



# The importance of social acceptance

The role of CCU to mitigate climate change

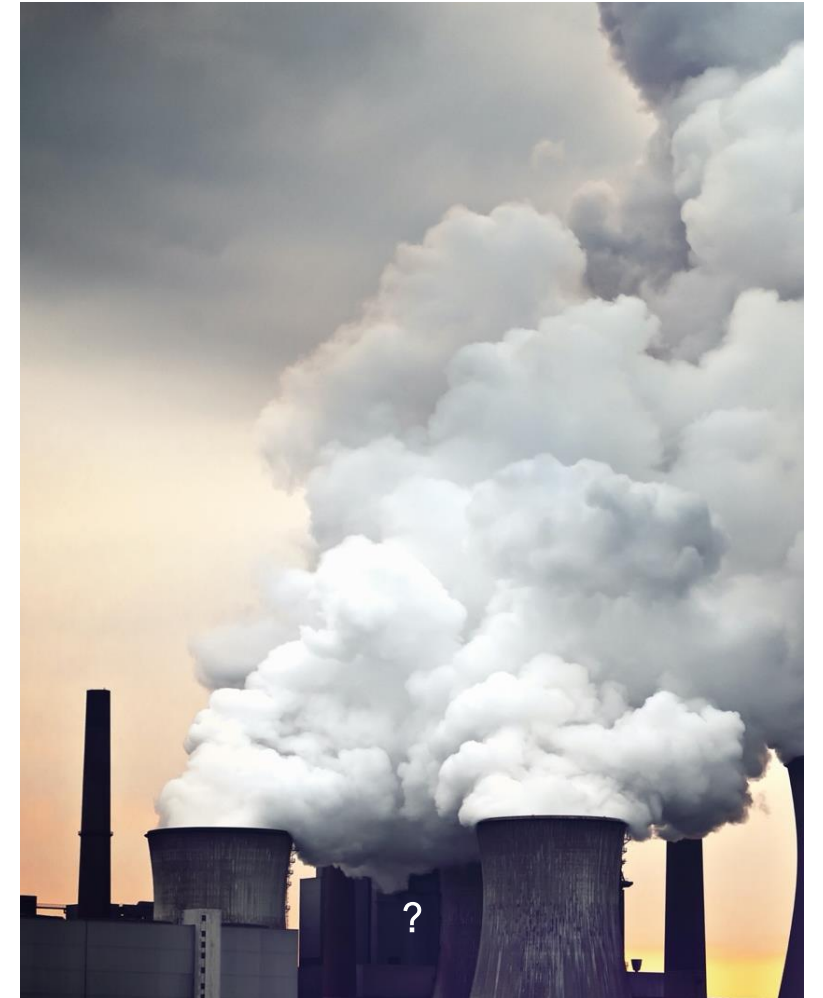
April 26th 2022, Brussels

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## CCU as solution to mitigate climate change



