CRAVEzero

Cost Reduction and market Acceleration for Viable nearly zero-Energy buildings

EVALUATION OF BUSINESS MODELS FOR THE LARGE-SCALE IMPLEMENTATION OF NEARLY ZERO-ENERGY BUILDINGS IN EUROPE

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01 Background

- Nearly zero-energy buildings (nZEBs) seen as one central possibility for achieving the energy and GHG emission reduction targets (Global, European, National)
- nZEBs will be **standard for all new buildings** by 2021 (new public buildings by 2019)
- nZEBs still have **low market share**, even though technologies needed are already available today
- Possible reasons for current struggle in market uptake: comparably **high efforts for planning and constructing**, high **initial investments**, **lack of adequate business models** for accelerating the nZEB market

➢ Analysis of **existing business models** of different stakeholders in lifecycle and development of **new nZEB business models** for accelerating nZEB market in Europe

02 Scope and Methodology

- Analysis of business with multilevel approach:
  1. Analysis of the macro- and micro-environment
  2. Delphi-Survey: Business Model Canvas (BMC)
  3. Problem-solution-fit
  4. Consistency Check
  5. MICMAC analysis
  6. Attractiveness portfolio

02

Scope and Methodology

KEY PARTNERS

- Urban Planners
- Construction Company
- Planners

KEY ACTIVITIES

KEY RESOURCES

VALUE PROPOSITION

CUSTOMER RELATIONSHIP

DISTRIBUTION CHANNELS

CUSTOMER SEGMENT

- Facility Managers
- Tenants/Users
- Owners

COST STRUCTURE

REVENUE STREAMS

03 BM-Analysis

Analyzed BMs, Results of DELPHI-Survey, Detailed BM-Analysis

- Currently 13 BMs available:
  - Real Estate Developers
  - Planners
  - General Contractors
  - Engineering and Construction
  - Facility Management
  - Urban Planning

03 BM-Analysis

Analyzed BMs, Results of DELPHI-Survey, Detailed BM-Analysis

- Following results exemplary for company based in Germany and Austria:
  - BM *"Lifecycle cost and CO_2 optimisation in early design stage"*
  - Development of energy concepts for nZEBs

03 BM-Analysis

Analyzed BMs, **Results of DELPHI-Survey**, Detailed BM-Analysis

- **Target customer segment**: building owners, operators and users; reached by direct contact and personal assistance
- **Customer relationship**: contract for energetic consultation and evaluation of building project
- **Revenues** depending on specific contracts and project (size, number of variants, effort of investigation)
- **Key activities**: simulation and evaluation of energy related performance indicators, thermal and daylight simulations
- **Key resources**: personnel know-how, software (partly own developments)

03 BM-Analysis – External environment

Analyzed BMs, Results of DELPHI-Survey, **Detailed BM-Analysis**

- Austria
  - Macro-environment: PESTE analysis (political, economic, socio-cultural, technical and environmental factors)
  - Micro-environment: Porter's Five Forces analysis

03 BM-Analysis – External environment

Analyzed BMs, Results of DELPHI-Survey, **Detailed BM-Analysis**

- Austria
  - Seems to have rather high environmental awareness and responsibility
  - Politically and economically stable
  - Industry attractiveness:
    - Threat of new entries is rather high → low entry barriers (access to distribution channels, governmental restrictions, height of start-up costs)
    - Threat of substitutes can be predicted as low despite low switching costs
  - High bargaining power of buyers

03 BM-Analysis – Problem-solution-fit

Analyzed BMs, Results of DELPHI-Survey, **Detailed BM-Analysis**

Customer pains	Customer gains	Jobs-to-get-done
Rising costs for energy	Saving energy costs	Investment for future (price stability)
High investment costs for building	Reasonable investment costs	Independency of fossil fuels
Energy costs staying equal compared to standard house	High durability of technologies	Building environmental friendly house
Slow amortization of investments	Less risk of obsolescence	Security due to reliable energy sources
Inefficient energy system	Guarantee for cost and energy savings	Decrease “ecological footprint”
Spending much time and effort on finding information about subsidies for additional costs	Carefree planning process due to experienced planners	Being perceived as ‘one-step-ahead’
Incompetent consultancy	Easy usability of technologies	Taking responsibilities for future generations
Lack of awareness	Being a role model to others	
4/8	**4/8**	**6/7**
14/23=60.8 %		

