



mobil.TUM 2016 “Transforming Urban Mobility”  
Munich, June 6<sup>th</sup> & 7<sup>th</sup>, 2016

## Adoption of Technologies & Innovations - Diffusion Barriers of Electric Bicycles and Windows of Adoption.

Jessica Le Bris (Dr. des.)  
Green City Projekt GmbH

- 
- 1. Topic and field of research**
  - 2. Two new theoretical models: MiMP and MoKo**
- 
- 3. Key Findings**
  - 4. Implications for planning strategies**



Technological product innovations within the 2wheel sector

Pedelecs as **new mobility tool** within the field of sustainable mobility options ... (UBA 2014)



*Overall aim / Motivation of the PhD*

To identify points of change for the promotion of sustainable mobility solutions

*First step:*

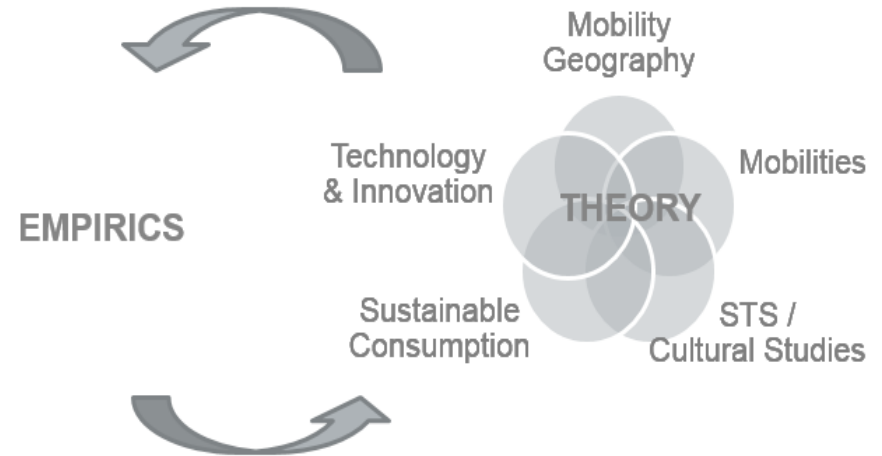
**Understanding the actual behaviour of pedelec users**

Gaining knowlege about the ADOPTION and APPROPRIATION PROCESS of the new technology pedelec

# The qualitative research design

---

Interpretative Social Science &  
Grounded Theory Methodology



## Empirical data base:

- 40 Pedelec owners, ca. 1h interview
- Research area: Metropolitan Region of München
- Theoretical sampling (heterogeneity of the sample)

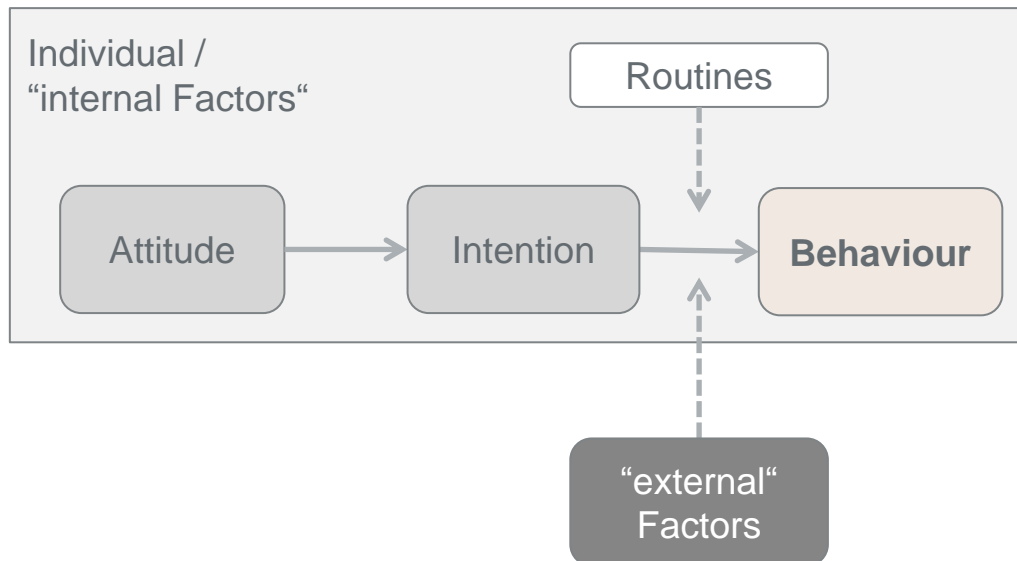


# Integration of two theoretical “framing” perspectives

---

“How can we support and promote sustainable behaviour?”

