



www.immvalue.org



eeee Summer Study, 09 June 2011

Integrating energy efficiency and other sustainability aspects into property valuation: Methodologies, barriers, impacts

Walter Hüttler / Klemens Leutgöb

e7 Energie Markt Analyse GmbH

Dr. rer. pol. Sven Bienert MRICS / Mag. (FH) Christian Schützenhofer

Director und Head of Real Estate Advisory Services, Austria

KPMG Financial Advisory Services GmbH


Prof. Dr. Gerrit Leopoldsberger FRICS MAI

Dr. Leopoldsberger + Partner

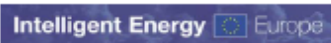


The IMMOVALUE project





www.immvalue.org



WORKING PAPER – REPORT D5.1 – D5.3
**Methodologies for Integration of Energy Performance
and Life-Cycle Costing Indicators into Property
Valuation Practice**

Authors:

Bienert, Sven	KPMG Austria
Schützenhofer, Christian	KPMG Austria
Leopoldsberger, Gerrit	Dr. Leopoldsberger + Partner
Bobsin, Kerstin	Dr. Leopoldsberger + Partner
Leutgöb, Klemens	e7
Hüntler, Walter	e7
Popescu, Daniela	TU Iasi
Koch, David	FH Kufstein
Edvardsen, Dag Fjeld	SINTEF







Full title of the project: Improving the market impact of energy certification by introducing energy efficiency and life-cycle cost into property valuation practice



Acronym of project: IMMOVALUE

Agreement N°: IEE/07/553/SI2.499204

Co-ordinator: KPMG Financial Advisory Services GmbH
Dr. Sven Bienert
sbiernert@kpmg.at

Project website: www.immvalue.org





Support by

The IMMOVALUE project has been finalised in August 2010

All reports and results can be found on
www.immvalue.org

The promise of energy efficient and sustainable property



1

Less fluctuation of tenants

2

In average longer tenant periods (less transaction cost)

3

Improved comfort and productivity of users
therefore higher customer satisfaction

4

Higher rents and purchase prices

5

Lower running cost (operation, maintenance, repair...)

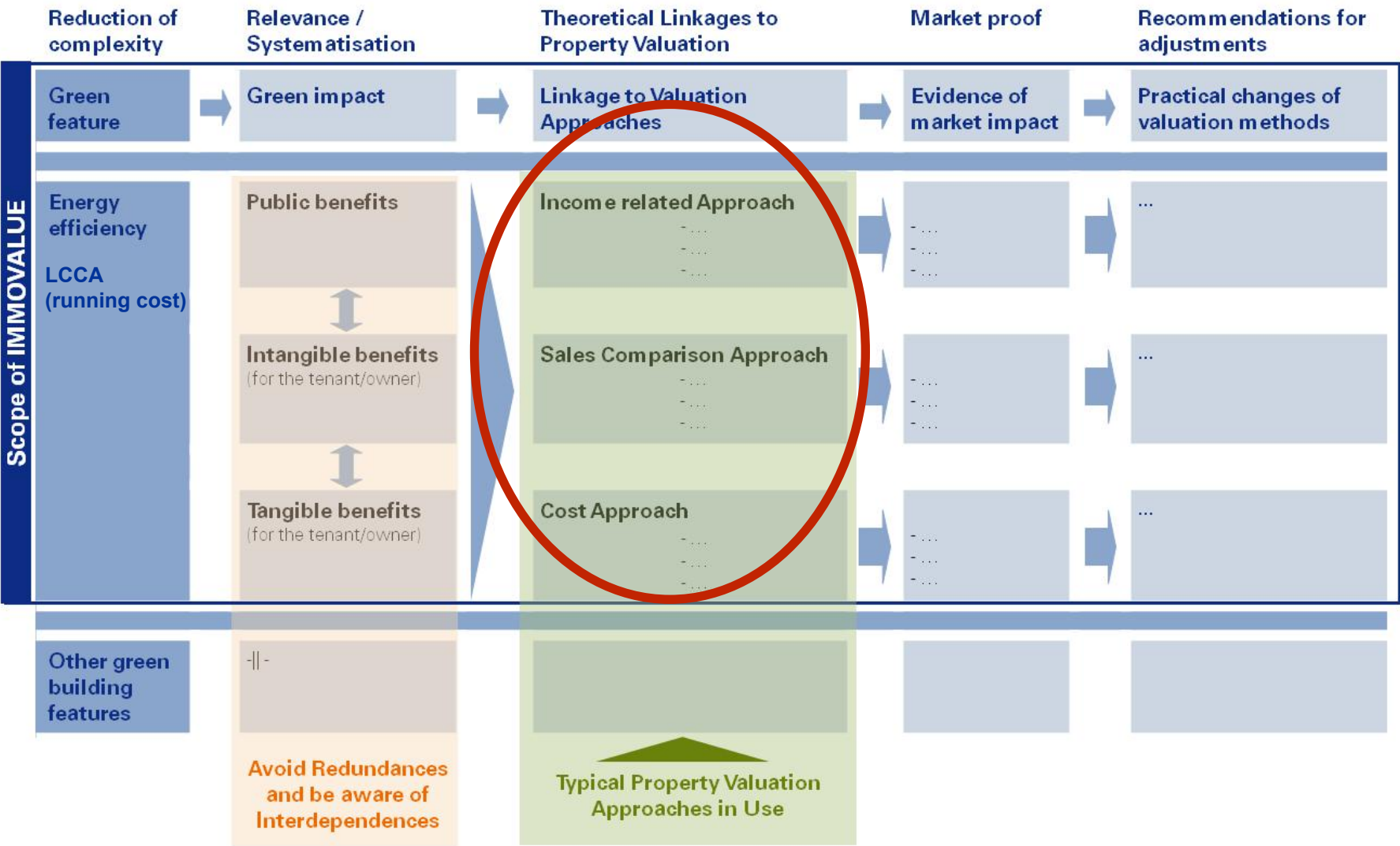
...but how these benefits can be reflected in the property value?

