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Hypermedia Applications Project

IDM C/L/P Design Document and Mock up

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1. Introduction

This document presents the design and prototyping steps for implementation of the web site for a telecom company selling telecommunication infrastructures, different kinds of devices and offers services, assigned as the first part of the project for the the "Hypermedia Applications (Web and Multimedia)" course at Politecnico di Milano. The design relies on the latest version of the requirements document that was provided on Beep platform page related to this course.

In the first part of the assignment, the design of the web site is presented using IDM (Interactive Dialogue Model) graphical notation. The design phase starts from the conceptual design (C-IDM schema), after that, it is followed by logical design (L-IDM) and, finally – the page design (P-IDM schema).

After finishing the page design, in the second part of the assignment, taking into account all the previous design-related decisions, the interactive mock-up is constructed. This mock-up is a prototype which simulates the interaction with the web site, providing user interaction experience similar to the real one (but simplified and some things are omitted) and, for the developers, provides the basis for the future implementation.

2. Design

2.1 Conceptual design (C-IDM)

In general, according to the IDM, conceptual schema should answer us what should be said, what are the relevant changes of subjects to be supported, what are the possible ways to organize the dialogue subjects. These decisions should be taken during conceptual design or content design (supported by C-IDM primitives).

Conceptual design is tailored with respect to the specifications published in the reference document "Design Project Specifications" that was provided on the Beep platform course page.

SINGLE TOPICS

1. WHO WE ARE
2. THE GROUP

MULTIPLE TOPICS

1. Device [10-100]
2. Smart Life (SL) Service [10-50]
3. Assistance Service [50]

RELATIONSHIPS

1. Available SL Service: Device ->SL service [1, 5]
2. For device(s)_1: SL Service ->Device [1-30]
3. Assistance for: Device ->Assistance service [1, 10]
4. For device(s)_2: Assistance Service ->Device [1-10]

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MULTIPLE GROUPS

1. DEVICES BY CATEGORY[5]
2. SMART LIFE SERVICES BY CATEGORY [4]
3. ASSISTANCE SERVICES BY CATEGORY [4, N]

GROUPS

1. PROMOTIONS (for devices)
2. ALL DEVICES
3. ALL SL SERVICES
4. ALL ASSISTANCE SERVICES
5. HIGHLIGHTS

In what follows, the C-IDM schema is provided:

