TECHNISCHE UNIVERSITÄT WIEN
Vienna University of Technology

AUSTRIAN INSTITUTE OF TECHNOLOGY
TOMORROW TODAY

THE ROLE OF FORESIGHT FOR STRATEGIC DECISION MAKING IN COMPANIES

Djordje Pinter, AIT – Austrian Institute of Technology, Innovation Systems Department

Techno-Ökonomie-Kolloquium (TÖK),

Wien: 27.04.2017

1. Motivation Corporate Foresight

Why? Increasing challenges due to more dynamics and complexity:

- **Reduction of product lifecycles** (Young 1964; D'Aveni 1994)
- **Rise in technology changes** (Hamel and Prahalad 1994; Bower & Christensen 1995; Utterback 1994; Christensen 1998; Sood & Tellis 2005)
- **An increase in innovation** (Kessler & Bierly 2002; Langerak & Hultink 2005; Parry et al. 2009) and **diffusion speed** (Lee et al. 2003)
- **Globalization** (Wiersema & Bowen 2008)
- **An in increase in global competition: 'hypercompetitive'** (D'Aveni 1994) or **'high velocity'** (Bourgeois und Eisenhardt 1988) **environments**

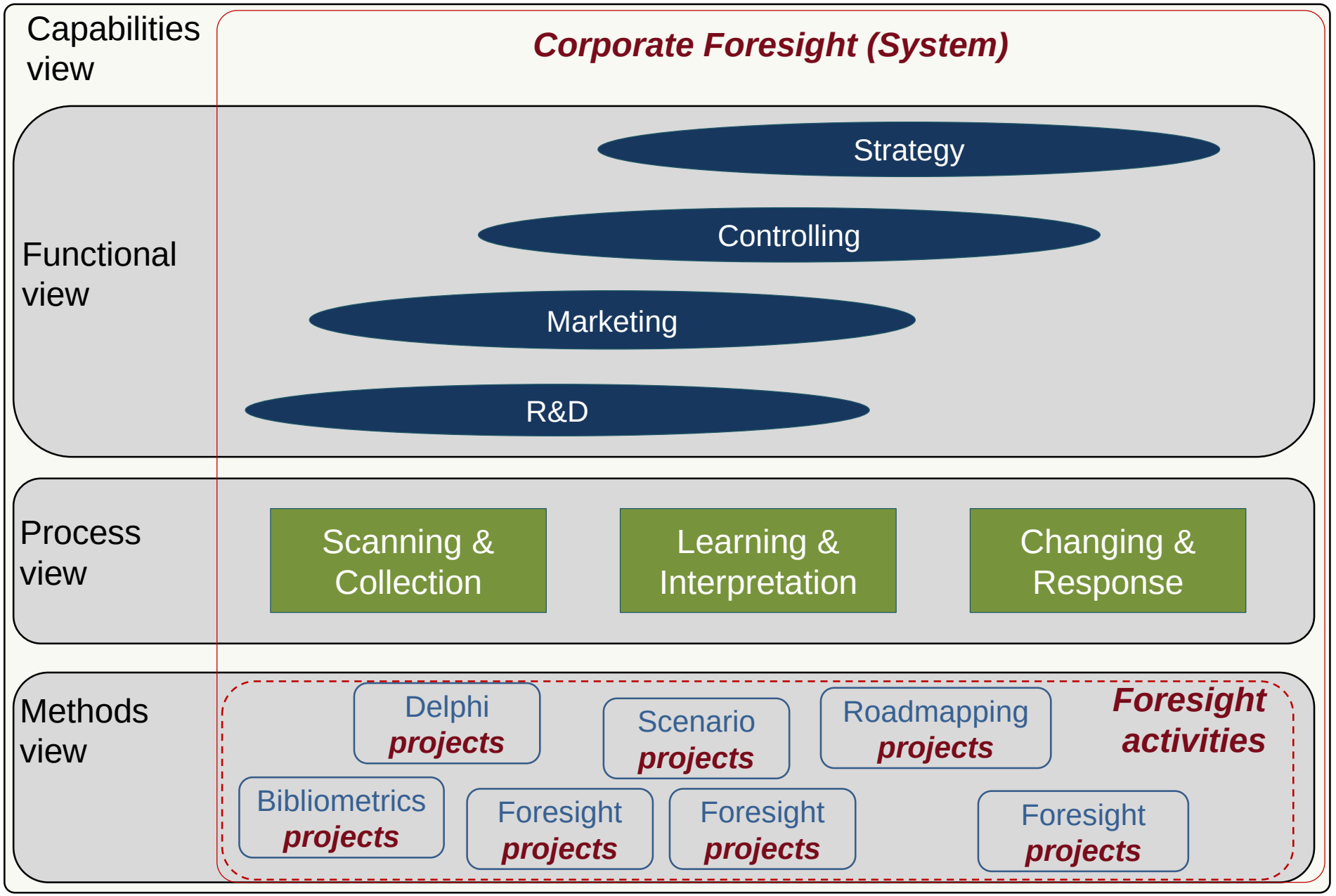
The need for a corporate foresight capability to manage future uncertainties is widely acknowledged.

