

# **Nanoview – Perception of Nanotechnology by the German Population and Media Coverage**

**Dr. Astrid Epp**

**Unit Risk Research, Perception, Early  
Detection and Impact Assessment**

**Department Risk Communication**

# BfR: Statutory Remit for Risk Communication



- BfR has the statutory task of **informing the public** about potential, identified and evaluated **risks** which foods, substances and products **may entail for consumers**
- The assessments are presented in a **transparent and easily comprehensible manner**
- The results are readily accessible for the general public and other target groups on its **website**
- BfR upholds the three principles **transparency, reliability** and **greatest possible openness** in order to raise the confidence of all the stakeholders in the risk assessment process

BfR Website: <http://www.bfr.bund.de/en/remit-9763.html>

# Nanotechnology: a challenge for consumer protection and risk communication

- Nanotechnology as **key technology** for the 21<sup>th</sup> century
- Many **consumer product applications**: cosmetics, textiles, food packaging materials
- Early **social discourse** among various stakeholders about risks and benefits of nanotechnology
- Scientific risk assessment of nanomaterials in **statu nascendi** (e.g. exposure assessment)
- **Inexperienced public**: nanotechnology cannot be experienced through the senses
- Public **perception** and **acceptance** important for **social embedding** of nanotechnology



# Why Do We Need to Know What the Public Thinks about Nanotechnology?

„What the hell is it good for?“

*(1968, Microprocessor)*

„That’s an amazing intervention, but who would ever want to use one of them?“

*(1876, Telephone)*

„The horse is here to stay, but the automobile is only a novelty – a fad.“

*(1913, Automobiles)*

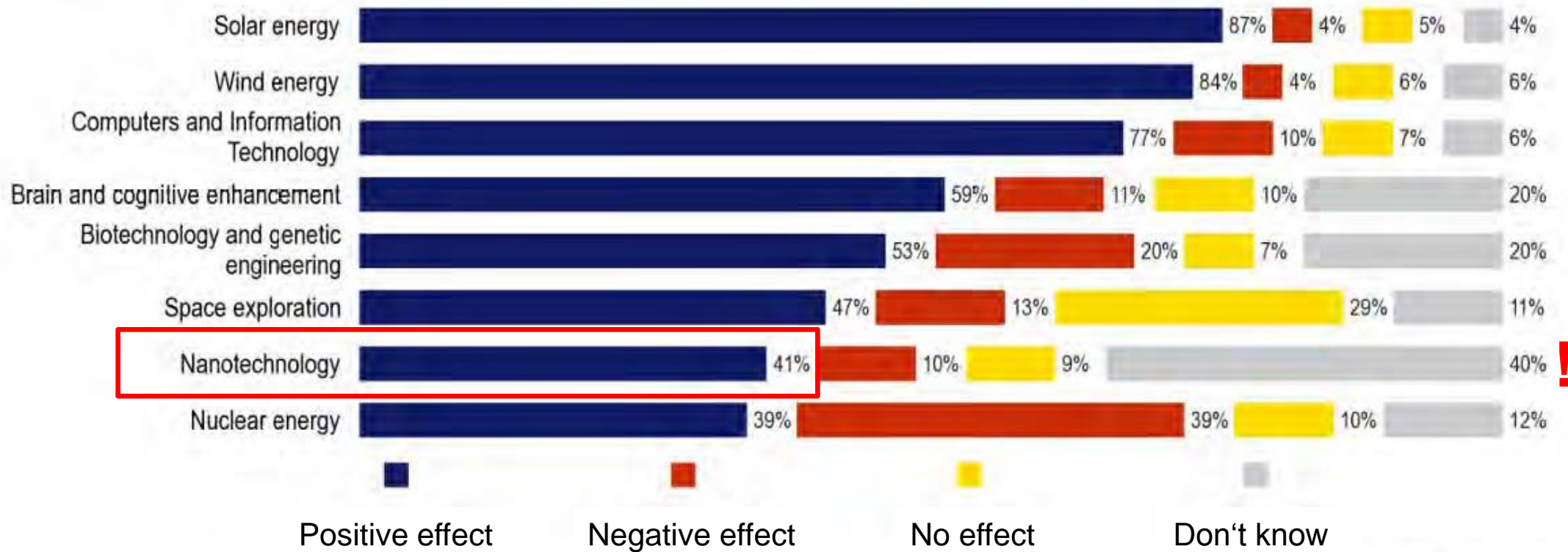
„Airplanes will be used in sport, but they are not to be thought of as commercial carriers“

*(1904, Airplanes)*

**Because (sometimes) the public doesn’t trust innovations.**

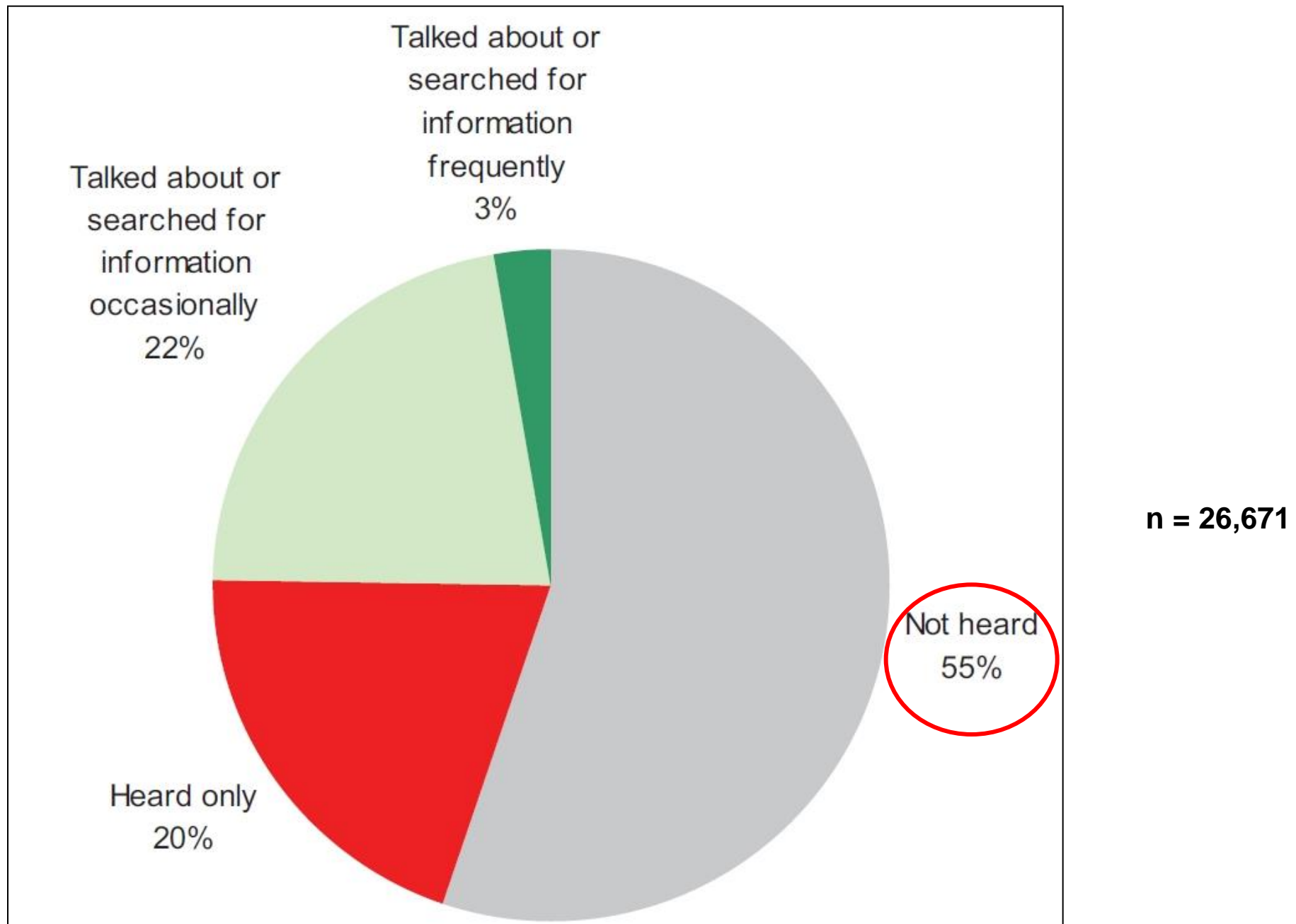
# European Citizens' optimism about technology: EU 27 (2010)