## Technical innovations are not always welcome (in the beginning)





# Different „faces“ of social acceptance

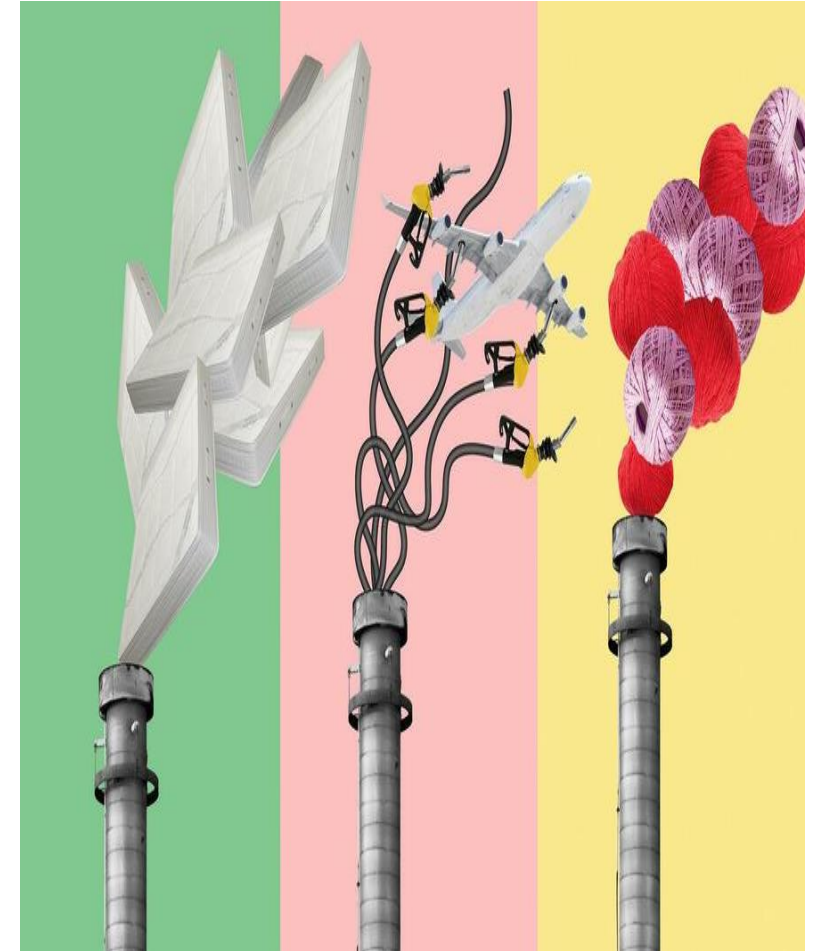
## SOCIOPOLITICAL ACCEPTANCE



## COMMUNITY ACCEPTANCE



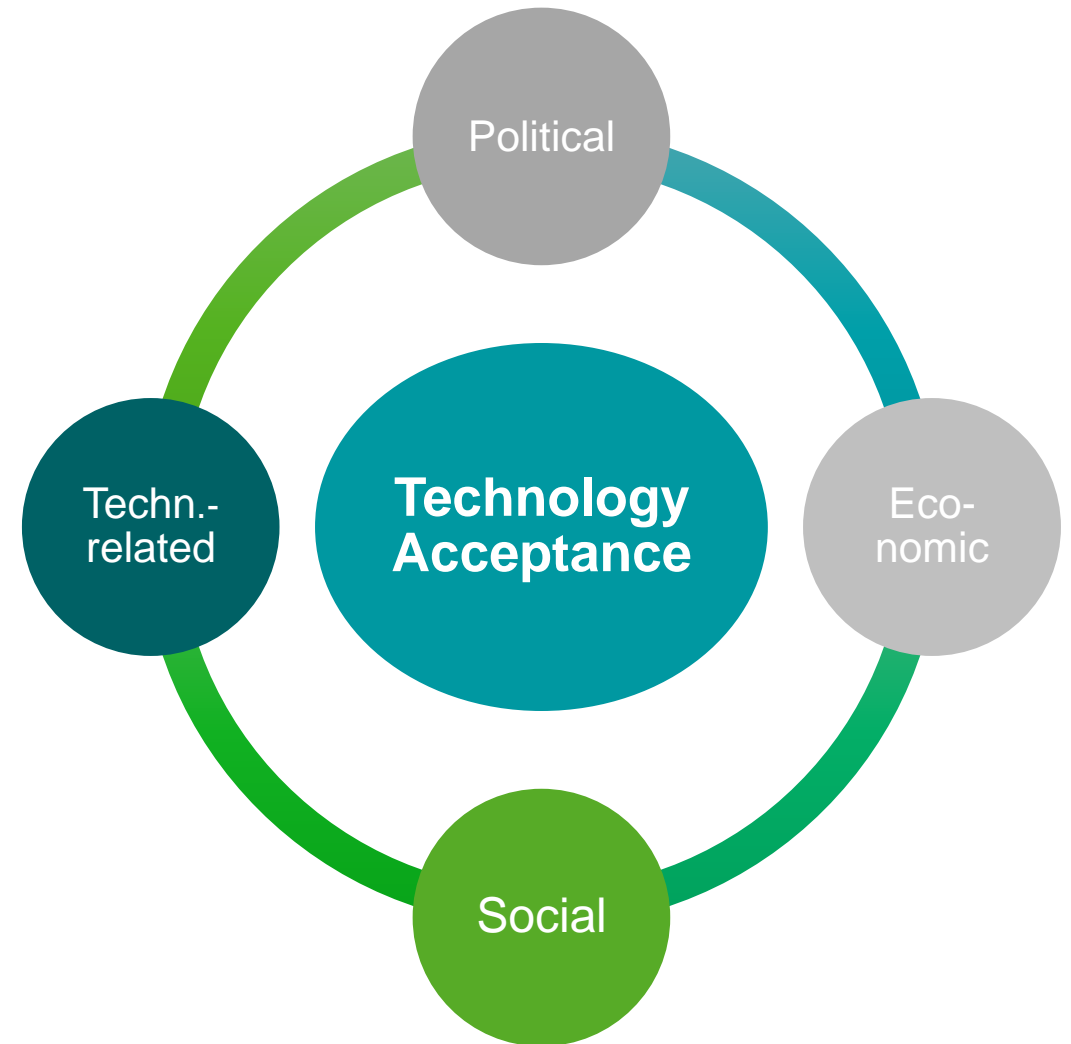
