



**KnowING IPR project
Fostering Innovation in the Danube Region
through Knowledge Engineering and IPR
Management**

D 4.1.1. User Experience Design KnowING IPR

Project co-funded by European Union funds (ERDF, IPA, ENI)
[Http://www.interreg-danube.eu/approved-projects/knowing-ipr](http://www.interreg-danube.eu/approved-projects/knowing-ipr)

Document Reference

Project Acronym	KnowING IPR			
Project Number	DTP2-076-1.1			
Project URL	http://www.interreg-danube.eu/approved-projects/knowning-ipr			
Project Coordinator	Faculty of Information studies in Novo mesto			
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Deliverable Name	User Experience Design KnowING IPR			
Deliverable Number	D 4.1.1			
Responsible Author(s)	FIS, H&S and all other PP			
Contractual Date of Delivery	Period 2			
Status	Final			
Quality assurance readers	All partners			

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Introduction

The deliverable 4.1.1 represents User Experience Design KnowING IPR toolkit. This toolkit defines the methodology, steps and activities of the user experience design, which will provide information to feed into future steps of the KnowING IPR. This deliverable is directly connected to 4.1.3 the 6 UXD workshops; is being supplemented later by 4.1.2 Tools for determining the necessary functionality of the Knowing Hub platform with its tools and services, as well as design features (nonetheless, the principles from this document are also directly applicable to 4.1.2) and indirectly effects several other deliverables; from the knowledge database to designed training activities.

UXD is trying to answer the simple question of what people really want in *a product*, sometimes even going so far as to formulate the product in itself. Consider the case below.

Theodor Lewitt once wrote: “People do not actually want an electric drill, they want to make a hole. However, Donald Norman, in his classic book on UXD “The Design of Everyday things”, asks himself if Lewitt didn’t stop too soon and people don’t truly want a shelf for their books (cause who really wants a hole for itself?).

But for the purpose of the KnowING project, we can go even two steps further; a) do people really want the shelf, or what they truly want is a place to put their books and b) if they want a “place” does this place need to be physical? Thus, we are brought from a simple electric drill to opportunities for online publishers and bookstores.

Indeed, following also from the above example, in most cases, that *product* will be a website or an application of some form, hence also in KnowING this activity is connected to the software (web) solutions.

KnowING User Experience Design will address the need for user-oriented approach in development of ICT tools. In this activity we will test visual design, information architecture, interaction design and usability design. The information architecture, structure and usability design need to be in line with potential user’s needs. Interaction design needs to clearly guide the users of the KnowING Hub Portal, contributing to high take-up and retention rate and user satisfaction. We need to keep in mind, that enterprises, especially SMEs, can dedicate only limited resources to learning how to use the KnowING Hub to collect relevant IPR management knowledge.

User Experience Design

UXD – What and Why?

1. A Brief Introduction to UXD

In general, user experience (UX) is simply how people feel when they use a product or service. In most cases, that product will be a website or an application of some form. Every instance of human-object interaction has an associated user experience, but, in general, UX practitioners are interested in the relationship between human users and computers and computer-based products, such as websites, applications and systems. User experience design (UXD) can be a complicated and overwhelming field for newcomers, as it encompasses a wide range of topics (from accessibility to wireframing). Some of these topics overlap, while some of them complement one another. Therefore, it's important to come to a common and basic understanding of what the term “user experience” means in a design context (Interaction Design Foundation, 2018).

We believe following Tulus and Albert (2013) the user experience includes three main defining characteristics: 1) A user is involved 2) That user is interacting with a product, system, 3) The users' experience is of interest, and observable or measurable.

Following from above, every instance of human-object interaction has an associated user experience, but, in general, UX practitioners are interested in the relationship between human users and computers and computer-based products, such as websites, applications and systems. Hence, UXD, as its name suggests, is about designing the ideal experience of using a service or product. As such, it can involve all types of products and services—think, for instance, about the design involved in a museum exhibition. However, in the main, the term user experience design is used in relation to websites, web applications and other software applications. Since the second half of this century's first decade, technologies have become increasingly complex, and the functionality of applications and websites has become far broader and far more intricate. Early websites were simple static pages that served up information to feed curious searchers; however, a few decades later, what we can find a wealth of online are sites that are interactive and offer a much richer feel for users (Interaction Design Foundation, 2018).

2. Why does UXD Matter?

In the past, product design was simple; designers built what they thought was cool and what they hoped their clients would like. Unfortunately, there are two problems with that approach. The first is that, back then, there was far less competition for people's attention, in specific also no web, with quick information, comparison options and many times strong substitution capability. The second is that there's no consideration for the user of the product at all in that approach—the success or failure of a development project was down to luck as much as it was down to the judgement of the design team. Focusing on UX enables design to focus on the user. It increases the chances of a project's success when it

finally comes to market, not least because it doesn't gamble on the faith of users in taking to a product just because it's a brand name. (Interaction Design Foundation, 2018)

Nonetheless, although sometimes user experience can rely on simple "What would you like?" type questions. However, this might be most effective when users are faced with a concrete situation. Consider, for example, that when a group of friends that have got a receipt at the restaurant, might be quick to state that what they would like to see on the bill would be a split amount for everyone, this answer would be difficult to get with simply saying "here is a receipt, what else should we put on it?". There are also two other barriers: users limited innovativeness and inherent conservativeness. Consider the saying attributed to Henry Ford: "If we would ask the users what they want, they would say faster horses." Thus, to be able to use the whole potential of users feedback, many times specific tools need to be design, hence we provide this UXD toolbox also inside the KnowING IPR project.

