

# Nudging Behavioral change with recommenders

Personalization and behavioral analytics for healthier decision making.

## Media Futures



Figure1: Personalization and nudging process

## Abstract

Human preferences, subsequent decision-making and behaviors are very context-dependent. Our fast and intuitive system of thinking that drives most of our decisions is prone to bias and heuristics. Furthermore, in today's world digital tools move beyond a place for sharing and entertainment, to be an essential part of the behavioral and humanistic part of every fabric of society, such a tool confronts people to perform the right choice regarding the endless amount of information to process. Whereas recommender systems can present personalized content based on what users liked in the past, nudges can steer decision-making in an interface and other choices architectures.

In my Ph.D. project, I will investigate the use of nudge mechanisms and recommend systems to assist and enhance users' decision-making and to promote beneficial behaviors in the digital environment.

## Research question

1. What types of nudging mechanisms exist and which of them are researched within the food domain digitally?
2. What types of nudging work best to steer the user towards healthy decision in online environment?
3. How to develop and evaluate a framework to incorporate personalization and nudging to promote a healthier, sophisticated, and sustainable diet in digital environments?

Recommender systems is a multi-disciplinary field that is based on the idea of retrieving relevant information for users in a specific context. Recently recommenders were regarded as a panacea in terms of personalization as they found success in numerous domains [1] (entertainment, health, food, e-commerce, education, immigration,...). In general, the personalization process is base either on three types of intelligence mechanisms :

- Collaborative filtering
- Content-based filtering
- Hybrid filtering

Personalization, mainly based on user preferences, and in terms of diet most of our preferences, healthy and unhealthy ones. As a supporting tool for better decision-making, nudging interventions have been used in this direction. Mainly as most of the nudging mechanisms are related to psychology & behavioral sciences [2], the collection of nudge approaches can be clustered under three groups:

- a) Cognitive nudges
- b) Effective nudges
- c) Behavioral Nudges

## Conclusion

The project aims to develop and evaluate recommender algorithms and nudging mechanisms to steer user behavior towards more healthy, sophisticated, and sustainable content. As illustrated in the figure, by analyzing the user data and preferences the recommenders will accurately personalize the content for each user. Nudges will support the user to make a better choice that reflects those preferences and goals.

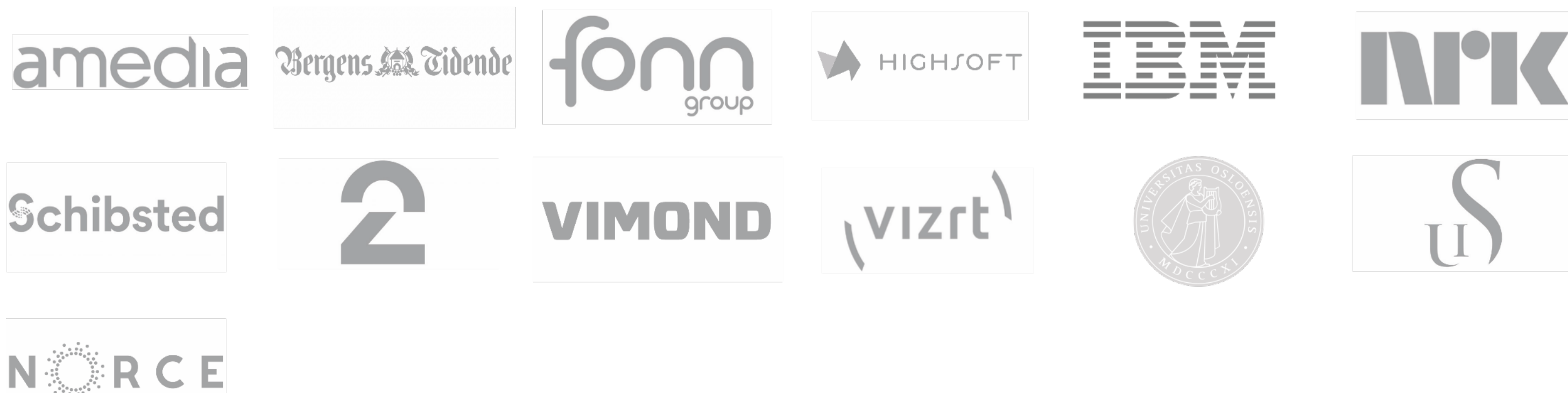
[1] Jannach, D., & Jugovac, M. (2019). Measuring the business value of recommender systems. *ACM Transactions on Management Information Systems (TMIS)*, 10(4), 1–23.

[2] Blackford, B. (2021). Nudging interventions on sustainable food consumption: a systematic review. *the journal of population and sustainability*, 5(2), 17–62.

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