



D1.3.1.1

Evaluation methods

Editor(s): Virpi Oksman

Author(s): Virpi Oksman, Tiina Kymäläinen, Sanni Siltanen, Minna Kulju, Antti Väättänen, Mari Ainasoja

Confidentiality: Public

Date and status: 30.4. 2011

This work was supported by TEKES as part of the next Media programme of TIVIT (Finnish Strategic Centre for Science, Technology and Innovation in the field of ICT)

Executive Summary

The aim of Adfeed case is to research and develop new concepts in the context of advertising in media and for involving media users in creating and sharing advertisements. In this task, we develop methods to study possibilities for combining social media features with augmented reality (AR) elements in real estate marketing and interior design.

Augmented Reality refers to system where real and virtual elements are combined in 3D coordinates in real time. Different methods are combined to research user-centred aspects and business prospects of new AR advertising concepts. The main methods developed in this task consist of scenario based surveys, focus groups and advertiser interviews and co-design workshops.

Table of Contents

Executive Summary	2
1 Introduction.....	4
1.1 Augmented Reality in real estate marketing and interior design	5
2 Concept evaluation and creation	6
3 Scenario survey	7
4 Focus groups – interior designers and design bloggers	12
4.1.1 Structure of the Focus group.....	12
4.1.2 Evaluation group	14
5 Advertiser interviews	14
References	16

1 Introduction

The aim of Adfeed case is to research and develop media advertising models in the context of advertising in media and for involving media users in creating and sharing advertisements. During 2011 the empirical research focuses on questions such as

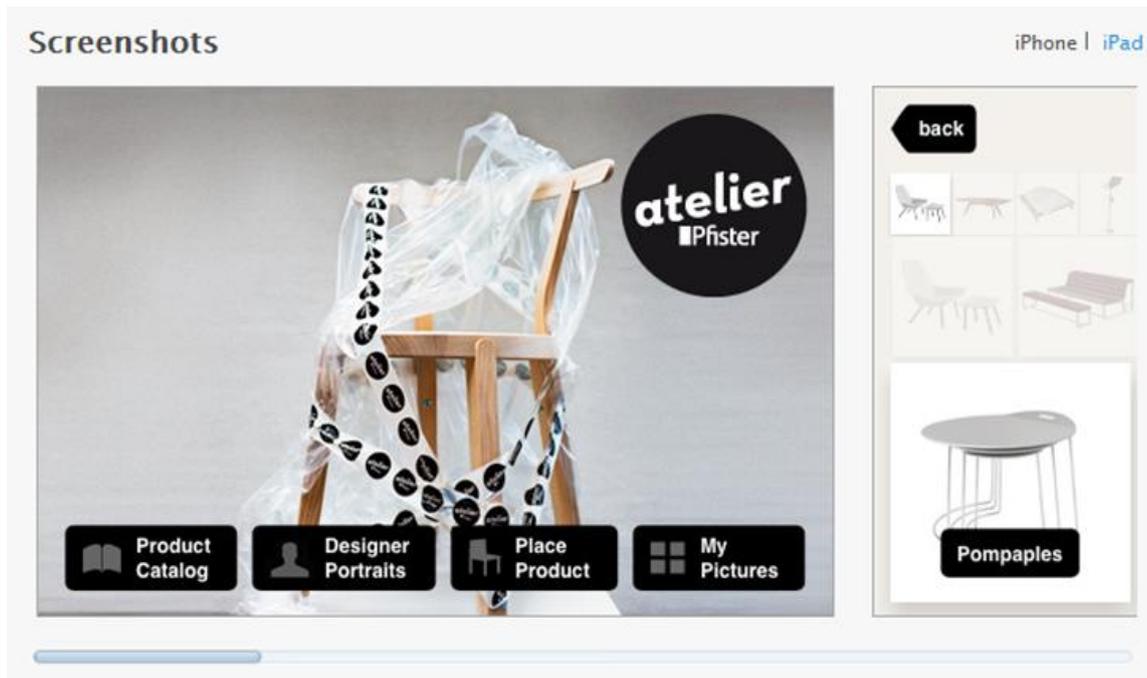
- *How consumers, communities and small companies can both make or participate in creating advertising (co-creative advertising) and share advertising by using social media (viral marketing)*
- *How consumers perceive augmented reality (AR) and location based services as a part of future advertising and what are the actual business possibilities for them within the media industry*
- *What are business prospects for the AR and social media, e.g. how in this kind of concept would co-operate the business network of bloggers, users and advertisers*

In this stage of Adfeed case we will focus on early conceptualization of new advertising applications which could combine social media, 3D modelling and/or Augmented Reality (AR). The possible area for piloting these new media advertising concepts can be found from real estate business, where AR can be used to combine real and virtual elements in home seeking, furnishing and repairing. In addition, social media features can be used to share ideas and get input from friends and family. The most interesting 1-3 preliminary concepts are chosen to develop further with consumers and the companies.

