

Integrating Sustainability Issues into Property Rating and Valuation – The need for LCA and LCC

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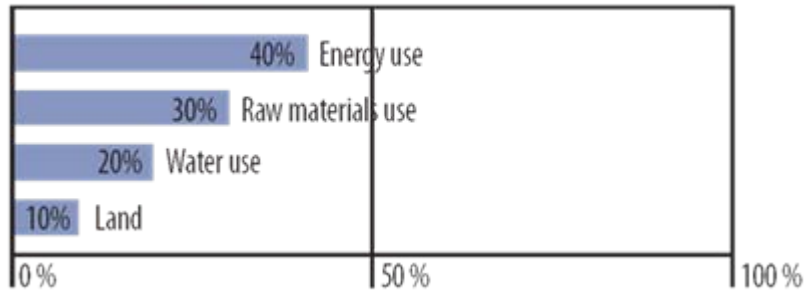
Chair of Sustainable Management of Housing and Real Estate



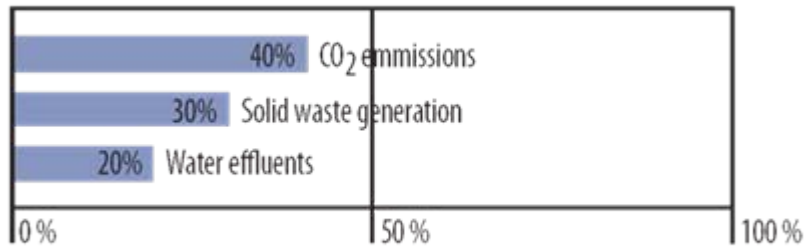
Integrating Sustainability Issues into Property Valuation and Rating

The rationale:

SHARE OF THE BUILT ENVIRONMENT IN RESOURCE USE



SHARE OF THE BUILT ENVIRONMENT IN POLLUTION EMISSION



Source: UNEP, 2006

- Growing awareness of the need for more sustainable development among the general public
- Benefits of sustainable design are increasingly being recognized by property market participants
- Changing occupier demands
- Increasingly stringent environmental legislation
- Mainstreaming of socially responsible investment (SRI) in financial markets & availability of first “green” REITs and property funds

➔ Changing market environment affects the way property has to be treated for valuation, lending and other decision-making purposes

➔ In OECD countries the built environment is the largest single cause for resource use and pollution emission!