## A) Majority of mobility research from social science: Models based on behaviour theory

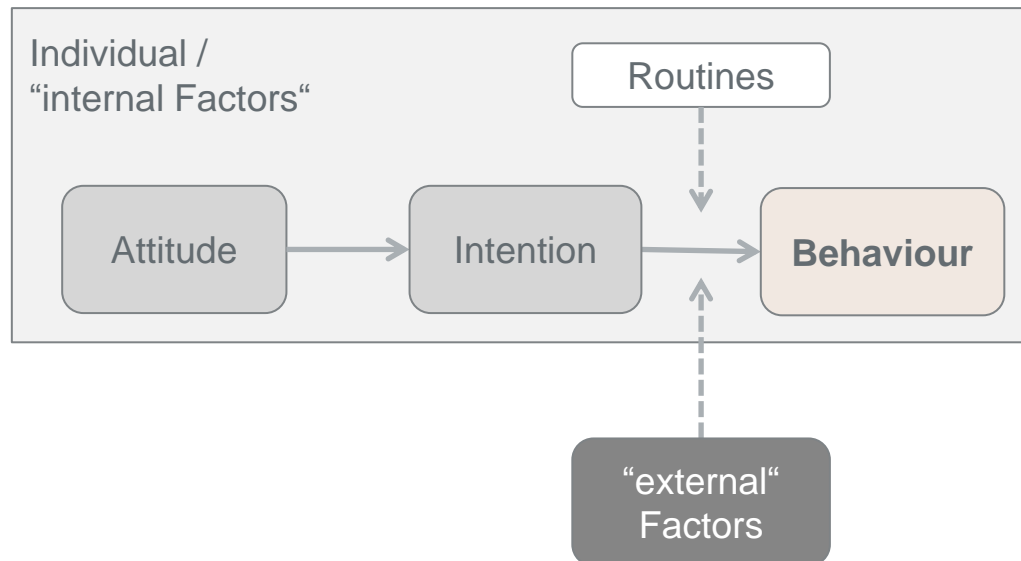


- behaviour as linear consequence of attitude (ABC-Models SHOVE 2009)
- individual subject acting autonomously
- theoretical separation between “inner“ / “subjective“ and “external“ / “objective“ influencing factors

# Integration of two theoretical “framing” perspectives

“How can we support and promote sustainable behaviour?”

## A) Strategies / Approaches based on behaviour theory



*Planning:*

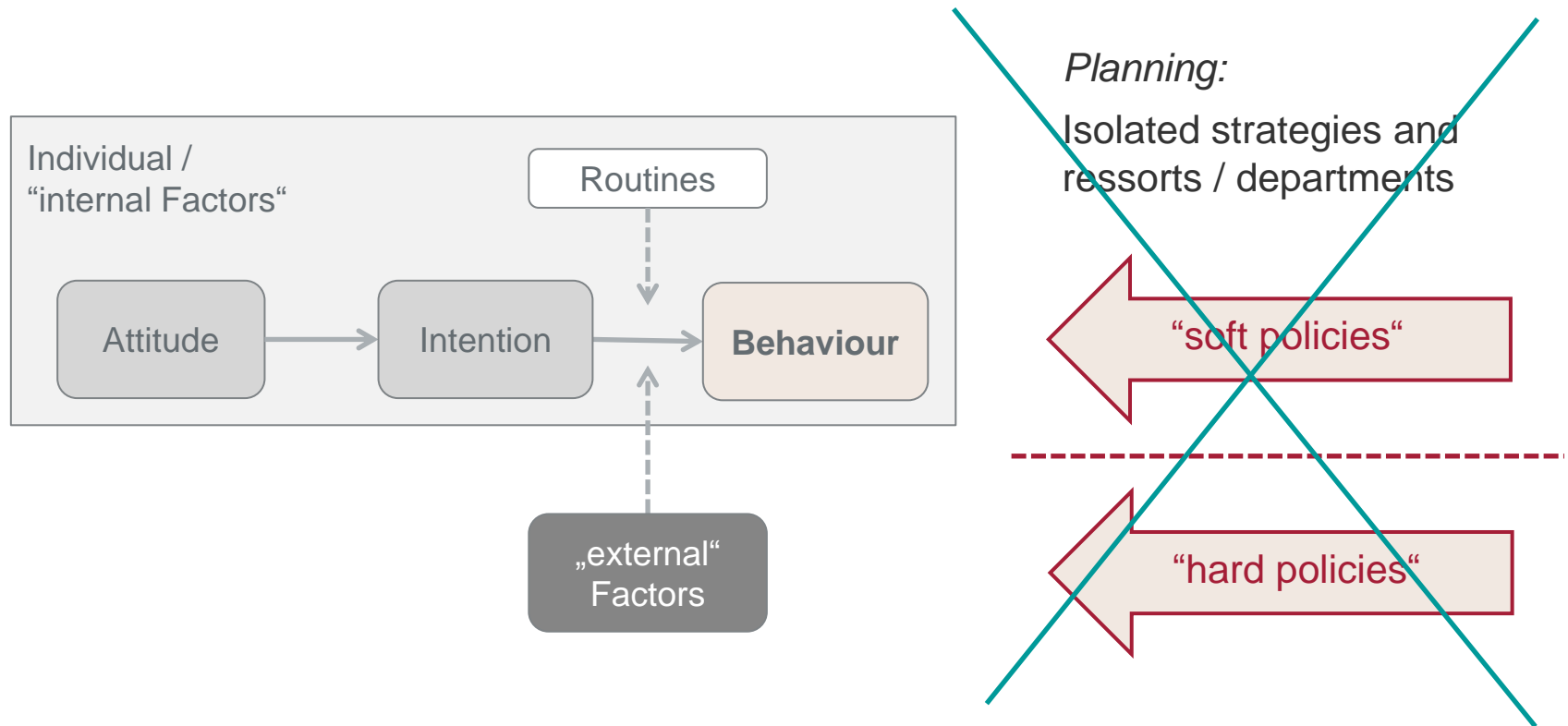
Isolated strategies and departments



# Integration of two theoretical “framing” perspectives

“How can we support and promote sustainable behaviour?)

