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Statement of Originality

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Executive summary

Design-driven Open Innovation Challenge for 200 SMEs (200SMEchallenge) is a design-driven project from H2020-INNOSUP-2018-2020 programme. It aims at allowing a set of 7 innovation agencies to set up, deliver and evaluate the impact of a novel SME innovation support initiative following the tenets of Innovation Challenges. In particular, this support initiative is intended to allow digital SMEs to source strategic insight on market needs and technology requirements during the early stages of a new product development (NPD) process within a 2-day Innovation Challenge: the user experience or the “UX Challenge”.

This deliverable aims at providing project partners with all the needed guidance to set up and execute the UX Challenge, as stated in the Project Plan. The deliverable is also publicly available to external innovation agencies that might be willing to embark in the same effort, though not as part of project 200SMEchallenge. In the light of the results of the experimental pilot and RCT - Randomized Control Trial study, another more specific deliverable will be made available by the project with the specific purpose of building capacity for adoption of the piloted scheme beyond the project consortium (D2.2 Practical Guide for Innovation Agencies to adopt and scale up the scheme).

In Section 1 partners will find an introduction to Design Thinking methodology, User-Centered Design, and the Design Sprint: the section aims at stressing the value of these methodologies - which are at the core of our experimented scheme and project, overall - for the companies to be utilized during NPD processes (New Product Development).

Section 2 contains a thorough description of the UX Challenge as a challenge-driven experimental scheme aiming at impacting on SMEs' knowledge and awareness about the benefits of User-Centered Design. The section feature full information along with real examples about what the UX Challenge is, how it works in practice, and what it can deliver for companies and all involved parties. This section can also be utilized by partners to train Solvers, as well as to communicate the UX Challenge and its functioning principles to mentors, as well as to companies.

Section 3 includes all the needed information, guidance and practical tools (e.g. files) for partners get organized and set up the UX Challenge, in order to make it happen as defined in the previous section. This section is the most practical one, and it also links to tools and resources that has been shared between project partners with the purpose of supporting the organization of the UX Challenge. These resources are also available to entities not part of the project, in case they wanted to get inspired and organize other UX Challenges spontaneously.



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Background - Open Innovation Contests for SMEs

Innovation prizes are open innovation initiatives that offer incentives for advancing research, technology, and generally **addressing unsolved innovation problems** that often impact society as a whole. Prizes were traditionally offered by governments for technological breakthroughs, solving major social challenges, or advancing technologies (Gök, 2016; Murray, Stern, Campbell, & MacCormack, 2012; Scotchmer, 2006). However, over the last decade they have increasingly become **effective tools for large companies** to support inbound Open Innovation, mainly involving end customers, technology experts, and suppliers in new product development activities (Chesbrough, 2003, 2010; Gassmann & Enkel, 2004; Piller & Walcher, 2006). Large companies also utilize prizes to identify talents and investment opportunities or find cheaper alternatives to in-house research and development.

Their success in supporting innovation in companies led to prizes being recognized and studied as effective **innovation policy instruments** (Liotard & Revest, 2018). Early guidelines for innovation intermediaries (including non-profit or public-funded agencies) were developed on how to successfully design innovation prizes for other purposes, not necessarily regarding major social or technological challenges (Goldhammer, Mitchell, Parker, Anderson, & Joshi, 2014; McKinsey, 2009; Nesta, 2014).

Similar to Innovation Prizes, Innovation Contests or Innovation Challenges are initiatives that apply the **logic of prizes** and are organized by innovation agencies at a local or regional level to allow SMEs to connect and collaborate with other entities in order to achieve innovation in business, products, services, or technology (Doppio, Mion, Latilla, Franzò, & Frattini, 2019). In Innovation Challenges, SMEs work hands-on with students, researchers, or other companies in a search for **solutions to industrial problems**. The solutions are intended to be very practical and in the form of new technology or business ideas, prototypes, or insights from field testing. Challenges, like prizes, are normally framed competitively, offering incentives for “solvers” who work towards viable solutions.

Innovation Challenges may be held to support SMEs (one or more) in sourcing **ideas and concepts** (at both a product or business level), or early **technological solutions** (e.g. coding) from other professionals, researchers, students or other (normally) smaller companies such as startups. In other cases, Innovation Challenges may be designed to facilitate the contact and **initial collaboration** between the targeted SMEs and larger corporates (or even public companies) with the extent of designing new products or establishing new partnerships.

Innovation agencies in Europe have been experimenting in the design and implementation of Innovation Challenges with the purpose to impact on SME innovation capacity. In whatever case, Innovation Challenges are complex multi-stakeholder initiatives that needs to be carefully **designed, planned and executed** by innovation agencies: indeed, from a management point of view, they may compare to both a *service provision* (they need to deliver added value to companies) and an *event* (they involve many people with different expectations).

With the purpose of facilitating peer learning and experimentation of new innovation support schemes for SMEs, EASME - The European Agency for Small and Medium Enterprises manages the H2020 INNOSUP call for projects. Especially, INNOSUP-05 funds peer learning activities between innovation agencies. One of the INNOSUP-05 funded project was INNOCHALLENGE (www.innochallenge-project.eu), which aimed at investigating the functioning of Innovation Challenges. After a collection of good practices of Innovation Challenges from a number of partners in Europe, findings were impressive. Although Innovation Challenge



come in different shapes and sizes, apparently, they share a number of **structural elements** (e.g. they all have beneficiaries, providers, activities, expected results, incentives, and many more...).

Looking closely at these elements reveals the operating logic of an Innovation Challenge, and also enables the **design of new versions** of Innovation Challenge, aiming for specific results and impacts among certain types of SMEs and industries. Some of these blocks regard the **reason WHY** you want to run a Challenge: the problems to be solved, by which companies, what outputs and impacts could be delivered. Other blocks regard **WHAT will be done** to achieve these results: the problems-solving activities that the Challenge will deploy, and the kind of innovators involved. Finally, it is necessary to decide **HOW to manage** all the operational aspects of the initiative.

In particular, Innovation Challenges can be described throughout **twelve building blocks**: each one needs to be defined for a complete, customized Innovation Challenge, ready for implementation. Together the twelve blocks comprise a **design framework** for your own Innovation Challenge: The Innovation Challenge Design Canvas.



Figure 1. The Innovation Challenge Design Canvas

The twelve building blocks on the canvas serve as guidance to ideate and design one Innovation Challenge. Before providing practical guidance on the measures on the management of this Challenge (the UX Challenge), we want to take one step back.

To understand the fundamental principles and the value of the UX Challenge one needs to understand the principles of design driven innovation. The first section of this guidebook will introduce you to user centered design and the Design Sprint serving as the basic format of the UX Challenge.



Sec 1. Design driven innovation

1.1 Seeing the world through design

Businesses are under pressure to create innovative solutions in a changeable and complex world. When they look towards the future, they face fundamental questions about their existence. Existing business models are challenged by new digital possibilities and changing markets. Businesses' abilities to translate their customers' needs and expectations into new value-creating products and services require new methods and approaches.

Creating the next business, when someone has changed the rules of the game, is fundamentally a design challenge. In the development of new solutions, designers – along with their processes, methods, and mindsets – can help businesses gain in-depth knowledge of their customers and users through observations of user needs and behavior. Design methods translate insights into strategy, new concepts, prototypes, business models, and concrete solutions that create value for the user and thereby secure the business a stronger market position.

Because of the immense focus on the user, the work of designers is often referred to as **User-centered design (UCD)**. UCD is a collection of processes which focus on putting users at the center of product design and development. You develop your product taking into account your user's requirements, objectives and feedback.

The user-centered design process answers crucial questions about users, their tasks, goals and beliefs. The following questions are typically asked during the UCD process: Who uses your product? What are their goals? What are users searching for? What are they interested in? How do your users see the process of completing a task? What do they say and how they do it? How easy is it for your users to understand what they should do using your product?

The goal is to achieve a deep understanding of users' conditions, situations, and needs by endeavoring to see the world through their eyes and capture the essence of their experiences. The focus is on achieving connection, even intimacy, with users.

As mentioned, a central part of UCD is to recognize and understand the user's interaction and experiences using the company's products or services. Putting users' experiences as the main focus of product development is commonly referred to as "user experience" or **UX design** which is relevant to this specific challenge. As for UCD, UX is concerned with all aspects of a user's interactions with a company and its products or services. It is how the experience of a product or service feels to a user, and how this affects the use, experience and success of the product/service. UX designers ("solvers") research the user's needs, test the product with the user, and tweak the product based on their findings.

