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# Integration of energy efficiency and LCC into property valuation practise

## - Transforming green features into values -

Dr. rer. pol. Sven Bienert MRICS
Master of Business Administration
Certified Real Estate Manager (Master by VWA)
Certified Real Estate Appraiser
RICS Board member Austria

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# Why green - Worldwide properties are responsible for …!

**17 %** for fresh water consumption

**25 %** for wood input

**33 %** for $CO_2$ emissions

**40 %** for material- and energy consumption

Quelle: U.S. Green Building Council, Stand: 15.04.2008

# Why green - Directive 2002/91/EC, energy efficiency classes/energy certificates

$HWB_{BGF,Ref} \leq 10$ kWh/m²a

$HWB_{BGF,Ref} \leq 15$ kWh/m²a

$HWB_{BGF,Ref} \leq 25$ kWh/m²a

$HWB_{BGF,Ref} \leq 50$ kWh/m²a

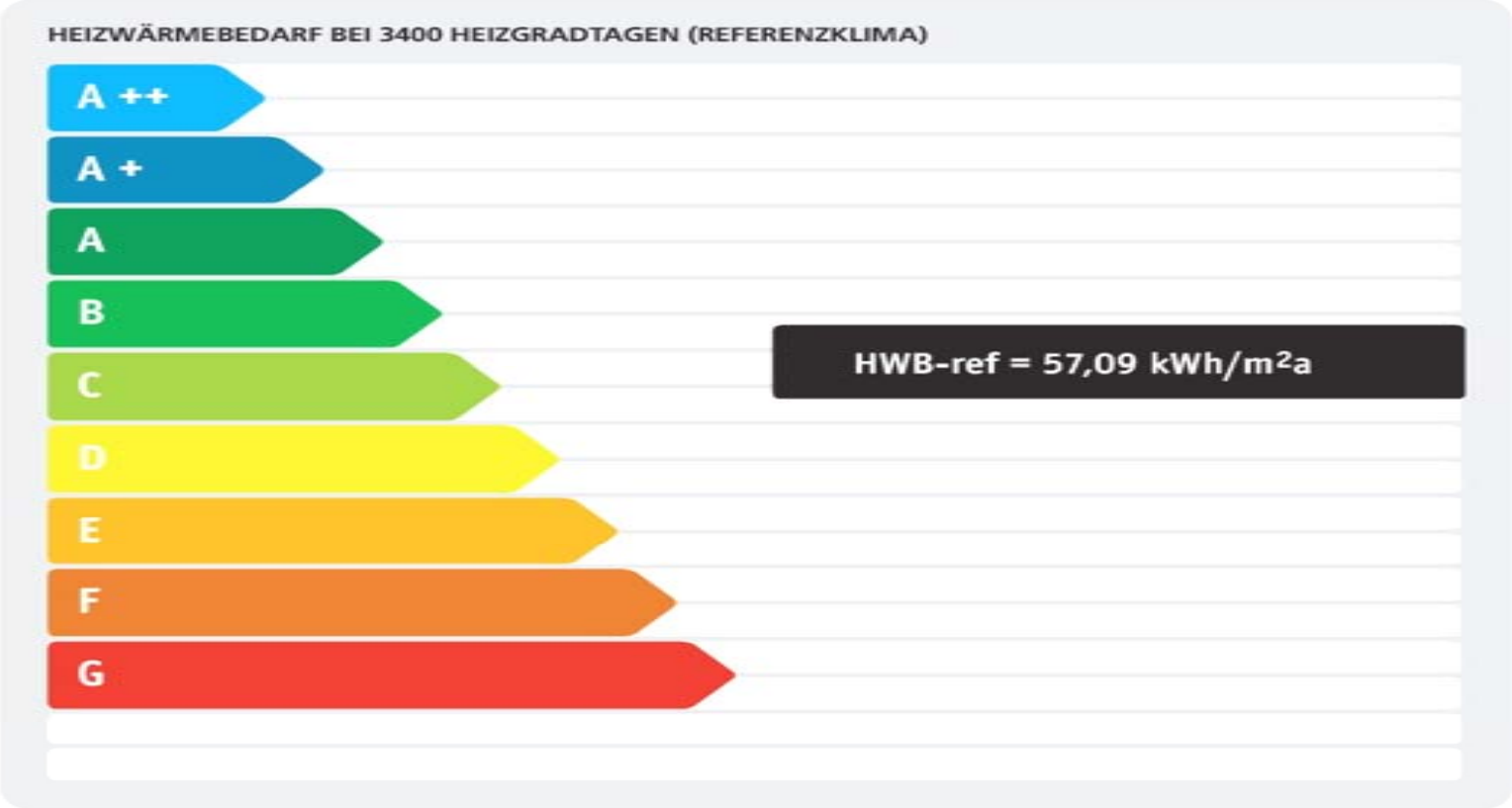
$HWB_{BGF,Ref} \leq 100$ kWh/m²a

$HWB_{BGF,Ref} \leq 150$ kWh/m²a

$HWB_{BGF,Ref} \leq 200$ kWh/m²a

$HWB_{BGF,Ref} \leq 250$ kWh/m²a

$HWB_{BGF,Ref} > 250$ kWh/m²a



# Research questions

1. How will building energy certification and energy efficiency in general change the market in the sense of the investors' and tenants' willingness to pay for thermal-energetic quality?