UX Design Methods and Deliverables

The main methodology used to guarantee the user experience in most projects is user-centered design. Simply put, user-centered design is all about designing with the users' needs and expected behaviors in mind. It's important for us as UX designers to remember that user-centered design is a means of achieving good UX—and not the only methodology or tool that one can use to ensure optimal UX in a project (Interaction Design Foundation, 2018).

The list below aggregates most common methods and techniques produced by UX Designers as they craft experiences for other people (uxdesign.cc, 2016).

1. Service Blueprint

A map that displays all the touchpoints of the consumer with your brand, as well as the key internal processes involved in it. Useful to visualize the path followed by consumers across multiple channels and how you could improve the flow.

2. Consumer Journey Map

A diagram that explores the multiple (sometimes invisible) steps taken by consumers as they engage with the service. Allows designers to frame the consumer's motivations and needs in each step of the journey, creating design solutions that are appropriate for each.

3. Personas

A relatable snapshot of the target audience that highlights demographics, behaviors, needs and motivations through the creation of a fictional character. Personas make it easier for designers to create empathy with consumers throughout the design process.

In the **Appendix 1** we elaborated the tools (in form of worksheets that served as starting point when developing the respective UXD).

4. Ecosystem Map

A visualization of the company's digital properties, the connections between them, and their purpose in the overall marketing strategy. Gives you insights around how to leverage new and existing assets to achieve the brand's business goals.

5. Competitive Audit

A comprehensive analysis of competitor products that maps out their existing features in a comparable way. Helps you understand industry standards and identify opportunities to innovate in a given area.

6. Value Proposition

A reductive process in the early stages of product definition that maps out the key aspects of it: what it is, who it is for and when/where it will be used. Helps the team narrow down and create consensus around what the product will be.

7. Stakeholders Interviews

Scripts for interviewing key stakeholders in a project, both internal and external, to gather insights about their goals. It helps prioritize features and define key performance indicators (KPIs).

8. Key Performance Indicators

Pre-established criteria to measure progress toward strategic goals or the maintenance of operational goals. KPIs help inform design decisions along the way and measure results of the UX efforts.

9. Brainstorming

The collective process of generating constraint-free ideas that respond to a given creative brief. Allows the team to visualize a broad range of design solutions before deciding which one to stick with.

10. Moodboards

A collaborative collection of images and references that will eventually evolve into a product's visual style guide. Allows creatives to show clients and colleagues a proposed look for the product before investing too much time on it.

11. Storyboards

A comic strip that illustrates the series of actions that consumers need to take while using the product. Translates functionalities into real-life situations, helping designers create empathy with the consumer while having a first look at the product scope.

12. User Flow

A visual representation of the user's flow to complete tasks within the product. It's the user perspective of the site organization, making it easier to identify which steps could be improved or redesigned.

13. Task Analysis

A breakdown of the required information and actions needed to achieve a task. Helps designers and developers understand the current system and its information flows. Makes it possible to allocate tasks appropriately within the new system.

14. Taxonomies

An exploration around multiple ways to categorize content and data: topics in a news site, product categories in an ecommerce etc. Assists designers in defining the content structure to support the user's and the organization's goals.

15. Content Audit

The activity of listing all content available on a website. This list will come in handy at various stages of the project: see the big picture, define the content strategy and check the details of each page.

16. Heuristic Analysis

A detailed analysis of a product that highlights good and bad practices, using known interaction design principles as guidelines. Helps you visualize the current state of the product in terms of usability, efficiency, and effectiveness of the experience.

17. Sitemap

One of the most iconic IA deliverables, consists of a diagram of the website's pages organized hierarchically. It makes it easy to visualize the basic structure and navigation of a website.

18. Features Roadmap

A product's evolution plan with prioritized features. It could be a spreadsheet, a diagram or even a bunch of sticky notes. Shares the product strategy with the team and the road that needs to be taken to achieve its vision.

19. Use Cases and Scenarios

A comprehensive list of scenarios that happen when users are interacting with the product: logged in, not logged in, first visit etc. Ensures that all possible actions are thoroughly considered, as well as the system behavior in each scenario.

20. Metric Analysis

Numbers provided by an analytics tool or your own database about how the user interacts with your product: clicks, navigation time, search queries etc. Metrics can also “uncover the unexpected”, surfacing behaviors that are not explicit in user tests.

21. User Interview/Focus Group

A panel of people discussing a specific topic or question. Teaches about the users' feelings, opinions and even language. Useful when the target audience is new or unknown for the team.

22. Quantitative Survey

Questions that provide numbers as result. Quick and unexpensive way of measuring user satisfaction and collecting feedback about the product. It could indicate the need for a deeper qualitative test.

23. Usability Testing

One-to-one interviews in which the user is asked to perform a series of tasks in a prototype or a product. Validates and collects feedback of flows, design and features.

