



Institute for Market-Oriented Management

Competence in Research & Management

Prof. Dr. Dr. h.c. mult. Christian Homburg, Prof. Dr. Sabine Kuester

## IMU Research Insights

# 009

# Of Dollars and Senses – Does Multisensory Marketing Pay Off?

Christian Homburg

Monika Imschloß

Christina Kühnl

2012



UNIVERSITY OF MANNHEIM  
BUSINESS SCHOOL

## Relevance of Topic

- Sensory marketing as means to differentiate from competitors.
- Though consumers encounter more and more multisensory designed environments or products, research on how multisensory marketing affects consumers' emotions, behavior, and cognition is scarce.
- Is there a “dark side” of multisensory marketing, e.g. can multisensory marketing result in negative consumer responses resulting from overstimulation (“sensory overload”)?

## Focus of the Study

- Examine how combinations of two or three arousal (in-) congruent sensory stimuli affect willingness to pay, attitude toward the product, and purchase intention (high vs. low arousal music, scent or color).
- Arousal as an attribute inherent to every sensory stimulus is a dimension easy to control for retailers.

## Sample and Method

- Experiment with the introduction of a fictive retail setting (“Imagine browsing through a store...”)
- Stimuli manipulation: Music (fast vs. slow), Scent (Lavender vs. Grapefruit), and Color (red vs. blue)
- Method: Analysis of variance
- Student sample (almost 800 participants)

## Findings and Implications

- For two sensory stimuli positive effects of arousal congruity (as opposed to) arousal incongruity were found.
  - Comparing two to three high arousal stimuli revealed negative effects of increased arousal congruity on consumer responses, indicating that marketers should be aware of a possible sensory overload.
  - Three sensory stimuli with moderate arousal incongruity do not differ from combinations of two sensory stimuli.
- ➔ Multisensory marketing can pay off. Recommendations for marketers: Strategic vs. intuitive use of sensory stimuli (e.g. for in-store design) has positive effects on consumer responses.

- 
- Topic Relevance and Key Questions
- 

- 
- Study Characteristics
- 

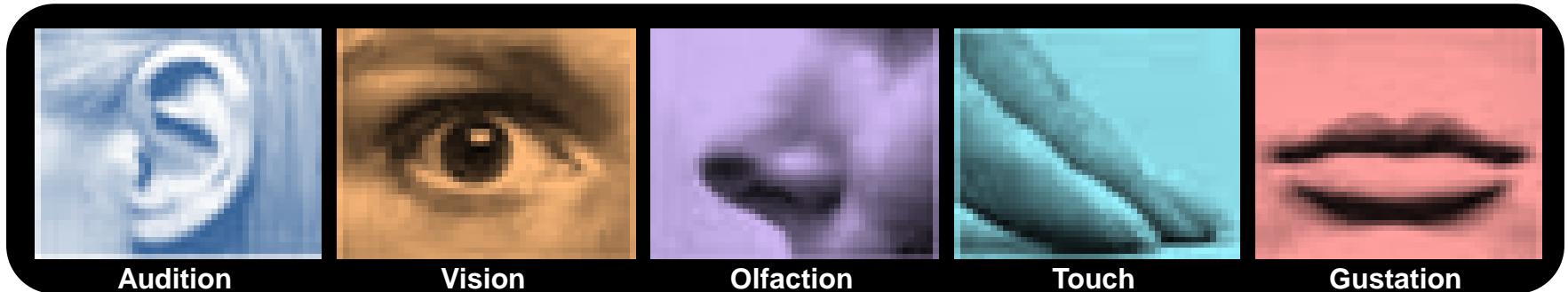
- 
- Study Results
- 

- 
- Managerial Implications
- 

- 
- Contact and Further Information
-

# Sensory marketing is on the rise and constitutes a future challenge for marketers and practitioners

**Sensory marketing = Marketing that engages the consumers' senses and affects their perception, judgment and behavior (Krishna 2011)**



*“Traditional marketing ignores sensory aspects that make up the consumers’ experience. Touch, taste, smell, sound, and look of a product affect our perception, attitude [and] emotions.”*

Angela Y. Lee, Kellogg School of Management, Northwestern University  
2010

*“It is estimated that 40 percent of the world’s Fortune 500 brands will include a sensory branding strategy in their marketing plan by the end of the decade.”*

Lindström 2005

*“It is only those companies who have recognized the power of using sensory stimuli [...] who will create the ability to deliver a sensory experience that can be long term winners.”*

Stephen Brewer, former MD of Vodafone, in Shaw 2005

**„Sensory Marketing is way overdue. [...] Sensual Marketing is an important new practical frontier.“**  
(Eric T. Bradlow, Editor-in-Chief, Marketing Science, 2010)

