

How to Learn About Users and Understand Their Needs?

User Experience, Mental Models and Research at Public Administration Websites

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Abstract

In most countries users (citizens) have difficulties orienting on public administration websites. This paper covers the possible bases of the problem and presents some methods for exploring users' thinking and needs. This paper tries to give some answers to these questions: How can public administration websites be made clearer and more usable to citizens? How can this be tested? What are the available and tried methods? The paper also presents some case studies from the field of public administration involving testing methods that are useful for testing the websites. These results are based on the academic research of the author of this paper conducted in Bologna, Italy (2010) and in Hungary (continuously since 2009), where sites were tested with different testing methods.

Keywords: eye-tracking, mental models, online focus group, testing methods, user experience, website usability.

Introduction

It is a basic phenomenon that clients/citizens need well designed, easy-to-use and ergonomic websites (Norman, 1988; Catarci, Matarazzo and Raiss, 2000; Budai, 2002). It has also been observed that citizens often do not like to use websites of the public administration sector because their platform is complicated, hard to understand and sometimes disregards actual user expectations and needs (Catarci et al., 2000). Companies in the business world increasingly tend to create their websites and apps with thorough research and testing. Surfaces developed in this way are easy to use and understand, and meet the explicit and implicit needs and expectations of users. This in turn generates further understandable expectations,

that is, users require public administration sites to be simple to use and easy to understand. They develop a need to be able to access information, complete administrative tasks and other transactions on these sites in a straightforward way (Béres and Zsák, 2007). However, if the surface of a public administration portal is cumbersome, navigation is complicated and the phrases used there are difficult to understand, citizens will be upset and choose personal administration instead of an unpleasant experience behind them. This in turn is not favorable for the spread of e-government, whereas, according to the eEurope action plans, public administration should be able to provide complex electronic public services with developed quality and functionality (ibid.).¹

The scientific problem of this paper can be identified by the following questions: *How can public administration websites be made clearer and more usable to citizens? How can this be tested? What are the available and tried methods? What good solutions do we find?* I explored these questions by researching positive case studies and best practices to follow. In the following writing I also present the different research and testing methods used during their development. **The aim** of this paper is *to present* some case studies from the field of public administration involving testing methods that are useful for testing the websites. These results are based on the academic research of the author of this paper conducted in Bologna, Italy (2010) and in Hungary continuously since 2009 (Herendy, 2009, 2012a,

¹ On this topic, see the eEurope Action Plans and the i2010 eGovernment Action Plan containing the latest, revised EU directives.

2012b, 2015). Websites were tested with different testing methods. **The objectives** are as follows: to present how public administration authorities can create straightforward and more usable websites by different testing methods.

For the presentation of individual websites, I used data collection, desk research and literature analysis. The presented examples are not only interesting with relation to the given country, but can also be useful for other countries and cities, with a view to their usability.

Current level of research: A number of researchers deal with questions of the usability of websites (Marcus, 2013; Weinschenk, 2015; Nielsen et al., 2010), as well as the questions of the usability of public administration websites (McKeen, Guimaraes and Wetherbe, 1994; Budai, 2002; Catarci, Matarazzo and Raiss, 2000), also addressing aspects relating to the spread of electronic public administration (Béres and Zsák, 2007). Academic literature on their testing methods and positive case studies is scarce and only touches on the subject, while it would be of primary importance with regard to the action plans mentioned above. A reason for this might be that researchers of the topic are usually practising experts, and academic publication is not a central part of their activities.

Typical user concerns and possible reasons for the problem

Typical user problems are the following: they do not understand the public administration and legal phrases that are used there, they do not see the structure (information architecture) of the website, and the logical relations between topics. The sites are often not stylish, and unfortunately absolutely not cool. Just think of the welcoming words of the mayors, or the excessive amount of unnecessary information on the main pages, which do not reflect users' needs. The main pages often give outdated information and do not reflect the users' real information needs (Herendy, 2012b; Herendy, 2015). Flash intros are also often used, which is a problem for users whose browsers cannot download the flash – they cannot even enter the webpage. Responsible designs are also rarely used, which means mobile-friendly versions are also not available. The mobile-friendly versions are particularly important because the majority of the user population is young and they meet websites on mobiles first. As a result, users have difficulties navigating the given sites and soon lose their patience, so they tend to choose personal instead of electronic administration, which does not help the spread of e-government.

