

# Expert Roundtable I: Systematic design of effective nudging methods in mobility

DyMoN – Dynamic Mobility Nudge

Wednesday, 7th of December 2022, 10:30 – 12:30 CET

Register: <https://dymon.eu/news-and-events>

Member of:  
**FORSCHUNG AUSTRIA**



Research and Technology  
Organisation (RTO)



Internet of Things & Behaviour:  
Smart Region & Mobility & Health



Employees: ~70 Founded  
in: 1996



Turnover (2022): 6,1 Mio. EUR



Ownership Structure:  
Province of Salzburg (100 %)

Innovation Research Group

Open Innovation & Ecosystems

Digital-enabled Behaviour  
Change & Intervention

Digital Business Model  
Innovation





# ***Enrich digital nudging methods with relevant data sources to motivate more sustainable mobility in cities***

<https://dymon.eu/results>

**DyMoN**  
Dynamic Mobility Nudge

05/2021 – 04/2024



# Your expert group: 5 countries, 3 disciplines



## 10:30-10:35 Opening & Introduction



**Dr. Veronika Hornung-Prähauser, MAS,MA,**  
Head of Innovation Research  
Salzburg Research  
Facilitator – Breakout Group 1

## 10:35-11:05 Digital nudging as a behavioural change approach in mobility: Concept and first results of the DyMoN research project



**Dr. rer. nat. Claudia Luger-Bazinger,**  
Scientific Lead & DyMoN project coordinator  
Innovation & Value Creation, Salzburg Research  
DyMoN-Publications: <https://dymon.eu/results>, <https://zenodo.org/record/6643394>  
Facilitator – Breakout Group 2

## 11:10-12:10 Discussion: Strengths and pitfalls of situation-aware nudging as a new systematic behaviour change method for mobility (2 Breakout-Groups)



**Eva Hollauf, BA MA**  
Innovation & Value Creation  
Salzburg Research  
Breakout 1



**David Leistner, BSc,**  
Innovation & Value Creation  
Salzburg Research  
Breakout 2



**Michael Thelen, BSc,**  
Innovation & Value Creation,  
Salzburg Research  
Observer

## 12:10-12:30 Highlights of group discussion results Project outlook: DyMoN Summer School for Young Researchers and Expert Panel II (2023)

# Digital nudging as a behavioural change approach in mobility: Concept and first results of the DyMoN research project

*Dr. Claudia Luger-Bazinger*

Scientific Lead DyMoN Research Project & Psychologist



# Nudging Repository in DyMoN

- Set of **digital nudging** (behaviour change) techniques for sustainable mobility
  - bicycling, walking, public transport
- Designed from the **COM-B model** and with the related **behaviour change techniques taxonomy** (Michie, van Straten, & West, 2011; Michie et al., 2013)
- **Text examples to be used for notifications** in mobile apps, for e-mails...
  - **Situational components** can be taken into account that determine **timing and content of nudges** (data such as weather, traffic...) – **situation awareness**
  - **“A bicycle ride home from work helps to clear your head and refresh your thoughts! Today is the perfect day!”** (*technique*: information about emotional consequences; *situation*: bikeability, no rain or strong wind)

	B	C	D	E	F	G
	Mobility Mode	Trip Purpose	Behaviour Change Group	Behaviour Change Tech	Description of technique	Text example
1	Walking	Commuting	01. Goals and planning	Action planning	Prompt detailed planning of performance of the behavior	Did you know there is a beautiful walkway near you? Let's plan and explore tomorrow!
2	Bicycling	Commuting	01. Goals and planning	Action planning	Prompt detailed planning of performance of the behavior	Tomorrow is a great day to bicycle to work! Why don't you plan your bicycle ride right now (e.g., when to get up, what to wear, wh
3	Walking	Commuting	01. Goals and planning	Action planning	Prompt detailed planning of performance of the behavior	Pack your umbrella and you can still walk to work tomorrow. You can do it!
4	Bicycling	Commuting	01. Goals and planning	Action planning	Prompt detailed planning of performance of the behavior	Pack your rain jacket and you can still bicycle to work tomorrow. You can do it!
5	Walking	Commuting	01. Goals and planning	Action planning	Prompt detailed planning of performance of the behavior	Tomorrow is a great day to walk to or from work! Why don't you plan your walk right now (e.g. if you need to take a grocery bag w
6	Bicycling	Commuting	01. Goals and planning	Action planning	Prompt detailed planning of performance of the behavior	Have you thought about storing some fresh clothing in your office or some deodorant to have a fresh day at work? It's a simple pr
7	Public Transport	Commuting	01. Goals and planning	Action planning	Prompt detailed planning of performance of the behavior	Tomorrow is a great day to use public transport to get to work! Why don't you plan your trip right now (e.g., when to get up, what
8	Public Transport	Commuting	01. Goals and planning	Action planning	Prompt detailed planning of performance of the behavior	Tomorrow is going to be a rainy day - but you can still leave your car at home and hop on public transport to get to the office! Why