## A) Strategies / Approaches based on behaviour theory



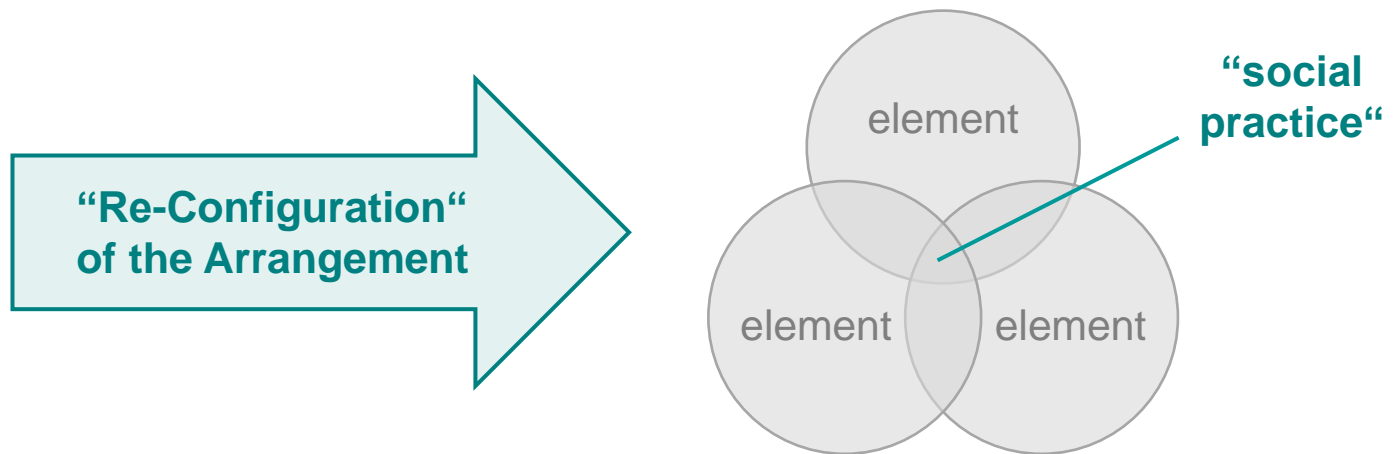
# Integration of two theoretical “framing” perspectives

---

“How can we support and promote sustainable behaviour?”