1.2 Design as a process

Now that we know that a central part of design driven innovation is about understanding the user and their experiences with services or products, the questions then becomes how this understanding is actually obtained and transformed into concrete product and/ or service features.

To design new approaches that address the desired results, there is a need to orchestrate a process that captures the abstract and concrete, the past and the future. As this statement may seem theoretical and difficult to apply in a real-life context, it also holds the essence of the design process. Design processes



are ultimately knowing the present and acquiring deep knowledge about people's lives in order to analyze and interpret these findings into ideas and concepts of the future.

So how can we describe the complex and often messy design process in simple terms? The CEO of Danish Design Centre, Christian Bason gave in his book *Shape the Future* this definition: A systematic creative process that combines different elements to achieve a specific commercial or social purpose. The process is visual and experimental and has the experience and behavior of people as the focal point. The results can be graphic or physical products, services, systems or organizational and business models.

“Cut to the bone, the design process is about moving from insight into a concrete situation in the present over an analysis and idea process towards a new and equally concrete situation in the future. One way of seeing the role of design methods is thus in three dimensions: Explore the problem space (ex. Interviews with end-users), create new solutions (ex. co-creation) and make the future concrete (ex. prototyping)”

In 2004 Design Council launched their framework for innovation - the Double Diamond. As well as highlighting the design process, Design Council's framework for innovation also includes key principles and design methods to take to achieve significant and long-lasting positive change. The two diamonds represent a process of exploring an issue more widely or deeply (divergent thinking) and then taking focused action (convergent thinking).

- Discover. The first diamond helps people understand, rather than simply assume, what the problem is. It involves speaking to and spending time with people who are affected by the issues.
- Define. The insight gathered from the discovery phase can help you to define the challenge in a different way.
- Develop. The second diamond encourages people to give different answers to the clearly defined problem, seeking inspiration from elsewhere and co-designing with a range of different people.
- Deliver. Delivery involves testing out different solutions at small-scale, rejecting those that will not work and improving the ones that will.

The framework for innovation outlines four core principles for problem-solvers to adopt for them to realize the full potential of a design process.

- Put people first. Start with an understanding of the people using a service, their needs, strengths and aspirations.
- Communicate visually and inclusively. Help people gain a shared understanding of the problem and ideas.
- Collaborate and co-create. Work together and get inspired by what others are doing.
- Iterate, iterate, iterate. Do this to spot errors early, avoid risk and build confidence in your ideas.



1.3 Transforming businesses through design

Many Danish companies work systematically with design as a key component in their business development and strategy. These companies generally have a strong position in Denmark and abroad, and they are the ones that reap the greatest benefits from working with design.

In collaboration with the Confederation of Danish Industry, the Danish Design Centre asked some 800 Danish companies how they would rate their use of design. Close to 75 per cent of the respondents replied that the use of design in their company has a positive impact on their bottom line.

Often, we see businesses focus only on the end user when they develop a service. An exclusive focus on the people who are ultimately going to use the service, however, can prevent them from spotting major development potentials. They simply overlook the most important persons.

When designers work with service journeys, we therefore talk about what happens frontstage, where the user comes into direct contact with a service, and what happens backstage – the underlying processes, which may be crucial for a good service design. Sometimes, the most important users are backstage. Design helps put these users center stage. For businesses, this means that designers base their work on the users' perspective, exploring what is valuable to them. Even companies that have traditionally been highly technology-driven, such as software firms, high-tech production companies and financial institutions, are beginning to acknowledge that user needs take priority over technology.

As businesses enter into a transition, they need to turn their focus to their customers' needs and increase the awareness of the ecosystem surrounding them. We observed this many times at Dansk Design Centre.

One of our case studies regards Coloplast¹, a company that develops products and services that make life easier for people with very personal and private medical conditions. When you visit Coloplast's head office, you are greeted by a large poster showing a smiling, elderly man. It's not a coincidence. The focus on the person - the end user - as the poster expresses is central to the business that Coloplast is today. The radical design-driven change that Coloplast has gone through has led the company from dealing with pharmaceutical products to dealing with people and about solutions with great empathy for their lives and everyday lives.

The insight and empathy for the users, which is characteristic of design, is a central part of the overall strategy and provides coherence in products, brand and core values. When Coloplast develops products, design is used as a tool to ensure that the solutions are characterized by simple, functional and aesthetic lifestyle products, created in accordance with the everyday life in which they function, rather than primarily similar to medicinal products with mental connection to illness and life as a patient.

Another Danish company that decided to use design as an enabler is the recruiting agency Moment2. Moment had the challenge of recruiting and retaining young talent, capturing their attention in a busy landscape. In a so-called sprint process, organized by the Danish Design Centre, they laid the foundation for a new digital solution with a focus on their users.

As many other companies that use design to build their next business model, Moment reported that the sprint gave them a room to clearly define their value proposition to clients and the market. Being able to step away from the internal dynamics of the company and understand the underlying causes for why

¹ <https://www.coloplast.com/>

² <https://www.moment.dk/>



consumers buy your solution/product and the trends that drive the market and society around your business is crucial.

Companies with a razor-sharp value proposition make better decisions and are more agile when reacting to new conditions that arise. The designers empathetic and experimental approach to gaining these insights and test new solutions is a valuable tool in the process. Ideally, he or she will move beyond the product/solution-customer relation towards a systemic perspective: How the product or solution affects society as a whole throughout its lifespan.

1.4 Making the future concrete in five days

The UX Challenge is a 2-day Design Sprint hackathon that makes it possible for companies, especially SMEs - Small and Medium Enterprises, to benefit from a shorter version of the Design Sprint. For you to get a richer understanding of the method, the challenge uses, we will describe the Design Sprint (DS) that has been used at Google Ventures for several years and has subsequently become widely used and applied worldwide as an efficient and economically advantageous work method that quickly produces tangible results.

A main point of the DS is to make a shortcut in the typically long process of developing and launching a (minimal viable) product before getting feedback from users. The DS suggests that in just five days of focused work the companies can get quick feedback from users, which can then feed into and enlighten the further development process of which the sprint is considered part. One major benefit of this way of working is that it helps companies fast-forward into the future to see their finished product and customer reactions, before making any expensive commitments. In this way, companies can test hypotheses and potentially fail early and thus minimize the risk of doing so later after having invested immense amounts of resources in a project.

1.4.1 Before the sprint

Working with DS it is essential that companies identify a concrete challenge that needs solving. For the DS to succeed, this challenge needs to be identified before the five days starts, as time constraints does not allow for in-depth analyses of user needs and pain points. This knowledge is however crucial as it poses the necessary data for the development of solutions throughout the rest of the DS.

1.4.2 The five phases

Mapping the problem

The overall purpose of the initial phase of the DS is to create a thorough understanding of the problem at hand. Like many other innovation processes, DS starts out by setting a direction for the rest of the sprint by establishing an overall long-term goal for the rest of the process. The objective must be ambitious and reflect the company's expectations to the outcome of the process. After setting up a long-term goal for the DS, the task is now to unfold how this is achieved within the five days. This is done by expanding the challenge and setting up concrete questions that the sprint must answer. Mapping out how the customer interacts with the selected product or service serves as the next step.

The last part of the first phase focuses on expanding the horizon and create a common understanding of the map. To make sure that the team has the necessary knowledge about the mapped product or service, the last part of this phase involves researching and conducting interviews with relevant experts.



Pitfalls and challenges

The challenge in this phase is to identify a common goal that everyone in the team agrees on. Problems can arise because it is not given that the team has a common understanding of the problem, which can make it difficult to reach agreement on one common goal.

Outcome

The outcome of this phase is twofold. First outcome is a concrete long-term goal that defines the questions the DS should answer. Second outcome is a detailed map of a user's interaction with the selected service or product.

Tool - Creating rich pictures

The Rich Pictures tool creates an overview and a common starting point for a discussion of the company's innovation challenges. A visualization that captures essential business challenges in the market, process, structure and competencies is an excellent common starting point for agreeing on the “big picture”, illustrating the contexts of a given process, and ensuring common direction for an upcoming change initiative. At the same time, visualization provides a concrete starting point for a constructive and engaging conversation about central problems or challenges in the upcoming process.

