



Marie Skłodowska-Curie Actions (MSCA)

Research and Innovation Staff Exchange (RISE)

H2020-MSCA-RISE-2014

Grant agreement no: 643999

Work Package 5 – Institute Paul Bocuse

Prototype validation, proof of concept

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the European Community's financial support under the RISE Programme for Support for training and career development of researchers (Marie Curie).

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Introduction

This report disseminates Work Package 5 – Prototype validation, proof of concept led by the Institute Paul Bocuse: The objective of WP5 is to evaluate and validate the application with the end-user in a real-life foodservice situation. Visual search tasks largely unexplored in the research on nutrition labels within menus constitute an effective research paradigm to explore and quantify the determinants of bottom –up attention to menu information without such assessments being affected by higher order information processing. The underlying assumption is that the search task is easier (i.e. faster response and fewer mistakes) if the information is relevant, having a higher salience than other information.

Processing capacity may be allocated to specific stimuli because of ‘enduring dispositions’ and ‘momentary intentions’, in other words attention may be directed towards a stimulus because it is meaningful in relation to the consumer’s goals or because the stimulus stands out as particularly salient within the visual field. The information itself will be characterised by its physical characteristics size, colour, shape, location, orientation, brightness, luminance and contrast. Attention may be further affected by characteristics of the macro-context specially product assortment and other factors inherent within a choice context. **(D5); Milestone three**



RESEARCH
Science & Innovation

Context

- FoodSMART is a European project bringing together 5 public and private partners:



RESEARCH
Science & Innovation



ronge & partner
best culinary coaching



- The main goal of FoodSMART is to provide a flexible, customizable and accessible mobile interface and improved menu design that delivers a personalized dietary recommendation across public sector settings.

<https://www.youtube.com/watch?v=xfcPKljZV1o>

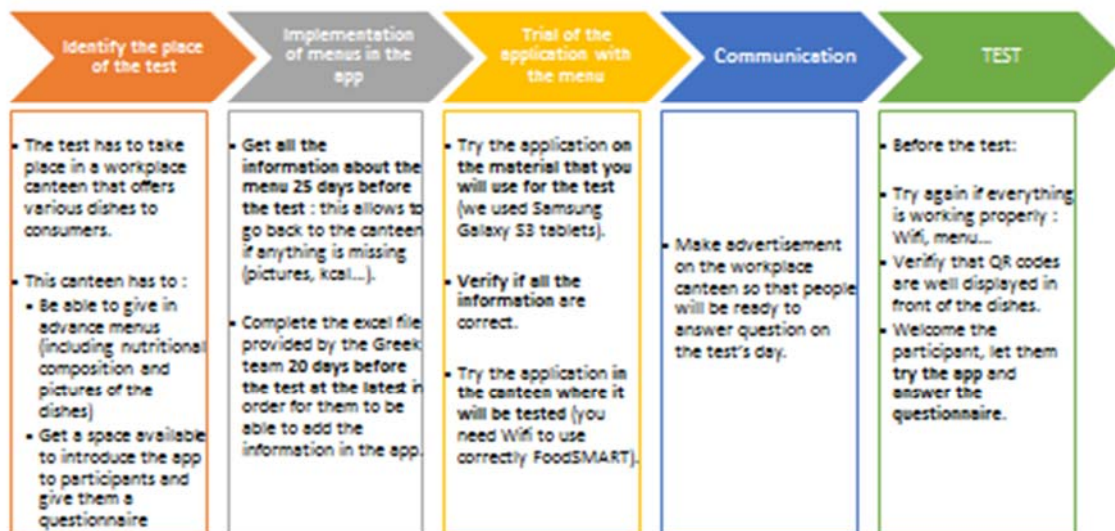
- After defining consumer’s expectations via focus groups in France, Denmark and UK, FoodSMART has been developed and is now an operational app.
- Today, in WP5, we want to test this with the end-user in a real-life foodservice situation.

