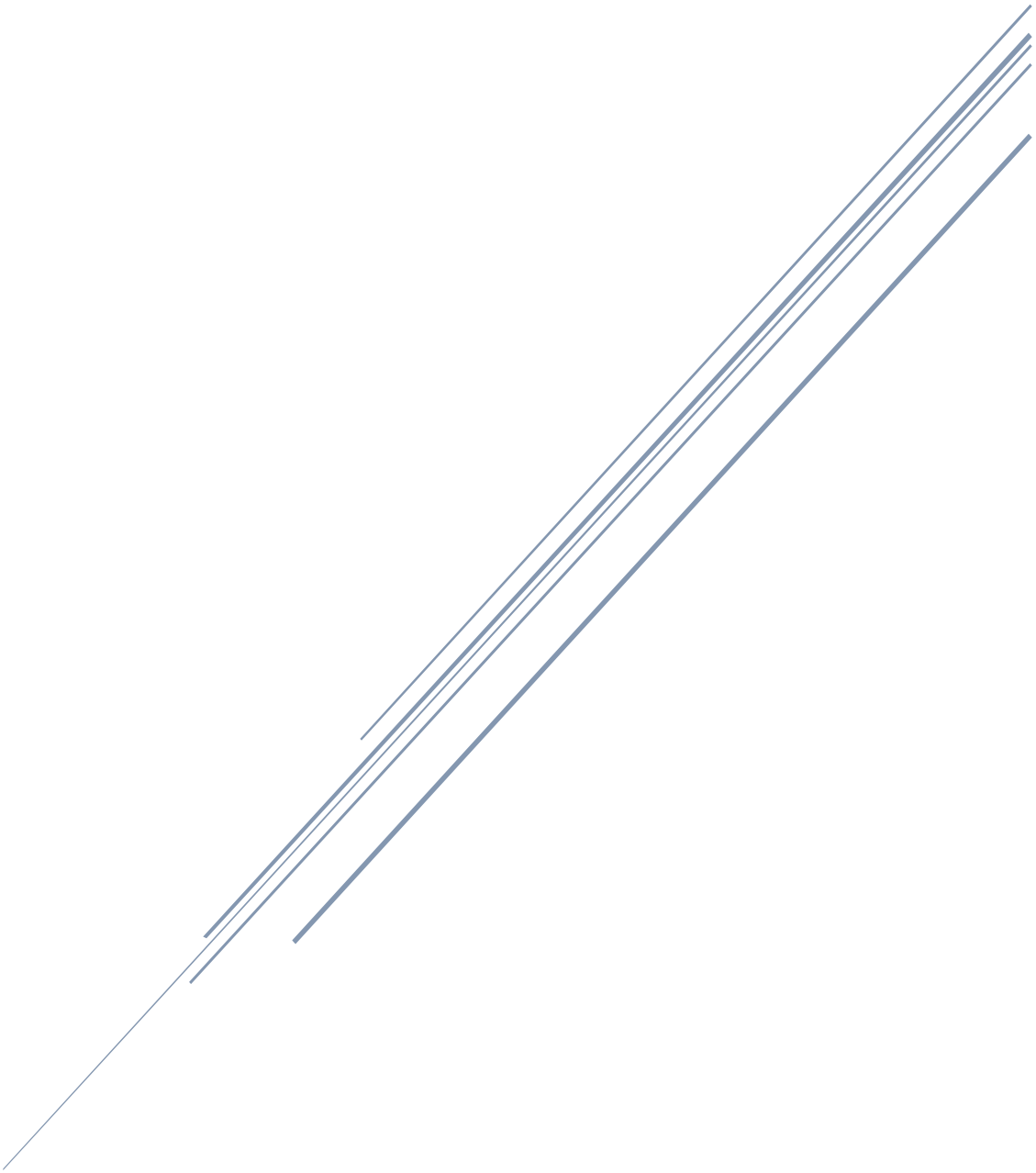
DI.TUT.

Digital Tutor



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Usability and User eXperience - Unibo

1 Table of Contents

Project Intro

Di.Tut. stands for Digital Tutoring, it is a social service platform designed for the realization of an independent ecosystem aimed to support users in the resolution of problems related to technologies.

We are moving rapidly in a new digital world where software and devices are compulsory elements, digitally connected in some way to the web, that have to be used in order to accomplish even ordinary tasks: sending a message or a letter, buying a train ticket, watching a movie, doing shopping, managing money and bank account, deal with public services, even cooking and house-keeping are becoming everyday more digital.

How people react to such a new environment? In very different ways.

We have young and digital born users that feel comfortable with this new environment, and we also have a segment of less young users that have learned the basic and successfully carry on the different tasks.

But there are people, mainly elderly people, which remained out from this new world, disconnected, and frustrated for the difficult of understanding how to solve even simple issues.

Di.Tut. is a platform that has been originally thought for them, which are the primary target, but Di.Tut. arrives to be a useful tool also for other secondary targets.

It is a web platform accessible through any browser, but it can be scaled to a human service which includes a consultancy service, accessible also by phone, video call or even in presence meetings.

The knowledge base of Di.Tut. is a collection of digital user guides, quick start tutorial and a search engine realized integrating Chat-GPT. The access to the self-explore section is free and open source, it doesn't require any registration.

But for registered users there are additional services:

- Dedicated assistance
- Direct support
- A reward program.

Crucial is the profile creation process, where users must select between two possible roles:

- The users that need help with digital – the Druids
- The users that can give help with digital – the Nerds

A short form with basic demographic information must be filled in and then the users have to select their preferred channel of communication, give and verify their contacts.

Only to Nerds users the system will propose a selection of skill tests that they can take for demonstrate and certify their knowledge. If they fail more times they could also demoted at the Druid role.

Once registered Druids will periodically receive short suggestions and tips about technology. They are motivated and if they achieve their goals, they can also reach the role of Nerd.

The platform will include a social network and/or a Facebook group with a direct message system and every user has the possibility to post content.

It appears clear the needs of the Druid users to register and use Di.Tut.: they have to learn and use the digital tools for their life… but it is not so obvious the reason why the Nerds should join the platform.

In fact, the approach with this target will be completely different; we need to motivate them with rewards: an internal score system will enable them to earn points and badges that can be then converted in value: coupon and discount from a network of sponsors, the possibility to be hired by the platform, and the possibility to directly receive money by the Druids for personalized services. So it could become for them a real work!

In this document we try just to introduce and describe the business model, but then will focus more on the aspects related to the Usability and User Experience. Analysis and assumptions will be done using the frameworks and standards internationally recognized and a methodology based on continuous iterations according to the user testing and feedback.

The entire platform will be designed to be the most possible in compliance with the WCAG international standards, first of all because our primary target (older people) are often already affected by eyes or other perception and gesture disease, but also because particular attention we want give to people with disabilities: they should have a full and complete access to the content and services.

We are inspired by the Donald Norman's approach for a meaningful, sustainable and humanity centered Design (Design for a Better World – The MIT Press – D. Norman 2023).

