Biases, illusions, noise, and nudges: Why more information does not help

Understanding our audiences:
influencing factors on the public attitude towards science and technology

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Outline

1. How do people think about food tech?
2. How do people (actually) make choices? Which are the major informational pitfalls?
3. What can politics do?

1. HOW DO PEOPLE THINK ABOUT FOOD TECH?

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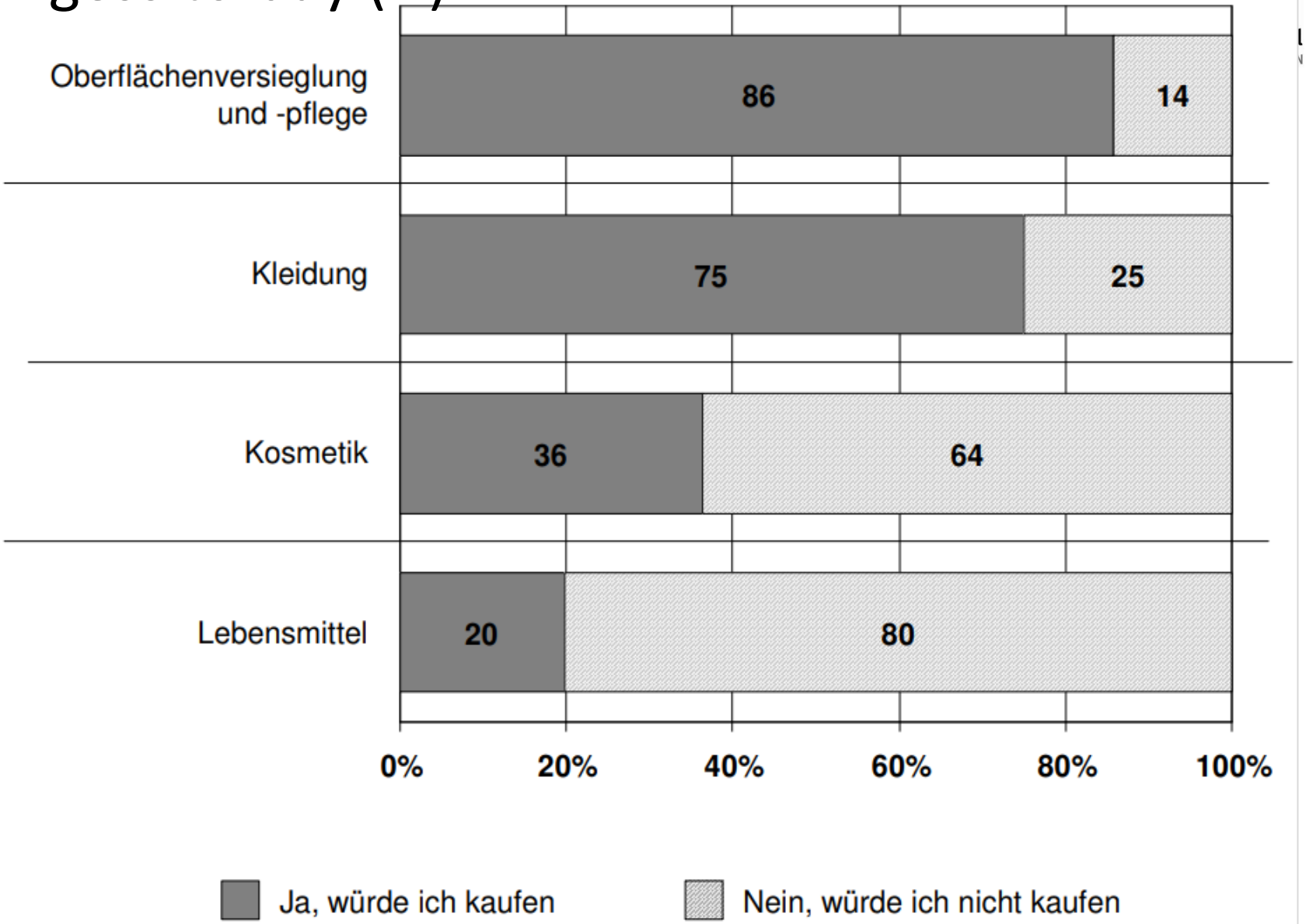
THERE IS NO UP TO DATE PAN-EUROPEAN DATA

Willingess to buy (D)



Source: Zimmer, Hertel, Böl (2017). Wahrnehmung der Nanotechnologie in der Bevölkerung. Repräsentativerhebung und morphologisch-psychologische Grundlagenstudie.

