

Technology Transfer Conference 2011

**MARKET SEGMENTATION IN UNIVERSITY-INDUSTRY TECHNOLOGY  
TRANSFER**

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## ► Overview

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- Increasing competition in many industries and in the science sector
- Companies more and more have to consider external research support
- Textile and textile-related industries are particularly research-based and facing considerable challenges
- Universities are potential suppliers for external research support for these industries

**This presentation focuses on the knowledge and technology transfer (KTT) relations between universities as research suppliers and industrial companies as (potential) research customers from a market-oriented point of view**

Source: OECD (2004)

 **Objectives**

- Fostering the market orientation of inter-organisational KTT in Industry-University-Collaboration (IUC)
- Transferring the customer segmentation approach to research markets
- Development of an empirically-based segmentation framework concept
- Derivation of concrete managerial implications for benefit-oriented exchange processes regarding IUC
- Derivation of further research directions and issues on research customer segmentation

## ► University knowledge and technology transfer (KTT)

- comprises active organisational, value-oriented, planned and time-limited **exchange processes** between universities and their respective customer or rather practice partner institutions (external practice partners)
- primary aim of these processes is the conveyance of **knowledge and technologies** into **economic and practical applicability** in order to achieve the objectives defined in advance by research suppliers.
- the objectives of knowledge and technology recipients shall be achieved as well thereby deriving the highest possible **mutual benefit** and
- a **basis for further collaboration** shall be provided respectively extended, most preferably even in the sense of a **strategic partnership**.

**Sources:** Following *Corsten* (1982), p. 11, *Bochert* (1997), p. 2, *Auer* (2000), p. 10 and *Walter* (2003), p. 16.

## ► Premises on (Research) Markets

- Market-oriented operating of suppliers
- Focus on customer benefits is decisive
- Customer focus as a core issue of market orientation
- Market segmentation as a way to ensure a sustainable customer focus

### **Market segmentation**

- Process of dividing the heterogenous total market into homogenous sub-markets
- Subsequent customised design of the marketing-mix for the selected sub-markets

***Most interesting segmentation approach in the following context:***

***Benefit segmentation or rather benefit-oriented segmentation***

Source: Freter (1983)

 **Research Questions**

**“How can a basic KTT-related segmentation framework for research customers be applied on the example of textile and textile-related industries?”**

**Related further research questions:**

- (i) Which company-related characteristics primarily influence the probability of cooperation?
- (ii) *How is the contact between the transfer partners usually initiated?*
- (iii) *Which are the most frequent cooperation forms in textile and textile-related industries?*
- (iv) *Which formal components and interactions (e.g. written agreements, regular meetings) are relevant during the actual core process of cooperation?*

## ► Research Design

### *Background*

- Survey on textile and textile-related industries in Germany, Belgium and the Netherlands
- Conducted from August to December 2009
- Partly-standardised (mixed methods) online questionnaire

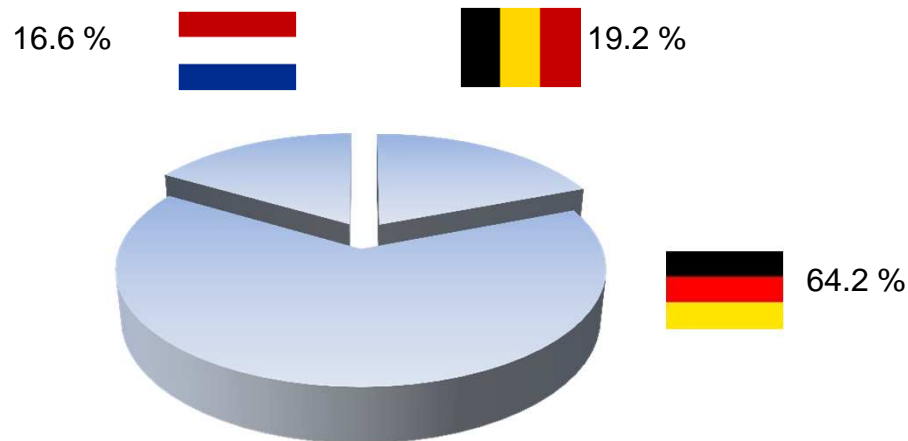
#### Fields of activity of the target companies

- |   |                              |  |
|---|------------------------------|--|
| • Agro-textiles   | • Man-made fibre fabrication | • Fibre-reinforced composites  |
| • Construction textiles   | • Yarn fabrication           | • Machine construction   |
| • Furnishing textiles   | • Non-woven                  | • Medical technology   |
| • Industrial textiles   | • Weaving mills              | • Airplane construction, ship construction, automobile and aerospace |
| • Medical textiles  | • Narrow weaving             | • Sanitary products  |
| • Textiles for airplane construction, ship construction, automobile and aerospace | • Warp-knitting              | • Paper manufacture  |
| • Protective textiles   | • Knitting                   | • Filter manufacture   |
| • Sports textiles   | • Spinning                   |  |



## ► Descriptive Findings

- 193 usable questionnaires (out of 254 received answers)



Cooperation experience with external research suppliers:

- 48.2% YES -> „Research customers“
- 51.8% NO -> „Non-research customers“

***Which company-related characteristics primarily influence the probability of cooperation experience?***

## ► Factors influencing Cooperation Probability

- Application of a logistic regression

### ***Binary nonmetric dependent variable:***

„Cooperation experience with external research suppliers“ (yes/no)

### ***Independent variables:***

- „Conduction of own R&D activities within the whole company“ (yes/no)
  - „Company size“ (staff headcount)
  - „Level of innovativeness“
- 
- Step-wise procedure (Forward: LR)

## Factors influencing Cooperation Probability

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### Modellzusammenfassung

Schritt	-2 Log-Likelihood	Cox & Snell R-Quadrat	Nagelkerkes R-Quadrat
1	209,544(a)	,242	,323
2	192,626(a)	,307	,409

a Schätzung beendet bei Iteration Nummer 5, weil die Parameterschätzer sich um weniger als ,001 änderten.