There are some reasons for the problem, e.g. the obsolete design strategies, which do not regard

the users' point of view and reflect the mental models of the officials. The development method is also often outdated: it starts with some beautiful design in Photoshop / jpeg pics and the content must be adjusted to it, otherwise the design will be subsequently modified again and again. The sites are tested rarely and/or in the wrong way. This can happen because of the lack of experienced professionals (the site is developed in-house by IT developers) and because of harmful development practices. Another problem is that the content, wording and structure of the site reflect the mental models of the officials and there is a mismatch between mental models of the citizens and the website owner, who is an employee in public administration or programmers).

Theoretical framework of mental models, user experience and website usability research

The author of this paper was interested in the ways in which these public administration sites can be adjusted to the needs of citizens. What best practice solutions are available? How were these sites tested, and what was the added value of the testing?

According to the author's hypothesis, we can or may be able to find public administration websites that can be used optimally, ones that are good because they are not only transparent and easy to use for public administration but also for citizens (moreover, for them in the first place). However, in order for these platforms to really meet the expectations of citizens, careful and considerate planning is needed, not only during the time of designing the sites but also throughout the time of their operation.

According to the hypothesis, websites that are tested in the development phase are more usable than those that employ no such checks. This might be even more relevant in the case of public administration sites, which we are sometimes obliged to use, provided that we aim to avoid personal administration.

The author's previous research dealing with public administration websites has verified this: sites that were researched during development achieved better results in my examinations. Users generally gave more positive evaluations and liked them more than the ones that were not tested or where poor testing methods were used. Thus, for example, the website of the 13th district of Budapest, which was developed reflectively and tested several times after researching best practice solutions and reviewing earlier analytics, performs better overall even in a quick usability research analysis. As opposed to this, for example, in the case of the Újbuda website, even a simple user testing has revealed several mistakes

(see, for example, McKeen et al., 1994; Herendy, 2012a; Herendy, 2016).

About Mental Models

During usability studies and testing, data collection focuses on the mental model of the user with relation to the topic, in addition to issues of usability.

The first person to talk about mental models was K.J.W. Craik in his 1943 book, *The Nature of Explanation*. After Craik's death, the concept was dormant for many years, until the 1980s when the term reappeared. In the '80s, there were two books published with the title "*Mental Models*" (Weinschenk, 2011).

Since that time – there are many definitions for mental models that have been around for at least 25 years. One of them is from Susan Carey's 1986 journal article "Cognitive Science and Science Education," which states: "A mental model represents a person's thought process for how something works (i.e., a person's understanding of the surrounding world). Mental models are based on incomplete facts, past experiences, and even intuitive perceptions. They help shape actions and behavior, influence what people pay attention to in complicated situations, and define how people approach and solve problems" (Weinschenk, 2011).

The importance of mental models is highlighted by various studies such as in *Mental Models* (Young, 2008) "Mental models give you a deep understanding of people's motivations and thought processes along with the emotional and philosophical landscape in which they are operating" or in *Emotional Design: Why We Love (or Hate) Everyday Things* "A mental model is what the user believes about the system at hand" (Norman, 2004). Norman emphasizes that a "mental model is based on belief, not facts, it is based on their predictions about the system and a mental model is internal to each user's brain, and different users might construct different mental models of the same user interface". He adds, "one of usability's big dilemmas is the common gap between designers' and users' mental models. Because designers know too much, they form wonderful mental models of their own creations, leading them to believe that each feature is easy to understand. Users' mental models of the UI are likely to be somewhat more deficient, making them more likely to make mistakes and find the design much more difficult to use" (Nielsen, 2010).

People always have mental models and create them very quickly

People always have mental models, but they are different. People create mental models very

quickly and change them very quickly. Yet it is important to research these models. The aim of the research is to understand people's (e.g. the target audience's) mental models.

If the website's strategy is based on research, the website will meet the needs of citizens. Research helps align the needs of people with the mandate of the organization. While research helps drive strategy, it is important to note that most people do not know how to articulate what they actually need. To quote Henry Ford: "If I asked people what they wanted, they would have said a faster horse."

That is the reason why the organization needs to conduct a survey, to explore users' thinking (mental models) and find the underlying needs and motivations that prompt participants to propose certain features, functions or approaches.

If public administration gets to know the citizens' mental models better and uses them as the basis for its websites, people will more likely use these sites. This in turn helps the spread of e-administration, with all its advantages.