Methodology

Firstly within development of the FoodSMART prototype, Stage 1 (analysis) and Stage 2 (design) produced a list of requirements from industry stakeholders and consumers (WP 2) to create a working system for evaluation in a real life canteen. Development included file structure to store data, validation rules and pilot user-interface evaluation by The System Usability Scale (SUS). This provides a reliable tool for measuring the usability. It consists of a 10 item questionnaire with five response options for respondents; from Strongly agree to Strongly disagree. SUS has become an industry standard, with references in over 1300 articles and publications. The noted benefits of using SUS include it is an easy scale to administer to participants, it can be used on small sample sizes with reliable results and is valid – it can effectively differentiate between usable and unusable systems. Both the app and SUS evaluation were pre tested in English before being translated into French (Annex 1).

Test organization

- Here are the main steps that we followed to organize the test.



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A workplace canteen was selected which caters for 450 consumers per day.

3. Trial of the app with the menu

- We used Galaxy S3 tablets to show FoodSMART to participants. They were able to navigate in the app following their interests.
- All the information need to be verified before the test in order to be sure and everything is correct.



4. Communication

- Clients of the canteen need to be aware of the test in order to make them participate.
- We put flyers indicating the purpose of the project to inform them.

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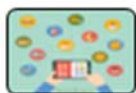
5. Test - Questionnaire

- The questionnaire included 25 questions in 4 parts



PART 1 : System usability scale questionnaire

- Agreement questions regarding the usability of the app.



PART 2 : Use of the application

- Useful information following the respondent.
- Information that the respondent would like to find



PART 3 : Habits

- Lunch habit
- Smartphone and food related app habits



PART 4 :

Socio-demographic characteristics

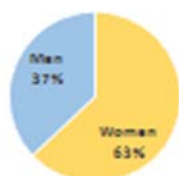
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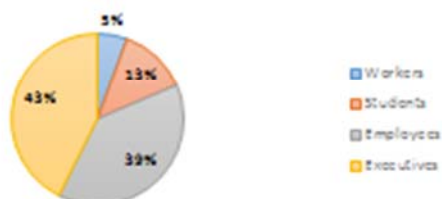
Results

Participants of the Pilot test

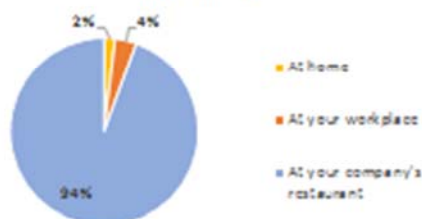
Distribution of respondents by gender (n=54)



Distribution of participants by socio-professional category (n=54)



Where do you usually eat for lunch during the week? (n=54)

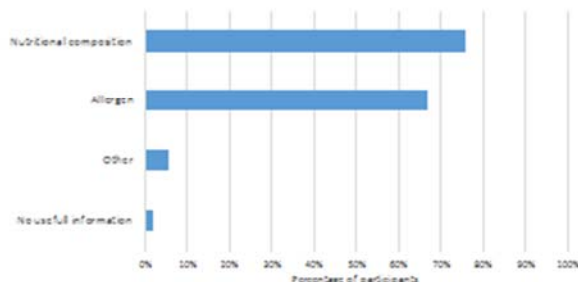


- 54 customers of workplace canteen were interrogated, 63% of them were women.
- Executives and employees represent the majority of the canteen's clients, they represent respectively 43% and 39% of the respondents.
- The average age of participants is 39 (+/- 12) years old.
- 94% usually eat at their company's restaurant for lunch during the week.

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Use of the application

What information did you find useful when using FoodSMART app? (n=54)



Would you like to have access to these information daily at your company's restaurant? (n=54)



- Participants were interested by FoodSMART and the information provided. 76% of them were particularly interested in nutritional composition of their dishes and 67% in allergen.
- 80% of participants would like to have access to this information daily at their company's restaurant.
- Participants found FoodSMART easy to use - 89% of participants agree that "most people would learn to use this app very quickly".
- And 73% disagree that the "need to learn a lot of things before they could use it".
- Overall, this application appears not complex, easy to use and could be used frequently (83%).