2 FEASIBILITY STUDY

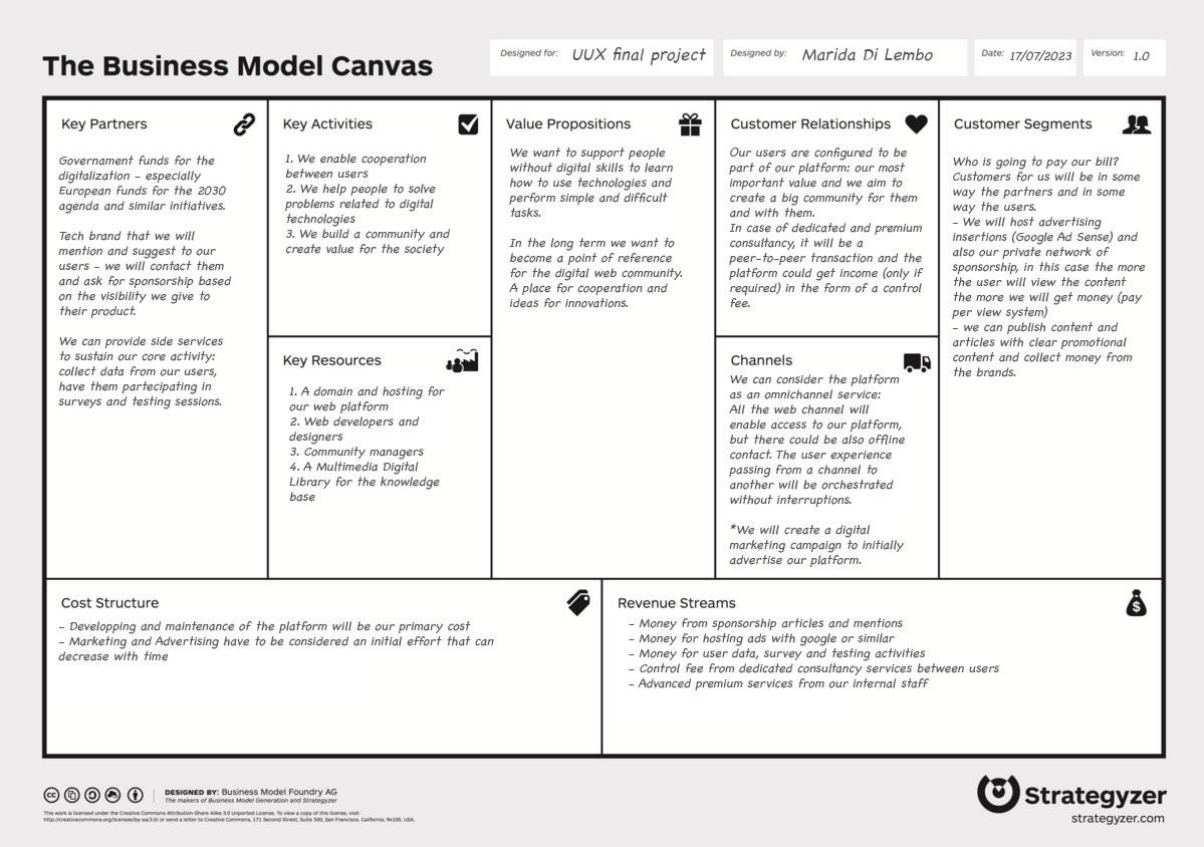
If we look at the business model of our solution, we can make some assumption and define how we could sustain the solution from the market point of view.

We startup our project with the awareness that there is a need of digital support for a well-defined target of citizenship in Italy. The digital first paradigm has been spread in all different field of life and it is not always come with the appropriate knowledge and support for users.

We can take as an example the healthcare system with the introduction of the Fascicolo Sanitario Elettronico, we can look at the home banking services of any Bank that requires mobile tokens and OTP for confirming any operation, we could look at the fiscal system based on a self-declaration of data to be performed online to obtain the family ISEE. There are several examples that we can take from other government services which require the SPID authentication. And also, a lot of other real life situations that nowadays involve the use of mobile apps or web services to be performed. Even the TV moved to digital and now to be fully enjoyed requires internet connection and additional devices to be connected and managed.

We will explore in deep few cases when we will talk about context of use and scenarios, for the moment we would like to start the analysis by looking at the choice to invest time and money in a project like Di.Tut.

A quick overview of our business model has been summarized in the following canvas:



Our Value Proposition will be the guide during the design process, starting from the definition of Personas and Scenario till the wireframing.

2.1 Context of use

Our goals are few and clear:

- Create an independent community that cooperates for supporting members in the improvement of basic and advanced digital skills.
- Be part of the change that the world and in particular the European Union and the Italian government is setting up by achieving the Agenda 2030.
- Stay in line and follow the instructions of our key mentor: Donald Norman, that in particular with his last book *Design for a better world*, defines some specific paths to keep in mind for the realization of a better future: meaningful, sustainable and humanity centered.

We need to look at the market and search for other solutions available that cover our same or similar goals even in part or entirely. Once found we need to analyze them and see how we can differentiate and try to do it better.

https://www.aranzulla.it/

Salvatore Aranzulla is a very well-known Italian blogger. He became famous for being the first to give suggestions about technologies: how to solve any kind of issue, which tools can be used to do something and so on. He published almost 15 thousand articles. His revenue arrives directly from the banners of advertising which he inserts in his pages.

The Aranzulla's blog can be considered one of our source of inspiration for the basic information part of the Di.Tut. platform, because we will move on with additional, interactive and on demand services.

https://www.coursera.org/

Coursera is one example of e-learning platform. They are a complete digital school with a large offering of courses for individuals, businesses, universities and governments.

We are looking at Coursera mainly for the quality of content available and for the way they display their services.

https://www.skillo.it/it

A digital support service that basically created a network of specialist (mainly stores of digital technologies) that can cover a support service in Italy. The business model a subscription fee for a specific bundle of services. The user has to pay in order to have access to the technical support.

https://www.justanswer.com/

JustAnswer is the solution that can be considered the most similar to what we want to realize. It is a platform for users that need help and other users that can give help (the experts).

It wants to support people that are looking for information on a determined issue by putting them in direct contact with other people which have a high level on knowledge in that field.

It covers a lot of knowledge's domains, not only the digital and technology as we want to be focus on with our project of digital tutoring.

It will be our primary source of inspiration even if we are going to differentiate radically in the business model.

In fact JustAnswer is not a free service, people requiring support have to pay a fee: 1€ for an answer or 45€ monthly.

Moreover JustAnswer is not focused on technologies and digital tools but it delivers answers from different fields: medical, electronical, law and accounting…

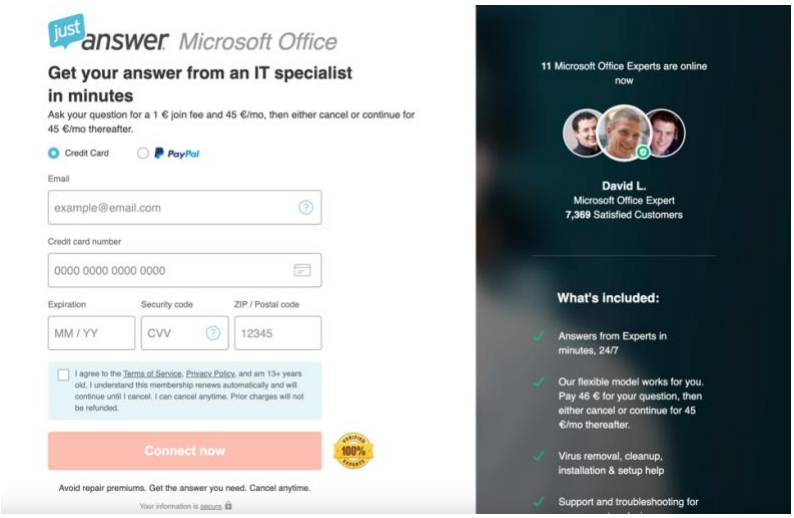


FIGURE 1- SCREENSHOT OF JUSTANSWER.COM WEBSITE

We will consider those three examples while we design our platform, looking also at the rates and searching for the feedback of their users.

2.2 Expert Usability Review

We are going in deep with the analysis of JustAnswer by using the tool od Devis Trevis: the expert usability review model to see which are the strengths and weakness we can overcome or replicate in our platform.

Unfortunately during the analysis of the JustAnswer website and in order to evaluate the registration process and all the additional service for logged in users, we had a big problem, that we can consider as a dark pattern.