Methods for research and gathering information about mental models

There are some useful research methods that can be helpful while gathering information about the user's mental models. "These are invaluable tools to help you understand your audience's thoughts, behaviours, beliefs, and needs within a well-defined area of activity". One of them is Indi Young's "audience mental model" (Young, 2008) which helps to visualize data about why users do the things they do and help you step back from the researchers own viewpoint in order to better anticipate the needs of your audience" (Chisholm, 2016). Weinschenk emphasises the importance of understanding what users think about a certain system, software or product (Weinschenk, 2011). Some widely used methods for gathering information are the card sorting test (open card sorting, closed card sorting), focus groups, interviews, surveys, questionnaires, participatory design or usability testing (Herendy, 2009, 2012a). Although these methods are usually helpful for accessing mental models, there are some limitations to isolating and studying mental models. The researcher should choose the one, which is the best for the actual goals.

I am presenting some of the public administration websites which were based – at least partly – on user's needs, habits and thinking during their development and tried to get to know their readers as much as it was possible. Among other methods, their developers have gathered client requirements, conducted online survey research,

analysed user statistics and carried out card sorting tests. These methods are becoming used on a daily level in the business world, while they are less frequently used with public administration portals.

Best practices and analysis of research results

Redesigning and testing in outstandingly innovative ways: Budapest, website of the 13th District

The author conducted a study during the preparation of the site (budapest13.hu) in 2010.

The design methods that were observed were outstandingly innovative among the districts of Budapest at the time. The redesign of the site took place in 2009. One of the aims articulated during the redesign was to have the most often searched functions on the main page, highlighted by topics (thematic directory), possibly using the names by which they are searched by the users. This was not a typical practice in Hungary then, and nor is it today, so it was necessary to get to know the needs of the users.

Before the redesign the developers assessed the most popular content of the existing site. The goals were the following: to explore the most popular content, to get to know typical user behavior, to learn which are the typical searches and to identify the best way to phrase the highlighted themes so that they are unanimous and easy for users to identify.

The following methods were used:

(1) Analysis based on previous searches:

The analysis results revealed that the most popular bits of content were the office hours, contact details, and institutions located in the district.

Most district residents turned out to be visiting for some administrative matter, and typical visits were short and to the point.

(2) Analysis of Google statistics data:

The most popular search words were researched and the results were: documents, jobs, contact information, driver's license, management, ID.

(3) Carrying out online survey research:

In this research part the users were asked to describe the goal of their visit in their own words.