Market Value vs. Green Value



- A **Green Building** is a property that uses resources efficiently, reduce waste and CO2 emission, provide superior indoor air and other qualities, and avoid negative social impacts.
- **Energy efficiency** is therefore part of the various green building features.
- A **Green Value** is the net value added obtainable by a green property in the market compared to a non-green peer group.
- According to the definitions of green and market value it can be assumed that the green value is an **integral part of the overall market value**.

Link to all standard valuation approaches



The „mission“ of property valuation as starting point

“Valuers do not make the market”, they are looking for market evidence to use for a specific valuation. Therefore pricing in an extra value for green buildings when there is no extra willingness to pay for that market is not acceptable. Valuers cannot add premiums if the market does not support this premium with significant evidence.

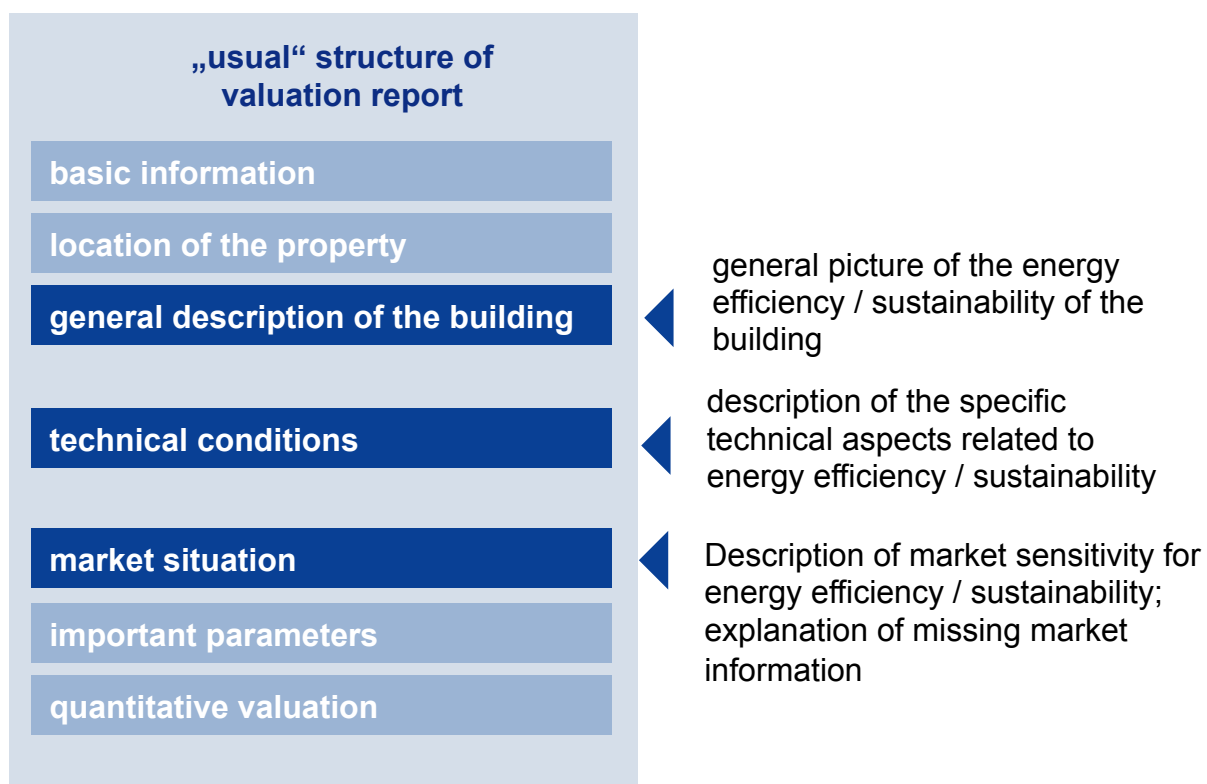
“Cost is not Value”, therefore (extra) investment costs for constructing a green building or upgrading existing conventional properties to an energy-efficient building do not necessarily lead to a green value and vice versa.

Market evidence as indispensable precondition

Situation A:

No market evidence for influence of energy efficiency/sustainability on value

→ no quantitative adaptation of the value, but qualitative description in the valuation report

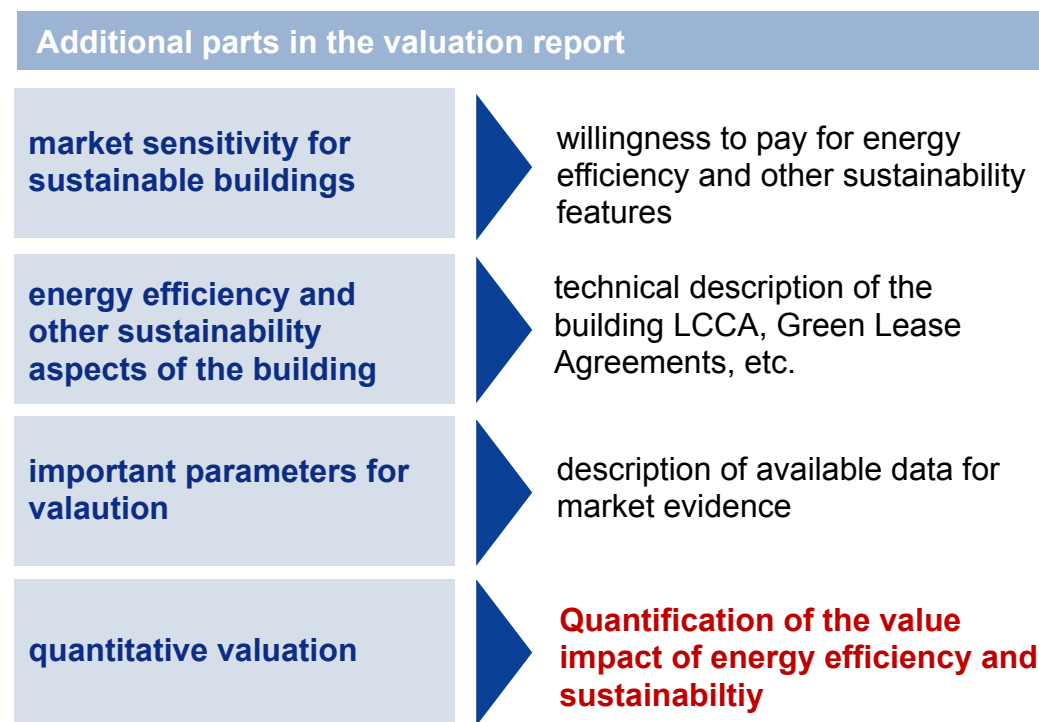


Integration der Nachhaltigkeit in die Bewertungspraxis (2)