A dark pattern in UX design has been defined as:

> *"A dark pattern is a term used in the field of user experience (UX) and user interface (UI) design to describe deceptive or manipulative design techniques and practices employed on websites and applications. Dark patterns are often intended to trick or coerce users into taking actions they may not want to take, such as making unintended purchases, signing up for newsletters, or sharing personal information."* Source: ChatGPT
>
> *"The phrase "Dark Pattern" was coined by Harry Brignull in 2010. Brignull, a UX designer himself, wanted to raise awareness about the unethical practices in UX design that exploit human psychology to the advantage of businesses, often at the cost of the user's experience or consent."* Source: Techopedia.com

What happen to us on JustAnswer.com is:

The registration was supereasy, we simply filled in the email and created a password in the login GUI:

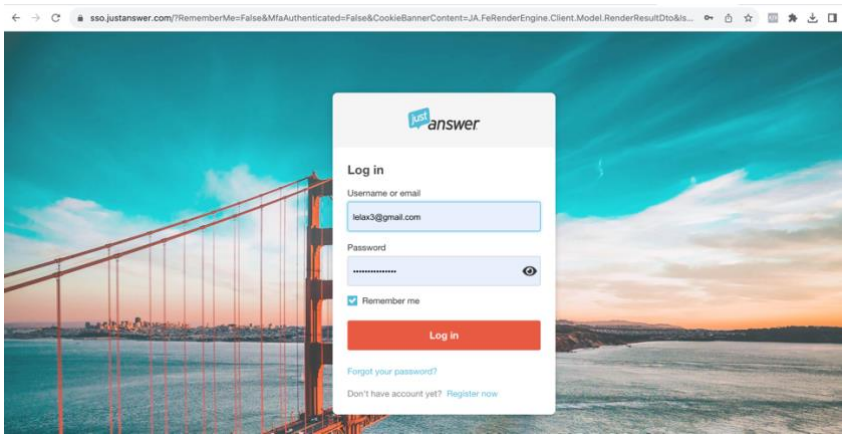


FIGURE 2 - SCREENSHOT OF JUSTANSWER.COM WEBSITE

No password repeat, no email confirmation and we were already in.

But it was not possible to change our mind anymore.

The delete my account, not only is hidden, but when we finally find it, it also doesn't work. It sends the user to an error page:

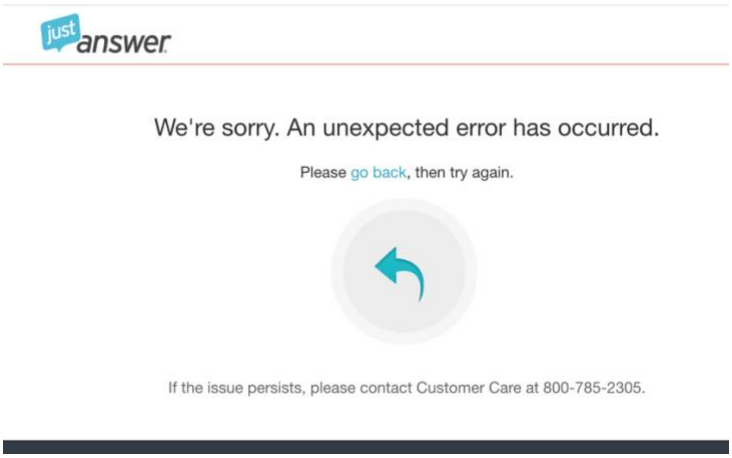


FIGURE 3 - SCREENSHOT OF JUSTANSWER.COM WEBSITE

We have been trying also to write a message to the customer care but nothing.

Obviously, we haven't used the phone-number indicated and no question has been formulated by us to test the service. We think it can be a fraud even if we have been looking at the content and people mentioned as workers in this company.

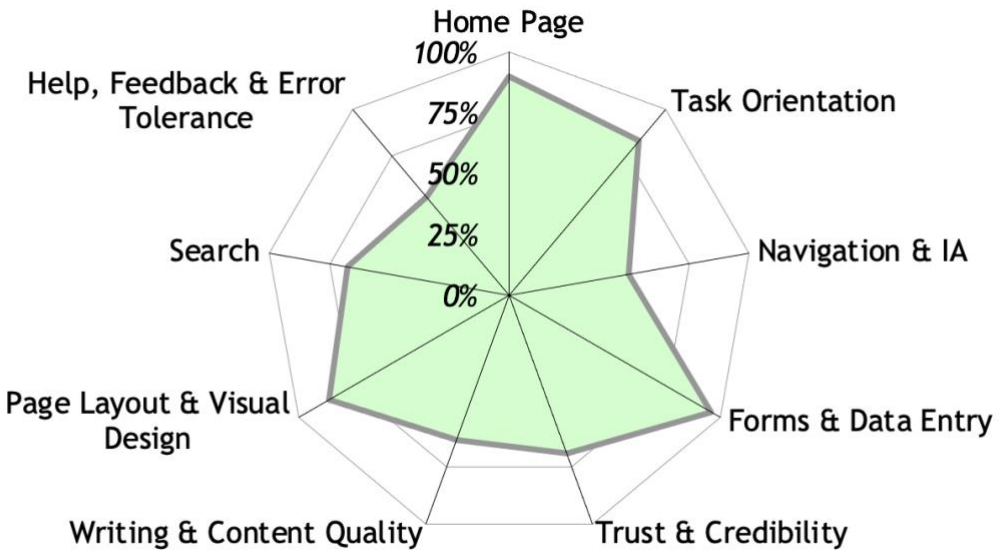
The evaluation with the Devis Trevis template has been considering this problem but we could go through all the entire points.

And the website reaches a good score for most of the points of view:

Summary of results

	Raw score	# Questions	# Answers	Score
Home Page	16	20	20	90%
Task Orientation	29	44	44	83%
Navigation & IA	0	29	29	50%
Forms & Data Entry	21	23	23	96%
Trust & Credibility	5	13	13	69%
Writing & Content Quality	6	23	23	63%
Page Layout & Visual Design	27	38	38	86%
Search	7	20	20	68%
Help, Feedback & Error Tolerance	2	37	37	53%
Overall score		247	247	73%

The average score is pretty high because if we look at the single component, they have been very well designed.



We could not perform the questions because we were afraid of being charged or invoiced in some way. So we could not test all the features, but what we believe there is a great problem of this website, it is that it loses consistency from a section to another:

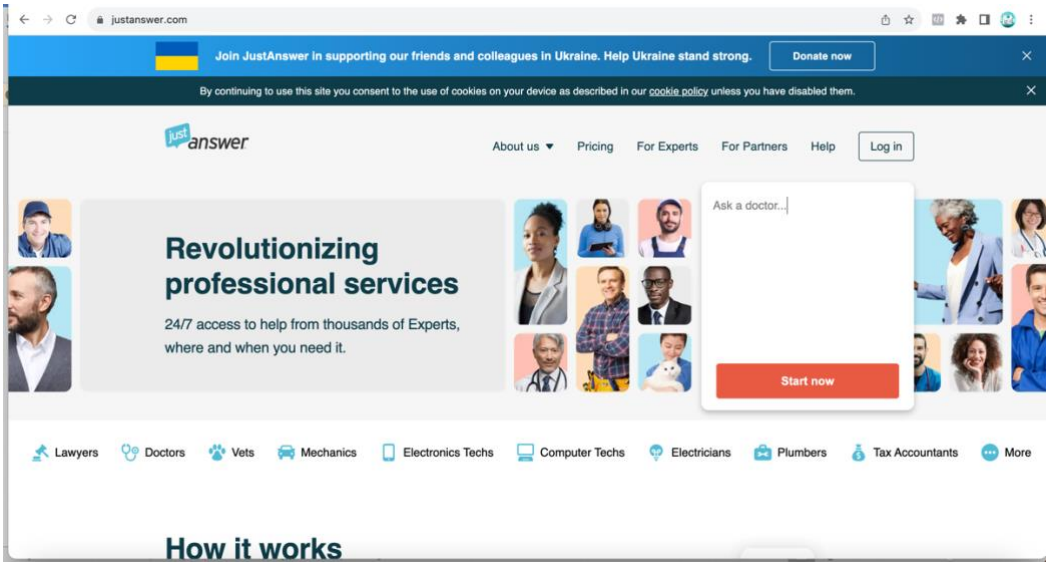


FIGURE 4 - SCREENSHOT OF JUSTANSWER.COM WEBSITE

If we start from the home page, and we just click on the Pricing or on the For Expert pages we see that those pages have a completely different layout:

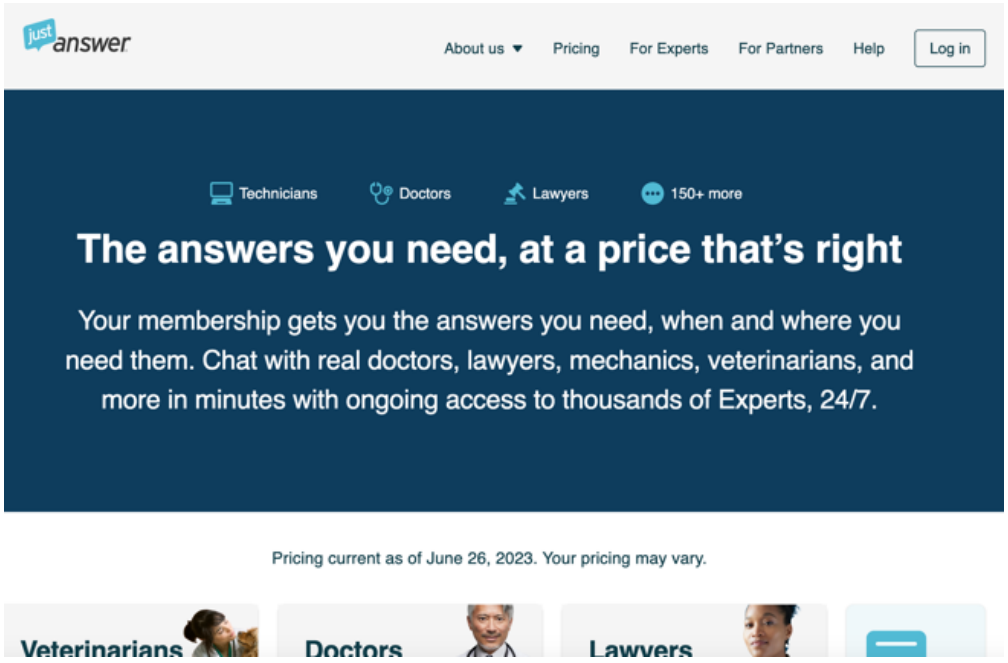


FIGURE 5 - SCREENSHOT OF JUSTANSWER.COM WEBSITE

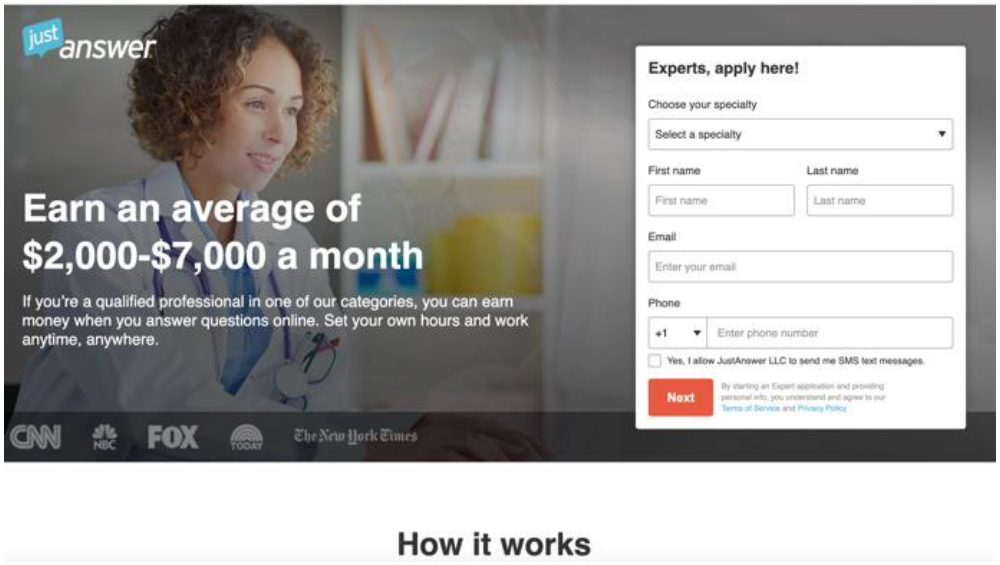


FIGURE 6 - SCREENSHOT OF JUSTANSWER.COM WEBSITE

The two previous images are showing to basic section:

- The Pricing page.
- For Expert landing

The menu moves and, in some cases, disappear so the user can not have the clear idea on where he is and how he reached that place.

We are here looking at two violations of the Jacob Nielsen rules: consistency and user control.

3 USER REQUIREMENTS

We have the aim to satisfy some need and deliver value added services, create a community and have people learn how digital tools can be better used to solve different kind of tasks.

We have been through an exploration phase, by performing a research survey. The questions have been defined specifically for our objective: the existence of a potential user.

By looking at the specific human needs and frustrations we can design an approach to him.

3.1 Target segmentation

Which are the people we are working for?

As we already mentioned, there are two basic target we aim to satisfy:

- The Druids – mainly ancient people that need help in understanding how to use technologies.
- The Nerds – mainly young people that can spend some time to help others with digital issues and be rewarded for their effort in different ways, including money.

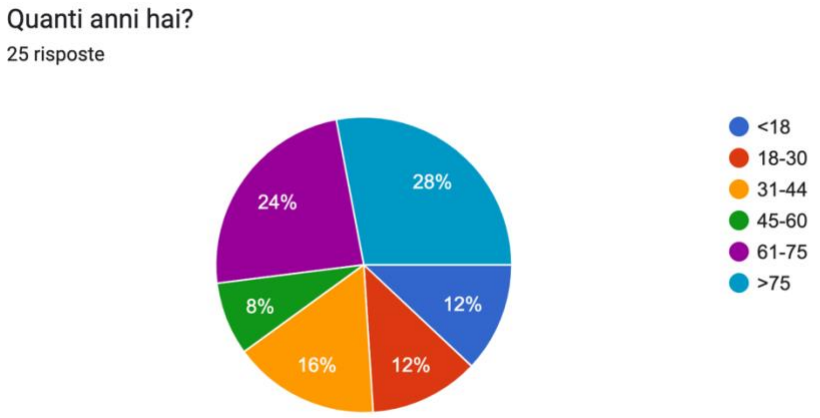
How have we individuated those targets?

We have been performing a user research: it includes a survey and additional interviews.

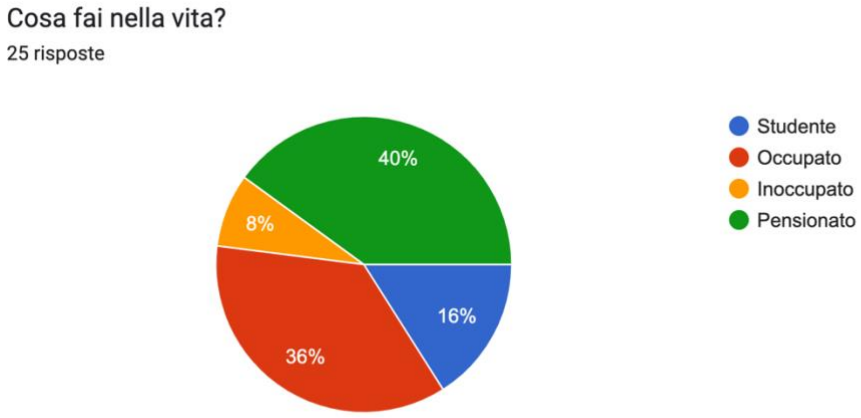
3.2 User Research

The survey has been created and submitted in Italian language to 25 people of different ages. The tool we have been using is Google form and we differentiated the path of the survey based on the age range selected in the first question.