More knowledge does not influence perceived usefulness

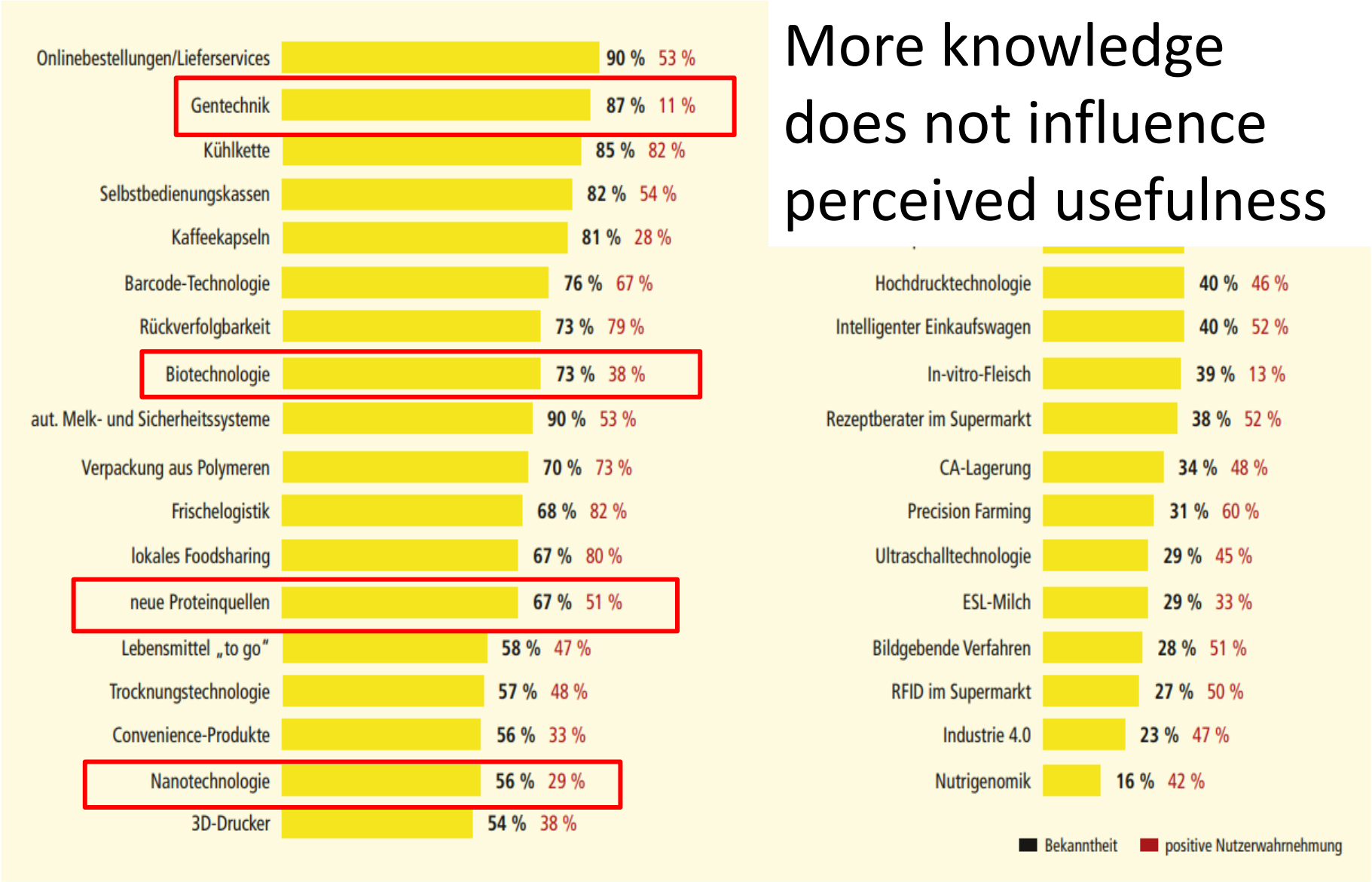


Abbildung 5: Bekanntheit und positive Nutzenwahrnehmung von Innovationen im Lebensmittelbereich
Fragen: „Haben Sie schon einmal etwas von den folgenden innovativen Technologien / […] technikbasierten Dienstleistungen bei Lebensmitteln gehört? // Und wie schätzen Sie persönlich die folgenden Innovationen ein?"

Source: Bücking & Hengses, 2016, Food-Innovationen in Deutschland: Wahrnehmung und Wünsche von Verbrauchern.

Abbildung 1 | Veränderung der Technikeinstellungen in Deutschland

(Wissenschaft und)* Technik verschafft zukünftigen Generationen mehr Möglichkeiten / Lebensqualität.