Situation B:

market evidence for influence of energy efficiency/sustainability on value available

→ reflection also in quantitative valuation part, e.g. using the approaches developed in Immovalue



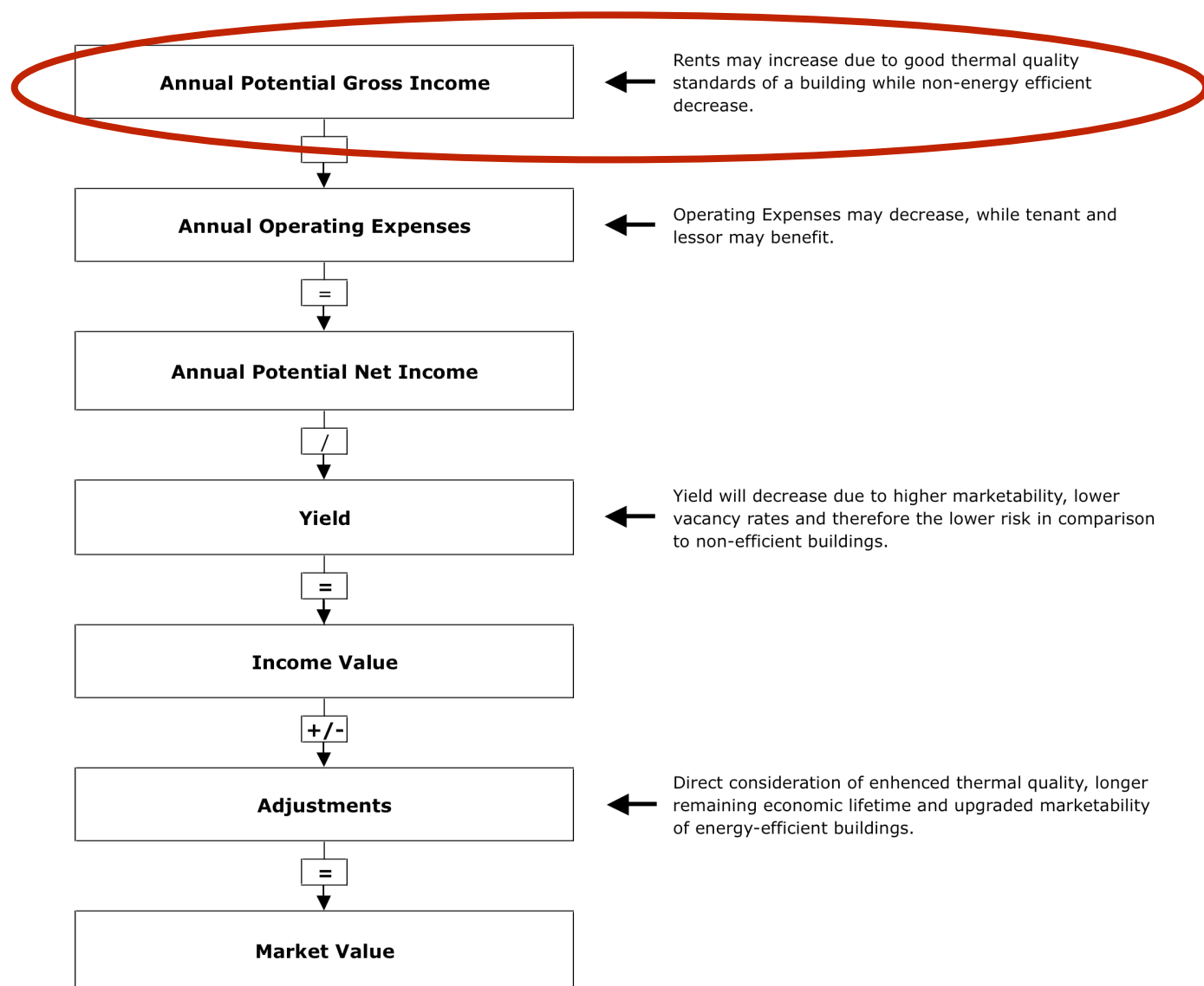
Approach for transparent markets: Empirical relationship between sustainability and property value