User-driven innovation methods provide a methodological framework for this case. We will use different methods in which user acts as a co-designer such as special focus groups and group work to ideate with consumers and advertisers.

Moreover, we will study further one aspect of this new concept, namely the interest in product placement or embedded advertising from consumers' and advertisers' point of view. In home furnishing and repairing there could be different kinds of AR elements embedded in advertisements including home interior design products and home electronics.

For the early concept research and development we will select some special focus groups such as decoration bloggers who will ideate several optional solutions for the service with consumers and advertisers.



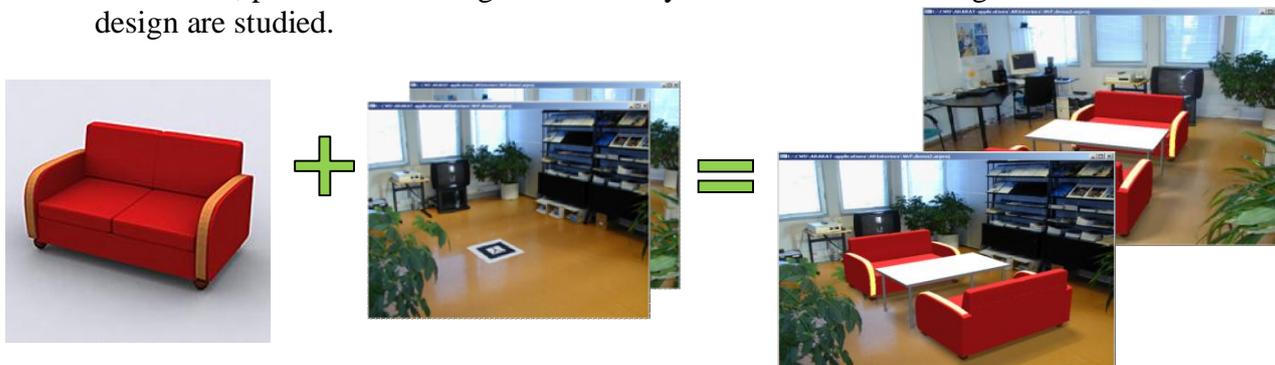
Picture: There are different AR and 3D-interior planning applications available. (Mobile Pfister App /Atelier Pfister App)

1.1 Augmented Reality in real estate marketing and interior design

Augmented Reality refers to system where real and virtual elements are combined in 3D coordinates in real time. For instance, virtual objects are overlaid on top of images presenting the real environment in such a way that perspective, proportions, etc. are correct.

In real estate market, a great number of apartments are old, and 3D virtual models of the apartments do not exist. Usually several camera images are taken from the apartment on sale. In this case novel functionalities may be based on these images instead of 3D model. Many of the functionalities described earlier can be straightforwardly applied using these images, in absence of a 3D model. Especially, instead of virtual 3D interior design, augmented reality interior design can be applied.

In this task, possibilities of augmented reality in real estate marketing and interior design are studied.



2 Concept evaluation and creation

The central idea of this task is to explore users' and advertisers' interests for the concept to find out what kind of social media based and user centred features and specifications are required for the service concept.

In this task we also examine augmented reality related functionalities and challenges. For example, in case of 3D model the area of a wall is known and changing its colour is relatively easy. Whereas detecting a wall, masking furniture in front of it and finally changing walls colour is a big challenge. We identify this kind of technological challenges.

In addition, we study what kind of functionalities could an augmented reality interior design applications have in addition to those of virtual interior design. For example, a picture may have some existing furniture, and user may want to remove it virtually or add virtual furniture behind it, or even move it.

Moreover, we will explore potential business models for the AR and social media. How in this kind of concept would co-operate the business network of bloggers, users and advertisers?

