CO-CREATION PLAYBOOK

Nudges and other behavioural interventions for sustainable mobility in the cities

1.5 degree city project

NET ZERO CITIES
EU MISSION PLATFORM
CLIMATE NEUTRAL AND SMART CITIES

TURUN YLIOPISTO

CITY OF TURKU

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This playbook was written within the 1. 5 Degree city project.

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1.5 Degree City project

The Co-creation Playbook was created as part of the 1.5 Degree City project by researchers from the Department of Psychology and the Centre for Collaborative Research at the University of Turku, Finland. The 1.5 Degree City project aimed to enhance a cross sectoral climate work where the City of Turku, local
companies and citizens come together to achieve a common goal of carbon neutrality. The project created an online platform to display and monitor the climate work of the City of Turku, supported climate actions of local companies, and created and piloted nudges to enable sustainable 1.5-degree life.

The 1.5 Degree City project was funded by the NetZeroCities that is part of the Horizon 2020 Research and Innovation Programme, supported by the European Union's Green Deal. NetZeroCities helps European cities to overcome structural, institutional and cultural barriers to achieve climate neutrality by 2030. The City of Turku is one of the 100 Mission Cities, selected by the European Union.

The Co-creation Playbook provides practical tools for co-creation of behavioral interventions and nudges, ensuring that the interventions are relevant, accessible to target groups and ethically sound. As an example, it explores interventions that have already been tested to promote public transport and their effectiveness, and describes the co-creation process carried out in the 1.5 Degree City project, funded by the NetZeroCities programme. The Nudge Playbook is based on a literature review, Turku region public transportation survey data, our experiences from co-creation workshops, and information about interventions from Nordic Cities.

If you wish to give feedback about the Playbook, have questions, or are interested in future research collaboration regarding use of behavioral sciences to promote sustainable lifestyles, please contact Professor Paula Salo, Department of Psychology, University of Turku, Finland: climatenudge@utu.fi.

climate nudge

Can I use this playbook?

Why we created a playbook?
There are several handbooks available for designing and researching nudges that promote more sustainable lifestyles. We have observed that while many of these handbooks approach the topic in engaging ways, their guidance on the design process often remains superficial and fails to support systematic work by those implementing the nudges.

Instead of creating an all-encompassing manual, we chose to call this guide a playbook to encourage experimentation, learning from practice, and developing a deeper understanding of target groups.

What this playbook includes?
In the first part, we introduce nudging as a research-based method for influencing behavior, share our pilot experiments aimed at promoting sustainable mobility, and in the latter part, offer practical design tools to inspire your planning process.

Who can use this playbook?
This playbook is designed for public sector actors, such as those working in climate action or urban planning. However, others can also benefit from its insights, as the content is not limited to any specific sector.

How to use this playbook

Explore research on nudging, sustainable mobility, co-creation models and pilot experiments. Learn about design thinking and the practical tools that design can offer. Build your knowledge and feel empowered to experiment on your own.

How to use playbook?

What is nudging?
Nudging refers to subtly guiding people's choices and behaviors in a predictable way without restricting their freedom of choice. It relies on insights from behavioral science and is often used to promote public goals, such as sustainable mobility.

Who can nudge?
City officials, planners, public transport providers, and other municipal employees can implement nudges as part of their work to improve services and support sustainable behavior among residents.

Why to nudge?
Nudging offers a low-cost, evidence-based approach to encourage sustainable mobility choices. It supports city goals related to climate action by making sustainable options easier and more appealing.

What this playbook offers for nudging?
The Co-creation Playbook provides practical tools for co-creation of behavioral interventions and nudges, ensuring that the interventions are relevant, accessible to target groups and ethically sound.
As an example, it explores interventions that have already been tested to promote public transport and their effectiveness, and describes the co-creation process carried out in the 1.5 Degree City project, funded by the NetZeroCities programme. The Co-creation Playbook is based on a literature review, a public transportation survey data, our experiences from co-creation workshops, information about interventions from Nordic Cities and design thinking methods.

What is nudging

Jump to the content by clicking it!

In this chapter the topics are:

- Nudging in choice architecture

  Design, implementation, and evaluation of intervention
  - Co-creation model
- How to encourage behavior change
- FEAST model
- How to nudge ethically?
- What does scientific research tell us about public transportation nudges?
  - Information campaigns with or without financial incentive
  - Personalized travel plans
  - Social norm messaging with or without financial incentive
  - Gamification with or without financial incentive
  - Is nudging a useful method for behavior change?
- Key takeaways

Nudging in choice architecture

People do not always act rationally in ways that promote their health or a sustainable lifestyle. Knowledge about healthy lifestyles and environmental issues is only one factor influencing motivation, alongside beliefs, values, emotions, and social factors.

A nudge is a change in choice architecture, the environment where people make decisions. This change aims to make a particular choice easier while maintaining the freedom to choose otherwise.

Nudging was introduced in the highly acclaimed 2008 book "Nudge: Improving Decisions About Health, Wealth, and Happiness" by Richard Thaler and Cass Sunstein. Afterward, behavioral science, and nudging in particular, have attracted a lot of attention (Halpern, 2015; OECD, 2010). Nudges are often cost-effective, quick to implement, and easily scalable to large populations. For example, nudges can aim to promote health and reduce emissions by encouraging people to choose public transportation or bicycles over cars for commuting.

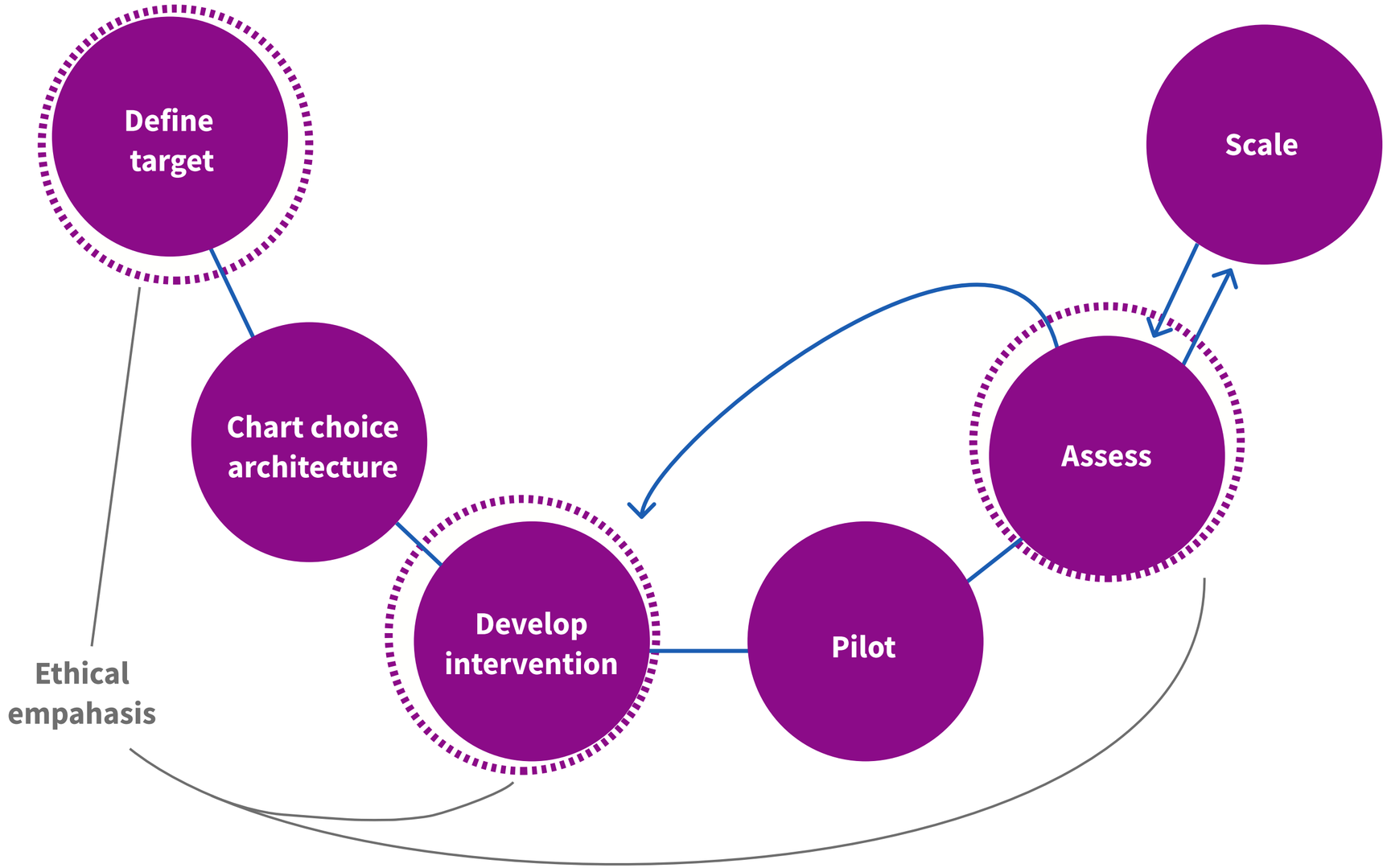
Although nudging is an attractive and usually a well-accepted way to steer people's behavior, the impact of nudges on behavior is often small and can fade quickly. Their potential lies in the possibilities of scaling-up small and easy interventions, where their cumulative effects generate a significant systemic impact. It is important to emphasize that nudges are not meant to replace other behavioral steering methods–such as infrastructure changes, financial incentives, or policy decisions–but rather to complement them.

Design, implementation, and evaluation of intervention

Several practical context-specific or generic frameworks are developed to assist scientists, practitioners, and policymakers in designing and evaluating the intervention. We present a six-step guide for choice architecture interventions highlighting the important tasks involved in the process (Tuominen & Koi, in progress). Working through these steps can help to optimize the effectiveness of the intervention. See the picture of the six-step guide on the following page.

Read more about practical design tips in the section **Design your own nudges**.

Co-creation


Define target
Chart choice architecture
Develop intervention
Pilot
Assess
Scale
Ethical empahasis

Design, implementation, and evaluation of intervention

Define the problem:
What is the intervention aiming to achieve? It is important to translate the problem into concrete behavior.
What kind of behavior do you want to change, and what do you want people to do instead?
Who is the target group?
Understanding and defining the problem also includes assessing the target group's needs.

Understand the choice architecture:
Once the problem and the target group have been defined, understand the target group's operational environment and decision-making situations. At this stage, information is gathered from various sources, such as surveys, observations, and interviews with the target group, workshops, and by utilizing previous literature and data.
What are the critical decision points related to the target behavior?
What factors influence behavior at each decision point?
What are the barriers and drivers (social, physical, psychological) of behavior?
How to operationalize?

Develop the intervention options:
During the development phase of interventions, it is advisable to use a theory-based framework as a tool. In the next section, we will introduce one such tool, the FEAST framework. Other useful and widely used tools include, for example, the COM-B Model (Capabilities, Opportunities, Motivation) (Michie et al., 2011).

Whenever an intervention is implemented, there is an underlying understanding of how and why a particular measure affects behavior. Theory helps the intervention designer consider key factors influencing behavior and the means of influencing it. The goal is to target factors that strongly connect to the behavior in question, which are, on average, low in the target group and can be modified. A good starting point is to consider whether the choice is rare or routine. In the previous phase, barriers were identified. Now, a hierarchy can be formed from them.

Which of the barriers is the most significant for the action from the perspective of the individual and previous research? Once intervention options have been developed, ethical challenges and related questions are examined. At the same time, it can be considered whether nudges should be chained or implemented as part of other measures.

Design, implementation, and evaluation of intervention

- **Pilot the intervention**:
At the piloting stage, ensuring that the intervention is affordable, easily implementable in practice, and considered meaningful and acceptable by both the target group and the implementers (Abraham & Denford, 2020). High intervention fidelity is critical from the perspective of the intervention's effectiveness (e.g., Eldridge et al., 2016). Intervention fidelity can also be strengthened by involving members of the target group and the implementers in the design of the intervention (Abraham & Denford, 2020). This can be called the co-creation process.

  Other issues to be investigated include the recruitment rate, the dropout rate among participants, and whether the evaluation instruments (e.g., behavior measurement) are acceptable, feasible, and reliable. Is it possible to implement a blinding design?

- **Evaluate**:
A broader evaluation aims to ensure that resources are not spent on implementing and executing interventions whose effectiveness is likely improbable. Is it possible for the intervention to achieve the desired effects? A randomized controlled trial (RCT) is generally considered the standard evaluation design. In an RCT design, members of the target group are randomly assigned to either the intervention or control group. The intervention is implemented only in the intervention group, while the control group continues as before. Follow-up can determine how the target behavior has changed. Pre-post measurements can also investigate effectiveness (Craig et al., 2008).

  It is also helpful to examine the internal processes of the intervention, i.e., by what mechanisms, on whom, and under what conditions the intervention works or does not work.

- **Scale up the interventions**:
Once the intervention has been evaluated and repeatedly proven effective, it is justified to begin disseminating and implementing it in new contexts and scaling up to target new groups or populations (Abraham & Denford, 2020). At this stage, it is also important to have a careful and comprehensive implementation planning and evaluation process and collaborate with the staff of the operational environments targeted by the intervention.

