

WINNING IN THE LONG RUN ?

Driving
Sustainable Financial Performance
on Real Estate

AUTHORS

Juerg R. Bernet
Sarah Sayce
Maarten Vermeulen
Rupert C. Ledl

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Kingston University London



EURO Institute
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Real Estate Management



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A project of the international research programme
s-i-r-e Sustainable Investment in Real Estate
directed by Danube University Krems (Austria)
in cooperation with Kingston University London

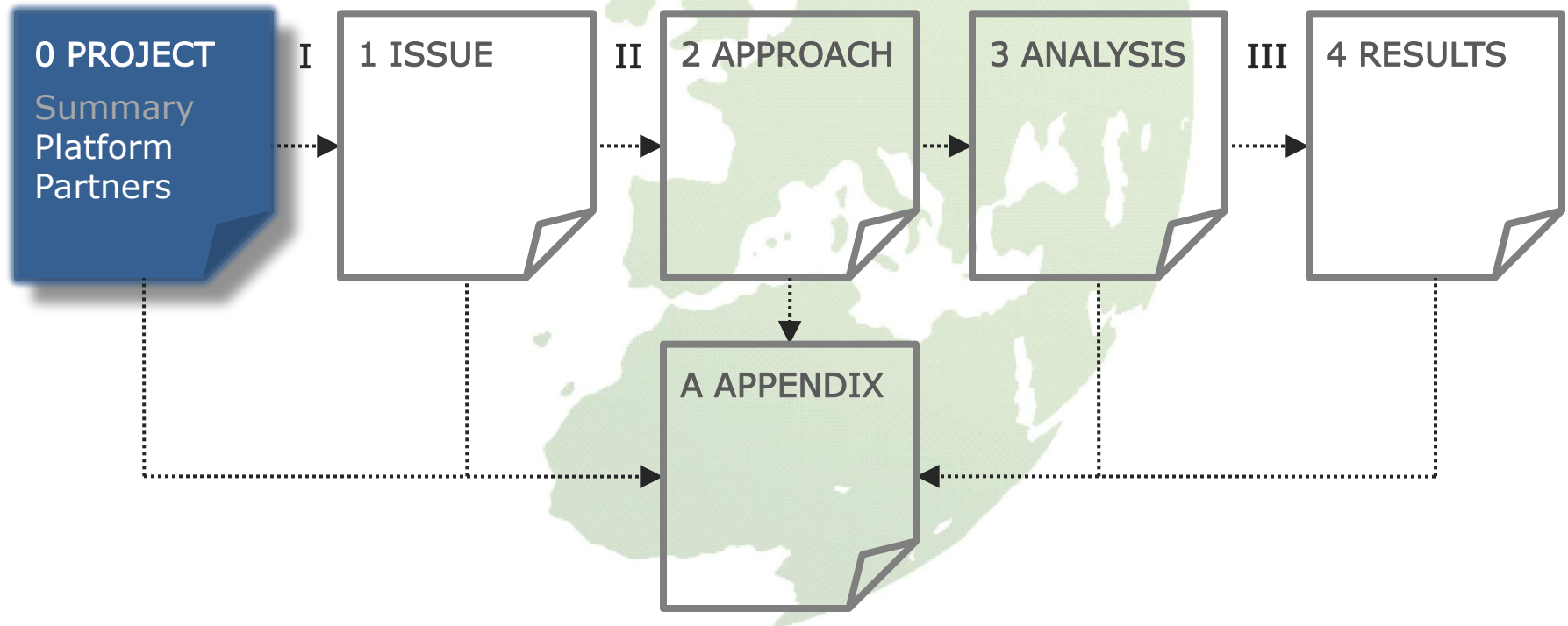
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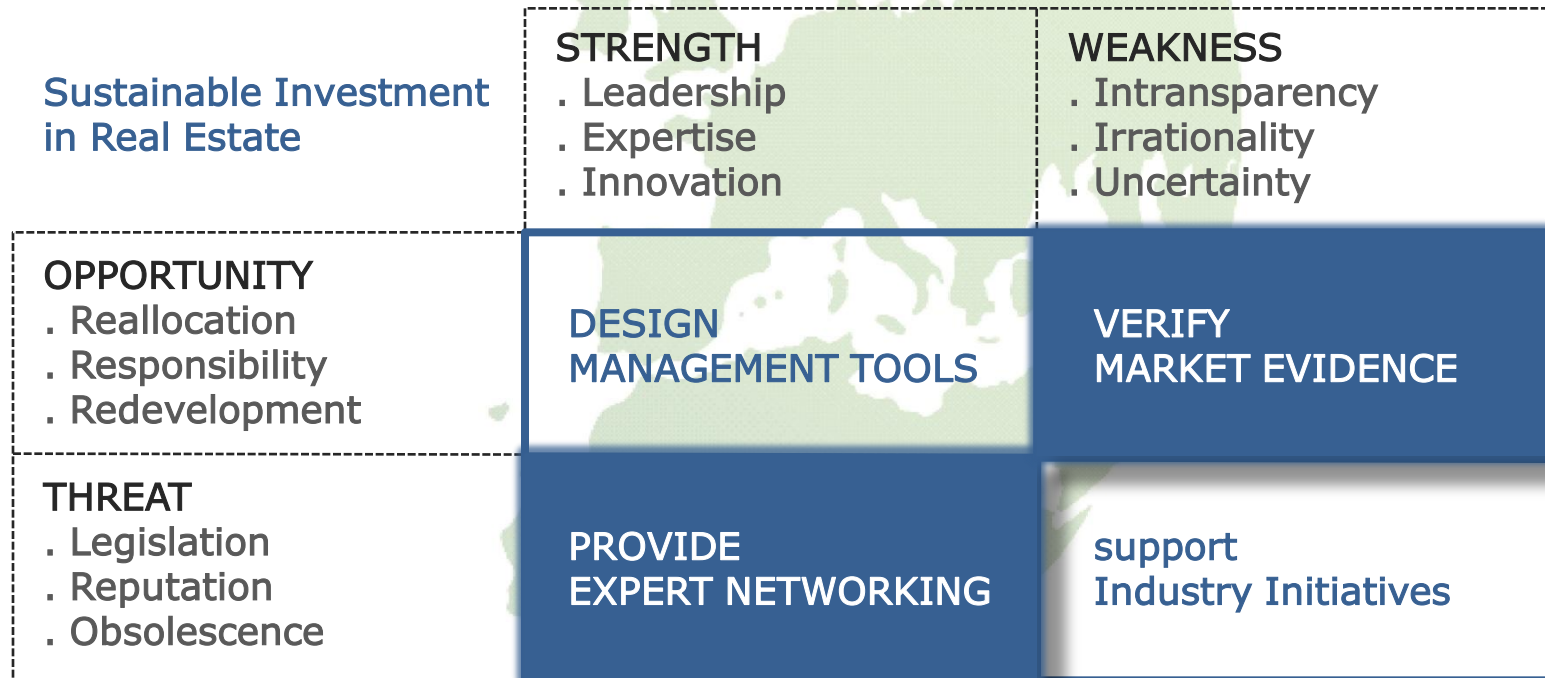
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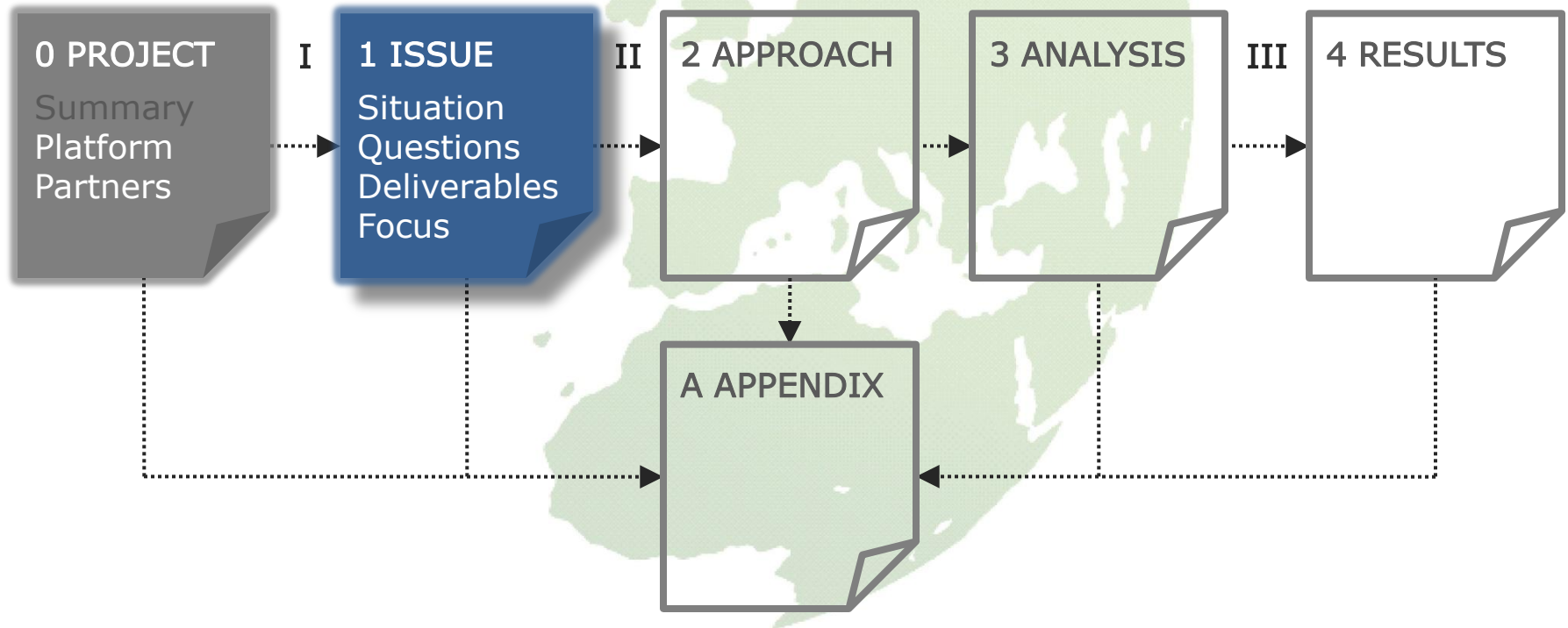
The Content of this Working Paper