# Need for a strategic vs. intuitive implementation of multisensory marketing that affects consumers' emotions, behaviors and cognitions

- Consumers increasingly encounter stores, products or advertising designed to appeal to multiple senses.
- Combinations of sensory stimuli or even single sensory experiences (e.g. scent or music) can influence shopping behavior and can lead to a superior customer experience as well as economic benefits, for example:

Sensory aspects...	
... of the <u>product</u> or its design affect	... of the store <u>environment</u> affect
<ul style="list-style-type: none"><li>▪ package evaluations (Deng &amp; Kahn 2009)</li><li>▪ quality perceptions (Hoegg &amp; Alba 2007)</li><li>▪ willingness to pay (Krishna &amp; Morrin 2008)</li><li>▪ memory (Lwin, Morrin &amp; Krishna 2010)</li><li>▪ consumption (Raghubir &amp; Krishna 1999)</li><li>▪ product evaluations (Peck &amp; Childers 2003; Bosmans 2006)</li></ul>	<ul style="list-style-type: none"><li>▪ sales (Milliman 1982; Smith &amp; Curnow 1966)</li><li>▪ product evaluations (Bitner 1986; Rappoport 1982)</li><li>▪ impulsive buying (Mattila &amp; Wirtz 2001)</li><li>▪ approach behavior (Mattila &amp; Wirtz 2001)</li><li>▪ satisfaction (Bitner 1990; Harrell, Hutt &amp; Anderson 1980)</li><li>▪ purchase intention (Spangenberg, Crowley &amp; Henderson 1996)</li></ul>

- Sensory marketing as means to differentiate from competitors: Many retailers or firms cannot change the product, but the way it is perceived.
- Retailers vary widely in the number and nature of sensory stimuli they employ.

## BUT:

*“Many firms are not serious enough about turning their marketing toward the human senses with a clear strategic direction. Instead, they make more short-sighted and haphazard use of the senses without any distinct analysis. When the human senses are at the center of sensory marketing, a firm’s chances of distinguishing a brand are simplified. In this case it is necessary for a firm to try new paths and to be innovative.”* (Hultén, Broweus & van Dijk 2009)

**→ To release the potential of multisensory marketing, firms have to master the key challenge to employ multisensory stimuli strategically versus intuitively**

- 1 Overall: Does multisensory marketing really pay off?**  
How do combinations of two and three environmental stimuli (ambient scent, background music, background color) affect consumers' willingness to pay, purchase intention, and attitude toward the product in a fictive retail setting?
- 2 Particularly: Does arousal (in-)congruity between sensory stimuli affect consumer responses?**
- 3 Particularly: Does sensory overload occur? Does overloading consumers with high arousal sensory stimuli result in less positive consumer responses?**
- 4 What are managerial implications of the study results?**

Method

▪ Laboratory experiment: Participants are instructed to imagine browsing through a store, encountering different products (fictive retail setting using PowerPoint to display a picture of a prototypic washing machine and smartphone)

- Dependent Variables: Evaluation of each product
- Willingness to pay (open question)
  - Attitude toward the product (scale 1-7)
  - Purchase Intention (scale 1-7)



▪ Independent Variables: Manipulation of the retail environment in a fictive setting

We manipulate environmental stimuli in the dimension of arousal, as this feature is inevitably innate to every sensory stimulus and easily controllable for retailers. Arousal = the subjective experience of an affective internal state “ranging from sleep to frantic excitement” (Mehrabian and Russell 1974, 18).

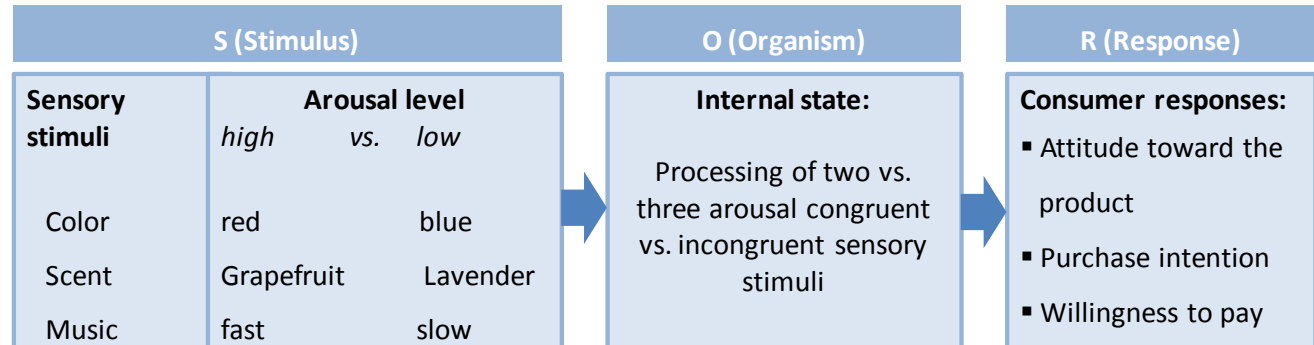
- Background music: fast vs. slow tempo music (high vs. low arousal)
- Background color: red vs. blue (high vs. low arousal)
- Ambient scent: Grapefruit vs. Lavender scent (high vs. low arousal)