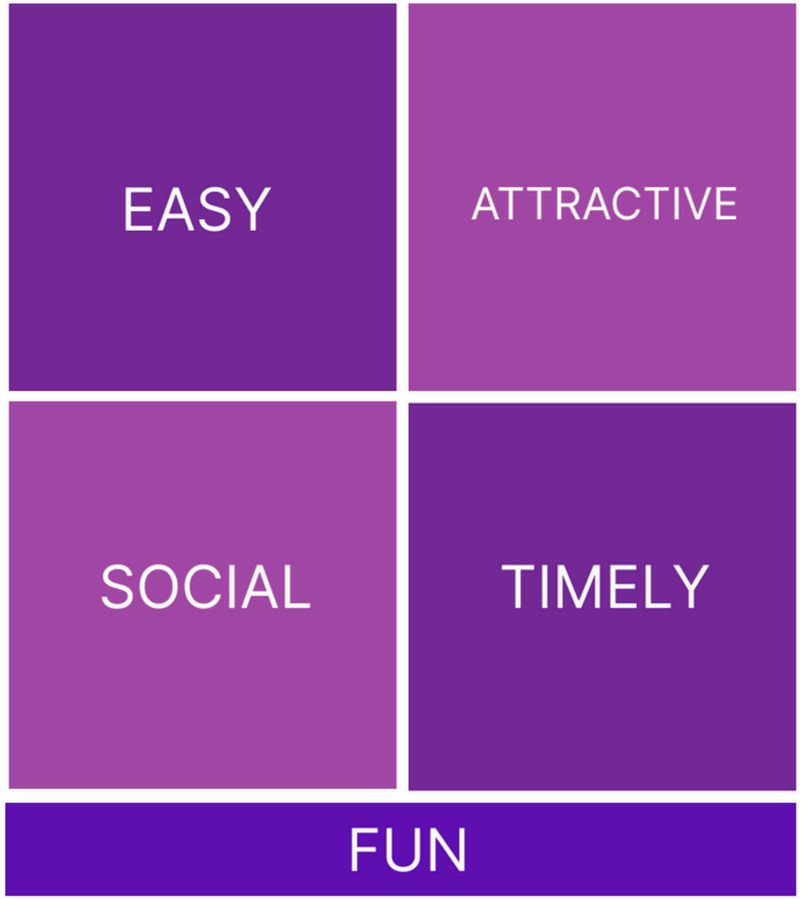
How to encourage behavior change?

FEAST model

To encourage a behavior, one should make it Easy, Attractive, Social, and Timely (EAST) (Behavioural Insights Team, 2014). The EAST framework has been developed by the Behavioural Insights Team and it has proven helpful tool for policymakers all over the world. Sunstein (2020), however, thought that the model was missing something essential and added one new element: Fun.

Addition of an element of enjoyment has been supported by research: for example, two methods to increase vegetable consumption, one with labels highlighting health benefits and another emphasizing enjoyment and taste, were tested at the Stanford University (Turnwald et al., 2019). Both methods were effective, but the enjoyment-focused labels proved more powerful, with an excellent 29% increase in vegetable consumption compared with 14% increase – still a good result – with health-focused labels.

There is a large body of evidence on what influences behavior. Although not attempting to be an exhaustive list, the EAST – or FEAST – framework can help policymakers and practitioners consider effective behavioral approaches. The definitions for the five principles are (The Behavioural Insights Team, 2014):



How to encourage behavior change?

FEAST model

Make it **Timely**:
Prompt actions when people are most receptive, especially during life changes. Focus on immediate costs and benefits, and help people plan their responses to barriers.

Make it **Attractive**:
Draw attention with images, color, or personalization. Use effective rewards and sanctions, like financial incentives or lotteries.

Make it **Social**:
Highlight common behaviors to encourage others, leverage social networks for support, and encourage commitments to others.

Make it **Easy**:
Use default settings to simplify choices, reduce effort required to act, and simplify messages to increase response rates.

Make it **Fun**:
Human beings need fun in their lives. Emphasize enjoyment and produce a sense of optimism, unity, hope, and smiles instead of despair, anger, division, and fear.

How to nudge ethically?

Some nudges are ethically better than others. Ethical considerations can be acknowledged best by incorporating them to all stages of nudge development (see **Tuominen & Koi model**).

Taking that one is nudging for a good choice, ethics of nudging consists of balancing and fitting together various factors. Each factor has some moral weight in decision-making but none of them alone deems the nudge to be ethically bad or good. The central factors include:

Transparency	Can targets notice that nudging is taking place? Can they understand the goals behind the nudge?
Justice and fairness	Do the nudge have desirable or undesirable redistributive outcomes?
Beneficence	If the nudge self-regarding or other-regarding? If it is other-regarding, how are the possible costs to the targets justified?
Social acceptability	Do the targets and other stakeholders accept the goal of the nudge and the way of influencing their choice?
Delegation	Does the nudger have the right to nudge the targets?
Goal	Are the targets nudged for the best choice or to a choice that is just a bit better than their current choice? Can the best choice be known? Is the best choice feasible?
Side-effects	Does the nudge have unwanted side-effects?
Autonomy	Does the nudge infantilize, undermine agency or strengthen conscious deliberation? Is it manipulative or trickery?

What does scientific research tell us about public transportation nudges?

Scientific research reveals some patterns regarding effectiveness of nudges in promoting public transportation. Targeted information campaigns, financial incentives, and personalized travel plans have shown the most promise in shifting behaviors toward increased public transport use. In contrast, nudges relying on social norm messaging, weak default mechanisms, and gamification without financial incentives have not been able to generate significant behavior change.

Challenges in implementing nudging strategies include poor public transport service quality, which limits behavior change potential, and the unreliability of self-reported behavior changes, suggesting an attitude-behavior gap. While personalization of interventions has shown promise, it remains difficult to scale effectively in large-scale public transportation initiatives. However, use of Artificial Intelligence may provide solutions for personalization of nudges. Thus, nudges alone often fall short of achieving long-term changes in travel habits. In the end of the playbook is **a more detailed description of the literature.**

Information campaigns with or without financial incentive

A randomized controlled study indicated that the combination of an information campaign (emails about employer's new public transportation benefits) and a small monetary incentive (for reducing their frequency of parking) influenced awareness, attitudes, and hypothetical intentions to reduce driving to work, but did not translate into action (Rosenfield et al. 2020). Participants reported an intent to reduce car use, but complained about the poor quality of transit service. Thus, such system-level challenges may explain why the participants could not bridge the attention-behavior gap.

Another information campaign found no effect with email messages highlighting loss aversion, i.e. drawing attention to money lost when the participants had not taken advantage of previously offered free bus journeys (Kristal & Willans, 2020). In reality, however, the public transportation commute options may have been less attractive for the participants of that study, who worked at an airport outside a large city.

What does scientific research tell us about public transportation nudges?

Personalized travel plans

Personalized travel plans were delivered to university students through a mobile application and email, and resulted in an 8% shift from private car use to public transport in Rome (Italy), based on longitudinal GPS data (Sottile et al. 2021). Based on self-report, active mobility became more frequent, car sharing increased, attitudes towards car use became less positive, and awareness of CO2 emissions was increased.

However, social norms were not affected during a 2-week intervention, which can indeed be argued to be too short period for social norms to change. The personalized travel plans included suggestions for sustainable travel alternatives, detailed environmental effects of the travel choice, personalized slogans, and information on sustainable mobility.

Social norm messaging with or without financial incentive

In nudge literature, social norm nudges and defaults have effectively promoted sustainable behavior in water conservation (Brent et al., 2015) and waste reduction (Kallbekken, & Sælen, 2013). However, their effectiveness in transportation is still unclear.

Private car use was attempted to reduce by encouraging public transport subscriptions through social norm and default nudges, but failed to show their effectiveness (Hauslbauer et al., 2022). In the social norm nudge, participants received information emphasizing that a significant portion of their peers or colleagues had already subscribed to the public transport ticket, leveraging social influence to encourage subscription. In the default nudge, participants were presented with a pre-selected option to subscribe to a public transport ticket. Reasons for not being effective likely include the non-routine nature of successful nudges, resistance due to monetary costs, and the perceived flexibility and spontaneity of car use. The default nudge may have been too soft, and the effort to opt out was minimal, making it easy for participants to decide against the ticket. Thus, stronger default nudges may be required to make opting out of undesired behaviors more difficult.

What does scientific research tell us about public transportation nudges?

A large-scale natural experiment with over 14,000 participants concluded that social norm nudges might not be the most promising approach while there is scope for long-term behavior change (Gravert et al., 2021). The study investigated whether social norms can positively affect public transport usage compared to traditional price instruments and whether behavior change persists after removing nudges and incentives. The participants were given one of three offers: 1) a two-week free travel card, 2) a two-week free travel card combined with social norm nudge (comparison with the neighbors' public transport use), and 3) a four-week free travel card. Descriptive social norms did not have an effect, but the doubled economic incentive significantly increased uptake and long-term usage, and the increase persisted for months after the incentive was removed. Successful social norm nudges might thus require more detailed knowledge about the population and personalization.

Gamification with or without financial incentive

At least three studies have investigated gamification in promoting public transportation, but none of them found gamification alone to be effective. A study delivering free bus cards, encouraging messages, and personalized feedback found that the key to behavior change was a combination of a financial reward (free bus card) with nudging by encouraging messages and personalized feedback, not social reward, gaming, or framing with health benefits of sustainable traveling (Lieberoth et al., 2018).

Another study used personalization and persuasive techniques via mobile application, but failed to bring about any behavioral change, measured objectively with GPS route logs (Bothos et al., 2014). The application was designed to help find and utilize low-emission travel options and included different persuasive strategies; for example, it suggested green default route options and displayed environmentally friendly options in a more prominent position in the interface. According to the self-report, the application increased environmental awareness, and self-reported behavior change towards more environmentally friendly travel modes. Thus, this study also support the existence of the attitude-behavior gap, indicating that people's behavior does not necessarily align with their attitudes.

Lessons to learn from previous nudge studies also point out the risk of high dropout due to, for example, inadequate communication with participants or too laborious study settings. No changes were found either in travel mode choice or attitudes toward the environment in a study developing and testing a mobile application (Gabrielli et al., 2014). The application included multimodal journey planning, rewards, goal setting, self-monitoring, and a feature to report disruptive events. The trials suffered from discouraging elements from high battery consumption of the automatic journey tracking to laborious travel diaries.

What does scientific research tell us about public transportation nudges?

Is nudging a useful method for behavior change?

Despite the methodological challenges in studies and mixed evidence provided by the scientific research, nudging can still be recommended for policymakers, but with caveats and a strategic approach. Here are some advice:

- Policymakers have more flexibility than researchers, allowing them to test and refine nudges over time based on real-world feedback.
- The combination of nudging with other behavior steering methods is key: Nudging is low-cost and politically feasible, making it a useful complement to financial incentives, regulatory changes and infrastructure improvements.
- Nudging effectiveness is context-dependent; personalized and well-targeted nudges tend to perform better than generic ones.
- Ethical considerations matter, but well-designed nudges can align with public interest goals without restricting freedom of choice (e.g., making public transport information clearer, framing messages to encourage sustainable behavior). Effectiveness should be balanced with transparency and ethical considerations. For more information about ethical consideration of climate nudges, **please read here.**

Key takeaways

Six-step guide can help to optimize the effectiveness of the intervention:

1. Define the problem
2. Understand the choice architecture
3. Develop the intervention options
4. Pilot the intervention
5. Evaluate
6. Scale-up the interventions

According to the FEAST model, to encourage a behavior, one should make it:

- Fun
- Easy
- Attractive
- Social
- Timely

Ethical considerations can be acknowledged best by incorporating them to all stages of nudge development. cEntral factors to design ethical nudges include:

- Transparency
- Justice and fairness
- Beneficence
- Social acceptability
- Delegation
- Goal
- Side-effects
- Autonomy

Combining nudges with other behavior steering methods is a key.

Context dependency is important to take into account. Personalised and well-targeted nudges are more efficient than general ones.

Nudges for public transportation

Jump to the content by clicking it!

In this chapter the topics are:

- Sustainable transportation in urban areas
- Why promote public transportation
- How can behavioral science be used to promote sustainable transportation?
- Key takeaways

Sustainable transportation in urban areas

Cities play a key role in addressing climate change—they can serve as hubs for new ideas and behaviour changes that help reduce environmental harm. Today, more than half of the world's population (55%) lives in urban areas, and this number is expected to rise to 70% by 2050 (Buchanan, 2019).

Urban areas offer opportunities to lower per capita energy consumption, but they also present challenges, such as traffic congestion, which wastes time, increases energy use, and contributes to CO_2 emissions (Buchanan, 2019). Transport is one of the most significant contributors to environmental and health issues. It accounts for about a quarter of the EU's total greenhouse gas emissions and is a substantial source of air and noise pollution, as well as habitat fragmentation. In 2022, greenhouse gas emissions from transport in the EU were about 26% higher than in 1990 (European Environment Agency, 2024). In 2022, cars accounted for almost three-quarters (73%) of passenger kilometers traveled in the EU, and kilometers driven by cars increased by 25% from 1995 to 2022. Meanwhile, the use of more sustainable public transportation modes, such as buses, trams, and metros, has remained relatively stable. (European Environment Agency, 2024).

The EU's Green Deal strategy aims to reduce transport emissions by 90% by 2050. Achieving this goal will require a substantial shift toward more sustainable transportation solutions and the widespread adoption of alternative fuels (European Commission, 2024). Expanding public transport and promoting cycling in the EU holds great potential for reducing greenhouse gas emissions. Public transit systems, especially those powered by electricity or rail, play a crucial role in this transition, as they help reduce dependence on private cars, which account for around 40% of road transport emissions in the EU (European Commission, 2024).

To effectively reduce the environmental impact of mobility, it is essential to encourage a shift toward active (walking and cycling) or collective (public transport) travel modes and improve access to local services. This approach should complement technology-based policies (OECD, 2021). While investing in sustainable infrastructure is an important step, it must be paired with efforts to change individual travel habits. Encouraging people to adapt and take ownership of new mobility routines is crucial for long-term success. Engaging citizens in co-creating and reshaping their mobility habits can lead to lasting behavior change and help foster a culture of sustainable transport.