24. Card Sorting

A technique that consists in asking users to group content and functionalities into open or closed categories. Gives you input on content hierarchy, organization and flow.

25. A/B Test

Offering alternative versions of your product to different users and comparing the results to find out which one performs better. Great for optimizing funnels and landing pages.

26. Eyetracking

A technology that analyzes the user's eye movements across the interface. Provides data about what keeps users interested on the screen and how their reading flow could be optimized by design.

27. Accessibility Analysis

A study to measure if the website can be used by everyone, including users with special needs. It should follow the W3C guidelines to make sure that all users are satisfied.

28. Sketches

A quick way of visualizing a new interface by using paper and pen. Sketches are useful to validate product concepts and design approaches both with team members and users.

29. Wireframes

A visual guide that represents the page structure, as well as its hierarchy and key elements. Useful to discuss ideas with team members and clients, and to assist the work of designers and developers.

30. Prototypes

A prototype is a simulation of the website navigation and features, commonly using clickable wireframes or layouts. It's a quick and dirty way to test and validate a product before fully developing it.

31. Pattern Library

A hands-on library that provides examples (and code) of interaction design patterns to be used across the website. It not only promotes consistency, but also makes it easier improve elements as needed.

Already inside this toolkit, we design or refer to those, we find most useful for UXD activities inside the KnowING project. Please note, several of them will also be referenced in the Deliverable 4.1.2 Tools for determining the necessary functionality of the Knowing Hub platform with its tools and services, as well as design features.

Steps of UXD Process

The UX Development process is all about ensuring that no aspect of the user's experience with your site happens without your conscious, explicit intent. This means taking into account every possibility of every action the user is likely to take and understanding the user's expectations at every step of the way through that process. It sounds like a big job, and in some ways it is. But by breaking the job of crafting user experience down into its component elements, we can better understand the problem as a whole. (Garrett, 2010)

According to Miller (2016) there are five primordial steps for the UXD process, which we adapted for the needs of the KnowING IPR project. These steps comprise:

1. Research/Empathise

Research is the most basic step to final product. It refers to identification of competitors' solutions and designs, as well as existing alternatives, market and field trends, etc. KnowING IPR activities however already cover this in other steps to a large degree as this is needed also for other deliverables, e.g. see the templates to identify some databases in deliverable 3.1.1. (already delivered inside , which at the same time bring partial functionalities such as are envisioned for the KnowING software solution. Furthermore, it is important to use quantitative and qualitative data from analytics and user feedback software. The designer should use the user-centered approach. The goal is to understand the needs and wants of the users. In this regard please also consult the section on personas below.

2. Define

After finishing the research, it is important during the UXD process to define what the user is trying to achieve. It is important at this stage to map the user's journey. In this regard please also consult the initial scenarios below and the workshop section. Thus, the designer must consider the potential barriers that the user might encounter (e.g. technical restrictions, if the plan in line with the product/ service vision, etc.). There can be several types of so-called fallibilities (Norman, 2002): a) a slip, b) a lapse, c) a mistake and finally d) a violation. We will be especially also inside the tools developed in 4.1.2 considering all those types.

3. Ideate

In the moment the step of researching and defining has finished, it is important to ideate. As a result, all gathered information from the previous steps must be used for brainstorming solutions. This process can be visual or non-visual, though a visual reference might offer more reference to the 'problem' you're trying to solve. It helps to create something tangible before proceeding to the next step. A series of meetings will be held inside KnowING IPR project consortium partners to help achieve this.

4. Prototype

Prototyping is the most effective way to give life to what you've designed before it reaches the development stage. As a result, it is important to draw on paper the intended functionality. Also, don't forget to ask for feedback emphasizing the 'role-play' of the