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- **19 participants (35%)** would be interested to get more information thanks to FoodSMART.
- They would be mostly interested to get :
 - The origin of the ingredients (n=6)
 - Menu suggestions, for example to get to the total amount of calories they selected (n=5)
 - Detailed amount of calories / nutritional composition (which is already provided)
 - Presence of gluten (n=2)

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Discussion

Most consumers support calorie labelling on restaurant menus and nearly half report that it would inform their food choices, especially women (Sinclair et al., 2014). However, information is not always available or accessible (Roberto et al., 2010) or presented in a contextual or interpretive format (Sinclair et al., 2014). There is significant concern over the nutritional impact of modern eating habits and a realisation that there is a link between this and information provision (Feldman et al., 2015). In out-of-home eating, the innovative use of technology (ICT) can be used to develop an interactive platform to guide food choice. Studies have shown that text messages, for example, can be highly effective tools to support behavioural interventions (Guy et al., 2013), and similarly, smartphone/tablet apps can be seen as innovative in terms of delivering individual health behaviour change en-masse. Foodservice operators are now beginning to explore the digital space, from social media to digital signage to marketing, but the use of such technologies currently remains limited and niche although it is rising (Mintel, 2015). Promoting interactivity, these different approaches to information provision open new channels of communication between operators and consumers (Valdivieso-López et al., 2013). Furthermore, using the digital space offers the key benefit that increased personalisation can be enabled, allowing the needs of different consumers to be met in an optimal manner (Lowe et al., 2013). From a business perspective, technology can be used to add value and specifically address certain consumer segments (Lowe et al., 2013).

Previous research based on the retail market has demonstrated that non-directive labels with high information content have many attributes that make people believe that they are being given important evidence. Even if the actual content is not used, consumers are reassured by the fact that the information is there (Hoefkens et al., 2011). In retail situations, individuals tend to process information in a more heuristic style i.e. quickly and superficially, using mental shortcuts to process evidence, such as associating a red colouring as bad without the need to examine the actual data. In a foodservice environment where the pace is more leisurely, consumers will engage in more

elaborate systematic processing (Van Herpen et al., 2012) although the traffic light guidance within this app was well received. Notwithstanding, even knowledgeable individuals often struggle to estimate the number of calories in eating out; thus when diners are confronted with accurate information, their attitude towards specific menu items can change, especially towards those dishes that are not aligned with expectation. 'Surprising' menu items such as high calorie salads are likely to experience the most dramatic shift in attitude and purchase intention (Ellison et al., 2013). Significant debate exists amongst stakeholders as to the best labelling approach but very little dish information is currently available in out-of home situations. Digital or e-menus can deliver richer information contexts and offer transparency to the food service operator, while allowing evidence of greater integrity (Hartwell et al., 2016). Studies have examined the use of QR codes on menus to provide additional information, however although this method delivers a convenient form of information provision, its potential use in providing nutrition intelligence has not been fully explored either in retail or eating out (Sanz-Valero et al., 2015), making the results of this pilot study a useful framework for WP 6 (field tests).

There is a clear need from both a consumer and legislative perspective (allergens) for greater information provision. For any such digital initiative to be effective, however, it is useful to consider the determinants of consumers' likely acceptance. The Technology Acceptance Model (Davis 1989) has been well used to understand consumers attitudes towards new technologies, and while studies have critiqued and added to its constructs, it remains the most widely-cited approach in its field. Davis proposes that the key determinants of customer acceptance and adoption are perceived usefulness and perceived ease of use. Perceived usefulness is defined as the extent to which individuals believe their lives are enhanced, and perceived ease of use is defined as the extent to which an individual believes that using a particular system is free of effort (Tan and Chang, 2010). Wang and Wu's work (2014) adds to this by discussing the key constructs of value as perceived by consumers, namely functional factors; perceived control; usefulness and ease of use; and emotional factors around perceived enjoyment and novelty. Taken together, the contributions of Davis (1989), Tan and Chang (2010) and Wang and Wu (2014) provide a clear account of the likely determinants of consumer adoption of FoodSMART.