Why promote public transportation

Environment	Public transport—including urban rail, metros, trams, buses, water buses, ferries, and cable cars—is o**ne of the safest, most efficient, and most sustainable** ways for people to travel. As cities move towards zero-emission mobility, hydrogen and battery-electric buses are playing an increasingly important role. These technologies are rapidly expanding across the EU, making public transport cleaner and more environmentally friendly.
Health	**Lower risk of obesity**: Public transport encourages physical activity, as most trips begin or end with walking. This built-in movement provides an important opportunity for exercise. Studies consistently show a link between public transport use and increased physical activity (Patterson et al., 2019; Webb et al., 2012). According to a systematic review (Rissel et al., 2012), if just 20% of inactive adults walked 16 minutes more per day, five days a week, the number of adults meeting recommended activity levels would rise by nearly 7%. Walking more or increasing public transport use among inactive adults could further boost overall physical activity levels. **Improved well-being**: Enhancements in public transport infrastructure, such as adding direct commuter rail lines to reduce transfers, can lower commuting stress and improve passenger well-being (Wener et al., 2005).

Why promote public transportation

Mobility

Public transportation offers several advantages over single-occupancy vehicles, making travel more affordable, efficient, and sustainable.

- **Cost-Effective**: Using public transport is typically much cheaper than owning a car, helping people save on fuel, parking, and maintenance costs.
- **Environmentally Friendly**: Public transport reduces the number of cars on the road, lowering carbon emissions and contributing to climate change mitigation.
- **Less Traffic Congestion**: With more people using buses, trains, and trams, fewer cars are on the road, leading to smoother traffic flow and fewer traffic jams.
- **Accessible for Everyone**: Public transport provides a vital mobility option for those who do not own a car, including seniors, students, and low-income individuals.

Inclusion

Access to transportation and walkable environments plays a crucial role in **preventing social exclusion** and **fostering stronger communities** (Boniface et al., 2015; Currie & Stanley, 2008; European Commission, 2024).
Public transport naturally **encourages social interaction**, as it brings people together in shared spaces. These everyday encounters offer valuable opportunities to engage with individuals outside one's usual social circles, helping to build social capital (Currie & Stanley, 2008). Research has shown that even brief interactions with strangers on a bus or train can **enhance positive experiences and boost happiness** (Epley & Schroeder, 2014).
For more insights into the benefits of sustainable mobility, you can explore the WHO report on walking and cycling: Walking and cycling: latest evidence to support policy-making and practice.

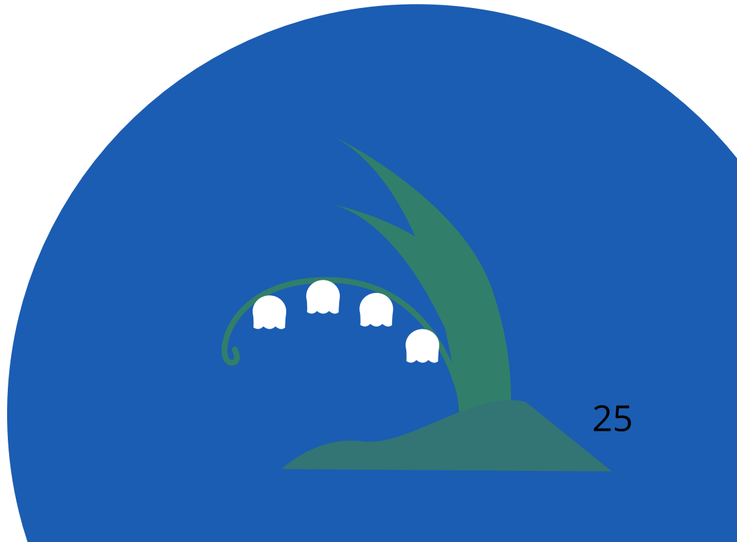
How can behavioral science be used to promote sustainable transportation?

Findings from behavioral sciences, so-called behavioral insights, can support the use of more coercive approaches, such as taxes or subsidies (such as for electric cars) (Sunstein, 2020). Mandates and bans might have a behavioral justification. If a nation imposes energy-efficiency requirements, it might be because of an understanding of people’s imperfect choices stemming from unrealistic optimism, limited attention, or present bias.

One effective behavioral strategy is nudging, a subtle way to influence behavior without restricting choices. Nudges do not replace regulations but complement them. For example, while smoking in public places may be banned, additional nudges—such as graphic warning labels—help reinforce the desired behavior.

This playbook offers practical guidance on developing and implementing behavioral interventions tailored to your city's or region's needs. The goal is to develop effective strategies that encourage public transport use, primarily through soft measures.

We demonstrate how these interventions can incorporate choice situational factors, such as psychological, physical, and social drivers and barriers, which are vital for citizens' mobility decisions, thereby enhancing their effectiveness. By connecting theory with practice, we provide examples of implementing soft interventions that promote sustainable mobility.



Key takeaways

Currently, more than half of the population lives in urban areas and this number will increase, so changes in transportation patterns are essential.

Public transport technologies are developing rapidly and it is the cleanest and most environmentally friendly way to get around.

Sustainable and active movement supports health by reducing excess weight, stress and exposure to pollution.

Public transport is a cost-effective, environmentally friendly and accessible mode of transport.

Public transport also has an impact on social inclusion and improves perceived happiness.

Behavioral insights can support the use of more coercive approaches to organize interventions and nudges.

Nudge co-creation examples

Jump to the content by clicking it!

In this chapter the topics are:

- Co-creating public transportation nudges for senior citizens
  - Define the problem
  - Understand the choice architecture
  - Develop the interventions

Co-creating public transportation nudges for senior citizens

Define the problem

The intervention aimed to create ways to increase use of public transportation among senior citizens, instead of a private car. In Finnish population structure, significant age groups are the baby boomers and the current middle-aged working class that is slowly starting to retire. Of the citizens of Turku, 23% were pensioners in 2022. These age groups also have significant carbon footprints, as they have accumulated wealth and many of them own private cars. This group has time and possibilities to consume and travel. Often most of the people belonging to this age-group are less aware or motivated to implement sustainable mobility in their free time activities.

Moving away from private car use increases physical activity; even use of public transportation includes more walking than using a car. Electric bicycles or adult tricycles could also be a safe and useful transport mode to older people, additionally supporting their physical health and independence. With the adoption of new modes of transportation, the agency of older adults may improve, and giving up a driver's license, for example, due to health reasons, does not necessarily significantly weaken their sense of control.

Understand the choice architecture

Literature review

The following literature review utilized studies from a systematic review, which is unpublished but currently under review (Melin et al.). Moreover, a few other relevant studies were not included in the systematic review but were searched later by Google Scholar the spring of 2024. For the systematic review, we also considered studies that had not explicitly defined their intervention as a nudge, even though it fulfilled the definition of a nudge, regardless of the theoretical framing used in those articles. The systematic review was conducted per the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol. Efforts were made to reduce potential bias in selecting studies by thorough discussions among the researchers regarding the definition of nudges and setting inclusion and exclusion criteria. Data for the systematic literature review regarding sustainable transport choices utilizing the nudge methodology were collected from four databases: Web of Science, Academic Search Premier, SocINDEX and PsycINFO. The first search was conducted from 17 to 19 February 2021, and the supplementary search was conducted on 20 January 2022.

Co-creating public transportation nudges for senior citizens

Main insights from the literature view

Nudges alone are rarely sufficient to produce significant changes in mobility behavior – especially when faced with habitual behavior, infrastructural barriers, or the convenience of car use. Instead, the most effective outcomes occur when nudges are combined with financial incentives or tangible facilitators (e.g., free trial periods, employer subsidies), user receive personalized, relevant information, and the intervention makes it easy to try out a new behavior (e.g., default options or gamified systems). Sustained behavior change ofter requires disrupting existing routines, offering sufficient motivation, and providing a convenient alternative to car use.

Email interviews for Nordic cities

Email interviews were conducted for other municipalities and cities in Nordic countries (data not shown). Responses were obtained from six Nordic cities and areas. The representatives of public transportation providers of the biggest Nordic cities were sent an email, which explained the purpose of the interview, how the data would be used and asked the respondents to respond three questions and/or to send out relevant material that they had at hand. The questions were:

What kinds of successful public transportation campaigns, interventions or nudges have been executed in your city or area during the last 3 years?
What about unsuccessful ones?
What is your estimate on why did they fail?
How did you measure the success of the campaigns, interventions or nudges?

Co-creating public transportation nudges for senior citizens

Main insights from the email interviews

The review highlighted the effectiveness of image marketing when messages are clear and empathetic humor is used.

Public transport users form a cohesive group that can be targeted effectively. partly due to shared communication platforms such as the Föli app, (which efficiently delivers messages and services for an entire group).

Various flexible algorithm-based pricing models have shown success. The examples provided mostly had a commercial focus, except for Copenhagen and Stockholm, which also included environmental campaigns. The measurement methods mainly assessed the spread, understanding, reception of the message, or sales data.

Successful public transportation campaigns shared a few key traits: clear and relatable messaging aimed at well-defined target groups, offered tangible benefits like discounts or convenience, and achieved strong visibility through engaging content. In some cases, humor was uses to make message more memorable. Timing and societal relevance also played a role, and success was often measured through audience engagement rather than sales alone.

Turku region traffic (Föli) user survey

The public transportation service provider of the city of Turku, named Föli, carried out a user survey in 2023. The survey was divided into two waves to collect summer and winter time data separately. The combined number of respondents to these was 1792. Most of the data were collected through a survey panel. A more representative sample was reached with push to web -method that targeted non-Finnish speaking people in Turku area. In push to web -method, the respondent is sent a letter that includes a link to a web survey. The survey targeted all the cities that belong to the Föli-network: Turku, Raisio, Kaarina, Lieto, Naantali, Rusko.

Co-creating public transportation nudges for senior citizens

Main insights from the user survey

Based on the user survey, several key insights inspired us to organize co-creation workshops with older adults (64+) to explore how public transport could be improved and made more appealing to this group.

Older adults are an essential user segment, with bus use increasing around retirement age, especially among women. They tend to have a favorable view of bus travel and experience less frustration than younger users, though feelings of safety often decline with age. Concerns about other passengers and driver behavior affect their experience, making safety a key topic.

Buses are typically used as a complementary mode of transport, indicating that the potential of increased use if barriers are lowered. While status is unimportant, older users value practicality, clarity, and comfort.

- These findings highlight the need to understand perceived obstacles better and build on existing positive attitudes to improve service and encourage more frequent use.

Co-creating public transportation nudges for senior citizens

Co-creation workshops for citizens

The purpose of the co-creation events was to engage stakeholders in the developing process of interventions, which lies at the core of co-creation theory. Senior public transport users were invited to the co-creation events to share their experiences regarding age-friendliness in urban planning and public transport services. The workshop also aimed explore and better understand the mobility-related decision-making processes of the target group, along with the psychological, physical, and social barriers, deterrents, and drivers that influence these choices.

The workshops were facilitated by researchers from the University of Turku's Department of Psychology and the Finnish Environment Institute (SYKE). Following a brief introduction, participant were divided into small groups, each led by a researcher who facilitated the discussion while taking notes. The group discussion loosely followed a facilitation guide developed earlier in the project, allowing space for open conversation. The facilitator's role was to ensure that the key themes were addressed, the schedule was followed, and all the participants had the opportunity to participate in the discussion.

The themes explored included participants' primary modes of transport, main reasons to use bus, walkability of the environment, accessibility of nearby services functionality of public transport, motivations for leaving the house, mobility-related challenges, perceived safety, and sense of community in the area.

Each workshop session lasted approximately three hours and the total number of participants in all co-creation events targeting pensioners was 17. The events were advertised through email lists and posters on populous places in the city (e.g. libraries, supermarkets, market halls). Five researchers took part in the events targeting pensioners and the notes from the discussion were collected into quantitative data after the fact.

Co-creating public transportation nudges for senior citizens

Main insights from the co-creation

Older adults are generally positive toward public transport and use it regularly, especially buses.

However, usage is often limited by seasonal factors, perceived safety risks, difficulties with route planning, and low confidence in using digital services. Many rely on routines and avoid trips on winter or after dark.

Social connections, purpose-driven trips (e.g. doctor visits, shopping), and the physical accessibility of routes and strops strongly influence their willingness to travel.

Develop the interventions

In the first expert workshop, researchers from the University of Turku's Department of Psychology and SYKE analyzed and categorized the insights gathered from the earlier co-creation workshops with pensioners. The data was organized thematically, indentifying key barriers, enablers, and behavioral patterns related to public transport use. Building on this analysis, we applied the EAST and MINDSPACE frameworks to generate and develop preliminary nudge-based intervention ideas to encourage more frequent and confident use of public transport among seniors living in Turku region.

Possible ideas for nudges

- **An intergenerational park trip nudge**: Inspired by the co-creation workshops, we brainstormed a nudge intervention that could be built around bringing older adults and young children together for shared park visits. Workshop participants desired more interaction with children, noting that such encounters bring joy and energy to their day. Similarly, children benefit from diverse social interactions, trips to nature and the presence of attentive adults.

Co-creating public transportation nudges for senior citizens

The proposed intervention would create a recurring weekly event where local older adults and nearby daycare groups travel together to a park using public transport. The event would be communicated through clear, friendly messaging at bus stops and local community spaces, inviting seniors to join without formal registration or commitment. The language would be welcoming and familiar, using subtle cues like "Join us for a sunny trip to the park with little friends" to reduce hesitation and create a sense of belonging. This nudge works by tapping into motivation for social interaction and routine behavior. It encourages physical activity and public transport use gently and joyfully without framing it as exercise or obligation.