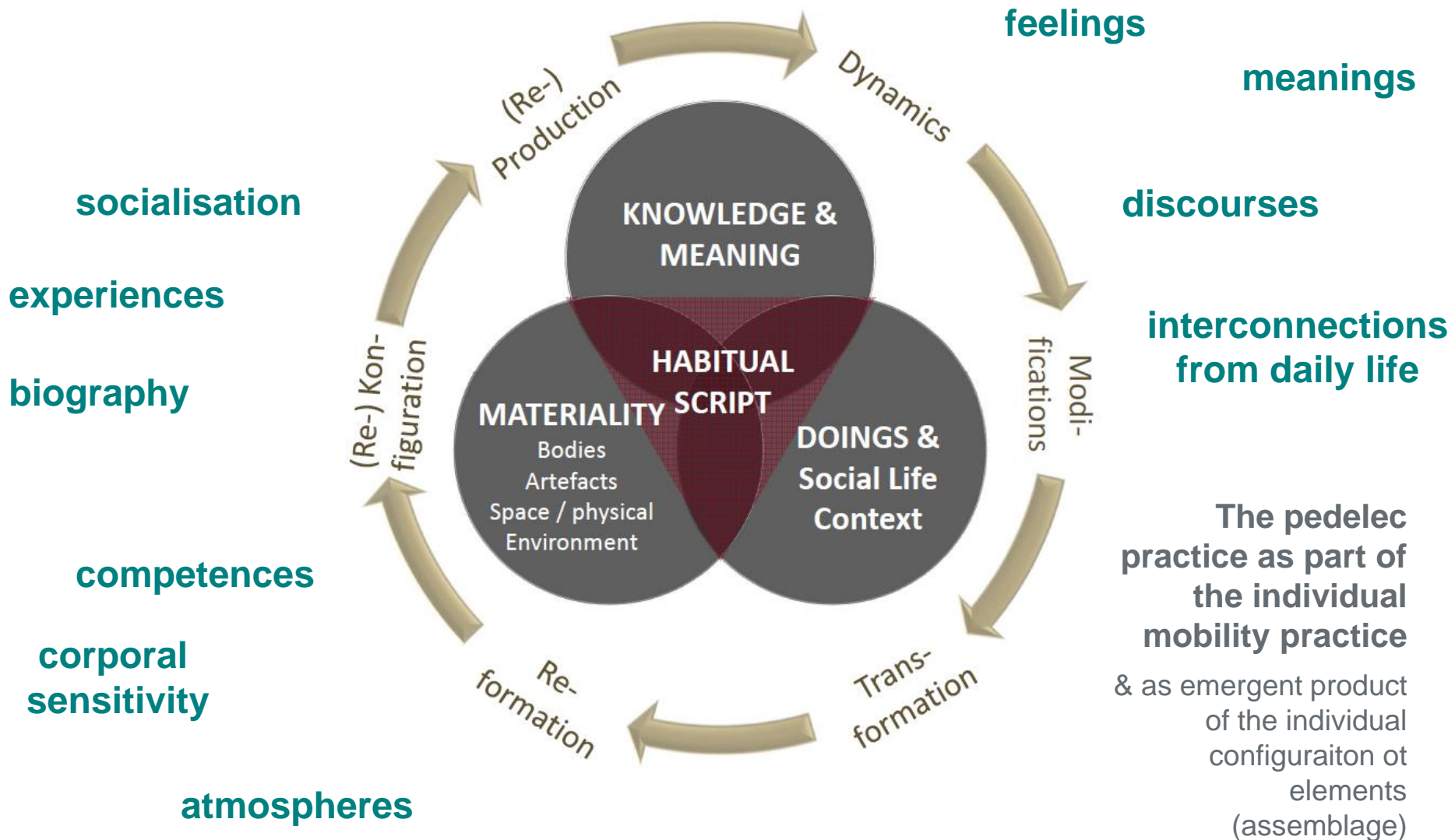
## B) Implications from practice theory

- “social change” is only possible through an integrated holistic perspective
- “practice as entity” → overcome the separation of micro- and macro sphere
- re-configuration of the arrangement of all elements of a social practice (including corporal skills, symbols, daily life interconnections...)



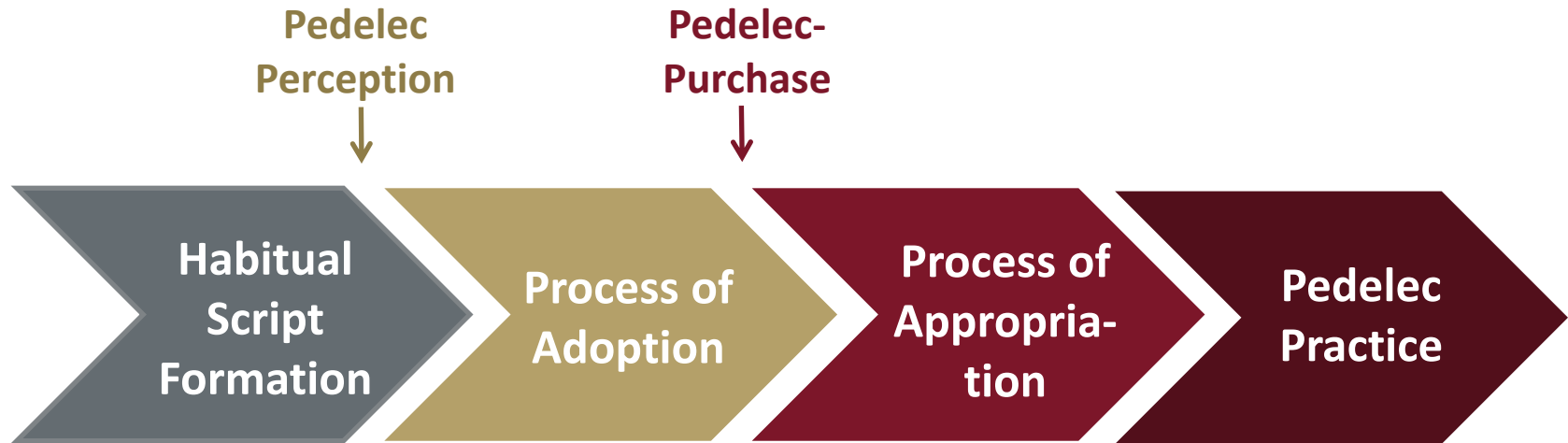


# The Model of the individual Mobility Practice (MiMP)

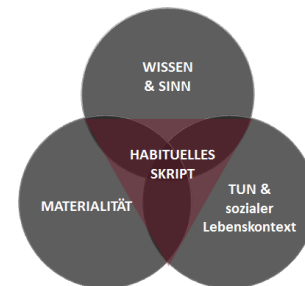


# The Model of individual Mobility Careers (MoKA)

---

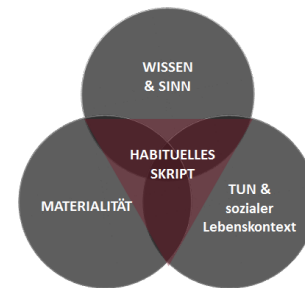
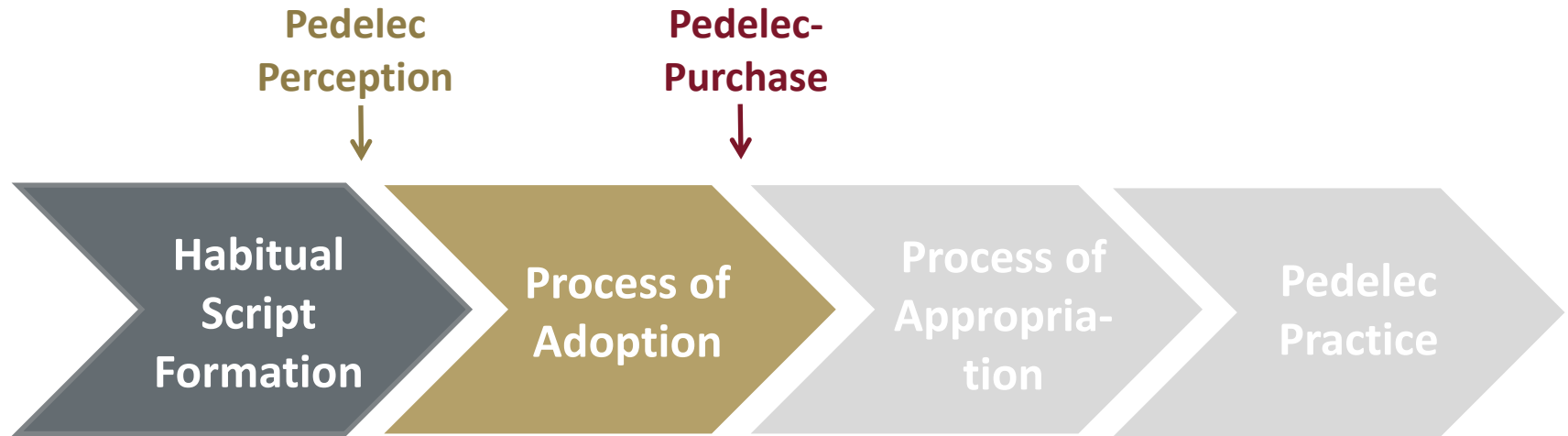