The Need for an Independent Research Platform



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The Empirical Search for the Green Alpha

Bernet & Sayce et al. (EU): (work in progress)

Wiley et al. (USA): **Rent 7..17%, Occupancy 10..18%**

Fuerst & McAllister (USA): **Occupancy 3..8%**

Leopoldsberger et al. (DE): **Rent 0..6%**

Salvi et al. (CH): **Rent 5..6%**

Fuerst & McAllister (USA): **Rent 5..6%, Price 31..35%**

Pivo & Fisher (USA): **Net Income 6%, Value 13%**

Eichholtz et al. (USA): **Rent 3..6%, Price 16%**

Cudworth & Graham (UK): **Return -3%**

Miller et al. (USA): **Rent 0..3%, Price 15%, Value 10%**

Fuerst & McAllister (USA): **Rent 4..5%, Price 25..26%**

Eichholtz et al. (USA): **Rent 2..6%**

Salvi et al. (CH): **Price 3..7%**

2008

2009

2010

2011

The Value of a Sustained Growing Cash Flow

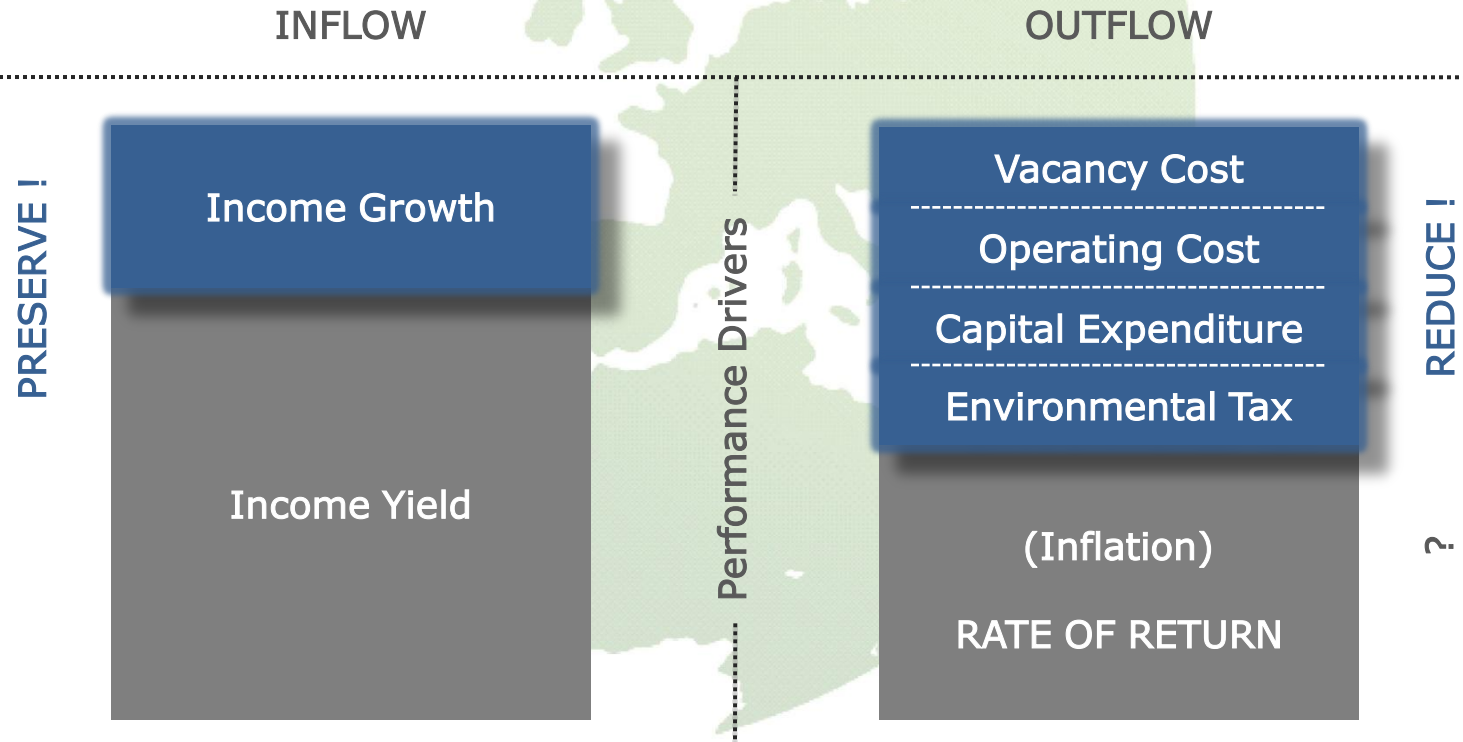
$$CV = \frac{CF^3(1+g)}{1+IRR} + \frac{CF^3(1+g)^2}{(1+IRR)^2} + \dots = \sum_{t=1}^{\infty} \frac{CF^3(1+g)^t}{(1+IRR)^t} \quad \text{1/4} \quad CV = CF^3 \frac{1+g}{IRR-g}$$