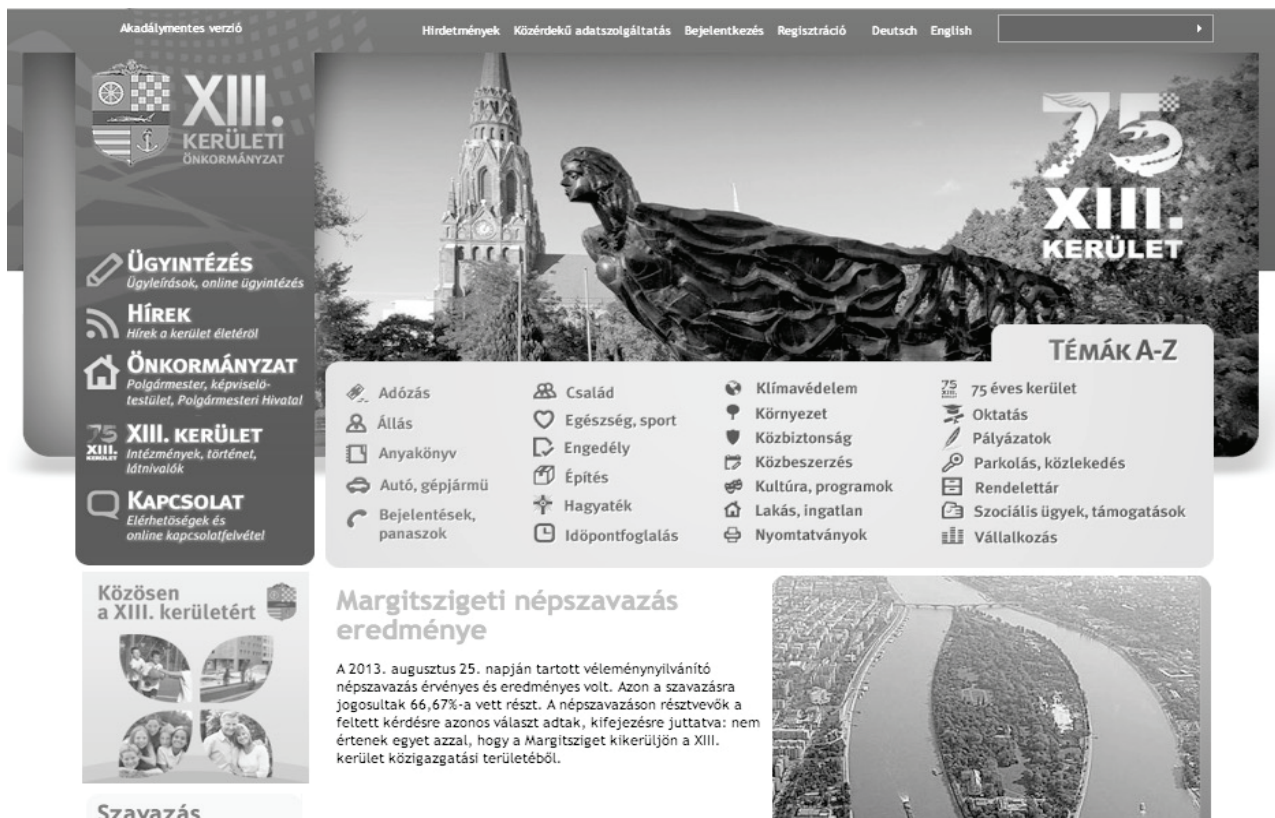


Fig. 1. Budapest, website of the 13th District, 2013

The survey and the analysis were helpful in designing not only the structure, but also the phrasing of the content with a view to the thinking

of the users when setting up the website. On the main page of the finished site we find the most often searched functions highlighted by topics, with the

names by which they are/were searched by the users wherever possible. While the site was designed prior to 2010, it is still a trendy one compared to other local authority sites. It is clear, easy to understand, its content is continuously updated, according to the needs that arise.

While exploring the development of the site, I found in conversations with the owners of the site that they were aiming to adapt to the mental models of the users when building the pages (even if this was not explicitly stated). They took into consideration the fact that users would like to find the information they are looking for immediately, and do not want to reflect on the habits and hierarchy of the organization behind the site, etc.

Though the site was created before 2010, it is still trendy among local authority web pages today. As a result of former testing, it is clear and easy to understand. Its content is continuously updated, according to current needs.

One city with nine districts, with jointly developed, almost identical websites: Province of Emilia-Romagna, Italy, Bologna

The author researched the websites of Bologna (<http://www.comune.bologna.it/>) and the province of Emilia Romagna in the autumn of 2011, as an invited researcher at the University of Bologna.

Below is a brief summary of the study the author conducted at the time (2011), emphasizing the aspects that make the setup of the websites of the city and the districts especially illuminating.

Bologna has nine districts. The districts and the city do not have separate sites designed independently and developed at high cost. Instead, they had sites set up centrally, based on the same layout at the time when the study was completed.

On the site of the city, they follow the informal phrasing used by locals whenever they can (but actually rarely due to the compulsory use of official language).

The site was not tested, but they do (did) take into account the large amount of feedback from users.



Fig. 2. Bologna' website, 2012

The site was redesigned in 2012, and during this process, they worked together with the districts and took into account the opinions and observations

articulated by them. The site that was accessible in 2013 is still a true best practice solution in 2017 with its carefully planned structure and Web 2.0 solutions.



Fig. 3. Bologna's website after the redesign, 2013

Continuously tested during development, continuously developed by weekly user interviews: gov.uk

The Government Digital Service (www.gov.uk) is doing some top-notch user experience design for their websites right now. The structure and attitude of the website is exemplary for the governments of several countries.

The Government Digital Service gives an account of how they did the first iteration of

identifying user needs: they started with users' needs, asking around 1,800 individual users about their needs (or "tasks"). After this they prioritized and formatted these needs, using card-sorting tests among other methods. They ended up with around 950 needs. Future testing plans they mention in their account include: product analytics, highlighting explicit and implicit user feedback and giving access to A/B test results.

Welcome to GOV.UK

The best place to find government services and information
Simpler, clearer, faster

Search GOV.UK



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Services and information

Driving and transport

Includes car tax, MOT and driving licences

Employing people

Includes pay, contracts and hiring

Working, jobs and pensions

Includes holidays and finding a job

Money and tax

Includes debt and Self Assessment

Citizenship and living in the UK

Voting, community participation, life in the UK, international projects

Benefits

Includes tax credits, eligibility and appeals

Passports, travel and living abroad

Includes renewing passports and travel advice by country

Housing and local services

Owning or renting and council services

Births, deaths, marriages and care

Parenting, civil partnerships, divorce and Lasting Power of Attorney

This website replaces



Businesses and self-employed

Tools and guidance for businesses

Education and learning

Includes student loans and admissions

Crime, justice and the law

Legal processes, courts and the police

Disabled people

Includes carers, your rights, benefits and the Equality Act

Fig. 4. GOV.UK, 2013

However, the government not only builds a website and publishes about the methods of its creation, but they are also teaching everyone how they do it. If somebody is curious about user experience design, this is a great starting point

