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A Stepping Stone to Enhance Competitiveness through Sustainable Development

A preliminary design for prioritizing between sustainable development activities to enhance the competitiveness of Dutch real estate developers.

P5 presentation

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*“...more and more corporations in every industry are incorporating **sustainability** and **social responsibility** issues into their goals for the future. They have accepted that they must do so if they wish to **survive** and **thrive** in the tumultuous times ahead.”*

(Senge, Smith, Kruschwitz, Laur, & Schley, 2010, p. 101, The Necessary Revolution)

Index

What topics will be addressed in this presentation?

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- Phase two: understanding the market
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Introduction

A mismatch between practice and literature

Literature

- Sustainability can lead to competitive advantage
- Reduce operational costs
- Improve product quality
- Improve rentability / ability to sell
- Improve brand / reputation
- Increase shareholder and building value

Practice

- Pace of innovation in the built environment is too slow
- Dutch real estate developers are insufficiently aware of the diverse aspects of sustainability
- Sustainability is seen as costly rather than long-term investment
- Dutch real estate developers hardly go beyond-compliance
- Different barriers are withholding Dutch real estate developers
- Built environment generates 40% of global energy consumption and 1/3 of global CO₂ emissions

Problem Statement

What problem is alleviated through this research?

*Dutch real estate developers often do not implement a **sustainable corporate strategy**, and when doing so they hardly go **beyond-compliance**. Furthermore, there is a **lack of knowledge** on what actions can be taken by Dutch real estate developers to become more sustainable and how those actions affect their **competitive advantage**. Factors like these prevent a fast transition towards a more sustainable built environment.*

Main research question

The research question which is answered throughout the thesis

*What is the **impact of sustainable development activities** that go **beyond-compliance** on the **competitiveness** of private Dutch real estate developers?*

Four phases

Structure of the report

Phase 1: first impressions
and literature

Analyzing current literature and first impressions from market

Phase 2: understanding the
market

Understanding the underlying problem (barriers and current position)

Phase 3: variables and
impact analysis

Defining variables and performing impact analysis

Phase 4: designing tool

Visualizing the impact to analysis to help practice

Phase one: First impressions & literature

First findings from literature

Image source:
<https://www.bangor.ac.uk/courses/undergraduate/2021/3p3q-english-literature-and-film-studies>

Topics and why

Phase 1: First impressions & literature review

- Assumption of a positive relation between sustainable development and a competitive gain
 - Main research question relies on this assumption
- Barriers that are withholding real estate developers
 - Generate a list of barriers that can be measured regarding presence in Dutch market
- How to measure the competitiveness of real estate developers
 - To assess the impact of sustainable actions it first needs to be understood how competitiveness can be measured
- Sustainable development activities and sustainable actions
 - Gain a first understanding of what real estate developers can do to become more sustainable

Assumption Sustainability and Competitiveness

Phase 1: First impressions & literature review

- Two views towards sustainability
 - Traditionalist view -> sustainability is a cost-driver due to high costs and complicated solutions
 - Revisionist view (leading for this research) -> sustainability innovations do have the capability to lead to a competitive advantage
- Possible competitive gain
 - Efficient processes due to a decrease of raw materials, energy and resource consumption
 - Higher product quality
 - Improvement of managerial processes
 - Answer to an increasing demand in the market
 - Improve image and reputation of a firm
 - Increased customer satisfaction
 - Increasing shareholder value and building value
 - Tenant attraction and retention
 - Staff attraction and retention
 - Demand for socially responsible investments
 -
 -

Barriers withholding real estate developers

Phase 1: First impressions and literature review

Type of barrier	#	Examples	source
Financial	1	Sustainability measures are too costly	(Regales, 2017)
	2	No access to financing	(Regales, 2017)
	3	Lack of suitable business cases	(Regales, 2017)
	4	Risks perception	(Regales, 2017)
	5	Split-incentive	(Regales, 2017)
	6	Short term view / involvement	(Regales, 2017)
Legislative	7	Regulations	(Regales, 2017)
	8	Lack of flexibility by law and regulations	(Regales, 2017)
	9	Lack of ambition / vision for sustainability	(Regales, 2017)
	10	Protest / objections from actors	(Regales, 2017)
Knowledge	11	Lack of knowledge, awareness, or expertise	(Regales, 2017)
	12	Insufficient support for research, learning and pilot projects	(Regales, 2017)
	13	Insufficient transfer of knowledge	(Regales, 2017)
	14	Lack of knowledge concerning BREEAM	(Regales, 2017)
Organizational (internal)	15	Lack of coordination within and between different organizational level	(Regales, 2017)
	16	Sectoral responsibility versus collective interest	(Regales, 2017)
	17	Lack of leadership capacity and know-how for complex, cross-sectoral process	(Regales, 2017)
	18	Lack of courage	(Regales, 2017)
	19	Lack of support / direction	(Regales, 2017)
	20	Sustainability measure was not considered by stakeholders	(Williams & Dair, 2007)
	21	Stakeholder had no power to enforce or require sustainable measure (in some cases it was the responsibility of client or the contractor)	(Williams & Dair, 2007)
Organizational (external)	22	Sustainability measure was not required by client	(Williams & Dair, 2007)
	23	Sustainable measure was restricted, or not allowed, by regulators	(Williams & Dair, 2007)
	24	Stakeholder was not included, or was included too late, in the development process to implement sustainability measure	(Williams & Dair, 2007)
	25	Risks involved because of different contract forms of project delivery and changed site practices and behaviors	(Zhang, Shen, Wu, & Qi, 2011)
	26	Interest conflicts between various stakeholders in using green measures	(Zhang, Shen, Wu, & Qi, 2011)
	Technical	27	Site conditions mitigated against the use of a sustainable measure
28		Inadequate, untested, or unreliable sustainable materials, products, or systems	(Williams & Dair, 2007)
29		Sustainable measure was not available	(Williams & Dair, 2007)
30		Technical difficulty during the construction process	(Zhang, Shen, Wu, & Qi, 2011)
			(Zhang, Shen, Wu, & Qi, 2011)

