

Greening Real Estate Markets – A Multi-Stakeholder Perspective

United Nations Economic Commission for Europe / German Federal
Environment Agency

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Sustainability in Property Valuation and Investment Appraisal

Theory & Practice

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4 Key arguments for an integration of sustainability considerations into the valuation process

1. Transactions observed in the market place as well as already foreseeable market developments require it.
2. Poor property valuation (i.e. a continuation of valuation business as usual) can lead to a misallocation of capital and has already led to an “underinvestment” in sustainable buildings.
3. Identification of mispriced assets (hypothesis: conventional properties can be sold “overpriced”; sustainable buildings are offered “too cheap”). This results in investment opportunities for “enlightened” investors.
4. The professional ethics of the valuation profession and the resulting responsibility towards society imply that valuation professionals take action.

“Hard” empirical evidence

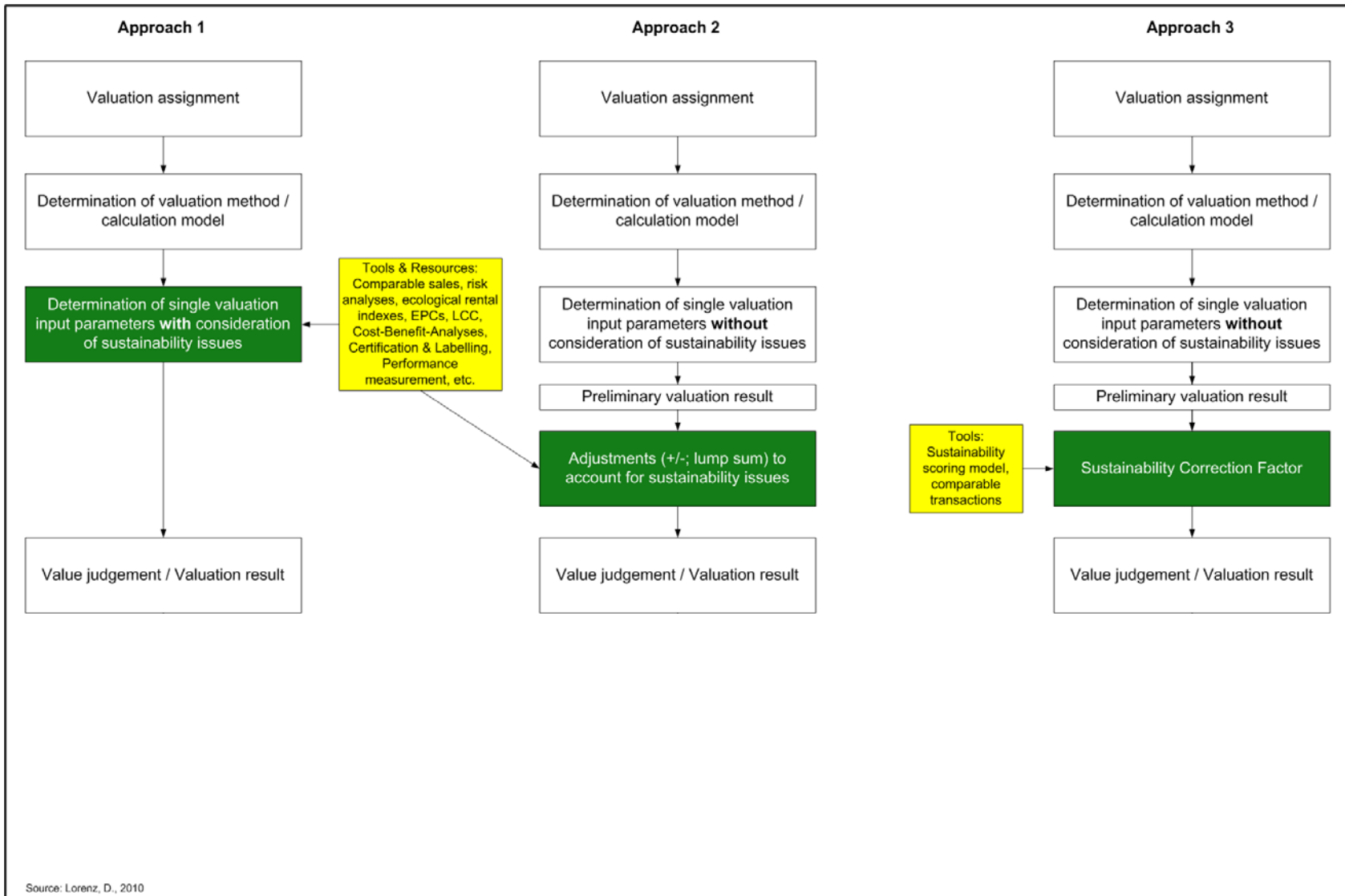
<i>Study/Authors</i>	<i>Country</i>	<i>Property Type</i>	<i>Sustainable Credentials</i>	<i>Observed impact on</i>	<i>+/-</i>	<i>Magnitude</i>
Brounen and Kok, 2010	The Netherlands	Residential Homes	Energy Performance Certificate (Class A, B, or C)	Selling Price	+	2.8 %