Eigene Darstellung auf Basis der TechnikRadar-Befragung 2017; N = 2002,
sowie der Spezial-Eurobarometer 154 (2001), 224 (2005), 340 (2010) und 401 (2013)
*Item im Eurobarometer: »Thanks to science and technology, there will be more opportunitites for future generations.«
**Im Bericht des Spezial-Eurobarometers 154 (2001) wird keine »Ambivalenz«-Kategorie angegeben.

Technikradar 2018, Körber Stiftung & acatec

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WE NEED BETTER DATA IF WE WANT TO COMMUNICATE WELL !

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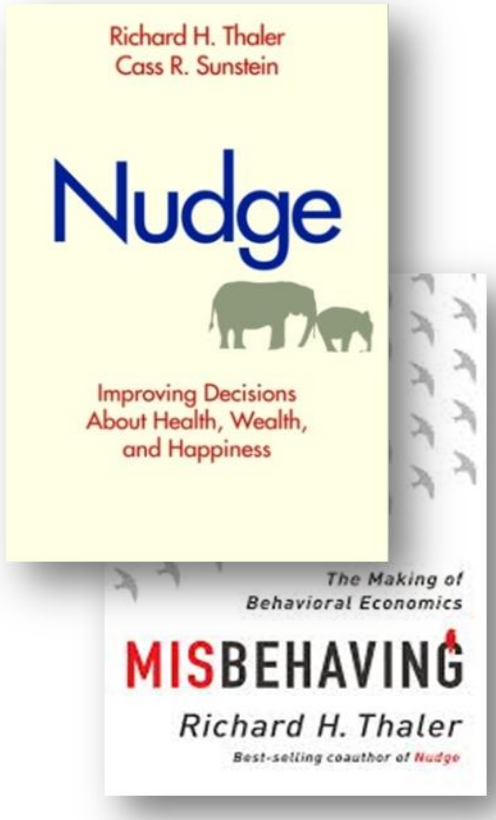
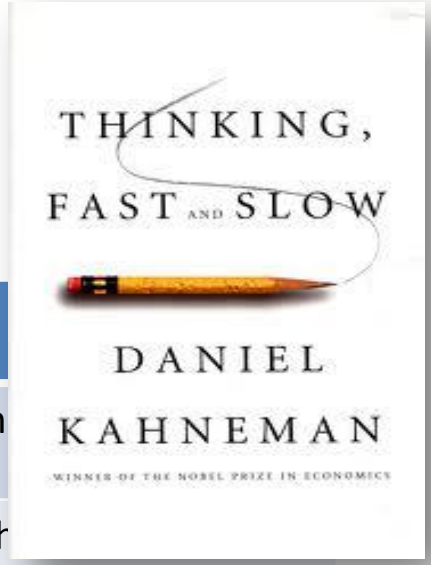
2. HOW DO PEOPLE (ACTUALLY) MAKE CHOICES?