## MARKET / PRODUCT ACCEPTANCE



## More background on social acceptance

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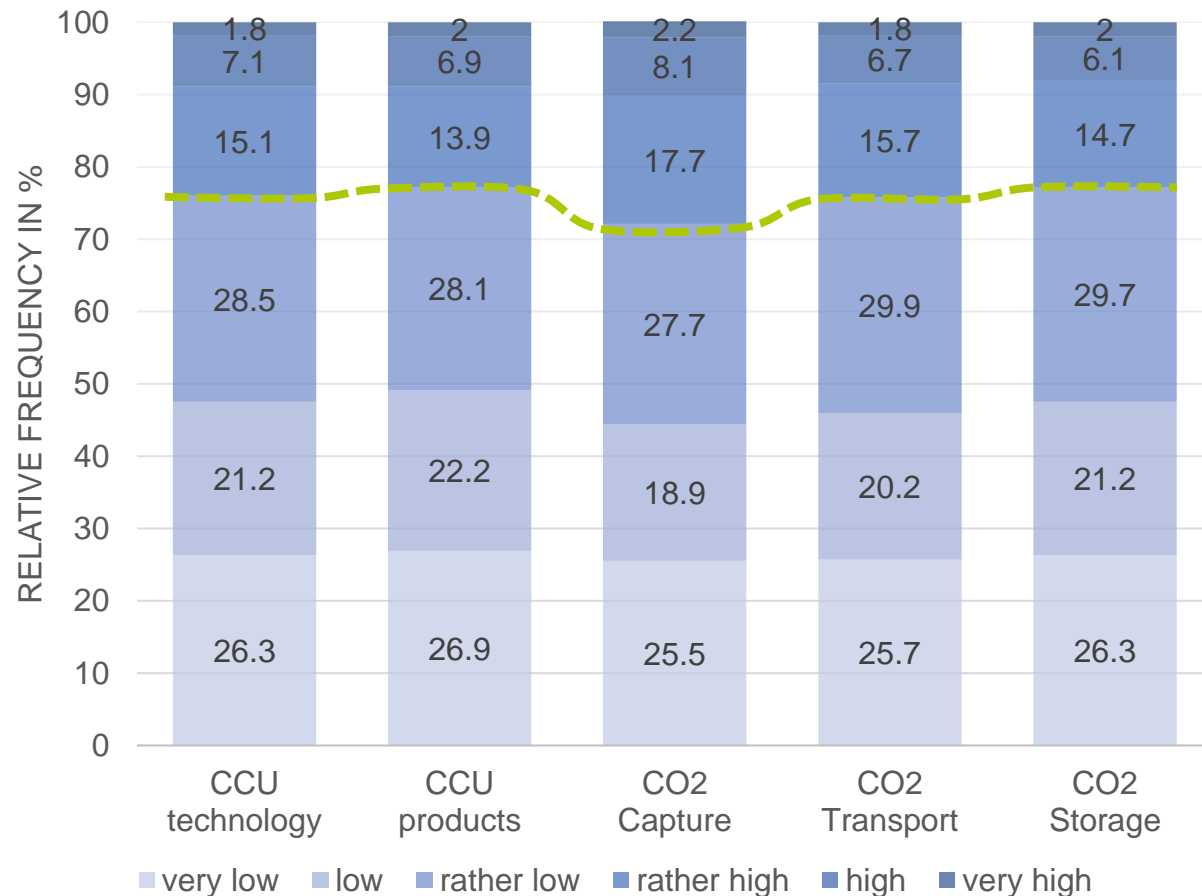
- based on an *individual* evaluation
- *volatile*, changes depending on context factors
- *not directly measurable*, requires a validated measurement framework