City of Darmstadt, Rental Index, 2010	Germany (Darmstadt)	Residential multi-family houses	Primary energy value below 250 kWh/m ² a	Rental Price	+	0,38 €/m ²
			Primary energy value below 175 kWh/m ² a			0,50 €/m ²
Eichholtz, Kok and Quigley, 2010	USA	Office Buildings	LEED	Selling Price	+	11.1 %
				Rental Price	+	5.9 %
			Energy Star	Selling Price	+	13 %
				Rental Price	+	6.6 %
Fuerst and McAllister, 2010	USA	Office Buildings	LEED	Occupancy Rates	+	8 %
			Energy Star		+	3 %
Fuerst and McAllister, 2009	USA	Office Buildings	LEED, Energy Star	Selling Price	+	31 % - 35 %
				Rental Price	+	6 %
Griffin et. al, 2009	USA (Portland / Seattle)	Residential Homes	Built Green, Earth Advantage, Energy Star, or LEED	Selling Price	+	3 % - 9.6 %
				Selling / Marketing Time	-	18 days
Pivo and Fischer, 2010	USA	Office Buildings	Energy Star, close distance to transit, location in redevelopment areas	Net Operating Income	+	2.7 % - 8.2 %
				Rental Price	+	4.8 % - 5.2 %
				Occupancy Rates	+	0.2 % - 1.3 %
				Market Value	+	6.7 % - 10.6 %
				Cap Rates	-	0.4 % - 1.5 %
Salvi et. al, 2008	Switzerland	Residential Homes	MINERGIE Label	Selling Price	+	7 %
		Residential Flats		Selling Price	+	3.5 %
Salvi et. al, 2010	Switzerland	Residential Flats	MINERGIE Label	Rental Price	+	6 %
Wameling and Ruzyzka-Schwob, 2010	Germany (Nienburg)	Residential Homes	Primary energy demand per m ² and year (kWh/m ² a)	Selling Price	+	1,26 €/m ² per reduced kWh/m ² a
Wiley, Benefield and Johnson, 2008	USA	Office Buildings	LEED, Energy Star	Rental Price	+	7 % - 17 %
				Occupancy Rates	+	10 % - 18 %