„I am going to read out a list of areas where **new technologies** are currently developing. For each of these, do you think it will have a positive, a negative or no **effect on our way of life** in the next 20 years?“



Eurobarometer 341 Biotechnology 2010: n = 26,671

# Public Awareness of Nanotechnology: EU 27 (2010)



Source: Gaskell et al. 2010. Europeans and Biotechnology in 2010 Winds of change?



# BfR Risk Communication Roadmap 2007-2013

**November 2008:** 6. BfR Consumer Protection Forum Nanotechnology in the focus of consumer health protection

**2009:** BfR Consumer Conference Nanotechnology

[http://www.bfr.bund.de/cm/350/bfr\\_consumer\\_conference\\_nanotechnology.pdf](http://www.bfr.bund.de/cm/350/bfr_consumer_conference_nanotechnology.pdf)

**2010:** Perception of Nanotechnology in Internet-based Discussions. Results of an Online Discourse Analysis.

[http://www.bfr.bund.de/cm/350/perception\\_of\\_nanotechnology\\_in\\_internet\\_based\\_discussions.pdf](http://www.bfr.bund.de/cm/350/perception_of_nanotechnology_in_internet_based_discussions.pdf)

**February 2011:** Expert Workshop „Health Risk Assessment of Nanosilver“

**2011-2013:** NanoView I Public opinion poll on perception of nanotechnology (follow-up Study to 2007)

**2007:** First BfR-Public Opinion Poll on Perception of Nanotechnology & BfR-Media Analysis

## Aims:

- **to identify** and assess the positive and negative effects of nanotechnology on health and safety
- **to develop** dialogue offerings as well as initial and continuing training initiatives
- **to identify and quantify** the impact of nanotechnology on society

**2011-2013:** NanoView II Risk perception of nanotechnology: Analysis of the mass media coverage (follow-up Study to 2007)

# NanoView 2011-2013: Grasping the Public's and the Media's Perception of Nanotechnology

- Conduction of a systematic international **literature review** about the **public perception of nanotechnology** in Germany and abroad
- **Representative survey** of the german-speaking population (16–60 years) concerning their **perception of nanotechnology** (follow-up study to BfR-Survey on Nanotechnology 2007)
- Analysis of **German Print Media** on the **presentation of nanotechnology** between 2008–2012 (follow-up study to BfR-Media Analysis of Nanotechnology 2000–2007)



## NanoView – Research Questions

- How does the **German population** perceive nanotechnology?
- What does the general public **know** about **nanotechnology** and where do they get their **information**?
- Does the population perceive nanotechnology more in terms of **risk** or **benefit** aspects?
- To what extent does perception **differ** between various **fields of application**?
- Has the **public perception** of nanotechnology **changed** over the last years?
- How is **nanotechnology** presented in the **German Media**?

## Literature Review: General Attitude

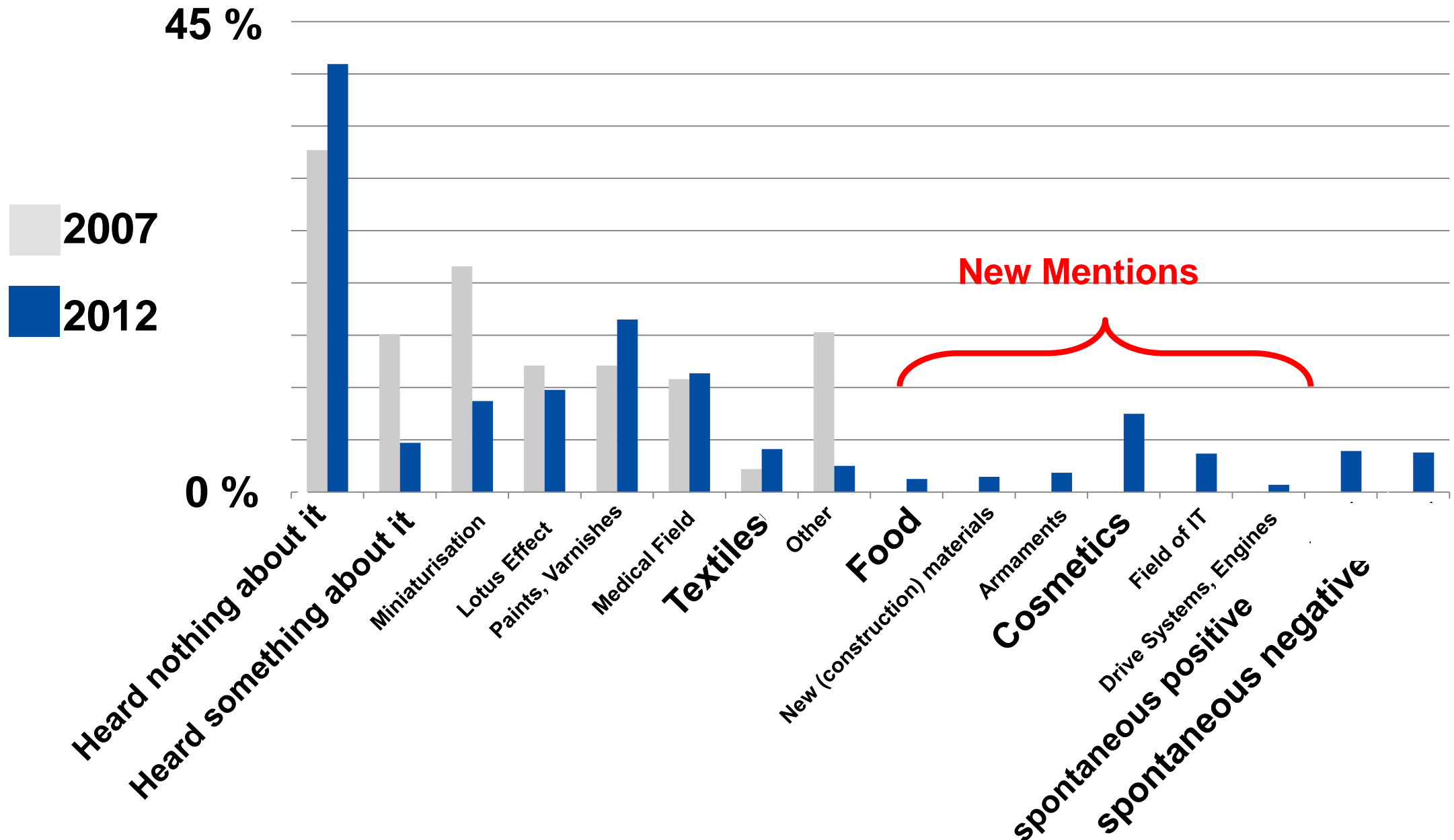
- In the majority, **Europeans** are positive about **Nanotechnology** (EU 27, 2010: 41 %)
- **Minority expects a negative impact on their way of life** (EU 27, 2010: 10 %)
- However, in this respect the **majority** of the population **still is undecided** (EU 27, 2010: 40 %)
- In **Germany**, **support** (46 %) as well as criticism (29 %) is above European average
- **Acceptance of nano-applications** depends upon the perceived **risk-benefit ratio**