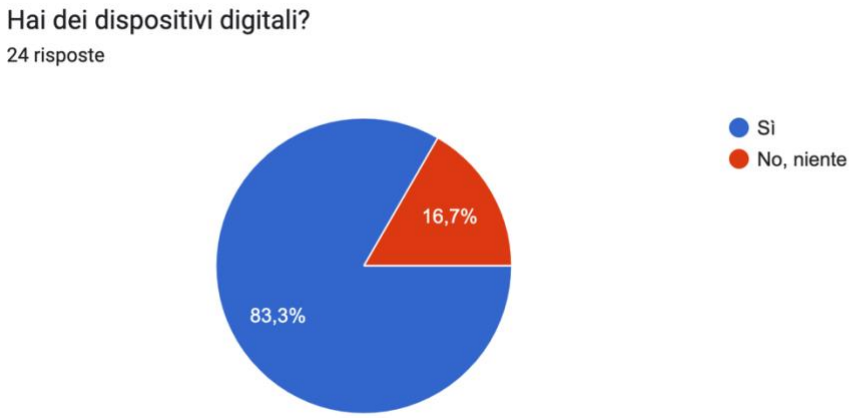
At the end we had 13 people of the Druids target and the rest that can be considered potential nerds:



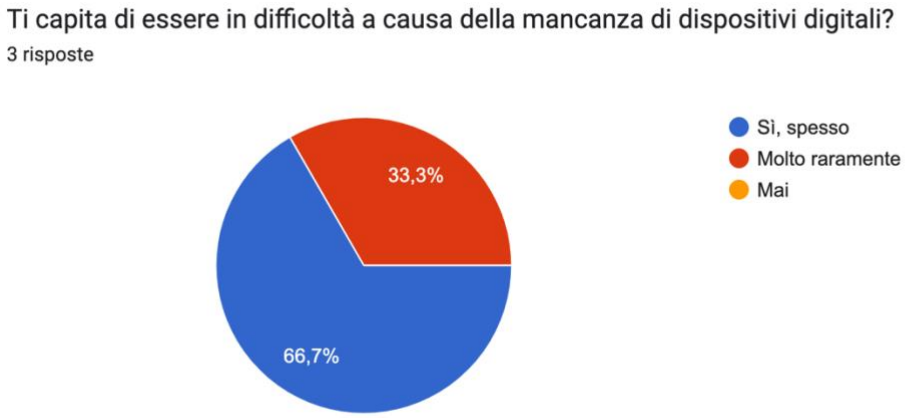
The second step we have found useful to better target our subjects was related to their occupation:



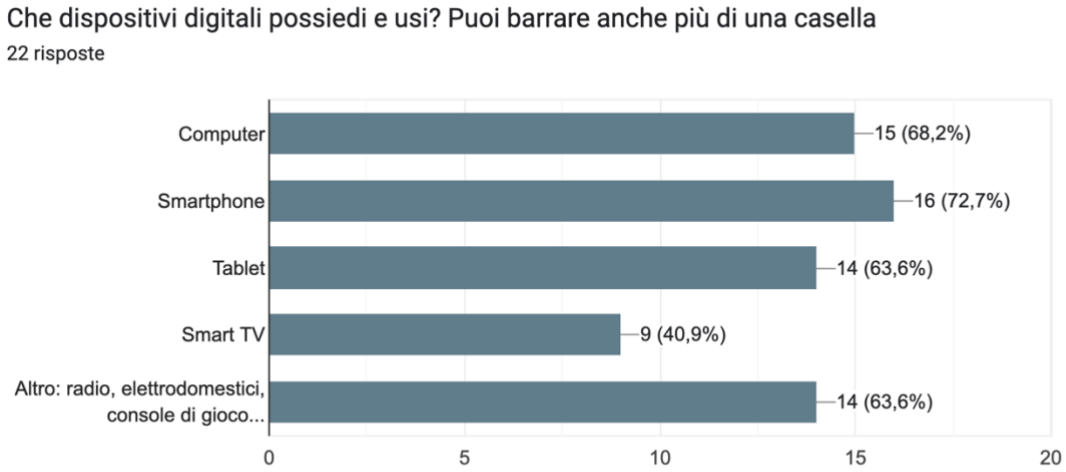
And now we need to go straight to our point: Do you have digital devices?



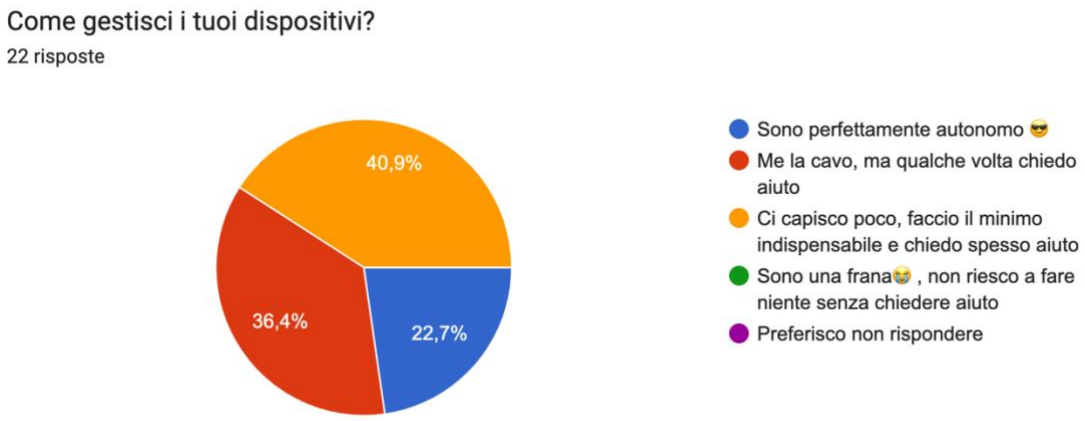
For the 3 subjects that declared not to own any digital device, we provided just a last answer before ending the survey:



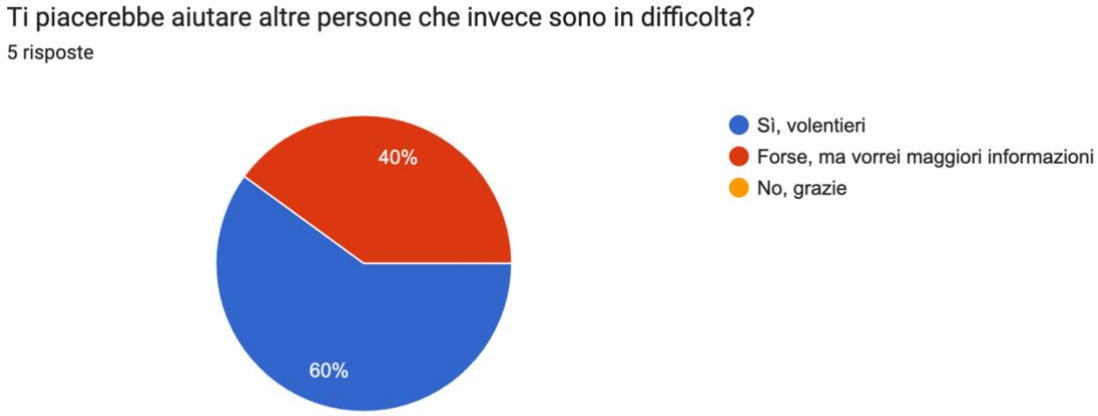
For all the others that own digital devices there are more questions. First of all, let's better qualify which kind of devices we are talking about:



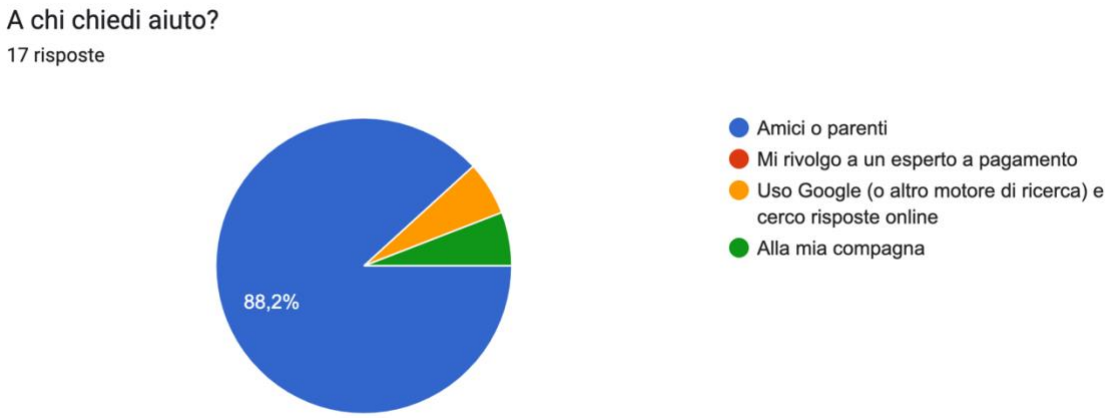
And then how do you manage to use them?