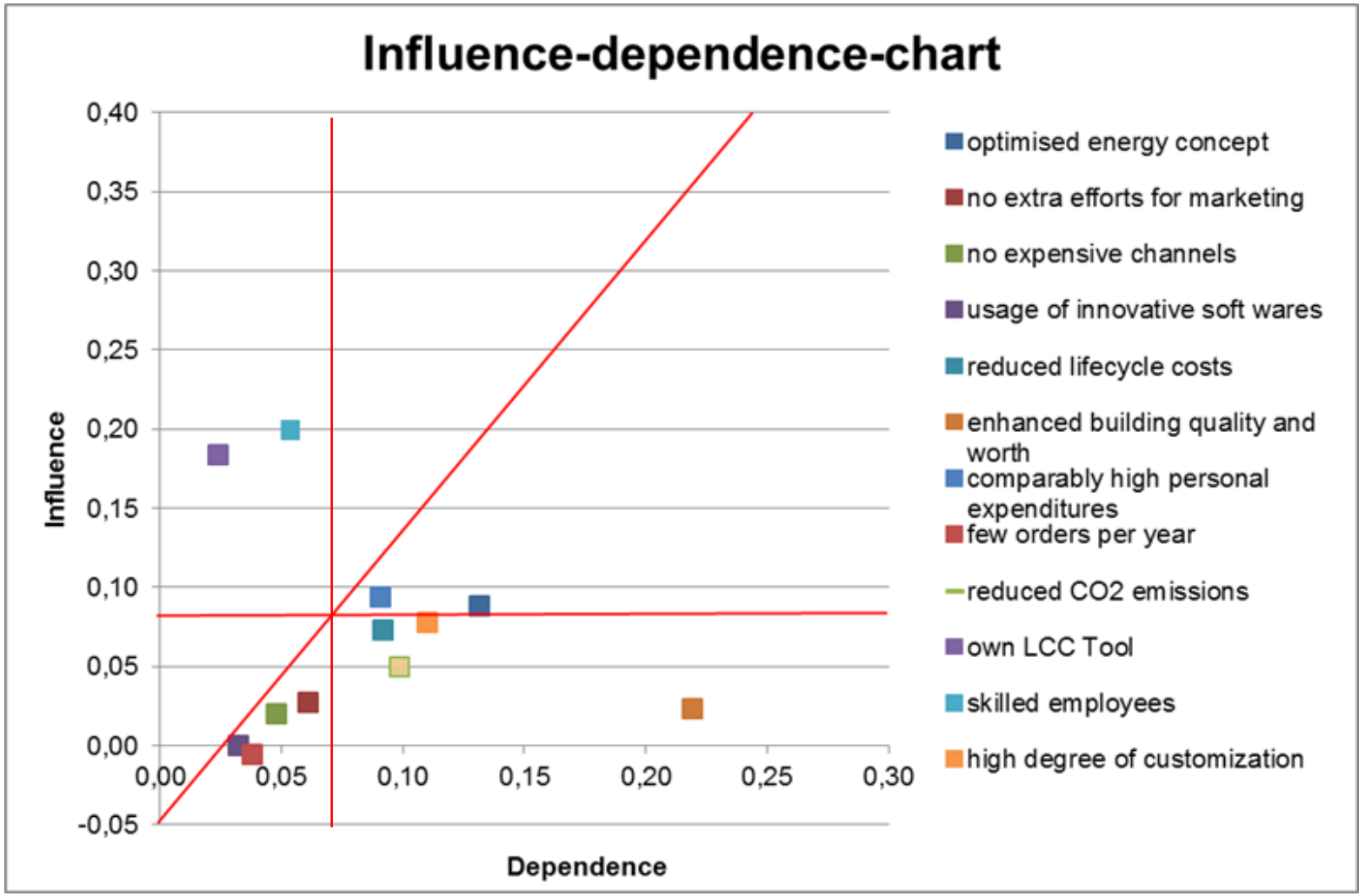
BM-Analysis – Consistency check

Analyzed BMs, Results of DELPHI-Survey, **Detailed BM-Analysis**

		C.S.	V.P.			C.C.	C.R.	K.A.			K. R.			K. P.		Costs		R.S.
			cost reduction	appreciation	risk reduction	direct contact	ded. Pers. Ass.	energetic evaluation	thermal simulation	daylight simulation	simulation software	LCC tool	expertise of employees	architects	planners of building services	Personell expenditures	Generell office costs	reward
Customer Segment	building owners																	
Value Proposition	cost reduction	o																
	appreciation	o	o															
	risk reduction	o	/	o														
Channels	direct contact	o	/	/	/													
Customer Relationship	ded. Pers. Ass.	o	/	/	/	o												
Key Activities	energetic evaluation	/	o	o	o	o	/											
	thermal simulation	/	o	o	o	o	/	/										
	daylight simulation	/	o	o	o	o	/	/	/									
Key Ressources	simulation software	/	o	o	o	/	/	o	o	o								
	LCC tool	/	o	o	o	/	/	o	o	o	/							
	expertise of employees	/	o	o	o	/	/	o	o	o	o	o						
Partners	architects	/	/	/	/	o	o	/	/	/	/	/	/					
	planners of building services	/	/	/	/	o	o	/	/	/	/	/	/					
Cost structure	Personell expenditures	/	/	/	/	o	o	o	o	o	/	o	o	o	o			
	Generell office costs	/		/	/	/	/	/	/	/	o	/	/	/	/			
Revenue Streams	reward	o	/	/	/	/	o	o	o	o	/	o	o	o	o	/	/	