*Framework to characterize the development of the pedelec practice as part of the individual mobility practice*



# The Model of individual Mobility Careers (MoKA)

---



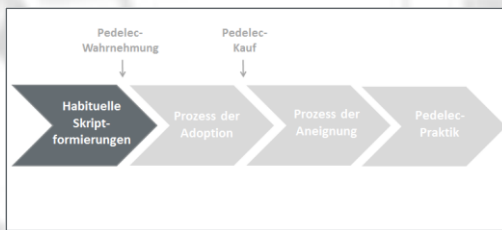


---

## Key findings regarding the process of adoption of pedelecs

→ Everything of central meaning *before* the pedelec purchase





## # Practice of cycling as significant part of the mobility biography

L: „well (..) the importance of the bicycle has always been significant, but just for practical / pragmatic reasons“ (44)

## # Positive mobility orientation towards cycling

J: „**cycling is freedom**, no matter if it is a pedelec or conventional bicycle“ (57)

## # Cycling socialisation

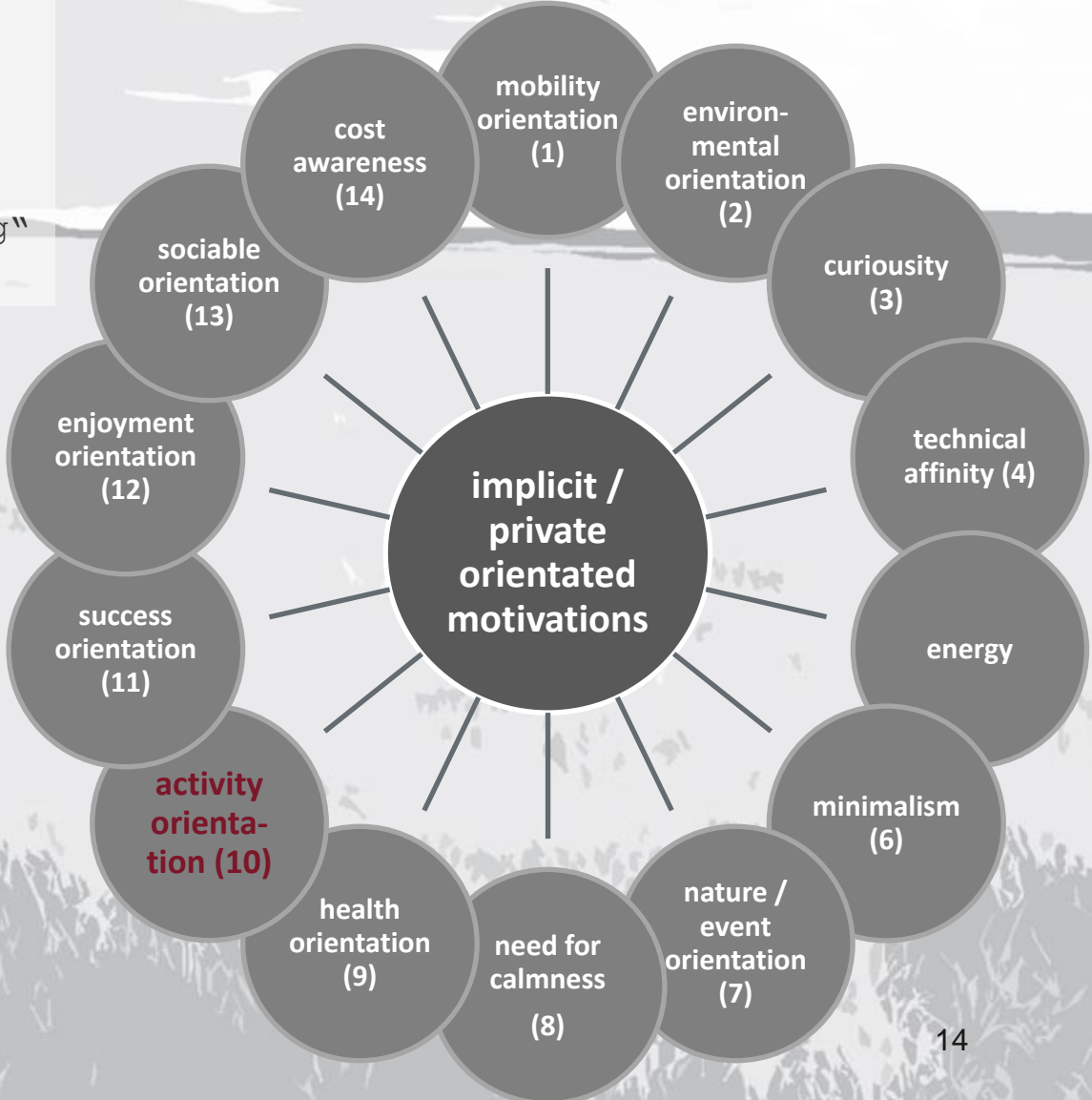
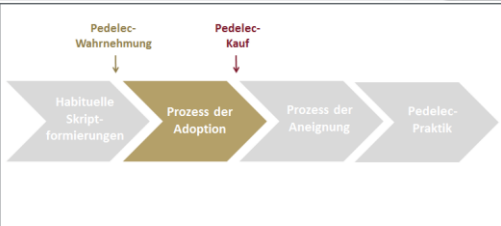
H: „**I was lucky, I grew up in a different way (no car as soon as you are turning 18)**, I guess it has something to do with the general attitude of your parents“ (185)

