



FUSIONS Feasibility Study Order Cook Pay

WP4 & Task 4.2

Date: 2015-10-26

Reducing food waste through social innovation

FUSIONS EU project is supported by the European Community's Seventh Framework Programme under Grant Agreement no. 311972.



Colophon

Title:	FUSIONS Feasibility Study Order Cook Pay
Authors:	Ulla-Karin Barr, Jenny Gustavsson, Karin Östergren, SP Food and Bioscience ¹ , Sweden
Project leader	Ulla-Karin Barr, SP Food and Bioscience, Sweden
Keywords	Food waste, School kitchen, Social innovation
Clients	European Commission (FP7), Coordination and Support Action – CSA Contract number: 311972
Project leader	FUSIONS coordinators: Toine Timmermans, Hilke Bos-Brouwers Wageningen UR - Food Biobased Research, The Netherlands Project leader WP4: Sophie Easteal, Elaine Charlesworth WRAP, UK

Project partners and their roles

Name	Organisation	Role in project	Relationship to FUSIONS
Camilla Byrinder	Qualifare (QF)	Inventor, technical support OCP introduction	
Christina Skjöldebrand	CFB	Project leader Vinnova part of the project, Senior scientist	
Anki Sundin	NGruppen (NG)	Behaviour study and nutrition	
Martin Larsson	Forerunner (FR)	Behaviour study	
Patrik Djurberg	Grace Organic (GO)	Food Tracker support and introduction	FUSIONS Member
Klas Lilja	InfoMentor (IM)	OCP program support	
Ulla-Karin Barr	SIK/SP Food and Bioscience	Project leader FUSIONS part of the project	FUSIONS Partner
Christel Esbjörnsson	SIK/SP Food and Bioscience	Waste studies, improvement support	FUSIONS Partner
Jenny Gustavsson	SIK/SP Food and Bioscience	Assisting Ulla-Karin in the lead of the project	FUSIONS Partner
Karin Östergren	SIK/SP Food and Bioscience	Supporting in teh reporting pahse	FUSIONS Partner

"All rights reserved. No part of this publication may be reproduced, stored in a retrieval system of any nature, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher. The publisher does not accept any liability for inaccuracies in this report".

Göteborg 2015-10-26.

¹ On 1 January 2015, SIK – the Swedish Institute for Food and Biotechnology (SIK) formed a new unit in the parent company SP Technical Research Institute of Sweden. The name of the unit is SP Food and Bioscience (SP).

Summary

A large portion of food waste in Sweden's school kitchens' is caused by overproduction due to lack of information on the number of pupils who will eat and which dishes they will eat. The portion number to prepare each day is often estimated by prognoses, and the Order Cook Pay Project (OCP) project focused on the possibility of planning the number of portions based on actual demand, by changing traditional ways of working.

The project aim was to focus on reducing food waste within the school environment. During this process it would create and develop new/better social relations between school kitchen staff, pupils (their parents) and teachers by introducing a technology to determine how many meals to prepare each day. Additionally the project identified the possibility to use the results as part of different school subjects in Sweden. This would be done through teaching about the benefits of the technology - and the broader issue of food waste (e.g. maths, geography, science etc.); thus raising awareness.

The key objective of this feasibility study was to demonstrate the use of new technology to support the user (i.e. mainly school canteens, but also potentially workplace canteens) in meal-planning. This, in turn, was expected to lead to 10-50% waste reduction of kitchen waste (not plate waste). A planned output of the feasibility study was to produce guidance to enable the effective implementation of the technology to more school canteens (and other types of canteen) to improve the resource efficiency of the Swedish food supply chain.

A long term goal of the project was that 100% of the pupils present at school are eating at the school canteens, where they can choose among one or up to three different nutritious meals without overproduction. By engaging the staff, teachers and pupils the planning can be improved and the overproduction can be decreased. This in turn would be expected to lead to less food waste, a meal with a better nutritional value due to a better planning leading to a shorter time between cooking and serving and finally more satisfied pupils that can perform better in school.

Despite nearly 10 months of efforts to recruit municipalities, and two and a half person months of project management time invested in time, the project group came to the conclusion that it was not possible to establish the project as planned within the time frame of FUSIONS, and due to financial limitations for the external project group. The project was therefore stopped ahead of time. However the project team still considers the project idea to have high value and hope that the timing in the future will be better.

The concepts of this project are very much developed in a Swedish context but can be developed in other contexts as well. Many of the learnings from trying to implement this project are however general, in particular we do recommend to start this kind of project in a much smaller scale and to allow the built up of trust and engagement within the municipalities and schools/school kitchens. It is important to understand that this process takes time and effort.