The limits of the information model

- Biases and heuristics in information processing
- the power of context
- limited „cognitive bandwidth“ and information overload („cognitive misers“)
- limited self-regulation and self-control
- role of involvement and social emotions
- stress, distraction, time poverty



Dual process theories



System 1	System 2	
human	econ	Thaler & Sun
fast	slow	Tversky & Kah
affective	cognitive	Slovic et al. 2002
experiential	analytical	Slovic et al. 2004
experiential	rational	Epstein 1994
heuristic	systematic	Chaiken 1980
reflexive	reflective	Hodgkinson & Healey 2011
peripheral	central	Petty et al. 1983

individuals

- What are „true“ preferences?
- Preference reversals and constructions
- „rational inattention“ (cost focused)
- Biases, noise, and heuristics

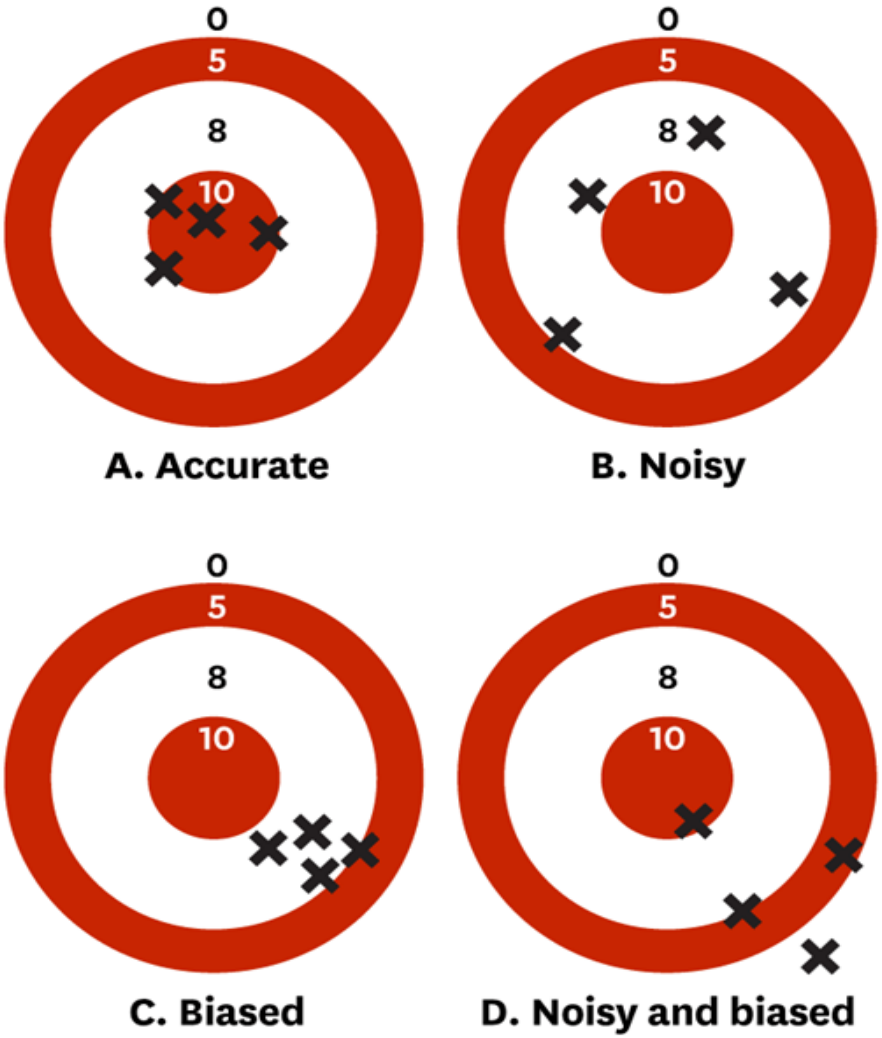
The “Big Four” Evaluative Biases

1. Loss > Gain (*loss aversion*)
2. Good > Bad (*optimism bias; asymmetrical updating*)
3. Now > Later (*present bias*)
4. Me > You (*self-serving bias*)