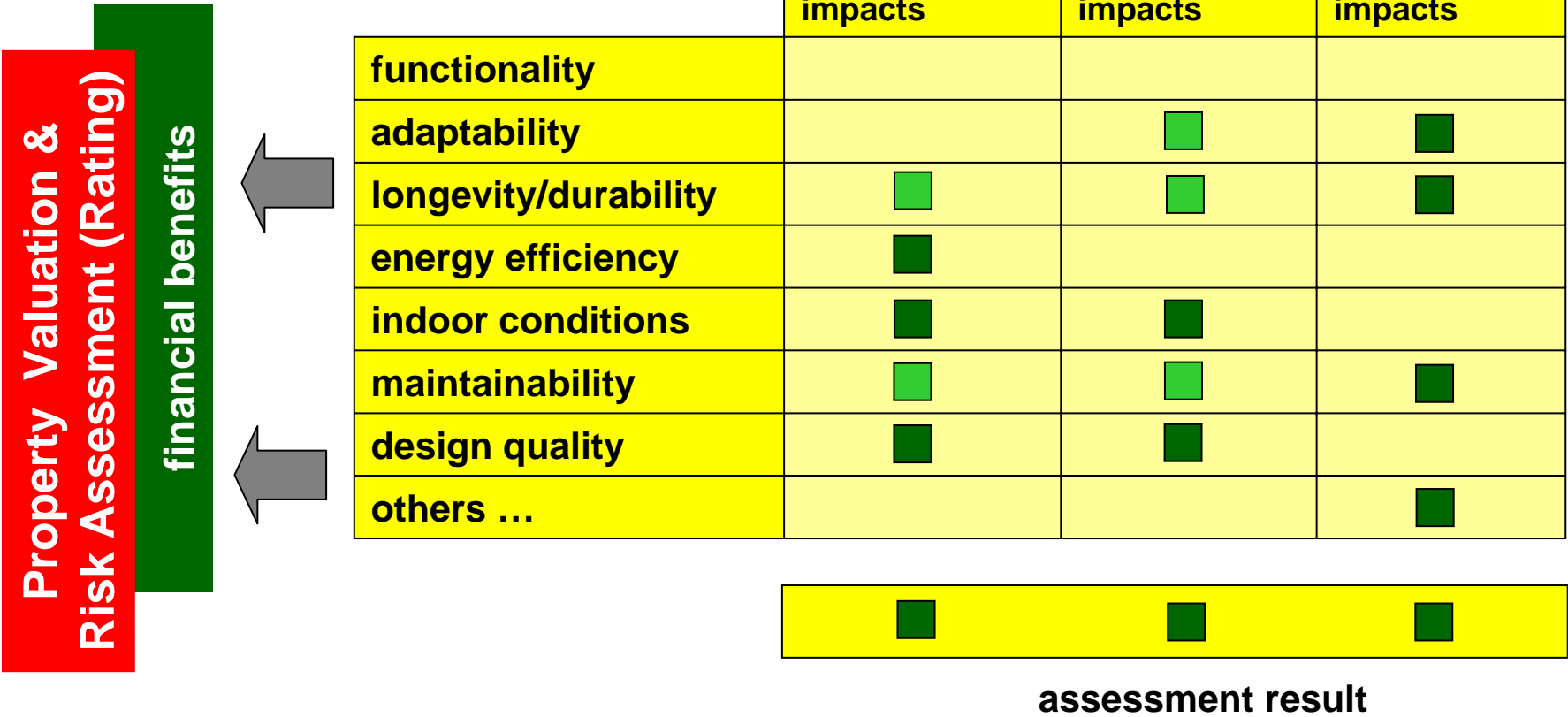


How to translate “sustainability” to investors?

c) “translation”


a) description


b) assessment



First Test-Rating Results: „greener“ buildings = less risks

Multiple-Family Dwelling	Rating Scores									
	1	2	3	4	5	6	7	8	9	10
	Excellent	Very good	Good	Slightly above \emptyset	\emptyset	Slightly below \emptyset	Mediocre	Poor	Very Poor	Disastrous
Very good property market conditions										
Superior building (in terms of sustainability)			2.9							
Average building (in terms of sustainability)				3.6						
Poor building (in terms of sustainability)					5.3					
Average property market conditions										
Superior building (in terms of sustainability)			3.4							
Average building (in terms of sustainability)				4.2						
Poor building (in terms of sustainability)						5.9				
Poor property market conditions										
Superior building (in terms of sustainability)				4.3						
Average building (in terms of sustainability)					5.0					
Poor building (in terms of sustainability)							6.7			