Research projects and initiatives on the integration of sustainability issues into the valuation process

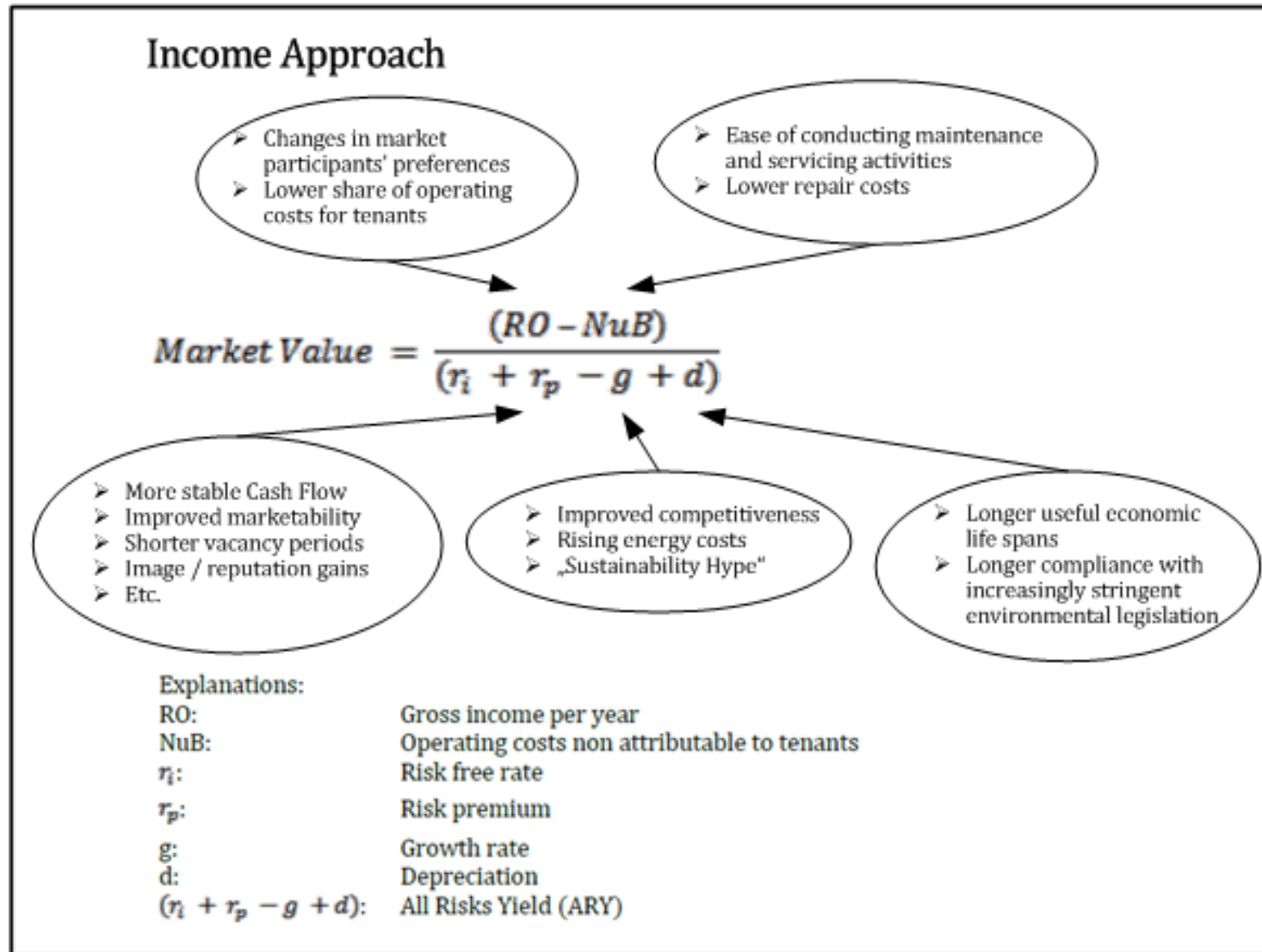
Country	Authors / Contributors	Project Title	Source / Website
Australia	Richard Bowman, John Wills, and others	<i>Valuing Green – How green buildings affect property values and getting the valuation method right</i>	http://www.gbca.org.au/resources/valuing-green/1466.htm
Austria	Susanne Geissler, Maïke Groß, Otto Bammer, Maria Fellner, Martin Treberspurg, Mariam Djalili, Roman Grüner, Bernhard Lipp, Karin Sammer, Klaus Wolfinger	<i>“Neue Immo-Standards” – Leitfaden zum Umgang mit Energieeffizienz und weiteren Nachhaltigkeitsparametern in der Immobilienwertermittlung</i>	http://www.energyagency.at/geb-aeude-raumwaerme/aktuelle-projekte/immo-standards.html
European Union	Sven Bienert, Christian Schützenhofer, Gerrit Leopoldsberger, Kerstin Bobsin, Klemens Leutgöb, Walter Hüttler, Daniela Popescu, Emilia-Cerna Mladin, David Koch, Dag Fjeld Edvardsen, David Steixner	<i>IMMOVALUE - Improving the market impact of energy certification by introducing energy efficiency and life-cycle cost into property valuation practice</i>	http://www.immofvalue.org
Japan	Masato Ito, Tomonari Yashiro, and others	<i>Environmental Added Value of Real Estate</i>	http://www.sumitomotrust.co.jp/csr/innovation/real-estate/01english.html
Switzerland	Erika Meins, Hans-Peter Burkhard, Peter Christen, Regina Hardziewski, Niels Holthausen, Silvia Makowski, and others	<i>Economic Sustainability Indicator (ESI) – ESI-Immobilienbewertung</i>	http://www.ccrs.uzh.ch/
USA	Scott Muldavin, Andy Fuscas, John J. D'Andrea, Sue Ragen, Geoffrey Lewis, Maureen Muldavin, Theddi Wright Chappell, Tim Lowe, Brian Gross, Molly McCabe, Peter Morris, Stuart Brodsky, and others	<i>Green Building Finance Consortium (GBFC) - Value Beyond Cost Savings</i>	http://www.greenbuildingfc.com
UK	Sarah Sayce, Louise Ellison, Judy Smith	<i>The Sustainable Property Appraisal Project</i>	http://www.sustainableproperty.ac.uk/sri-index.htm