2. How can property valuers process results stated in energy certificates? In other words, which methods and results of existing life cycle cost and energy efficiency evaluation systems are applicable or relevant for property valuation?

3. How can existing valuation methods measure the impact of energy efficiency? Which adaptations and guidelines need to be developed to properly include theses aspects when carrying out valuations in practice?

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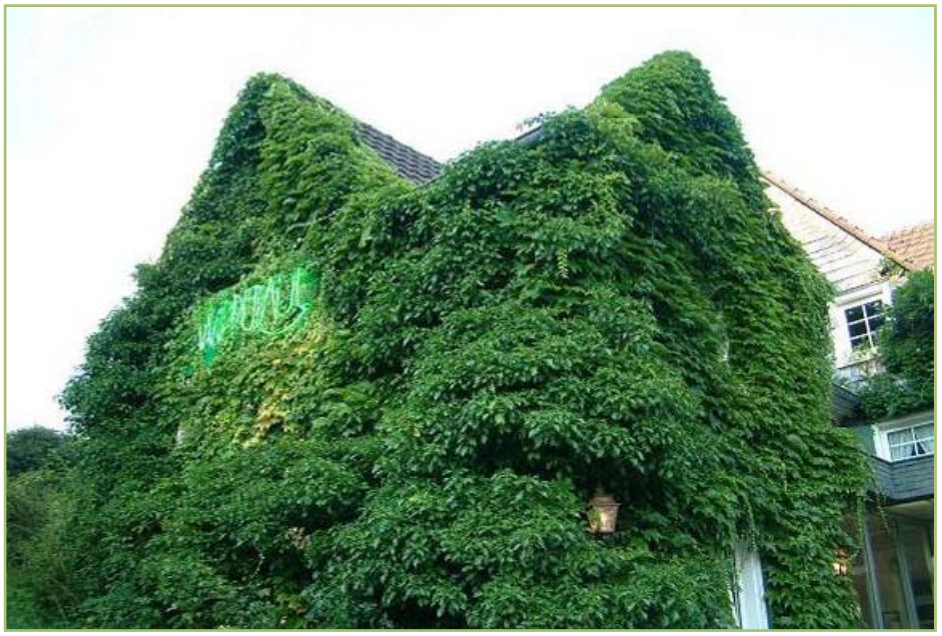
# What is a Green Value? & Null-Hypothesis



1. Market value is the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller ....
2. Green Building is a property "that uses resources efficiently, reduce waste and provide superior indoor air and other qualities."
3. reen Value is the net additional value obtainable by a green building in the market"
4. So Green Value is a premium for the investor!
5. Null-Hypothesis: There is no (positive) relationship etween market value and green attributes can easily proved to be wrong.

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# Energetic sustainable properties promise…?