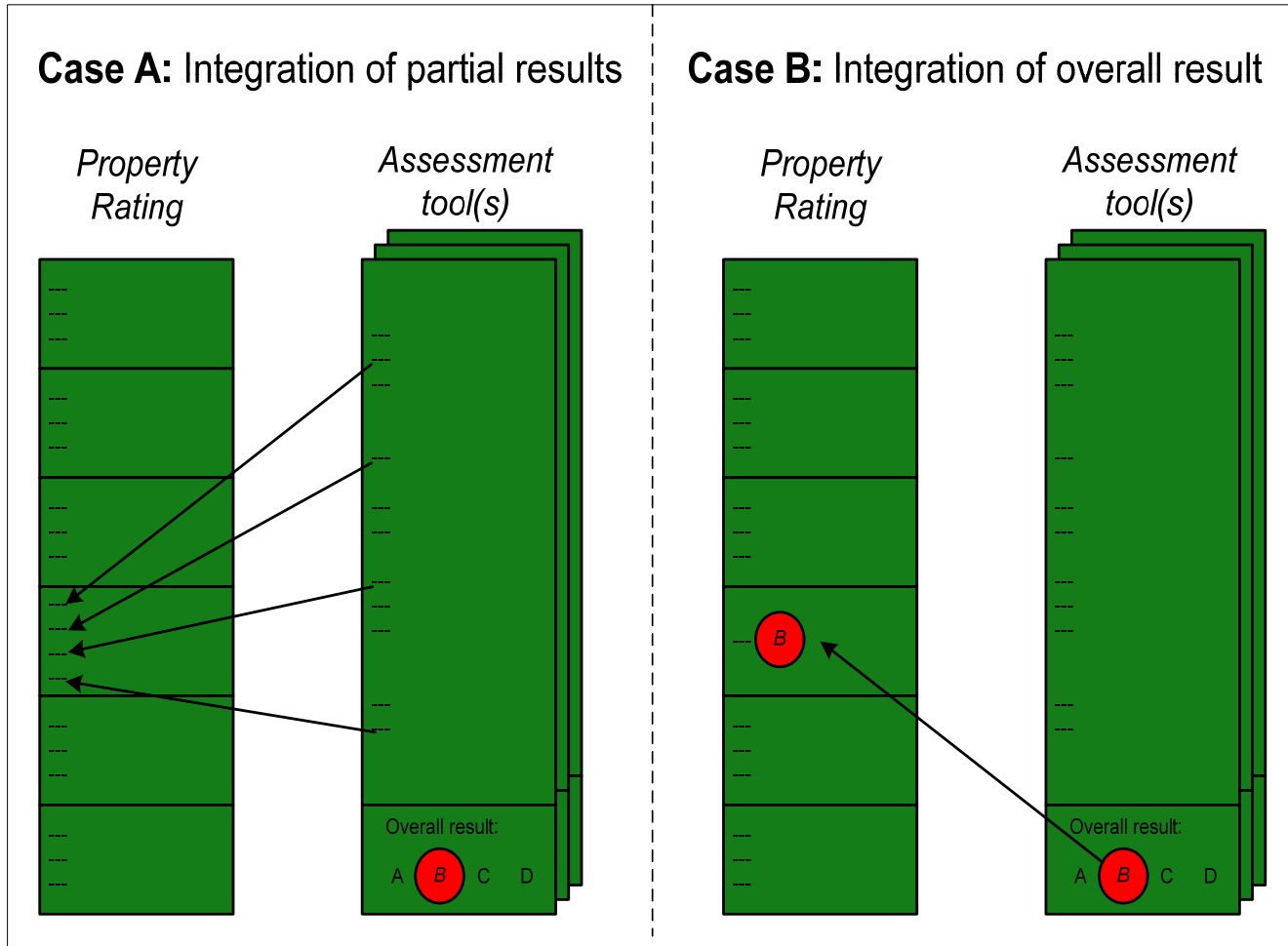
 Improved chances and/or reduced risks of sustainable buildings can be expressed and communicated by making use of already existing property rating systems

 But: sustainability related assessment criteria, indicators and measurement standards in existing rating systems are rather crude and have been developed completely independent from the development of LCA and LCC tools by the sustainable building community



Integration of building assessment results into property ratings

If results of building assessment tools are used to support the rating process, the flow of information can be organised in different ways:



Basic options for valuers to reflect sustainability issues

Traditional valuation methods	Advanced valuation / data analysis methods
<i>Sales comparison method</i> <i>Investment method / DCF-Analysis</i> <i>Cost method</i> <i>Profits method</i> <i>Residual method</i>	<i>Hedonic pricing methods</i> <i>Artificial neural networks</i> <i>Spatial analysis methods</i> <i>Fuzzy logic</i> <i>Autoregressive integrated moving average (Real options method)</i> <i>Rough set method</i>



Adjustment of valuation input parameters on the basis of personal experience and expert opinion



Transaction analyses to understand the relationships between sustainability related building characteristics and property prices



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~~Transaction analyses to understand the relationships between sustainability related building characteristics and property prices~~

Currently impossible due to data limitations & deficits in the description of property assets



Different levels 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	Pool, 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.