## What do we know about perceptions and acceptance of CCU in the public?

# 1. CCU is largely unknown to the public



## Low level of knowledge

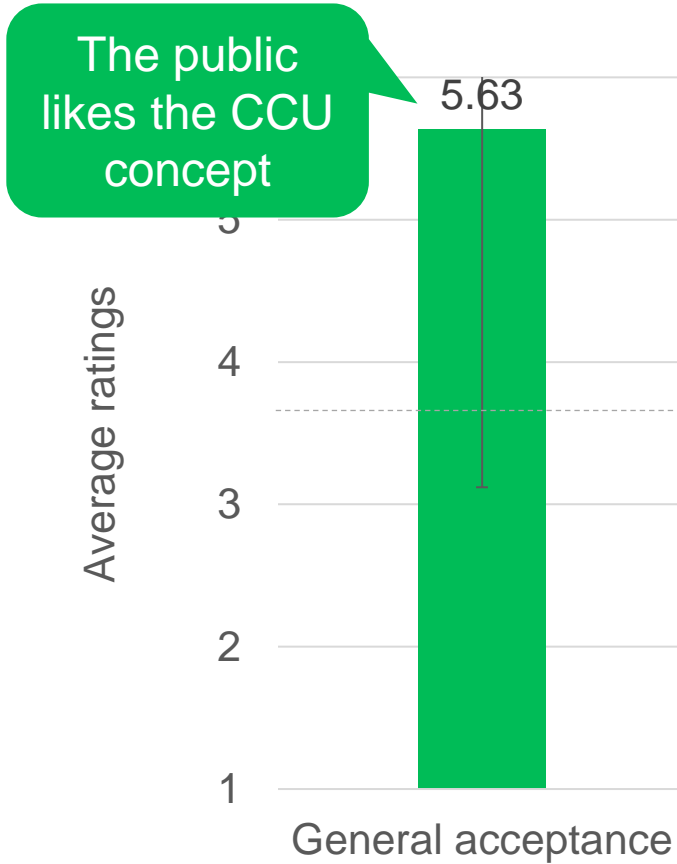
- 20-25% report to have heard about the CCU technology or CO<sub>2</sub>-derived products
- Only 10% report to be well-informed

## Consequences

- Inadequate mental models on CCU
- Overestimation of CCU-related risks
- Pseudo-opinions

Arning et al., 2019. Energy Policy  
 Arning et al., 2018. Journal of Cleaner Production  
 Arning et al., 2020. Env. Innovation and Soc. Transitions  
 Arning et al., 2021. Energy and Climate Change  
 Arning et al., 2021. Renewable & Sustainable Energy Reviews

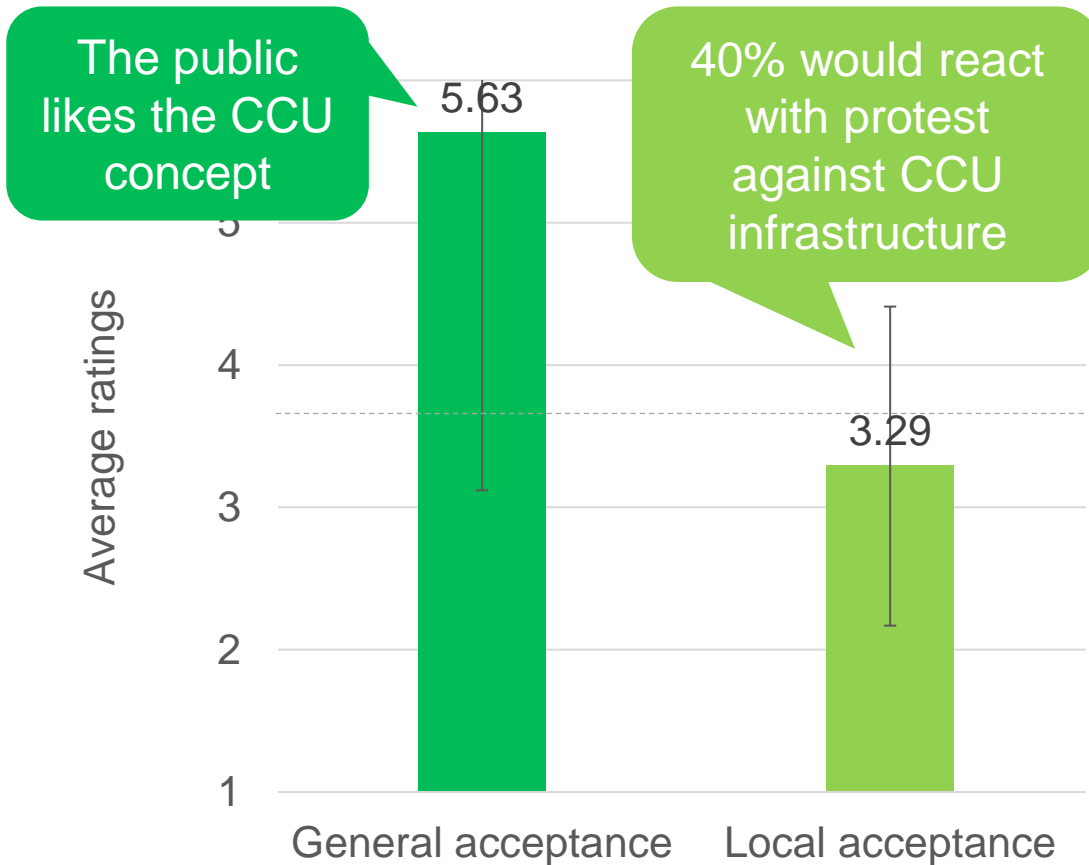
## 2. Acceptance levels for CCU – *positive at first sight*