All of the most important parts of a great design are mentioned: start with needs, reduction, validating assumptions, desire paths, A/B testing, prototyping, colour coding, making stuff look simple vs. making stuff easy to use, iteration, minimum viable products, Alpha and Beta testing, avoiding massive specs, accessibility, sticking to existing mental models, contrast, information design, consistency, typography, icons, style, tone, visual metaphors and the problem of overuse, and more (see Figure 4).

British Columbia also had a toolbox that can

be used for designing local governments' websites in such a way that they meet user needs.

Developed after learning about client needs and workshops: Hukoomi, the Qatar Government Portal

Hukoomi is Qatar's primary government portal (<http://portal.www.gov.qa>). It is the single place businesses you can visit to complete transactions like applying for work visas, exit permits, residence permits, and much more. Hukoomi continues to add more transactions and services every year, and they put high emphasis on making the use of the site effective.

Users had a problem with content and naming, instructions were often too technical for them to understand.

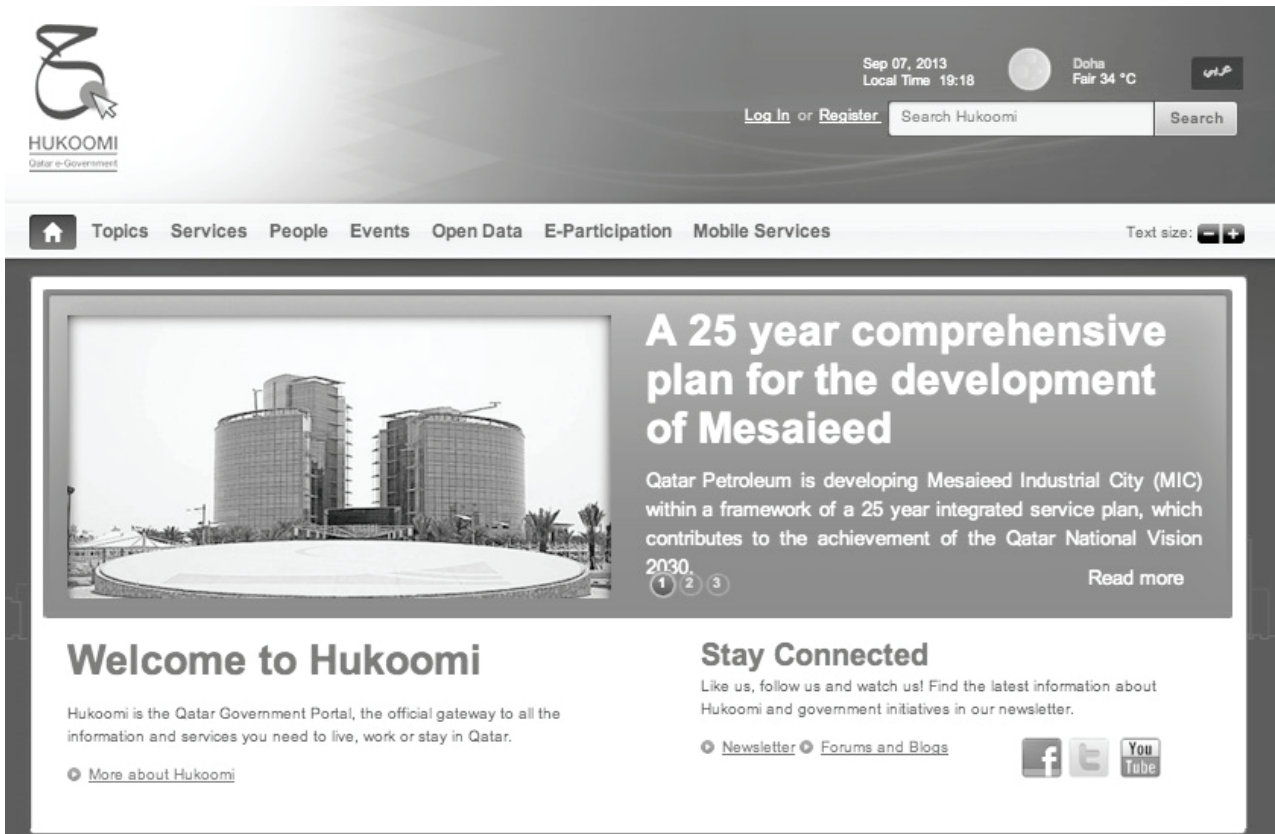


Fig. 5. Qatar: Hukoomi, the Qatar Government Portal. September, 2013

The developers first conducted usability tests in 2009 and organised user focus group with the primary audiences for Hukoomi. The participants attempted to complete ten of the most common tasks on the site and shared their overall impressions of the site.