- an improved tenant retention
- lower tenant fluctuation – longer term of leases
- increasing productivity and costumer satisfaction
- value creation exceeding initial costs
- higher rents and purchase prices
- lower operating expenses
- grant of public support and tax benefits

## In figures (here LEED)...

| | |
|---|---|
| 8-9 % | Decrease of operating expenses |
| 7,5 % | Increase of the current market value |
| 6,6 % | Increase of the ROI |
| 3,5 % | Increase of the occupancy rate |
| 3 % | Increase of rent |

Source: U.S. Green Building Council, Date: 15.04.2008

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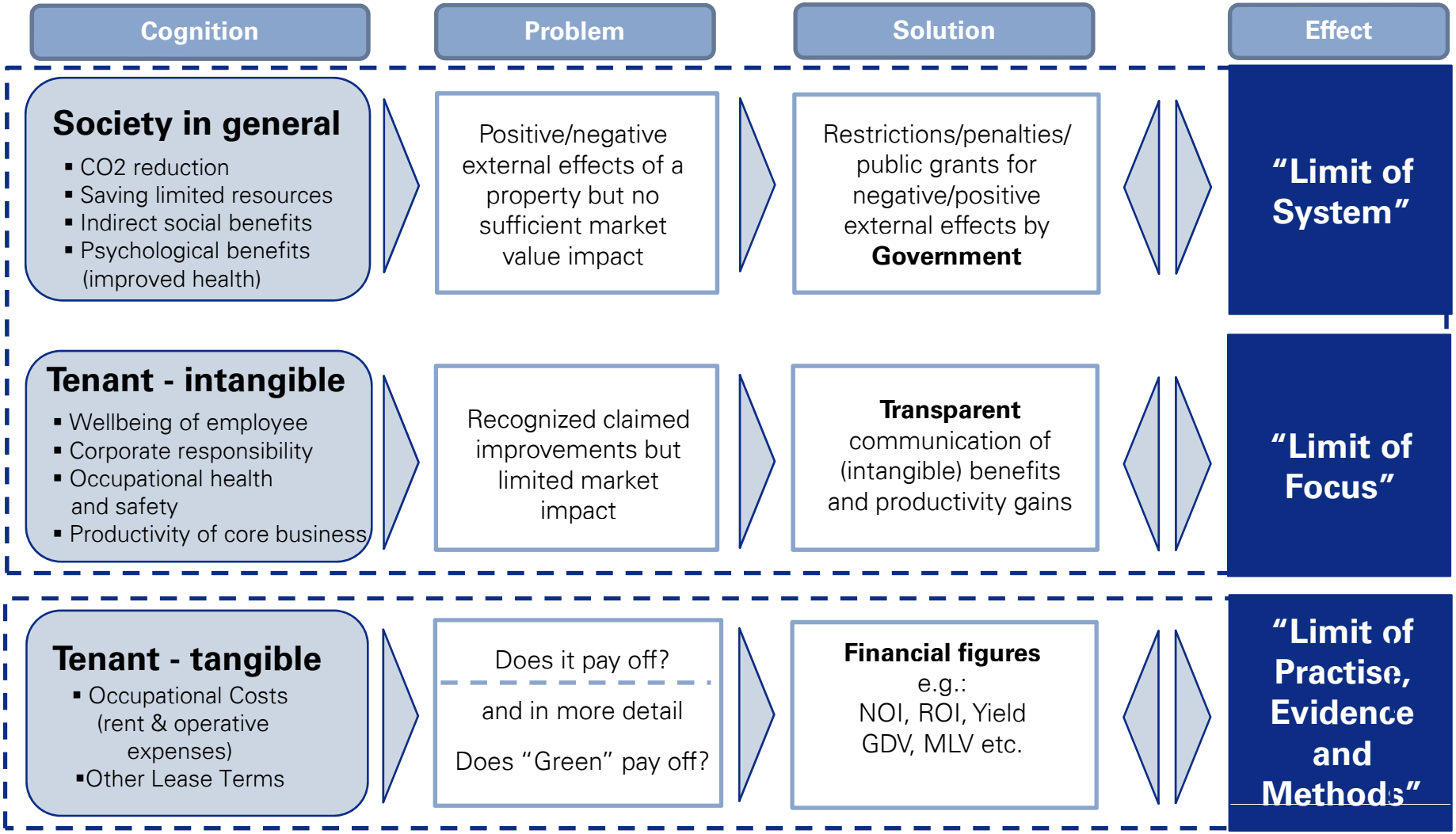
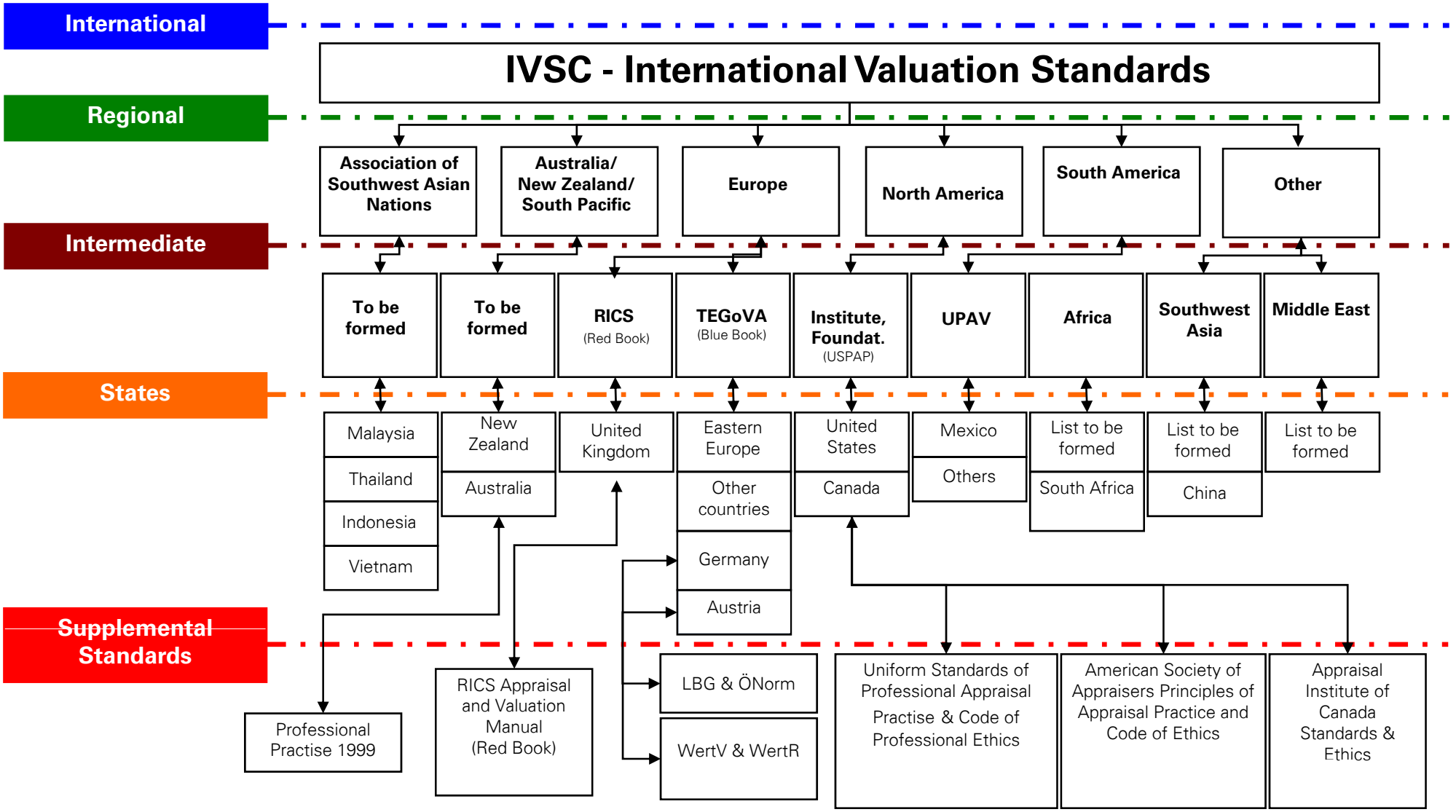
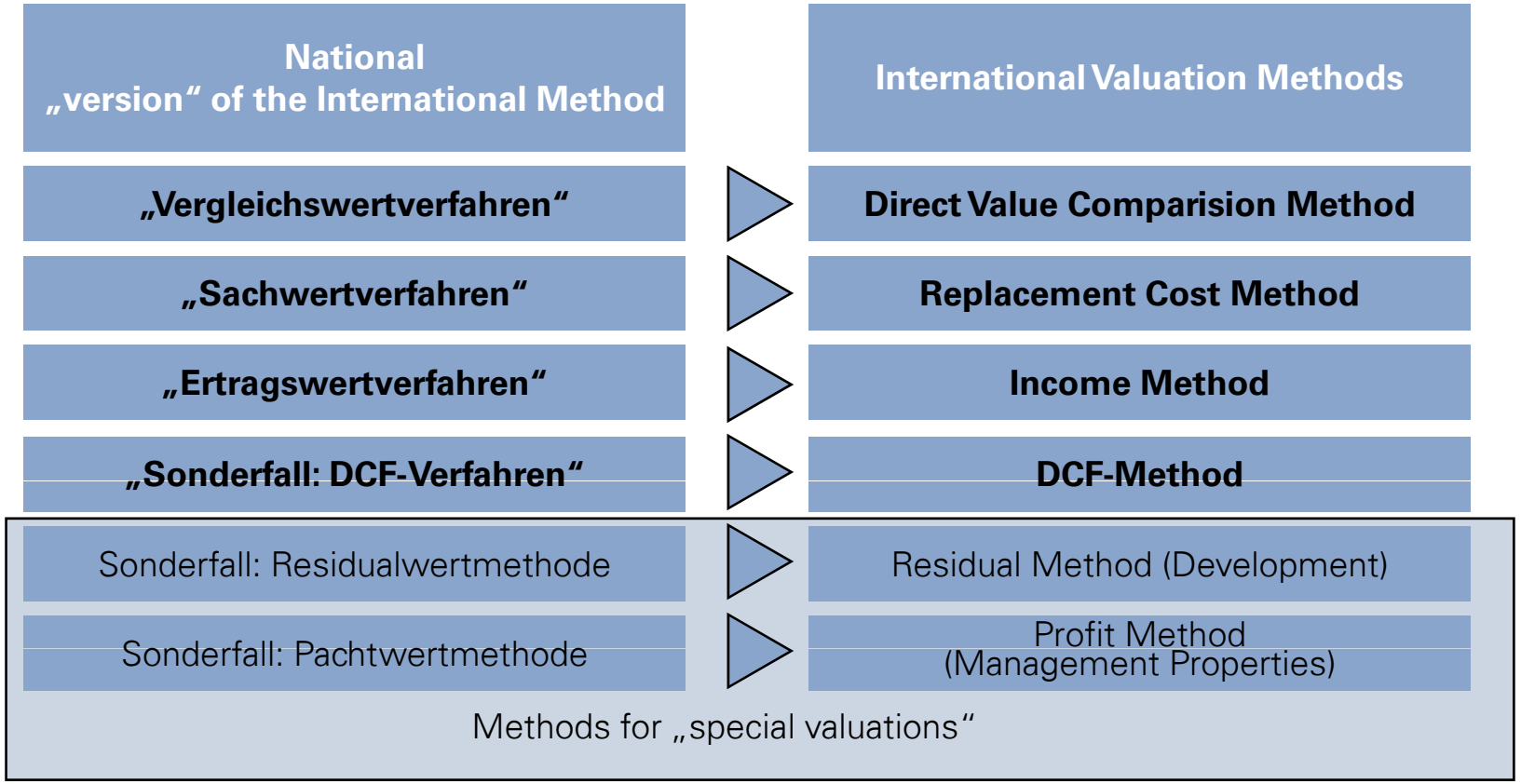
# Integration of green attributes – three major obstacles (Or why markets failed)