2. Corporate Foresight – Towards a Definition?

- Saying something about the future for the means of corporate decision making (van der Heijden, 2004).
- A set of approaches for bringing longer-term considerations into corporate decision-making (Miles et al. 2008).
- Deals with the identification of weak signals to recognize threats and opportunities (Rohrbeck et al., 2007).

A strategic capability that refers to a function, process, method, technique or activity within an organisation that systematically aims to support longer-term decision making. This is by identifying, thinking and debating potential developments of the future and creating responses to shape the future.

Corporate Foresight – Streams and Terms Overview



Quelle: eigene Darstellung.

3. Research Gap

Theory and evidence missing

- Little knowledge is established about the effects, impacts and best practise of foresight activities (e.g. Wilkinson and Kuplers, 2013)
- Little conceptual work is published for theory building and testing of corporate foresight (e.g. Paliokaitė & Pačėsa 2014)

4. Research Questions:

RQ 1: What are possible impacts of corporate foresight on firm success e.g. for innovation capability (innovation performance, radical innovation, disruptive innovation) and competitive advantage (strategic performance, financial performance)?

RQ 2: Which organisational factors (organisational structure, participation, culture, methods and champions, org. ambidexterity) moderate the impact of corporate foresight?

5. Research Design

Case Study Analysis and Literature Review

- Analysing publications with authentic description
- 26 case studies considered
- Emphasis on the use of scenario planning and development (not solely)

Aims **Effects** **Best practises** **Interdependencies** **Frameworks**

Propositions

Theoretical refinement and new operationalisation

Large Sample Survey

- Structural equation modelling
- Hypothesis testing
- Enhancement of theoretical understanding