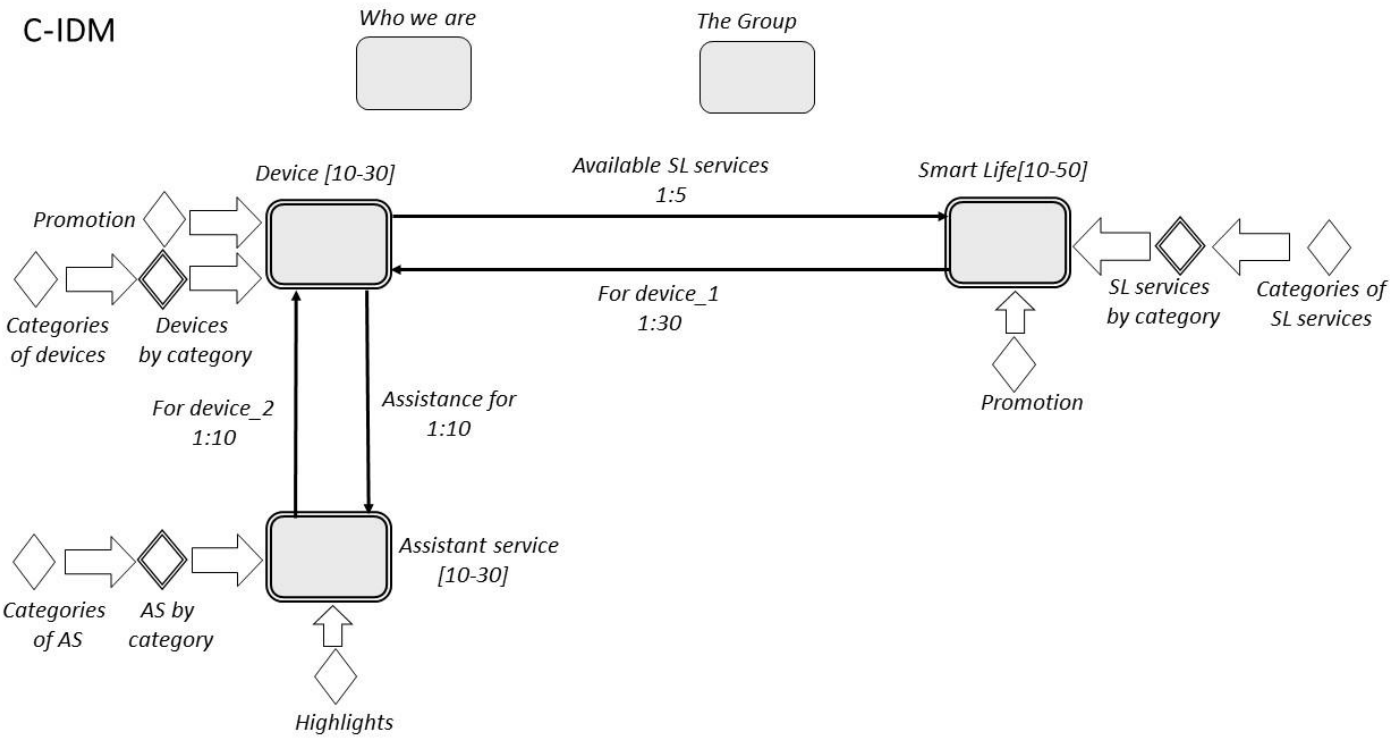

Figure 2 - Logical IDM schema

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2.2 Logical design (L-IDM)

Logical design further extends C-IDM scheme by introducing content dialogue acts.

These dialogue acts, in fact, can be considered as questions and answers that are result of the user interaction with the web site. We have the situation where user asks the question about the content, and after that, the system (web application) returns the contents that user asked for.

Again, we will take a look at what is provided in the requirements document.

SINGLE TOPICS

1. WHO WE ARE

- *Innovation*
- *Testimonials*
- *Projects*

2. THE GROUP

- *Group Description*
- *News*
- *Governance*
- *Business*

MULTIPLE TOPICS

3. Device

- *Presentation*
- *Technical Characteristics*

4. Smart Life (SL) Service

- *Description*
- *Activation and Rules*
- *(Optional) FAQ*

5. Assistance Service

- *Description*

Everything is quite straight-forward from the requirements document here.

But, it should be mentioned that some dialogue acts were added to topics in order to completely describe them, like for example device presentation with image and description (represented as a table).

Relevant relations that have cardinality equal to one are just one simple link to the other side of relation. The relations with cardinality greater than one require an additional transitional page in P-IDM schema. This is further described in the next chapter of the document, which is Page Design and deals deeper with decisions related to transition pages.

