



Where business comes to life

An academic perspective on AI's current and future relevance for real estate valuations

Dr Yi Wu

Henley Business School, University of Reading

Email: y.wu9@henley.reading.ac.uk

Dr Yi Wu



PhD in Corporate Finance and Investment Research in Housing, ESG

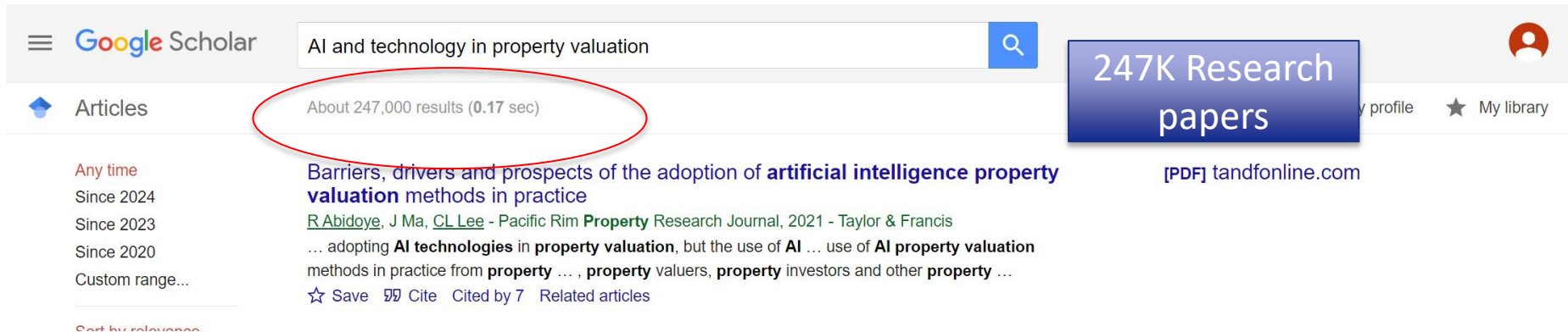
Academic role:

Lecturer in Real Estate Economics;
UG Programme Director;
Editorial Board of Journal of Real Estate Portfolio
Management.

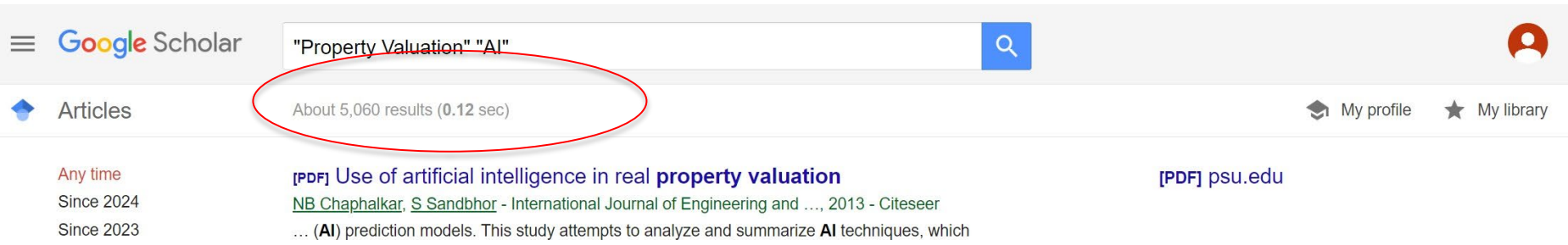
Industry role:

Chair of Society of Property Researcher (SPR);
Chair of RED Foundation Data Research & Academia
Steering Group;
Project lead in UKRI Accelerated Knowledge Transfer
to Innovate (AKT2I).

AI for Property Valuation is not a new thing



Google Scholar search results for "AI and technology in property valuation". The search bar contains the query, and the results show "About 247,000 results (0.17 sec)". A blue box highlights "247K Research papers" and "[PDF] tandfonline.com". The first article is titled "Barriers, drivers and prospects of the adoption of artificial intelligence property valuation methods in practice" by R Abidoye, J Ma, and CL Lee, published in the Pacific Rim Property Research Journal, 2021 - Taylor & Francis. The abstract mentions adopting AI technologies in property valuation.