In 2012 the portal was redesigned. The redesign of the new government portal involved a highly interactive information architecture workshop with stakeholders, card sorting exercise and prototype development.

The following methods were used at the early stages of the project:

- Gathering client requirements;
- Data analysis and review of the existing homepage;
- Highly interactive Information Architecture workshop was conducted involving key stakeholders in Qatar;
- Card Sorting exercise was conducted involving key stakeholders in Qatar;
- Subsequently, wireframes and prototypes were developed and tested with the targeted profiles of users.

By using a set of diverse research methods, developers could create a site that meets user needs.

Tested by different methods: Saudi – SAUDI | National e-Government Portal

SAUDI (<http://saudi.gov.sa>) is the National e-Government Portal of Saudi. While developing the site, a number of user tests were conducted to help glean some important insights into the behaviour and expectations of users. This approach is passive in that they did not directly ask the users about what they want or like, but rather gave them exercises and asked them to write down any and all important observations.

A more traditional focus group was also conducted.

Activities covered include:

- Card sorting based on the data from the aforementioned analysis;
- User testing for the current design to avoid repeating the same mistakes;
- Testing wireframes designed based on the analysis.

Developers used several successive methods, which was a basis for the clear structure of the page that was constructed.



Fig. 6. Saudi – SAUDI | National e-Government Portal, English version. September, 2013



Fig. 7. Saudi – SAUDI | National e-Government Portal, Arabic version, 2013

Ujbuda.hu: example for good practice, why it is worth researching the needs of a specified visitor group

We have conducted a UX and an eye-tracking research at the website of the 11th district of Budapest

(Ujbuda), the elderly-friendly Ujbuda page. We were interested that how do members of the 60+ age group orient themselves and behave when they move about on a given online surface? What are their habits of Internet use? To what extent do they prefer what

they are used to, and are they open to novelty? How do they look at a given surface? At which points do they face difficulties while navigating on the site?

These were the kinds of questions we examined in March 2015, in the framework of the DECIDE international democracy development project. During the research, we used eye tracking and user interviews to study the surface specifically designed for elderly people of the municipality website of the 11th district of Budapest (Újbuda),

the elderly-friendly Újbuda page, <http://idosbarat.ujbuda.hu/>. All of our test subjects were members of the target group, that is, people over 60. Their Internet use and webpage viewing habits observed during the study were very illuminating.

An outstanding result of the study – shown by eye-tracking part of the research – is that this age group is simply not at home in the interpretation of icons.