At this point there is again a differentiation on the following path, in fact only to those that have been declaring that they are perfectly independent we have been asking a dedicated ending question: would you like to help others in learning how to use digital devices?



To all the others that admitted to have difficulties, the last question was intended to understand how do they overcome this situations.



The majority of them declare to ask for help to relatives and friends.

If we better look at the answer considering the age range we can easily see that the people with difficulties are the older while the ones that feel comfortable and give also availability in helping are the younger.

We have been also performing additional offline interviews to the older people, specifically to the one that declared to ask their friends and family members, because they confessed that they would like to reduce or avoid bothering them.

We could collect a lot of information through this research process, and we are going to use it to design our scenario and personas.

3.3 Scenario

As the ISTAT certifies: In 2022, the old age index continues to increase, reaching 187.6 elderly people for every one hundred young people. Italy is one of the "oldest" countries in the EU. (https://www.istat.it/it/files//2023/04/indicatori-2022-english.pdf)

For our scenario we want to imagine a small-town environment in the southern part of Italy where there is high density of retired people. They have been leaving there since they were born so they normally have younger relatives that live close to them, maybe sometimes in the same house or neighborhood. But they also usually have friends and nephews far from them, moved overseas for studying and working necessities.

They carry on a simple and regular life, but in the last years and in particular since the Covid-19 period they started using, for a reason or another, new devices connected to the so called “Internet”.

Even if they have been listening about such a thing called “Internet” since they were still young, nowadays this mysterious staff is coming very close and became an issue that required attention.

3.4 Personas

We have been designing the two Personas which we are going to target our services:

The "Druid" is a man with a positive and constructive approach to technology, but he misses the basic knowledge and background to lead it.

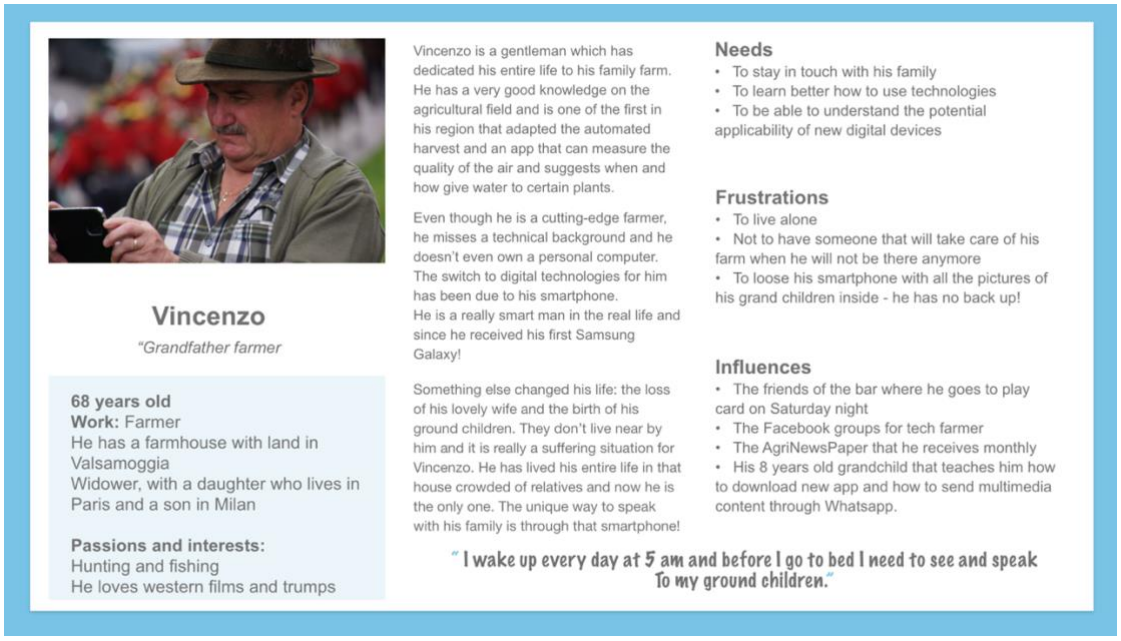


FIGURE 7- USER PERSONA (DESIGNED WITH ADOBE XD)

The "Nerd" is a young and high promising expert about technology and the digital environment. He has time to dedicate to someone who need and moreover he is able to give simple explanation about digital issues because he grew up with them. He manages the subject since he was a child.

FIGURE 8 - USER PERSONA (DESIGNED WITH ADOBE XD)

4 IMPLEMENTATION

We are using as model for our project the ISO 9241-210 (Task oriented model), but we are surely influenced by other formalized and unformalized best practices and guidelines in the literature of UX.

4.1 Requirements

List of requirements:

- The platform needs to be easy to use and accessible by any web browser, including mobile.
- The platform should be multilingual, at least Italian and English but for other foreign languages should be enhanced the peer-to-peer contact.
- The platform must be compliant with GDPR regulation for all the issues and guarantees regarding privacy.
- The platform should follow the always most recent WCAG (Web Content Accessibility Guidelines) – today 2.2 released on October the 5th

4.2 Constraints

The first issue that we consider as a constrain is the difficult to reach the people in the

"Real Help Moment"→ when they have no internet connection ☹

In this situation we can consider useless all the effort done for building the platform.

We need indeed to also implement a phone line to be there in the case of no connection. Only the subscriber Druids will receive a welcome email containing the number to call in case of disconnection.

4.3 Information architecture

We have an open platform with some free content and a reserved area for registered user, we are not going through all the steps of the registration, because is not the focus of this analysis.

The basic flow of the platform that we have tried to summarize in the diagram below includes two main tasks: independent search and tutoring support.

- Independent search – the lonely Druid

Before asking for help to a tutor in fact, the user can try to find by himself the solution to his problem, or he can either have no problem, but has the desire to be there spending some time in learning: watching video, reading documentation, going through interactive tutorial. There can also be a kind of user that has just the need to explore and learn something new about

tech, or he can look for a specific problem solution into the documentation and multimedia content available. In any case he could be accessing material by filtering in the database, inserting in a search bar a specific query or even browsing the catalog in a random way, using the internal link to move from a topic to another.

- Tutoring support – the iteration between Druids and Nerds

The user coming into the reserved area and looking for dedicated support is the one that can be the most representative for our project. In the platform there will be a well designed area for chatting and it will also enable the possibility to remote control the user device. It will basically integrate a Team Viewer module for user that are in particular difficulties and require direct intervention. But this will be an extreme solution: the main objective of the service is to enhance user skill, have them learn how to solve the problem, teaching them the new digital rules.

The diagram below shows that the process could also iterate in case the user doesn't find the solution requested to a tutor, he can look for another personal tutor intervention.

We assume that basically, due to the fact that also the tutors are users in a peer to peer mode, we cannot count on the fact that they can communicate as a tutoring team does.

A tutor could also fail in finding help, in this case he can also suggest to look for another tutor. The digital technologies are a wide range of knowledge, and it's very difficult to lead the entire field.