In a partnership between the pension company MP Pension and the design agency IS IT A BIRD, the Rich Pictures tool was used to create an overview and deeper understanding of MP Pension's members and what pension was for them. These visualizations were also used as a physical handover of the concepts that the project team had come up with.

Sketching future solutions

The second phase of a DS focuses on developing solutions to the set challenge. Overall, this part of the sprint is about expanding the horizon of the team by seeking inspiration from other products or services possibly from other domains and / or from the company's own product portfolio. Along the way, this research generates ideas for solutions to the company's challenge.

After the team has come up with multiple ideas, the task is to transform them into concrete solutions. The method for this is sketching. Sketching is used to quickly transform abstract ideas into concrete solutions through visualization. The individual sketches play a key role in DS as it is ultimately one or more of these sketches, that forms the basis of the final prototype to be developed later in the process.

Pitfalls and challenges

The success of the second phase depends on the team's ability to translate insights into ideas for future solutions.



Outcome

After the second phase, the company now has a large quantity of possible solutions that contributes to the overall understanding of how the challenge may be solved. Some of these solutions will later serve as the foundation of the prototype.

Tool - Prototyping

Prototypes are ideas illustrated simply at an early stage. A solution to a problem is described as soon as possible. This can be done by hand-drawing sketches on paper or through online drawing tools. The most important thing is to illustrate the core idea and not go into detail. In the partnership with Solar, Granyon worked on five ideas, each illustrated on a poster. These were presented to the company's management and at the same time Granyon interviewed representatives from the target audience in the proper context. In this way, Granyon received input from both the company and the target group and was able to identify the ideas with the most potential to be successful with end customers and the ideas that would be easiest to implement in the company.

In this phase, speed and simplicity are the most important. You should be able to present the idea in 5 minutes and based on this get feedback on strengths and weaknesses. With the comments and feedback, you can prioritize the ideas that bring to the more detailed prototype phase.

Making the difficult decision

The two previous phases concentrate on expanding the understanding of the problem and generating ideas. The team has developed a variety of ideas for solutions, all of which give an idea of how the sprints overall objectives can be achieved. Accordingly, the first part of the third phase is devoted to deciding which of these solutions that provides the best answer to the challenge presented. The selection is done through a critical analysis of each solution.

The chosen solution idea is still only a sketch and contains no detailed description that can serve as basis for the prototype. In other words, there are no plans for the prototype consequently leaving many questions about the individual parts of the solution unanswered. The plan for the chosen idea is developed through a storyboard exercise where unanswered questions are answered by illustrating and visualizing specific parts of the solution.

Pitfalls and challenges

The challenge of the third phase is to establish the necessary understanding of all the ideas to qualify the selection of the solution with the greatest potential of solving the challenge. This is critical to the success of the DS, as the solution serves as the foundation for the final prototype.

Outcome

After the third phase, the team has selected and concretized a solution to the overall challenge of the sprint. The different elements of the solutions are described and visualized in a storyboard.



Tool - Storyboard

A storyboard is a simple visualization of a future scenario that lets you communicate the basic components of complex solution proposals without having all the details in place. The concept stems from the world of filmmaking, where storyboards are used to lay down the filmic flow before the costly process of shooting the film.

Often, the storyboard is based on drawings. It can serve to facilitate a dialogue with your users where you invite them to describe their service experience. It can help you spot the potentials or drawbacks to proposed solutions that you had overlooked.

In collaboration with Danish Design Centre, the Danish company Thürmer Tools managed to challenge their existing business by visualizing their ideas. Using the Storyboard tool, new relevant aspects became clear and the tool created a space to think creatively and differently of new solutions to specific challenges.

Prototyping the future

The focus of the fourth phase is to build a prototype based on the storyboard developed in phase three. Prototypes can have many definitions and functions, which is why it's important to clarify what's in the DS methodology. A DS prototype is first of all restricted by limited time for development. This sets a natural restriction on the fidelity of the prototype. Low-fidelity (lo-fi) prototyping is therefore often used in DS as a quick and easy way to translate high-level design concepts into tangible and testable prototypes. The first and most important role of lo-fi prototypes is to check and test functionality rather than the visual appearance of the product.

As a result, a sprint prototype should not be confused with a finished product but instead be recognized as part of a learning process under which hypothesis and concrete features are tested by providing the experience of how the finished product would work.

To achieve this, a key part of developing and working experimentally with prototypes in DS, is that the solution is developed with the purpose of learning. All choices about what is included in the prototype and what is omitted should therefore be based on this.

Pitfalls and challenges

The challenge in the fourth phase is to use the joint understanding, the long-term goal and knowledge of the existing process as a guide for individual prototype choices ensuring that the prototype can provide answers to the overall challenge.

Outcome

After the fourth phase the team has developed a lo-fi prototype describing/showing key functions of the service or product.



Tool - Online prototyping

The idea behind online prototyping is to design a solution so that a customer can see, try and experience how it works. It is important to have a setup where you can test multiple directions and options quickly and flexibly. At the same time, it must look so finished that you as a customer have a realistic idea of what it will look like and how the different flows will work. Because the online prototype is developed directly for the web, the solutions are responsive (can be displayed on mobile phones, smart watches, desktop, TV etc.).

Working with online prototyping significantly reduces the risk of a digital project. The digital design agency Granyon, in partnership with Solar, has used prototypes as a key part of the innovation process. To be better prepared for future business challenges, Solar wanted to explore new opportunities to attract customers by focusing on a new customer segment, the end user, as opposed to a previous focus on B2B. Based on data collection and analysis, Granyon used prototypes to identify new solutions.

Testing with target customers

The fifth and final phase of the design sprint is about testing the developed prototype. In practice, this means that the sprint team will conduct interviews with customers and learn from observing them using the prototype.

Essential for generating honest and detailed feedback on the prototype is that the interviewer manages to ask the right questions, which places great demands on the interviewer's skills and interview techniques. However, it is not only the interviewer who has a crucial role in a prototype test. In order to gather relevant insights and feedback to be used after the sprint, it is crucial that the rest of the team is able to capture relevant points as well as identify patterns between the various inputs.

Pitfalls and challenges

The challenge is to set up the right test format, that will give answers to the hypothesis and uncertainties defined by the team. Further a key challenge is to have the right interview setup and the ability to perform the interview in order to give the desired insights.

Outcome

After the fifth phase the prototype is tested on real life customers. These tests provide unique insights into the customer's experiences with the developed solution and provides a solid understanding for further development.

Tool - Eye-tracking

Eye-tracking is a tool that can read the user's interaction with a digital solution to increase usability, among other things. Eye tracking is a method of detecting the drivers of user attention that occur when a product



is used. In the partnership with Maersk Oil, SkabelonDesign used eye tracking to create certainty about where the design did not play with the user's natural and intuitive expectations of the program. With a clear analysis of the users' objective experience of a solution, a project team can make decisions more quickly and easily, which can drive the product to the finish. Especially in the development of brand new software, it can be a relief to jump directly into the end-user experience and get crystal clear data that can be easily analysed and traded.

When SkabelonDesign works with software development, they never assume 100% control over what makes sense to the user until the product has been tested. Previous experience in software development can go a long way, but sometimes there are doubts or opposing attitudes, both internally and between the customer and the designer. Therefore, it is valuable to have a crystal-clear analysis of where the product fails and where you are successful.



Sec 2. What is the UX Challenge

The UX Challenge (User Experience Challenge) is a 2-day Design Sprint hackathon that makes it possible for companies, especially SMEs - Small and Medium Enterprises, to benefit from a shorter version of the Design Sprint. Following SME innovation policy design recommendations from the European Commission, the UX Challenge was ideated and piloted by Hub Innovazione Trentino (an innovation agency located in northern Italy) with the aim of **raising the awareness to companies about the benefits of user-centered design**, as well as boosting their capacity to engage in open innovation processes.

One thing has to be made clear now: **you can't do design in just two days**. Period. Companies having critical issues with the design and user experience of complex or strategic products or processes shall address the market of digital design services and get support from well-established design firms. Although the UX Challenge delivers tangible outputs that are fully exploitable by companies, the UX Challenge won't solve companies' problems.

However, the UX Challenge allows companies to acknowledge that they do **have a design problem**, and that they must act on that. Not only: it also indicates what a solution could be (a prototype), what methods and activities are needed to deliver that solution (the Design Sprint), and who could help the company do that (solvers and mentors). Indeed, the main purpose of the UX Challenge is to **create the conditions for more and more companies to adopt user centered design**.