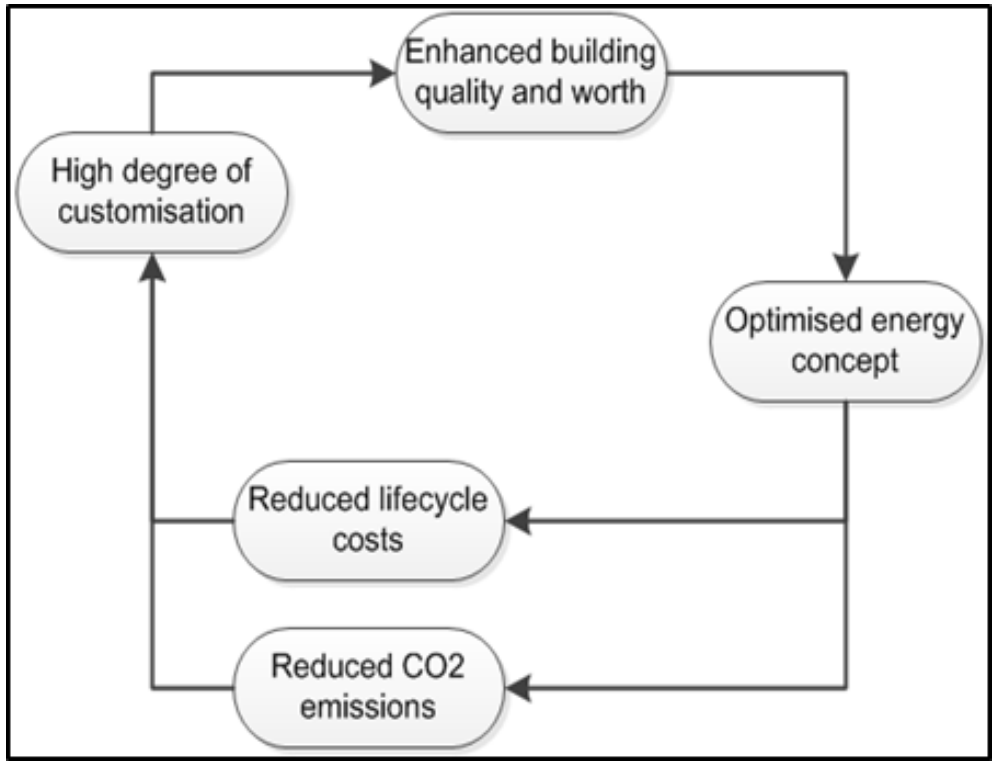
BM-Analysis – MICMAC analysis

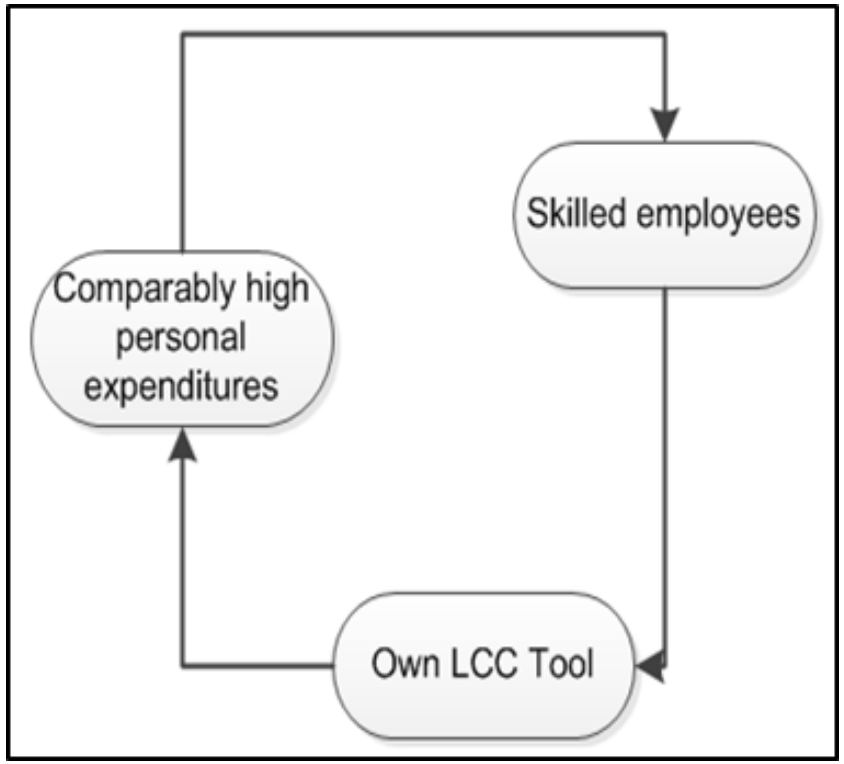
Analyzed BMs, Results of DELPHI-Survey, **Detailed BM-Analysis**