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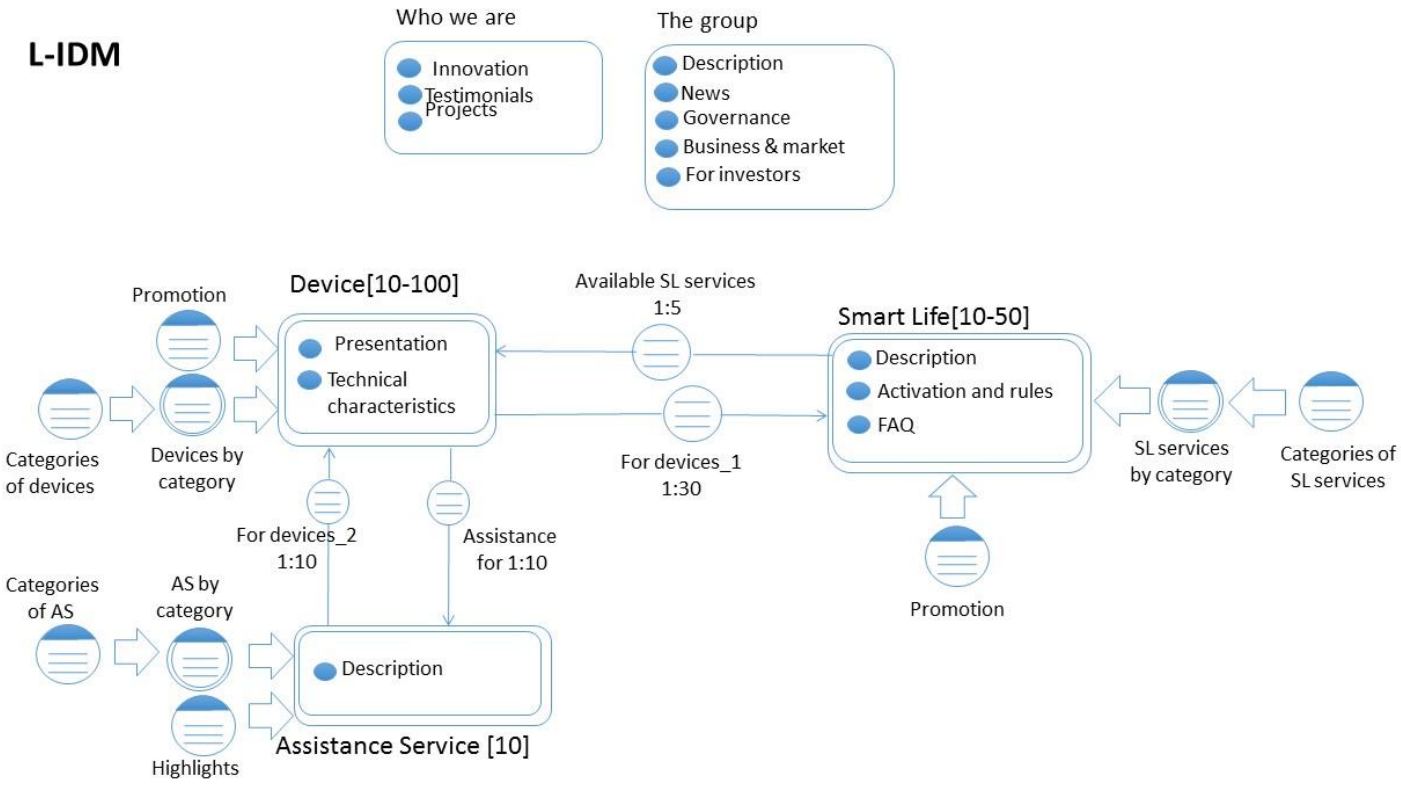

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2.3 Page design (P-IDM)

In P-IDM the focus is on the implementation of our pages of web application.

The entities and navigation links from the L-IDM schema are converted to real web (html) pages , at least to their high-level structures and navigation links that will constitute our P-IDM schema.

In what follows, some important notation elements and decisions are going to be explained.

The cross symbol next to page means that this page is a landmark. Landmark is always accessible through navigation menu, it doesn't matter on which page the current position is at the moment. So, in our case, we selected the pages that the user might want to visit anytime during the website navigation. The user can go to the Homepage, "The Group" and "Who we are" anytime. Also, it is possible to go to one of the available categories of devices, Smart Services and Assistance Services this way. These elements are present on each page. The diagram , the landmark is put on the categories of each of the categories of products and services, but not on the multiple topics of devices and services themselves. This was decided due to fact that browsing all devices outside category is something that is not so often needed by the users.

On the home page, we have also: Promoted Devices, Promoted Smart Life Services and Assistance Service Highlights. This is what the user should see first, so it includes the most attractive offers and services to the potential user.

For the notation, we should also mention A2A which is present for "The Group", "Who we are" and "Smart Life Services". All-to-all is a pattern which behaves like this: user can go from any of the grouped pages to another from the group directly.

The rectangle with the pointing arrow towards the page means that, once a user clicks on that landmark he lands on the default page . In our case we have - *"Innovation" for "Who we are", "Description" for "The Group" and "Description" for "Smart Life Services"*. This group has the A2A pattern, which means that all pages in a group are connected by navigational links among each other.

There are also Transition pages present in P-IDM schema, they represent an introduction of a page that user want to visit. In our P-IDM schema those transition pages are *FOR_DEVICES_1 and FOR_ DEVICES_2.* The decision to have structure like this is related to the fact that the number of devices is quite large and is likely to be increased any time, so this transition should be separate page. For available services for each of the devices, the decision is not to have separate transition pages, but put the available services into the same page, because the number of services is smaller and this number changes less frequent over time compared to device number.

Also, it is important to mention that Index navigation pattern was used between devices, Smart Services, Assistance Services and their corresponding categories. So, it means that when we have an entity which belongs to some category, we can go from the page of the category to each of these entities, but also go back to the category it belongs to from each of them.

On the next page, the P-IDM schema is presented.