# Sustainable mobility in cities

- Less individual car use but walking, bicycling or public transport instead (**active mobility**)
- **Individual mobility choices are significant:** Transport accounts for a quarter of Europe's GHG emissions (European Environment Agency, 2018), plus more quality of life in cities without cars
- **'Hard' interventions** (e.g. laws) only go so far
- **Effective 'soft' interventions are needed** that target motivation, social norms, etc. to foster more sustainable mobility habits
- Within our **European research project DyMoN**, we want to offer **digital interventions** ('nudges') to foster sustainable mobility → *nudging repository*



# Analysis of urban mobility apps

- **Goal:** Overview of **commonly used digital interventions for sustainable mobility**
- **Mobile applications** that seek to encourage **more sustainable mobility choices, so not just routing or schedules**, but
  - promotion of sustainable urban mobility (such as CO2 emission data), green routing as key element, any other form of behaviour change technique
- **Search** in Google Play Store and Apple App Store (**July – September 2022**)
- **26 apps** fit search criteria (228 cities and 18 different countries)

# Behaviour change interventions in mobility

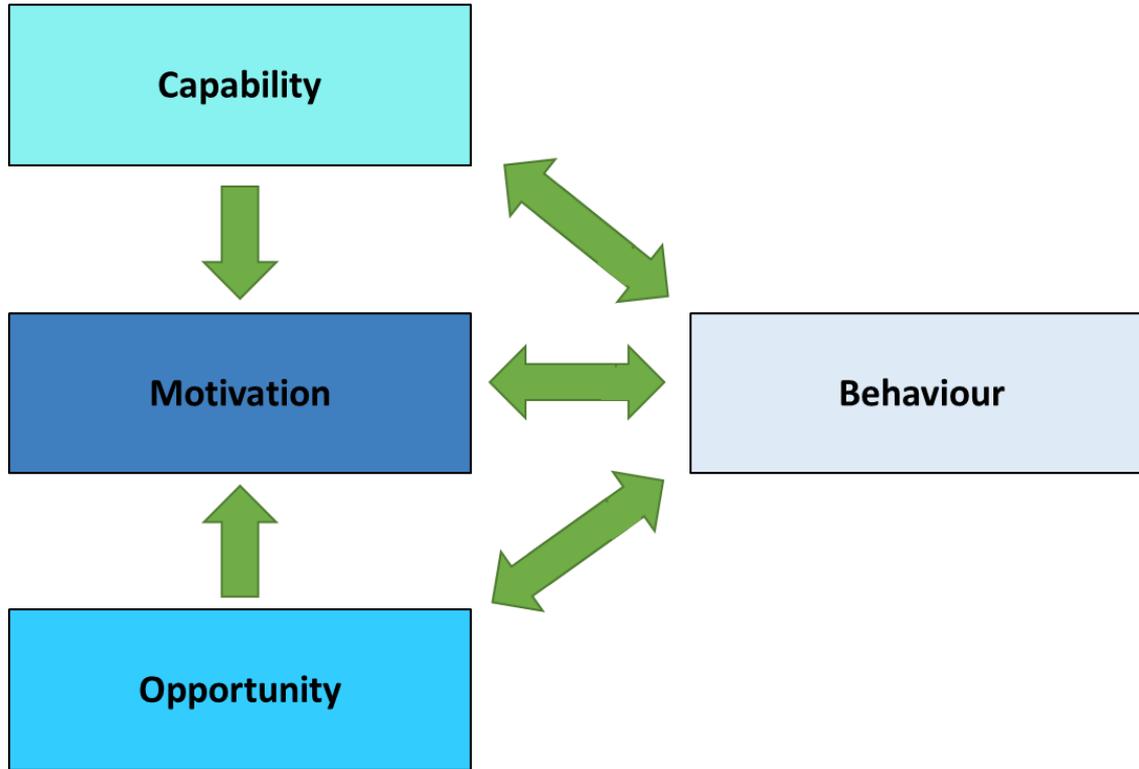
- **Different terminologies** are being used (nudging, motivational strategies, etc.) for ,soft‘ interventions in sustainable mobility
- ‘Soft‘ interventions can indeed reduce individual car use, but **not all methods are equally effective** (Semenescu et al., 2020)
  - **Travel feedback** (feedback on the amount of greenhouse gas emissions, calories burned for a trip) is **less effective** than targeting social or cultural norms
- **Purely informational campaigns** are not effective enough (Huber et al., 2017)
- **Potential** for changing behaviour has not been exhausted