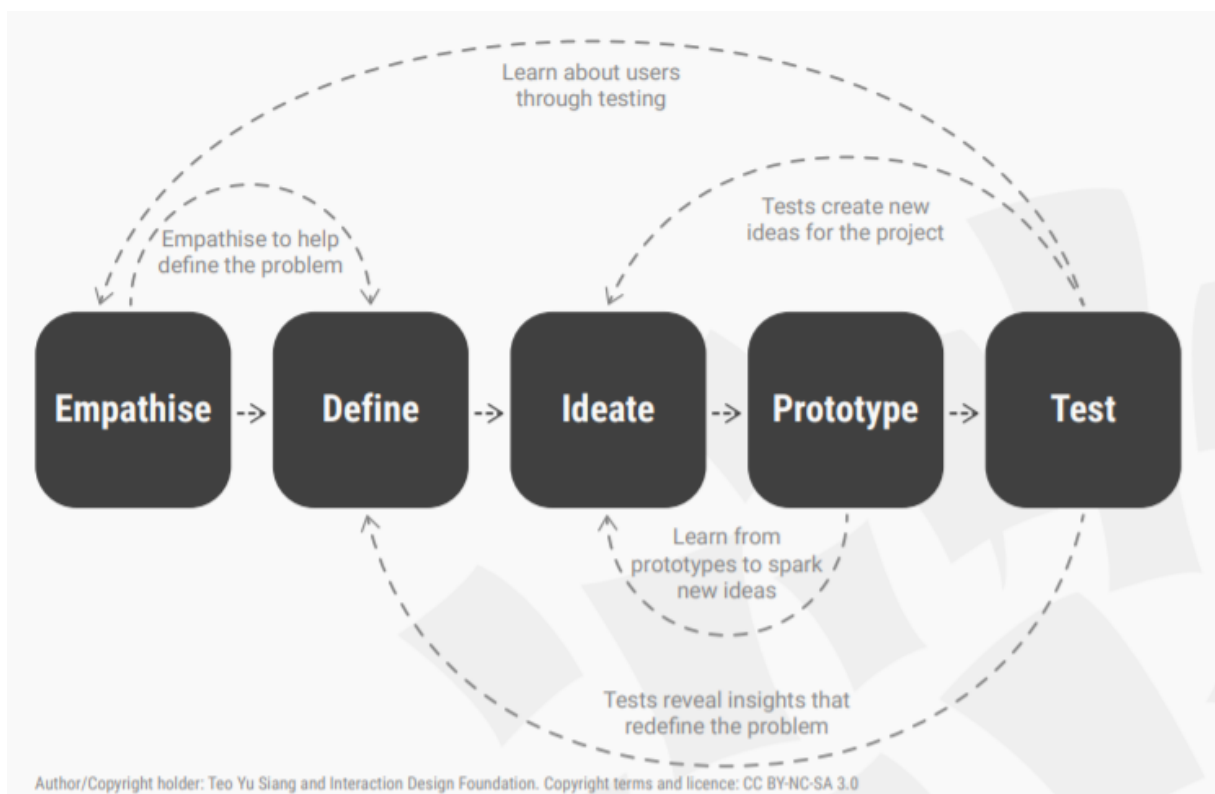
interactions. This process will highlight any potential difficulties or unexpected user behavior that might have been overlooked. Results of this step result in design images, icons themes, etc. for the product. The prototypes are used in the workshops.

5. Test

The last step, is the testing phase. Testing is vital for UX design because the only way to know for sure is to test. It is enough to have 5 users to test, because these numbers are enough to solve 85% of the UX problems. These test-users can be either part of your organization, clients, etc. You should consider from the usability; complexity (for the user to use it); flexibility; appropriate solution for the problem; credibility and satisfaction; etc. aspects. Please also consult the section Testing the Application.

Depending on the obtained results, there can be an additional step: REPEAT. Thus, in the moment the results of the testing phase are not satisfactory, it is important to return to step number three (Ideate) and continue till step five (Test). It will allow to come up with some alternative solutions. UXD process is an iterative and non-linear process. Steps of the UXD process is represented in Picture 1. As this is an externally funded project, we also design an additional step of evaluation.

Picture 1: Steps of the UXD Process



Source: Teo Yu Siang and Interaction Design Foundation in Interaction Design Foundation, 2018, pp. 18

The design team continuously use their results to review, question, and improve their initial assumptions, understandings and results. Results from the final stage of the initial work process inform our understanding of the problem, help us determine the parameters of the problem, enable us to redefine the problem, and, perhaps most importantly, provide us with new insights so we can see any alternative solutions that might not have been available with our previous level of understanding.

Personas and scenarios

As we find the tool of personas especially important, we dedicate further information to this. The process has several steps:

1. Designing the instructions and the template
2. Discussing the instructions and the template in a narrower work group consisting of different partner representatives
3. Creating a sample persona
4. Identifying the partners most likely to deliver the most exact representations of users (personas)¹

Persona is a simple tool to create a product with a specific target user in mind rather than generic one. It is one of the most often used UXD tools. In KnowING IPR we will use them as the initial input for the UXD workshops to understand whether our predictions about users are correct.

The general UXD theory and practice indicates that most optimal is the use of 5-6 personas. Our goal in KnowING is following this, and we aim to produce one persona per user/KnowING IPR stakeholder group. The persona for Higher Education and Research is provided as a real example to help create personas for other types of stakeholders.

After considering several potential pre-designed templates, we decided it is necessary we design a tailor-made template for KnowING IPR for personas. The template has the next general parts:

1. General information about the user
2. IT and IPR savviness information
3. Group identity
4. Information on goals, skills, tasks, relationships and expectations, including sub-questions
5. Information on requirements to use the product and user type

The template is accompanied by the instructions sheet as well as a sample persona. All three are in Appendix 3. The personas provide us with the initial understanding of our

¹ In the discussions also the following was pointed out: although it is identified that our patent office partner from Moldova would be the most optimal to complete the task to create a persona for the patent office/patent attorney profile, however this might be allocated to another partner, should the need arise.

users, guide our selection of workshop participants as well as are used as a tool in the workshops.

In terms of scenarios, we have first developed the template to provide a scenario as well as a template for the user case as well as developed several initial scenarios that also later help us develop the journey maps especially in initial stages.

Template for scenario is provided below.

Scenario nb.
<i>Please provide information on the scenario – who is involved, what is the situation, what does the user potentially want (word limit: 30-150).</i>

The developed use case template has the same formatting as the template for the scenarios, but contains the next categories: Description, Actors, Preconditions, Flow of Events, Extensions, Post-conditions, Special conditions. Also determined are Authors and Comments. They will not be reported here as they are part of a different activity, yet their interconnectivity needs to be mentioned here.