Contents

1	Description of project and project plan	5
	1.1 The role of Swedish school canteens in a Swedish context	5
	1.2 Objectives	6
	1.3 Project team	6
	1.4 Project plan	7
2	Efforts for facilitating the project.	9
	2.1 Efforts made to recruit participating municipalities/school kitchen	9
3	Lessons	11
	3.1 On the time plan	11
	3.2 On the financing	11
	3.3 On the project content	12

1 Description of project and project plan

1.1 The role of Swedish school canteens in a Swedish context

By tradition Swedish schools have served school lunches in over hundred years and the right to a free school lunch is now also regulated by law¹. Sweden, Finland and Estonia are the only countries in the world where each student in primary school has the right, by law, to have one free school lunch per day. The UK offers primary school children the right to a free school meal up to the age of 6. Since 2011 there is also a requirement in Sweden that the school lunches should be nutritious. Each child in Sweden is served about 2000 school lunches during his/ her years in school.

The school lunches are served in canteens at school. The canteens either prepare their food themselves or get the food pre-prepared from a common central kitchen. The municipalities in Sweden carry the responsibility for the school lunches. The costs of a school lunch varies between municipalities in Sweden. A survey shows that the range is typically between 0,7 and 2 Euros (6-16 SEK).

Further on it is stated in the general curriculums given for schools in Sweden that each student when leaving school "should have knowledge and understanding of the impacts of his/her lifestyle on health, environment and society". School lunches can thus be considered as an important educational tool for achieving these goals.

Each year 10 000 -30,000 tons (Swedish National Food Agency), or more, (Swedish Environmental Protection Agency) of food is wasted in the Swedish school canteens.. If less food was wasted the money saved could be used for buying higher quality of food, more organic food or to make the school restaurants more attractive and inviting for the schoolchildren which in turns would pay back by that that they eat better and perform better in school.

A large portion of school kitchens' food waste is caused by overproduction due to lack of information on the number of pupils who will eat from day to day. The portion number to prepare each day is often estimated by prognoses. The OCP (Order-Cook Pay) project focuses on the possibility of planning the number of portions required each day based on actual demand and by changing traditional ways of working.

A second component being of importance and pre-requisite for this project is the widespread use of web-based platforms in school aimed for administration and follow-up. Through these platforms the school children and parents can download and submit important documents/information on meetings, tests, schedules etc. as well check/report absence. Attendance is reported by teachers during the school day and parents are required to report the absence of a schoolchild by telephone or by using the web.

¹ The Swedish school law, Skollagen, 1997

By integrating a component aimed for better planning of school meals in such system could be very effective and not technically complicated since the framework/platform already is in place. The collaboration with such school web platform provider was a fundamental part of the Order-cook Pay project.

1.2 Objectives

The project aim was to focus on reducing food waste within the school environment. During this process it would create and develop new/better social relations between school kitchen staff, pupils (their parents) and teachers by introducing a technology to determine how many meals to prepare each day. Additionally the project identified the possibility to use the results as part of different school subjects in Sweden. This would be done through teaching about the benefits of the technology - and the broader issue of food (e.g. embedded into math's, geography, science teaching in line with normal topic-based cross subject teaching in primary school.); thus raising awareness.

The key objective of this feasibility study was to demonstrate the use of new technology to support the user (mainly school canteens, but also potential work place canteens in the future) in the meal-planning. This in turn was expected to lead to 10-50% waste reduction of kitchen waste (not plate waste). A planned output of the feasibility study was to produce guidance to enable the effective implementation of the technology to more school canteens to improve the resource efficiency.

The new technology is thought to be of the format of an application, in this case connected to the web based platform already in use, to be used by the teacher/student to report on attendance, preference of food and other relevant information to improve the planning of the school meals. Along with the application educational material and support how to use the technology was to be developed. One part of the development of educational materials included guidelines on how to ask the pupils, children and young teenagers on their food preferences, which could be very sensitive considering many teenagers complex relation to food and eating habits and eating disorders as anorexia and bulimia.

1.3 Project team

Camilla Byrinder (Qualifare (QF)) is the inventor and owner of the idea of the OCP tool. *Christina Skjöldebrand* (CFB) is a senior scientist and carries the scientific responsibility of the research parts planned. She served as Project leader for the proposal to the Swedish Innovation Agency (see below). *Anki Sundin* is a consultant within the NGruppen (NG) and is specialist on behaviour study and nutrition and *Martin Larsson* from Forerunner (FR) another expert on behaviour study. The later experts were to support into developing teaching material how to communicate on food with young people. *Klas Lilja* from InfoMentor (IM) owns the technical platform to which the OCP was to be aligned and InfoMentor carried the responsible for the programming needed to develop the app and connect it to the web based platform. *Patrik Djurberg* from Grace Organic (GO) was to be engaged for facilitating the quantification of the food waste in the school kitchens using the Food Tracker (FT) (FUSIONS member) to be able to collect food waste in a comparable and objective manner during the course of the project.