Variable \ Country	Germany (Ecologic Rent Table, IWU Darmstadt 2003)	Germany (Ecologic Rent Table, IWU Darmstadt 2008)	Germany (Ecologic Rent Table, IWU Berlin 2009)	Switzerland (Ecolonomic Sustainability Indicator, CCRS Zurich 2009)
Rental Premium	-	-	-	
Minimum	4.71%	3.97%	0.41%	
Maximum	13.60%	15.17%	5.87%	
Rental Discount			-	
Minimum			1.25%	
Maximum			6.79%	
Market value				-
Maximum Increase				6.60%
Maximum Discount				14.90%

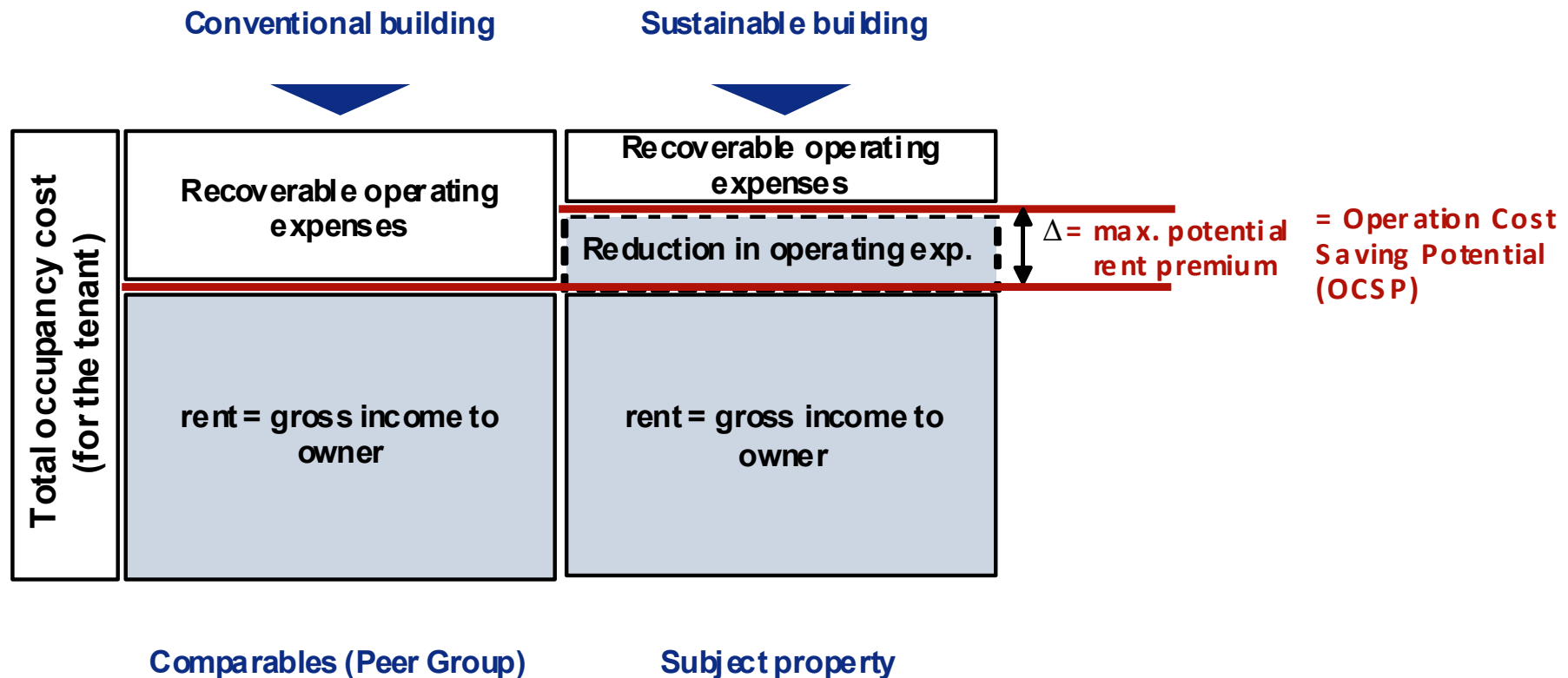
**Hedonic regression analysis needs a huge amount of data.
Therefore practical applicability is limited to transparent markets**