Source: Lorenz, D. and Lützkendorf, T., 2010, *Sustainability & Property Valuation: An International Literature Review*, Karlsruhe Institute of Technology, Research Report

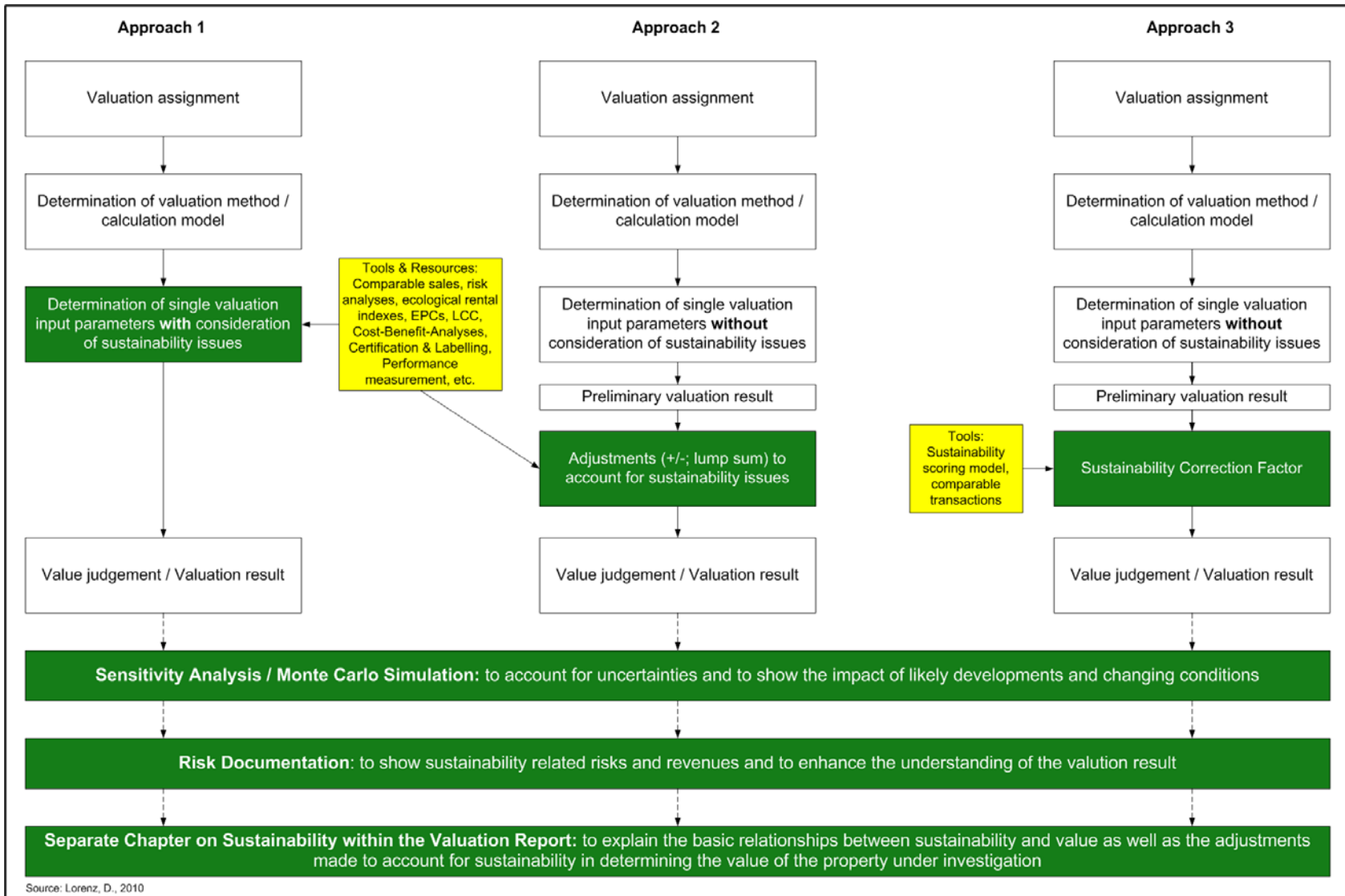
General approaches for an integration of sustainability issues into the valuation process