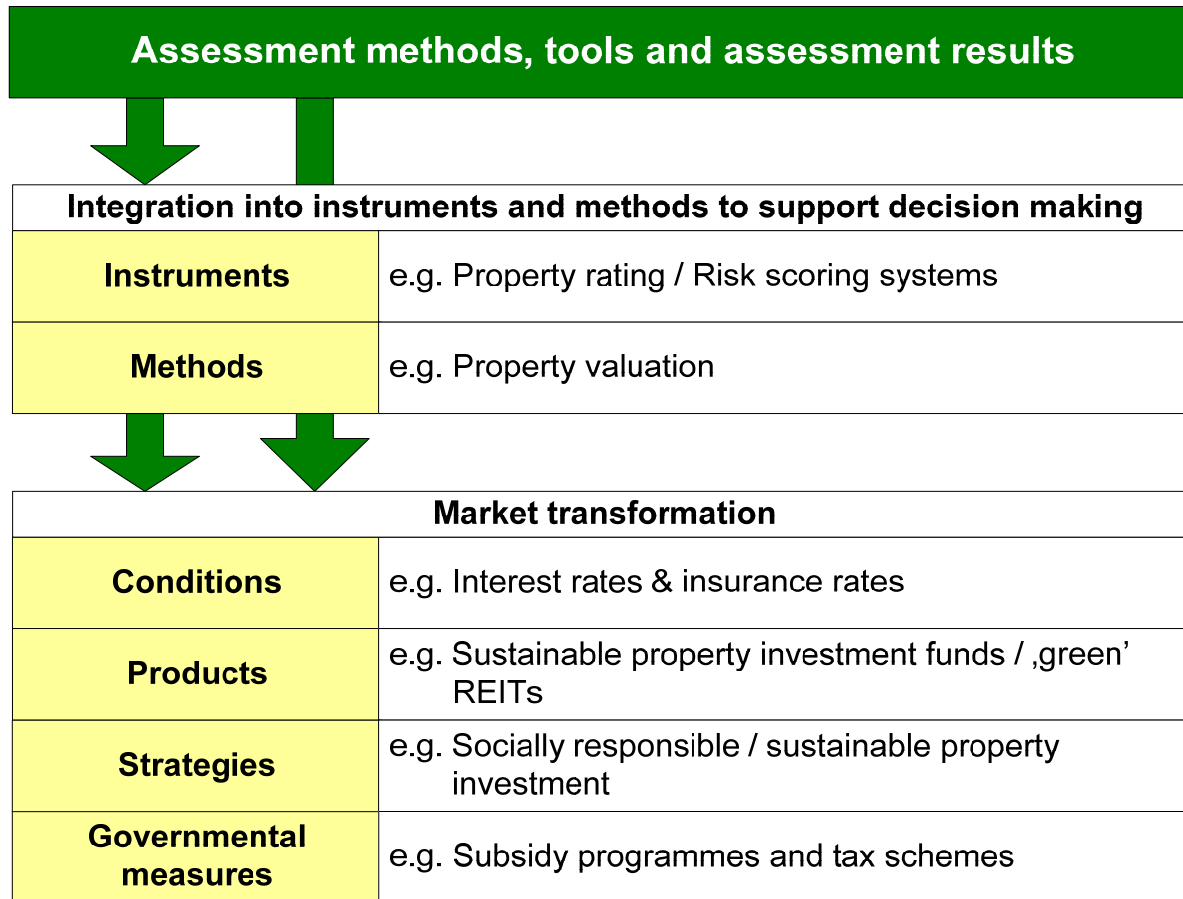


LCC and LCA will be used to improve the data quality of transaction databases to allow for an analysis of the relationship between building performance and property prices.



Conclusion

To foster market transformation the property industry's major decision support tools (rating and valuation) must be more closely linked to and underpinned by the results of existing life cycle assessment and life cycle costing methods.



Thank you very much for paying attention!



If you have any additional questions, please do not hesitate to contact us:

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