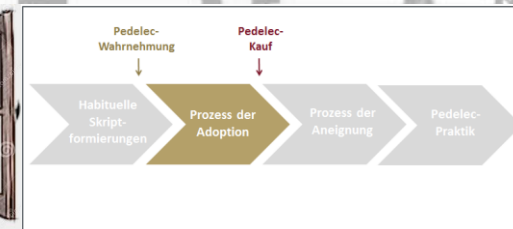
→ **Deeper life experience, biographies and socialisations as characteristics and pre-conditions for adoption**

**# Acitivity orientation (10): „Wish of being active“ as basic characteristic**

X: „it is simply nice, that you can move yourself [...] I like DOING something“ (11)

L: „no, [E-Bike] wouldn't be interesting for me, I do prefer to have the feeling of pedalling“ (144)





## KNOWLEDGE & MEANING

### attitude

(mobility orientations, life style)

### dissatisfaction

with existing mobility practices

## MATERIALITY

### body

(illness, accidents, age, ...)

### mobility artifacts

(increase of costs, ...)

### environment / physical space

(construction, ...)

## EX- PERIE NCE

## DOING & SOCIAL

### LIFE CONTEXT

### working context

(change of job, ...)

### private meso social

### context

(children, ...)

### leisure context

(hobby, ..)

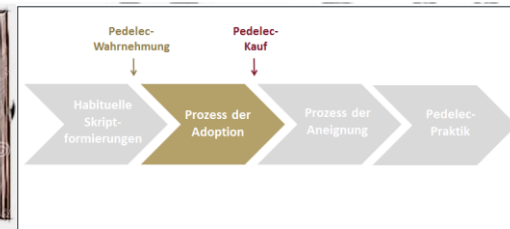
**Windows of adoption  
that rise the  
probability of  
adoption**

**Changes & events in the following  
element fields**

### # Problems with the physical environment and space

H: „I thought that`s my  
**escape**“ [...] „[first  
reaction] I thought, of  
course, when living here,  
I **MUST** have it, not  
possible without“ (112)





### Reactions after the first try

Just great!

Cuts like butter!

Wow!!!

Just a dream

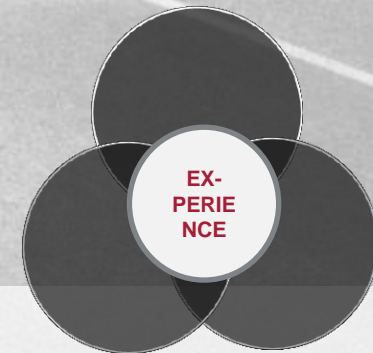
Riding with no end insight!

Hoppla, Going up hill with no effort

Nice / Simply great!

This thing flies!  
It is not comparable with a normal bicycle

„Break Point“  
of the adoption process

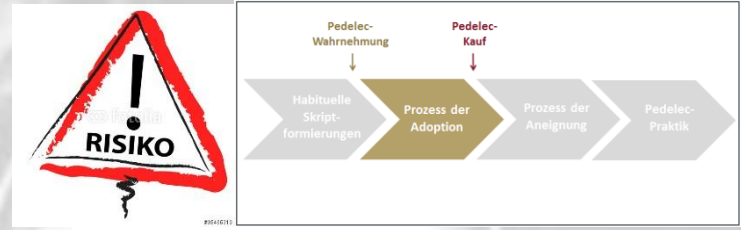


## # Window of Adoption: The EXPERIENCE of the pedelec!

A1: „I wouldn't have guessed [that it is so great] not at all (..) **but after I have ridden the first 2 km it was clear, THAT'S IT**“ (9)

Y2: „[first I thought it's a joke] then I saw my neighbour riding it, then, may I try it, then, I went up the hill, **OHH, that was AMAZING (..) and THEN the idea came up, woahh,** you would have so much more FREEDOM [...] you can cycle [train] outside, you don't have to you use the stationary bike any more“ (236-238)