$$IRR \approx y + g$$

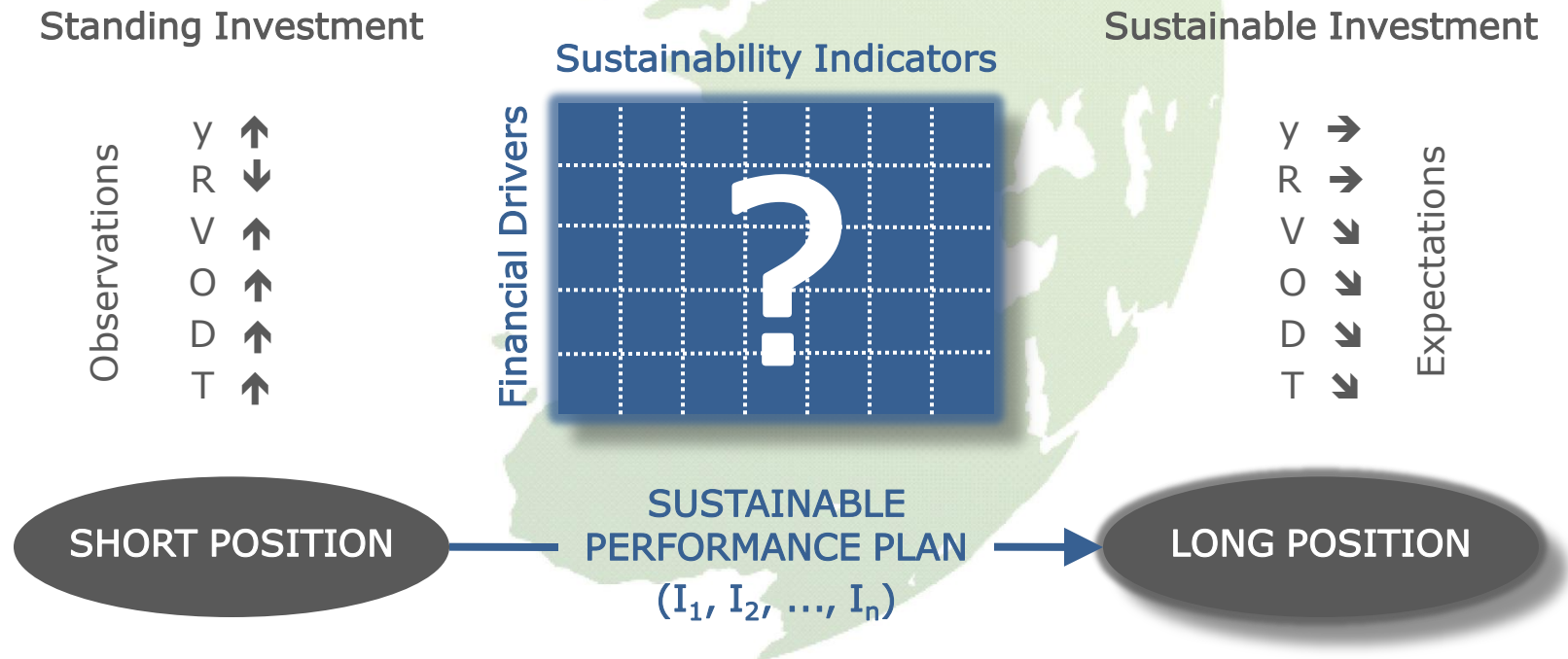
with $y = CF / NPV$, $CF = R - V - O - D - T$, $g = \Delta R - \Delta V - \Delta O - \Delta D - \Delta T$

INDEX: **CF** = Initial cash flow, **CV** = Initial capital value, **D** = Capital expenditure, **g** = Sustainable net growth rate, **IRR** = Internal rate of return, **O** = Non-recoverable operating and maintenance cost, **R** = Gross rental and other income, **T** = Property and environment taxes, **V** = Vacancy cost, **y** = Initial net income yield, **Δ** = Sustainable growth