5 Municipalities were to be engaged during the course of the project. The plan was to approach the municipalities differently to be able to evaluate the impact on waste reduction by education of the staff, by measuring the waste using the Food Tracker and by measuring and educating and by full implementation of the OCP tool providing a refined update to the kitchen on how many that will eat and what they will eat (and when if relevant).

Ulla-Karin Barr has been project leader assisted by *Christel Esbjörnsson*, *Jenny Gustavsson* and *Karin Östergren* all from SP Food and Bioscience (FUSIONS partners). The Role of SP Food and Bioscience was to lead the project, report and evaluate the results making use if the indicators developed specifically for the feasibility studies.

1.4 Project plan

A project plan was set up and the major tasks are described in brief below. The bold part indicates how far the project was run before interrupted.

Task	Description of task
1	Proposal for external funding from The Swedish Innovation Agency, Vinnova to be able to support the partner not beign FUSIONS partners
2	Internal start meeting for the core partners
3	Engaging municipalites
4	External start meeting with Municipalities
4:1	Waste reduction
4:2	Change management
4:3	Result and classroom discussion
5	New software developed for the OCP tool
6	Measurements of reference level of waste without support from OCP tool and Food Tracker (Food Tracker)
6:1	First test of reference measuring
6:2	Mid results from reference measuring
6:3	Final results without support from OCP tool and Food Tracker
7	Measurements of waste level with support from OCP tool and Food Tracker (FT)
7:1	First test of measuring with support from OCP tool and Food Tracker
7:2	Mid results from test with support from OCP tool and Food Tracker
7.3	Final results with support from OCP tool and Food Tracker
8	Project meeting disussing the results of the measurements
9	Best practice of introducing new tools to reach sustainable results
9:1	Test of best practice to introduce OCP tool, FT and change management
9:2	Mid results from best practice to introduce OCP tool, FT and change management
9:3	Best practice of introducing OCP tool, FT and change management
10	Dissemination

Besides the work described above four project meetings were held with at least three of the project partners represented and a number internal working meetings with just a few project participants were held. The project was presented at the second RPM at Stockholm and in co-operation with WRAP a short film on the project was recorded. The planned time and used time is given below:

Partner	Role	Planned time (PM)	Used time (PM)
SP Food Bioscience (SIK)	Project leader	2,7	1,0
Millas&QualiFare	Technician / Order cook pay inventor	1,1	0,7
InfoMentor	Programsupport	1,3	0,2
IDA/Västerås	Behavior study	1,4	0,1
NGruppen	Behavior study / nutrition	0,6	0,1
CFB	Senior scientist/	0,8	0,3
Municipal	School and kitchen personal	2,6	0,0
Total		10,5	2,5

Grey shaded= external partner not being financed by FUSIONS

2 Efforts for facilitating the project.

A proposal for additional support was handed in to VINNOVA (Sweden's innovation agency) accruing to the plan to be able to cover the costs of the non-FUSIONS participants. Qualifare and CFB were mainly involved in the application, supported by SP, NGruppen and Forerunner. Unfortunately the proposal was not approved.

To cover the cost, negotiations were held with different county boards and county councils aiming to cover (50%) of the costs for the participating municipalities. The negotiations was carried out by Qualifare and continued between early summer 2014 and October 2014. A number of county councils were close to approving this outline and pilot school kitchen in these county councils were encouraged to participate in the project.

The climate change strategists in the county boards approached above were encouraged to contribute with partial financing if the municipalities approved to participate and financing the other 50%. The county boards were positive to participate since it was in line with their climate change strategic work. Efforts were made to support in negotiations with the municipalities, by encouraging the county boards to approve financing the project even before the municipalities had approved to participate.

The possibility to apply for funding from various trusts was also considered, but since the county boards at the time being were considered interested enough, this was not realised.

Various materials were produced within the project as support for recruiting financiers and participants:

- Invitation to municipalities, a Power Point and a folder
- Presentation for the FUSIONS Regional Platform Meeting in Stockholm
- Presentation for the WP4 Feasibility Study Videos

2.1 Efforts made to recruit participating municipalities/school kitchen

Originally, about 40 municipalities were contacted aiming to recruit about five municipalities to the project which would contribute with about 15 000 EUR each, corresponding to about one fifth of the project costs not covered by FUSIONS. In total 75 000 EUR. The municipalities were contacted during the beginning of the summer and answers were awaited until after the summer 2014.

Five municipalities showed big interest in participating in the project but choose, for various reasons, not to participate. The reason in one of the municipalities was illness. Another reason was that there was not enough time due to other projects and that the municipalities did not feel mature to start up this kind of pioneering project. In all of the municipalities, the public health planner was the person considered as contact person.