In this section we provide a thorough description of what the UX Challenge is, what are its working principles, and what's its added value. Similarly, to what we just said, the overarching goals of 200SMEchallenge project is to make it possible for more and more innovation agencies to adopt the UX Challenges as a means to support innovation in SMEs and **spread the use of user-centered design across Europe**.

2.1 Description of the format and working model

The UX Challenge is a yearly innovation contest held in Trentino province (Italy) aiming at sparking awareness among SMEs about the benefits of design thinking and user-centric design of digital products and services. The Challenge awards the best solution to User Experience (UX) problems launched by a set of selected SMEs. Solutions are developed by teams of students and professionals during a 2-day event pivoted on the Design Sprint methodology. Notably, differently from traditional prize initiatives, the UX Challenge allows delivering prototype solutions to a number of products and companies concurrently, since the activities of teams of solvers are divided in parallel tracks (one per served companies). A short promotional video of the initiative is available [here](#).

The UX Challenge basically consists in the execution of an adapted version of the Design Sprint, making it possible for the scheme to reach its awareness raising aims, also in the light of constraints experienced by innovation agencies such as lack of budget and strict time frames. In particular, an adapted version of the Design Sprint differs from the original as follows:

1. The duration: The Design Sprint lasts five days while the UX Challenge covers all the phases of a Sprint within a 2-day time frame. SMEs (especially small companies) do not have much time to invest in innovative initiatives often because they do not have a proper R&D structure. Similarly, the 2-day time frame is enough to deliver demonstrative results yet impacting on SME awareness on benefits of the Sprint.



2. The team mix: The Design Sprint is executed by members from the beneficiary company (many of which are normally chosen from the product development team) plus one or more facilitators from a design firm. Instead, within the UX Challenge the Sprint is executed “as-a-service” to companies by teams of university students (solvers) and professionals (mentors) with a background in service design and HCI (human computer interaction). Anyway, the beneficiary company participates in all crucial steps of the Sprint. This way the execution of the Sprint has very small costs for the organizing innovation agency since students are strongly motivated by learning-in-practice and career development reasons, and professional mentors are interested in showing their abilities to potential future customers.



Figure 2: Pictures from the 2017 edition of the UX Challenge in Trento (IT)

The working model of the UX Challenge is described hereafter following the overall framework of all design dimensions featuring an innovation prize (see background section), according to present literature. It’s crucial to identify these dimensions as by acting on them one innovation agency can design a brand new Innovation Challenge (or adapt an existing one) to specific contexts (e.g. type of targeted SMEs and industry).

1. Goal. Strategic goal of the UX Challenge is to accelerate the adoption of user-centered design methods and practices by small and medium enterprises. This is done by means of involving



students and young design talents in the execution of short-versions of a Design Sprint aimed at optimizing or innovating products and services.

2. Seekers. Ten SMEs – Small and Medium Enterprises, mainly from the digital industry (software developers, app developers, integrators), but also from the manufacturing industry, or beyond. Companies bring to the Challenge Products, which are actually selected (not companies). Products are such as mobile app, web app, software, or other digital interfaces utilized to operate production machineries and lines.
3. Challenge. Companies bring to the UX Challenge digital products (mobile apps, web apps, software) affected by UX-related problems and/or opportunities. Along with problems, companies bring innovation-related objectives (e.g. improving usability, designing new features, redesigning certain functionalities, etc.), hypotheses, or research questions. Altogether, these make up the so-called Challenge Brief. Products may come with very different degrees of maturation: from products already on the market to product concepts. Examples of inputs are provided in Figure 4.



(i) a mobile application for grocery store consumer clients, (ii) a mobile and app to book public health examinations, and (iii) a tele-assistance application.

Figure 3: Example of products undergoing the Sprint

4. *Solutions*. Actionable design components and insights allowing companies to implement and industrialize an improved version of the selected product: interactive prototypes developed with specific software, interface mock-ups, videos from user testing, documents including guidelines for UX redesign.
5. *Solvers*. Solvers are university students (including Ph.D. students) and young professionals (recently graduated students, e.g. up to 18 months from graduation) mainly with a background in UX design, interaction design and human-computer interaction (computer scientists, designers,



sociologists, psychologists, economists). Solvers are organized in teams, and each team is mentored by at least one senior mentor (a UX design professional). Mentors take part in the two days free of charge. Team formation is driven by the organizers. Each team counts 4 to 5 solvers. Each team is associated with a product / company. In total one UX Challenge shall involve some 50 solvers.

6. **Activities.** The initiative consists in the execution of a compact Sprint on each of the selected products. Notably, within the UX Challenge the Sprint is condensed into a 2-day process. Also, it is adapted in order to apply not only to strict design problems (aiming at developing and testing product prototypes starting from ideas and concepts), but also to re-design problems (applying to existing products). By the end of the two days the teams present the results of their Sprint and the related outputs to the companies during a 1-hour meeting. Very important: the 2-day Challenge finally culminates with a 1,5 hour long plenary organized as an event open to the public, during which teams pitch their solutions to all participants. This may involve more than 100 people.

	Gio 4/9		Ven 5/9	
9:00 – 11:00		1. Scoping the Challenge	Companies	4. Test
11:00 – 13:00				
	Lunch		Lunch	
14:00 – 15:00		2. Ideation of solution		
15:00 – 16:00			Companies (interim check)	5. Tune and deliver
16:00 – 17:30		3. Prototyping		
17:30 – 19:30				PLENARY
	Dinner			
20:30 – 22:30				

Figure 4: Structure of the UX Challenge

7. In order to execute those activities, some resources are needed. The Sprint involves a “testing” phase which requires the involvement of real end users. 40 citizens are invited to test products and prototypes (4 per each team). The test consists of a 1-hour test-based interview executed by solvers. Testers must be accurately outreached and selected, according to the profile of the selected companies and products. This can be quite challenging, especially in the case of B2B products. Incentives for testers are normally Amazon expense vouchers (at HIT we give a 30€ voucher to each tester). For the outreach and selection of citizens HIT utilizes the Smart Crowds Territorial Lab database (counting ab. 1700 citizens-innovators). The organizer can ask for support from the selected companies in order to get in touch with potential testers. Overall, organizers have to have in place a selection process which ends up in identifying and bringing to the UX



Challenge (on day 2 morning) 40 testers. Notice that day 2 could be a working day, making this rather hard to accomplish.

8. Incentives. Teams' results are evaluated by a jury involving all beneficiary companies (10), mentors (10), and normally 2 external experts. One winning team is awarded normally. A reward is provided to all solvers from the winning team (could be the free participation to a conference, or free access to MOOCs). However, following current literature on incentives during prize-driven events, the UX Challenge leverages on intrinsic motivations of solvers (professional learning experience and connection with companies).
9. Timeline. Front-end execution of the UX Challenge endures 2-day plus a half-day of training for solvers upfront (some 10 days before). Overall, the process for outreaching and selecting all participants needs to start four months in advance (launch of the public call for selection of SMEs and students, and management of the actual selection process). Prior to that, capacity building activities (creation of partnership, legal and marketing and communication aspects) may require further 2 to 4 further months.
10. Governance. The UX Challenge is organized by an innovation support intermediary (e.g. Hub Innovazione Trentino - www.trentinoinnovation.eu) that i) is responsible and accountable for the realization of the initiative and ii) can leverage on local ecosystem's partners that can support it in executing certain tasks (e.g. reaching out to companies, or solvers). Although the Challenge may be executed as a result of a distributed consortium-based effort, it's very important that project partners are aware that the accountability is upon one party only, and this shall be the project partner.
11. Business Model. Participating companies are normally required to pay a small fee to take part in the UX Challenge (this won't happen in the context of project 200SMEchallenge). Solvers or mentors do not pay; in fact, solvers are provided with incentives or rewards, and the same goes for testers. Mentors are also provided some gifts. All costs needed to execute a UX Challenge (we estimate them as between 7 to 10 K€ in other direct costs, plus 4 person months of personnel costs) are covered by the organizer who normally runs the Challenge for ecosystem and SME capacity building purposes (not for generating revenues). However, one organizer might consider charging companies as much as needed to cover all the costs, and possibly generating profit. It must be noted that, however, this is likely to be feasible only in case internal operations and networks with all participants (solvers, mentors, and companies) are well established.
12. IPR. In order to make it possible for full exploitation capacity from companies, IPR - Intellectual Property Rights of results are owned by the participating companies. NDAs - Non Disclosure Agreements are signed by solvers and mentors with regards to both solutions and submitted challenges.
13. Regulations. The outreach and selection of seekers (companies) and solvers (young talents) is managed via two separated public calls for notice published by the organizer. Each call includes full regulations of the initiative, and the criteria and process for evaluation of applications such as (for seekers): (i) relevance of the product and challenge to the User Experience domain; (ii) feasibility (e.g. learnability of the product); (iii) potential business impact of the Sprint application;



(iv) clarity of the submitted challenge; (v) soundness of the motivations brought by the applying company. A third open call is normally managed to identify the testers.