Next, below we provide an example, however a full set is available in the Appendix. Furthermore, several user cases were also developed utilizing the above main areas, but which are encompassed in the document Knowing Online and Offline Client Application - as that task was encompassed in a different activity. Nonetheless, to avoid repetition, use cases are not reported here, but will be reported in the deliverable connected to that particular activity.

Scenario A: The BMW R&D researcher recently found a small notice in a newspaper that a Slovenian inventor B. Rodič, together with his co-inventor (unnamed) has made a new discovery on a braking system for motorcycle vehicles (two-wheelers) with specifications XYZ and that this technology might be licensable. He is now interested if this technology has been patented by B. Rodič and where? Who is the co-inventor? How does the invention in general work – is it perspective enough to engage those inventors? What do these two inventors usually work on? Can he get some more information on where he can turn to ask about the potential to buy a license on this technology to give an informed related suggestion to his management? The user might Google, however this will bring him limited results. He might use the national database, however this on the other hand is possible if he is a native speaker and if he is not interested in further details on the inventors. If the user is from a large resources-rich company, he will probably be aware of the potential of interconnecting different databases and will engage in further search for databases or aggregator software that might allow him to do this.

Based on such scenarios future journey maps can be developed as well as allow us to form our initial prepositions.

Workshops

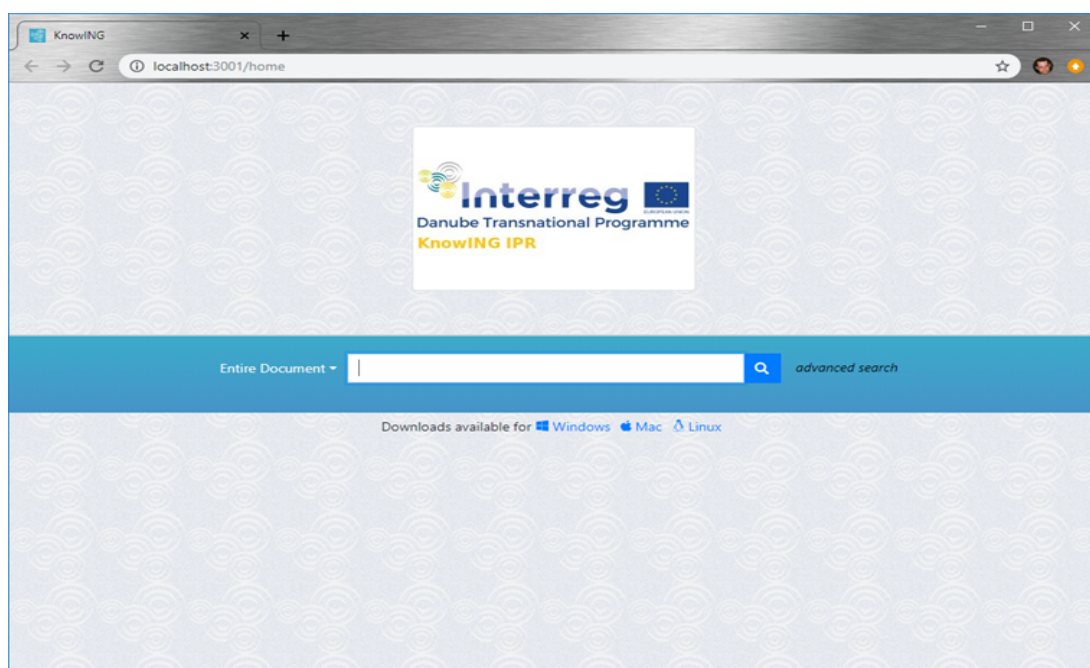
Six events/workshops will be organized in order to get structured information about the application from prospective users of KnowING Hub. The main objective of those six events/workshops is to determine the required functionality of the application(s). First two workshops will be important to define required functionality, whereas a particular emphasis is given also to the offline client. At the end of those two workshops we have to have defined the finalized specifications with the functionalities. After those two workshops the development team will continue with the development. Please also note the interdependence of this deliverable with deliverable 3.1.2 Tools for determining the necessary functionality of the KnowING Hub platform with its tools and services, as well as design features, which will be reported in Period 3 as per project plan.

The development team at the moment prepared the first version of the application, which will also be used as a prototype at workshops (followed later by improved versions, following the ideas of reiteration and mutual interdependence of development with the UX efforts).

Nonetheless, to demonstrate, below we use some examples (in a static Figure manner) to elaborate a few of our points.