# Awareness of Nanotechnology in selected European Countries and in the United States

- **Awareness has increased; yet 30–50 % remain unaware of Nanotechnology**
- **Different country levels of awareness** (CH 2010: 76 %, D 2010: 65 %, USA 2009: 62 %, EU 27 2010: 46 %)
- **2/3** of those who have heard of Nanotechnology report **little knowledge**; **1/3** can provide **some definition** of Nanotechnology (Grobe et al. 2008)
- **People who have heard** of Nanotechnology **are aware** of a number of **applications** (e.g. Medicine 85 %, Textiles 55 %, Cosmetics 34 %)

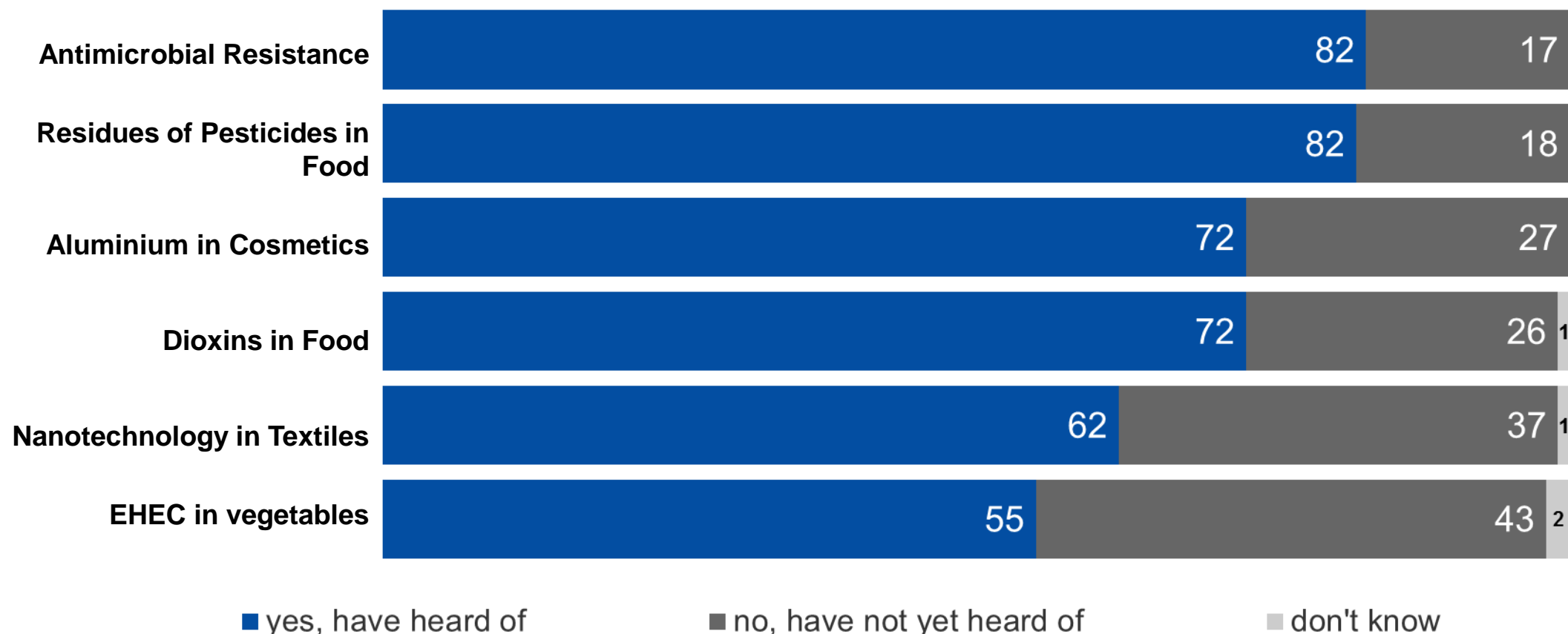
# BfR-Survey: Awareness of Nanotechnology in Germany

"What have you already heard or read about?", open question  
(n = 1,000)?"