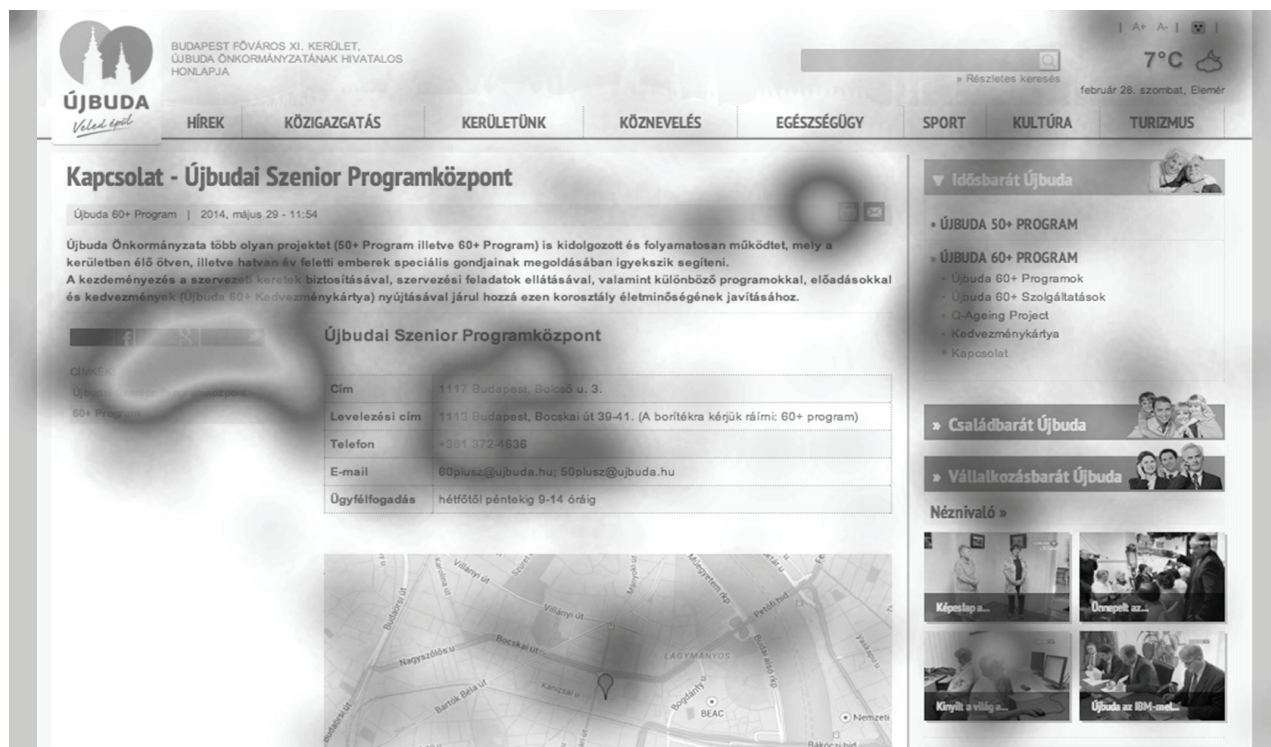


Fig. 8. Újbuda.hu, Senior Program Center, social network, icons – eye tracking research, heat map, 2015

Not only did they have difficulty recognizing the icons, but they did not even notice them. The term that best describes this phenomenon might be icon blindness. They took the print icon to be a speaker or magnifier icon, and they had difficulty understanding or just misunderstood the search icon (“I search with my mouse!”), they do not use that function either.

They are unaware of the possibility to magnify text, and nor are they able to interpret the icon. They also only explain the A+- click opportunity upon request, and even then they point out the lack of a mouse over text – which is completely justified. Actually, this is the very age group for whom it would be important to magnify fonts (and perhaps increase font contrast).

The reason for the above might be that they are not familiar with the objects that the icons are based on (e.g. simplified printer), or they are not

familiar with the given symbols and functions. This is a very interesting question deserving further study and research.

Seeing the results of the research, the Council of Újbuda plans to modify the relevant subpages in 2017, in accordance with the research results.

Conclusion

The examples presented in this study show that the websites of governments and city governments should not go without systematic user testing, particularly the investigation of the mental models (even if this was not explicitly stated). The pages/websites that take into consideration the thinking patterns of the users are easier to use because they satisfy users’ expectations and mentality better.

The presented examples demonstrate that pages where preliminary survey research and testing were systematically applied during development

and the finished page is also continuously developed meet user expectations much better than those where this was not the case (see, for example, Herendy, 2015), and this is also reinforced by subsequent studies by the author.

During the development of the pages studied, designers and developers implemented the following types of research:

- Analysis of web analytics, e.g. Google Analytics, in order to learn about the former and present behavior and needs of the user, preparing online survey research, analysing results in order to map user needs;
- Highly interactive Information Architecture workshop was conducted involving key stakeholders;
- Doing card sorting tests during development. The test supports the design of the information architecture. Preparing A/B tests, which help developers pick the one that is more simple and easy to use from two options;
- Developing wireframes and prototypes and testing with the targeted profiles of users;
- Product analytics, highlighting explicit and implicit user feedback.

An outstanding example for all public administration authorities is the British gov.uk page, where planning was implemented by using all of the most important parts of a great design: start with needs, reduction, validating assumptions, desire paths, A/B testing, prototyping, colour coding, making stuff look simple vs. making stuff easy to use, iteration, minimum viable products, Alpha and Beta testing, avoiding massive specs, accessibility, sticking to existing mental models, contrast, information design, consistency, typography, icons, style, tone, visual metaphors and the problem of overuse, and more. This page is also outstanding because the government not only builds a website and publishes about the methods of its creation, but they are also teaching everyone how they do it. If somebody is curious about user experience design, this is a great starting point.

Although there is no legal regulation on public administration websites in mentioned countries, the international standard provides guidance on usability and might be helpful to build more usable governance websites.