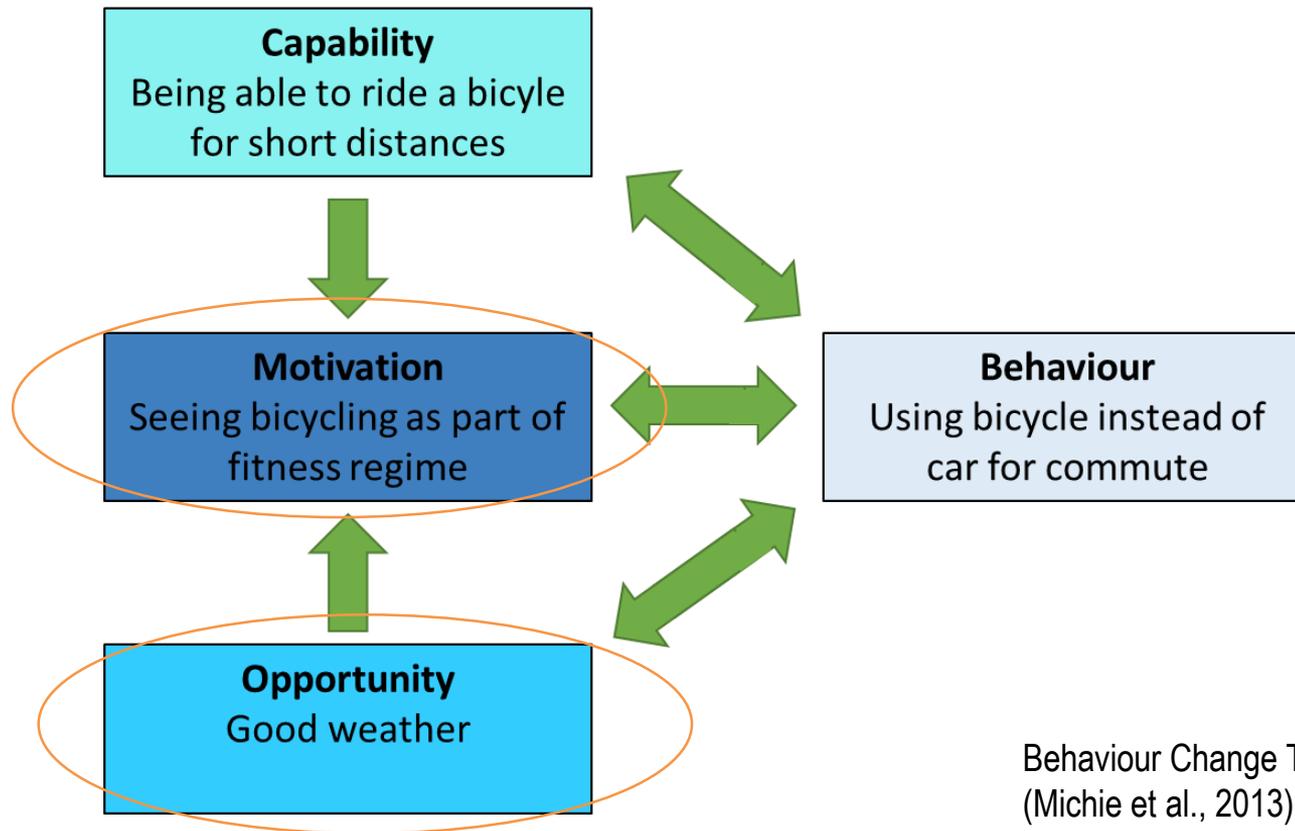


# Effective behaviour change for mobility?

- **Typical pattern:** Same set of digital interventions are used
- **Little reference to models of human behaviour** in the mobility field (Andersson et al., 2018; Möser & Bamberg, 2008; Sunio & Schmöcker, 2017)
- This **could limit the effectiveness of interventions** and inhibits their design (Chng & Sanchez, 2021; Webb et al., 2010)
- **Public health as a field where there is a much closer connection** to human behaviour and psychology
  - **Transferring the COM-B model** (Michie, van Straten, & West, 2011) into the **field of mobility** for the DyMoN project







Behaviour Change Technique Taxonomy (Michie et al., 2013) was used for **designing the nudging repository**

# Situation-Awareness

- **Situational factors (timing + location)** as additional, crucial context elements for digital nudges
  - Weather / weather forecast, infrastructure, traffic situation, bikeability, walkability, ...
- **Similar to just-in-time adaptive interventions** from health field (Nahum-Shani et al., 2018)
  - Unique to the mobility field so far
- Situation-awareness is implemented by **our project partner, University of Salzburg (Geoinformatics)**
  - Ontologies that link nudges to context data



# Nudging Repository - Overview

**“A bicycle ride home from work helps to clear your head and refresh your thoughts! Today is the perfect day!”**

*→ A look into the repository and its structure, incl. situation-awareness*

## Target group for the nudging repository:

- App developers of urban mobility apps (or beyond)
- For cities / public transport infrastructure
- Researchers

## Publication:

- Early 2023 on DyMoN Website [www.dymon.eu](http://www.dymon.eu)
- Together with an introduction and description



## Questions for clarification?

Opportunity to discuss in depth in breakout groups!



# Discuss in the groups:

**What are the strengths and challenges of situation-aware nudging as a new systematic behaviour change method for mobility?**

# Please discuss in the groups:

- ✓ **Short introduction in group** (name, affiliation, function, experience with behaviour change intervention design – in one sentence 😊)

