. Extracting this data is time-consuming and resource intensive. Compounding this, users of valuation services often lack standardised databases, leading to inconsistent tracking of ESG factors. This inconsistency, combined with the broad scope of ESG data, results in data which can lack quality or consistency.

Valuers, while experts in property, are not specialists in ESG, and often require additional support to interpret complex documents and extract relevant information.

Solution/Approach

The research tests the theory that Artificial Intelligence, and more specifically, Large Language Models (LLMs) should have a significant advantage in understanding and extracting ESG data from disparate sources, and across different languages.

If this could be demonstrated it would create a compelling case for the inclusion of LLMs in the regulated valuation process as it would overcome many of the existing roadblocks.

Two LLMs were tested:

- JLLGPT: JLL's ringfenced LLM, which is the first LLM built by and for the commercial real estate industry.
- Third Party Product: A product provided by a specialist organisation, originally designed for the legal profession, but adaptable to real estate.

Various ESG data sources were used including net-zero carbon audits, EPC schedules, and Energieausweis certificates.

A 1,500-word prompt was engineered to extract specific ESG data points, as well as accurately identify any requested data point as missing from the source material.

Results

It was important that the LLMs not only extracted the correct data, but also did not hallucinate incorrect results. As such, the efficacy of each LLM was determined by a scoring system which gave positive of negative points for:

- Accurately extracting ESG data.
- Inaccurately identifying data as missing
- Inaccurately extracting data
- Hallucinating incorrect data

Highlights of the research showed:

- JLLGPT accurately pulled data 100% of the time from EPC certificates and 84% of the time for all document types across different languages.
- JLLGPT never hallucinated incorrect data
- Third Party Product inaccurately identified data as missing approximately 75% of the time when assessing net zero carbon audits.

Results

The research demonstrates a viable use case for LLMs to save time and resources collecting ESG data from unstructured formats and across different languages, particularly in the context of JLLGPT's high accuracy rate and lack of hallucinations.

However, weaknesses in identifying missing data need to be addressed through prompt refinement, model updates, and user practice.

The study highlights the importance of understanding the strengths and weaknesses of different LLMs and having their outputs checked by humans to ensure reliability. This aligns with the recommend application of AI in the updated RICS Red Book, which states outputs should be 'subject to the additional application of professional judgement by a valuer'.

While JLLGPT showed promise, further research is needed to assess other AI tools across the industry. Overall, AI-assisted data extraction can enhance ESG data liquidity, enabling more accurate property valuations that reflect sustainability factors.

Company
JLL is one of the world's largest real estate companies. As well as providing traditional real estate services, like valuations, they are a leader in integrating technology into services to improve client experiences, enhance data management, and leverage AI-powered solutions.

> **The research demonstrates a viable use case for LLMs to enhance ESG data liquidity in valuations.**