Example: Income Approach



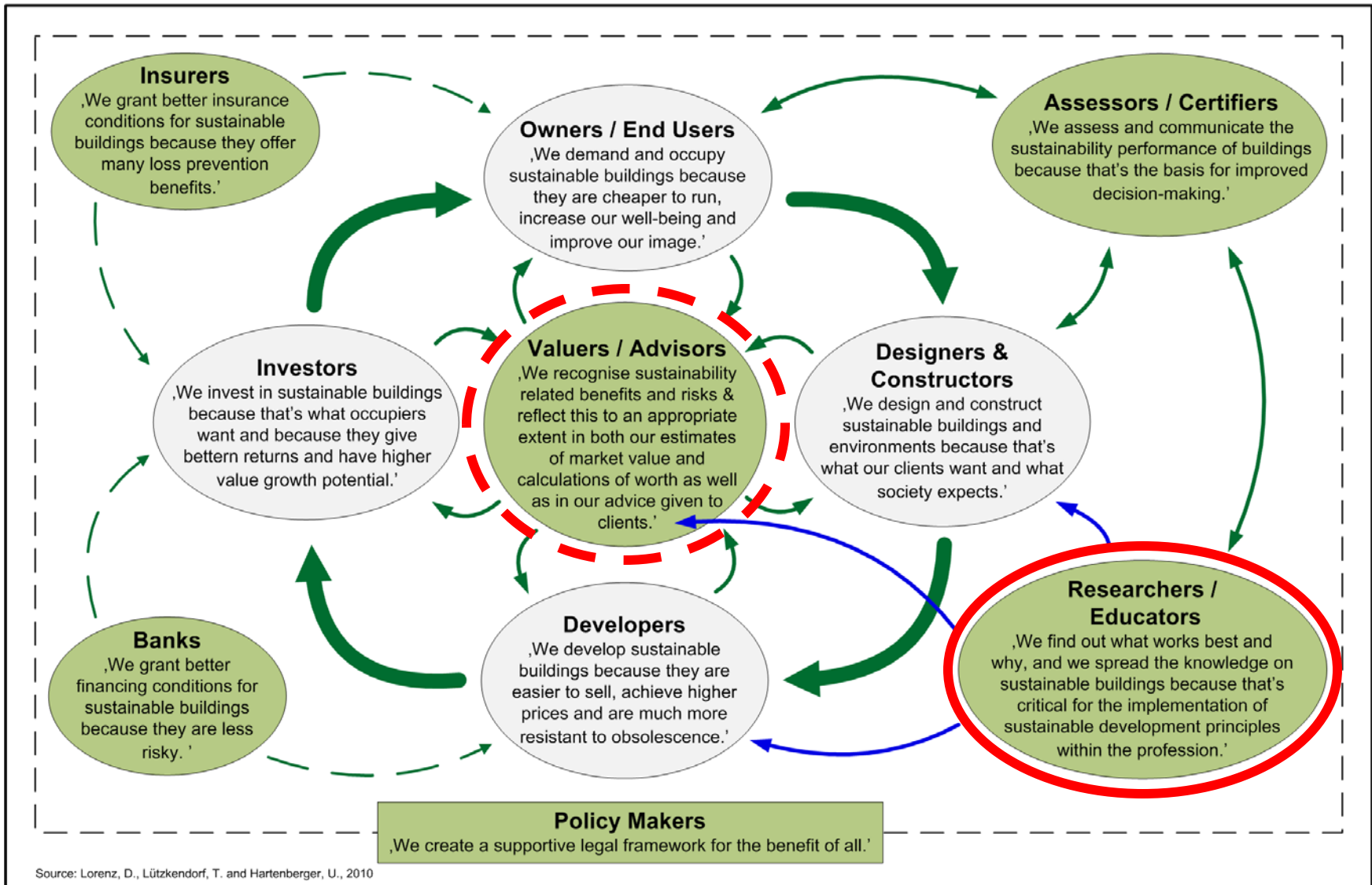
General approaches for an integration of sustainability issues into the valuation process