# Where to start? - Overview of international standard setters

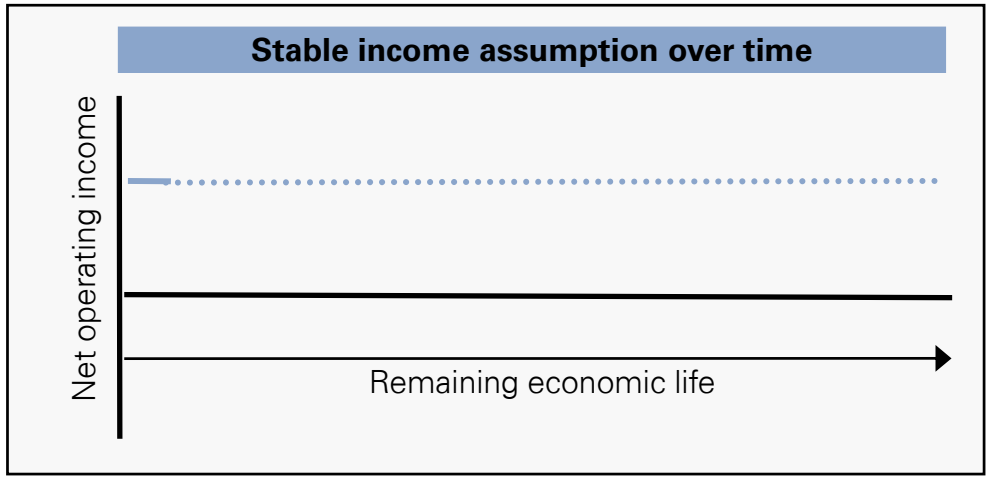


# Where to start? – Global property valuation approaches



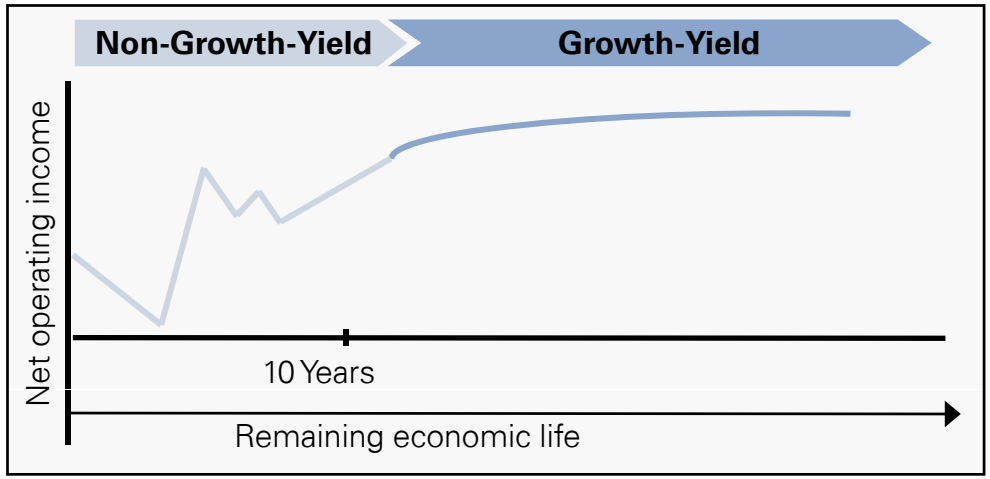
# Where to start ? - DCF methods vs. income capitalisation approach

## Income Capitalization Approach




- Implicit growth model
- Net income is constant over the residual life (expected growth is reflected in yield)
- Basis: present value calculation (rent multiplier - simple capitalization)
- Yield: derived from the property market

## Discounted Cashflow - Method




- Net income is not constant over the time
- Detailed forecast of the cash flow (10-15 years) → a transparent description of future events
- Basis: present value calculation (discounting each years net income separately)
- Attention: Terminal value vs discounting
  - Terminal yield - growth yield
  - Discount rate - non growth yield