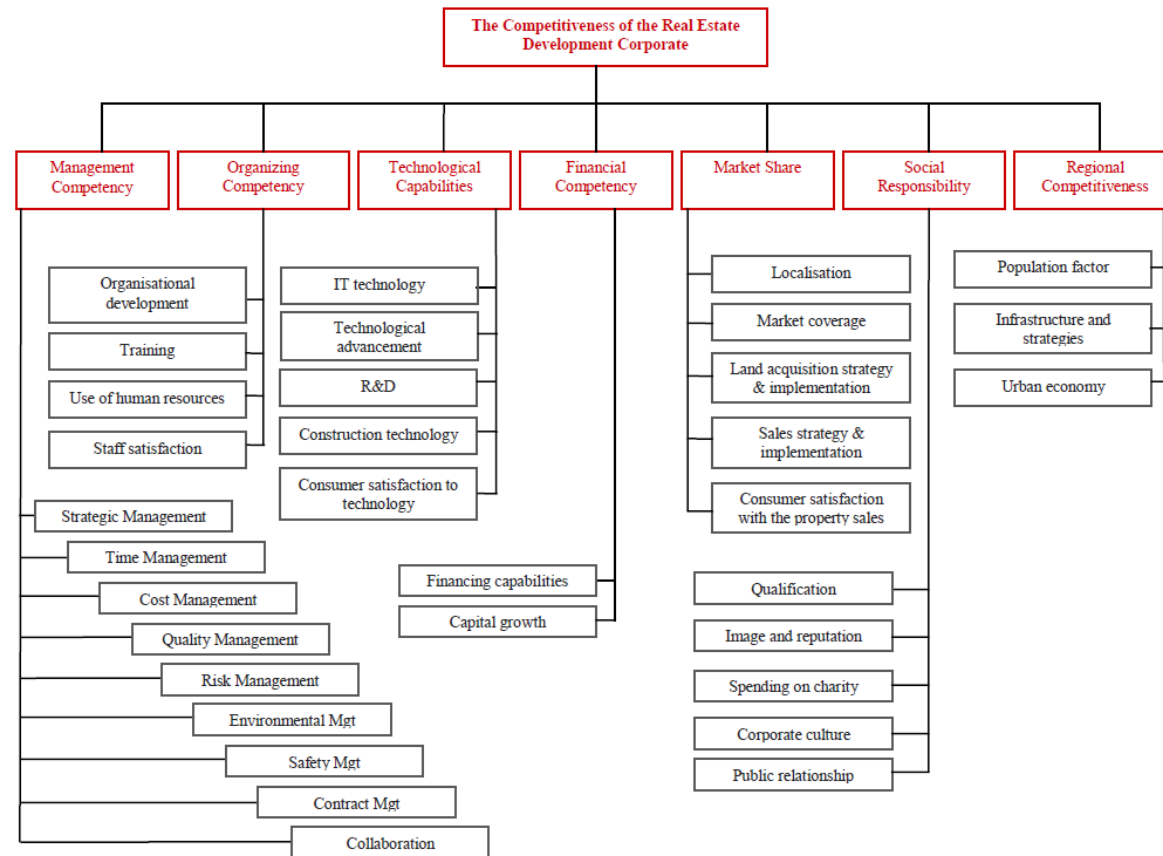
Sources: (Regales, 2017; Williams & Dair, 2007; Zhang, Shen, Wu & Qi, 2011)

Competitiveness of real estate developers

Phase 1: First impressions and literature review

- Strategy of assessing competitiveness
 - Key competitiveness indicators (KCI's)
 - Weighted summation (WS)

- KCI's of real estate developers
 - Management competency
 - Organizing competency
 - Technological capabilities
 - Financial competency
 - Market share
 - Social responsibility
 - Regional competitiveness




Sustainable development activities (SDA's)

Phase 1: First impressions and literature review

- Difference sustainable actions and SDA's
 - Umbrella terms
 - Many actions under one umbrella term
- Identified SDA's from literature
 - Green product development
 - Green supply chain management
 - Green human resource management
 - Green profiling and Marketing strategy
 - Green facility management
- SDA's adopted
 - Difference of impact minimal
 - Time constraint
- List expansion
 - Many sustainable actions found in practice

Green Product Development	Green Supply Chain Management	Green Human Resource Management	Green Profiling and Marketing Strategy	Green Facility Management
Maximize score on BREEAM	Work with sustainable parties in project team	Value- based recruitment (focus on sustainability)	Profile the company as 'sustainable'	Act in a sustainable manner within the company
Maximize score on LEED	Business – environmental group partnerships	Employee training in sustainability	Emphasize on sustainability in online marketing	Invest in sustainability in personal investments (ownership)
Maximize score on WELL		Employee development in sustainability		
Maximize score on Green rating		Talent management		
Integrate circularity into developments		Performance management		
Develop flexible buildings		Incentive systems in accordance with the corporate sustainability strategy		
Minimize effect on transport				