Key conclusions from an international literature review

- No straightforward or automated formula to account for sustainability issues exists.
- The extent and approach of reflecting sustainability in value estimates strongly depends on regional and local market conditions, property type, conventions, etc.
- New ways of gathering, processing and presenting property related information are required (in particular: **extension of property transaction databases**).
- Sustainability in valuation is also an issue of increasing transparency: clients needs to understand the valuer's thought process.
- Widespread implementation requires **awareness, education and training** of property professionals.

Role of various actors: Turning the Vicious Circle of Blame into Loops of Feedback and Adaptation



Source: Lorenz, D., Lützkendorf, T. and Hartenberger, U., 2010

The Role of Academia / Researchers & Teachers

- **Education and Training** (sustainability thinking needs to be integrated into curricula & training programs of property professionals)
- **Market Analysis** (improvement of the evidence base for regional and local sub-markets)
- **Establish the necessary data standards** for analysing relationships between sustainability aspects and financial variables
- **Further develop practical / technical guidance and guidelines** for a consideration of sustainability issues in professional practice (including valuation, risk analysis, portfolio management, reporting, etc.)
- **Stimulate debate on & provide the theoretical underpinning of the moral / ethical dimension of professional practice.**

Key problem for researchers: Quality of building descriptions in transaction databases