Sample

Student sample (almost 800 participants)

## Framework

- Environmental psychology model (Mehrabian and Russell 1974)



- Arousal congruity = fit among arousal level of stimuli, e.g. 2xhigh (Krishna et al. 2010)
- Arousal incongruity = mismatch between arousal level, e.g. 1xhigh-1xlow (Bone and Ellen 1999)
- Moderate arousal incongruity = one stimulus of deviating arousal, e.g. 2xhigh-1xlow

## Overview of studies

- Study 1: Do two arousal congruent compared to incongruent stimuli affect consumer responses more positively?**

Comparing combinations of 2 arousal congruent vs. arousal incongruent stimuli

- Study 1a: background music (high vs. low arousal) x ambient scent (high vs. low arousal)
- Study 1b: background music (high vs. low arousal) x background color (high vs. low arousal)
- Study 1c: ambient scent (high vs. low arousal) x background color (high vs. low arousal)

- Study 2: Does moderate incongruity of 3 stimuli differ from congruity of 2 stimuli?**

Comparing combinations of 3 moderately incongruent vs. 2 congruent stimuli

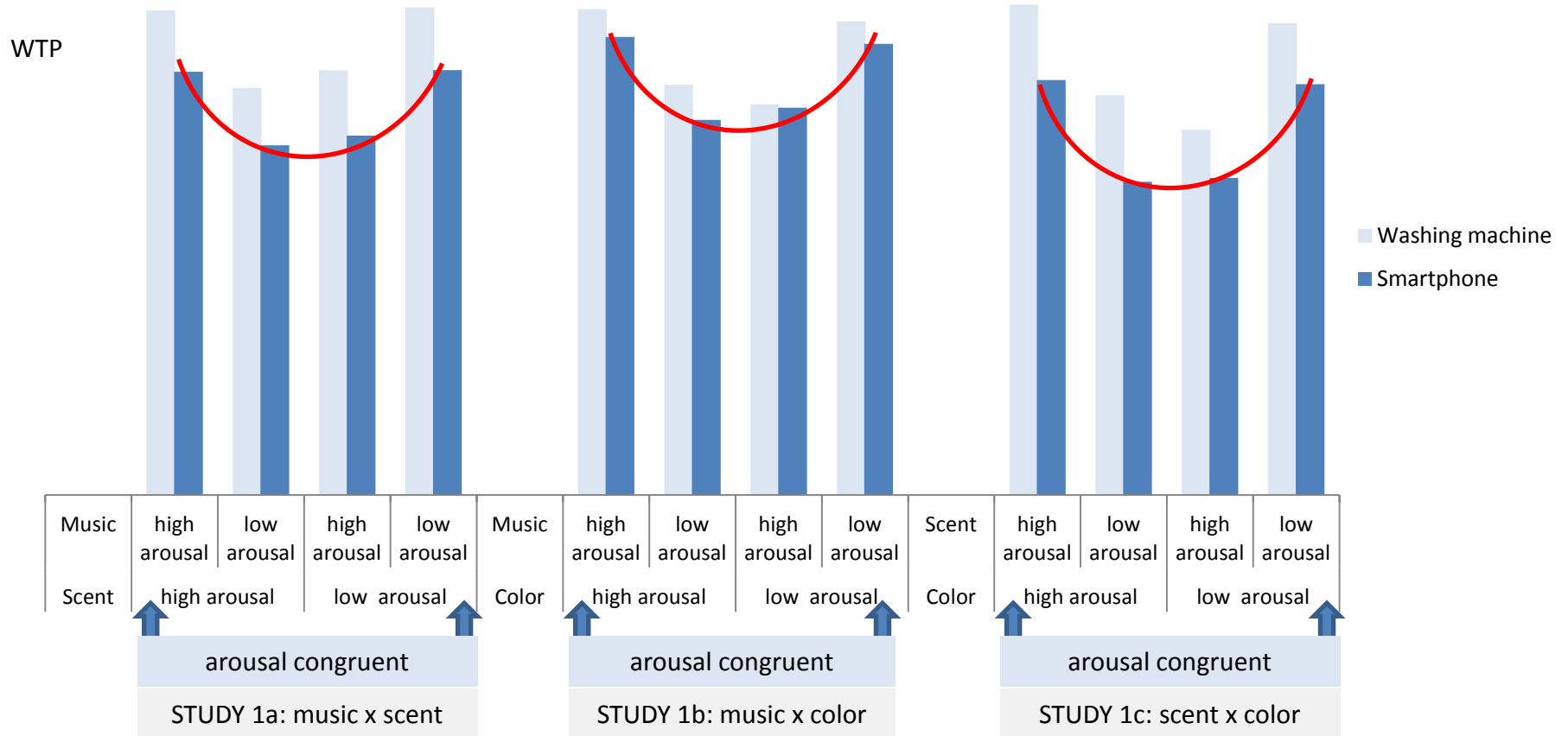
- Study 3: Does sensory overload occur for three high arousal stimuli?**