Different methods are combined to research user-centred aspects and business prospects of new AR advertising concept. The main methods consist of:

- 1. A scenario based survey for bloggers and users for early concept development*
- 2. Focus groups for bloggers, designers, users, advertisers and professionals (four groups, about five participants in each group)*
- 3. Advertiser interviews and co-design workshops*

During the spring 2011 we will carry out the preliminary concepting with designers' and decoration bloggers' focus groups (2), advertiser interviews (3) and scenario based inquiries for users (1). The focus groups with advertisers and professionals concentrating on business concept development will be mainly carried out in fall 2011 (2). Also, the AR augmented reality related functionalities and challenges will be piloted and researched more in detail in the fall 2011.

3 Scenario survey

In this task some scenario based questionnaire surveys will be conducted. The questionnaires will be done with Digium software which is a web based tool for collecting data and making fast analyses and reporting of gathered data.

Scenarios will be used in the co-design part of the research to help users to understand the different possibilities of AR and 3D modelling and to inspire ideating of the new concepts. The scenarios can help to understand the possibilities of AR and 3D technologies, different use contexts and motivations to use services. They can also clarify the profits of the services from the business point of view. Scenarios also present users with different profiles, needs, lifestyles and interests.

At the first phase the questionnaire will be targeted for consumers that are seeking new home or planning to build one and are using Etuovi.com- service. Afterwards the special group of bloggers whose main interest is in decoration or renovation are selected to answer to questionnaire targeted specially for them. The aim is to gather at least 50 responses to consumer's questionnaire and at least 20 responds to blogger's questionnaire.

The main aim of the questionnaire survey is to find out whether the consumers are willing to use and accept this kind of new interior service concept or not and how they would like to develop the concept further.

The main research questions to which the survey is giving the answers are:

- Are users and bloggers ready to use this kind of interior design program
- Which kind of properties the service should have
- Are users willing to share their designs with others
- With whom they are going to share the designs
- Which service/program or device they will use for sharing
- Which social media properties they would like to have in this kind of service (sharing, commenting, liking etc.)

In the survey some scenarios which are presenting the idea of new service concept are presented to consumers. Also questions related to these scenarios are given to the respondents. Two scenarios used in the co-design research are described here as examples.

1. Scenario: A young couple is looking for a starter home

A couple in their mid twenties is looking for a starter home from a popular city area. They wish to find a cosy two or three bedroom apartment. They both have their own studio apartments with their own furniture acquired. The challenge is to fit in all the dearest goods and furniture in the new apartment. They would like to keep all the findings from second hand shops as well as the recently purchased hifi-system. Some of the furniture has to be sold or put into storage, but at least the couple would like to keep a new sofa and the kitchen table. When choosing the right apartment, the couple has many discussions how they are going to fit in the furniture and what kind of new furniture they need to buy.

'3D interior design' is new kind of portal, which presents modifiable virtual models of the apartments up for sale. The customers interested in buying the apartments can use 3D modelling to add virtual furniture in the apartments on sale. The customer can try out furniture from a ready selection or feed in the size of the furniture of his or her own. Customers can also choose the colours and styles of the furniture from a number of different options. In this way, the young couple is able to make choices regarding furnishing of the new apartment and at the same time they got inspired to try out some new armchairs offered by the service.



The couple has already chosen two apartment options, which they are seriously considering. They have made 3D interior design plans for both of the apartments. They are able to save, view and edit their plans whenever they like. When the moment of the choice comes, they want also to hear their friends and parents opinions of the virtually furnished apartments. They place the virtual interior design plans in their Face book pages with the title "The moment of choice has come." Their friends can comment their plans and one friend who is working in a home furnishing products shop makes some changes for the other plan. She adds a flexible wardrobe system in customisable functions in the small corridor of the apartment.

The friend's proposal looks so good in the virtual plan that they want to study it even closer. They sign in for the service and download an AR (Augmented Reality) application, which make it possible to see through the phone camera how the furniture looks in the real environment. They go to other apartment, target the phone camera in the corridor and decide the place and the size of the virtual wardrobe system. It fits perfectly in the corridor. When the problem of the narrow corridor is solved, the couple decides to buy that apartment and orders the wardrobe system with a couple of other furniture found during the 3D design.

2. Scenario: Home decoration contest for bloggers

'3D interior design' service is organizing a contest regarding new homes. Five popular decoration bloggers/interior designers are designing the interior of a similar three bedroom apartment in a new terraced house with the application. The bloggers have a wide range of different home furnishing products available for the virtual design to make styles they like. Several home furnishing products stores offer downloadable models for the service. During one week users can follow the proceeding of the five different plans, comment the solutions and share the links for their friends. The most enthusiastic users can make their own versions of the decoration plans and share them with their friends.

