

# Final Report 4TU.NIRICT “Food RecSys”

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**Co-applicants:**

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**Time Frame of Project:** November-December 2021

**Funds allocated:** €13,900

**Scope of Project:** Preparation of a grant application for the NWO Science Open Competition M-2 call

## Overview of Activities & Main Results

The team started with establishing a timeline for how to approach this challenge and which activities should be undertaken when. The main applicant took a leading role.

The employed activities could be broken down into three different phases:

1. Defining the problem area for which funding would be asked
2. Finding appropriate scientific partners and industry collaborators
3. Writing the grant proposal

### 1. Defining the problem area

The grant proposal addresses the practical use of food recommender systems in online supermarkets. Recommender systems are a set of algorithms and interface that retrieve and present personalized content to users, based on what they liked in the past. In the context of food, this would entail that a user who previously bought fusilli at online supermarket (e.g., Albert Heijn or Picnic) or bookmarked a recipe that contained fusilli (e.g., fusilli chicken pesto at [allerhande.nl](http://allerhande.nl)), would be recommended related products (e.g., spaghetti) or recipes that contained a similar ingredient (e.g., fusilli with carbonara sauce).

The main problem area that has been identified is that such algorithms have a hard time in keeping up with changing food preferences. Such changes can boil down to people attaining a new eating goal (e.g., losing weight), avoiding specific nutrients (e.g., due to a new allergy), or a change in lifestyle or a personal situation (e.g., avoiding fresh fish products while being pregnant). The assumption for most algorithms is that ‘business as usual’ leads to the highest retention rate (e.g., measured in terms of the click-through-rate or sales), while algorithms that could signal these changes and would be sensitive to them would be more effective. Moreover, differences in how the interface can present recipes and food products (e.g., through nudges) might also help.

This was established and reported over the course of a few meetings. In addition to these, the main applicant would also conduct literature searches.

## 2. Finding appropriate scientific and industry partners

The expertise of the applicant group comprised recommender system research (particularly in the sustainability domain), judgment and decision-making (psychology, nudging), and food research (particularly in the consumer domain).

In terms of the academic team, we sought more depth in the human-computer interaction domain with people who are more experienced with health-related personalization. To this end, we are happy to have added Hanna Hauptmann and Christine Bauer, both assistant professors at University Utrecht, to our project consortium. This new collaboration between WUR, UU, and TU/e is one of the important outcomes of the 'Food RecSys' project.

In terms of industry collaborations, the main applicant got in touch with several potential partners. Most notably, he visited the headquarters of grocery delivery service Picnic, who are also experienced in using recommender systems to predict what a customer would like to buy next. We are still in touch with them and this new collaboration is expected to not only be valuable within the Food RecSys project, but also beyond it.

## 3. Writing the grant proposal

In December, the writing of the grant proposal was initiated. Lead on the writing process was taken by the main applicant, supported by the extended project consortium. Although the full proposal was not submitted by the end of the project date for which funding by NIRICT was allocated, it will be submitted by the end of February 2022 to the NWO Science Open Competition M-2 call. Consequently, this will be the main result or outcome from this 'Food RecSys' project.