Phase two: Understanding the market

Barriers withholding Dutch RE
developers & current market
'compliance' position

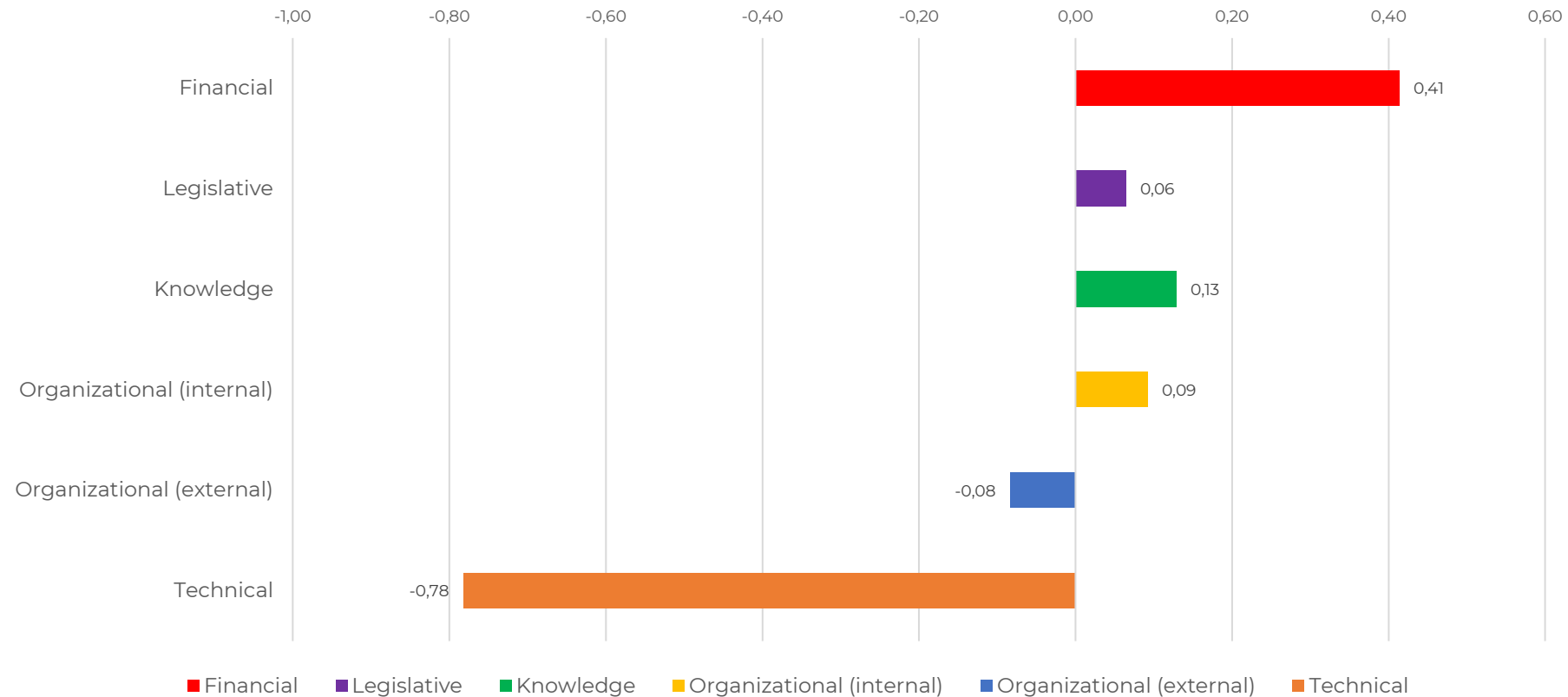
Image source:
<https://www.dhl.com/discover/e-commerce/e-commerce-advice/barriers-to-growth-and-how-to-overcome-them>

Average score barrier Categories

Phase 2: understanding the market

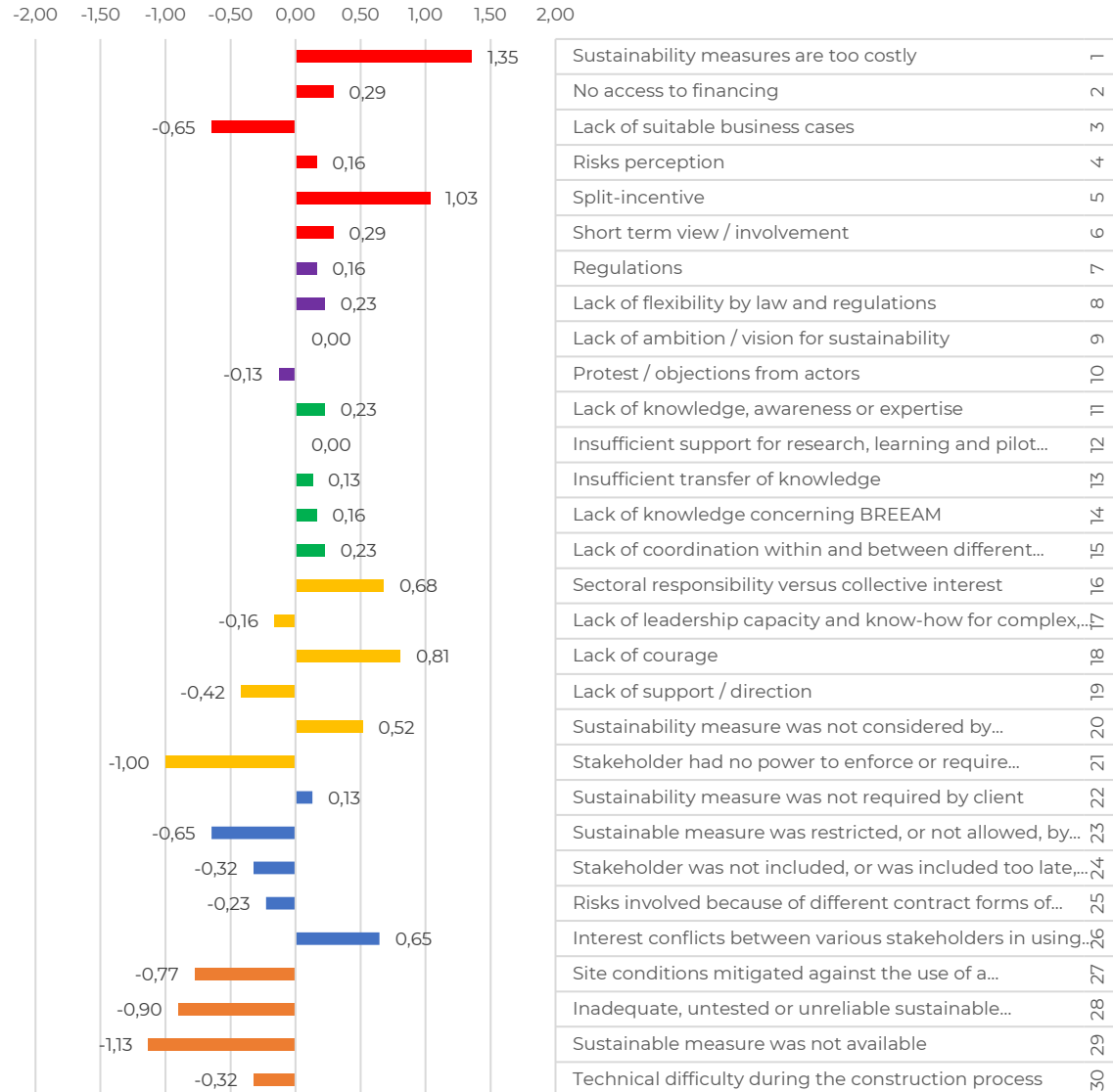
score	-2	-1	0	1	2
response	Strongly disagree	disagree	Neutral / No opinion or experience	agree	Strongly agree