The predictability and simplicity of the event, along with the emotional reward of intergenerational interaction, can make it a meaningful and sustainable habit. Over time, the shared experience could foster community ties and reduce feelings of isolation while also normalizing the use of public transport for social purposes. If successfully implemented, the park trip can enhance connection, movement, and mutual benefit between generations and, thus, add to well-being.

- **Föli bus card at a significant life changes-nudge:** This nudge idea is based on the observation that significant life changes—such as moving to a new city, becoming widowed, retiring, or giving up a driver's license—can disrupt existing routines and create a natural opportunity for new habits to form. These transition points offer a valuable opportunity to encourage public transport adoption gently.

  The nudge intervention involves mailing a pre-loaded Föli card to individuals who have recently experienced such life changes, accompanied by a warm, empathetic cover letter. The letter welcomes the recipient to their new stage in life, acknowledges their situation, and encourages them to try a nearby bus route, highlighting the freedom and ease it offers. Practical instructions for using the card and where to find the Föli personnel stand are included. The letter may also feature a small incentive, such as a discounted ticket to a local cultural event reachable by bus.

  This approach works as a nudge because it reaches individuals at a timely moment of change, lowers the effort required to try something new, and uses an empathetic tone that reinforces social connection and autonomy. The messaging could also include quotes from other seniors to normalize and support the behavior change. Over time, this simple nudge could help foster more confident and regular use of public transport among seniors.

Key takeaways

The purpose of the intervention was to increase seniors' use of public transportation instead of private cars. Retirees are a growing demographic with accumulated wealth, and they often have the time and means to travel—many owning their own cars. Reducing car usage in favor of sustainable and active mobility brings both environmental and health benefits.

The methods used included literature review, email interviews, the Turku Region Traffic customer survey, and co-creation workshops with seniors.

After analyzing the data, the EAST and MINDSPACE frameworks were used to generate and develop nudge-based intervention ideas in an expert workshop.

Because seniors expressed a desire for more intergenerational activities, it lead to the proposal of regular events in collaboration with kindergartens.

Another suggested nudge is to offer a local bus card during major life transitions, such as becoming widowed, retiring, or giving up a driver's license.

Other nudges for sustainable mobility

Jump to the content by clicking it!

In this chapter the topics are:

- Electric bikes as substitute vehicles
- Gamified lesson to encourage bus use
- Move Green Together challenge
- Route search co-creation with seniors and stakeholders
- Lessons learned from pilot nudges
- Key takeaways

Electric bikes as substitute vehicles

An electric bike intervention was carried out in cooperation with a local car repair company. Customers were offered the opportunity to choose an electric bike at no cost instead of a replacement car during maintenance. The objective of the intervention was to capitalize on a critical moment in typical car-use behavior, when one's own car is unavailable, to encourage trying a new, more sustainable mode of transport. This hands-on experience with e-bikes may influence future mobility decisions and promote more sustainable urban transportation.

When a customer booked service online or by calling the service center, they were asked if they were willing to choose an electric bike. Even though the season was turning into a cool Finnish autumn, the bikes were very popular among customers.

When returning the bike, they were given a survey that mapped their experiences using the bike and the respondent's sustainable mobility practices. The motives of those who took part in the experiment for getting an electric bike were curiosity about a new form of transport. A large proportion were very satisfied or satisfied with the experience. 88% reported that their willingness to get an electric bike had slightly increased.

The success of the intervention was influenced by the car maintenance company's genuine interest in cooperation, willingness to try new services, and flexibility to change everyday practices. Before e-bikes, they had regular bicycles available as a substitute means of transportation. The intervention sparked interest among e-bike rental companies, as it provides an opportunity to expand business outside of the normal season.

Electric bikes as substitute vehicles

How nudging mechanisms were used:

- **Changing the Default** (Soft Default-like Framing): Even though the e-bike is not an automatic default, offering it as the first suggested alternative when the personal car is temporarily unavailable mimics a "constructed default." It simplifies the decision by framing the e-bike as the natural next step.

- **Simplification and Salience:** The intervention reduces friction by making the e-bike easy to access without requiring separate arrangements, payments, or information-seeking. Highlighting the option clearly during the car drop-off increases its salience.

- **Timely Nudging** The intervention is activated during a naturally disruptive moment, when the user brings their car in for service and breaks the routine of car use. This timing increases the likelihood of considering alternative behaviors.

- **Experiential Nudging** Instead of persuading through abstract benefits, the intervention lets the person personally experience e-biking, allowing them to update beliefs based on lived experience. This aligns with both "boosts" and nudges.

- **Social Influence**: The intervention also utilized social influence to some extent: other users riding the e-bikes were visible, and staff mentioned that the bikes were popular and well-liked among those who had chosen to try them. While no formal peer recommendations or testimonials were used, social norms still acted as a reinforcing mechanism.

- **Organizational Nudging** By targeting decision-makers the intervention nudged company leadership by offering a low-risk, opt-in pilot that framed the initiative as a service trial rather than a long-term investment. This reduced resistance and allowed the organization to test the idea with real customers.

Gamified lesson to encourage bus use

A gamified lesson was designed for the 4th grade of elementary school. An interactive bus driving lesson is already organized for the first grade pupils of schools in the Turku area, but frequent revision later is important. The purpose of the gamified lesson is to inspire pupils to use the bus and remember good bus travel practices, as well as teach about basic knowledge on sustainable transportation.

The game is played on school tablets during school environmental education class or another suitable class. The game features a funny outer space character who is taught by a schoolchild. Pupils teach the character the practices for finding a route, buying a ticket, about safety at the bus stop and guide the character to take other passengers into account. By teaching a funny character, they also learn for themselves. We created a gamified lesson using the Seppo.io platform and tested a pilot version of the game with two groups of pupils. After receiving feedback from schoolchildren and teachers, we developed the content of the game and guide for teachers.

By embedding sustainability in a ready-to-use, low-threshold format, the game also acts as a nudge for schools making it easier for teachers to include sustainability topics in their lessons without needing to design new material from scratch.The gamified digital lesson is easy to scale to other areas. If place names appear in the game, they will be changed and a link to the local transport route search will be placed.

Gamified lesson to encourage bus use

How nudging mechanisms were used:

- **Experiential Learning** The game lets pupils learn by teaching a character, an alien visiting Earth, how to use the bus. By guiding the character, they internalize the knowledge themselves. This promotes hands-on, self-reinforcing learning, which aligns with the idea of boosts that strengthen skills and decision-making capacities.

- **Simplification** The game translates abstract, potentially complex practices, like route planning or ticket buying into interactive and child-friendly steps. This reduces cognitive barriers and helps normalize bus use as simple and manageable.

- **Salience** Key behaviors (e.g. safety, etiquette, route-finding) are made memorable through visual storytelling, humor, and a narrative involving a likeable alien. This keeps attention focused on the desired practices and enhances recall.

- **Social Modeling / Identity-based Learning** Pupils act as instructors to the alien character, creating a situation of self-persuasion and role-based learning. When children take on the role of the teacher, they're more likely to absorb and retain the practices themselves.

- **Norm Framing** The game is embedded in environmental education, framing sustainable mobility as the socially and morally preferable choice. Bus travel becomes part of what "responsible students" do.

Move Green Together challenge

To encourage young people to engage in sustainable mobility, a citywide sustainability challenge Move Green Together was organized targeting all upper secondary students in Turku. The campaign aimed to promote climate-friendly and physically active mobility, such as walking, cycling, and using public transport through a fun, school-based competition. Schools were challenged to implement a public transport app function that allows users to view the carbon footprint of their own mobility and they competed in a friendly race to become the “greenest school of May” based on their total carbon savings.

All upper secondary schools and a vocational school were invited to participate. Communication efforts included ready-made materials for schools, visual content, Instagram storytelling, and active student engagement through student councils and school staff. The challenge was realized via the GreenImpact feature in the local public transport app, which used mobile sensors and AI to detect transport modes and calculate carbon savings.

Feature tracked sustainable trips and CO_2 savings automatically to the school team. The students could individually earn climate coins based on the savings, which could be exchanged for real-life benefits via the app Marketplace.

The feature displayed transport mode shares, CO_2 emissions per mode, total emissions, and school rankings, which were also shared online and on social media.

Beyond nudging students, the Move Green Together campaign engaged local businesses through low-barrier invitations that framed participation as easy and meaningful climate action. Companies could sponsor prizes, offer student discounts, or make symbolic pledges tied to student CO_2 savings.

Communications highlighted mutual benefits and reputational value. The campaign served as a practical example of layered behavioral intervention, showing how multiple nudging strategies can drive long-term climate-friendly behavior.

Move Green Together challenge

How nudging mechanisms were used:

- **Social Norms & Group Identity** By organizing the campaign as a school-based group competition, the intervention leverages peer motivation, group identity, and collective pride. Students could see their school's ranking and compare it with others.
- **Gamification & Incentives** The use of climate coins, a visible leaderboard, and real-world rewards through the Marketplace creates game-like feedback and motivation. This adds fun and relevance, especially for teens.
- **Simplification & Friction Reduction** Joining the campaign required no manual logging or technical setup: the GreenImpact feature in the existing transportation app detected trips automatically. The pre-made school teams and ready-made materials for teachers minimized cognitive and practical barriers.
- **Timely Activation** The challenge was time-bound, creating a sense of urgency and a clear start and end point. This helps overcome procrastination and signals a social moment for joint action.
- **Social Proof via Visibility** Progress and mode choices were visible in-app, and the campaign used Instagram storytelling and school-level communication, enhancing social visibility and motivation through shared experience.
- **Self-Tracking & Feedback Loops** Students received real-time feedback on their CO_2 savings and transport behavior. This helped make sustainability measurable and linked personal action to environmental impact.

Route search co-creation with seniors and stakeholders

To nudge seniors to use public transport, we organized a workshop where participants learned about digital route search and tried out using it. Turku's local transport lines were being renewed in a couple of months after the workshop, and it was important to also hear the views of the elderly on the reform. The workshop was also attended by representatives of the public transport company and company responsible for the technical implementation of route search and the public transportation app.

Based on previous research, the elderly are one of the groups with the most positive attitudes towards public transport, and according to a survey conducted in Turku, they are satisfied with the service. However, special attention must be paid to the accessibility of routes and digital services to encourage older people to use public transport. The workshop was organized at the premises of a local association that also has active activities for the elderly.

Goals of the workshop were to enabling encounters between stakeholders' experts and public transport users to hear feedback and questions. Helping the route planning organization and public transport communication and marketing staff understand the needs of seniors. One goal was to inspire the technical service provider to envision services that support different user groups and encourage and ease adoption of the service.

As a result of the workshop, researchers prepared a recommendation for stakeholders outlining accessibility improvements, opportunities for digital nudging, and tools to gain deeper understanding of seniors' service needs.

Route search co-creation with seniors and stakeholders

How nudging mechanisms were used:

- **Peer influence** Participants shared experiences about using digital route search and apps.Seeing peers successfully use digital tools helped normalize the behavior and reduced anxiety or resistance. This leverages the social proof principle: “People like me are doing this.”
- **Active learning and hands-on experience** This kind of experiential learning increases confidence and lowers perceived barriers. It's a classic enablement nudge, where the environment facilitates the desired action.
- **Salience of digital tools** Demonstrating the app and digital ticketing made these services more salient—participants could see their relevance and usefulness. Salience improves memory and decision-making and participants are more likely to recall and use the tools later.
- **Reflection** Participants were invited to reflect on how they or others use digital services. Reflective prompts can lead to self-persuasion, nudging individuals to form positive attitudes towards new behaviors.
- **Trusted Messengers** Representatives from the public transport company and tech provider attended and their presence added legitimacy, built trust, and increased the perceived credibility of the services. Trusted messengers are a subtle but powerful nudge.
- **Feedback loop for developers** Seniors gave feedback directly to service providers and they have more knowledge on designing services for elderly.
- **Timing** Proactively preparing people for the upcoming big change, where lines will change. Participant saw that route search works the same as before, and some improvements to perceive routes is coming. Support for using the service is still available from public transport service points.

Lessons learned from pilot nudges

Experiential learning as boosting
Hands-on, scenario-based learning was central to several interventions. Learners engaged by teaching others,trying out digital tools, or experiencing an e-bike firsthand. These actions promoted internalization, built confidence, and enhanced decision-making that empower rather than simply steer behavior.

Simplification and friction reduction
Barriers were lowered by making systems intuitive and user-friendly. Pre-set school teams made it easy to join campaigns, and services like e-bike borrowing were framed as defaults during routine disruptions.

Social influence and norm framing
Interventions leveraged group dynamics, peer modeling, and identity cues. School competitions, visible progress, and example of others using tools normalized the behaviors. Children and adults were encouraged to see sustainable transport as aligned with responsible behavior.

Salience and timely activation
Making CO_2 calculating feature and route search visible increased relevance and improved recall. Prominent placement of e-bikes and app features made sustainable options stand out when they mattered most.

Organizational nudges
Providing ready-made educational materials, inviting trusted messengers, and enabling service feedback created a supportive environment. Decision-makers were nudged via opt-in pilots, making change feel low-risk and trial-based. These nudges demonstrate a holistic and empowering approach combining behavioral science with practical design.

Key takeaways

Stakeholder cooperation and commitment is one of the most challenging and important aspects in designing nudges.
Brainstorm and test the emerging ideas with stakeholders at an early stage to ensure that they are interested and committed to develop it further.
The gathered insights about the behavior of different people serves companies and public organizations in developing service offerings and scaling nudges.

Nudges can be integrated into a broader process to shape established practices. Co-creating nudges with stakeholders has an impact on organizations at a systemic level. This collaborative approach engages actors around shared sustainability goals, builds organizational capabilities, and thus generates societal impact that goes beyond the scope of any single nudging solution.