Approach for opaque markets (1)

potential linkages between property valuation and sustainability



Approach for opaque markets (2) potential rent premium as major link



WAPEC scoring-model as guidance for valuers

(Weighted Adjustment for Valuation Parameter Effecting Characteristics)

Key Valuation Parameter	Market maturity	Significant adjustment	Medium adjustment	Low adjustment	neutral
Market rent	Opaque (Emerging) Market --> Premium for energetic building (primarily in emerging market)	<div> <div>- high price elasticity</div> <div>- high awareness of tenants for sustainability and energy efficiency</div> <div>- omnipresence of green building issues in the media</div> <div>- high market sensitivity for operating expenses and energy costs (especially in gross rent-orientated property markets)</div> <div>- good general economic conditions</div> <div>- ...</div> </div>	<div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> </div>	<div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> </div>	<div> <div>- low price elasticity</div> <div>- tenants do not pay attention on sustainability and energy efficiency at all</div> <div>- media does not recognise green buildings benefits at all</div> <div>- majority of property market is not willing to pay rent premium for green buildings</div> <div>- suffering economic situation</div> <div>- ...</div> </div>
	--> Discount for non-energetic building (mainly in further developed markets)	<div> <div>- building does not achieve energy performance standards/codes</div> <div>- market postulate green building standards/codes</div> <div>- high obsolescence and potential loss of occupier demand</div> <div>- ...</div> </div>	<div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> </div>	<div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> <div>- ...</div> </div>	<div> <div>- building achieve green building requirements</div> <div>- market does not postulate green buildings</div> <div>- no effect on occupier demand</div> <div>- ...</div> </div>
Market adjustment rate (MAR)		<div> <div>+/- 75-100 %</div> <div>+/- 50-75 %</div> <div>+/- 25-50 %</div> <div>+/- 0-25 %</div> </div>			
x Average adjustment parameter (AAP)*		+ [] [%] --> AAP derived from market evidence / valuers expectations due to replicable argumentation or estimation			
x Valuers estimation adjustment (VEA)**		+ [] [%] --> Valuers estimation adjustment due to probability of occurrence, uncertainty, etc. regarding the AAP			
= --> Weighted Adjustment Factor (WAF)		+ [] [%] --> = MAR x AAP x VEA			
		<div> <div>Key Valuation Parameter (KVP)</div> <div>x [€/m² p.m.]</div> <div>Valuation Parameter Adjustment (VPA)</div> <div>= [€/m² p.m.]</div> </div>			

- I. premium or discount
- II. structured assessment of market sensitivity (scoring)
- III. resulting market sensitivity based on scoring
- IV. Operating cost saving potential (OCSP)
- VI. overall impact parameter
- VII. market rent
- VIII. specific impact on value