Write down your thoughts and ideas in the online brainstorming tool, present them in the small group and discuss (2 minutes for writing down thoughts, 10 minutes discussion per question)

- ✓ **A. Are there 3-5 positive aspects to situation-aware nudging as a behaviour change method? (“Strengths”)**
- ✓ **B. Are there 3-5 challenges to situation-aware nudging as a behaviour change method? (“Challenges”)**
- ✓ **C. If you were responsible for this idea, what changes would you make immediately? (“Changes”)**
- ✓ **D. What would you tell your colleagues about situation-aware nudging as a behaviour change method and DyMoN?**
  - ✓ In which project or context would you like to **test** the nudging repository (**“Tell & Test options”**)?

# Highlights from the breakout sessions



# NEXT STEPS

- **Expert Panel II: Digital nudging in mobility**
    - Topics: DyMoN repository in field test, co-create the „DyMoN Handbook“ with us
    - Timing: June 2023 (2,5h)
  - **DyMoN Summer School for Young Researchers, June 2023**
    - „GIS and psychology meet for behavioural change in mobility: Innovative digital interventions for sustainable mobility“
    - University of Salzburg (Department of Geoinformatics) + Salzburg Research will organize a **transdisciplinary summer school** (geographical information science, mobility, digitally-enabled behaviour change)
    - **Summer School in Salzburg from 27.06. – 06.07.2023, with GI Salzburg from 04.07 – 06.07.2023**
- Take part as **keynote speaker**, disseminate among your **students**, ...



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# Thank you for participating!

- ✓ Workshop documentation will be sent out
- ✓ Information on DyMoN Summer School
- ✓ Invitation to Expert Workshop II
- ✓ Results on the project website: <https://dymon.eu/results/>



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# DyMoN

Dynamic Mobility Nudge

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