The examples reflect the 2012–2017 conditions. Most of the sites have been developed since, some even totally redesigned. Considering the harmful development practices that are sometimes found – not only – in Hungary (e.g. the procedure of development is outdated and poorly planned, no or very little testing is done, and even when it

is done, it is unprofessional; usability experts/researchers are typically not consulted (due to the lack of information about the theme rather than bad intentions (Herendy, 2015)), the earlier development and testing experiences can also be useful and the sites presented in this study are still instructive in 2017, and considering the methodologies used at that time, they are exceptional within the public administration sites.

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Herendy, C.

How to Learn About Users and Understand Their Needs? *User Experience, Mental Models and Research in Public Administration*

Summary

About the research question: in the business world, companies increasingly tend to create their websites and apps by conducting exhaustive simultaneous or preliminary research and testing. Surfaces developed in this way are easy to use and understand, and they meet the

explicit and implicit needs and expectations of the users. This in turn generates new expectations, that is, citizens need public administration sites to be usable and easy to understand at the same time. They want to be able to search for information, do administrative tasks and carry

out other transactions in a straightforward manner (Béres and Zsák, 2007).

In the meantime, it is a well known fact that citizens have a problem with orienting themselves on public administration websites in most countries. The interpretation of the information architecture and wording cause difficulty, a lot of things are not found in places where the user would look, and so on. However, if the surface of public administration sites is cumbersome, navigation is complicated, the expressions used there are difficult to understand, citizens will be annoyed, and choose personal administration with a bad feeling. This does not favor the spread of e-government, while, according to the eEurope action plans, public administration should be able to offer complex electronic public services that meet up to date standards of quality, content and functionality.

The paper explores the possible backgrounds of the above problems, and presents methods for developing online public administration web surfaces in such a way the results meet the explicit and implicit expectations of users after all.

The author gives real answers to the following questions:

- How can public administration websites be more simple and straightforward to use?
- How can web surfaces be tested, and in which phase of developing is it best to do this?
- What kinds of known, tried methods are available for this, and when have they been used?
- How did those who “did well” do it?

In order to answer the above questions, the paper also presents some case studies, websites developed by governments and cities that specifically kept in mind the explicit expectations, values and points of view of users, and these needs were taken into account during development.

Method of the research: following the thorough desk research, the author conducted and complemented the exploration with on site, personal and telephone interviews as well as e-mail communications. The presented examples are based on the author’s research going on since 2009.

Main results, conclusion: The examples presented in the study aim to support the point that as well as all other websites, public administrations sites also need to or should be made with continuous testing during development, including the study of mental models (even if this was not a stated explicit need during the development).

The presented examples demonstrate that sites that were systematically assessed through preliminary research and testing during development, and the finished page is also continuously developed, meet the expectations of users much better than those where this was not the case

(see, for example, Herendy, 2015), and the subsequent studies of the author also confirm this.

During the development of the studied sites, designers and developers conducted the following types of research, among others:

- Analyzing web analytics, e.g. Google Analytics, in order to learn about the prior and present behavior and needs of the users;
- Preparing online survey research, and analyzing the results in order to map the needs of users;
- Workshops for designing the information architecture;
- Card sorting tests to support the design of the information architecture;
- A/B tests, which help developers pick the design that is easier and simpler to use from two options;
- Preparing wireframes and prototypes, testing them with members of the target group;
- Collecting feedback from users.

The British gov.uk site can be an outstanding example to follow for all public administration organs, as it was designed with the use of nearly all the excellent testing and development methods: starting with learning about the needs of users, followed by A / B testing and preparing a prototype. They paid attention to optimizing color coding, the simplest possible presentation of everything, ease of use, iteration, and accessibility. They got to know existing mental models and stuck to them, they coordinated the adjustment of contrast, color, typography, icons, style, sound effects and visual metaphors.

The British gov.uk site is also outstanding because it is not just about the government creating and continuously developing and shaping a web surface, but also teaches anyone interested in how they can create this kind of surface themselves, or at least one that meets such high standards.

The presented examples represent the state of the sites in the period between 2012 and 2017. Some of the surfaces have been further developed in the meantime, and some were completely restructured.

With a view to the harmful development practices that can be observed sometimes – not only in Hungary worldwide – (the development process is poorly planned, it involves no testing or testing is poorly implemented, authentic UX and research experts are not consulted, developments are often made in-house (which tends to happen due to the lack of information, rather than by bad intentions)), the presented examples are still of interest in 2017. This is especially true if we consider the testing and development methods that have been used smoothly for the past 5-10 years.

Keywords: eye-tracking, mental models, testing methods, online focus group, user experience, website usability.