However, while consumer adoption of such information provision may hold benefits in itself, such as promoting a feeling of empowerment and highlighting healthier dishes and those that should be avoided due to allergies, it is not necessarily the case that it will always lead to positive outcomes in terms of healthier choices being made.

The findings from this pilot have important implications for a range of stakeholders within the foodservice industry but more importantly for consumers themselves. Consumers express a desire for more information and greater transparency around the food they are eating out of home, and to some extent, this is supported by industry. Mobile technology has been highlighted as the most effective vehicle for providing this enhanced information in a personalised and interactive manner.

Conclusion



Conclusion

- This pilot test gives us a very positive view of FoodSMART usability.
- FoodSMART appears as not complex, easy to use and could be used frequently.
- 80% of participants who like to have access to the information provided by FoodSMART on a daily bases.
- However participants are interested by the application, only 35% of participants have a food related application on their smartphone. Consequently, FoodSMART has to be **attractive** in order to be downloaded and used by people.
- To get more attractive, information could be added: ingredients' origin, quality labels...

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Annex 1; System Usability Scale Questionnaire

Questionnaire (1/2)

Q1. « J'imagine que la majorité des personnes pourraient apprendre à se servir de cette application très rapidement. »

Q2. « Je trouve cette application très complexe à utiliser. »

Q3. « Je me suis senti(x) très à l'aise en utilisant cette application. »

Q4. « J'ai eu besoin d'apprendre beaucoup de choses avant de pouvoir me servir de cette application. »

À présent, quelques questions sur les informations recherchées avec l'application :

Q11. Quelles informations avez-vous trouvées utiles lors de votre utilisation de l'application ?

Q12. Aimeriez-vous avoir accès à ces informations au quotidien dans votre restaurant ?

Q13. Aimeriez-vous pouvoir avoir accès à d'autres types d'informations concernant votre déjeuner en utilisant une application de ce type ?

Q14. Si oui, à quelles informations aimeriez-vous avoir accès ?

Q15. Avez-vous d'autres commentaires concernant l'utilisation de cette application ?

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Quelques questions sur vos habitudes

Q16. Le midi, en semaine, où mangez-vous le plus fréquemment ?

À votre domicile	Dans votre restaurant d'entreprise	Dans un restaurant extérieur à votre entreprise	Dans une cafétéria extérieure à votre entreprise	Sur votre lieu de travail (à votre poste ou en salle de pause)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Autre, précisez :

Q17. Suivez-vous un régime particulier ?
 Oui Non

Q18. Si oui, pouvez-vous préciser quel type de régime ?

Q19. Possédez-vous un smartphone ?
 Oui Non

Q20. Avez-vous des applications liées à la nourriture (recettes de cuisine, suivi de régime alimentaire...)?
 Oui Non

Q21. Si oui, pouvez-vous nommer la (les) application(s) que vous utilisez le plus fréquemment?
-
-
-

Q22. Si oui, à quelle fréquence utilisez-vous ces applications liées à la nourriture (toutes applications confondues)?
 Moins d'une fois par semaine
 1 à 2 fois par semaine
 3 à 4 fois par semaine
 1 fois / jour
 Plus d'1 fois/jour

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Questionnaire (1/2)

Pour terminer, quelques questions sur vous...

Q23. Vous êtes :
 Un homme Une femme

Q24. Votre année de naissance :

Q25. Quelle est votre catégorie socio-professionnelle ?

<input type="checkbox"/> Agriculteurs exploitants	<input type="checkbox"/> Employés	<input type="checkbox"/> Dans activité professionnelle
<input type="checkbox"/> Artisans, commerçants ou chefs d'entreprise	<input type="checkbox"/> Ouvriers	<input type="checkbox"/> Retraités
<input type="checkbox"/> Cadres ou professions libérales	<input type="checkbox"/> Étudiants	

Merci de vérifier que vous avez répondu à toutes les questions.
Nous vous remercions pour votre participation.
A bientôt !

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Annex 2: Pictures of Field Test at the workplace canteen