**# Corporal risk**

Z: „at the beginning I had kind of a antipathy, because you raise the **impression of getting lazy**“ (12)

**# Identity related risk**

Y2: „I have always thought that's stupid (...) I don't need **help** for riding or anything else, **that's stuck in the head**“  
 Y1: „yes, **we have been athletes**“ (236-238)

**# Social risk**

M: „at the beginning I have had a problem with myself, kind of an image problem, because [...] it started by old people buying pedelecs that weren't as mobile any more, and of course, I didn't feel comfortable with this image, I really had to fight with myself“ (98)

U: „you can challenge the E-Bike until its limits and then it is just fun, but **you got this inner ambition to achieve everything yourself**, it is a little bit like a **WALKER**, you have this **prejudice** a bit“ (91)

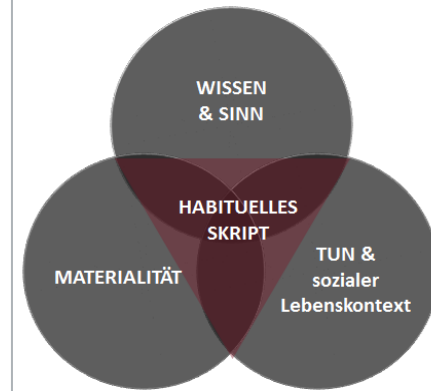


## ***Roadmap for the support of the diffusion of pedelecs***

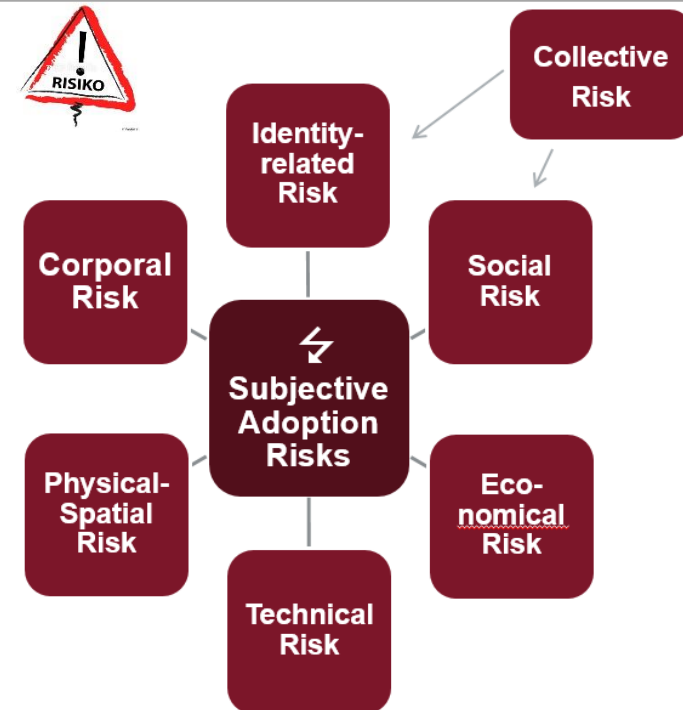


# 1) “Script based strategies”

- Long term base for the support and promotion of the pedelec practice
- The practice of cycling must become a part of the individual habits
- → creating an “pedelec friendly” arrangement
- subtil change



- **No barriers should hamper the performance of the practice**, the practice must be able to grow without barriers and longterm scripts must be created
- The identified adoption risks must be minimized