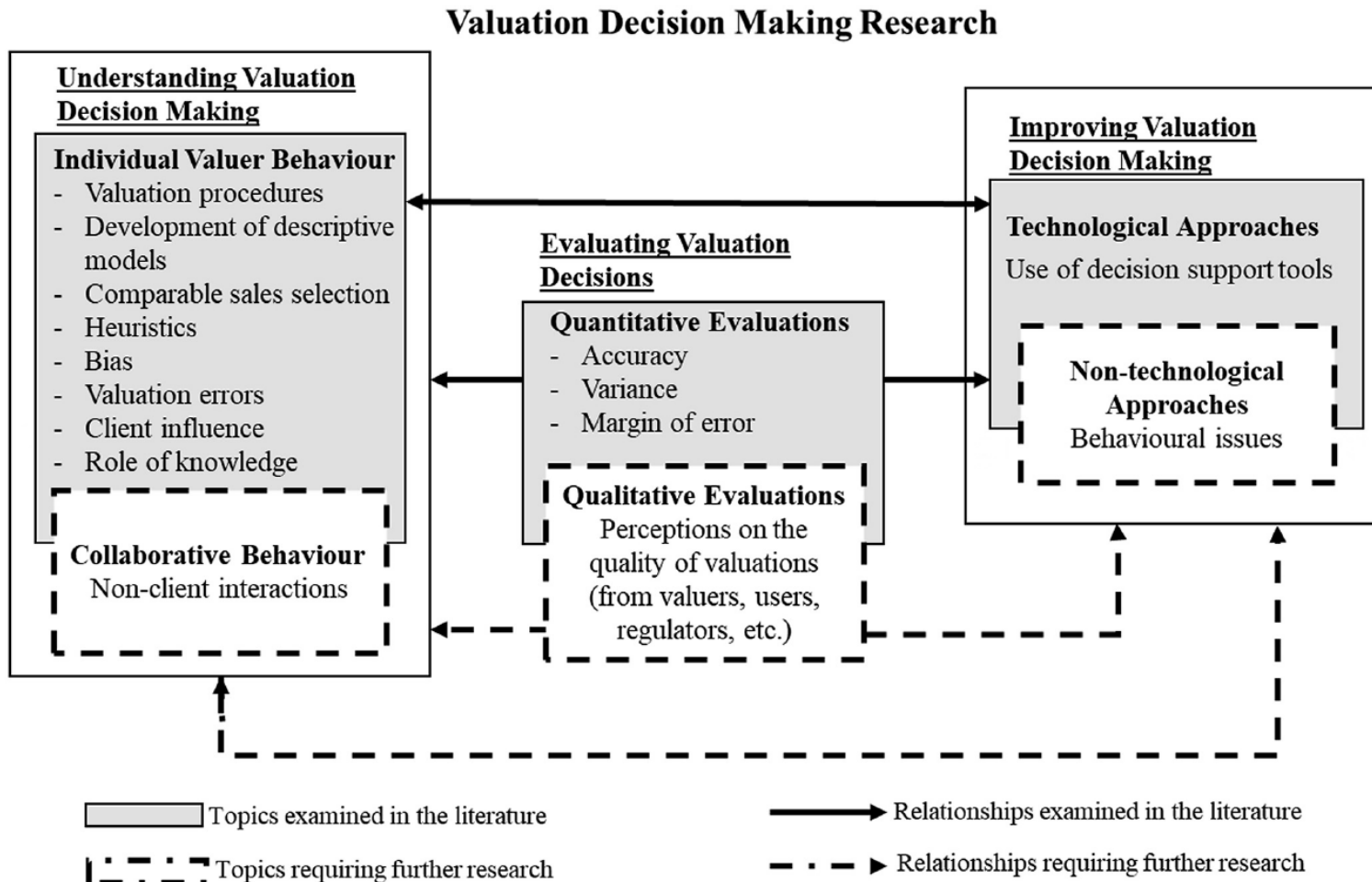
Google Scholar search results for "Property Valuation" "AI". The search bar contains the query, and the results show "About 5,060 results (0.12 sec)". A blue box highlights "[PDF] Use of artificial intelligence in real property valuation" and "[PDF] psu.edu". The article is by NB Chaphalkar and S Sandbhor, published in the International Journal of Engineering and ..., 2013 - Citeseer. The abstract mentions (AI) prediction models.



Google Scholar search results for "Real Estate Valuation" "Technology". The search bar contains the query, and the results show "About 6,750 results (0.09 sec)". A blue box highlights "[PDF] Potentials of information and communication technology in real estate management and valuation practice" and "[PDF] researchgate.net".

The first application of AI in the property valuation was in 1991 (ref. Borst, 1991).