Average score per barrier category



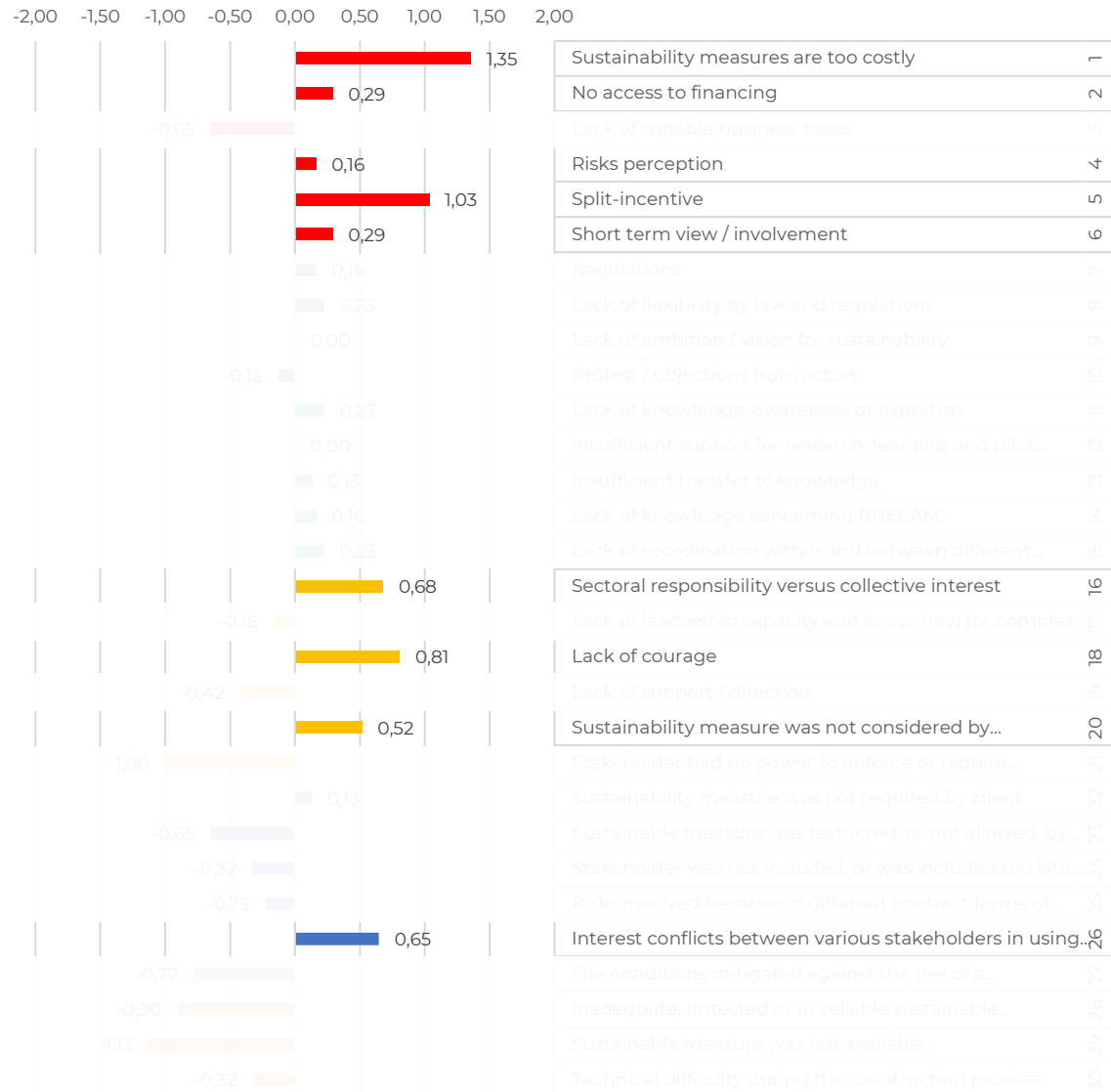
Individual score barriers

Phase 2: understanding the market



Barriers for Dutch real estate developers

Phase 2: understanding the market



- Nearly all financial barriers
- Some internal organizational barrier
- One external organizational barrier

Answer sub-question 1

Phase 2: understanding the market

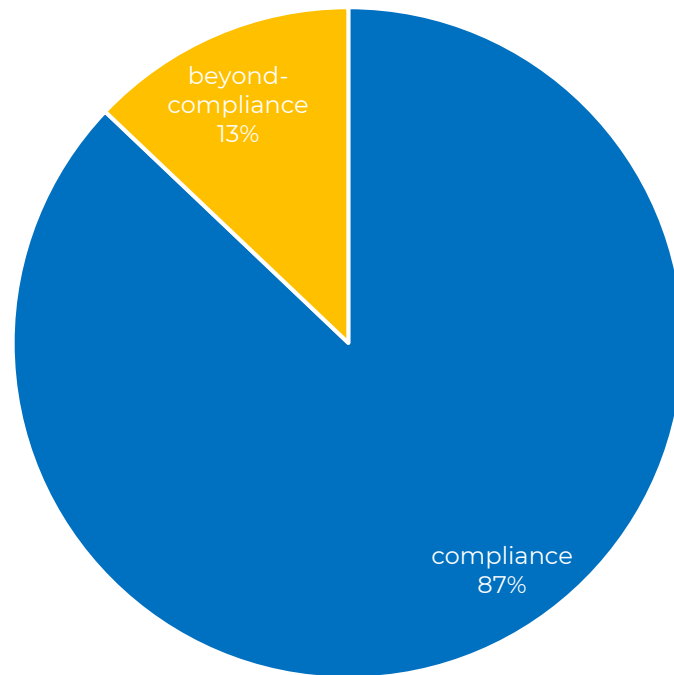
“What are the barriers that are withholding Dutch RE developers from implementing a more sustainable corporate strategy?”