✓ All of these are curable (can be “debiased”) through broad framing

„Noise“ – chance variability of decisions

How Noise and Bias Affect Accuracy



SOURCE DANIEL KAHNEMAN, ANDREW M. ROSENFIELD, LINNEA GANDHI, AND TOM BLASER
FROM "NOISE," OCTOBER 2016

groups

- cascade effects (informational, reputational)
- „SIFs“ (supposedly irrelevant factors)
- group polarization and naive herding
- norm entrepreneurs
- expressive function of regulation

Cass Sunstein (2019): „How change happens“

3. WHAT CAN POLITICS DO?

Better information

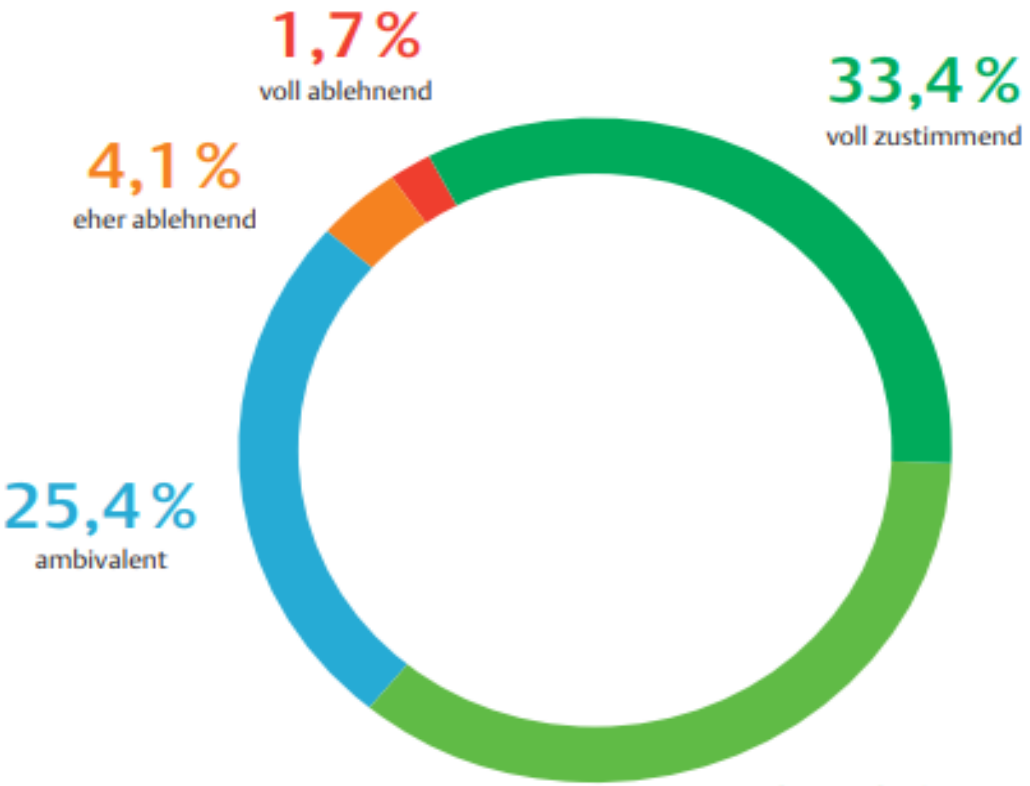
- **easy** to understand, **attractive** in format (visuals, labels), socially and individually **meaningfu**l, **timely**
- Cater for both, **peripheral** and **central** information processing
- **Stepwise** approach to communication
- **Disclosure by labels -** give sense of control and safety signal
- **framing** as reduction of loss (e.g. dietary hazards) rather than as a gain (e.g.improved nutrition) will increase willingness to take risks (prospect theory)

More trust

- help develop **trust** by cooperating with trustworthy institutions as **senders** and platform hosts

  e.g. https://www.nanoportal-bw.de/
- Useful disclosure (Open Knowledge Data)
- Independent evaluation of (conflicting views on) risks/potentials by **impartial actors**
- **Involve** and engage citizens more e.g. in consumer conferences or consumer boards

People want to be involved in contested technologies



»Bei der Zukunft umstrittener Techniken sollten Bürger mitentscheiden.«

Source: TechnikRadar 2018, acatech and Körber-Stiftung

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GRAZIE – THANKS – DANKE – TAK!