03 BM-Analysis – MICMAC analysis

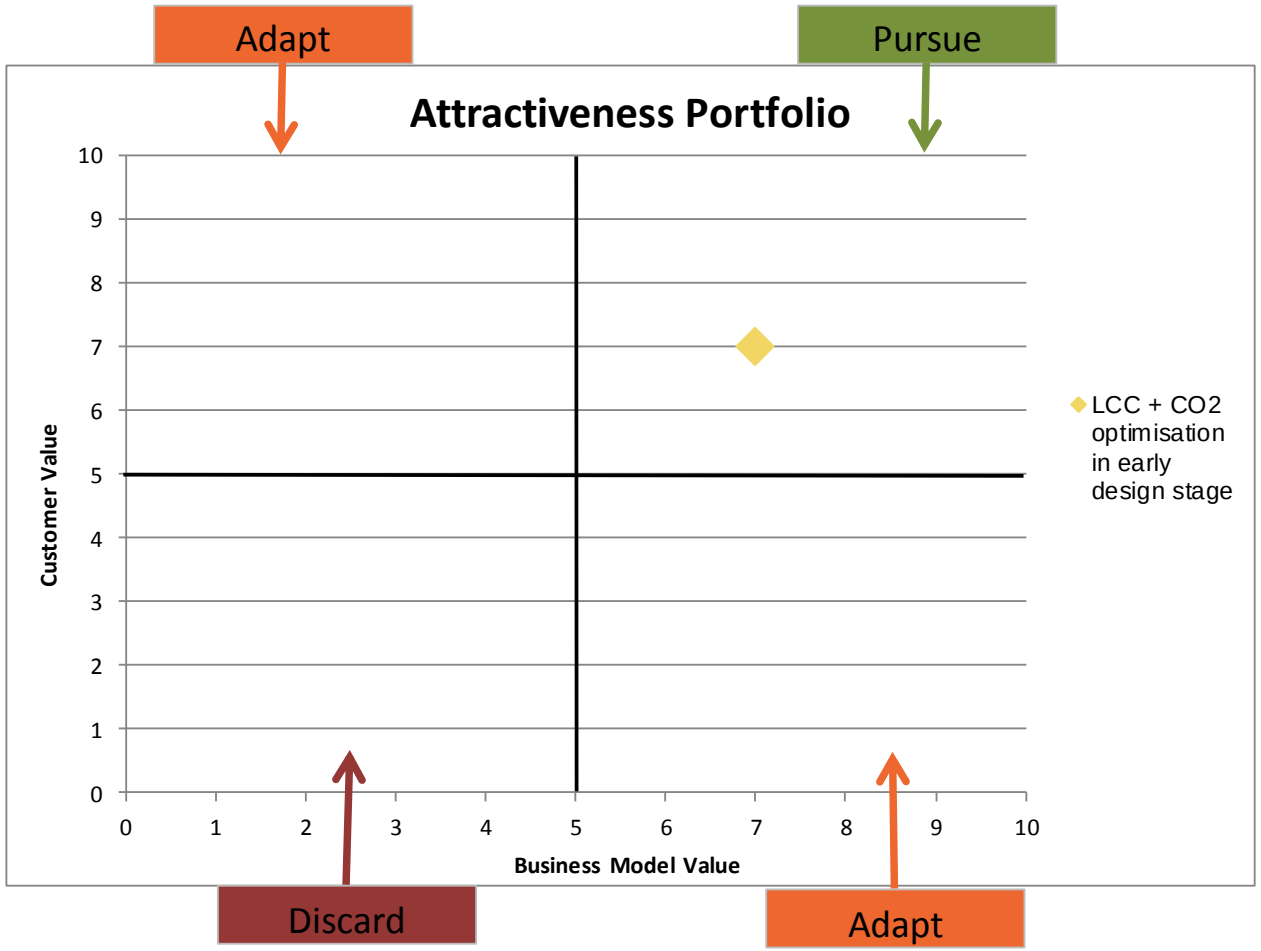
Analyzed BMs, Results of DELPHI-Survey, **Detailed BM-Analysis**





03 BM-Analysis – Attractiveness portfolio

Analyzed BMs, Results of DELPHI-Survey, **Detailed BM-Analysis**



04 Conclusion and Outlook

- Method enables to get holistic overview indicating the success potential and allows comparison of BMs
- Weak points of each relevant requirement can be spotted and solutions to enhance a BM can be deduced.
- Each tool can easily be extended in order to make results more reliable and detailed.
- Tool/ methodology for experts! → Know-how and data important!

04 Conclusion and **Outlook**

- Challenge: detailed quantitative information about revenue streams and cost structure and thereby profitability difficult to determine
- Analysis of additional BMs and cross comparison
  → identification of success factors for nZEB-BMs

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Thank you for your attention!
Questions?

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