Nudges are often seen as small and clever interventions that are easy and inexpensive to implement. However, what is required to successfully organize a nudge often remains unseen. Finding the right partners, managing communication, coordinating the project, recruiting participants, facilitating co-development sessions, and documenting the process. These essential components require time, planning, and collaboration.

Determine the impact assessment early in the planning process.

- What metrics can be used to measure success?
- What methods can be used?
- How to motivate participants to respond to feedback?
- How long is it possible to observe change over?
- What factors other than the designed nudge affect people's ability to adopt new practices and habits?

Design your own nudges

In this chapter the topics are:

- What is design
- How to utilize design thinking for nudging?
- Design thinking methods
- Research – discover and emphatize
- Define – what is the problem we are solving?
- Develop – find your strategy
- Test – iterate and deliver
- Tools for designing nudges
- Key takeaways

Jump to the content by clicking it!

What is design?

The purpose of this Design your own nudges chapter is to inspire the use of design thinking and tools in the planning of nudges and to encourage experimenting with new co-creation methods. This guide is not exhaustive, and you are welcome to search additional information and inspiration from various sources. The handbook is intended for everyone, so here is a small glossary to help you along the way:

Design:
Design is the process of creating solution that is functional and appealing for it's users. It involves planning, problem-solving, and creativity to make things work better.

Design thinking:
Design thinking is a problem-solving approach that focuses on understanding people's needs, brainstorming ideas, and testing solutions to improve products, services, or experiences. It is a mindset that emphasizes empathy, collaboration, embracing ambiguity, curiosity, and taking action.

Iterative:
In design thinking, nudging team may jump from one phase to another, and the phases don't necessarily follow each other chronologically. For example, on testing a prototype or a pilot, teams may find something new about their target group and understand that they must redefine the problem.

In this playbook, we offer you knowledge and experience of nudges organized to enhance more sustainable public transportation. As we know, the context and goal of nudges can vary a lot, so it is necessary to use imagination and creativity in choosing and using tools. The purpose of these tools is not to provide a rigid procedure for implementing nudges, but rather flexible templates that should be applied creatively and experimentally. You can modify the tools to serve the purpose that is best for your case.

How to utilize design thinking for nudging?

Design thinking provides methods for guiding behaviour through nudges that can promote better decisions, for example, for the environment and health. The challenge, however, lies in designing nudges for target groups that feel genuinely helpful and natural. Planning a nudging intervention can be approached similarly to designing any other service. Various service design methods based on customer-centric thinking can assist in this process.

Many nudges are linked to existing services, such as public transportation, forest services, or dining in restaurants. When integrating an intervention into a service, it’s essential to consider its impact on the overall customer experience. We suggest enriching nudge design by utilising design thinking and available design tools that aid the nudging team in project management, understanding the target audience, and documenting the process.

A key element of design thinking is empathy. Empathy means understanding other people perspective and daily life: the environment in which decisions are made, what brings joy or frustration, and what needs the customer has in different situations.

This perspective is especially useful when designing nudges as part of broader services, like public transportation, where the customer's needs and experience directly influence the success of the nudges.

Design thinking helps to get an understanding of the constraints and advantages that can have remarkable impact on the success of the interventions. The main advantage of design tools is that they enable nudges to be planned so that the micro-levels of the experience are documented and analyzed. They help to capture the details of everyday situations and to create nudges that are more relevant and meaningful. Additionally, these tools can be applied to both physical and digital service environments, expanding their usability across various nudging projects. Design methods can be used as a management approach in creating new ideas but also improving the existing services.

Design thinking methods

Next, we will go through the basics of design thinking and some design tools that you can use to enrich your co-creation practices and document and visualize the results of your work.

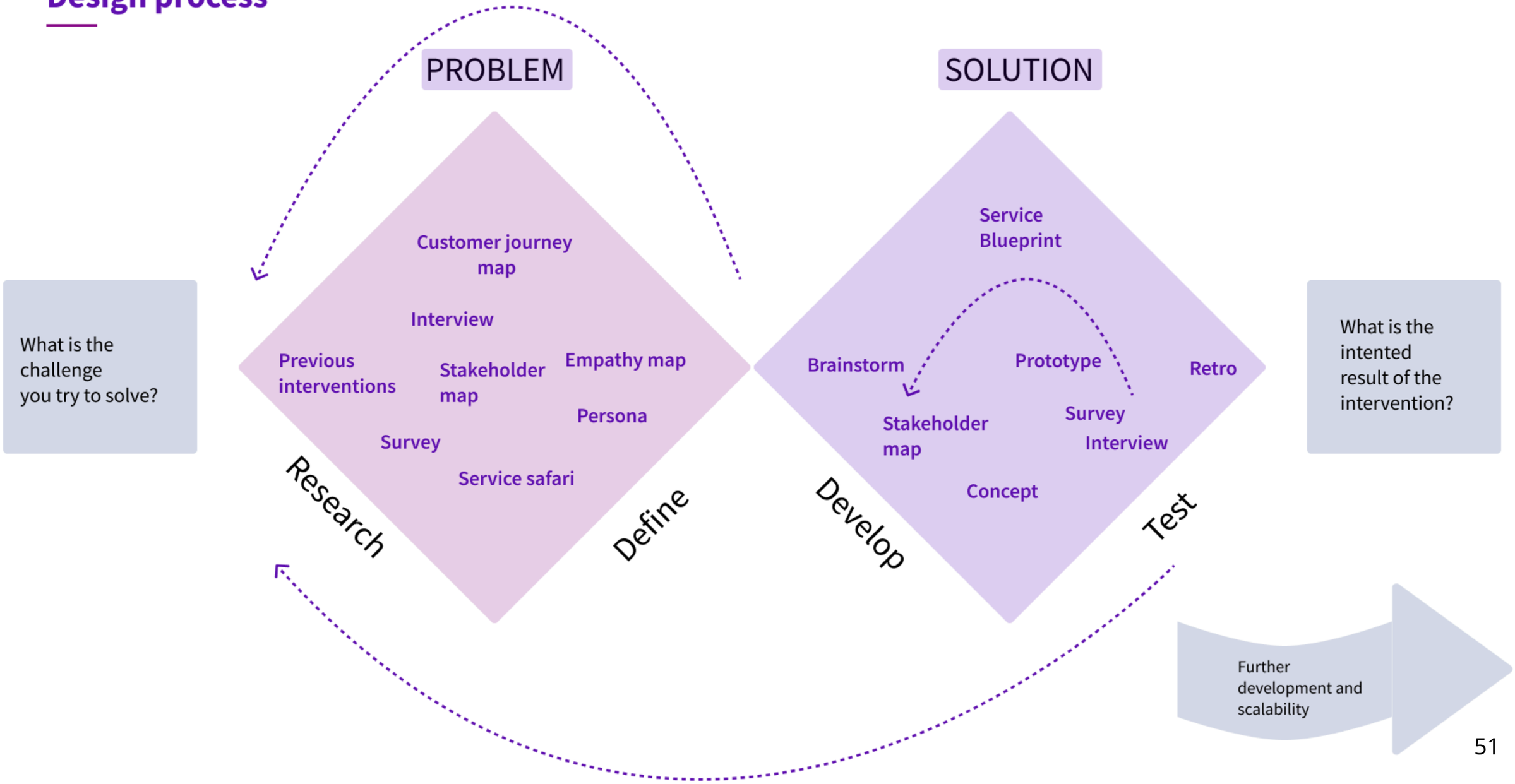
The design process consists of understanding and defining the problem, but also designing and testing the solution:

Double diamond is a common and widely used way to understand the process of planning (British Design Council). It represents the way the problems and solutions are placed in the design process, and it can be applied to the intervention planning in third sector, public organisations and companies. The double diamond visualizes that design process needs divergent and convergent thinking.

In the first diamond, the problem diamond, the information is gathered and the problem is defined. **In the second diamond**, the solution diamond, the possible ideas are developed and delivered. Divergent thinking in the first part of the diamond helps to explore and broaden the perspectives as you search for information on the phenomena, previous nudges and the people you are targeting the intervention. Convergent thinking helps to deepening the understanding of the target people and to define the problem. In the second diamond divergent thinking helps to ideate the solutions to the defined problem and convergent thinking is narrowing the scope and aiming to find the right approach and intervention methods.

See the double diamond model on the next page!

Design process



Research – discover and emphatize

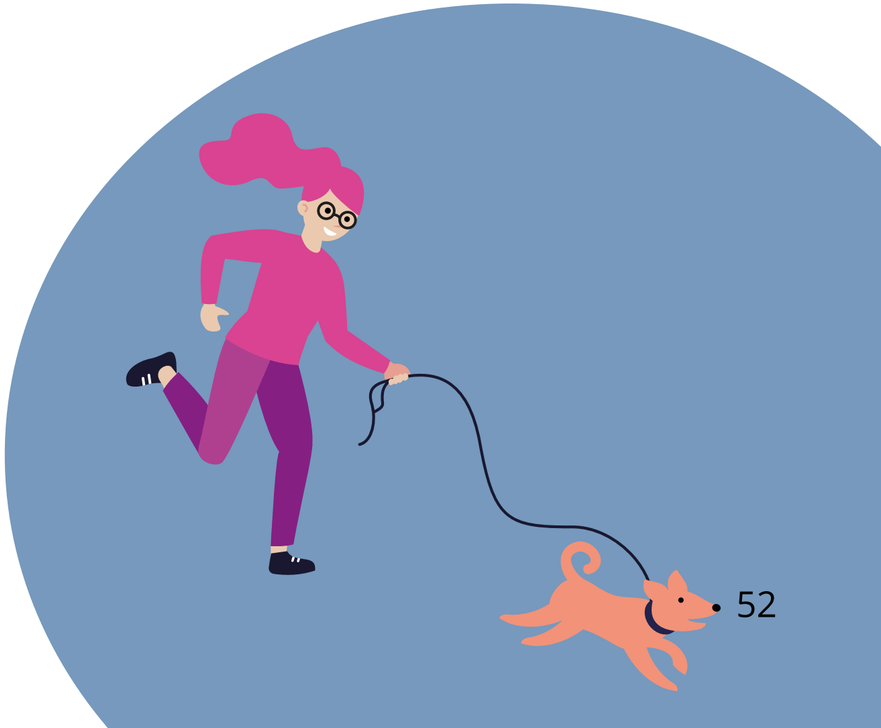
Since nudging has been an increasingly common approach in public policy and societal design ever since the publication of Thaler and Sunstein's book "Nudge", there are likely already numerous nudging experiments from which you can draw ideas and insights.
Examine why the intervention was implemented, what it aimed to achieve, and what methods were used.
Consider whose behavior was targeted for change and in what context.
Analyze the outcomes the nudging intervention has produced.
What can you learn from these interventions?

Once you have gathered data during the discover phase, start visualizing the information for example into potential personas and customer journeys as soon as possible. At this stage, you can already begin sketching possibilities for a nudge prototype. It is important to note that the double diamond is not a linear process but an iterative approach to design thinking.

Some possible methods are:

- Interviews
- Focus groups
- Survey

In the first phase of design thinking, you work to understand people you are planning to nudge. Identify key behaviors and decision-making processes relevant to the nudge you wish to design. This involves understanding what drives people’s actions and what barriers they face. For example, if you're looking at the use of public transport, observe how people make decisions about their travel choices, what information they rely on, and what factors influence their choices. Also, focus on the bias that might affect their decisions.



Define – what is the problem we are solving?

The Define phase clarifies the problem you're tackling, focusing on diagnosing the underlying reasons for the behavioral issues and how they relate to biases.

Read more about co-creation

Dive into social and cognitive factors driving the behaviors identified during the empathize phase. Analyze the existing data to identify the most influential biases. For the case of public transport, people might want to use the car they own instead to take the train (the sunk cost fallacy), or they are overwhelmed by complex choices (choice overload). This analysis helps you frame the problem accurately by understanding not just what the behavior is, but why it happens.

During the definition phase, test the idea with the target group and stakeholders in workshops. Aim to understand the level of acceptance the planned intervention has among them. Seek to identify potential barriers, attitudes, practical challenges, values, interests, and opportunities related to the intervention.

Some possible methods are:

- Persona
- Journey map
- Stakeholder map
- Survey
- Interview
- Workshop

Develop – find your strategy

The Develop phase involves generating creative solutions for the intervention options. You determine what type of nudges or interventions could influence the target behavior in the desired way. During ideation, the nudging team can be brainstormed to get a plethora of ideas before choosing the suitable approach. To encourage people to use public transport, some strategies might be simplifying choices.

Leverage the multidisciplinary expertise of your team as well as the knowledge and ideas of stakeholders. Aim to gather multiple ideas during an ideation workshop, from which one promising idea can be further developed. Encourage participants to think outside the box while maintaining an empathetic understanding of the target group's life and context.

Read more about co-creation

Some possible methods are:

- Journey Map
- Concept
- Brainstorm
- Service Blueprint
- Stakeholder map
- Workshop

Test – iterate and deliver

In the Test phase the nudging team starts to build and test the ideas. Prototyping means creating a trial version of a service or a product and testing the nudge in real-world settings. If you are designing a nudge to increase using the public transportation, you might need to work with the city planning in improving the bus routes, ticket systems and inform people about the best routes.

Consider the context of the event: what happens before participating in the intervention, during it, and after it. Nudging can be viewed as a customer journey, where the individual interacts with the service at various touchpoints, receives information, and makes decisions. The design of the nudge can be compared to customer experience design, where the focus is on the multi-channel nature of the experience and the user's perspective throughout the process.

It is possible to create prototypes by using different methods. The idea of prototype is that creating it is cost efficient and modifying and editing it is easy. For example, with LEGO Serious play method it is possible to model the urban environment for ideating more sustainable transportation solutions. Paper prototypes are suitable to simulate e.g. information nudges and to gather feedback from potential users.