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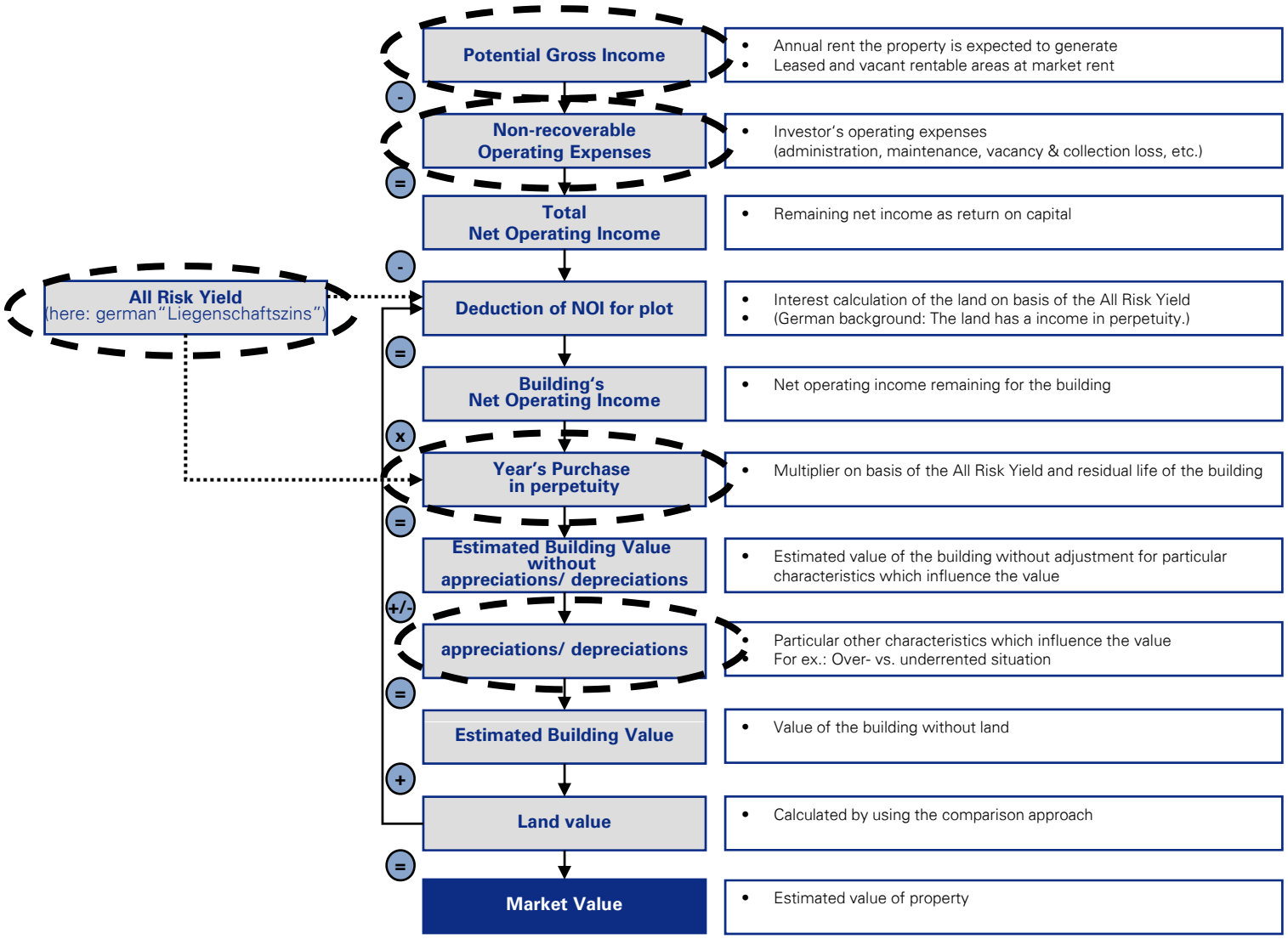
# Overview of green value drivers (1/3)



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# Overview of green value drivers (2/3)

| Green feature | Green impact | Theoretical linkage: added value to owner? | Evidence of market impact | Recommendation for adjustment |
|---|---|---|---|---|
| **Energy efficiency** | | | | |
| **Energy efficiency** | Public benefits | •Only if tax savings / subventions etc. directly connected to the property | If applicable easy to assess. | **Adjustment of income (if clear regulation shows positive effect compared to Peers. BUT penalties for non-green might be more relevant in the future).** |
| | Intangible benefits for tenants (Improved occupant productivity, lower churn, Increased turnover etc) | •Higher turnover rent if applicable.<br>•Generally increased willingness to pay higher rent must be tested.<br>•General lease agreements could be more favourable for owner.<br>•Potentially lower vacancy and collection loss.<br>•Potentially decreasing risk of economic obsolescence and therefore lower yield.<br>•Longer economic life.<br>•Higher marketability leads to faster lease up, lower vacancies and lower fluctuation. | Rare market evidence and difficult to isolate. | **Adjustment of income (only if market impact compared to Peers can be revealed).**<br>**Reduce vacancy and collection loss slightly**<br>**Reflect effect of potentially more favourable lease agreements accurate.** |