Arning et al., 2019. Energy Policy

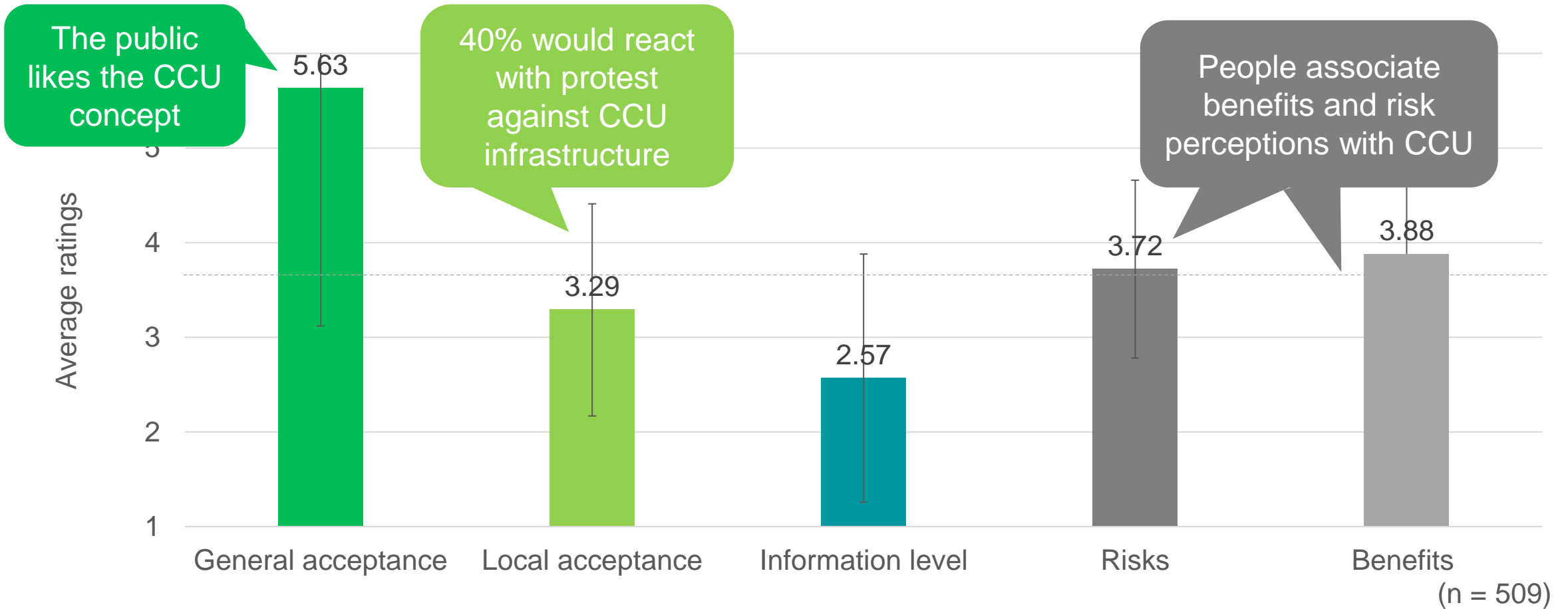


## 2. Acceptance levels for CCU – less positive regarding CCU industry infrastructure



Arning et al., 2019. Energy Policy

## 2. Acceptance levels for CCU – associated with risk and benefit perceptions



Arning et al., 2019. Energy Policy