Different kinds of digital platforms like Miro, Mural and FigJam help to create clickable prototypes and to test how digitalized or gamified nudging ideas work. The developed idea is tested with users and modified based on the feedback received. If it becomes evident that the chosen approach is not working, the nudge can be iteratively refined along the way. It does not make sense to continue with inadequate practices and approaches, if it is possible to see that they do not lead to indented consequences.

Some possible methods are:

- Prototyping
- Service Blueprint
- Interview
- Survey

Tools for designing nudges

Next, we will introduce an idea of workshops, and a few commonly used design tools that you can apply in the practical planning of nudges. On the following pages, each tool is presented along with a speech bubble highlighting the benefits of using it.

You will also see whether the tool is typically used in the research, define, develop, or test phase, or whether it is suitable for multiple stages of the design process. In addition, you'll find practical tips for using each tool effectively.

After the tool pages, you'll see a sample canvas we've filled out based on the pilot nudges presented in the chapter Other nudges for sustainable mobility. Finally, you'll receive a blank version of the canvas that you can use for your own purposes.

Jump to the content by clicking it!

Workshops

When to use it

Research | Define | Develop | Test

Workshops are designed for collaboration, brainstorming, or problem-solving. They have a structured agenda with activities and exercises. Workshops require active participation from attendees, and it is led by facilitator who guides discussions, ensures inclusion and keeps activities on track.

How to use it

- Workshops produce tangible results such as plans, frameworks, ideas or prototypes. Workshops encourage creative thinking and innovation in a safe and open environment for dialogue. Workshop can take place in any phase depending on the goal and purpose of the workshop.
- Organize workshops to develop ideas and solutions.
- Use methods like brainstorming or empathy mapping to align stakeholders on shared goals.
- Involve stakeholders into the design process through activities like prototyping and user journey mapping.
- Let stakeholders to test and comment the prototype of nudging to ensure solution is relevant to the target group.

See tips to organize meaningful workshops on the next page

Facilitating workshops

Preparation is important in facilitating successful workshops. First, invite the right people for the purpose of the workshops. Define purpose and set a clear goal. Despite thorough preparation, surprises can still occur during a workshop. Something might take much more time than anticipated, or other unforeseen issues may arise. Therefore, it’s good to maintain a flexible mindset, allow some breathing room in the workshop, and review the next steps together, discussing how to proceed moving forward. Building trust among participants is important, especially when they are unfamiliar with each other.

Through facilitation, collaborative work can be made easier, and group processes can be guided effectively. The facilitator acts as a guide, supporting and engaging participants in working towards a common goal. Facilitation helps promote equal participation, interactive communication, adherence to schedules, and achieving productive results.

- The facilitator listens to the group and creates conditions for equal and open dialogue. The facilitator remains neutral, steering the discussion without expressing personal opinions. Advancing their own agenda is not part of the facilitator's role; instead, they approach all participants with an open mind.
- Set a clear goal for the workshop. If the goal is broad, divide the work into distinct phases, possibly across different days.
- Create a plan according to the goals of the workshop. Consider the rules for the discussion and exercises and make sure that every participant is heard, and their participation is meaningful. Let participants think about the topics first by themselves and let them express their opinions democratically. Good facilitation ensures that the loudest voices don’t lead the situation.
- Allow enough time for decision making and creating synthesis of the handled topics. Also, it is good practice to discuss the next steps and the practical applications of the results of the workshop.
- Use digital collaboration (e.g. Miro, FigJam) for brainstorming and sharing ideas remotely.

Persona

When to use it

Define

Personas are example cases of a target group people with shared interests, common behavior patterns and other similarities. The information is based on previous research and other data available. The idea of personas is keep the nudging team empathizing towards who you design for and get inspired by their life and challenges.

How to use it

- Creating 2-4 core personas representing the main personas is usually enough.
- Define personas based on the gathered data and complement them with creativity. It is a good idea to occasionally take a moment to evaluate your personas, and think are they realistic enough.
- Do not rely too much on demographics, like age or gender, as they do not give so much information on a person's values, needs or challenges. You can also utilize the Empathy map in creating the personas or make an extinction to it by adding goals, needs, frustrations, fears or other factors to it. It is also a good idea to create some “edge personas”, for example people that are not the most obvious persons to ignore the nudges you are planning.

On the next page you can see an example of a persona canvas that illustrates a person's habits, gains and pains to get engaged and reasons to use the service the nudging is embedded in. This persona card is based on workshops conducted with elderly individuals and a persona representing a 77-year-old woman named Leena.

Persona

Persona type: Leena, 77 years, lives near Turku city centre

Name: Kaarina

Age: 77

Family: widow, lives alone

Occupation: pensioner, previosly nurse in the hospital

Internal trigger: Wants to stay active, meet people and to join the events in the home city.

Statement/behaviour:

- "I wish I had other reasons to go out than just to meet a doctor"
- "Having a cup of coffee with friends makes my day"

What I am like:

- Widow
- Some health issues that affect the ability to active movement
- Feeling lonely
- Interested in events and encountering other people
- Wants to stay active, but needs some nudging and company

What do I like to do in my free time:

- Daily household chores
- Phone calls to friends and family
- Reading (news, magazines and books)
- Theater and concert
- Senior activities organized by city or congregation

Where to reach me:

- Notice boards of libraries
- Congregations
- Activities (clubs, hobbies) for elderly

What makes me involved:

- Possibility to go to meeting with the bus
- Avoiding problems with car parking
- Going to take care of some things, like visiting the doctor downtown
- Frequent routes to the city centre
- Organised events, for example activities together with children

Challenges to engagement:

- During winter, slippery roads and snow are challenging
- Not willing to go out in the evenings due safety reasons
- Not sure if there is room in the bus when going with a walker
- Needs to take a rest, but there is not so many benches on the bus stops

Reasons to use the service where nudging happens:

- With one ticket is possible to travel to neighbour cities
- Going to the city centre is more pleasant with the bus than with the own car
- In summertime, visiting Ruissalo, an island with parks and cafes

Reasons not use the service:

- Not knowing which are the right buses and where to get out
- How and where to download the travel card
- Weather conditions make walking to the bus stop dangerous
- Distance from home to the bus stop is too long
- Changing the bus feels uncomfortable
- If using the bus requires using app or internet

Persona

Persona type:

Name:

Age:

Family:

Occupation:

Internal trigger:

Statement/behaviour:

Where to reach me:

What I am like:

What makes me involved:

What do I like to do in my free time:

Challenges to engagement:

Reasons to use the service where nudging happens:

Reasons not use the service:

Empathy Map

When to use it

Define

An empathy map is a design tool that provides a deeper understanding of a customer's needs, emotions, motivations, and challenges. With the map, a nudging team can identify factors that influence the target audience's behavior.

How to use it

The empathy map is divided into four sections: what the person sees, hears, thinks, and feels. This tool can be used, for example, to explore which aspects of everyday life support or hinder the target group in making environmentally friendly choices.

- Think and feel: What is the most important to them? What are they dreaming about? What are they worried about and what makes them happy?
- What they hear: describe who influences their opinions. Which media do they follow, whose advice they appreciate?
- What do they see: What do their environment and context look like? Who are their peer groups? What kind of services are they using?
- Says and does: What is their attitude? Is their speech and actions aligned or contractionary? Pain: What makes them frustrated? What kind of barriers do they have? What kind of risks do they tend to avoid?
- Gain: What do they want to achieve? By which means?

On the next page you can see an example of an empathy map that illustrates a person's motivations, barriers, incentives, and social environment. The empathy map is based on workshops conducted with elderly individuals and a persona representing a 77-year-old woman named Leena. You also get an empty empathy map canvas for your use.

Empathy map

Persona type: Leena, elderly person living in Kaarina, Finland

Think and feel

- Wishes more reasons to go out and meet people
- Is wary to leave home during winter and evenings
- Considers hometown a good place to live

Hear

- Local newspaper
- Uses local library once a month
- Listens to radio and watches TV
- Watches news and
- Is having coffee with a couple of neighbours at each other's houses

See

- Lives in a small town in an apartment house
- Goes for a walk with a neighbor
- Goes to Turku to theatre or concerts
- Children and grandchildren live in another cities

- Appreciates local volunteer events
- Hopes for more community feeling
- Afraid of loosing independency
- Walking is important
- Uses a walking stick

Say and do

Pain

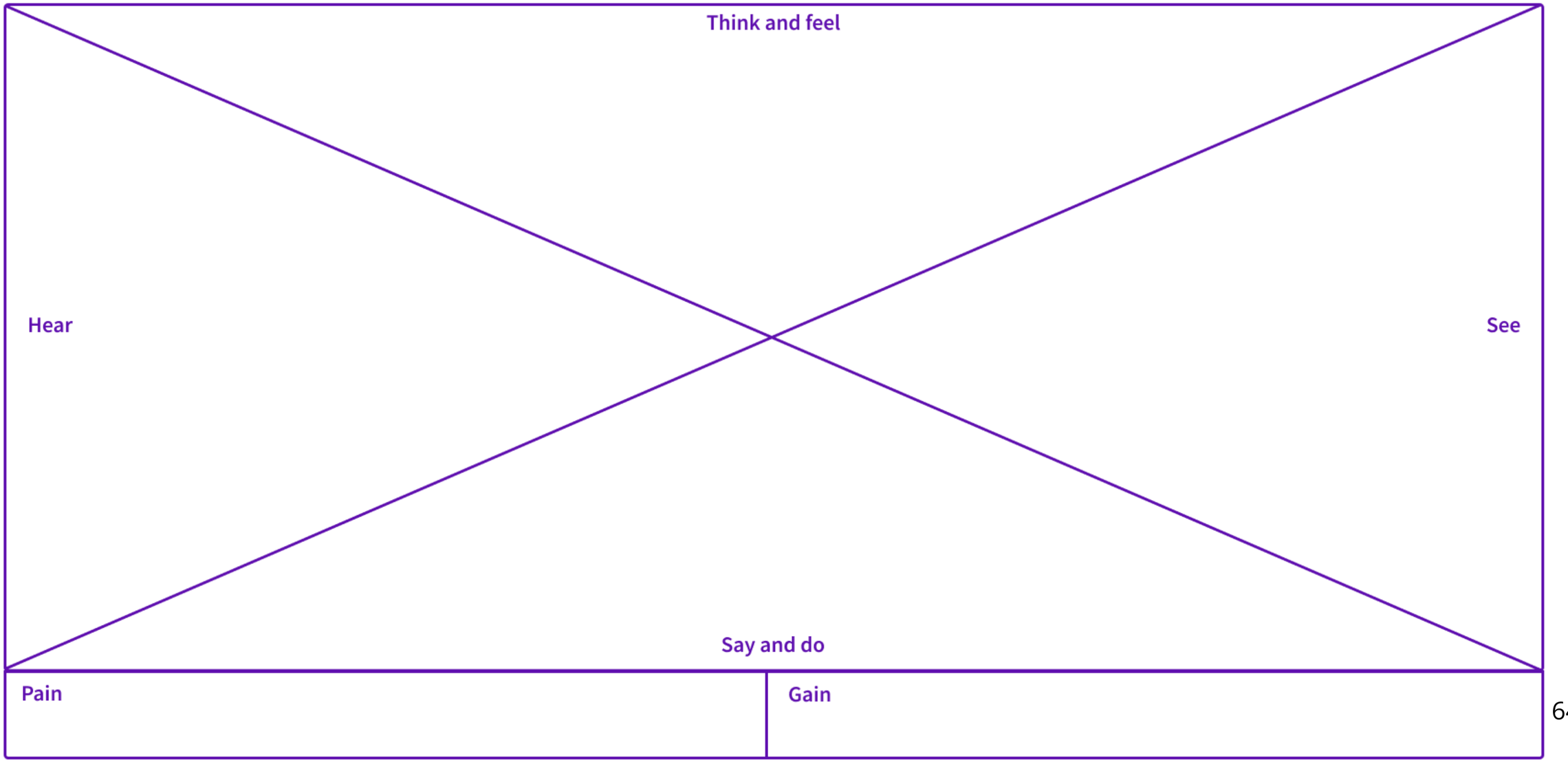
- Cycles and scooters are sometimes scary
- Lack for accessible routes to walk during winter

Gain

- Bus ticket is valid 90 minutes
- Knowing the routes she usually uses

Empathy map

Persona type:



Concept

Creating a concept helps to build common understanding and strategy of the idea of intervention. A common concept helps break down silos and improve collaboration.

When to use it

Develop

How to use it

- Work together with your team to find answers to these questions. What is the behaviour you aim to influence? What are the means and goals of the intervention?
- Who are participants and stakeholders and what are their pain points, problems, understanding of the situation and field, what is important for them, how are their capacities and ideas. Who are the stakeholders and what is their role (stakeholder map).
- Important questions to ask are also:
  What, how, to who, by whom and what we gain with the intervention?
  Where and what is the physical space or service platform?

On the next page, you will see a concept canvas that presents an example of a gamified lesson plan. The purpose of the gamified lesson is to teach schoolchildren about the benefits of public transportation and the practicalities of traveling by bus in a fun and engaging way.
This concept is based on team work to design a gamified lesson.

Nudge concept

Service:

Gamified lesson for elementary school:

Engagement to traveling with local bus and learning the traveling practices.

Problem statement

Define the problem you aim to influence

- South-West Finland's local bus company and schools have an established and well working practice: interactive and playful local bus lessons for the first grade pupils.
- However, things learned are forgotten if they are not reviewed, so 4th graders in elementary school need review.
- In the background, we have the fact that people often travel to school by car, even though the journey could easily be made by bus, on foot or by bike.