The Business Case for a Sustainable Investment



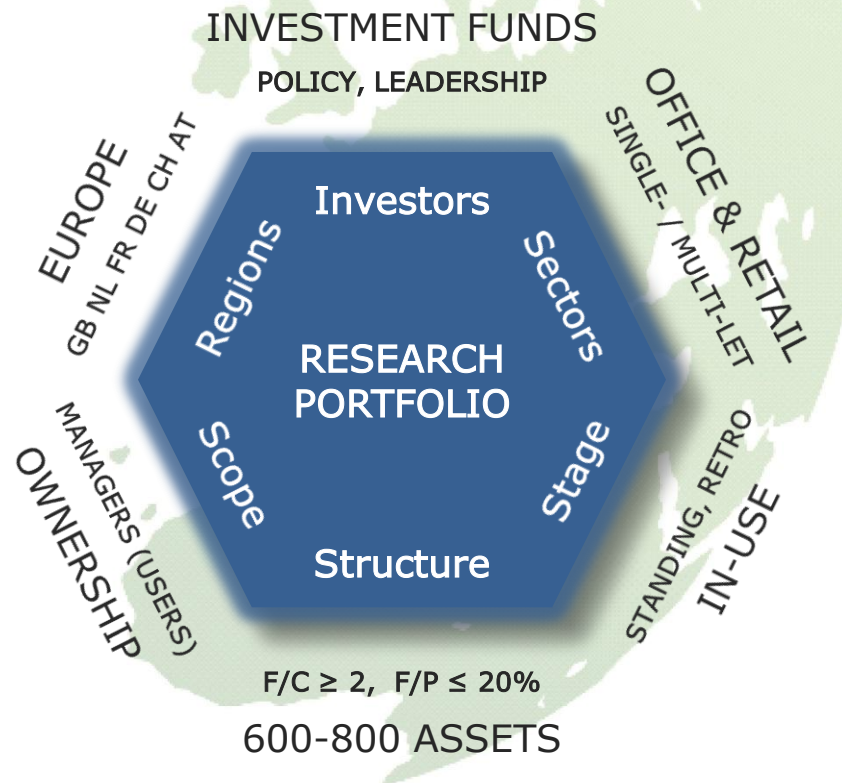
Which Indicators Drive Sustainable Performance



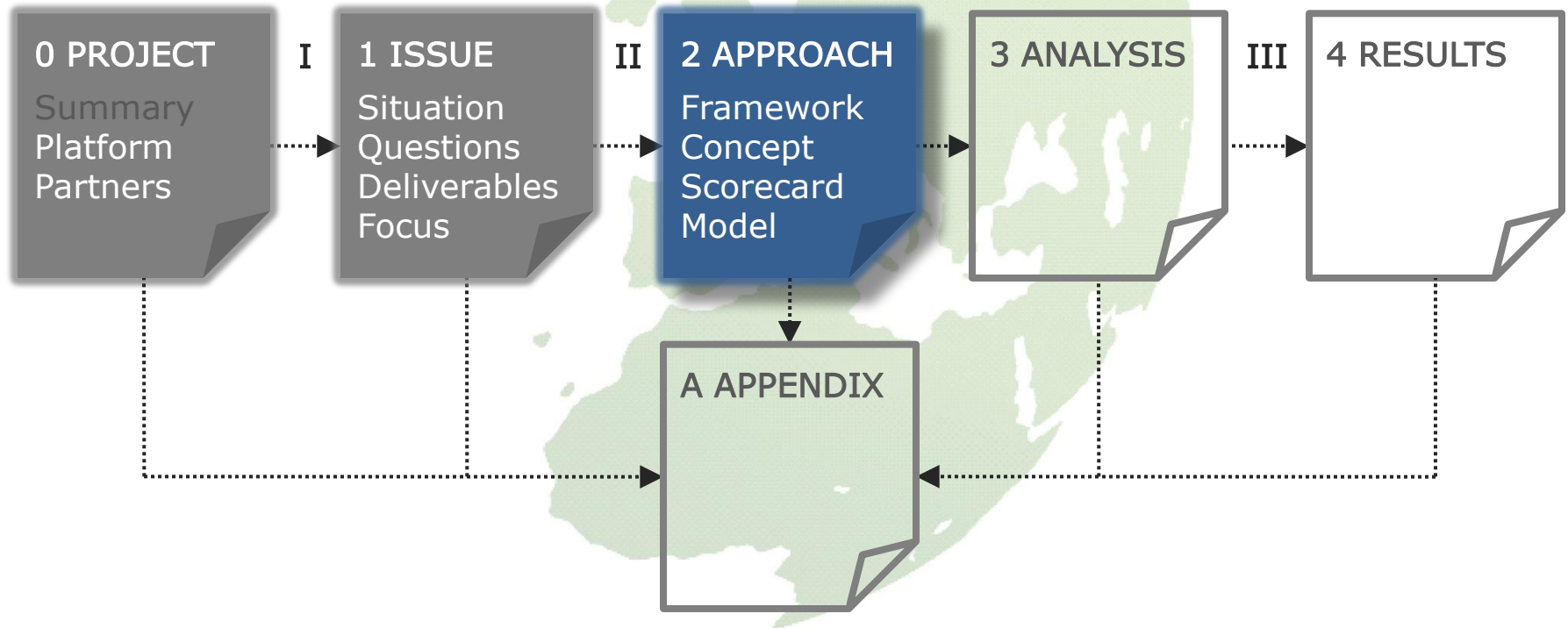
Deliverables to the Project Stakeholders