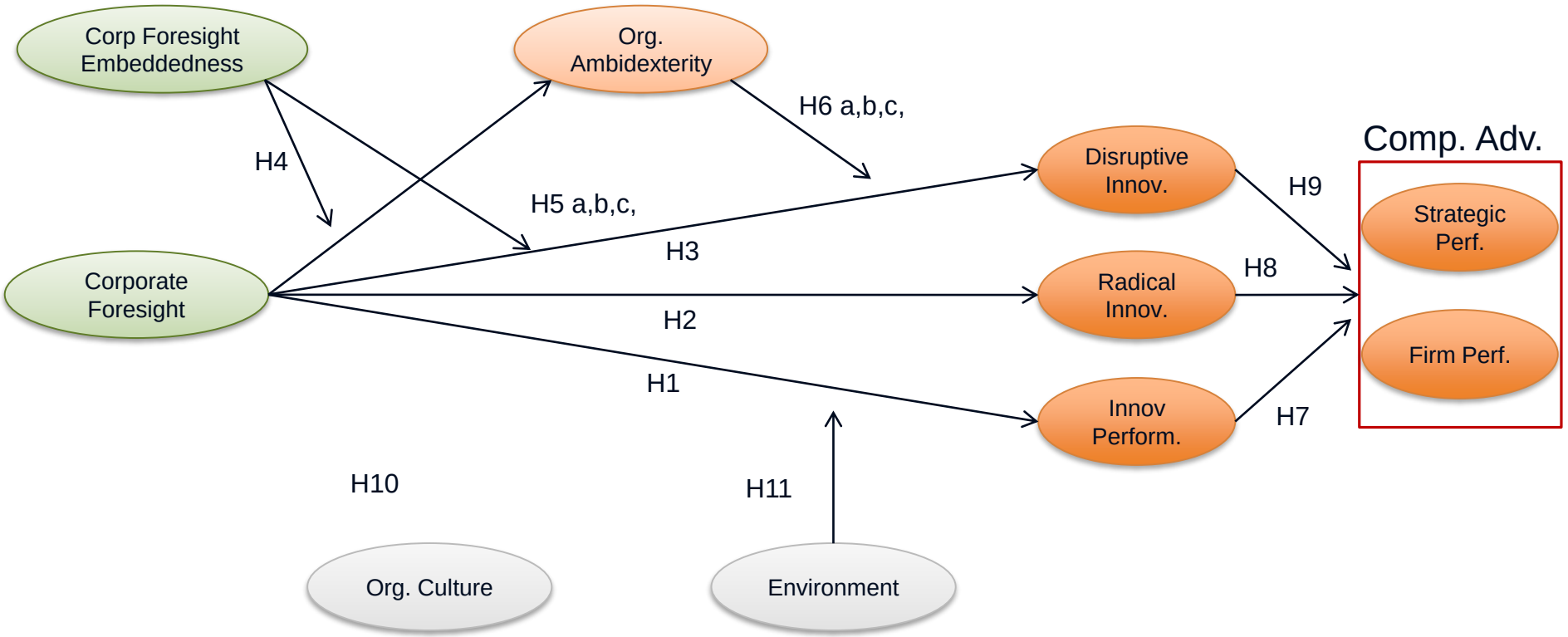
6. Findings From Case Studies

What are the Aims of Corporate Foresight Activities?

1. Assess the future (e.g. identify changes, anticipate specific treats).
2. Systemic changes (e.g. Identify elements, forces of change).
3. Challenge existing beliefs.
4. Test and develop strategies.
5. Decision making support.
6. Foster and Develop new ideas.
7. Develop and achieve a coherent vision of the future and align thinking.
8. Individual and organisational Learning.