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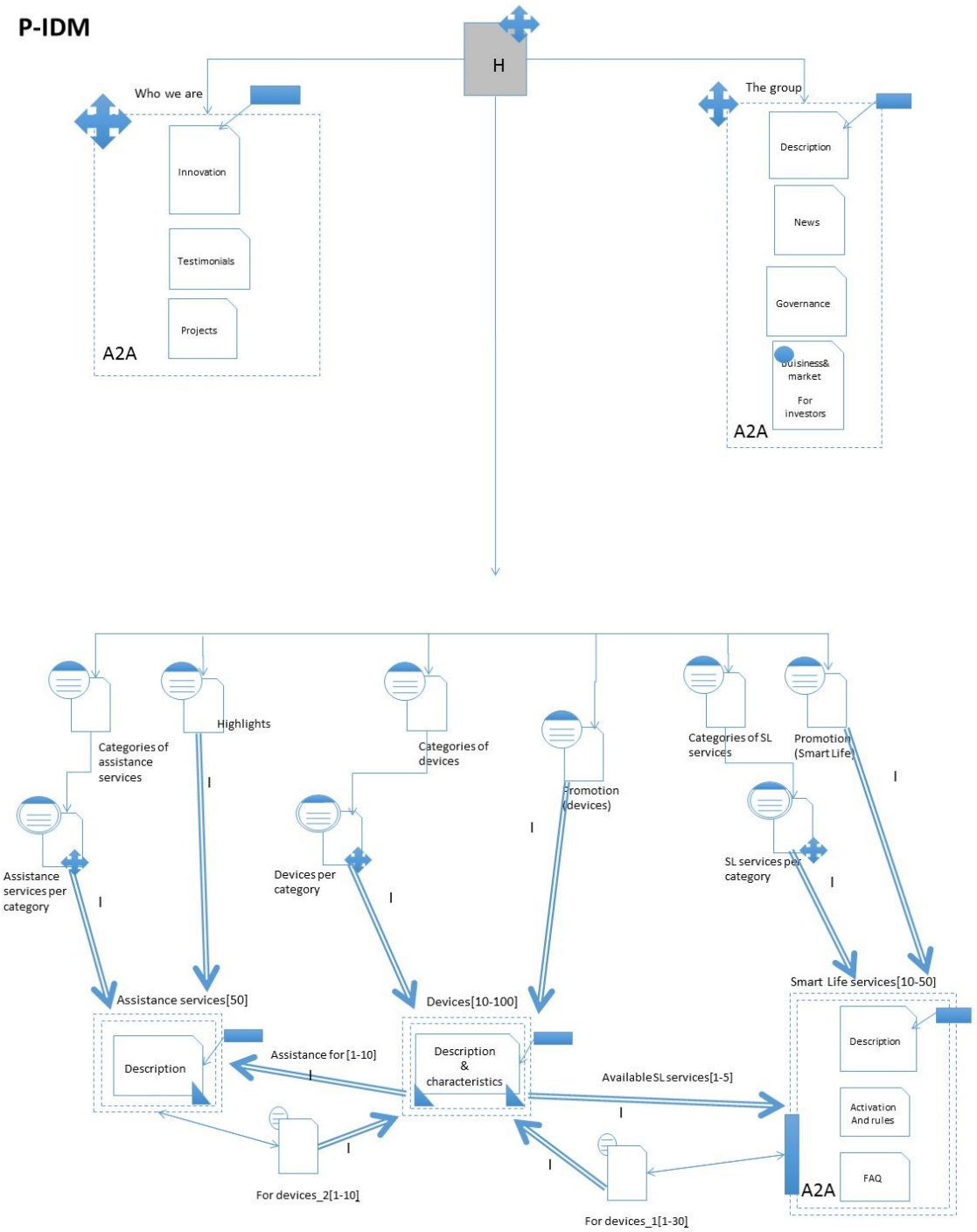

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Figure 3 - Page IDM schema

3. Interactive Mockup

In this chapter, the next step is going to be presented – the interactive mock-up that was derived from the IDM diagrams. The software tool which was used in order to make it is Pencil. The "MOCKUP.ep" project file is provided as an attachment. The images were imported in embedded mode into the project, so, once the project file is downloaded – the images are available independent of location of the images. The drawback is that the file is taking more time to load and is almost 200 MB.