One of the municipalities had previously collaborated successfully with the behavioural scientist engaged in the project, so there were high hopes that this municipality would participate being the first pilot. However late 2014 fall the municipality decided to withdraw from the project and as a consequence also the financing from the county board was withdrawn. Qualifare, responsible for most of the work with recruiting municipalities, no longer considers it reasonable to recruit five municipalities within the remaining project timeframe set by the FUSIONS project.

Alternative project plans were discussed aiming at following up on the planning only applying part of the OCP-idea by providing the number of present without addressing the social relations between the staff the teacher and the guests. Such project would have a very small social innovation potential and the idea was rejected by the coordinators of the FUSIONS feasibility study. The application of the idea on other canteens were considered as well, but since the OCP solution is designed for a large web based management platform developed for schools the application to other canteens were not a realistic solution since such change would require a complete different set up of the project.

Due to the considerations above it was decided to stop the project for the time being.

However, we still consider the project idea to have a high value, considering the role of the school canteens in the Swedish society and the amount of waste generated together with the potential savings to be made, but the market was not mature enough and the time was not right to test it to the cost and the engagement that it requires. The learning was that this type of innovative project is hard to fit into a project like FUSIONS with a strict time line and format of financing. More time would have been needed to let to allow the idea to mature and to capture the right moment of starting such a project.

3 Lessons

3.1 On the time plan

The time allocated to recruit municipalities to the project and with the actual cost were highly underestimated (see section 1.4), the time for the municipalities' internal processes of making decisions was also underestimated.

A possible reason for failing recruiting is that on one hand the ambition to reduce waste is mainly on the municipality level but the actual work needed to be carried out by at the different school kitchens where the benefit may not be seen. To involve the pupils, teachers and parents adds even more complexity to the project. A pilot project as this will always require some extra time and the municipality cannot require a school kitchen and school to devote their time to tasks not planned for, thus the success heavily relies on a combination of engaged people within the municipality, school kitchens and the school itself. Time is thus needed for building trust and relationships and time to request for extra resources.

Another constraint for this project was that the technical solution to be developed was intimately connected to an existing web based platform for schools. This limited the number of municipalities that could be engaged, although it is widely used platform it is not the only one on the market. On the other hand, without the infrastructure provided by the platform owner Informentor the project had not been feasible at all at least not in a larger scale.

We have learned from this project as well (as from other projects involving school kitchen carried out in parallel) that there must be enough time for the kitchen staff themselves to find and implement new ways of working and to learn how to use technical supporting tools and how to make use of them.

3.2 On the financing

It was more difficult than expected to involve the municipalities into also financing the project. Considering the municipalities budget for a given year is negotiated the fall before which makes a lead time for financing at actual level to be something between 1 and 1,5 year depending on when the discussions starts. Further on it might be difficult to get approval to test something that is not yet developed. Thus the introduction of a new idea is very much dependent on frontrunners.

Further on the leadtime for getting external funding from open calls was too long to fit into the FUSIONS planning.

3.3 On the project content

The idea of taking a holistic perspective besides involving behavioural scientists covering the child perspective was strengthened throughout the project discussions. The project team is convinced that by involving staff, teachers and pupils will lead to engagement and dedicated schools supporting the kitchens efforts to cook good and nutritional food without overproduction. In this context the OCP tool is a potentially important tool.

Further on a vision creating engagement was formulated. The goal for school kitchen will always be that "100% of the pupils should eat their food" so that they are satisfied and can perform well in class. The focus needs to be switched to something positive (children full of energy!) to create the needed engagement for the project! Note that practically this change in perspective does not change the original approach it is just a way to put another and more attractive approach to a given problem.

The approach taken in the OCP project is expected to lead to less waste in the canteens, a meal with a better nutritional value due to a better planning (leading to a shorter time between cooking and serving) and finally more satisfied pupils that can perform better in school.

The concept of this project is very much developed in a Swedish context as described but can be developed in other context as well. Many of the learnings trying to implement this project are however general, in particular we do recommend to start this kind of project in a much smaller scale and to allow the built up of trust and engagement within the municipalities and schools/school kitchens. It is important to understand that this process takes time and efforts. About 10 months were spent to get the project on track, 2,5 PM in time in total was invested, before it was decided to end the Feasibility study OCP.

A similar project: During spring 2015 two schools have tried another solution of the same problem. This solution (MealMan) was developed as a result on pupils concern that there should be more over production when during 2014 the canteen started to offer three different dishes every meal. This pilot project² was set up between the kitchen organisation, school and a parent working at an IT company.

² <http://www.metro.se/nyheter/eleverna-far-valja-skolmat-med-hjalp-av-en-app/EVHody!WDs2AqkINQikk/>

Title: FUSIONS Feasibility Study Order Cook Pay

Name: SP Food and Bioscience, Sweden
Phone: +46105165000
E-mail first name.last name@sp.se
Website:www.sp.se