	Public	Partners	Trustees	Board	Team
Research project plan		■	■	■	■
Project presentation charts		■		■	■
Academic conference papers	■	■	■	■	■
Financial sustainability scorecard		■	■	■	■
Research programme website	■	■	■	■	■
Aggregated data set					■
Integrated analytical model		■	■	■	■
Professional magazine articles	■	■	■	■	■
Project partner workshops		■		■	■
Investor panel discussions	■	■			■
Performance indicator list		■	■	■	■
Research project report		■	■	■	■
Management summary brochure	■	■	■	■	■
Reviewed journal paper	■	■	■	■	■

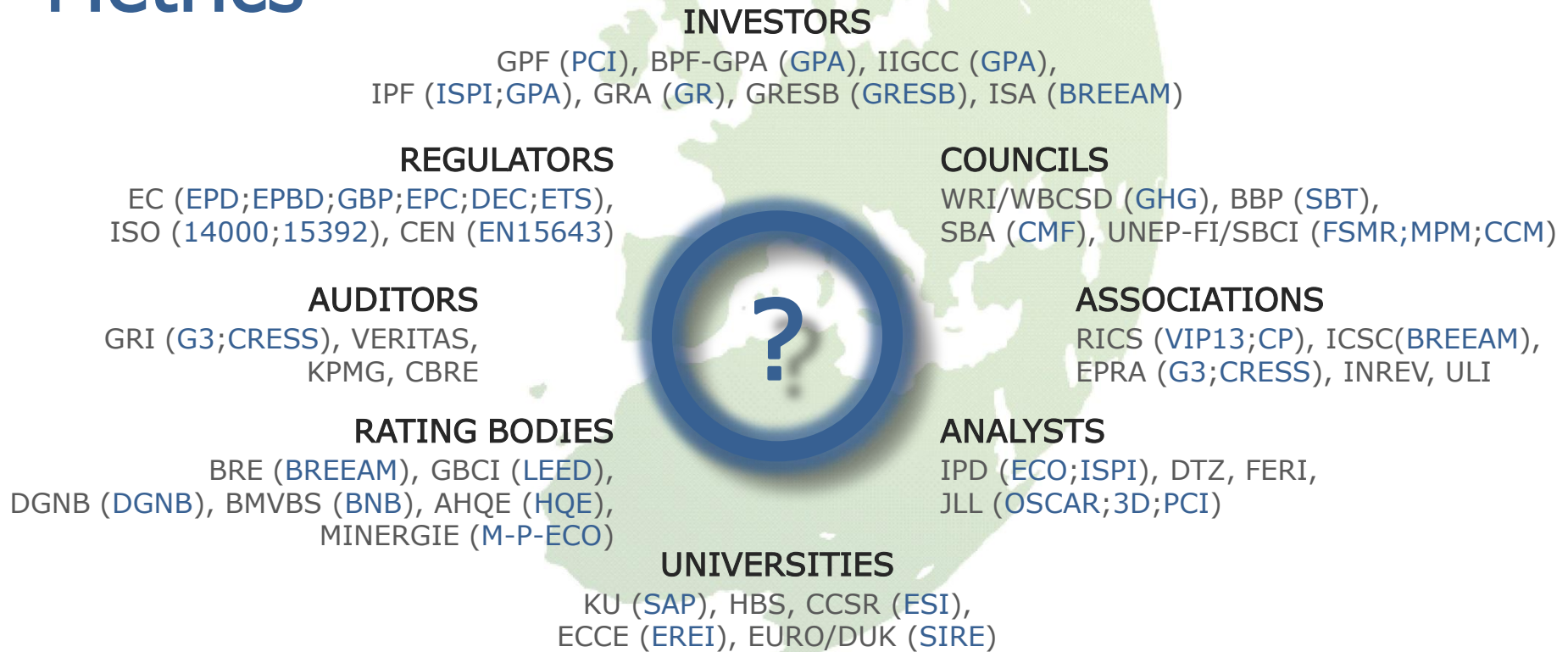
The Focus of a First Empirical Study in Europe