Comparing combinations of 2xhigh and 2xhigh-1xlow vs. 3xhigh arousal stimuli



# Study 1: Combinations of two arousal congruent compared to incongruent sensory stimuli result in more positive consumer responses

All consumer responses revealed the same pattern of results, depicted exemplarily for „Willingness to pay“ (WTP):



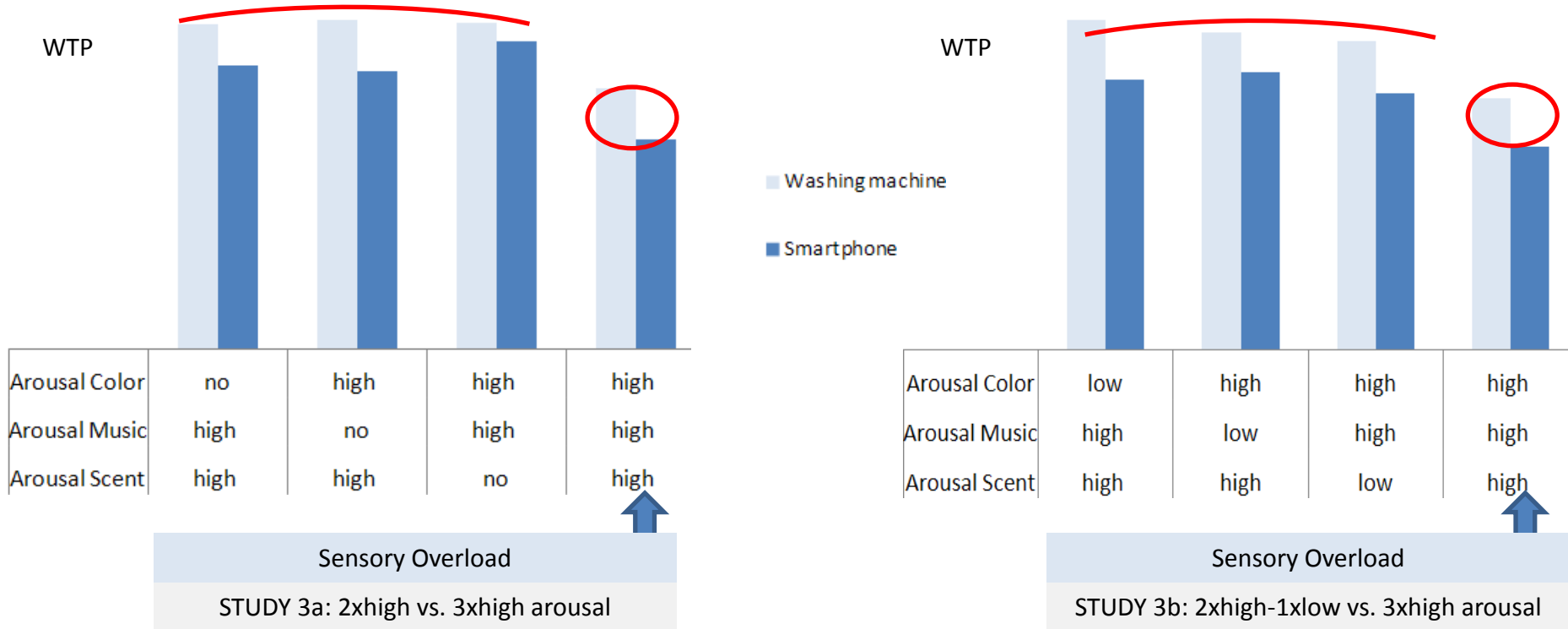
**Effect pattern: Environments designed with two arousal congruent (high-high or low-low) compared to two arousal incongruent (high-low or low-high) stimuli lead to more positive consumer responses.**