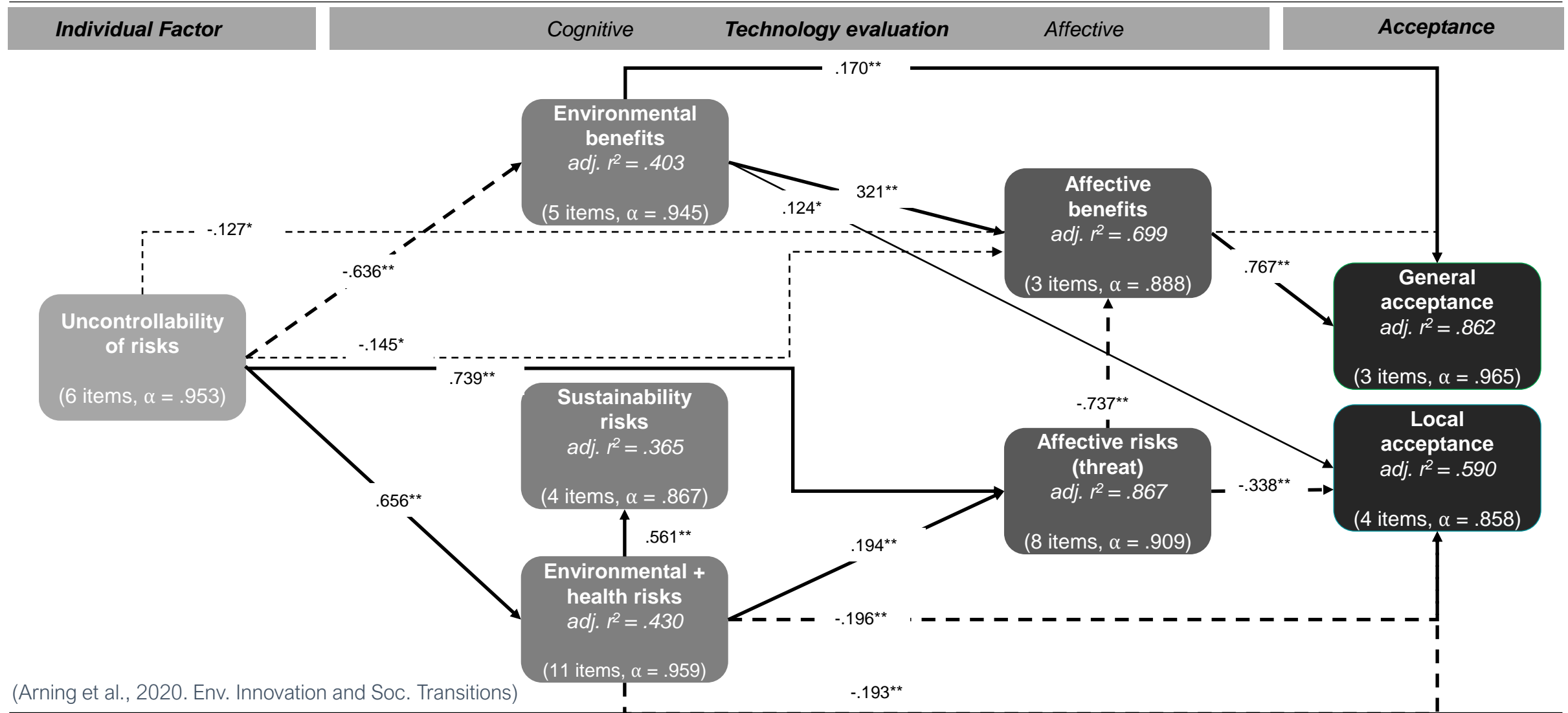
### 3. People associate different benefits and risks with CCU

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Product Innovations  
Climate Change Mitigation  
**CO2 Emission Savings**  
Fossil Resource Savings  
Sustainable Production