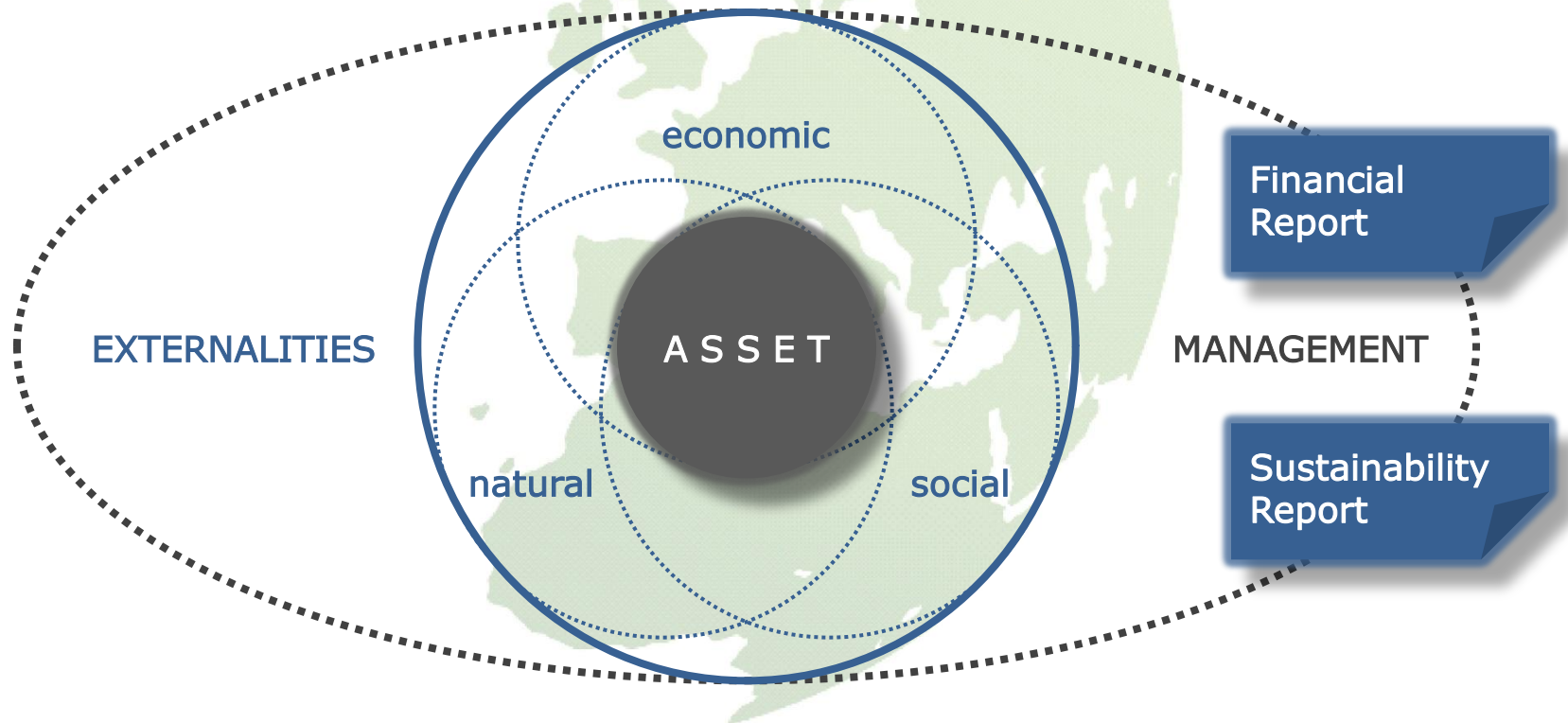
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Towards a Framework of Sustainability Metrics



The Concept of Driving Sustainability Indicators



Sustainability

Externalities

NATURAL	SOCIAL	LEGAL
Numerator	Amount	Source

ID	TOPIC	ITEM	METRIC	DEF
P1	Age	Building completion	year	.....
P2		Last refurbishment	year	.....
P3	Size	Total area	m2	.....
P4		Rental area	m2	.....
P5		Main floors	number	.....
P6		Ceiling height	m	.....
P7	Type	Building shape	type	.....
P8		Building flexibility	type	.....
P9		Building management	type	.....


Sustainability

Externalities

NATURAL	SOCIAL	LEGAL
Numerator	Amount	Source

ID	TOPIC	ITEM	METRIC	DEF
E1	Monetary	Local currency rate	LCU/Euro	.....
E2		Money market yield	% pa	.....
E3		Government bond yield	% pa	.....
E4	Corporate	Core inflation rate	% pa	.....
E5		Gross domestic prouct growth	% pa	.....
E6		Sectoral diversity	factor	.....
E7	Private	Direct income	000 LCU	.....
E8		Private wealth	mLCU	.....
E9		Consumer spending	index	.....

Sustainability

NATURAL	SOCIAL	LEGAL
Numerator 	Amount	Source

ID	TOPIC	ITEM	METRIC	DEF
N1	Climate	Weather conditions monitored	DD	.....
N2		Flood risk registered	yes/no	.....
N3	Energy	Total energy used	kWh	.....
N4		Renewable energy used/produced	kWh	.....
N5	Emission	Greenhouse gases emitted	t CO2e	.....
N6	Water	Total water used	m3	.....
N7		Water recycled/harvested	m3	.....
N8	Waste	Total waste disposed	t	.....
N9		Waste recycled/composted	t	.....

The Financial Sustainability Scorecard

Asset		Externalities				Management		
PHYSICAL		ECONOMIC		NATURAL	SOCIAL	LEGAL	FINANCIAL	
Record	Property	Period	Numerator	▶	Amount	Source	Date	Notes
ID	TOPIC	ITEM			METRIC	DEF		
S1	Community	Educational diversity			ratio	.....	
S2		Job creation			%	.....	
S3		Mobility services			score	.....	
S4		Health status			index	.....	
S5	Tenant	Tenant mix			factor	.....	
S6		Tenant engagement			level	.....	
S7	Employee	Employees			FTE	.....	
S8	Visitor	Visits			number	.....	
S9		Visitor engagement			level	.....	