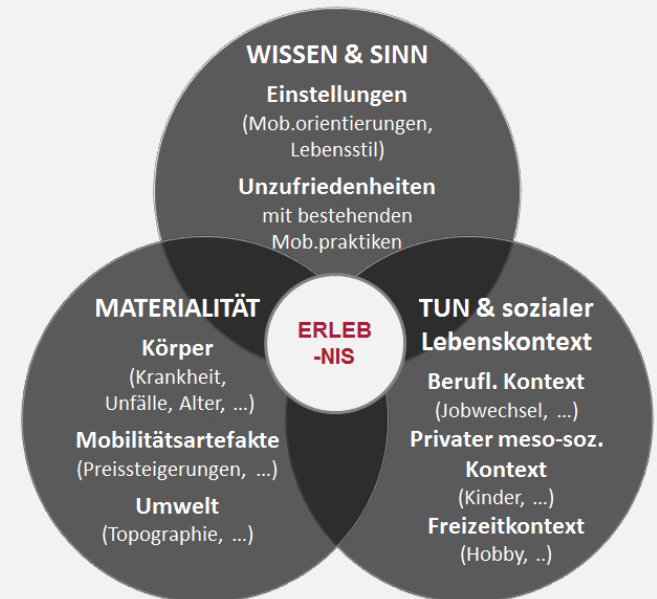


## 2) „Reflexivity based strategies“

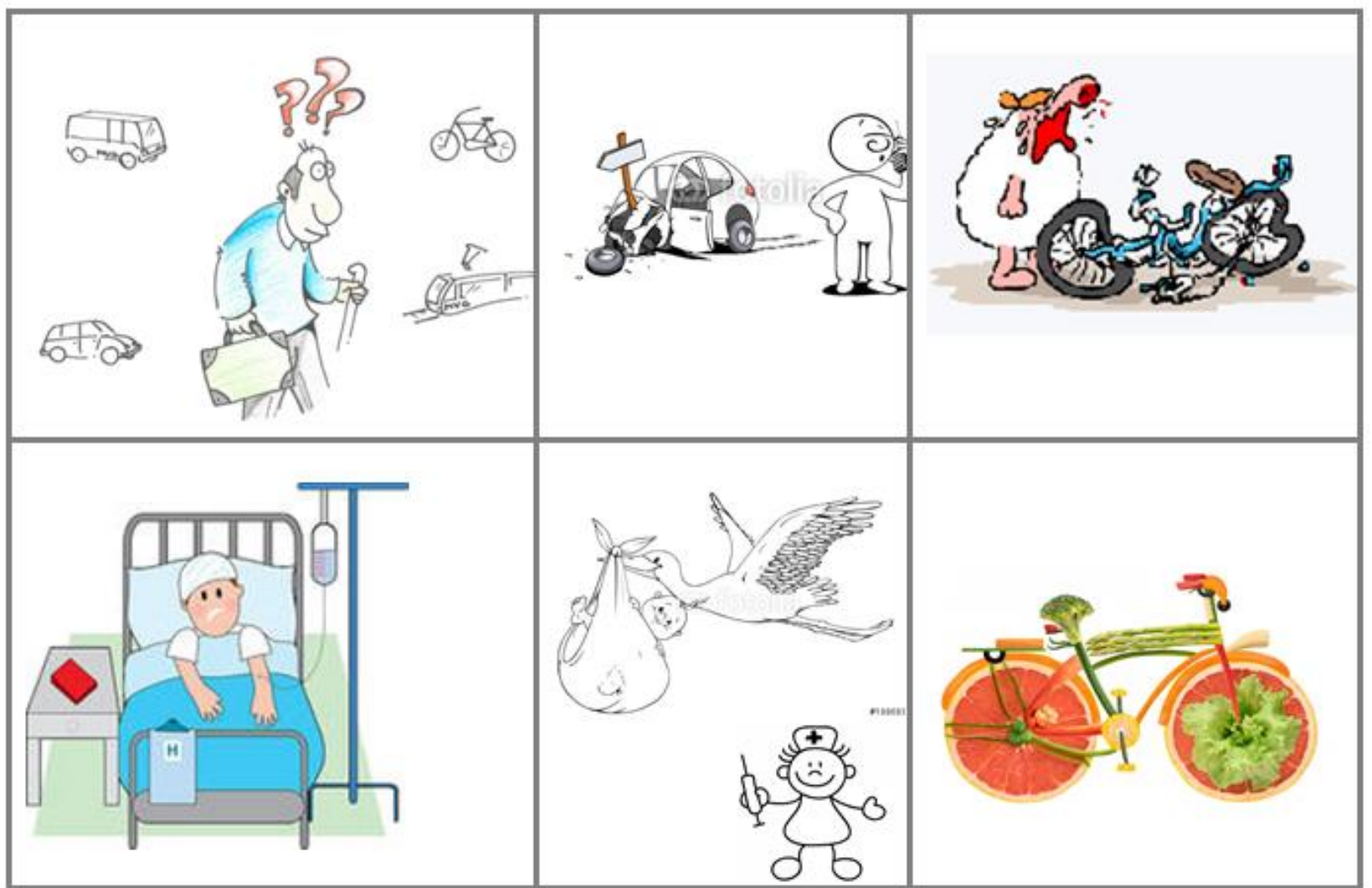
---

- Supplement the script orientated strategies
- Pre-condition: **reflexive openness and pre-motivation** of potential users towards the new mobility alternative
  - *only then* rational advantages can be evaluated
  - biggest impact in specific moments during the biography („**moments of change**“) or in case of dissatisfaction

→ Base “Windows of Adoption“



## 2a) „Reflexivity based strategies“



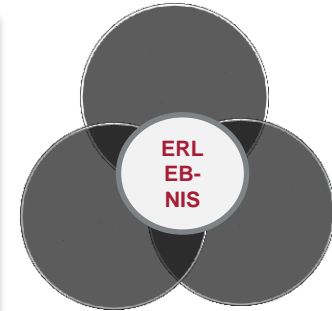
## 2b) „Reflexivity based strategies“



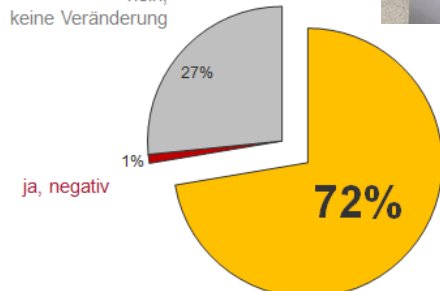


# The experience as Break Point of the Adoption Process

- **corporeal experience** with all body senses  
→ Event marketing, testings, roadshows...
- **Testings** critical decision point



nein,  
keine Veränderung



Azubi-E-Bike Projekt

ja, positiv



**Dr. des. Jessica Le Bris**

[jessica.lebris@yahoo.com](mailto:jessica.lebris@yahoo.com)  
[le-bris@greencity-projekt.de](mailto:le-bris@greencity-projekt.de)

Consulting

Projekt: Adaptive City Mobility (ACM)  
[www.adaptive-city-mobility.de](http://www.adaptive-city-mobility.de)

---

„The future is not pretermind  
and waiting to happen ~ it is ours  
to shape“  
(LYONS 2012)