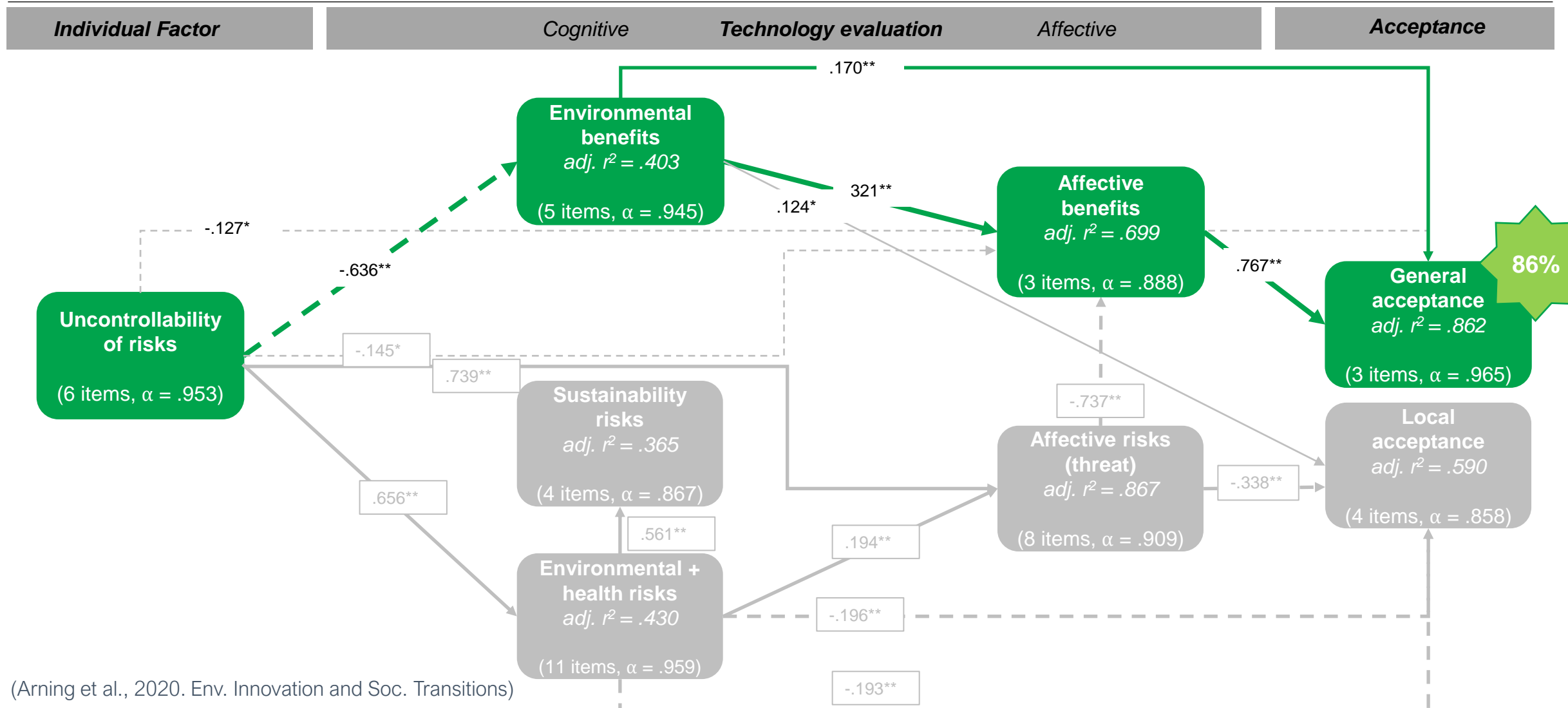
CO2 leakage Temporary CO2 storage  
**Toxic CO2** Allergies  
Suffocation  
Cannibalization of investments  
Continue burning fossil resources  
Sustainability concerns  
**Environmental risks**  
Health risks  
Greenwashing