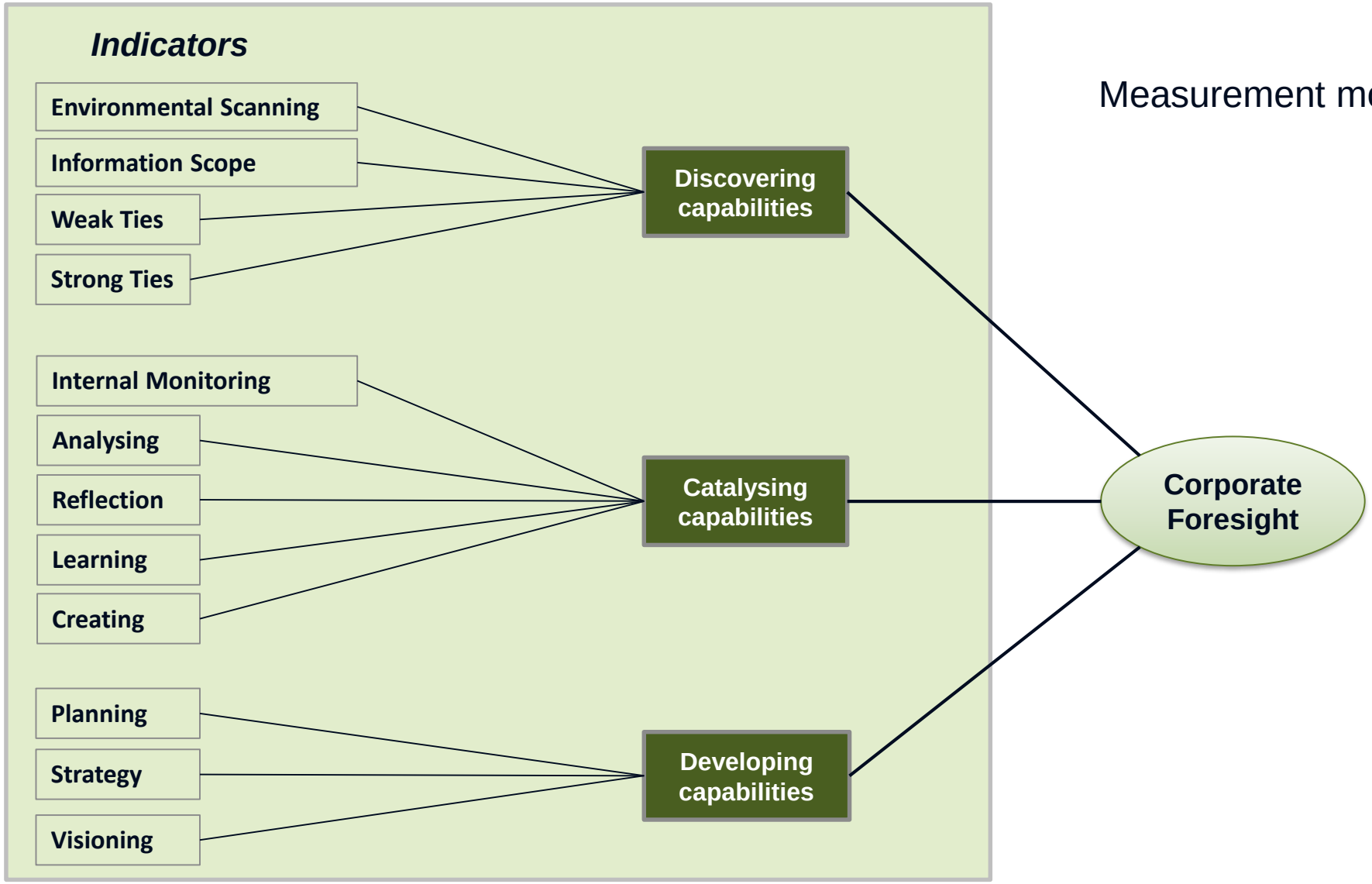
Quelle: eigene Darstellung.

3. Overview Structural Equation Model Corporate Foresight



Quelle: eigene Darstellung

3. Operationalisation Corporate Foresight



Measurement model

Quelle: eigene Darstellung

4. Sample & Data Collection

- Large cross industry survey with MNE companies in Europe
- Web-based questionnaire:
  - Limesurvey
- Structural equation modeling (PLS)
  - SPSS, AMOS
- Data collection period:
  - Sept 15 – April 16
  - N = 235 (vollst. 235, tlw. 229; gesamt 464)

4. Results - Firms

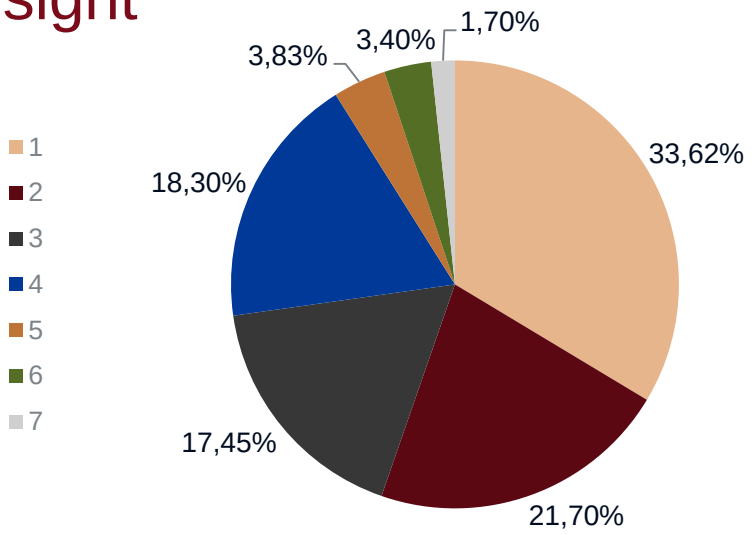
Please indicate the industry type of your firm	Count	Percentage
Engineering, Research & Development	66	31,13%
IT & Telecomunication, Media	47	22,17%
Other	36	16,98%
Manufacturing Consumer Goods	28	13,21%
Construction	12	5,66%
Management Consulting & Business Services	9	4,25%
Mining, Extraction, Oil	8	3,77%
Consumer Services	4	1,89%
Banking, Investment, Insurance	2	0,94%