# BfR Consumer Monitor 2014: Awareness of Health and Consumer Issues

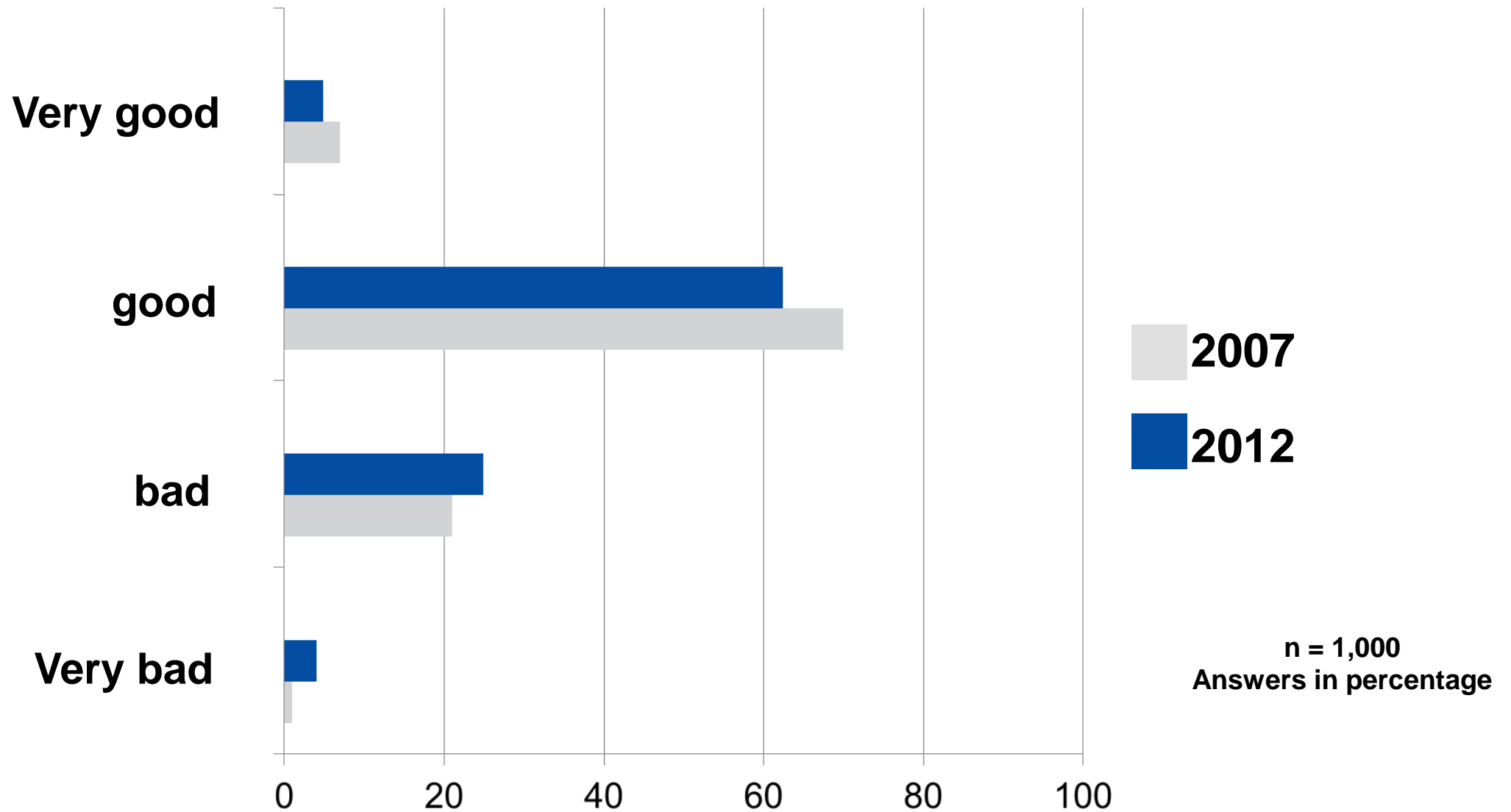
„Have you heard of the following health and consumer issues or have you not heard of them?“



BfR Consumer Monitor (10/2014), n = 1,012, answers in percentage

# BfR-Survey: Feeling about Nanotechnology

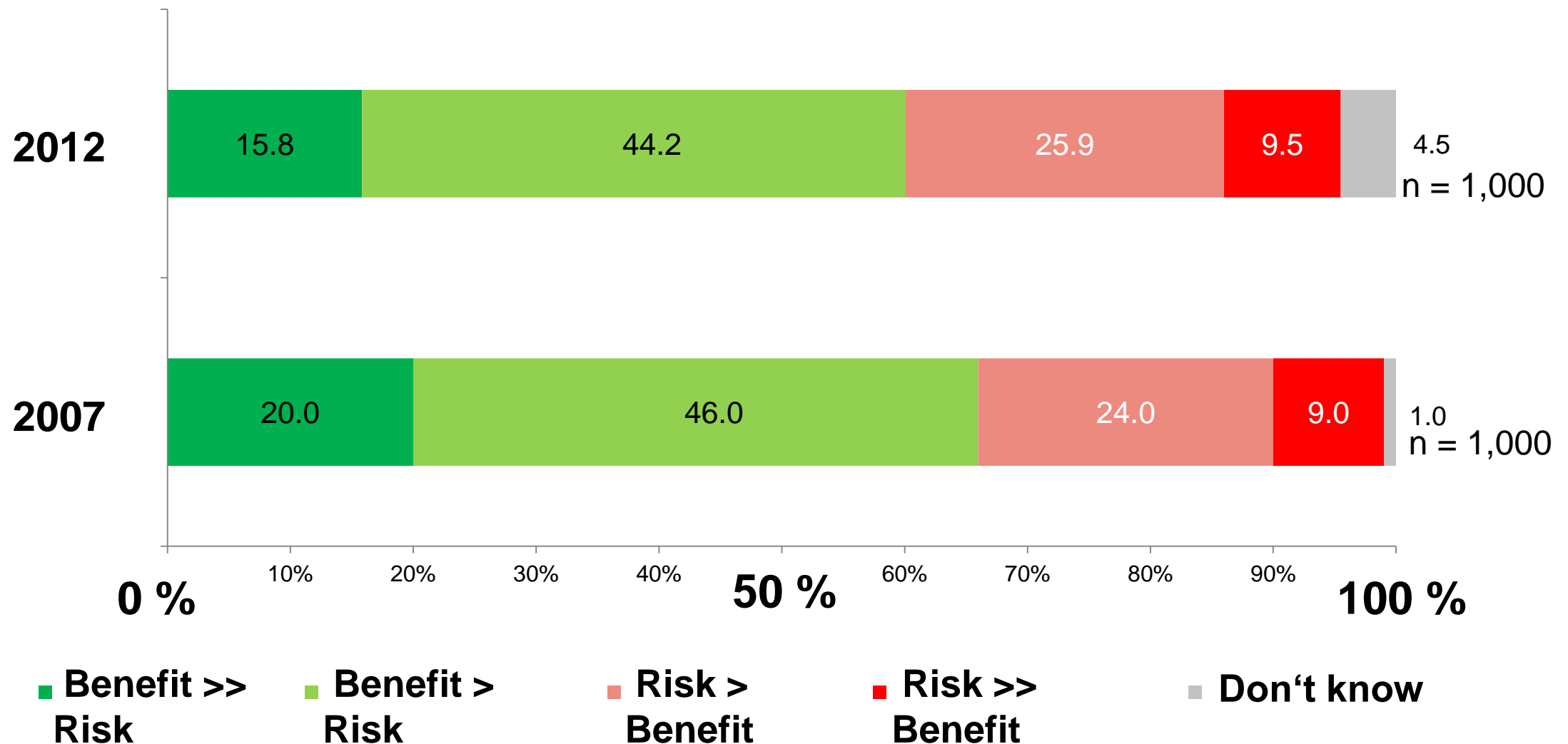
„What is your general feeling about the issue of nanotechnology?“