After a very tight and controversial contest the winner is announced: simple Scandinavian functionality beats romantic vintage country style. The winning blogger/interior designer gets money and a lot of publicity. The winner's interior designs are actually so popular that a couple of apartment buyers end up making their home furnishing according to the visions of the contest winner.

Finally the styles of the contest are saved in '3D interior design' –service. Many users are especially interested in 50's style of home furnishing products and they are able to see other related products in the service.



3. Scenario: A real-estate agency provides AR Service

A family with two children is looking for a bigger apartment. They are looking for a new home that is not too expensive, and they are willing to do some decoration. They find an apartment with nice floor plan. However, not pleased with all the materials and colours.

A real estate agent co-operates with interior decoration companies and furniture shops, and offers a web marketing campaign with virtual renovation and interior design functionalities. Sellers are aware that the colours are unfashionable and that the potential new owners probably want to repaint walls and change some of the surface materials. Therefore, the sellers have selected this particular real estate agent, as they know that it is easier to sell the apartment if the potential buyers are able to test their decoration plans and see how it makes the apartment cosier.

The real-estate agency can also inform about offers from renovation firms through the service regarding cost of changes.

The family considering buying this apartment test their ideas. The mother paints the walls virtually and makes interior design plans to see if they can furnish it soundly. The father makes several measurements and tests different floor materials to get and gets a cost estimated for the renovation. The teenage daughter is thrilled as she is finally getting own room and is allowed to choose the colours, and some new piece of furniture, which she has been testing with interior design application.

They can see that after relatively small redecoration, the apartment will be of their style, and the cost estimate for the required work and price of the renovation is reasonable. So they have the courage of buying the apartment.

4 Focus groups – interior designers and design bloggers

The focus group evaluations of interior designers and design bloggers aim to evaluate the application scenarios, have feedback about the needs of design service providers and co-design the augmented reality and user-centred advertising concepts. The two evaluated focus groups are composed of interior designers, interior design bloggers and serious amateurs. There will be 4-6 designers partaking in both focus groups and two evaluators will lead the two-hour session. Preferably, the participants have answered to the preliminary web-questionnaire, as they are thereby familiar with the background information of the concept. After the designers' focus groups, an evaluation workshop is arranged for analyzing the qualitative results of the co-design sessions. The evaluation group is composed of the project participants.

The approach will relate to the user-driven innovation methods; focus groups and users being as co-designers. The research utilizes sketching (Lawson, B. 1990) as a co-design method, in order to integrate users to the fuzzy front end of complex design processes. Co-design and sketching enable conversation about compound and hierarchical design issues between the participants, and assist in receiving user's mental model of the overall concept.

4.1.1 Structure of the Focus group

Introduction to the concept

During the introduction to the workshop, the relevant scenarios are presented, evaluated and discussed with the focus group. The scenarios are used as a source of inspiration as they introduce the personas of hypothetical users and the presumed needs of the consumers. After the scenarios, the focus group is informed about the preliminary results of the survey and it would be beneficial if the participants have taken part to the survey, since thereby they are familiar with the preliminary concept. After the results, the focus group is familiarized with three example applications. The participants see layout images of the existing applications and have a description of the benefits and similarities to the application that is to be developed in the project. Before the focus group session, the project group has identified one clear application definition statement for the focus group, and that statement should lead the designers' concept ideas. The statement describes the application shortly and preferably its most essential requirements. The introduction with the scenarios should take 20-30 minutes of the session.

Co-design session

The focus group consists of interior designers and interior design bloggers. Thereby the focus of the co-design session is on service design of the advertising concept. The participants are encouraged to identify their role in the concept; the future application and service. Informal conversation is encouraged and the focus of the conversation is on the needs and wants of the participants. In addition, there is discussion about the advantages and disadvantages of the current services and provided tools for interior design. The conversation concentrates on how the usable tools and services can be exploited in the advertising concept. The conversation is then led to the selected technological feasibilities and social-media service prospects. However, there is no need to restrict the ideas because of technological limitations.

After the conversation, the focus group is led to co-design and create completely new ideas. At first, the participants are divided in pairs and each of the pairs has a possession in one of the presented scenarios. The participants are encouraged to think about the application through that particular scenario (and persona). Then the pairs are asked to produce sketches (Shah & al, 2001) about the application; user interface, its operations, users, products, services, providers etc. The sketches are tools for the conception phase and they can have any form, but the important criterion is that they fulfil the requirements of a sketch (Buxton, 2007):

- Quick to produce
- Timesaving
- Disposable
- Sequential
- Minimalist
- Ambiguous

During the sketching phase, the participants are provided with sketching tools; paper, pens, cardboards etc. There are also materials e.g. such as used in IDEO's tech box; little gadgets, colour schemes, pieces of wallpaper, images of furniture etc.