N=212

What is the main firm client focus? [we mostly deliver products and services ...]	Count	Percentage
for business clients (A2)	193	83,55%
for consumers (A1)	38	16,45
No answer	0	0,00%
Not displayed	0	0,00%

N=231

5. Results – Corporate Foresight

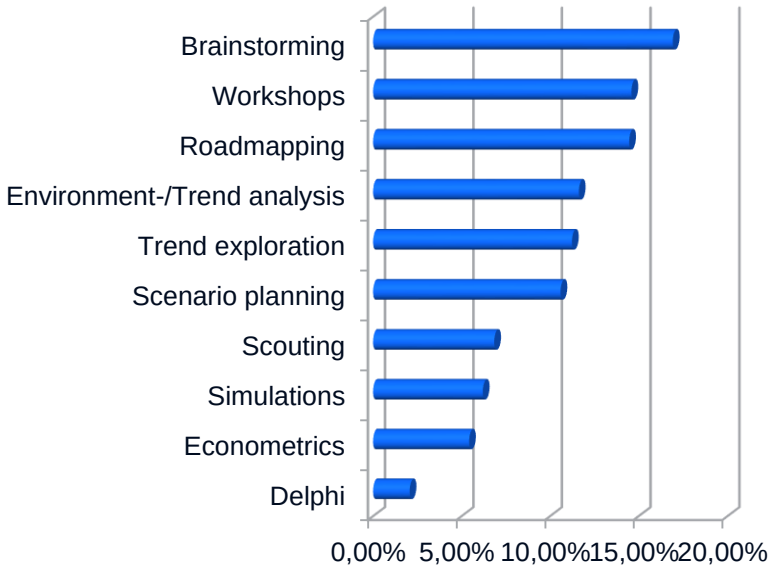


In our firm, future-related research activities mostly take place...		
1. in an existing department which is not specialized in future research (i.e. R&D, market research)	79	33,62%
2. in a specialized future research department (i.e. technology centers)	51	21,70%
3. in temporary project groups / task forces	41	17,45%
4. within projects	43	18,30%
5. other	9	3,83%
6. with an individual person	8	3,40%
7. in cooperation with external consultants	4	1,70%
	N = 235	

5. Results – Foresight Methods

In the context of preparing, supporting and taking long-term decisions (5-25 years), to what extent does your firm use the following prospective tools and methods?

frequently or higher 70%	
Brainstorming	16,93%
Workshops	14,60%
Roadmapping	14,47%
Environment-/Trend analysis	11,63%
Trend exploration	11,24%
Scenario planning	10,59%
Scouting	6,85%
Simulations	6,20%
Econometrics	5,43%
Delphi	2,07%
Summe	



