

EVIDANCE: A mobile application for orchestrating multiple services ecologies

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ABSTRACT

In this paper, we introduce some preliminary considerations on the design of interactive system in a service based-economy. The discussion is supported by an early design exploration of a mobile application aimed to support people in orchestrating multiple services ecologies in their everyday life.

Author Keywords Services, Mobile Application, User Experience.

ACM Classification Keywords H5.2 [Information interfaces and presentation]: User Interfaces - Graphical user interfaces.

General Terms Design

INTRODUCTION

The IOS (Internet of Services) project is a five years joint research initiative that involves different research units (SE - Software Engineering, SOA - Services Oriented Applications, DKM – Data&Knowledge Management and i3 – Interaction and Intelligent Interfaces) operating within the Fondazione Bruno Kessler (Trento, Italy). The general objective is to develop a software platform to allow end-users to orchestrate services in their everyday life.

In this project, we push the vision that “Internet of Services” should focus on real services, rather than software services [1]. In particular, we investigate the new role of Internet - which is a supporting infrastructure in the case of software services – but becomes a key enabler for real services, offering a unique opportunity for:

- Services composition: allowing people to organize their life on the base of meaningful activities and not on separated services sectors.
- Dynamic monitoring: allowing people to dynamically monitor changes in real services.
- Real-time adaptation: allowing users to immediately react to changes and to fine-tune their services experience.

In this paper, we present a preliminary design exploration of these issues and we discuss some conceptual dimensions related to the design of interaction in a service-based economy.

UNDERSTANDING SERVICES

The central tenet of Service Design is that services are radically different from products, and a different mindset is necessary for designing and delivering services [2]. In a service-based economy people cannot be considered at end of the production process. People are an intrinsic part of the service itself and actively participate to its creation: the challenge with this vision is that people are much more unpredictable than a manufacturing system in a controlled factory environment. Furthermore, elements of complexity should be considered in the context of a very articulated technological landscape where services are delivered across multiple channels. The service encounter, which was traditionally characterized as a dyadic interaction between a customer and a service provider, is now set in a broader network of interactions with other providers and consumers [3].

The Service Design discipline is elaborating a new “design language” to specifically address the peculiarities of the consumption of services. At the heart of this new design language there is the concept of *experience* that is more articulated and complex than that in the context of Product Design. In order to deal with such complexity, the following conceptual tools have been developed:

Touch-Points. Touch-points are the tangible elements of a service – everything that a person accessing the service sees, hears, touches, smells and interacts with.

Evidences. Bills, tickets, bookings are a specific kind of touch-points: we can call them “evidences”. Evidences do not allow the user to directly operate on the service creation: they have the role of propagating relevant information across the different services touch-points.

Channels. The diffusion of broadband connections and mobile use of Internet have made possible a proliferation of possible “channels” to access services. In this proliferation of channels, of ‘ways-in’ to services, it is fundamental to understand what are the different channel needs and preferences of diverse set of users and what are the different interactions and relationships between different channels.

Journey. A journey describes how the touch-points and channels come together over a period of time and interact with people’s lives, needs, interests and attitudes.

INTERACTION DESIGN CHALLENGES

The analysis of the literature about Service Design allowed us to refine the project assets (Services composition, Dynamic monitoring and Real-time Adaptation) and to identify a set of specific interaction design challenges.

A fragmented user experience

The interaction with a service is distributed in space, across many contexts and places, and in time, across the different services encounters. In order to guarantee a consistent and compelling user experience it is fundamental to provide a homogenous interaction model and consistent interfaces for interacting with the different service touch-points. The unit of analysis to investigate and design services is not a single episode of interaction between a user and an interface, but rather the whole series of interactions performed across the different channels and touch-points.

Across services boundaries

In the context of the IOS project, the unit of analysis needs to be further widened. The project is based on the consideration that people organize their everyday life in terms of meaningful activities characterized by the interactions with many different services. Our purpose is to make the aggregation of different services a smooth and a seamless process. Clusters of services can easily become complex entity and their inner relations really intricate: it is fundamental to devise an appropriate level of information visibility, control and personalization

In between the digital and the physical

A heterogeneous level of technology characterizes the landscape of existing services: users can interact with different media interfaces (face to face, mobile, web etc.) both with digitally enhanced, partially digital and physical service features. It is of fundamental importance to support a seamless interaction with both digital and non-digital services and devise strategies to overcome breakdowns in the user activity.

The fluidity of time

Each service has its own unique, dynamic time structure that is often unpredictable and non-linear. From the customer's point of view, this uncertainty can provoke an unpleasant lack of control on time and activity scheduling. Both people and services are in constant flux, precise appointment times are not the most useful means of coordination. This opens an interesting design challenges related to the representation and management of time.

THE EVIDANCE APPLICATION

The EVIDANCE application is a design exploration of the IOS project assets that tries to provide a preliminary conceptual solution to the challenges previously presented.

Concept design

The concept is based on service evidences. We have envisioned a mobile application to create and orchestrate digital manifestations of service evidences (called

EVIDANCES). The EVIDANCES are the results of the interactions between the consumer and the service, and evolve as the consumer proceeds through the different services touch-points, tracking the advancements in the service journey. They represent the real-time connection between the consumer and the service. The user will receive run-time notification in the context of the EVIDANCE and will operate on this in case of modifications of the service. The user can organize the EVIDANCES in clusters. Each cluster is recognized by the system as a meaningful bunch of services that are eventually related to the same user activity. By creating clusters, the user can be alerted on potential conflicts or receive contextual suggestions on new potential services.

An envisioning scenario

Leonardo is a free-lance industrial designer. He spent the week in Tokyo to visit the new branded factory of one of his clients. It is Friday night and Leonardo has to leave Tokyo in a couple of hours. While he is waiting the bus to reach the airport, he receives an alert from the EVIDANCE application. The flight has a three hours delay for bad weather conditions. In the CLUSTER that he has created for the trip in Japan, he opens the SERVICE MENU and looks for something to do before leaving the city. The system proposes possible services on the basis of he time-schedule of this cluster and on the basis of his geographical position. Keith Jarrett playing at the Tokyo Jazz Club. There are still a couple of available seats and he decides to book one. In the EVIDANCE related to Keith Jarrett concert, he changes the view modality to see how far is the Jazz Club. The system proposes available services to reach the concert. He decides to take a taxi and creates new EVIDANCE within the same cluster. By opening the JAZZ CLUB EVIDANCE, thanks to a code-matrix, Leonardo can interact with the Jazz Club Desk and takes his seat at the concert.

TOWARD A GENERAL FRAMEWORK

We aimed at developing a preliminary prototype of this concept by the end of the 2010. Starting from this preliminary consideration, our long-term objective is to develop a framework to drive the design of interaction in a service-based economy.

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