After the sketching and idea generation phase, the focus group shares their ideas with each other. They combine and improve others' ideas by paying attention to 1.) application definition statement; 2.) selected persona of the scenario and 3.) personal interest. After the sketched material is divided into these sections, the pairs produce concept designs, in the form of flowcharts. The flowcharts include:

- The stakeholders of the service
- All elements (products, services, technologies)
- How all stakeholders and elements are connected to the ecosystem.

After creating the flowcharts, the focus group is encouraged to produce one description of the application, e.g. the front page of the service. It should identify:

- Order of importance of (the stakeholders and) elements
- Key concept

4.1.2 Evaluation group

The evaluation group will analyze the results of the designers' focus groups. At first, the scenarios and application examples are under discussion again, and the results of the focus group will be reflected to that material. In addition, the evaluation group will focus on evaluating the designer's sketches and new concepts; flowcharts and description of the application. When the material is analysed, the concept ideas and sketches are compared to each other by similarity and the differences between concepts (Tohidi & al, 2006). Also the material is graded e.g. by following criteria:

- Creativity: new ideas
- Technological feasibility
- Business perspective
- Overall appearance
- Overall feasibility

After the evaluation group is conversant with the material, they will iteratively develop further the designers' (sketches and) concepts. The aim is to co-design the final concept design by re-identifying the key concept.

5 Advertiser interviews and co-design workshops

In addition to experiences of users and designers, potential future advertisers and their needs are a focal element in planning business concepts and earnings logic for new advertising concepts combining elements of social media, 3D modelling and/or AR. Potential advertisers are taken into account in co-design process already in the early phases side by side with user experiences.

The research concentrating on advertisers' needs is carried out in two phases.

Phase 1: Advertiser interviews

6-8 potential Finnish advertisers are interviewed in order to analyze alternative business models and advertiser perceived value of the concept. The interviews are face-to-face open interviews giving space to spontaneous comments, reactions and ideas of interviewees. The new advertising concept is visualised in interviews

with a short screen cast and with similar scenarios as in user survey (examples presented in Scenario survey chapter). Key themes in the interviews are:

- Current and future online marketing practices
- Prerequisites and readiness of advertisers to use new concept as a part of their marketing palette
- Benefits and sacrifices of the new concept from the advertiser point of view - value and pricing models
- Future usage contexts and examples of concept as a part of daily business practice
- Potential elements of future advertising service (e.g. company contribution, sharing, campaigns, user information, linking to web shop)

Companies chosen for interviews represent different kind of potential advertiser groups from the real estate and interior design business: construction, building materials, furniture, furnishing, home electronics, design and decoration etc. In addition, interviewed companies represent different sizes (both SMEs and larger companies) and different roles on the value chain (both producers and retailers).

Phase 2: Co-design focus groups for advertisers and professionals

The co-design focus groups continue the iterative design process in fall 2011 after user surveys, earlier focus groups and advertiser interviews. The participants are representants of potential advertisers and/or other related experts (students, architects etc.).

The methods presented in the previous chapter, co-design and sketching, are applied also in these focus groups but the emphasis is more on business perspective: ideas for applying the concept in practice and mapping the value proposition for different actors in the network. Co-creation and active participation are encouraged in order to enrich the picture of user experiences formed based on earlier research.

References

- Buxton, W. (2007) *Sketching User Experiences: Getting the Design Right and the Right Design*. Elsevier Inc. San Francisco.
- Kelley, T., & Littman, J. (2001) *The Art of Innovation: Lessons in Creativity from Ideo, America's Leading Design Firm*. New York: Doubleday.
- Lawson, B. (1990) *How Designers Think. The Design Process Demystified*. Oxford: Butterworth-Architecture.
- Shah, J. J., Vargas Hernandez, N., Summers, J. D., & Kulkarni, S. (2001) Collaborative Sketching (C-Sketch)-an Idea Generation Technique for Engineering Design. *The Journal of Creative Behaviour*, 35(3), 168-198.
- Tohidi, M., Buxton, W., Baecker, R. & Seilen, A. (2006) Getting the right and the design right: Testing many is better than one, *Conference on Human Factors in Computing Systems - Proceedings*, 2, 1243-1252.