property valuation requires specific features for assessment of running cost

simple and quick

only comparably little data on building characteristics required

not taking into account the influence of variations in building use

for property valuation only technical building characteristics are decisive

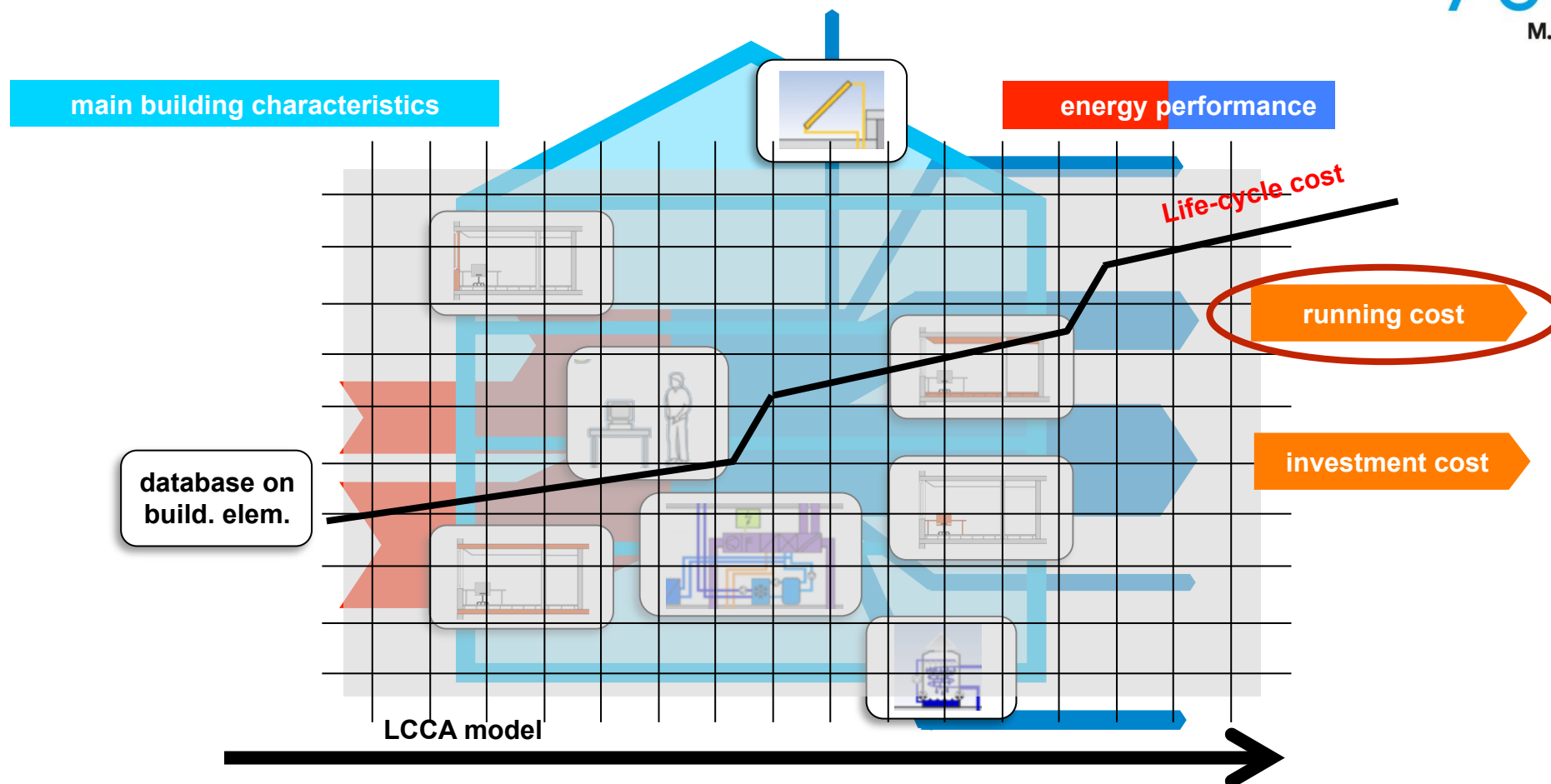
including all running cost (maintenance, replacement, utilities etc.)

differentiation into recoverable and non-recoverable running cost

application of identical assessment approach for the property subject as well as for a certain number of comparables



potential application of the e7/M.O.O.CON LCCA tool



Case study: Office buildings in Vienna

unit: €/m ² a gross floor area	comp 1	comp 2	comp 3	comp 4	subject property
indoor cleaning	11,1	10,7	8,6	11,1	10,7
glass cleaning	0,1	0,1	0,1	0,1	0,1
facade cleaning	5,1	3,3	2,1	2,0	1,5
operation	1,4	1,3	1,3	1,4	1,2
maintenance	8,2	9,4	7,9	8,2	8,3
capital repair	12,4	13,6	9,8	12,3	11,3
conversion / backfitting	6,0	6,4	4,2	6,0	4,8
energy and ressources	18,7	19,4	15,2	19,2	11,1
TOTAL	63,0	64,2	49,2	60,3	49,0

operational cost differences between subject property (**very energy efficient / sustainable**) and comparables:

- recoverable OC: 1,1 €/m²m
- non-recoverable OC: 2 €/m²a

difference in value applying the income approach with IMMOVALUE modifications

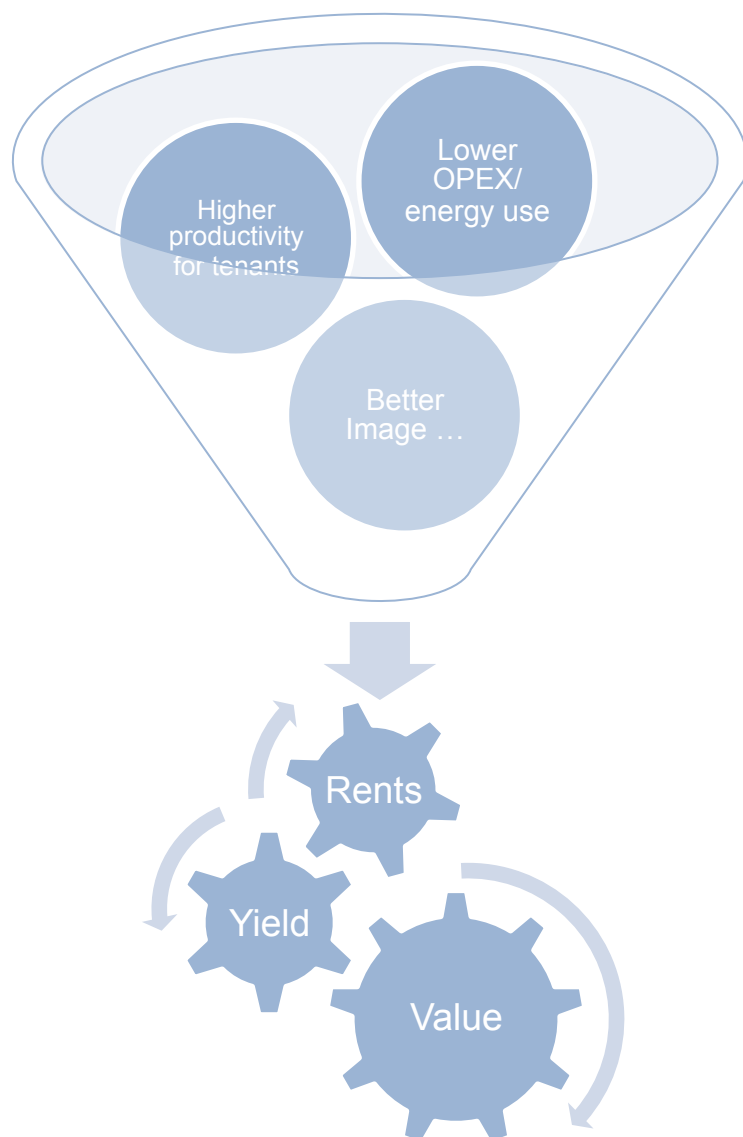
- 5-10% (depending on assumed market sensitivity)
- higher difference in value can only be achieved if additional to operational cost also other benefits of green buildings (comfort, image, productivity etc.) are allowed for – but market evidence required

Summarising major findings



- 1 Do green buildings automatically produce green value? **NO**
(willingness to pay is decisive)
- 2 Do we need new valuation methods? **NO**
(since existing tools can display everything)
- 3 Could there be a European-wide approach/guidance to these aspects? **YES**
(since the fundamental challenge is the same)
- 4 Should we distinguish between developed and less transparent markets? **YES**
(since data input is required for proper calculation)
- 5 Since in principle things are not new. Are there already valuers who handle this aspect in the right way? **NO**
(since some training will be necessary for everyone)
- 6 Can valuers immediately start to integrate green value into their valuation reports **NO**
(since sufficient data base is still missing)

Activities for market rollout



- 1** valuers ' community: continuation of standardisation activities in order to reduce uncertainty among valuers (further development of Guidance Note under TEGoVA)
- 2** policy support in the development of reliable databases on reference buildings (comparables) combining energy efficiency / OC levels and information on building sites, rent levels etc.
- 3** Activation of demand side: valuation approaches explicitly integrating green value have to be asked for by major customers (e.g. public building authorities)
- 4** Dissemination and training activities for the valuers ' community (interpretation of energy benchmarks, results of LCCA etc.)