5. Linear Regression: Corporate Foresight – Innovation Performance & Competitive Advantage I

Correlations

		MW Methods	CF YEARS	CORP FORESIGHT	MV CF EMBED	MW OAExplor	MW OA Exploit	MV ORGAMB	MW SQ INNO PERF	MW PROCESS INNO	MW ORG INNO	MW RADICAL INNO	MW DISRUPT INNO	MW StratPerf	MW FinPerf	MW COMP ADV
MW Methods	Pearson Correlation	1	,227**	,616**	,444**	,260**	,166**	,243**	,330**	,273**	,238**	,122	-,011	,312**	,299**	,338**
CF YEARS	Pearson Correlation	,227**	1	,270**	,235**	,125	,100	,121	,056	,168**	,203**	,064	-,085	,183**	,177**	,203**
CF	Pearson Correlation	,616**	,270**	1	,787**	**,519****	**,425****	**,544****	**,486****	**,416****	**,452****	**,277****	**,146***	**,424****	**,405****	**,460****
MV CF EMBED	Pearson Correlation	,444**	,235**	,787**	1	,546**	,451**	,574**	,511**	,379**	,399**	,378**	,107	,357**	,375**	,408**
MW OAExplor	Pearson Correlation	,260**	,125	,519**	,546**	1	,493**	,876**	,492**	,333**	,250**	,372**	,091	,305**	,305**	,342**
MW OA Exploit	Pearson Correlation	,166**	,100	,425**	,451**	,493**	1	,852**	,384**	,393**	,250**	,246**	,226**	,403**	,346**	,421**
MV ORGAMB	Pearson Correlation	,243**	,121	,544**	,574**	,876**	,852**	1	,507**	,413**	,289**	,361**	,188**	,406**	,376**	,437**
MW SQ INNO PERF	Pearson Correlation	,330**	,056	,486**	,511**	,492**	,384**	,507**	1	,423**	,406**	,371**	,190**	,403**	,396**	,433**
MW PROCESS INNO	Pearson Correlation	,273**	,168**	,416**	,379**	,333**	,393**	,413**	,423**	1	,443**	,144*	,106	,446**	,397**	,459**
MW ORG INNO	Pearson Correlation	,238**	,203**	,452**	,399**	,250**	,250**	,289**	,406**	,443**	1	,133*	,092	,346**	,362**	,392**
MW RADICAL INNO	Pearson Correlation	,122	,064	,277**	,378**	,372**	,246**	,361**	,371**	,144*	,133*	1	-,099	,286**	,308**	,332**
MW DISRUPT INNO	Pearson Correlation	-,011	-,085	,146*	,107	,091	,226**	,188**	,190**	,106	,092	-,099	1	,141*	,089	,127*
MW StratPerf	Pearson Correlation	,312**	,183**	,424**	,357**	,305**	,403**	,406**	,403**	,446**	,346**	,286**	,141*	1	,621**	,901**
MW FinPerf	Pearson Correlation	,299**	,177**	,405**	,375**	,305**	,346**	,376**	,396**	,397**	,362**	,308**	,089	,621**	1	,899**
MW COMP ADV	Pearson Correlation	,338**	,203**	,460**	,408**	,342**	,421**	,437**	,433**	,459**	,392**	,332**	,127*	,901**	,899**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

5. Linear Regression: Corporate Foresight – Innovation Performance & Competitive Advantage I

		MW SQ INNO PERF	MW COMP ADV
Pearson Correlation	CF	,483	,457

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
MW SQ INNO PERF	,487[a]	,238	,221	,981574	,238	14,586	5	234	,000	1,839

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
MW COMP ADV	,483[a]	,234	,217	,771378	,234	14,331	5	235	,000	1,999

5. Linear Regression: CF – IP & CA II

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
MW SQ INNO PERF	Regression	70,266	5	14,053	14,586	,000[b]
	Residual	225,456	234	,963		
	Total	295,722	239			

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
MW COMP ADV	Regression	42,637	5	8,527	14,331	,000[b]
	Residual	139,831	235	,595		
	Total	182,467	240			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
MW SQ INNO PERF	(Constant)	1,576	,391		4,034	,000					
	CF	**,631**	**,075**	**,485**	**8,453**	**,000**	**,483**	**,484**	**,482**	**,989**	**1,011**
	Size	-1,373E-06	,000	-,062	-1,077	,282	-,060	-,070	-,061	,991	1,009
	high tech	-,045	,148	-,020	-,306	,760	,007	-,020	-,017	,788	1,269
	low tech	-,029	,191	-,010	-,153	,878	,009	-,010	-,009	,829	1,206
	Services&Trade	-,041	,226	-,011	-,183	,855	,023	-,012	-,010	,871	1,148