*Nagelkerke Pseudo R<sup>2</sup>  
measure with „good“  
value*

### Klassifizierungstabelle(a)

Beobachtet			Vorhergesagt		
			8_1rec		Prozentsatz der Richtigen
			keine Kooperation	Kooperation	
Schritt 1	8_1rec	keine Kooperation	57	40	58,8
		Kooperation	15	77	83,7
Gesamtprozentsatz					70,9
Schritt 2	8_1rec	keine Kooperation	77	20	79,4
		Kooperation	29	63	68,5
Gesamtprozentsatz					74,1

a Der Trennwert lautet ,500

*Nearly 75% hit ratio*

**▶ Research Customers vs. Non-Research Customers**

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<i>Research Customers</i>	<i>Non-Research Customers</i>
71.7% SME	98.0% SME
Almost 80% with own R&D activities	Almost 60% without own R&D activities



**Focusing on research customers:** How can they be further categorised?

## ► Benefit-oriented Cluster Analysis

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- Identifying different types of research customers
- Basis: Actually perceived cooperation benefits

### Approach: Hierarchical Cluster Analysis

- Ward's Method as a clustering algorithm
- Squared Euclidean distance as a distance measure

### ***Outcome: 3 Research Customer Clusters***

Cluster 1: 25 Companies

Cluster 2: 32 Companies

Cluster 3: 15 Companies

## Cluster Characterisation (1)

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### Segment 1: product and research oriented smaller companies

- 4/5 SME
- ~~main fields of activities: industrial textiles, machine construction and furnishing textiles~~
- Almost 85% with own R&D activities, where over 50% with own R&D department
- active information behaviour, especially via internet and journals as main information sources
- Particularly interested in the development of new materials, machines and components, product innovation workshops and development of components or textile surfaces and raw materials/energy efficiency
- great self-initiative in contact development
- non-university research institutions as a main type of cooperation partner
- Primarily product/prototype development, almost no student-oriented forms of KTT
- only sparse cooperation with students
- over 50% are experienced with at least 3 forms of KTT
- written process components prior to contract signing is demanded, after-transfer service is less relevant
- **Main benefit from cooperation:** acquisition of new knowledge (7.72), maintenance/improvement of competitiveness (6.36), product optimisation (6.24)

## Cluster Characterisation (2)

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### Segment 2: „KTT-active“ research and innovation-oriented larger companies

- more than 1/3 large enterprises
- ~~main fields of activities:~~ industrial textiles, weaving mills and furnishing textiles
- 85% conduct own R&D activities, more than 70% with own R&D department
- very active information behaviour, mainly via internet and journals as main information source
- Particularly interested in the development of new materials and product innovation workshops, process- and quality optimisation
- great self-initiative in contact development
- no focus on one specific research provider
- primarily product/prototype development, students' final thesis and projects as well as basic research as forms of KTT
- over 2/3 are experienced with at least 3 forms of KTT
- Especially keen on formalising processes
- great demand for after-transfer-service
- ~~main benefit from cooperation:~~ acquisition of new knowledge (7.88), development of partnerships/networks (7.84), improvement of innovation capability (7.72)

## Cluster Characterisation (3)

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### Segment 3: „KTT-passive“ smaller, less research oriented companies

- 4/5 SME
- main fields of activities: industrial textiles, construction textiles and textiles for airplane construction, ship construction, automobile and aerospace
- over 70% with own R&D activities from which only 50% have a own R&D department
- rather passive information behaviour, mainly journals, exhibitions/trade fairs and colleagues/recommendations
- Particularly interested in the development of new materials, machines and components as well as process and quality optimisation
- low self-initiative in contact development
- main cooperation partners: universities of applied sciences
- mainly product/prototype development, students' final thesis and projects as forms of KTT
- over 2/3 are experienced with maximum 2 forms of KTT
- great demand for after-transfer-services
- **main benefit from cooperation:** product optimisation (4.60), acquisition of new knowledge (4.47)



## ► Managerial Implications

*Proposition of a two-step segmentation framework for textile/textile-related research markets*

**STEP 1:** Cooperation experience with external research suppliers?

Indicators: Own R&D activities, company size

**STEP 2:** Perceived cooperation benefit

Conduction of a benefit-oriented customer segmentation

### ***Subsequent steps:***

- Choosing the segments to be served
- Development of a segment-specific marketing mix for each chosen segment

**Conclusion**

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**Market orientation as a key success factor**



On research markets as well

**Research market segmentation should not be product-focused**



Regarding IUC as a problem-solving approach linked to overall cooperation benefits

**A genuine benefit-oriented segmentation should focus on actually perceived benefits**



Mere motives or rather benefit expectations are less suitable for segmentation

**Successful and sustainable IUC should consider both the (potential) customers' needs and benefits**

## ► Directions for further research

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### *Research Direction 1:*

- Further refinement of the proposed segmentation framework

### *Research Direction 2:*

- Testing the inductive transferability of the segmentation framework to other industrial sectors

### *Research Direction 3:*

- Adapting and transferring the segmentation framework to non-industrial sectors
- Adaptations with regard to company research activities, cooperation forms and benefit issues

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**Thank you very much  
for your attention!**

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