- Financial barriers form the largest obstruction
- Some individual barriers
 - Sectoral responsibility vs. collective interest
 - A lack of courage
 - Consideration of sustainable solutions within the project team
 - Difference in interest between stakeholders
- In general the means to become more sustainable are present
- Small number of barrier form a large enough obstruction to become sustainable

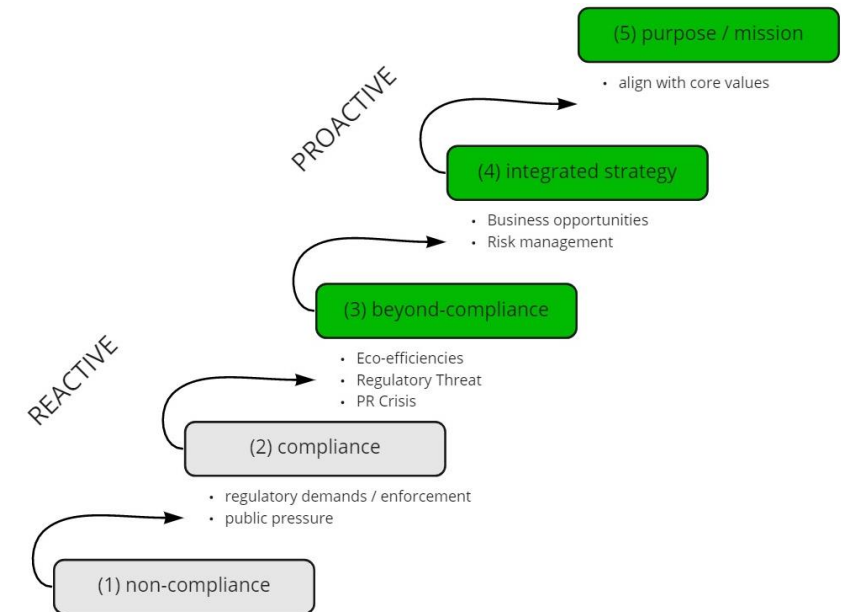
Current 'compliance' position

Phase 2: understanding the market

Current perceived position of RE developers



- non-compliance
- compliance
- beyond-compliance
- integrated strategy
- purpose / mission



- Findings
 - All respondents answered in two categories
 - compliance
 - Still in reactive phase

Answer sub-question 2

Phase 2: understanding the market

“What is the current ‘compliance’ position of Dutch RE developers in relation to sustainability?”

- Reactive phases
 - Aligned with the traditionalist view
 - Reacting to sustainability is costly – therefore becoming more sustainable will be costly as well
 - Meeting minimum legal requirements (generally not going beyond-compliance)
- Further research
 - Compliance position -> no SDA's will be excluded from further research

Phase three: Variables & Impact analysis

KCI's, SDA's, and impact analysis using
MCDA and semi-structured interviews



Image source:
https://wunderstock.com/photo/man-writing-on-whiteboard_FiRyENbXopKy

Multi-Criteria-Decision-Analysis (MCDA)