Role of AI in Property Valuation



Source(s): Figure created by authors

Reference: Liman, H. S., Amidu, A. R., & Levy, D. (2024). Approaches to improving valuation decision-making: a review of the literature. *Journal of Property Investment & Finance*. DOI 10.1108/JPIF-01-2024-0011

Valuers' opinion on AI

Sample: 8000 professional valuers registered with Australian Property Institute (API)

Table 2. Valuers' opinion on the advantages of AI valuation methods.

Advantage	Mean score	Ranking
Help reduce the cost of property valuation practice	3.2344	1 st
Work more efficiently than traditional property valuation methods	2.9063	2 nd
Free human valuers from the onerous work of property valuation	2.8281	3 rd
Reduce the subjective interference involved in a valuation	2.7813	4 th
Provide more accurate estimates than traditional property valuation methods	2.3438	5 th
Overall better than traditional valuation methods	2.2188	6 th

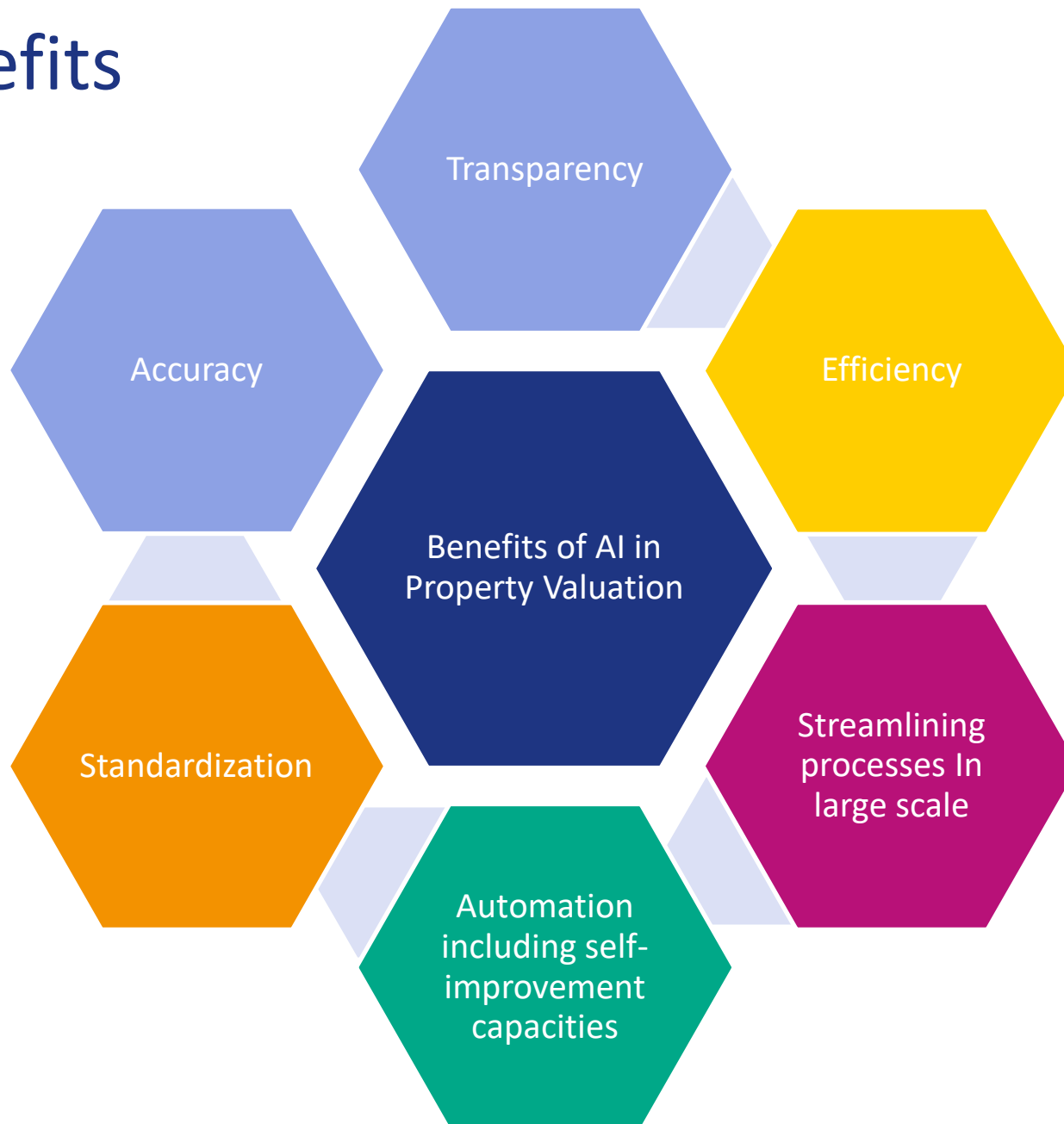
Table 3. Valuers' opinion on the drivers of the adoption of AI valuation methods.