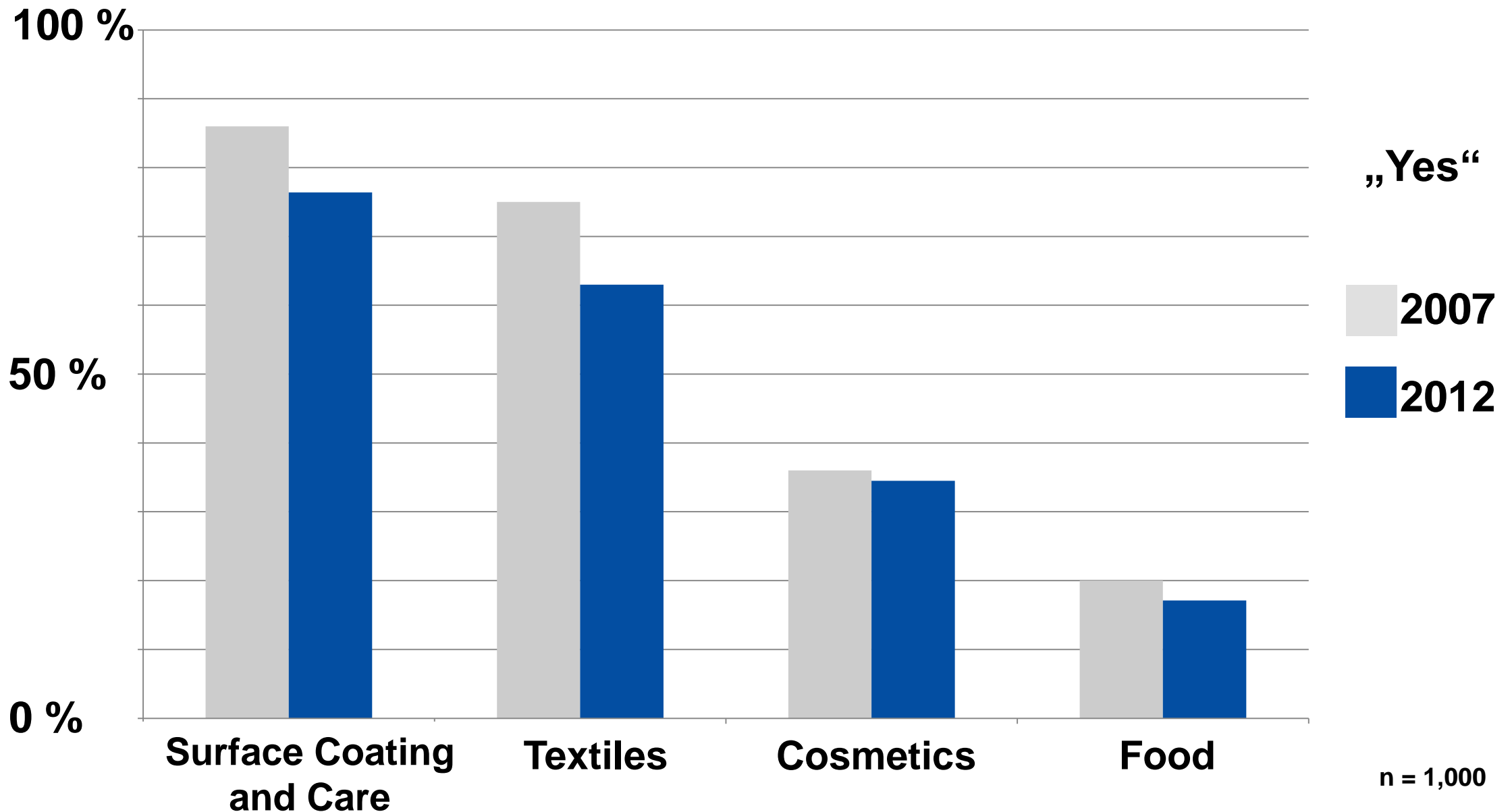
# BfR-Survey: Perceived Risk-Benefit Ratio

"What is your assessment of the risk-benefit ratio of nanotechnology?"  
(n = 1,000)



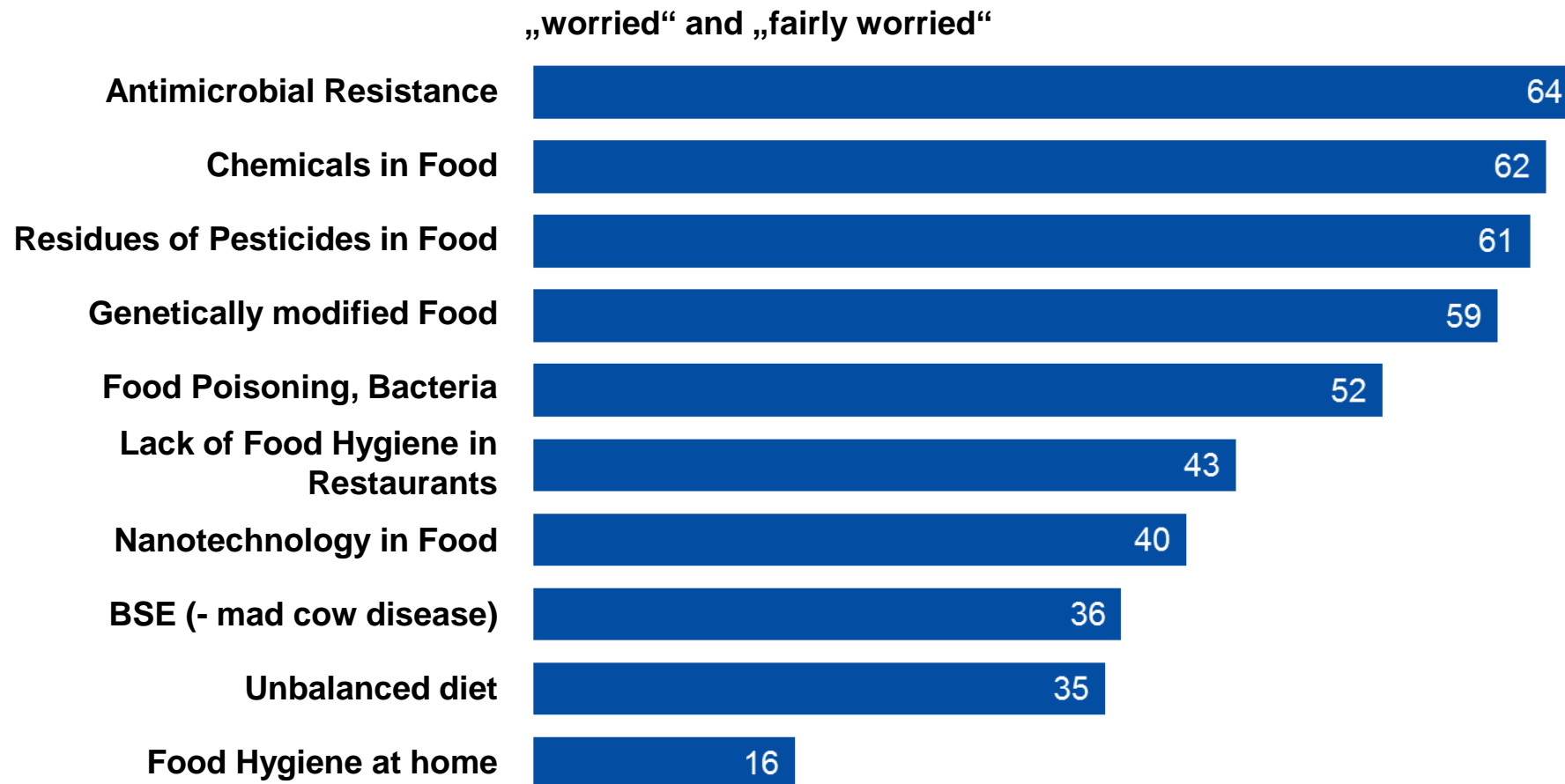
# BfR-Survey: Willingness to buy Nanoproducts

"Would you buy products in the following groups if they contain nanomaterials?"