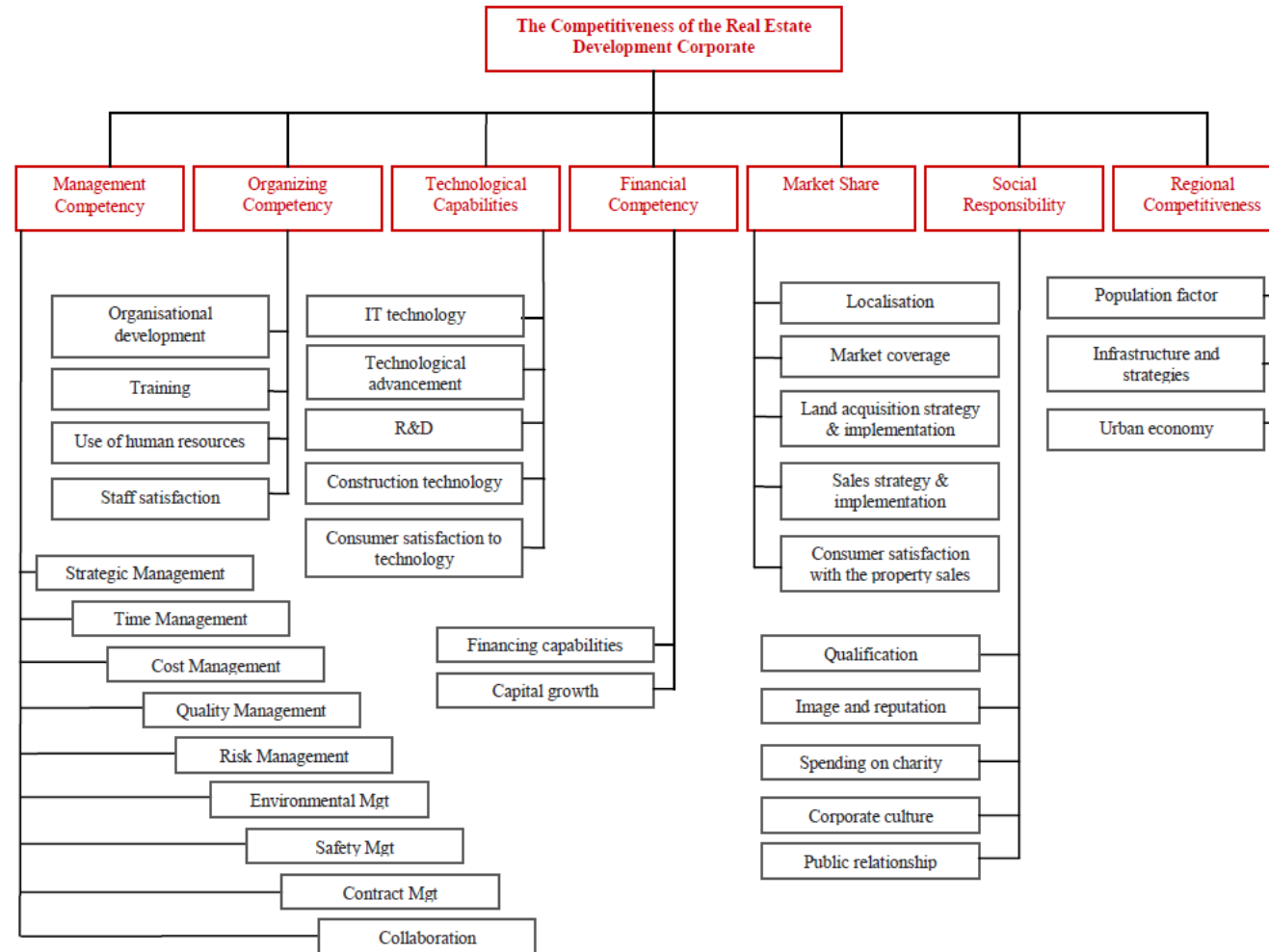
Phase 3: variables and impact analysis

What is the impact of SDA's on the KCI's

		KCI's							
		KCI 1	KCI 2	KCI 3	KCI 4	KCI 5	KCI 6	KCI 7	
		,00 (weighted index)	,00 (weighted index)	,00 (weighted index)	,00 (weighted index)	,00 (weighted index)	,00 (weighted index)	,00 (weighted index)	
SDA's	SDA 1	impact	impact	impact	impact	impact	impact	impact	0,00
	SDA 2	impact	impact	impact	impact	impact	impact	impact	0,00
	SDA 3	impact	impact	impact	impact	impact	impact	impact	0,00
	SDA 4	impact	impact	impact	impact	impact	impact	impact	0,00
	SDA 5	impact	impact	impact	impact	impact	impact	impact	0,00

Key Competitiveness Indicators (KCI's)

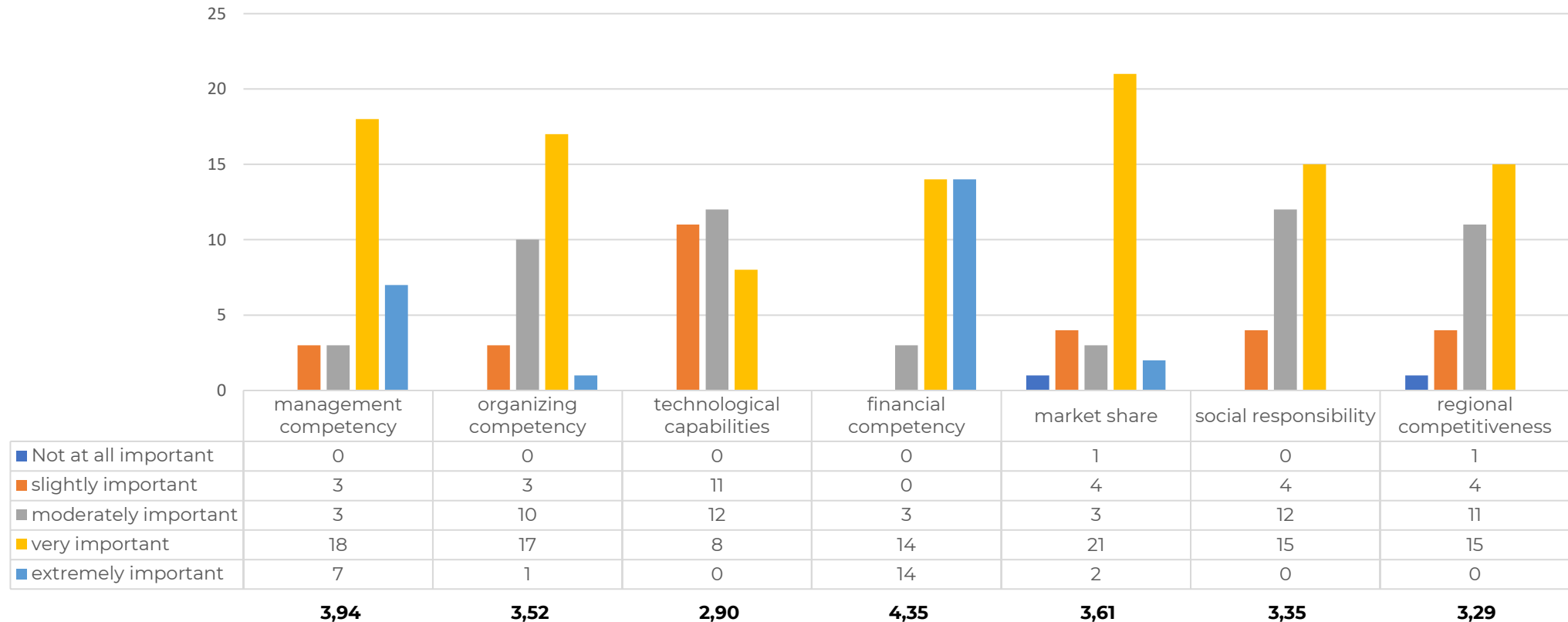
Phase 3: variables and impact analysis



Determining weight index of KCI's

Phase 3: variables and impact analysis

- Each of the respondents was asked to which extent each KCI is important to Dutch RE developers
 - Scale of 1-5 (not at all important – extremely important)
 - Results are shown below with average in bold



Answer sub-question 3

Phase 3: variables and impact analysis

“What are the key competitiveness indicators that determine the competitiveness of Dutch RE developers?”

KCI	Management competency	Organizing Competency	Technological Capabilities	Financial competency	Market share	Social responsibility	Regional competitiveness
Average	3.94	3.52	2.90	4.35	3.61	3.35	3.29

Answer sub-question 4

Phase 3: variables and impact analysis

“Which sustainable development activities (SDA’s) can be implemented by Dutch RE developers?”

Green Product Development	Green Supply Chain Management	Green Human Resource Management	Green Profiling and Marketing Strategy	Green Facility Management
Maximize score on BREEAM	Work with sustainable parties in project team	Value- based recruitment (focus on sustainability)	Profile the company as ‘sustainable’	Act in a sustainable manner within the company
Maximize score on LEED	Business – environmental group partnerships	Employee training in sustainability	Emphasize on sustainability in online marketing	Invest in sustainability in personal investments (ownership)
Maximize score on WELL	Work with innovative partners	Employee development in sustainability	Become a certified B corporation	Use smart data to improve real estate performance
Maximize score on Green rating	Exclude partners using selection criteria	Talent management	Knowledge sharing	Sustainable housing of offices
Integrate circularity into developments	Utilize sustainable investors	Performance management	Exemplary function in regard to sustainability	Encourage a sustainable culture within the firm
Develop flexible buildings	Maintain sustainable relationships	Incentive systems in accordance with the corporate sustainability strategy		
Minimize effect on transport		Employee health		
Utilize Global ESG Benchmark (GRESB)		Retain employees		
Develop to have livability / societal positive effect				
Develop using Biophilic Design				
Develop climate adaptive buildings				
Increase the life cycle of buildings / products				
Add vegetation to public space				

Answer sub-question 5

Phase 3: variables and impact analysis

“To what extent do the SDA’s taken by Dutch RE developers impact their KCI’s in the real estate market?”