WHY?	WHAT?	HOW?
 <p>1. GOAL IMPACT ON SMES AWARENESS OF USER-CENTRIC DESIGN</p>	 <p>5. ACTIVITIES DESIGN SPRINT INCLUDING THOROUGH TESTING WITH SELECTED REAL USERS</p>	 <p>9. GOVERNANCE MANAGED BY HIT - HUB INNOVAZIONE TRENTO WITH SUPPORT FROM REGIONAL PARTNERS</p>
 <p>2. SEEKERS 5 DIGITAL COMPANIES</p>	 <p>6. SOLVERS UNIVERSITY STUDENTS MENTORED BY UX PROFESSIONALS</p>	 <p>10. BUSINESS MODEL SEEKERS PAY SMALL FEE</p>
 <p>3. CHALLENGE FIX USER EXPERIENCE ISSUES IN APPS AND SOFTWARE; DESIGN NEW EXPERIENCES</p>	 <p>7. INCENTIVES ADVANCED TRAINING FOR SOLVERS; EXPENSE VOUCHERS FOR TESTERS</p>	 <p>11. IPR SEEKERS OWN IPR OF SOLUTIONS</p>
 <p>4. SOLUTIONS NEW INTERFACE MOCKUPS, WIREFRAMES AND PROTOTYPES</p>	 <p>8. DURATIONS 2 DAY EVENT, 4 MONTHS OF PREPARATION</p>	 <p>12. REGULATIONS PUBLIC SELECTION CALLS FOR SEEKERS AND SOLVERS</p>

Figure 5: The UX Challenge described throughout the Innovation Challenge Design Canvas.

2.2 Detailed description of the 2-day agenda and Sprint phases

2.2.1 Overall schedule of the UX Challenge

The figure below shows the overall timing of the UX Challenge. Day one is normally a Thursday and day 2 a Friday, but this can change depending on local conditions. Hosting the Challenge over weekends might be easier for solvers (in case they are students) but harder for companies and mentors to join. We discourage this option. We also strongly discourage nighttime work, unless this is done by solvers at home. Besides this, one of the things that the organizer needs to know is distinguishing the passes that will involve both the solvers and the companies (or the larger public), from those that will involve the solvers only. In fact, that impacts on organization: companies need to know when exactly to come; slots involving companies have to start and finish in time (less flexibility). With that regard, one very important slot is the final event (a.k.a “plenary”, during which all teams briefly pitch the results not only to companies, but to a larger public too.) The figure below shows this.



	DAY 1	DAY 2
9:00 – 11:00	MEET THE COMPANY	TEAMWORK
11:00 – 13:00	TEAMWORK	TEAMWORK
	Lunch	Lunch
14:00 – 15:00	TEAMWORK	TEAMWORK
15:00 – 16:00		
16:00 – 17:30		RESULTS TO COMPANY (16:00 – 17:00)
17:30 – 19:30		PITCH TO PLENARY (17:30 – 19:30)
	Dinner	Bouffet
20:30 – 22:30	TEAMWORK	

Figure 6: Plenary meetups at the UX Challenge

Once the overall schedule is clear, the teamwork sessions need to be broken down into the 5 steps of the Sprint: from problem setting to testing. In this regard it must be noticed that the UX Challenge differs from the original Design Sprint not only in terms of duration, but also by the way the Sprint is divided into phases: A) in the UX Challenge the phases 2) Sketch and 3) Decide are merged into one (“Ideation of solution”); B) There has been introduced a further and last steps called “Tuning and deliver” during which solvers wrap up the work, prepare deliverables and get ready for final presentations. The below figure shows the detailed schedule for the five phases of the UX Challenge.

	DAY 1	DAY 2	
9:00 – 11:00	SCOPING THE CHALLENGE	TEST	
11:00 – 13:00			
	Lunch	Lunch	
14:00 – 15:00	IDEATION OF SOLUTION	TUNE AND DELIVER	
15:00 – 16:00			
16:00 – 17:30			
17:30 – 19:30	PROTOTYPING	PLENARY	
		Dinner	Bouffet
20:30 – 22:30			

Figure 7: Detailed agenda of the UX Challenge



2.2.2 Phase 1: Scoping the Challenge

First of all, we remind you that before the beginning of this briefing meeting the following things have to be done during the previous weeks: 1) creation of teams; 2) identification of the challenge brief documents (you can read more about the Challenge brief in section 3.1.d); 3) training of solvers and matching them with one challenge brief; 4) matching mentors with companies (or teams); 5) share the challenge brief via email between companies, team and solvers a few days before the challenge; 6) provide teams with a space.

The scoping comes in the form of an initial meeting between the team (including the mentors) and the company which might last between 1 and 2 hours, depending on the complexity of the selected case. Goal of the meeting is to brief solvers about the challenge and to provide them all they need to start working on solutions. The meeting is organized in two parts, which should stay separate, as follows.

- Starts a 30 minutes presentation and demo of the product by the company; Q&A follows. Make sure by the end of this first part solvers end up with a clear idea about the following information about the **product**: Users, Clients, Stakeholders, Value proposition, Use case and usage contexts/scenarios; The ideal User Experience the company aims at; What the company knows about current UX (in case of existing product). In certain cases, teams can access the product before this meeting (in case it's freely available online). The organizers should not send the company application form or other material on the product (e.g. long documents) to teams but only the challenge brief.
- The next part of the meeting is dedicated to briefing solvers about the **challenge** the company submitted: therefore, here participants start looking into the challenge brief document. Not only the team has to have a clear understanding of (1) what the UX problem is (why is that a problem, what it depends on, etc.); they also have to have a clear idea about (2) what is the final outcome that the company expects from whatever type of solution (a.k.a. "The world without the problem"). Mentors will play a crucial role in helping companies envisioning the "to-be" ideal scenario that it wants to achieve. Also, it's important to (3) clarify what outputs the team is supposed to deliver by the end of day 2 (wireframes, mockups, interactive prototype). It's important to make clear that teams have to deliver a very small but rock-solid validated design in two days. Each team should write its challenge statement (point 1 above) on an A4 sheet and stick it high on the wall near their table (that way they will not get confused or go out of scope).






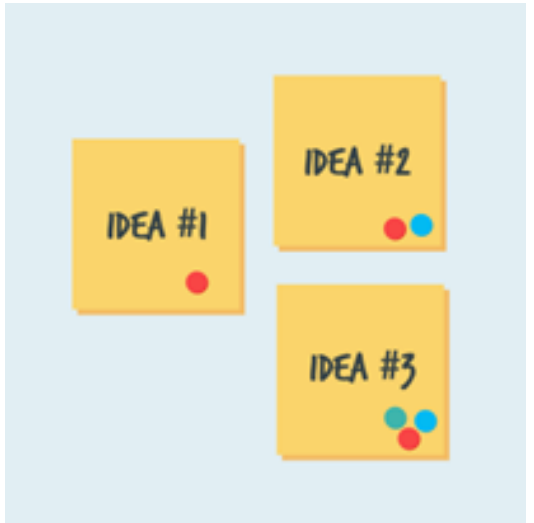
Figure 8: Picture from the UX Challenge in Trento