# BfR Consumer Monitor 2014: Worries about Food Safety

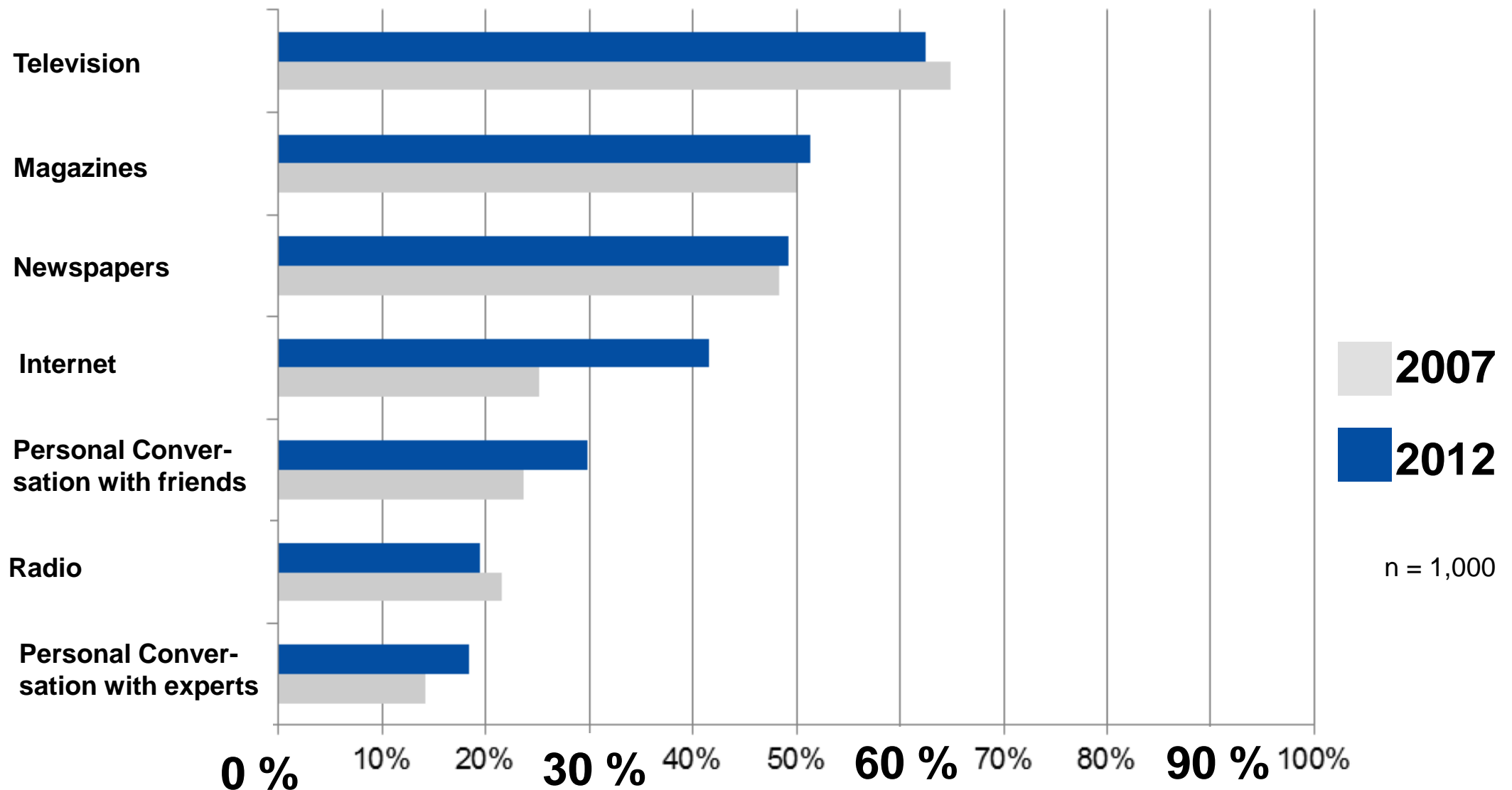
„To what extent are you personally worried or not worried about the following food safety issues?“



BfR Consumer Monitor (10/2014), n = 1,012, answers in percentage

# BfR-Survey: Sources of Information

"In which of the following media have you heard, read or seen something about nanotechnology?"



## Conclusion: BfR-Survey Nanotechnology

- In the **majority**, people in Germany have a **positive attitude** towards Nanotechnology
- **Benefits** of Nanotechnology are **ranked higher** than possible risks
- Since 2007, general **non-knowlegde has increased**, but more **applications are known** (e.g. surface coating)
- **Food** as application is **hardly mentioned**
- **Willingness-to-buy** is lowest with regard to **food**

# NanoView II: Media Analysis Nanotechnology (2008–2012)

German media coverage of Nanotechnology between January 2008 and December 2012 (full survey)