Target behaviour

What and who's behaviour you aim to nudge

- The aim is to provide schoolchildren (10-11 years old) with information about using the bus and sustainable mobility.
- Since the game is played at school, it may also have an impact on teachers, as well as on the pupils' families through a possible homework assignment.
- The goal is to lower the threshold for adopting the use of public transport.

Behavioural barriers

What obstacles prevent the target behaviour

- Pupils: parents are primarily responsible for their children's transportation habits. Children may have fears about public transportation and are unfamiliar with the practices.
- Teachers: Adults' travel habits are influenced by adopted routines, which take time to change.
- Parents: Adults' travel habits are influenced by established routines that take time to change. Parents may be hesitant to let their schoolchildren ride the bus if they have no experience of their own.

Nudge mechanism

What behavioural ideas is the nudge based on

- Pupils: Gamification is used to highlight the benefits of public transport and good travel practices in an age-appropriate and fun way.
- Teachers: Gamification helps to highlight the benefits of public transport and good travel practices. The game is easy to implement in school lessons and supports a variety of learning objectives.
- Pupils' families: through a possible homework assignment, information about the benefits and ease of public transport will also be spread to families (for example, a joint route search or travel assignment).

Ethics

Is the nudge ethical and transparent

- The game's players and teachers are informed about what the game encourages, so it is transparent.
- The game is designed to be as equal and accessible as possible.
- Information security issues are taken into account when planning the tasks.
- The content does not deviate from the approved educational content for comprehensive schools in terms of social acceptability.
- Playing the game is voluntary, and the class teacher decides whether to play based on his or her own professional skills.
- During the game's design phase, the game is tested with teachers and students, so it supports user-centricity.

Expected outcome

How to define success and measure it

- Success is recognized by the fact that people want to play the game, find it interesting and useful. In addition, the willingness of players and possibly their families to use public transportation improves.
- Success is measured by the number of players, which indicates teacher approval.
- At the end of the game, players are asked for feedback on their gaming experience in a child-oriented manner.

Nudge concept

Service:

Problem statement

Define the problem you aim to influence

Target behaviour

What and who's behaviour you aim to nudge

Behavioural barriers

What obstacles prevent the target behaviour

Nudge mechanism

What behavioural ideas is the nudge based on

Ethics

Is the nudge ethical and transparent

Expected outcome

How to define success and measure it

Service safari

When to use it

Research | Define | Develop

Service safari is a hands-on tool where designers experience the service from the customer's perspective. Service safari can help to explore the optimal nudges and improves empathy as it helps to think about the journey from the perspective and the context of the customers.

How to use it

For example, if the goal is to encourage hotel guests to make environmentally friendly choices, the nudging team can go through the service as a hotel guest, observing where the guest makes choices, such as selecting vegetarian meals, finding information about bike storage, or learning about the hotel's environmental strategy. This approach helps identify effective opportunities for nudges. Service safari can be conducted in physical or digital services. It could be a good learning opportunity to go through other services by using service safaris methods.

- Nudging team can be the researchers of the safari by themselves. Set the goal the target group might have, for example "buy a bus ticket and travel from your home to the tennis court".
  How to find out where to buy tickets?
  How to find a route?
  How is the loading the ticket?
  What happened during the travel?

- Evaluate the tasks the person needs to take and observe what they experience. Are there situations where nudging could help people to make choices towards active cycling? For example, use the journey map template to visualize your insights and experiences during the service safari.

Journey Map

A Journey Map illustrates the persons entire experience throughout a service, detailing the various stages and touchpoints.

When to use it

Research | Define | Develop

How to use it

- Select the persona whose journey you will design. Decide if you are using the map for collecting information about existing customer journey within a certain service or are you designing the whole new service.
- Determine the scope and level of detail for the journey steps. Are you mapping a journey that spans an hour, a day, a week? Define the key stages of the journey, such as “before purchasing tram ticket” “during purchasing a tram ticket,” and “during a tram ride.” Identify the touchpoints where the person interacts with the service and outline the steps they take at each stage.
- Consider how choice architecture can be integrated into these steps and interactions to guide behavior. Use a customer journey template to document the process. Along the design process, continuously refine the journey plan based on feedback and observations.

On the next page you can see an example of a journey map illustrating a person's experience with public transportation. The journey map is based on a persona representing an 81-year-old man named Matti. It outlines his activities, touchpoints, needs, and opportunities for nudging him towards increased use of the local bus service. This journey map is based on workshops conducted with elderly individuals.

Journey map

Service: Local bus (company called Föli)

Persona type: Matti, 81 years old male, lives in Kaarina (town in Southwest Finland)

Stages:	Before the bus trip	During the bus trip	At the destination		
Activities: What target people need and want to do? What task they need to accomplish?	• Matti Prefers to take a direct bus route to the city center. • He ensures he has a comfortable coat and hat for colder days.	• Matti loads his local bus Föli card at a kiosk because he doesn't use apps. • He occasionally needs help loading the card.	• He regularly attends doctor's appointments and visits his grandchildren. • Local bus works well for these trips.		
Touchpoints: How person interacts with the service, e.g advertisement, phone call, website, meeting the staff, paying ticket, answering survey.	• Kiosk staff assisting in loading the bus card. • Printed timetable from a kiosk or library. • Bus company's advertisements in local newspapers. • Conversations with family members or neighbors about the best bus routes.	• Local bus stop information boards for route details. • Interactions with the bus driver when asking for advice. • Local bus posters inside the bus about upcoming service updates.	• Printed timetable to check return trip options. • Bus company's signage at major bus stops. • Conversations with other bus users about route experiences.		
Needs: What the person needs, e.g. knowledge about the routes, accessible information or entrance to bus, support to try new things.	• A straightforward way to load his bus card • Direct routes without transfers is required. • Safety is a priority.	• Boards the bus early to find a seat and avoid crowds. • Holds onto railings carefully to maintain balance. • Avoids transferring to another bus unless absolutely necessary.	• He visits his grandchildren and picks up groceries on the same trip. • He then carefully plans his return trip.		
Opportunities What other nudges can be potential in the future? How to scale up with another target group or service etc.?	• Bus company could increase the number of direct lines to the city centre. • And improve communication about where to load the bus card without using an app.	• Launch a "Föli Conversation Hour" where designated buses have volunteer hosts during non-peak hours to encourage friendly conversations among passengers.	• Add clearly marked Föli Help Points at major bus stops, where seniors can ask about schedules, routes, and alternative options. • A pop-up on the bus screen where you can get a free coffee or tea from a local café by showing your bus pass. • Offer a small reward system where seniors who frequently use Föli instead of their car get discounts at participating stores (e.g., a "Föli Loyalty Pass" for grocery stores or restaurants).		

Journey map

Service:

Persona type:

Stages:					
Activities: What target people need and want to do? What task they need to accomplish?					
Touchpoints: How person interacts with the service, e.g advertisement, phone call, website, meeting the staff, paying ticket, answering survey.					
Needs: What the person needs, e.g. knowledge about the routes, accessible information or entrance to bus, support to try new things.					
Opportunities What other nudges can be potential in the future? How to scale up with another target group or service etc.?					

Service Blueprint

A Service Blueprint is a comprehensive mapping tool that complements the Customer Journey Map by including the service's background processes, such as the roles and responsibilities of stakeholders and the service provider organization.

When to use it

Develop

How to use it

- Nudges occur within networks of stakeholders, so it is necessaty to examine and document the needs of various stakeholders and the related touchpoints. The service experience can be compared to a theater performance, where the "frontstage" represents the customer-facing part of the service, and the "backstage" represents the organization’s internal operations. This breakdown is particularly useful for designing nudges, as successful nudging often requires collaboration among different stakeholders. The service blueprint clarifies these roles and ensures that all necessary background processes support the desired outcome.

- Service Blueprints are extensions of journey maps. The idea of Service Blueprint is to connect people’s experiences with the frontstage and backstage processes. Service Blueprints adds layers of depth to show relationships of front- and backstage processes. It shows the “line of visibility” which marks the line what person sees and experiences and what needs to happen to be able to organise certain experience and choice architecture.

- For example, if you are designing a service that combines public transport and car parking, think what has to happen to make the service possible in the physical word, what kinds actions need to be designed between devices and software, and how services users perceive these interactions.

On the next page you can see an example of a journey map illustrating a gamified elementary school lesson that teaches how to use buses and inspires sustainable mobility. This Service Blueprint specifically takes into account the teacher's experience, as they are key in using the game.

Service Blueprint

Service: Game to teach using bus for 10-12 year old pupils

Persona type: Elementary school teacher

Stages	Awareness	Introduction	Preparing the lesson	Playing in the class	Homework (optional)
Activities: What target people need and want to do? What task they need to accomplish?	• The teaching must be planned with consideration of the curricula of different school subjects. • Use a variety of materials appropriate for the age group.	• Understanding the advantages and requirement to play the game • Getting an idea how to utilize the game in lessons	• When to play? • How I need to prepare for it?	• Giving instruction to pupils • Managing time • Helping and supporting	• After pupils have done homework, schedule a lesson to go it through and discuss their experiences.
Frontside actions:	• Read an article/seeing and advertisement/hear from a colleague the game.	• Information that helps you understand what educational goals the game is related to, what its benefits are, and what the game concept is.	• Well prepared instructions for teachers to prepare playing lesson	• A prepared script for teachers about facilitating the game playing • Bonus is to give a game-related homework	• A prepared script for teachers about handling a homework and discussion.
Line of visibility	These are the actions your nudging and designing team can take to make the target persons journey easier and meaningful.				
Backside actions:	• Find channels to communicate to the target group: e.g. professional social media channels, publications, associations, working group networks, NGOs, notice boards, education fairs, local public transport company's channels.	• Before publishing and finalising the game and the instructions, test the concept and info with teachers. • Redesign according the feedback.	• Before publish and finalise the game and instructions, test the concept with teachers and pupils. • Redesign according the feedback. • Cooperate with the local public transport company.	• When planning the script for teachers, be realistic and take into consideration e.g. age of pupils, duration of the lesson, environment of municipalities or cities.	• Multi-sensory observation outdoors can be possible through homework. • Homework can inspire a pupils' family or friends to use the bus, example by making a shared trip.
Support processes:	• Local bus company could advertise the game for educational institutes • Accessible gamified instructions can be suitable also for exchange students, non-native speakers, people with special needs.	• If a teacher has good experiences playing the game, they can give a recommendation to others.	• If the game is connected to local transport operations, cooperation with the local public transport company, for example organizing free travel tickets for pupils or campaigns together.	--------	• Multi-sensory observation outdoors can be possible through homework. • Homework can inspire a pupils' family or friends to use the bus, example by making a shared trip.

Service Blueprint

Service:	Persona type:

Stages					
Activities: What target people need and want to do? What task they need to accomplish?					
Frontside actions:					
Line of visibility					
Backside actions:					
Support processes:					

Stakeholder map

When to use it

Research | Define | Develop

How to use it

- Stakeholder is anyone with an interest in your intervention project. For example, officials, decision-makers, citizens, NGO's and companies are stakeholders. Stakeholder maps help to identify and illustrate the people and organizations involved and connected to the intervention.

- Which stakeholders are the most important?
  Who are the key stakeholders - they have the most influence over the intervention. Primary stakeholders are the people who will be impacted directly by the intervention.
  Secondary stakeholders are indirectly impacted by the intervention.
  Think about the following questions: What are the expectations of the stakeholders? What do they expect to happen as a result of the intervention? Are there competing agendas?

Typically, nudges are designed to happen in a certain situation that is not happening in a vacuum. Stakeholders are people, organizations and companies connected to the intervention. Thus, co-creation with stakeholders is a vital part of planning an intervention.

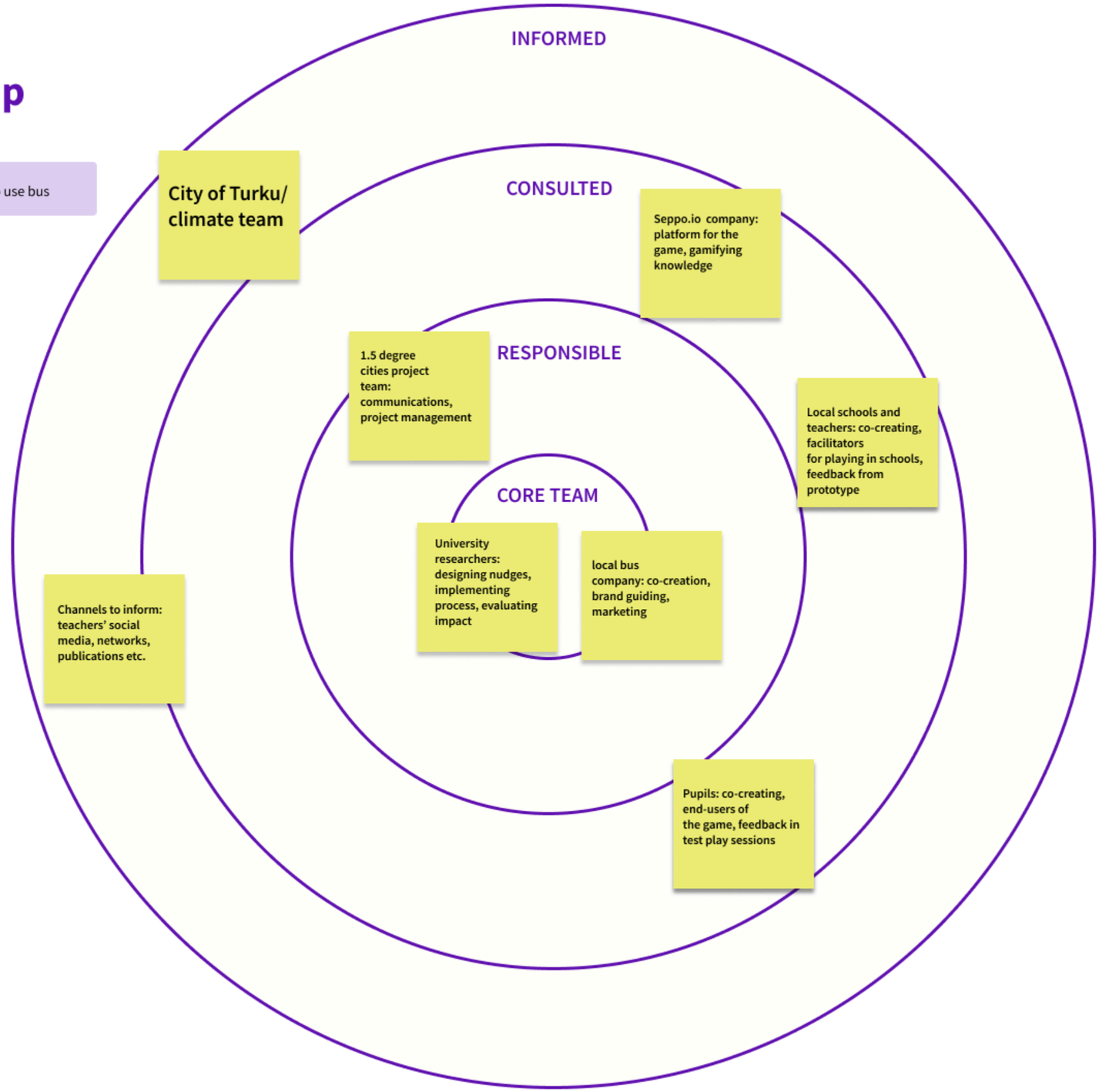
- You can also add the relationships between different stakeholders if you see it necessary.