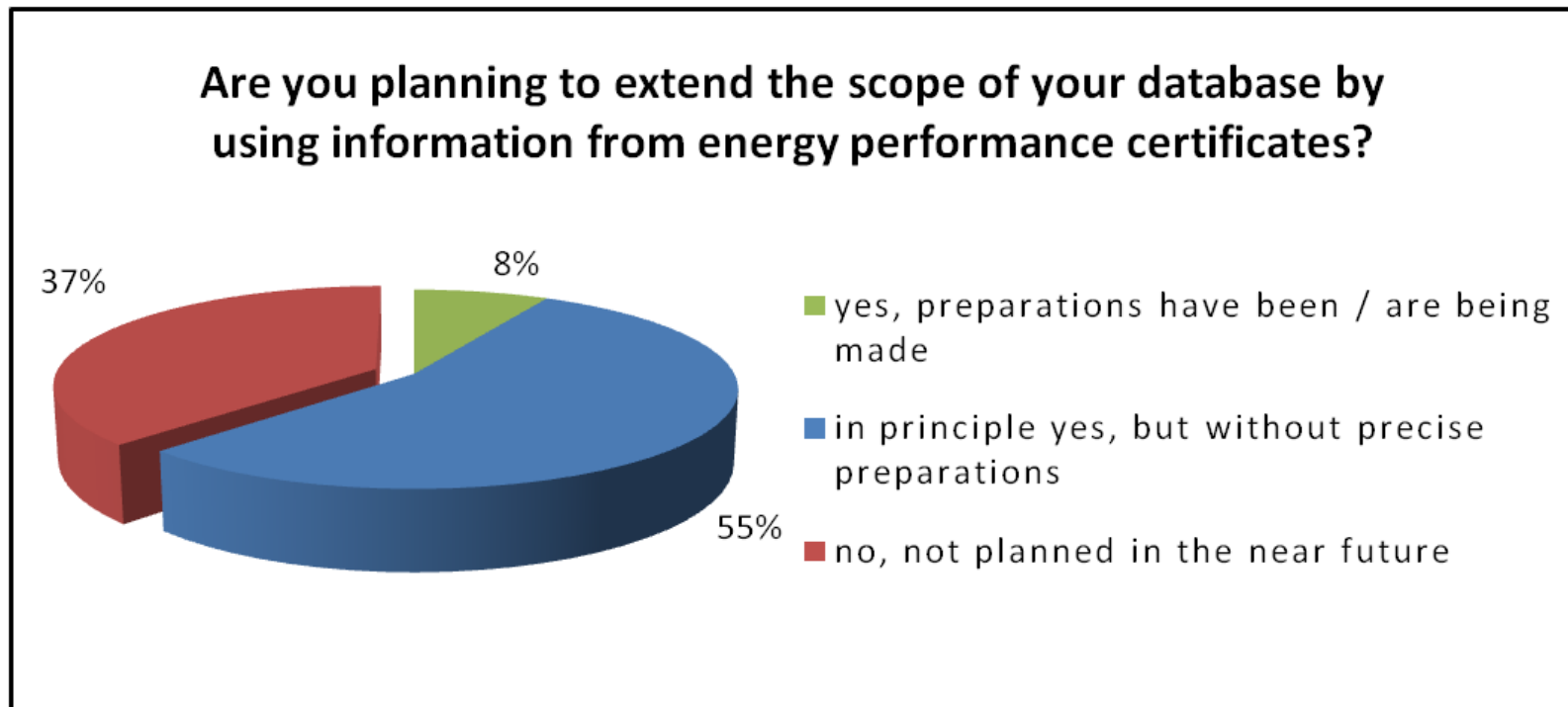
	Type	Brief Explanation	Examples
1	Characteristics based description	Statement on the availability, number, age or size of particular building features or components	Floor area, central heating, green roof, number of rooms, flexible walls, suspended ceiling, etc.
2	Experience based description	Subjective and mainly qualitative judgement mainly based on implicit assumptions	Building quality is considered 'good' because of sound structural condition, favourable layout, equipment, etc.
3	Attribute based description	Judgement or classification based on quantifiable technical and/or physical building characteristics	Heat and sound insulation class, degree of efficiency of heating system, share of renewable materials, etc.
4	Performance based description	Measurement of direct impacts that result from the building's technical and physical characteristics	Primary energy demand, CO ₂ -emissions, life-cycle-costs, annual maintenance costs, etc.



Excursion: German Property Transaction Data Survey Energy Performance Certificates – Part I