Search Term: **NANO\***

## **Media Pool: German Quality Newspaper and Magazines**

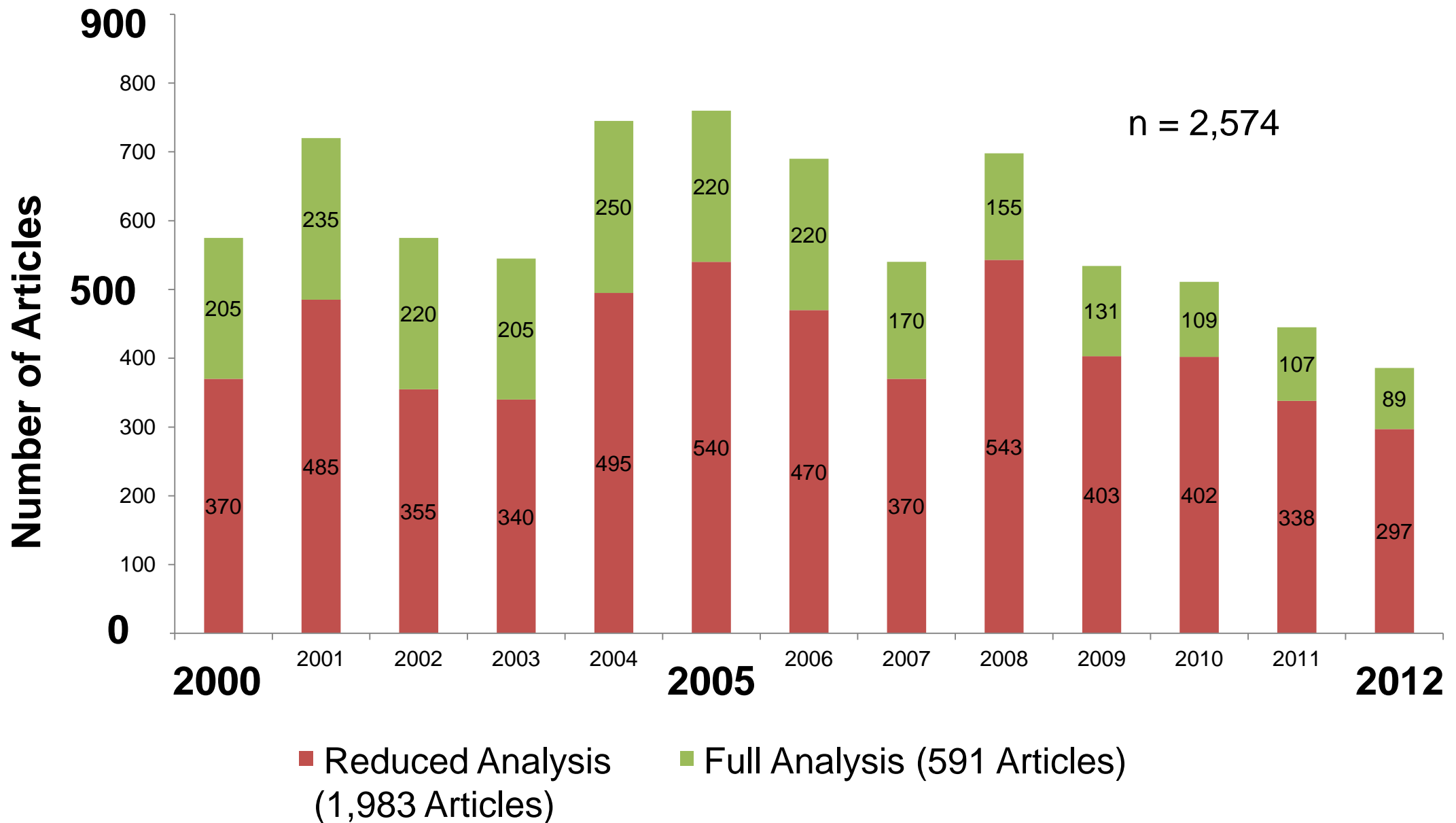
Financial Times Deutschland	Frankfurter Allgemeine Zeitung
Frankfurter Rundschau	Süddeutsche Zeitung
taz.die tageszeitung	Die Welt
Focus	Der Spiegel
Die Zeit	BILD

## **Central Research Question:**

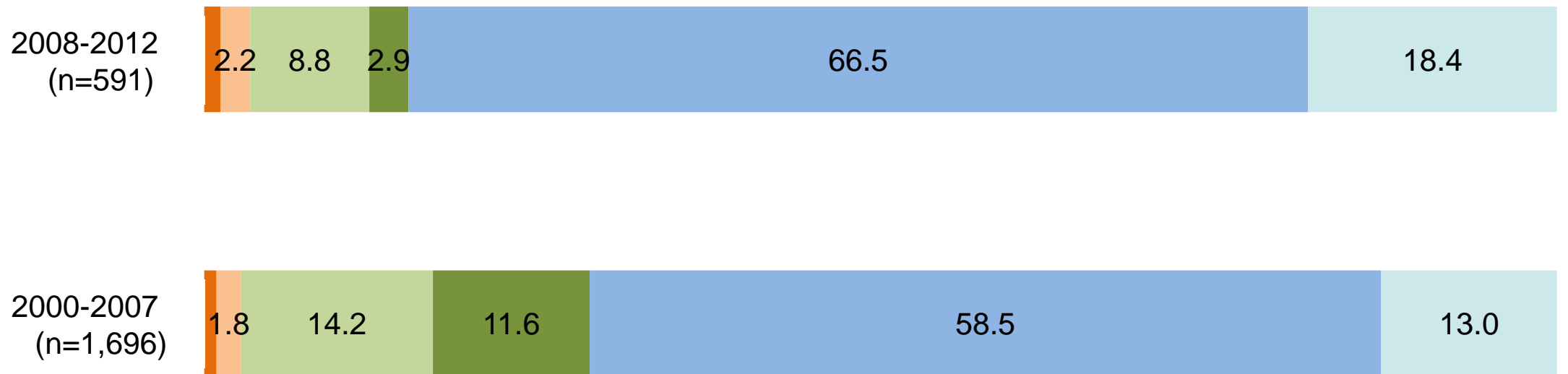
How is nanotechnology **presented** in the **German news media**?