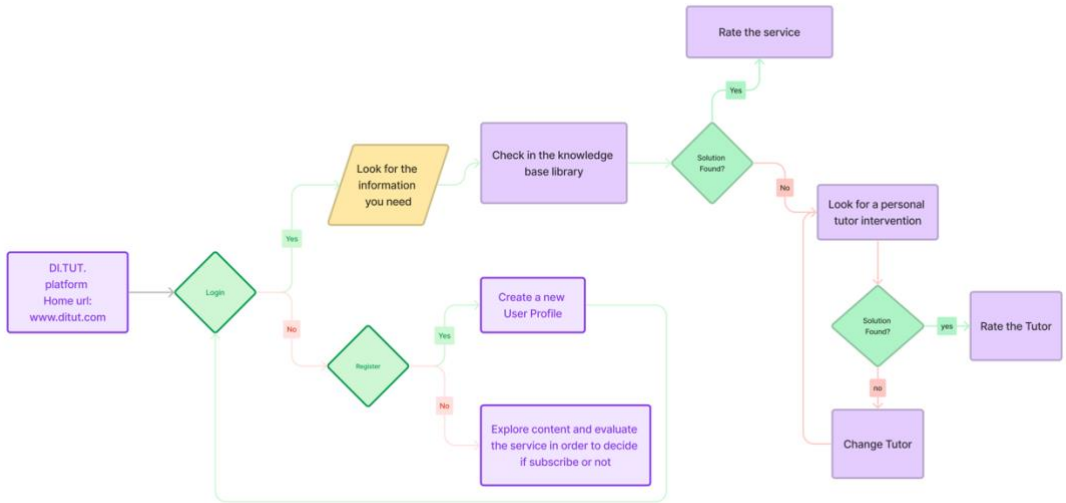


Figure 9- Basic Information Architecture (realized with Figma)

The main task of the solution solving journey is implicit in the map above. In the moment the interaction between the user asking for help and the expert who answer the ticket starts, the process can evolve in many different ways:

- It could be closed simply by information given in chat.

- It could include the reference to a knowledge tool, internal to the Di.Tut multimedia library or in case also published into other platform.
- It could involve a videocall.
- It could open a case which requires more than a single interaction.
- It could be an issue where more than a user are included and creates a saved group of discussion.
- It could pass through a phone call.
- It could arrive to become a personal service, for even in person tutoring.

The Nerds users will be optionally rated after the Druids receive proper help.

We will integrate our Digital Library with all the most verified and liable standard, in accordance with the FAIR principles of findability, accessibility, interoperability and reusability. It will be the core of our design process also the continuous tracking and classifying the content analytics and by scoring the items we will propose first the sources most viewed and rated positively.

For the user's database of the community, we would like to create a graph of relations and push the connections with an algorithm that is able to read the discussion and suggests to users to create topic's expert groups.

One of the principles we try to follow in any phase of the project is indeed to try to reduce the cognitive effort of the users. We look at the "Don't make me think" of Steve Krug for the interface design.

4.4 Wireframe

At this stage, once the User Research starts giving directions, we need to visualize the composition of the elements of a possible User Interface.

We decided to use Balsamiq Mockups to draw quicker without bothering about the graphic's details. Then we moved to AdobeXD to obtain a more realistic effect and have the possibility to enhance our design process starting by a set of components ready to customize and reuse.

The User experience has to be widely clear on the purpose, and pushes the Call to action for registration/login.

We want to create a community and, even if we offer free information to guest users, the core of the platform requires contactability and secure profiling.

We are going to explain the service and guide the user thinking since the beginning to both: the desktop and mobile experience. We consider the Mobile App as our primary point of contact.

The following figures are simulating the Home page and the Welcome Page of the application. We can underline few characteristics we are looking for in the overall design:

- The tone of voice pretends to be familiar and informal.
- The possible actions are clearly recognizable with a button shape.
- Information text and input field are well distinguishable.

- The navigation menu is always accessible in any page of the application.

We remain at a high level of building blocks, and we just inserted few meaningful text to be better defined later on.

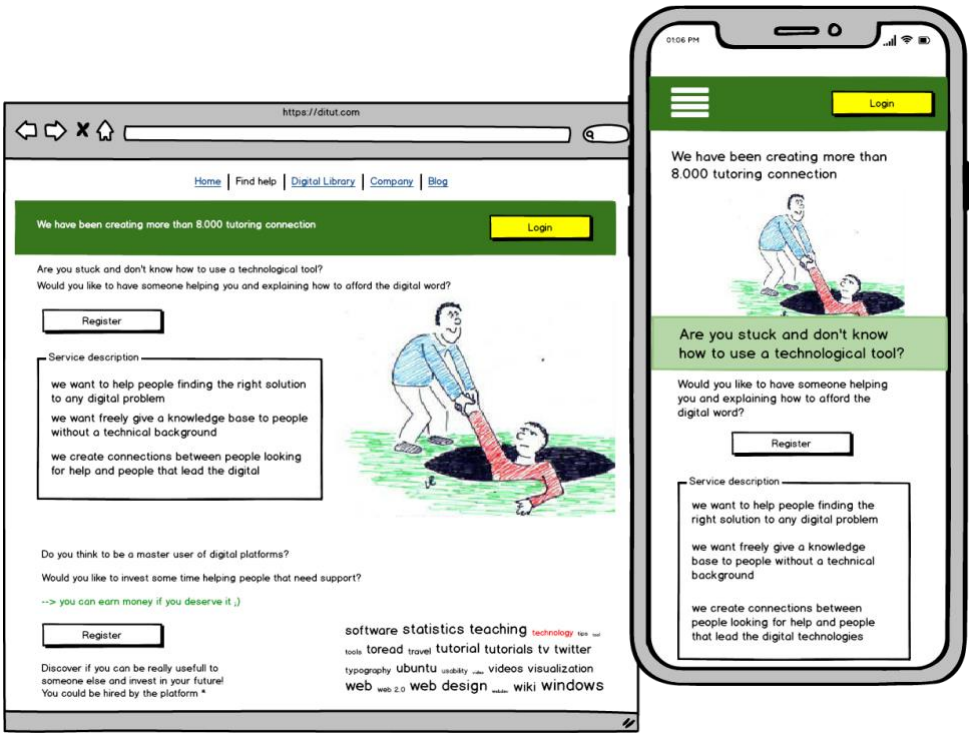


FIGURE 10 - WIREFRAME OF THE HOME PAGE IN LOGOUT MODE (REALIZED WITH BALSAMIQ MOCKUPS 3)

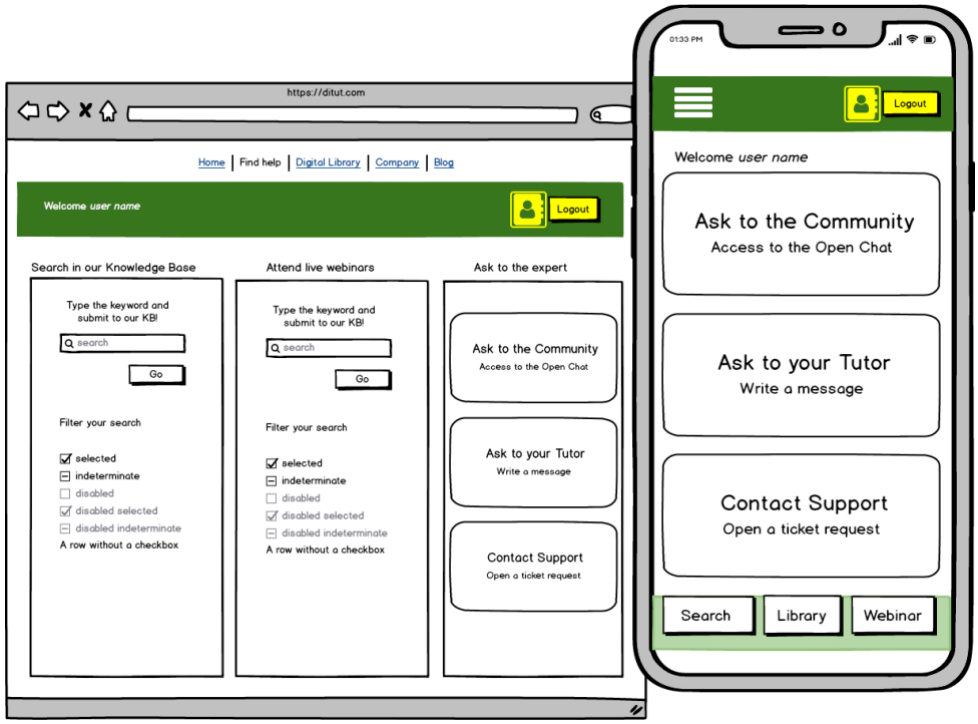


FIGURE 11- WIREFRAME OF THE HOME PAGE IN LOGGED IN MODE (REALIZED WITH BALSAMIQ MOCKUPS 3)

Thanks to the proliferation of the web design tools and moreover developers, we have at our disposal a lot of useful templates that can be in line with our initial idea and then move on by overwriting content accordingly to our structure.