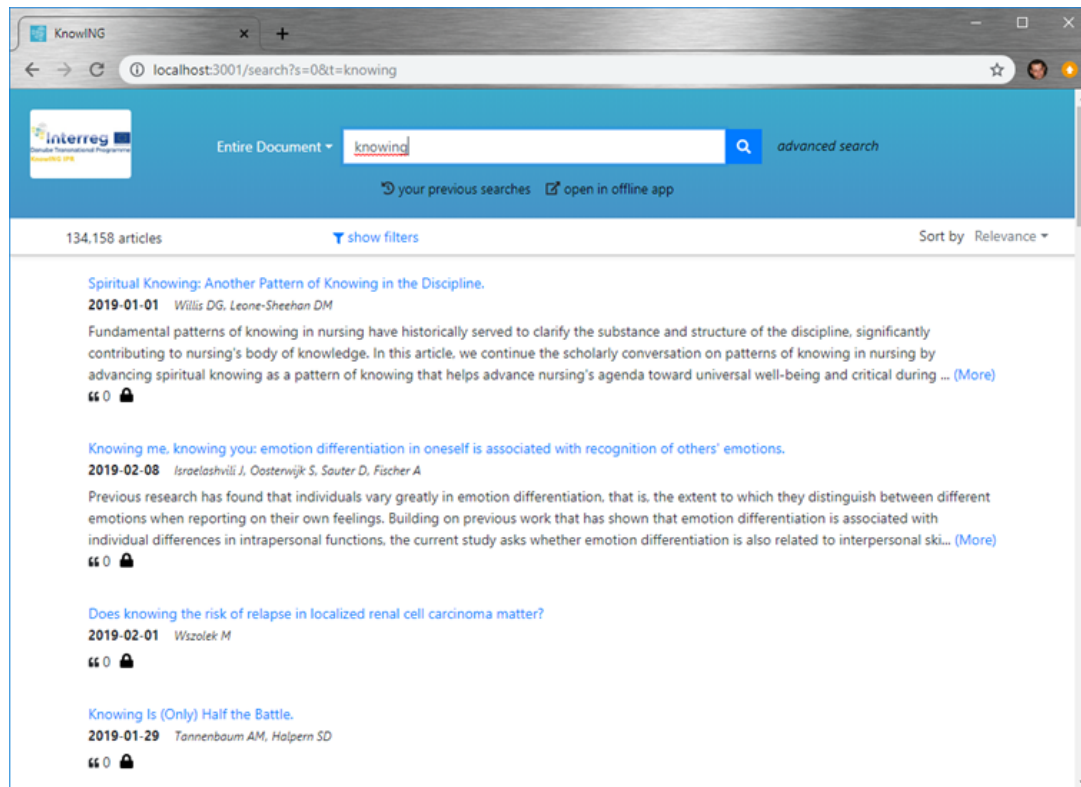
Several issues can be attached, when working with users with providing the main window of the online application. As this is their first encounter with the application, we need to get feedback on several issues (example including the visual design itself).

Picture 2: Main window of the application



Next is one of the key parts, the search results, as seen from the next Picture. As said, draft application is in a basic format and additional functionalities still have to be defined in the specification, which is the opportunity for the workshop feedback.

Picture 3: Search results



For example here, after searching “knowing” a series of results is showed in the search results (using a simple publication database in the above example). Since it is impossible to go through the whole search results, filters will be provided. At the workshops for example, which filters, and how many filters etc will be discussed.

Please also note the participants at the third and the fourth workshop will focus on more experienced users. The participants of those two events will provide their feedback regarding the functionality of based on their experiences and based on the user cases that are already prepared. New user cases are thus desirable and acceptable on those two workshops. The outcome of those two workshops is the defined and final content specification.

The final two workshops will be organized to test the user interface, functionalities, security, browser compatibility, load/stress testing, interoperability and storage and data volume testing.

Testing the Application

There will be three categories of test case design techniques: specification-based, structure-based and experience-based. Independent testing is testing carried out by someone other than the developer of the code.

The test design activity will generate the set of input values and we will predict the expected outcome by identifying from the specification what should happen when those input values are applied. A test procedure specification is a sequence of actions for the execution of a test.

Specification based techniques

The main thing about specification-based techniques is that they derive test cases directly from the specification. In our case we will derive test cases from the document Knowing Online and Offline client application – use cases. This document is a specification of the required behaviour.

Structure based techniques

Structure based test techniques are used to explore system at different levels. At the component level we test the program structures such as decisions. At the integration level we have to test the way components interact with other components (if integration is part of the project). At the system level we have to test how users will interact with a menu structure. Structure-based testing is most commonly used at the component level – to read and analyse the code.

Experience based techniques

Experience based techniques are usually used when there is no adequate specification from which to derive specification-based test cases. They use the users' and the testers' experience to determine the most important areas of a system.

Techniques range from the simplistic approach of ad hoc testing or error guessing through to the more sophisticated techniques. As mentioned, in order to do the proper testing we will provide 6 workshops: The main goal of the first and second workshop is to execute the specification based techniques. The moderator and the attendees will go through the use cases from the document Knowing Online and Offline client application and test the application. The main goal of the third workshop is to test the components. The fourth, fifth and sixth workshop will use the experience-based techniques. Users will test the application based on the specific input that will be provided for them.

Evaluation of the UXD Process

The development of the KnowING IPR Hub Portal, that is the implementation of technology solutions, is an iterative cycle including a first release of the hub portal and a second release being the final one. The second release presents an upgraded version, which already includes potential users feedback as well as testing activities. For considering real word requirements and being flexible in case of emergency changes this activity is colocated with activity 4.1 (KnowING user experience design) and with activity 4.2 (KnowING Hub User Interface Design & Development).