## 4. How general and local CCU acceptance is composed



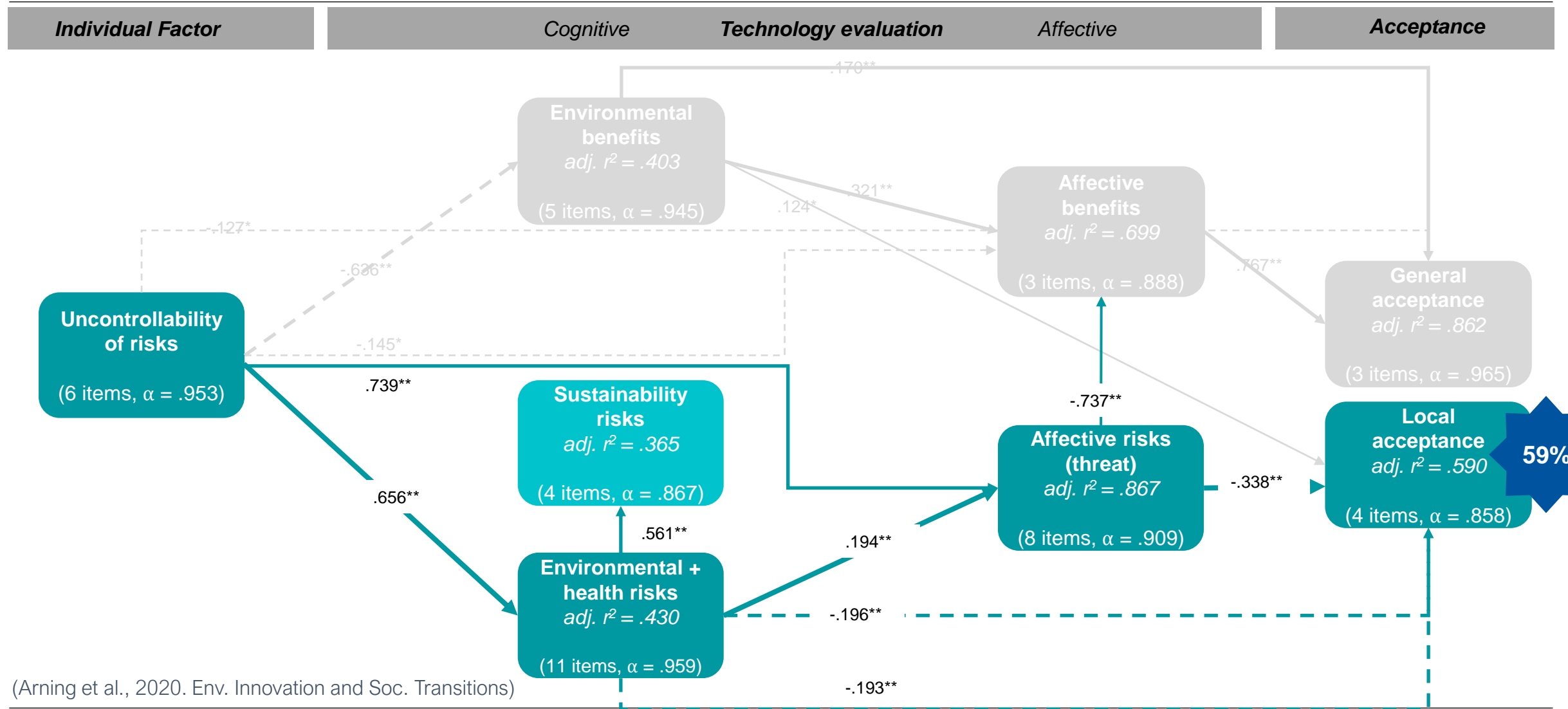


# 4. Environmental benefits as main driver of sociopolitical acceptance



(Arning et al., 2020. Env. Innovation and Soc. Transitions)

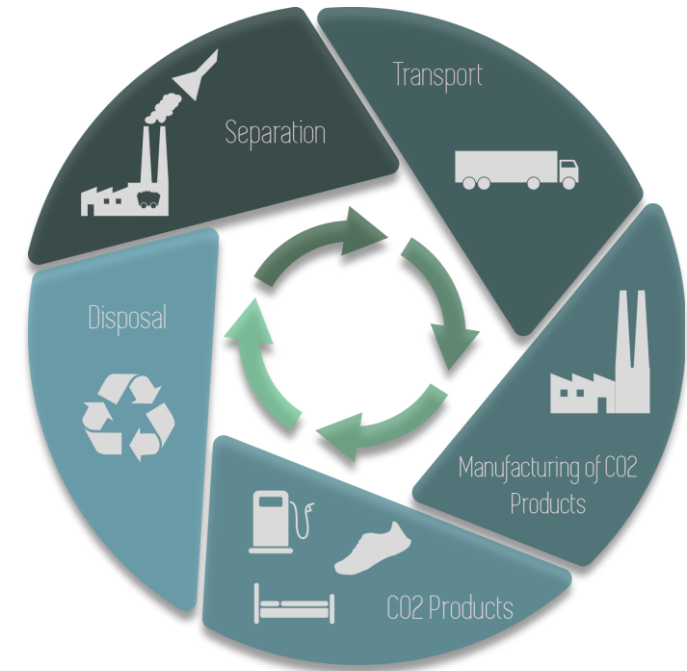
# 4. Sustainability concerns, health- and environmental risks as main barriers of CCU infrastructure acceptance



(Arning et al., 2020. Env. Innovation and Soc. Transitions)

## Summary: The importance of social acceptance and communication

- **Positive socio-political acceptance levels** for the CCU technology  
(People like the concept of reusing CO<sub>2</sub> and converting it into products)
- **Low CCU awareness and knowledge** in the public
  - Acceptance can be affected by „irrational“ / technically wrong assumptions
- Know and be aware of **CCU acceptance „hot spots“**
  - Lower local acceptance levels: greenfield CCU industry infrastructure deployment might provoke resistance and protests
  - Strong sustainability concerns
    - Greenwashing of „dirty“ industries, only temporary storage of CO<sub>2</sub>, cannibalization of (green) investments
    - Health- and environmental concerns
      - e.g., product usage (CO<sub>2</sub> leakage) or product disposal.
- **CCU communication and dialogue**, which is timely, transparent, balanced and trustful is important for the success of CCU
  - Conveying environmental- and product-related benefits
  - Addressing health- and environmental risk perceptions and sustainability concerns





Product Innovations  
Climate Change Mitigation  
**CO<sub>2</sub> Emission Savings**  
Fossil Resource Savings  
Sustainable Production

## The importance of social acceptance and communication

CO<sub>2</sub> leakage Temporary CO<sub>2</sub> storage  
**Toxic CO<sub>2</sub>** Allergies  
Suffocation  
Cannibalization of investments  
Continue burning fossil resources  
Sustainability concerns  
Environmental risks  
Health risks  
Greenwashing

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