Our wireframe moves to a stage of mockup, and we can also start testing task by task the completeness of the map we are providing.

In the following figure we have a one page-complete-tour of the services.

The user has 3 basic main paths to follow:

- Sign In/Register/Join the Community: entering inside the reserved area.
- Discover more: Read and understand better what's the organization activity.
- Explore the Catalogue: free access to the digital library.

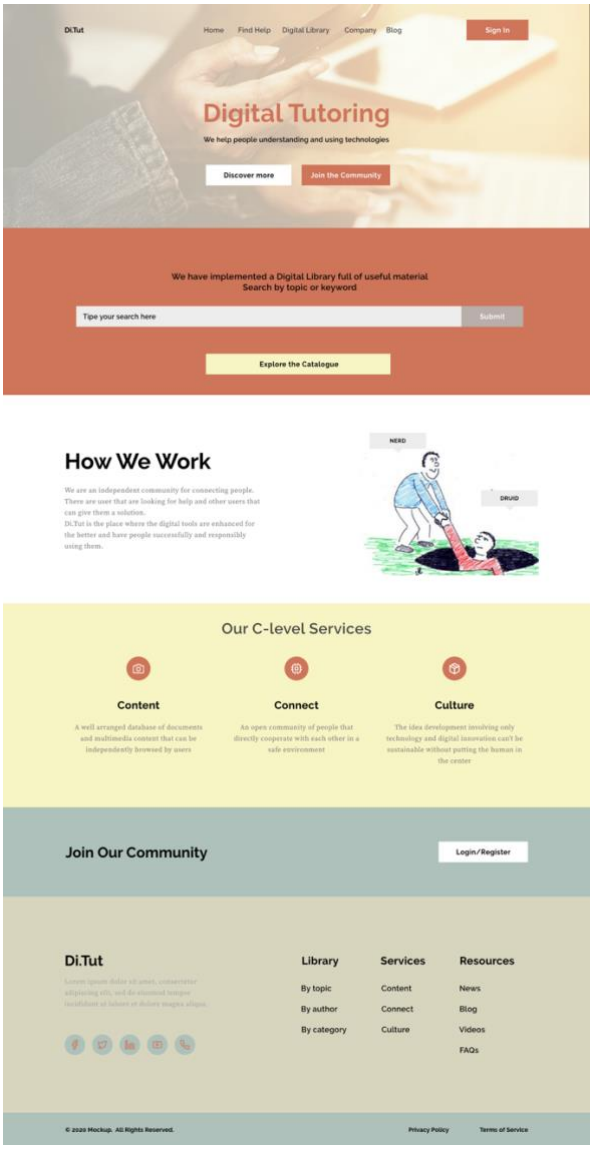


FIGURE 12- FIRST MOCKUP (REALIZED WITH ADOBE XD)

FIGURE 13- DI.TUT. WEBSITE VIEW FROM PC

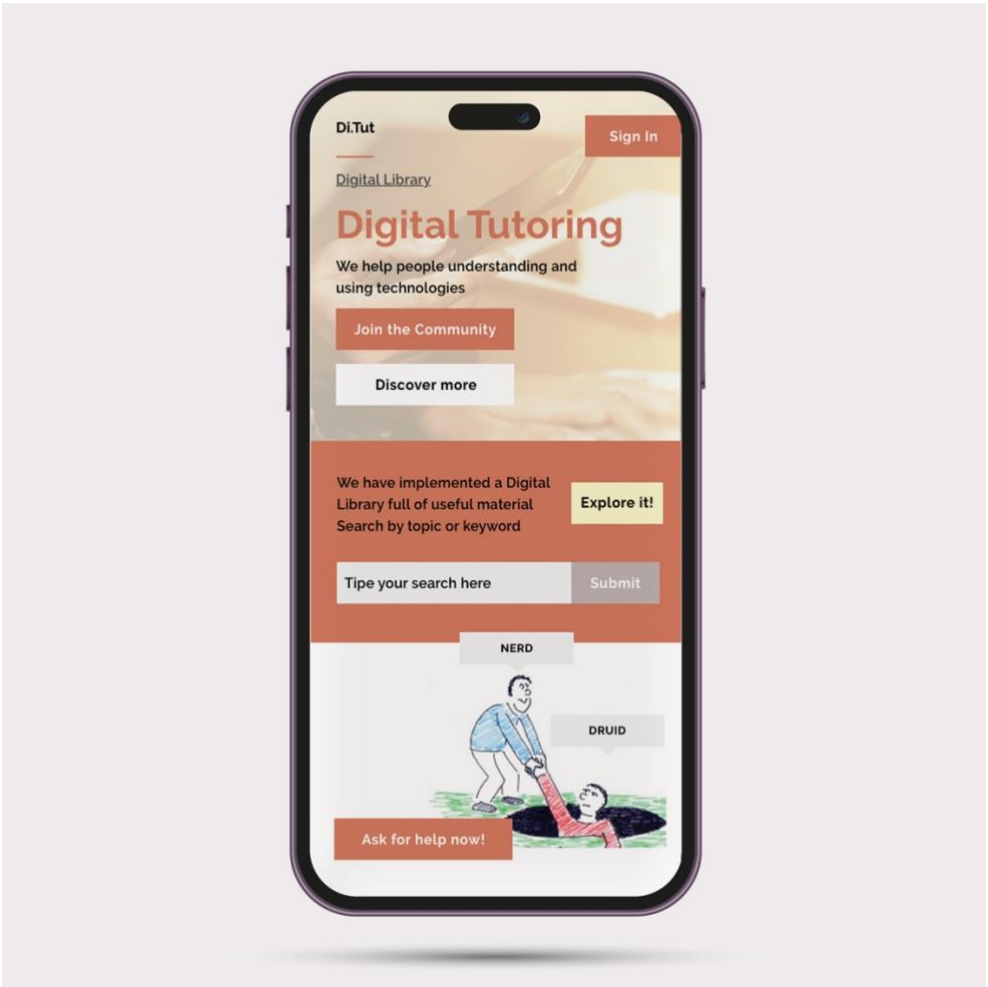


FIGURE 14- DITUT APP MOBILE'S VIEW

We want to enhance the user interaction: he has to make a choice or scrolling more the information are supported by additional details. At first sight he can already see all the basic options available:

- Get involved in the Community.
- Independently access content.
- Submit a request for solving an issue.

The presence of multiple calls to action is due to the intentional search for interaction to directly personalize the user experience accordingly to each specific need.

5 Conclusions

We have been setting up an initial study for the development of a Services platform that can be accessed using digital devices. We would like to move further in the implementation with a testing and learning approach and have the users be part of the design process.

The next step could be creating a beta testing user group and start monitoring their activity and collecting their feedback.

The community observation will enable us to assess their behaviors and define an essential set of rules and tools for the fruition of the services.

6 Bibliography and sources

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