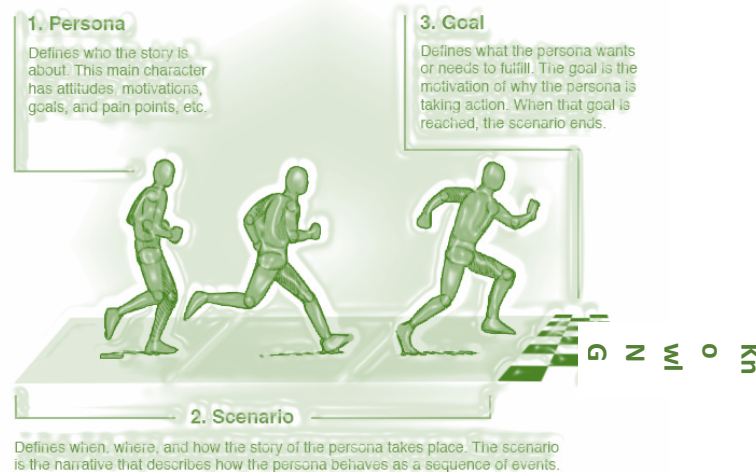
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Appendix 1: Persona – instructions, template, example

UXD Persona Instructions

Persona is a simple tool to create a product with a specific target user in mind rather than generic one. It fits, as an UXD tool, inside the UXD approach, in the following way.



A persona is hence a representation of the real target audience data, gathered in a previous research such as user interview. In KnowING IPR we will use them as the initial input, using them also in the UXD workshops to understand whether our predictions about users are correct.

Our goal is to produce *one persona per user/KnowING IPR stakeholder group*. Partners who have easiest access to a specific target group is charged with creating one. The information can be at this point gathered by more or less formal ways; a) perhaps you and your colleagues belong to a specific target group- add information based on this; b) if you have direct contact with one of the representatives of a target group, you do this one-on-one; c) you ask for a target group representative to fill out the form via e-mail. To ensure privacy, please use aliases and do not include real names. The persona can also be based on various profile, as it doesn't need to reflect only one concrete person.

Short instructions:

- a) Please encourage people to add the quote
- b) Add the stakeholder group the persona belongs to (consult the project proposal)
- c) Photograph of a person, or of something reflecting their occupation can be added. Please be careful of copyright.
- d) Add persona's data. Try to match it as much as possible with the real person(s) the persona is based upon, but please ensure privacy is respected.
- e) Add their information technologies (IT) and intellectual property rights (IPR) savviness.
- f) **IMPORTANT:** Especially important are the segments on Goals, Skills, Tasks, Relationships, Expectations, Proposed product requirements, Customer Type and notes on design (last question)

Note the persona for **Higher Education and Research** is provided as a real example to help create personas for other types of stakeholders.

Persona Template

Quote:																																	
"ADD QUOTE"																																	
 <p style="text-align: center; margin-top: 5px;"><i>Replace picture HERE.</i></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; padding: 5px;"> Name: _____ Surname: _____ Age: _____ Sex: _____ Occupation: _____ Other Descriptive Data: _____ _____ _____ </td> <td style="width: 40%; padding: 5px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="background-color: #e0f0e0; padding: 2px;">IT and IPR savviness:</th> </tr> <tr> <td style="padding: 2px;">IT and internet</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">Applications</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">Intellectual property:</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">Technology transfer:</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">Automotive industry:</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> </table> </td> </tr> </table>	Name: _____ Surname: _____ Age: _____ Sex: _____ Occupation: _____ Other Descriptive Data: _____ _____ _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="background-color: #e0f0e0; padding: 2px;">IT and IPR savviness:</th> </tr> <tr> <td style="padding: 2px;">IT and internet</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">Applications</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">Intellectual property:</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">Technology transfer:</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">Automotive industry:</td> <td style="padding: 2px;">1</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">3</td> <td style="padding: 2px;">4</td> </tr> </table>	IT and IPR savviness:					IT and internet	1	2	3	4	Applications	1	2	3	4	Intellectual property:	1	2	3	4	Technology transfer:	1	2	3	4	Automotive industry:	1	2	3	4
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Group Identity:
ADD ONE OF STAKEHOLDERS GROUPS FROM THE PROPOSAL

Goals	Skills	Tasks	Relationships	Expectations
Describe what the user wants to achieve?	Add users technical and personal skills. Relevant for the product.	Daily or job responsibilities and occupations. Can include hobby.	What are persona's interactions? Connected to the area of interest connected to the project.	What does the user believe about the product?

Proposed requirements to use the product (Skills, technology, tools, etc.):
Customer type (how is s/he going to use the product):
What should the designers of the platform be especially careful about:

Persona example

Quote:
"The lack of available connected IPR data is detrimental to my work."



Name: Alena
Surname: Rozník
Age: 38
Sex: F
Occupation: Researcher.
Other Descriptive Data:
 Worked 6 years in academia (with IPR data), before this worked in private sector for three years, law background.