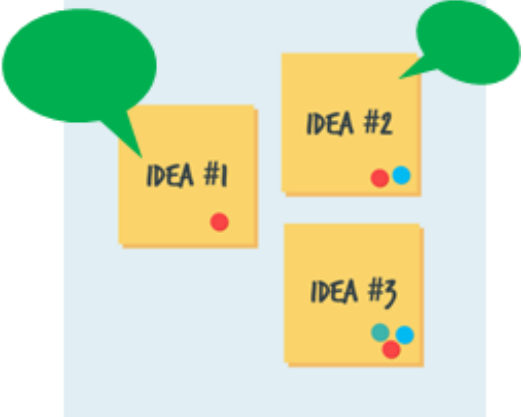
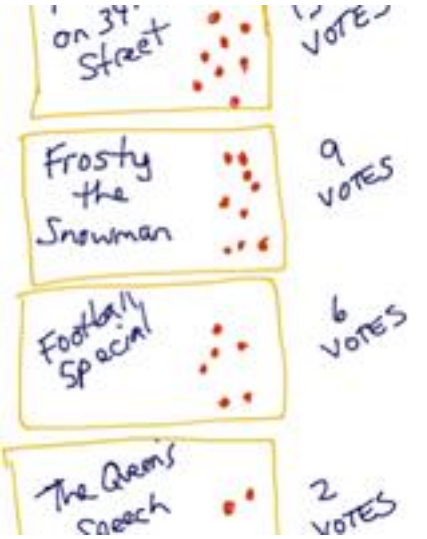
2.2.3 Phase 2: Ideating the solutions

In the Design Sprint this comes in two separate phases: sketch (when team members diverge by ideate many different and competing solutions) and Decide (when the team decide which one to prototype). For time management reasons in the UX Challenge the two are merged, though a distinct separation between the two remains: the two subphases are divided into two other phases. Overall this phase endures from 2 to 3 hours.

IDEATION



<p>1. Sketch solutions:</p> <ol style="list-style-type: none"> Work independently (team member) The whole process shall take 45 mins Each team member has to deliver 3 ideas Ideas must be visual: sketch them! Sketch = one A4 storyboard divided in 3 panels (large post its = ideas) Self-explanatory: choose the right words Nice and neat but no “gold-plating” (it’s a sketch) Anonymous <p>Sketch what? Depends on the Challenge! Could be: scenes from usage scenarios for the design of entire services; mock-ups of interfaces for the design of functionalities; wireframes/blueprints for the design of flows.</p> <p>How to manage time? Each team member may follow this process: start by quick listing some 7 rough ideas during the first 15 mins (diverge); pick the 3 that they like the most (converge); use the following 30 mins to refine them into the final A4 format.</p>	
<p>2. Museum:</p> <ol style="list-style-type: none"> hang all A4 storyboards with your 3 sketches on the wall, distant to each other No presentation, explanations, pitches Team members observe all ideas alone, silently and Vote the preferred ones (dot-voting: e.g. 10 dots each) Add post-it's with questions and concerns Dot-voting will result in a heat map on most appealing ideas (pre-selection) 	
<p>DECISION</p>	

<p>3. Speed critique</p> <ol style="list-style-type: none"> All team members gather around a sketch: team members NOW comment and discuss concerns and questions and write them down on sticky notes. The creator explains any missing idea or misunderstandings. Allocate some 3 mins each idea If a sketch has few dots: move along, and do not spend too much time on commenting on it. Do not try to come up with a new solution on the spot. 	
<p>4. Choosing the solution</p> <ol style="list-style-type: none"> Pick a short list of most voted solutions (e.g. 3) and try to converge to one which everybody trusts Tune and remix! Very important: if you have similar ideas in this phase you can merge them or extend them. But make sure you do not overcomplicate or come up with a “Frankenstein-monster” idea (completely separated pieces just stitched together) Call the company who will listen to these options Company gives “supervotes” Ideas with supervotes will be the foundation of your prototype (chosen solution). Then you have “maybe later’s” Remember that the company is your client! 	

2.2.4 Phase 3: prototyping

First of all, two very important things:

- what a team technically does in this phase **TOTALLY DEPENDS ON** the CHALLENGE brief and its expected outputs. A prototype could be an interactive one, designed using specific prototyping software (see below); a prototype could also be a storyboard describing more specifically a product or functionality idea and its impact on the user.
- In any case, a prototype is an object that allows the team to simulate the adoption of a certain design solution (features or product) by users and / or customers, in order to quickly and cheaply generate feedback needed to evaluate its viability. The team should never forget this, also considering that the time is very limited.




With that in mind, the organizer has to know that in this phase the Challenge gets very technical: the organizer cannot really train solvers in doing this. Solvers (and mentors) shall be selected in a way that they know what to do here (also depending on the assigned challenge). Anyway, normally the prototyping phase goes through a number of sub-phases through which the selected idea is refined and transformed into a more actionable and testable design solution, which are illustrated here below. Depending on the maturation of the product (already on the market, a beta version, or a concept), as well as depending on the challenge, not all the below sub-phases may be addressed by the solvers.

Storyboarding

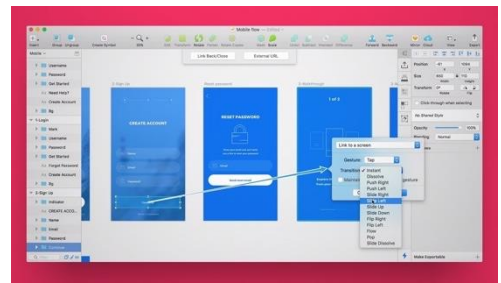
- A. A storyboard is a graphic organizer in the form of illustrations or images displayed in sequence (similar to a movie) for the purpose of previsualizing the way your solution will work, especially the way the user / client will interact with it to benefit from it.
- B. In case your challenge regards strict usability aspects (it's very technical) you might directly jump to the wireframing. Differently, in case it regards the overall design of new products or functionalities, whose utility needs to be validated with the client/users, then a storyboard is a mandatory step to turn the chosen idea into something tangible.
- C. The storyboard is the detailed plot/story of your designed solution.
- D. To build the storyboard combine the sketches and panels from the selected idea(s). Fill in gaps, if there are some, and provide more details until you get to 10-15 panels / scenes.
- E. The depicted scene may happen in real life (e.g. the user doing something at home) or on the screen (what the user sees and does on the product / service interface). Put an arrow icon on the screen.
- F. Where do you start? How does the user get in touch with the service first? Before the service: the user context. The best way to do this is to use sticky A6 sheets on a wall / whiteboard: this allows you to easily add one panel between two already designed without the need to disrupt the whole storyboard.
- G. Important: here you want to start focusing more on your solution, and providing details about it: you



<p>show digital touchpoints, interfaces, information (messages and texts) appearing on them, call to actions (buttons), functionalities, etc.</p> <p>H. However, the focus should not be on the details, but on the user flow: the actions and process that the user goes through to achieve a certain goal with your product.</p>	
<p>Wireframing</p> <p>A. Wireframe is a low fidelity layout of the design.</p> <p>B. It is made by a set of panels that shows the overall structure of screens of other user interfaces.</p> <p>C. Each panel shows the main information groups and their layout in each screen; altogether, all the panels are linked together resembling the user flows, therefore revealing information architecture (how the screens are linked to each other).</p> <p>D. Each wireframe panel should include more clear exemplification though realistic design elements such as pictures, text, buttons, etc.</p> <p>E. However, aesthetic and graphical factors should not be taken care of too much in a wireframe, but only structural, functional and informational aspects should.</p> <p>F. You can utilize tools such as UXPin, Mockplus, Balsamiq, and Axure to build wireframes. Otherwise wireframes can be created on google slides.</p> <p>G. You can also create interactive (clickable) wireframes, therefore allowing you to do realistic simulation of the user flow.</p> <p>H. Depending on the challenge statement and Design Sprint goal, tests can be carried out on wireframes too (e.g. validating consistency of user flows and information architecture).</p>	 <p>The image shows a hand-drawn wireframe diagram on a whiteboard. It consists of several rectangular panels representing different screens of a user interface, connected by arrows to show the flow. The panels are arranged in a grid-like structure with arrows indicating the sequence of screens. Some panels contain text and icons, representing the layout and content of each screen. The overall structure reveals the information architecture and user flow of the product.</p>

Interactive prototyping

- A. Although both storyboarding and wireframing has to be considered “prototyping” activities, a prototype is an artifact that can be tested with users, to generate feedback. Therefore, it normally requires more design work (it has to be consistent) and refinement (it has to have some graphical components otherwise the test won't be realistic).
- B. For instance, when a button is pressed, the corresponding operation must be carried out, and the corresponding screens must appear.
- C. You are not supposed to write any line of code to get to an interactive prototype.
- D. Don't forget that a prototype is an object that serves you to create a simulation that generates an honest reaction from the user (= data you need to collect to validate/invalidate your assumptions about your design solution). So, try to create a realistic product “façade” to simulate the final UX; and build just enough to learn (prioritize).