# BfR-Media Analysis Nanotechnology (2008–2012): Number of Articles



# BfR-Media Analysis Nanotechnology: Placement of Articles



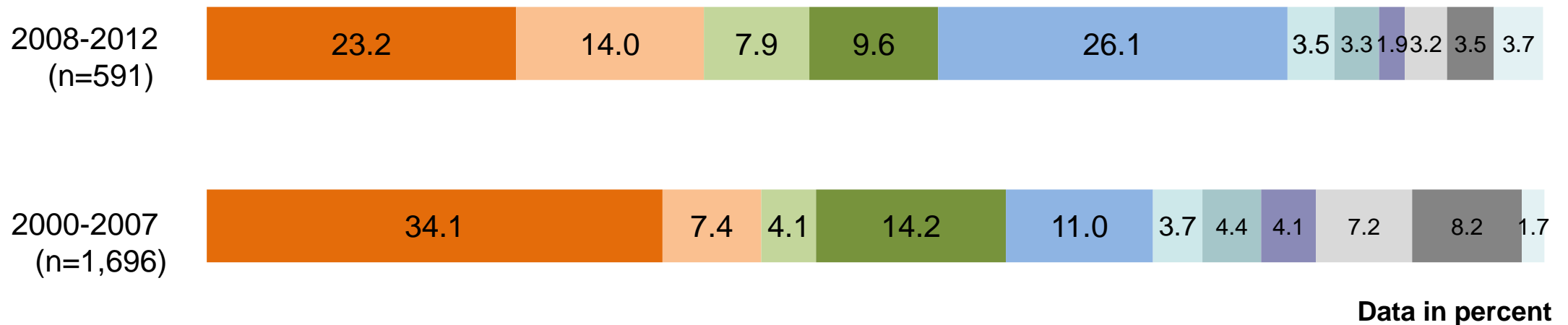
Data in percent

■ Front Page ■ Economy ■ Feuilleton ■ Science ■ Other

2000-2012

1. Science
2. Economy
3. Feuilleton

# BfR-Media Analysis Nanotechnology: Main Topics of Coverage



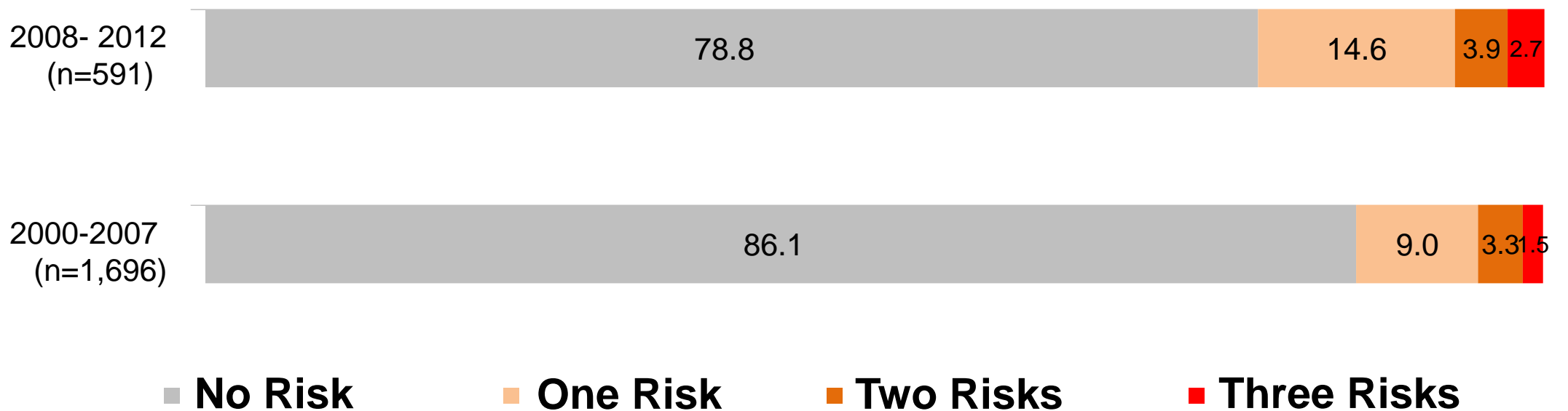
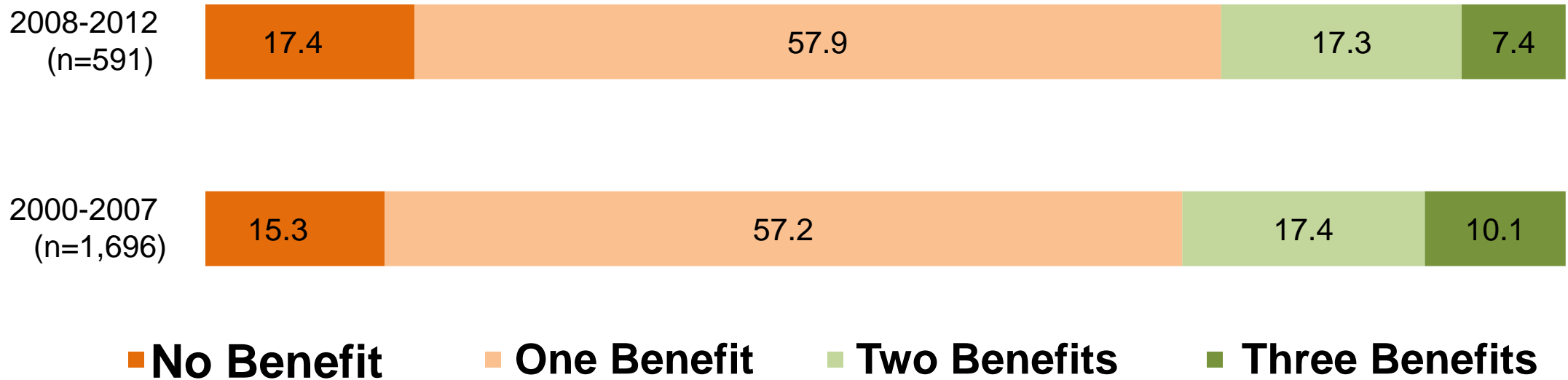
## 2000-2007

1. **Fundamental Research (34.1 %)**
2. Information- and Communication Technologies (14.2 %)
3. Not consumer related applications: Surface Coating, Armament, Aerospace, Construction (11.0 %)

## 2008 - 2012

1. **Not consumer related applications: Surface Coating, Armament, Aerospace, Construction (26.1 %)**
2. Fundamental Research (23.2 %)
3. Healthcare Application (14.1 %)

# BfR-Media Analysis: Risks and Benefits mentioned in the Articles (numbers in percent)



## Conclusion: BfR-Media Analysis 2008-2013

- **Constant decline of media coverage since 2008**
- Articles about nanotechnology **mainly** are placed within the **science section**
- **Main topics in media reporting about nanotechnology** are not consumer related applications (e.g. surface coating) and **fundamental research**
- **Vast majority** of articles mentions **at least one benefit** in relation to **nanotechnology**



Quelle: Fotolia, rdnzl

## Conclusion: Nanotechnology in Germany

### Acceptance of nanotechnology depends upon the application area

- **decline** in the acceptance of applications in food
- more people **in favor of** applications for **medical purposes**

### Benefits still outweigh the risks

- overall **risk-benefit perception** of nanotechnology in general is still **rather positive**
- in the German **media**, more **than 80 % of all articles** mentioned at least one **benefit**

### No high profile issue

- in 2012 **less people** are **spontaneously aware** of nanotechnology than in the year 2007
- nanotechnology has become a subject of a **scientific, highly specialised** discourse



## BfR Nanoview Publications (in German, forthcoming in English)



### BfR-Survey:

<http://www.bfr.bund.de/cm/350/nanoview-einflussfaktoren-auf-die-wahrnehmung-der-nanotechnologien-und-zielgruppenspezifische-risikokommunikationsstrategien.pdf>

### BfR-Media Analysis:

<http://www.bfr.bund.de/cm/350/nanomedia-analyse-der-medienberichterstattung-zum-thema-nanotechnologie-2008-2012.pdf>

# Thanks!



Bundesinstitut für Risikobewertung

Gaby-Fleur Böl

Guido Correia Carreira

Mark Lohmann

**Department Risk Communication**

**Federal Institute for Risk Assessment (BfR)**

**KONTUR 21<sup>®</sup>**

KONTUR 21 GmbH

| i | ö | w

INSTITUT FÜR  
ÖKOLOGISCHE WIRTSCHAFTSFORSCHUNG

IÖW – Institute for  
Ecological Economy Research



**Thank you for your attention**

Dr. Astrid Epp

Federal Institute for Risk Assessment

Max-Dohrn-Str. 8-10 • D-10589 Berlin

Tel. +49 30 - 184 12 – 3351 • Fax +49 30 - 184 12 - 63351

astrid.epp@bfr.bund.de • [www.bfr.bund.de](http://www.bfr.bund.de)