- When gathering stakeholders, their impact on scalability must be taken into account. Consider what kind of collaborative networks can help scale results and stabilize operations.

On the next page you can see an example of a stakeholder map we used to design a gamified elementary school lesson that teaches how to use buses and inspires sustainable mobility.

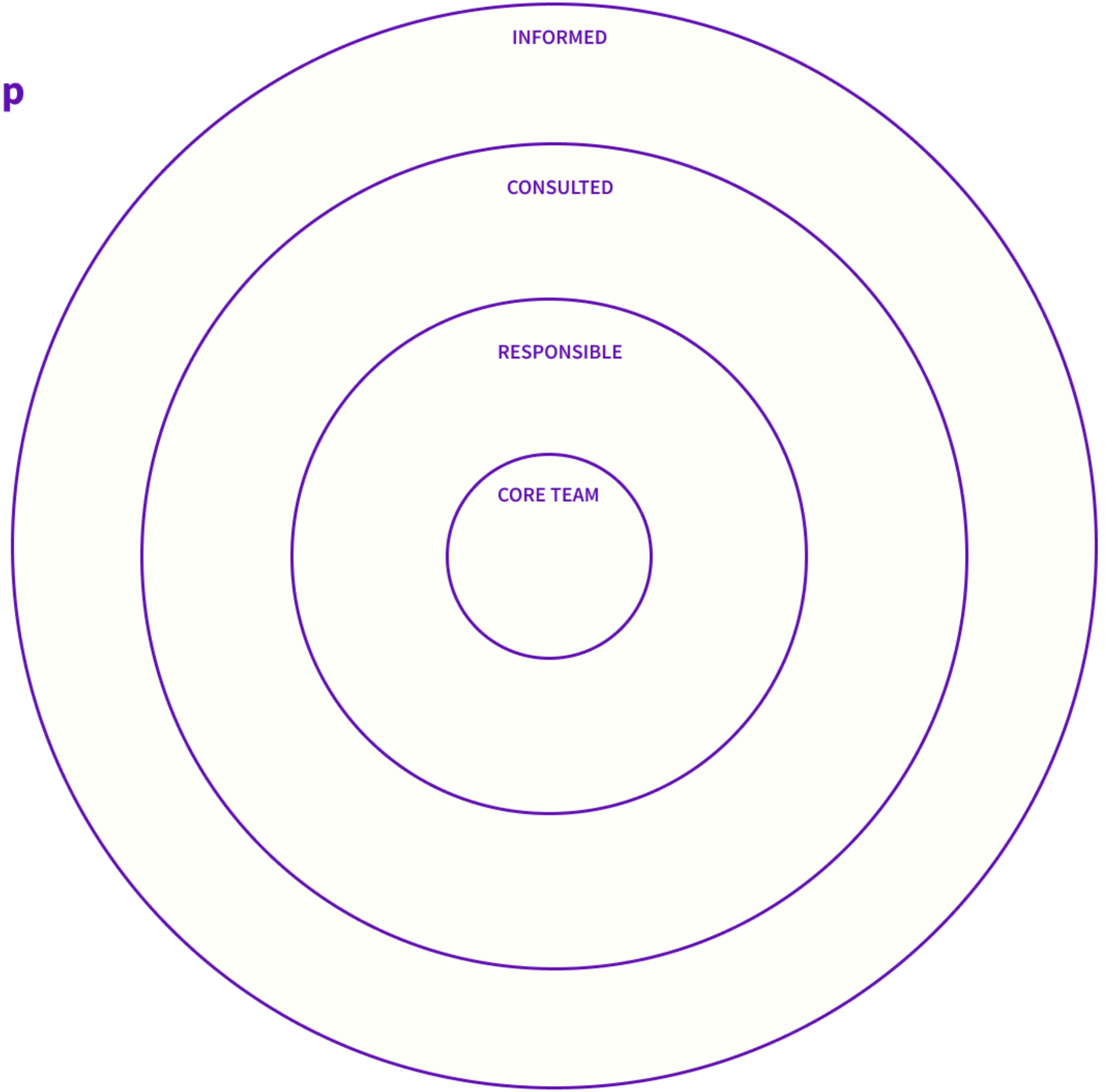
Stakeholder map

Service: Game for children to learn how to use bus



Stakeholder map

Service:



Nudge retro

When to use it

After test

How to use it

- Organize a retro session with nudging team. Observe the intervention afterwards.
  How did we succeed?
  What could we have done better?
  Why?
  What have you learned?
- Let everyone write their thoughts first alone and then discuss them together.

The nudge retrospective dedicates time to reviewing a completed intervention and learning from both the successes and the failures. The purpose of the retrospective is leveraging the teams and organizations learning and improving their ways of working together.

It is highly possible that during the nudging process, you will discover aspects that did not work as expected. These might be related to the chosen target group, the specific temporal and local context, or the experiment conducted within the framework of a particular service. It is also possible that you came up with new valuable ideas and connected with stakeholders who could become fruitful partners in designing future interventions. Be sure to document all insights and lessons learned about stakeholder collaboration, documentation, and improving cooperation. Since designing nudges requires teamwork, don't forget to express your gratitude to your team and partners!

On the next page you can see an example of a nudge retro canvas about a sub-project of planning a workshop for seniors, where we tested public transport route search service and discussed upcoming transport changes.

Nudge retrospective

Nudge:

Co-creation with senior citizens: testing the local bus company's journey planner with senior citizens and discussing using the public transport.

Team:

Here you can list the core team, stakeholders, and other people involved in designing nudges.

What went well?

- Collaboration with a NGO organizing action and events for senior citizens
- Discussing the needs of the local bus company about encouraging senior citizens
- Internal communication about roles and responsibilities

What did not go well?

- Time management in a busy situation was a challenge, but not a barrier

Which elements we can use in other nudges?

- Testing the service with the target group can help identify barriers and drivers to use it
- Observing the user experience of the target group can provide ideas for the placement of nudges
- Personal experiment of a digital journey planner app might open new perspectives for non-frequent users
- Peer support: when elderly people get confidence to use an app, they can support their peers to adapt the system

What should we do differently next time?

- Start planning earlier
- Find out about previous attempts to nudge elderly to get more info about what works well and who have been the contact persons

What we learned?

- The right and motivated stakeholders are an important pillar
- Find out about previous attempts to nudge

Other remarks:

- Testing the service with the target group can help identify barriers and drivers to use it
- Personal experiment of a digital journey planner app might open new perspectives
- Peer support: when elderly people get confidence to use an app, they can support their peers to adapt the system

Thanks for the team!

- Core team: thank you for your support, sharing your knowledge, encouragement and good humor

- Stakeholders: thanks for the brainstorming, providing facilities and to reach out the target group.
- Thank for being part of the workshop!

- Participants, senior citizens: Thank you for the time you spent with us at the workshop, for the opportunity to hear about your experiences and get to know your everyday life.

Nudge retrospective

Service:

Team:

What went well?

What did not go well?

Which elements we can use in other nudges?

What should we do differently next time?

What we learned?

Other remarks:

Thanks for the team!

More tools for designing nudges

If you're interested in learning more about applying design thinking, **check out the additional materials**:

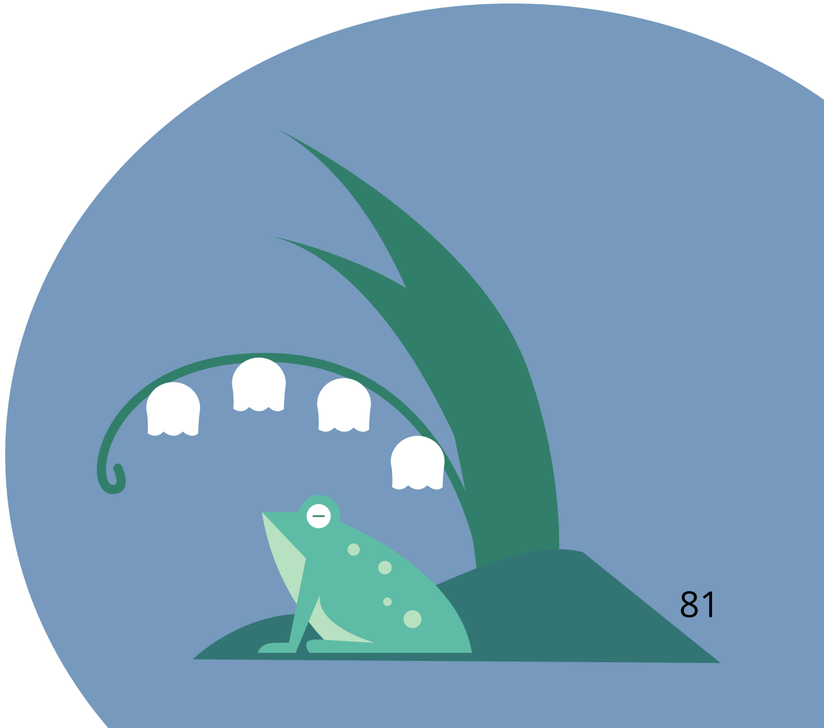
Marc Stickdorn, Markus Hormess, Adam Lawrence, Jacob Schneider (2018): This is Service Design Doing. O'Reilly Media Inc.

Marc Stickdorn, Marc & Jacob Schneider (2021): This is Service Design Thinking. 9th edition. BIS Publishers.

Service Design Network: https://www.service-design-network.org/

Service Design Tools: https://servicedesigntools.org/

The Fountain Institute: The Fountain Institute: https://www.thefountaininstitute.com/blog/free-design-toolkits



Key takeaways

Design thinking is a problem-solving approach that focuses on understanding people's needs, brainstorming ideas, and testing solutions to improve products, services, or experiences.

It emphasizes empathy, collaboration, embracing ambiguity, curiosity, and taking action.

When designing nudges, it is good to proceed with small experiments and learn from them.

Experiments can be used to test citizen engagement and acceptance and develop networks of action with various stakeholders.

Although the experiments are agile, it must be noted that achieving long-term change and networks requires persistent work.

Co-creation is the core of design thinking. This section presents tools that can be used to understand different target groups and document information.

Co-creation is worth doing throughout the project. A workshop is not the only way, but you can organize low-threshold ideation and sharing of ideas so that the developed plans can be refined into more functional ones.

Creativity and flexibility are allowed in the use of tools. There are plenty of tools available for service design. You can shape the tools to your own needs and use them creatively.

You learn something new from each design process and get ideas for utilizing the tools through practice.

Conclusion

Some reflections on co-creating nudges and other interventions for sustainable mobility:

- When designing interventions and nudges, it's beneficial to use the six-step guide for co-creation and complement it with practical design tools. Understanding the target audience and stakeholders, and considering context and timing, will help create nudges that are engaging, relevant, and fun.
- Nudging is rarely effective as the sole strategy for changing behavior, especially when tackling complex challenges such as climate change mitigation. However, nudges can be a useful part of a broader toolkit for influencing change at both individual and organizational levels.
- Interventions don’t happen in a vacuum. They take place within networks of actors and existing services. Engaging stakeholders early in the process helps ensure the design is grounded in reality, supports fruitful collaboration, and allows for scaling.
- A variety of data sources and methods should be used in the design process. Effectiveness is context-dependent. Understanding the target group and timing are critical for impact.
- The core idea of nudging is to make the desired action easy and low-cost. However, designing interventions, collaborating with stakeholders, and managing projects require resources and commitment from the nudge team—this should be taken into account during planning.
- Collaboration across sector boundaries and the integration of diverse perspectives and areas of expertise can enrich the design of nudges. Expose yourselves to listening and understanding a wide range of stakeholders and by using co-creation methods, you can develop engaging and compelling nudges together.
- One-shot nudges that create lasting change in a single intervention are rarely realistic. Instead, it’s often necessary to experiment, evaluate what works, and continuously refine the approach based on what is learned.
- Designing interventions doesn’t always lead to perfect results right away, and that’s normal and part of the learning process. That’s why evaluation and learning from experiments and pilots are essential parts of the process.

Literature list

In this chapter the topics are:

- Literature list

Jump to the content by clicking it!

Literature list

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