## Study 2: Moderate arousal incongruity for three stimuli does not differ from two arousal congruent stimuli

- No significant differences ( $p > .10$ ) in consumer responses between conditions of 2xhigh and 2xhigh-1xlow (or 2xlow and 2xlow-1xhigh)
- Consumers are not per se overloaded by three sensory stimuli
- Consumers may integrate one stimulus of deviating arousal

# Study 3: Sensory overload occurs for three high arousal stimuli compared to 2xhigh or 2xhigh-1xlow stimulus combinations

For all consumer responses and for both products the same pattern of results emerged, depicted exemplarily for willingness to pay:



- Significant less positive consumer responses for conditions of 3 high arousal stimuli compared to 2 high arousal stimuli or to 2xhigh-2xlow combinations
- Indicates that consumers may experience a sensory overload

# Conclusion: Sensory store design should rather be viewed as a strategic than an intuitive marketing challenge

Sensory store design can impact consumers' willingness to pay, purchase intention and attitude toward the product →  
Relevance of the aspect of arousal (stimulus feature) and of congruity in arousal level (stimuli combination)

## Congruity vs. incongruity of 2 sensory stimuli (Study 1)

- Arousal congruent compared to arousal incongruent combinations of stimuli lead to higher willingness to pay and more positive product evaluations.
- This was shown for combinations of music x color, music x scent, and scent x color.

## Congruity of two vs. moderate incongruity of 3 sensory stimuli (Study 2)

- No significant difference was found for combinations of two arousal congruent vs. three moderate arousal incongruent stimuli.

## Congruity of 3 sensory stimuli and sensory overload (Study 3)

- Two compared to three high-arousal congruent stimuli resulted in a higher willingness to pay and more positive product evaluations.
- Positive effects of high-arousal congruity as found for the combination of two sensory stimuli were inverted for three stimuli. → sensory overload

## Yes, multisensory marketing can pay off when employed strategically:

- 1 Marketers should be aware of the fact that sensory marketing efforts can affect consumer behavior and thus impact profitability.
- 2 Specifically, retailers should take into account that a multisensory store design can impact consumers' willingness to pay and attitudes as well as product evaluations.
- 3 Retailers should focus on arousal as key feature of sensory stimuli as this is not subject to personal preferences but rather innate and easily determinable for each stimulus.
- 4 Arousal congruity between two sensory stimuli should be fostered by e.g. employing high arousal ambient scent x high arousal background music or high arousal background music and high arousal background color.
- 5 Retailers should be aware of the fact that the positive effects produced by two sensory stimuli can be inverted by the addition of a third sensory stimulus (as was shown for the dimension of arousal leading to a state of sensory overload).
- 6 If employing three sensory stimuli in the retail environment, one stimulus should be of different arousal level as otherwise conditions of sensory overload can lead to a decrease in willingness to pay and less positive product evaluations.

The **Institute for Market-Oriented Management (IMU)** at the University of Mannheim (Germany) considers itself to be a forum for dialogue between scientific theory and practice. The high scientific and academic standard is guaranteed by the close networking of the IMU with the two Chairs of Marketing at the University of Mannheim, which are highly renowned on a national and international level. The Academic Directors of the IMU are Prof. Dr. Dr. h.c. mult. Christian Homburg and Prof. Dr. Sabine Kuester.

If you are interested in further information or have any questions, please contact us at:

Institute for Market-Oriented Management  
University of Mannheim  
L5, 1  
68131 Mannheim / Germany  
Phone: 0621 / 181-3540  
E-Mail: [monika.imschloss@bwl.uni-mannheim.de](mailto:monika.imschloss@bwl.uni-mannheim.de)

or visit our website at: [www.imu-mannheim.de](http://www.imu-mannheim.de).

## **The Authors:**

**Prof. Dr. Dr. h.c. mult. Christian Homburg** holds the Chair of the Business Administration and Marketing I at the University of Mannheim, is Scientific Director of the Institute for Market-Oriented Management (IMU) at the University of Mannheim, and Head of Advisory Board of the consulting firm Homburg & Partner.

**Dipl.-Psych. Monika Imschloß** is a PhD student at the Chair of the Business Administration and Marketing I at the University of Mannheim.

**Dr. Christina Kühnl** is Assistant Professor for Marketing at the University of Mannheim. Her primary research focus is innovation management.