We strongly encourage solvers to utilize one of the following wireframing and prototyping tools and software in order to deliver outputs which can be utilized by companies.

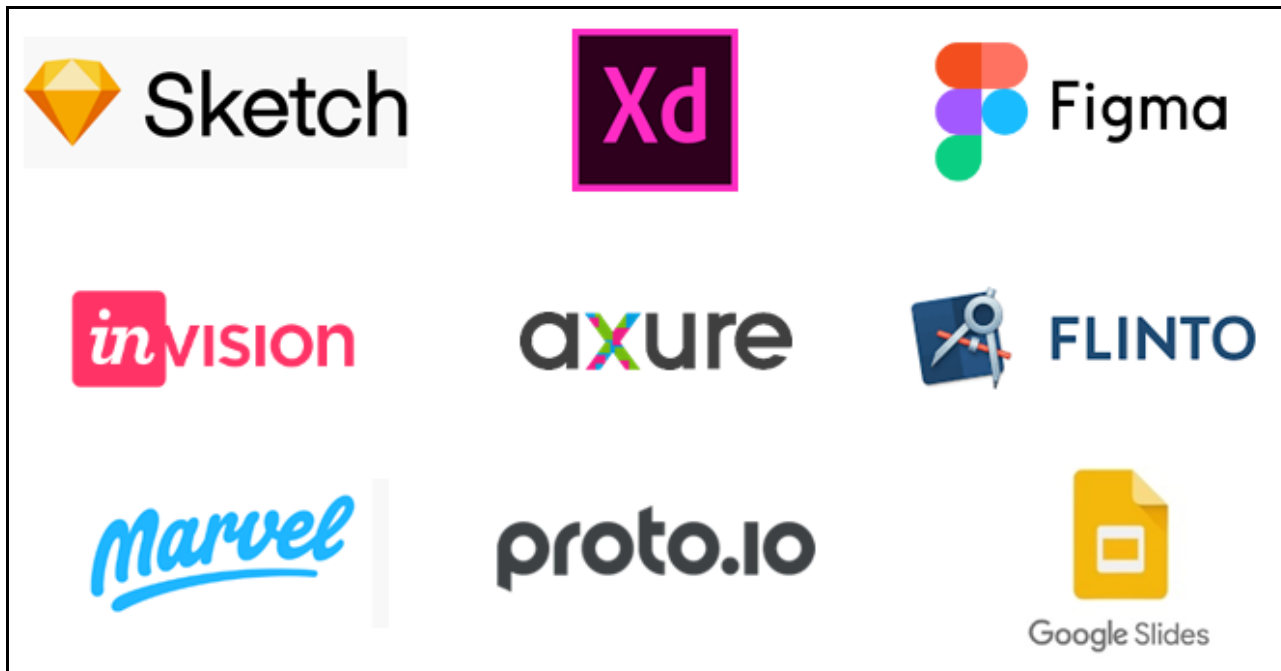


Figure 9: Overview of prototyping programmes

How to get organized during prototyping

Prototyping normally takes entire days for a team: to deliver that in a few hours by a group of non-professional people that barely know each other is practically impossible. Also, the Sprint here gets very technical and skills from single people might make the difference. This is good and bad, as some solvers might feel they cannot contribute to this enough and might get frustrated (with negative impacts on a group level). However, we can do something to improve the outcomes of this phase, that is: making sure the team gets organized effectively (everyone should be fully busy with a precise role). Here is a way to get organized at a team level:

1. Architect: build prototype architecture / structure / links between screens
2. Maker: build single screens
3. Supplier: act as providers of components to maker (icons, pics). Details must be credible
4. Copywriter: write nice and credible texts.

2.2.5 Phase 4: Test

The test phase is the most complicated, risky, and effort intensive of the UX Challenge. Its preparation actually starts months before the Challenge as a number of testers must be outreached and selected by the organizer. If everything has been done appropriately, each team will have available 4 users during morning of day 2, and each user will stay with solvers for one hour to do tests and interviews. Another

important thing to know is that each team will need a separate room to carry out its test. Definitely tests need a quiet environment, to allow for natural interaction between solvers and testers, and to allow for collecting video and/or audio data. The execution of the test will occupy the whole morning two of the Challenge (e.g. 9.00 to 13.00) and could end before lunchtime. We strongly encourage you to prepare everything that is needed for executing the test the evening of day 1. Important: companies are not meant to take part in tests. However, in case they require that, they may take part in that just as observers (of course without saying to the tester that they own the product); for instance, they may be presented to users as “mentors”, therefore with a methodologic role.

A) Prepare a test plan

Research actions need to be carried out according to a research plan, in order for it to collect useful data to validate or invalidate previous assumptions, to answer to research questions, or to generate other valuable data, also at an exploratory level. Time is very strict in the UX Challenge so it's naive to think to come up with a research plan in one hour or so: however, there must be some kind of plan (a one page plan will be more than enough) before starting the test. Here is what a test plan should include:

1. *Research questions and goals.* Questions should be of course related to the challenge, though more declined to validation questions you have in regard to your solution. Also, they should be very detailed, e.g.: “Is the newly designed user flow easily learnable by users?” Feel free to carry out goal-driven research, meaning picking exact metrics and target value to recognize validation. E.g. “we consider the newly designed flow learnable if the average time on task x will be less than y minutes”). The scope of tests should be to build a rock-solid learning about a very few things: therefore, make sure you do not add too many goals.
2. *Interview structure:* Normally this comes as a list of questions that you want to ask to the user, before, during, and after s/he tests the prototype. Indeed, one part of the test might not involve the prototype itself, but only interviewing the user.
3. *Type of data:* You should also clarify what type of data you want to collect: e.g. qualitative data only (what you see and hear from the user) or quantitative data too (e.g. how much time each user takes to perform a certain task; how many errors s/he commits during the execution of a certain task). See below for information on the type of questions to do during the test.
4. *Tasks:* Tasks are used to manage how the user interacts with the prototype. Select a number of tasks in advance (3-5, not too many), and state them out. See below for more info on tasks.
5. *Responsibilities.* Follow the roles that team members should cover during the test phase, of course according to personal skills:
 - *Product manager:* Makes sure the prototype works appropriately in order to make it possible to carry out the test and fix potential problems on the go.
 - *Interviewer:* Welcomes testers, manages the test, maintains the interaction with the user (should be only him or her that talks to the user) and makes it possible that data is produced, following an interview structure and assigning tasks according to the plan.
 - *Data collector:* Takes note of what happens in real time, hopefully following a structure identified in the test plan.



- *Technical support:* Sets up and manages the audio/video recording or streaming and archive it; makes sure the test room has power sockets and has wi-fi.
- *Welcomer:* A person that stays in touch with the organizer and manages the inflow of the 4 testers during the morning, and has the telephone number of each of them (some will show up earlier, some won't be able to find the exact room, etc.)

B) Set up the test

Before starting the first test it's crucial to appropriately prepare the test site: tables, chairs, support to use the prototype (smartphone, laptop, etc.): everything needs to be prepared in advance. Also, wi-fi connection and electricity power must be available in the room to operate the various devices. It seems obvious to mention this, but the point is that there is basically no time to do so. We strongly encourage the solvers to prepare the test site during the day 1 evening in order to start right away with the tests at 9:00 on day 2. Also, make sure chairs and team members sit around the tester giving enough space, simulating a natural experience (e.g. not too close; not to sit in front of a tester). See the pictures below as an example of a viable setup.





Figure 10: Pictures from the UX Challenge

And of course, before you start the real tests with users, make sure you tested both the prototype and the test site yourself, at a team level. So: test the test, as you'll definitely find a number of flaws. Anyway, be aware that the first test will be the actual test of the test: therefore, it might not go as you expect due to technical problems or issues with the effectiveness of the interview structure, or quality of the assigned tasks.

C) Conduct the test

Whatever the plan includes, normally one test should last less than 60 minutes (each user flows in every 60 minutes) and go through the following phases:

1. Introduction
2. Questions on user's context
3. Assigning tasks on prototype usage
4. Collect data.

Below we include some suggestions on how to manage each phase.