Drivers	Mean score	Ranking
Professional bodies (API, RICS, etc.) to organise conferences, seminar, workshop or courses on AI valuation topics	3.7031	1 st
Closer cooperation between AI valuation software firms and property firms/organisations	3.6719	2 nd
Easier access to market data	3.5781	3 rd
The valuer's personal decision to try new technology	3.5625	4 th
The software to be more user-friendly	3.5000	5 th
AI methods to be introduced in schools' curriculum	3.3438	6 th

Table 4. Barriers to the adoption of AI valuation methods.

Barriers	Mean score	Ranking
They may not provide accurate estimates	3.8594	1 st
The software is expensive	3.1563	2 nd
The models are difficult to operate (not user-friendly)	3.0625	3 rd
Their adoption will not save time	2.9219	4 th
I do not trust new technologies	2.6406	5 th
It wastes time to learn new technology	2.4531	6 th

Benefits



Opportunities

- Data infrastructure:
“Garbage In, Garbage Out”
- Consideration of Decarbonisation in valuation:
Do something vs Do nothing
- Valuation in alternative sectors;
- Valuation for International comparison

Data infrastructure

- Data standards;
- Data ethics;
- A lack of cohesion across sectors in their data approach, should we adapt a cross-sector property data task force?
- Feasible alternative dataset in an illiquid market with sparse transaction data to reduce a risk that a model could either be over-trained or under-trained resulting in generating poor outputs. (Worzala et al., 1995; McGreal et al., 1998; Lam et al., 2008; Zurada et al., 2011).

Decarbonisation in valuation

- The Urban Land Institute (ULI) has launched its Transition Risk Assessment (TRA) Guidelines in June, 2023.
- As part of its C Change programme to help decarbonise the built environment across Europe.
- The guidelines, which are the first practical output of the C Change programme, provide a common methodology to assess and disclose transition risks as part of property valuations. They identify 12 transition risks which are of material impact to real estate assets now and in the future including the cost of decarbonisation, energy costs and tenant voids.



CChange

Valuation in alternative sectors

MSCI Alternative Transaction Volume

As of 12/20/23



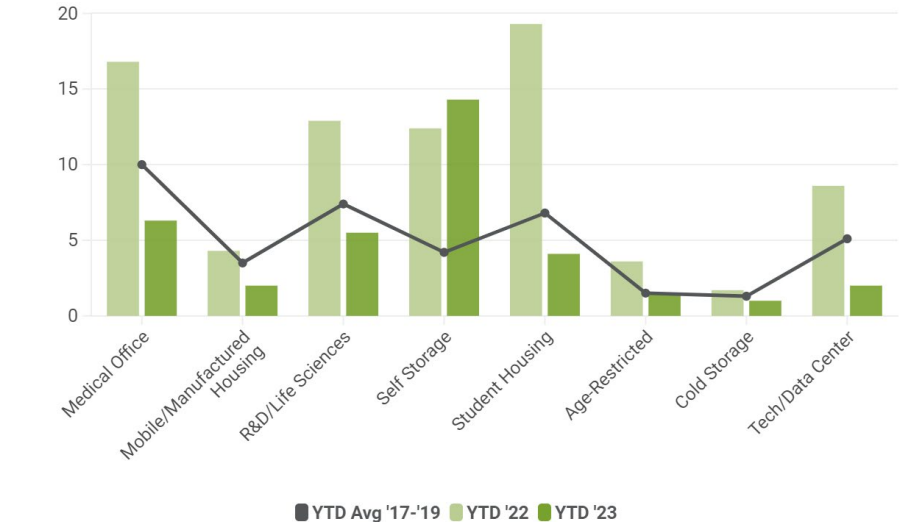
Source: MSCI



MSCI Alternative Sector Sales Volume

As of 12/20/23

Volume (\$b)



Source: MSCI



Can AI help?

I firmly believe that innovation will swiftly accelerate solutions that will transform our industry and protect our planet.

Thank you and looking forward to the discussion.

Email: y.wu9@henley.reading.ac.uk