What is the impact of the SDA's on the KCI's?		KCI's							
		Management competency	Organisation competency	Technological capabilities	Financial competency	Market share	Social responsibility	Regional Competitiveness	
SDA's	Green product development	2,66	2,46	2,10	3,48	2,98	2,52	2,80	19,00
	Green Supply Chain Management	2,56	2,20	2,10	3,05	2,27	2,26	2,07	16,51
	Green Human Resource Management	2,75	2,73	1,67	2,40	2,17	2,43	1,89	16,04
	Green profiling and marketing strategy	2,85	2,29	1,45	3,27	2,71	2,18	2,47	17,21
	Green facility management	2,56	2,29	1,74	2,50	1,90	2,26	1,56	14,81
		13,38	11,95	9,07	14,70	12,03	11,66	10,79	

Phase four: Designing tool

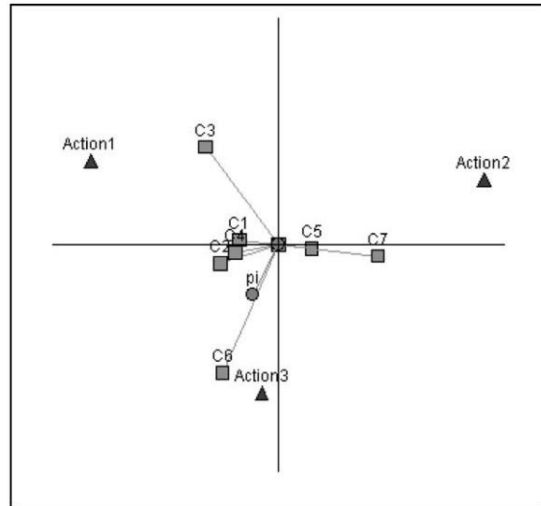
Decision tool design and refined
design through external validation



Image source:
<https://www.inc.com/dana-severson/24-must-have-tools-for-running-a-growing-company-today.html>

Alternatives from literature

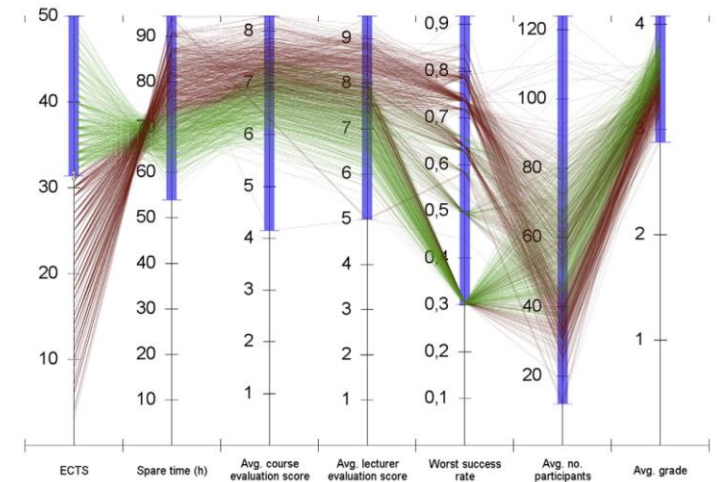
Phase 4: designing decision tool



- Geometrical Analysis for Interactive Assistance (GAIA)
 - Sensitivity shown through vectors
 - Shows all results



- Heat mapping
 - Indicate impact using color
 - Translates table



- Parallel coordinate plot
 - Displays data without drastically increasing complexity
 - Minimalizes cognitive burden

Answer sub-question 6

Phase 4: designing decision tool

“How should a corporate decision tool be designed to effectively allow Dutch RE developers to prioritize between SDA’s to improve their competitiveness?”

- 2 important aspects to visualizing the findings
 - Minimize the cognitive burden on the decision maker (easy to understand)
 - Allow a decision maker to quickly focus their attention (quickly focus on important aspects)

		Key competitiveness indicators (KCI's)						
		Financial competency	Management competency	Market share	Organisation competency	Social responsibility	Regional competitiveness	Technological capabilities
average score all SDA's on KCI		2,94	2,68	2,41	2,39	2,33	2,16	1,81
average score of SDA on all KCI's		2,71	2,46	2,36	2,29	2,12		
sustainable development activities (SDA's)	Green product development	3,48	2,66	2,98	2,46	2,52	2,80	2,10
	Green profiling and marketing strategy	3,27	2,85	2,71	2,29	2,18	2,47	1,45
	Green supply chain management	3,05	2,56	2,27	2,20	2,26	2,07	2,10
	Green human resource management	2,40	2,75	2,17	2,73	2,43	1,89	1,67
	Green facility management	2,50	2,56	1,90	2,29	2,26	1,56	1,74

Findings and recommendations

conclusion



Image source:
https://wunderstock.com/photo/man-writing-on-whiteboard_FiRyENbXopKy

Conclusion

Findings

“What is the impact of sustainable development activities that go beyond-compliance on the competitiveness of private Dutch real estate developers?”

- **Phase two: understanding the market**
 - The means to become more sustainable are present yet Dutch RE developers are being withheld due to financial barriers, sectoral responsibility vs. a collective interest, a lack of courage, considerations of sustainable solutions, and a conflict in interest between different stakeholders.
 - Currently in ‘compliance position’ -> no SDA’s excluded from research

- **Phase three: variables and impact analysis**
 - The impact of the sustainable development activities on the competitiveness of Dutch RE developers is ordered as follows:
 - Green product development
 - Green profiling and marketing strategy
 - Green supply chain management
 - Green human resource management
 - Green facility management

- **Phase four: designing the tool**
 - When visualizing the results heat-mapping was found to be most effective

Conclusion

Findings

Key competitiveness indicators (KCI's)

Financial competency	Management competency	Organisation competency	Market share	Social responsibility	Regional Competitiveness	Technological capabilities
2,94	2,68	2,39	2,41	2,33	2,16	1,81

average score all SDA's on KCI



average score of SDA on all KCI's



sustainable development activities (SDA's)	Green product development	2,71	3,48	2,66	2,46	2,98	2,52	2,80	2,10
	Green profiling and marketing strategy	2,46	3,27	2,85	2,29	2,71	2,18	2,47	1,45
	Green Supply Chain Management	2,36	3,05	2,56	2,20	2,27	2,26	2,07	2,10
	Green Human Resource Management	2,29	2,40	2,75	2,73	2,17	2,43	1,89	1,67
	Green facility management	2,12	2,50	2,56	2,29	1,90	2,26	1,56	1,74

Closing remarks

A black and white photograph of a person in a suit and tie, holding a white rectangular sign with the words "Thank you!" written in a handwritten style. The person's hands are visible at the top and bottom edges of the sign. The background is slightly blurred, focusing attention on the sign and the person's attire.