Survey among 240 (out of about 500) German valuation expert committees

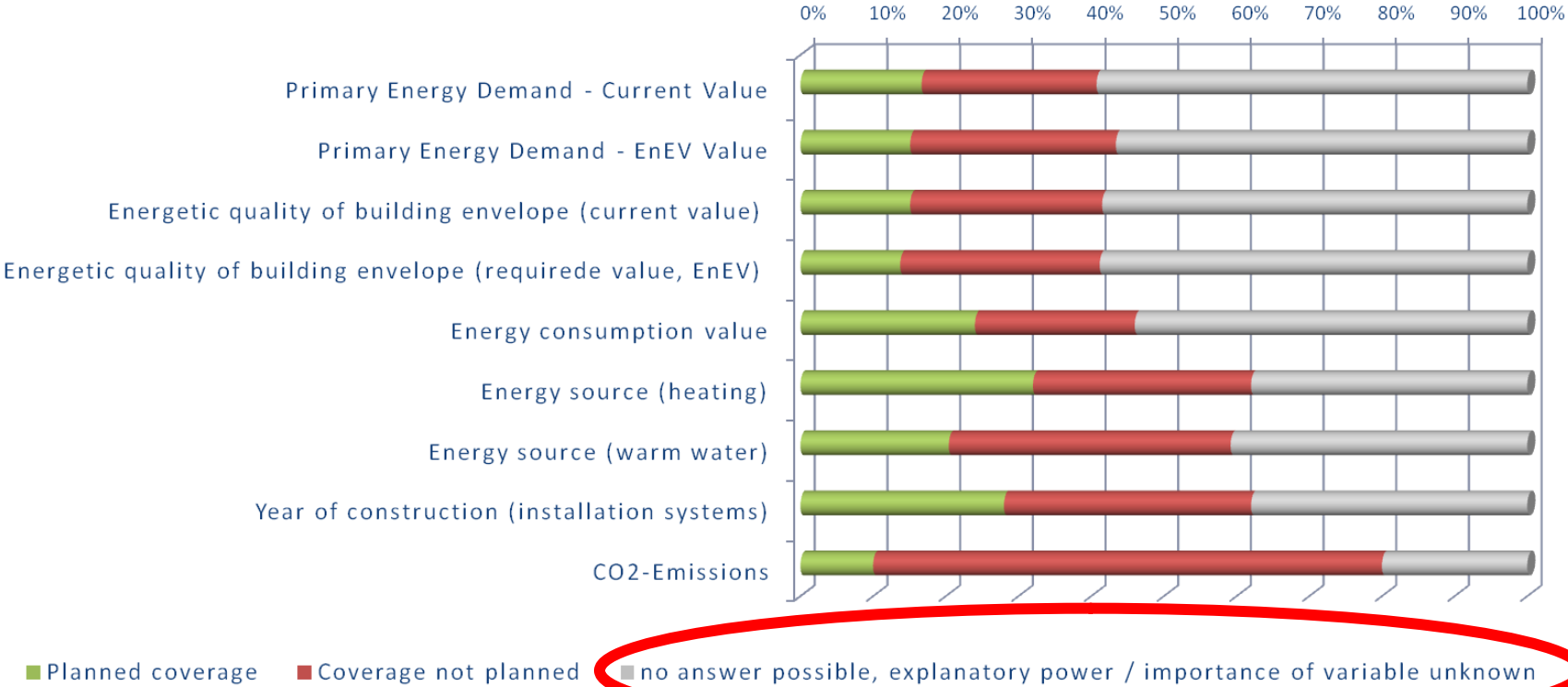
- **64** questionnaires were fully completed → **response rate: 27 %**
- Combined, these 64 valuation expert committees record an average of **155.000 property transaction each year.**



Source: Kertes, J., Lützkendorf, T. and Lorenz, D., 2008, German Property Transaction Data Survey, Universität Karlsruhe

Energy Performance Certificates – Part II

What kind of data from energy performance certificates will be captured?



Source: Kertes, J., Lützkendorf, T. and Lorenz, D., 2008, German Property Transaction Data Survey, Universität Karlsruhe

Widened understanding of the concept of value

Categories of Value	Actors								
	Owner-occupier	Investor (direct and indirect)	Developer / Constructor	Bank	Insurance company	Tenant	User / Inhabitant / Visitor	Government	Society / Community
Physical Value (embodied energy and resources)	○		○					○	○
Market Value / Exchange value (most likely sale price)	●	●	●	●	●			○	○
Worth / Value in Use (value for an individual)	●	●	●	○		●	○		
Social Value (interaction, inclusion, prosperity, health, safety)	●	○	○		○	●	●	●	●
Cultural Value (tradition, arts, aesthetics, inspiration, lifestyle)	○	○	○			●	●	●	●
Emotional Value (feelings, positive experiences, wellbeing)	●	○	○			●	●	○	●
Image / Sign Value (social status, reputation, prestige, identity)	●	●	●			●	○	○	○
Environmental Value (biodiversity, healthy ecosystems)	○	○	○	○	○	○		●	●



Source: Lorenz, D., 2010

First Open Question: Reflecting the market vs. informing the client

The Role of the Valuer:

- is to reflect the market, and nothing else (**even if markets have “gone crazy”**).
- is also to inform the client on:
 - the benefits of sustainable & risks of conventional design,
 - the wider environmental and social impacts, and
 - the implications this could have on the likely value development of the building under investigation (**even if sustainability aspects are not yet fully reflected in today’s market prices**).

Answer to this question has far reaching consequences for the presentation of valuation results and regarding the content and format of valuation reports. But answer depends on ...

Second Open Question: Obligation towards society vs. obligation towards the client

Do valuers have an informational duty (or moral responsibility) regarding the issue of sustainability; i.e. do they have an obligation towards society at large or only towards clients and shareholders?

*“The objects of the Institution shall be to [...] **promote the usefulness of the profession for the public advantage** in the United Kingdom and in any other part of the world.”*

Quote from the Royal Charter of the
Royal Institution of Chartered Surveyors (RICS)

Thank you very much for your attention!

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