Source: KPMG but based on ideas from the RICS Green Value Report

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# Overview of green value drivers (3/3)

| Green feature | Green impact | Theoretical linkage: added value to owner? | Evidence of market impact | Recommendation for adjustment |
|---|---|---|---|---|
| **Energy efficiency** | | | | |
| | Lower energy costs (for the tenant) | •Higher rent for new leases (but: bargaining and ending top-slice?)<br>•Higher rent for "prestige"?<br>•Lower yield for future proved property. | Pure cost cutting effect will have an impact but regression etc. must be carried out.<br><br>„Prestige" probably just a first mover bonus that will disappear soon<br><br>Yield impact crucial but hard to isolate. 10 to 20 BP were benchmarks in other markets. | **Adjustment of income (not permanently and not the whole delta and only if leases are actually negotiable)**<br>**(Adjustment in case of gross leases of course bigger!)**<br>**Yield only if at least countrywide evidence can be stated.** |
| | Maintenance costs | •Both way (higher and lower) might be the case depending on the technical level of the building | | **Adjustment of maintenance costs in both ways is possible** |
| **Other green features** | | | | |
| **Sustainable site development**<br>**Water efficiency**<br>**…** | …. | …. | …. | …. |

Source: KPMG but based on ideas from the RICS Green Value Report

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# But if you try to put the puzzle together in your market remember…!

1. **Discuss/reflect relevance of market state, use, location etc. in argumentation**
2. **Be careful of redundancies.**
3. **Don't "make" the market, just reflect it!**
4. **The market is not "always X %" – there are no general rules!**
5. **Remember that it is a difference to raise the value of Properties instead of cutting down a on values for Non-Greens! Follow the market!**
6. **Find comparables!**

## Survey results

1. Sustainable buildings have a higher marketability (Sale and lease-up).
2. A clear link between lower operating costs for the tenant and a potentially higher gross rent passing for the owner is broadly accepted. Basically the interviewed experts agree that the adjustment of forecasted rents in an appropriate way to consider energy efficiency in the valuation process.
3. The adjustment of yields between Green Buildings and their non-Green Peers will not be a total shift but rather 10 – 40 BP according to most respondents and case studies.
4. Adjustments of the economic life of the building and the expected maintenance costs are recommended only by a few of experts.
5. Concerning comparables experts expressed their worries that comps that are similar in LEED certification or similar in their results of the energy certified will be extremely limited in the same market area.
6. Attraction of Class-A-tenants is easier for Green buildings – with accordingly reduction of vacancy and collection loss.
7. Green buildings tend to enable owners to negotiate also other more favourable lease terms (not only higher rents or instead of higher rents).

# Recommendation / conclusion

1. Appraisers should share their experiences regarding sustainability in a transparent way. Especially comparable data should be collected and shared.
2. Appraisers need more impartial evidence of how green features contribute to the overall value.
3. Green labels and sustainability rating systems must more clearly address the language of the appraisal community to be understood and transferred into monetary measures.
4. Valuations standards need to address the new topic of sustainable issues directly and help appraisers to process the information gathered correctly.
5. The financial benefits for all stakeholders must be transparent and allocated accordingly.
6. Professional education is needed to assist appraisers to fully understand the potential impact.
7. In each (full) valuation report the green value contribution of the property should be discussed in a specific section of the report.
8. Regulators and policy makers must improve the awareness of a market in transition further and support internalisation of external effects further to reach a "fair" market value from a social perspective.
9. Support more research work to isolate the value drivers of green features further.
10. In general we all must work as real estate professionals hard to tear don the barriers "green" sometime still faces in our industry.

# Contact

**SV Dr. DDipl. Sven Bienert MRICS**
*Director*

Tel. +43 512 599 96-5321
Fax. +43 512 599 96-5021
e-mail sbienert@kpmg.at

Address Kudlichstraße 41-43
4020 Linz

Adamgasse 23
6020 Innsbruck

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