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
MW COMP ADV	(Constant)	2,357	,306		7,698	,000					
	CF	**,476**	**,059**	**,467**	**8,135**	**,000**	**,457**	**,469**	**,465**	**,988**	**1,012**

TECHNISCHE UNIVERSITÄT WIEN
Vienna University of Technology

AUSTRIAN INSTITUTE OF TECHNOLOGY
TOMORROW TODAY

THE ROLE OF FORESIGHT FOR STRATEGIC DECISION MAKING IN COMPANIES

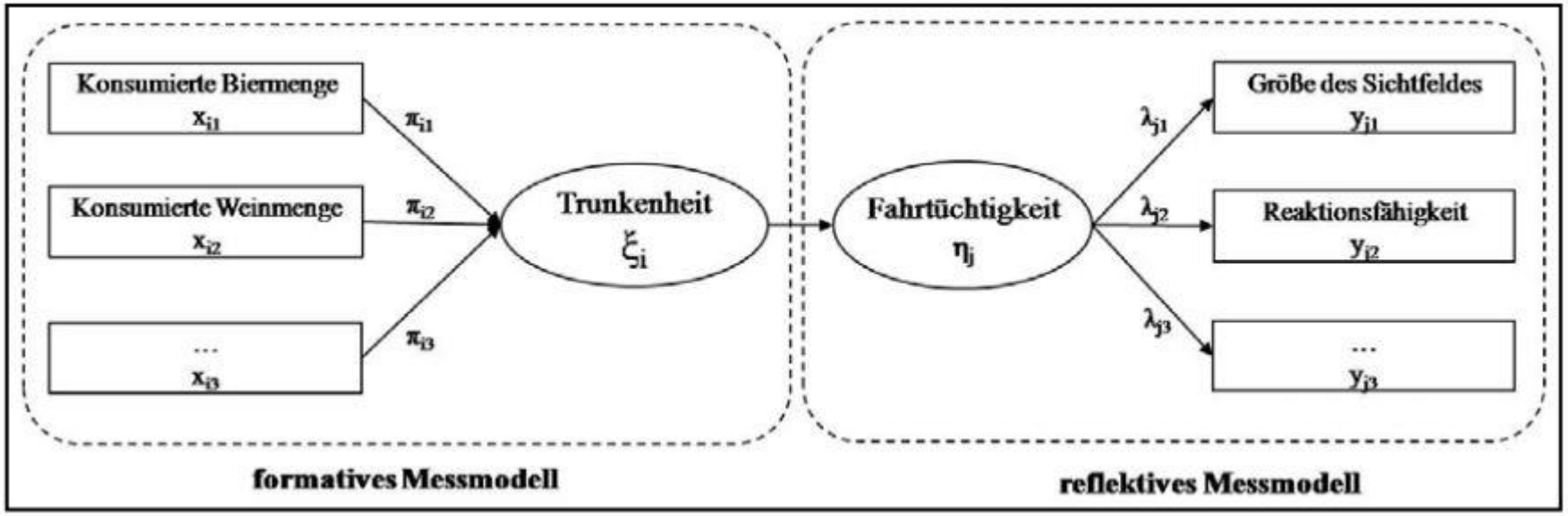
Fragen?

Danke!

Djordje Pinter
Austrian Institute of Technology
Foresight & Policy Development
Djordje.pinter.fl@ait.ac.at
Djordje.pinter@gmx.de

Apendix

Operationalisierung Formativ vs. reflektiv



- Indikatoren sollten möglichst eindimensional sein
- Je nach Kausalrelation formativ oder reflektiv
- Idealerweise: formatives Modell

3. Strukturgleichungsmodell, Mess- und Strukturmodel