Thank you!

Questions?



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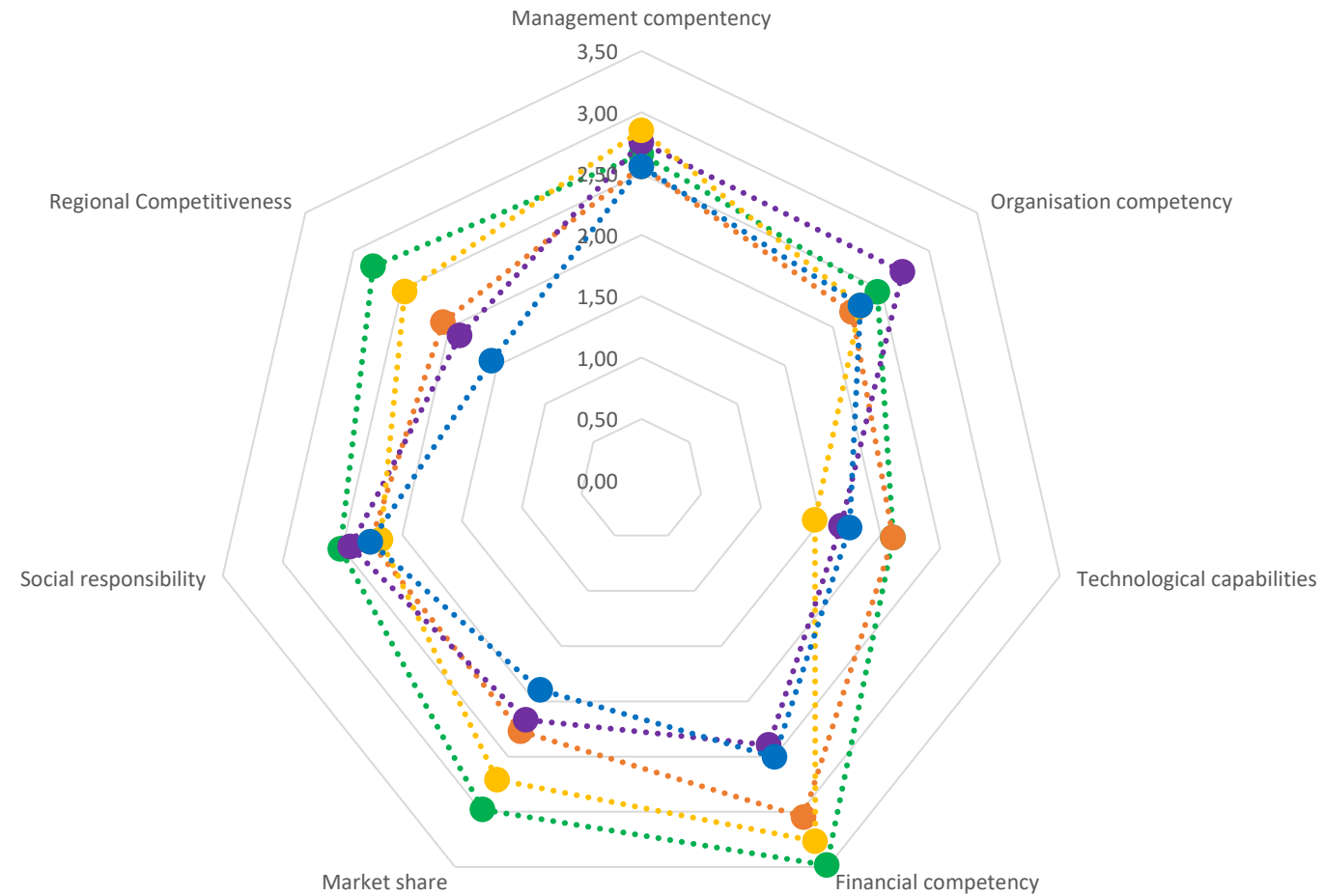
Recommendations

Practice & future research

- Practice
 - Dutch RE developers should consider to obtain a more sustainable corporate strategy
 - Time is a pressing factor due to stricter legislation and growing trend
 - Pay-out of sustainable measures should be sought on a company wide level, not on a project level
- Future research
 - Research each sustainable actions instead of SDA's
 - Research compatibility between SDA's
 - Replace the variable sustainable development activities with something else (i.e. high-end architecture design)
 - Focus research on a specific sector
 - Continue developing decision tool through focus groups and refinement sessions

Visualization 1

Practice & future research



- Green product development
- Green Human Resource Management
- Green facility management (intern / extern)
- Green Supply Chain Management
- Green profiling and marketing strategy

Visualization 2

Practice & future research

		Key competitiveness indicators (KCI's)							
		Financial competency	Management competency	Organisation competency	Market share	Social responsibility	Regional Competitiveness	Technological capabilities	
Total score all SDA's on KCI (scale 0-25)		14,70	13,38	11,95	12,03	11,66	10,79	9,07	
Total score of SDA on all KCI's (scale 0-35)									
sustainable development activities (SDA's)	Green product development	19,00	3,48	2,66	2,46	2,98	2,52	2,80	2,10
	Green profiling and marketing strategy	17,21	3,27	2,85	2,29	2,71	2,18	2,47	1,45
	Green Supply Chain Management	16,51	3,05	2,56	2,20	2,27	2,26	2,07	2,10
	Green Human Resource Management	16,04	2,40	2,75	2,73	2,17	2,43	1,89	1,67
	Green facility management (intern / extern)	14,81	2,50	2,56	2,29	1,90	2,26	1,56	1,74

Visualization 3

Practice & future research