IT and IPR savviness:
IT and internet
 1 2 3 4
Applications
 1 2 3 4
Intellectual property:
 1 2 3 4
Technology transfer:
 1 2 3 4
Automotive industry:
 1 2 3 4

Group Identity:
Higher Education and Research

Goals	Skills	Tasks	Relationships	Expectations
Disambiguate, match and connect IPR data to be able to complete her research as well as to be able to consult the home university TT office in terms of licensing opportunities.	Good knowledge of the IPR system, basic overview of patent informatics	Research in technology transfer and intellectual property rights. Understanding factors that influence (successful) technology licensing, understanding new patent informatics options (like LOD) and research in using patent data to understand specific topics (e.g. Circular Economy trends)	Alena works with some data science people, but is often unable to communicate adequately. Also, she is reliant on them taking the time to provide some data (programming tailor made things to be able to generate adequate examples or samples for her). Although she likes working with them, she finds it time-consuming.	Will provide more linked IPR data, will be user friendly (have interface) and relatively easy to use.

Proposed requirements to use the product (Skills, technology, tools, etc.):
 Should be easy to use, no programming needed, provide more information than patent databases, data trends would be a bonus.

Customer type (how is s/he going to use the product):
 Will use the connected data for research, as well as use the information on patent landscape to the TTO.

What should the designers of the platform be especially careful about:
 Correct linking of data, providing some data visualisations.

Appendix 2: Initial scenarios - a compilation

Scenario 1

Lilliana has recently been informed of a patent which can prove useful to her. She wants to find this patent and check the solution patented therein. At the same time, she would be interested to find other similar patents and other related non-patented documents.

Scenario 2

The BMW R&D researcher recently found a small notice in a newspaper that a Slovenian inventor B. Rodič, together with his co-inventor (unnamed) has made a new discovery on a braking system for motorcycle vehicles (two-wheelers) with specifications XYZ and that this technology might be licensable.
He is now interested if this technology has been patented by B. Rodič and where? Who is the co-inventor?
How does the invention in general work – is it perspective enough to engage those inventors? What do these two inventors usually work on? Can he get some more information on where he can turn to ask about the potential to buy a license on this technology to give an informed related suggestion to his management?

Scenario 3

You are thinking of making and selling the braking system WARNINGBRAKE (with specifications XZT) in Hungary. You need to find out if it has been patented, and whether you are free to go ahead with your plan. You are trying to find as much information on this as possible, to ensure you will not be infringing on a valid patent in Hungary.

Scenario 4

Stepan, who is employed by a competitor of Slovenian company Hella Saturnus, has a task to find as much information as possible about company's patents, industrial designs and trademarks. He is also tasked to check legal status of each patent.

Scenario 5

Imagine your automotive company is interested in cooperation with company named Rimac Automobili. You want to check if this company has any valid patents in Croatia. Is this also a valid trademark in Croatia and in Europe? What is the general IPR situation in Croatia?

Scenario 6

An automotive supply company is thinking in engaging in more solutions connected to circular economy. They understand that the trends go towards modularity in products, i.e. the product

will have a consumable and a durable element. In order to start planning the solutions around their durable part, they need to know who is engaged in designing similar solutions to their envisioned one (with properties X, W, Z) and what their main ideas/approaches are?

Scenario 7

Janus works for a TTO. He was asked by one of professors to help to check for all existing prior art and suggest if presented technology is inventive enough for the university to proceed with the patent application. However, Janus receives 10 such requests per day, she needs to do a first »dirty« check on each.

Scenario 8

Ana, an independent inventor, wishes to assess the marketability potential for her invention Z, for which he applied for a patent in Hungary one month ago, because she wants to license it. She is thus interested in who is already active in this field, to be able to shortlist potential licensees and approach only the relevant ones, who she wants to be companies engaged in R&D in this field, due to possible additional collaborations in the future.

Scenario 9

Raluca is an owner and director of an automotive SME. She wants to find some collaboration opportunities as she is lacking the research potential needed to solve a specific problem for the full functionality of her invention C. She will look into other R&D active entities, whose names she had gotten from the Chamber of Commerce and check first for the ones in her region, and later wider, to find a suitable partner. However, she wants to make sure these partners really do have active R&D in the relevant field, so she will check the records connected to them and to the people involved.

Scenario 10

It was rumoured that for the 1983 America's Cup race, the Australian yacht had a revolutionary hull design invented by Ben Lexcen. Despite their best efforts, the media were unable to discover the new features of the Australian yacht in advance of the unveiling. In fact, the details of the new hull could have been obtained three months before the race from patent documents which described the improved hull in detail (WIPO training material, 2018). You are a vehicle manufacturer and this time it is rumored that the new invention would affect a design of a transport vehicle for new boats. You want to see if there is a way you can get ahead of competition by combining multiple data sources and grabbing as much potential information as possible.

Source for first part of the case: WIPO DL318, Module 4 (2018)

Scenario 11

Ioana has an idea about design of a special amphibious vehicle capable of travelling over land, water, air, ice, and other surfaces. She would like to submit the project proposal to the EU “SME Instrument” for funding and support for breakthrough innovation projects. First she would like to check the prior art – the products that are already on the market as well as those which are patented.

Scenario 12

Owner of a SME and organic farmer Alexej from Czech Republic invented a device for removing undesired weeds in gardens which is more efficient and easier to use than a hoe. The device has two metal lugs between which a wire is tensioned. Alexej designed a prototype and signed a license agreement with a tooling company for production and marketing of the product. He was then informed that something similar is already on the market of Slovenia and Croatia. He has to check the legal status of members of the patent family and try to identify the product.