The Financial Sustainability Scorecard

Asset		Externalities				Management		
PHYSICAL		ECONOMIC		NATURAL	SOCIAL	LEGAL	FINANCIAL	
Record	Property	Period	Numerator	▶	Amount	Source	Date	Notes
ID	TOPIC	ITEM			METRIC	DEF		
L1	Legislation	Energy efficiency regulation			type	.....	
L2		Carbon taxation on building			year	.....	
L3		Carbon taxation on transport			year	.....	
L4	Policy	Green building certification			type	.....	
L5		Owner sustainability report			year	.....	
L6		Occupier sustainability report			%	.....	
L7	Agreement	Remaining lease length			years	.....	
L8		Building operation period			hrs	.....	
L9		Green lease implementation			level	.....	

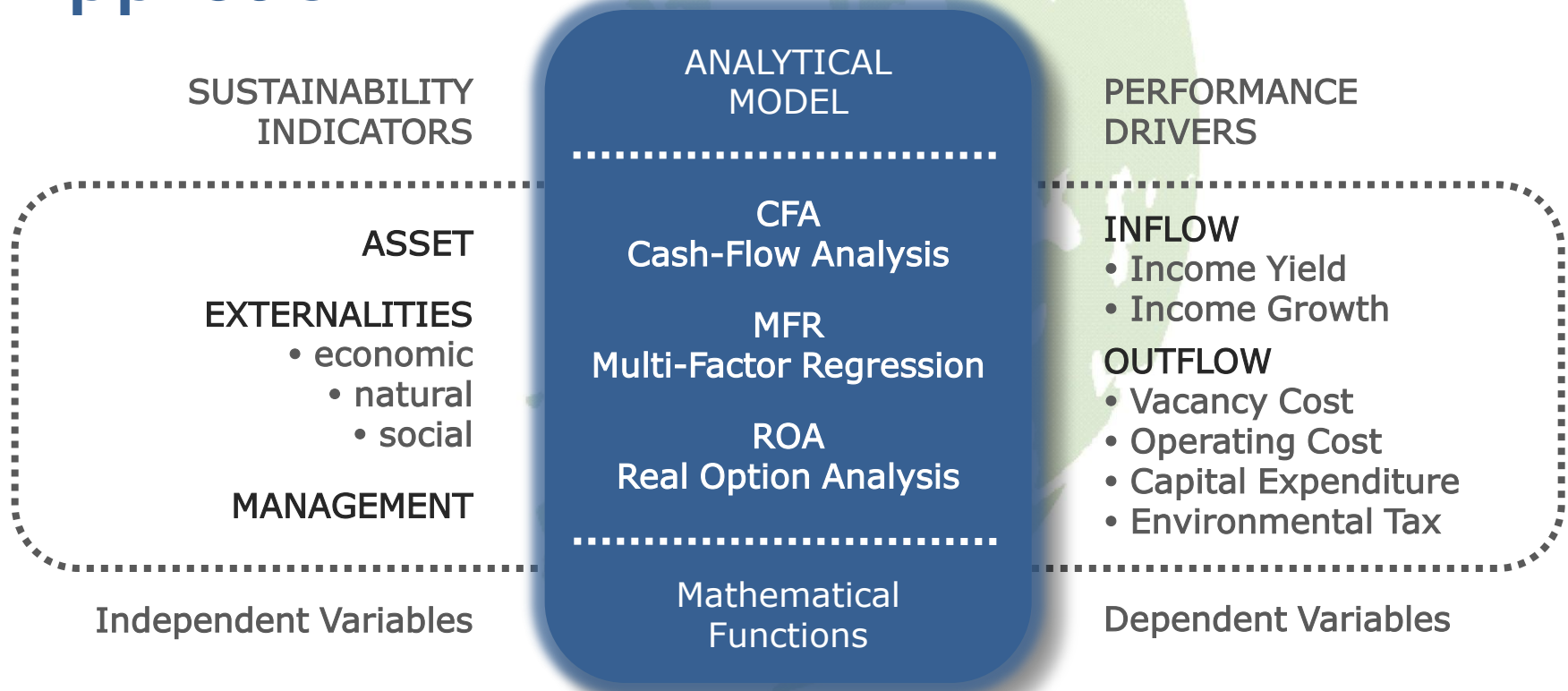
Sustainability

Externalities

NATURAL	SOCIAL	LEGAL
Numerator	Amount	Source

ID	TOPIC	ITEM	METRIC	DEF
F1	Inflow	Rental income	000 LCU	.....
F2		Other income	000 LCU	.....
F3	Outflow	Vacancy cost	000 LCU	.....
F4		Non-recoverable operating cost	000 LCU	.....
F5		Maintenance cost	000 LCU	.....
F6		Capital expenditure	000 LCU	.....
F7		Property and environmental tax	000 LCU	.....
F8	Other	Recoverable operating cost	000 LCU	.....
F9		Initial capital value	mLCU

The Analytical Model of an Integrated Approach





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