Also, the project is exported as a single web page. To start the interaction with this mockup, it is needed to start "index.html".

In what follows, only the most important facts and some of the relevant decisions are going to be mentioned.

The landmarks drop-down menus are omitted for each of the pages in order to make visibility better, except homepage, but will be presented as animated drop-down elements in the real website implementation.

For each of the smart service categories, at least one is implemented in the mockup, while some of them may be visible on the category pages but are not completely implemented in this mock-up.

In TV & Entertainment category, there is a 4k Ultra TV Service which is only put as an example.

Also, for mobile devices – we have fully implemented iPhone 6s and Samsung s7, while for Tablets and Computer categories we have Samsung Tab 4 and iPad which are really implemented. The "Other devices" are also put for illustrative purposes, because they are not really clickable. For modem and networking, the "Trust ADSL2+" is implemented, while the another one is only illustrative.

It is also important to mention that, for promoted devices we have a filter panel with device categories that would enable further restriction and expansion of number of currently displayed devices. For example, when user clicks "Tablets", only tablet devices are going to be displayed, while, in case of selecting "Phones" and "Tablets" would display all the tablets and the devices that area promoted. The real implementation of the filter is going to be cascade, but in the mock-up, it is presented only until depth 1.

The implementation of the filter would require a large number of IDM elements to be represented because of the combinatorial complexity which results in very large number of categories generated as a combination of sub-categories (for example:phones+pcs, phones+tablets,other+tablets+pcs), so it is not explicitly presented as a separate instance, but is considered under categories of devices.

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Promotion(devices)

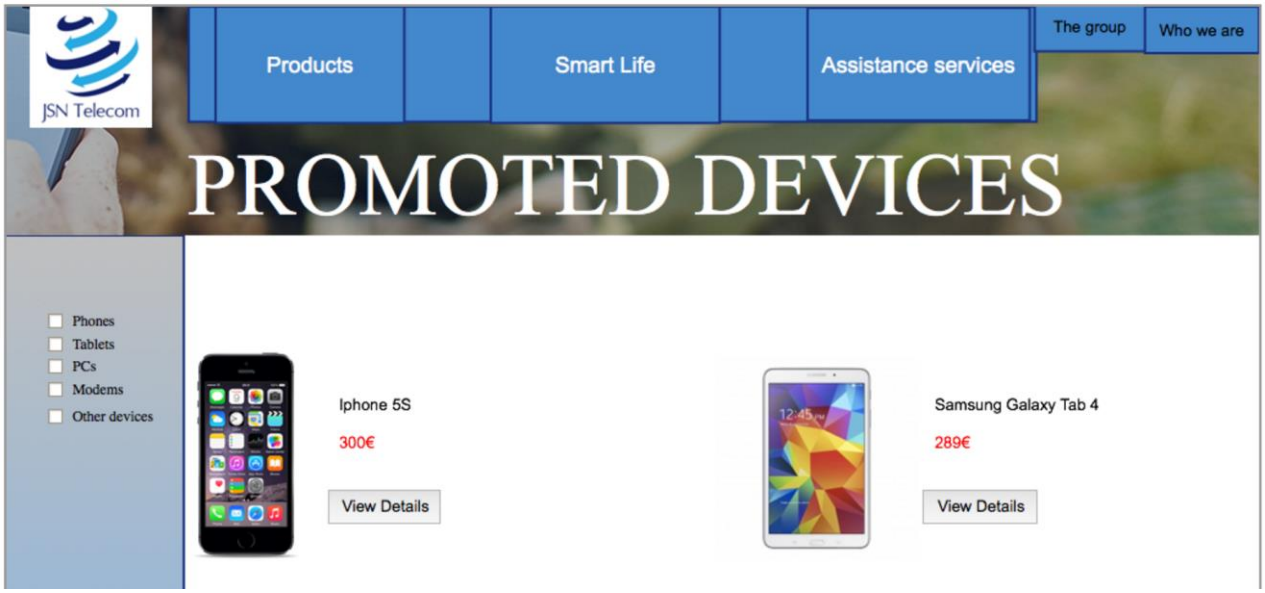

Figure 4 – Interactive Mockup: Filter for Promoted Device

Also, it we will mention that the services related to each of the devices are embedded into the page, without additional transition page, as it is stated in the part related to P-IDM.

4. Links

In case that some of the provided files is damaged, please check the dropbox directory provided here.

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