1. Introduction: This part serves to brief the tester about what will happen during the test. Testers are only introduced to the UX Challenge by the organizers. These are useful suggestions on how to conduct the interview: Sit beside the user but give space. Friendly welcome small talk: you are the host, the user is the guest. Smile, nod, make eye contact while s/he speaks. “We’re not testing you, but the product. If you get stuck it’s normal, not your fault. Something may not work right. There are no right or wrong answers. Frank and honest feedback is what we need. I remind you that by applying to this project you accepted to be recorded. (hand out the Privacy Policy document and the Terms and Conditions of Participation if needed). Do you have any questions?”
2. Questions on user’s context: These are very important, especially if the test has an 1) user research goal (knowing needs, pains, expectations from the users); or 2) the team needs to validate a product or functionality idea, and therefore the focus of the test is not on technical aspects (e.g. usability) but on perceived utility and desirability. Anyway, this part should somewhat naturally flow from introduction in order to let the user feel comfortable. Questions can be such as: What do you do for work? In spare time? What problems and issues do you normally face (within the context of the challenge)? Could you describe me a typical issue? How do you try to solve it? Have you ever used any solutions like (the product you’re working on)?
3. Assigning tasks on prototype usage.
 - A. Tasks are activities that the user has to do in order to achieve certain goals and proceed through the designed interaction flow on the prototype: therefore, tasks should come with a clear, unambiguous, consistent, and of course feasible goal. Tasks shall be large enough to allow users to find their way to the goal, in order to allow for some free interaction with the prototype (they should not be too straightforward). Example of tasks could be: “Update your user profile picture” (easy and short task); or “Book an accommodation for two people, in the city X, date Y, within budget Z” (longer and more complex task).
 - B. Tasks should be designed depending on the maturity of your prototype. And of course, tasks should be designed in order to let the user go through crucial user flows and functions, in order to produce the data that you need to answer your research question.
 - C. You can ask the user to [think aloud](#) if you think that’s appropriate (it can allow you to uncover the underpinning reasoning and real opinion of a user, but it definitely brings up complexity and a higher cognitive load to the user).
 - D. During the task phase it's important to put the user in the position to operate:
 - i. If the user gets stuck, help her out before she gets stressed out.
 - ii. When s/he does something, ask for clarifications, using so-called trigger questions: what is that? What is it for? What do you think about that? What do you expect that will do? What are you looking for? What will you do next? Questions should be open ended and not leading! And never ask yes or no questions, or multiple choice, as that won’t allow you to generate useful data. Always ask how, why, where, what, when, who... Let the user talk!
4. Collect data.



- A. It is crucial to collect data appropriately during the task about what you see and what you hear (the user acting on the prototype). Better take notes directly on a PC or mobile phone, rather on post its or paper (analysis will be easier). Also feel free to take notes about what you (the researcher) think, though keeping them separated from the actual observation data. These will anyway be subject to analysis (in ethnography they are called “second level data”). Be granular and structured when collecting data, as it will make the analysis easier.
- B. You are strongly encouraged to audio and/or video record the tests. This can be done in various ways: capturing the screen session using appropriate app on the device mounting the prototype (mobile phone, laptop, tablet, etc.); just recording what happens using your own mobile phone. Though you'll not have time to deeply analyzing these data, you'll be able to 1) show some fragments of the video to the companies when presenting results; 2) including one short clip in the plenary slide pitch, e.g. one showing a user extremely happy about your prototype; 3) give all that material to companies, that will find it very useful to look into it after the end of the Challenge.

D) Debrief

The last part of the test is the one that normally gets overlooked because everybody is very excited (or depressed) about the outcome of the tests! However, in this phase team members should get to a shared vision of 1) what are the key learning from the tests (probably most of team members were present during tests) and therefore 2) what is needed to be done on the prototype to update or optimize it before the final presentations. Also, the team should point out what are the aspects that still are not so clear (open points) and may require further research. Most likely there will not be time for a thorough analysis of the collected data. However, if the data collector was effective, s/he can get to this final part with clustered data already, making it easier for the team to see patterns.

Notice that there won't be much time to intervene on the prototype, as in some 2 hours from the debrief companies will show up again to know the results.

2.2.6 Phase 5: Tune and deliver

This is the final phase of the UX Challenge, where the goal is to get ready for the presentation of the results both to companies and to the plenary. Notice that this is not a phase of the Design Sprint: however, it is needed to wrap up all the work done. It normally lasts a couple of hours, starting after lunch of day 2.

Important: though all the added value of the UX Challenge is produced during the previous phases, failing to address this phase will turn out in a flawed delivery, which will result itself in confusion and dissatisfaction from companies, this way failing to meet the overall goal of the Challenge.

Again, it's crucial that teams get organized appropriately in order to avoid waste of time. These are the things the solvers will need to do in this last phase. Notice that some of these can be partially prepared starting day 1.

1. Update the prototype according to what agreed on in the debrief.



2. Wrapping up the prototype in order to make it possible to do a demo to the company as well as to ship it (e.g. uploading it on a folder shared with companies).
3. Wrapping up all the 1) data collected during the tests as well as 2) whatever other partial output (sketches, mockups, wireframes, research plan, etc.) developed during the two days (sketches and post-its can be photographed)
4. **Prepare Deliverable 1:** Slide deck presentation to company. This serves to the team to present results to the company during a one-to-one meeting normally lasting between 30 and 60 minutes. This deliverable can and should include confidential information. This must be sent to the organizer by Friday 4 pm. This way the organizer makes sure that the team has a presentation to be shown to companies. Strictly PowerPoint format only.
5. **Prepare Deliverable 2:** Very short slide deck (e.g. 6 slides) for plenary pitch. This will be utilized by teams to support the final plenary pitch, which normally lasts only 3 minutes. This deliverable is due by Friday 4 pm. Would not include confidential content as it will be shown to the plenary (the event is open to the public). In this short slide deck, the team should cover: 1) The team (name, members); 2) The assigned UX Challenge; 3) The solution (idea or prototype); 4) What has been learned from tests; 5) What's still open and potential next steps. The team should check contents of Deliverable 2 with the company during the one-to-one meeting and possibly send an updated version by 5 pm to the organizer (again no confidential contents). Strictly PowerPoint format only.
6. **Prepare Deliverable 3:** This deliverable is a short ("quick and dirty") .doc or google doc due by the Monday after the Challenge, including the following contents: Contact info about the team; Challenge & goals; ideas of solutions; description of the chosen solution; prototype; test plan; results from test; limits and further work. Very important: the document should link to all other relevant outputs, especially the prototype (often available as a project file on a web-based tool such as InVision or Figma).
7. Upload all the previously mentioned data and deliverables in a folder previously created and shared with the company and the organizer. The Team should make sure they build the deliverables hour by hour during the two days.

2.2.7 The final event

The final event of the UX Challenge can be an intensive experience for all participants: solvers (they have to pitch and compete for a prize in front of some 100 people, most of which are peers of professionals they wish to learn from); companies (they'll also have to present the company, the product and the challenge); mentors (by the end of the Challenge they are also emotionally involved with the teams they supported); and, of course, the organizer (so many things can go wrong..!). Below we provide a canvas for the final event, and some hints and tips on how to handle it:

1. Companies should present the company, the selected product and the challenge in 4 minutes. All companies should present together at the beginning, and before solvers; another option is that of each company presenting right after the team with the solution.
2. Apart from the presentations from teams and companies, it's good practice to have a couple of talks / speeches at the event: should be of course relevant to the application of the Design Sprint to business and possibly industrial contexts. This will make it easier to bring external guests (this



will improve impact of the results and of the initiative overall); also, to have keynote speakers will allow to put in perspective the results provided from the teams.

3. The organizer of course will have to coordinate and act as a host during the final event. An important thing to know is that, altogether the coordinator will end up with some 20 slides deck to manage (from companies, solvers and speakers). The only way to make this possible is to use PowerPoint formats only, and to link all the slides on a unique “master” slide deck (that of the organizer).
4. The event shall not last more than 90 minutes, therefore time management is crucial (e.g. all presentations must be timed). The event shall end with the awarding of the prize and with a buffet to allow for networking. And don't forget to take a final “family picture” of all the participants. Though it seems naive, it impacts a lot in the capability of communicating the initiative properly, especially via social media.





Figure 11: Pictures of the team and final event at the UX Challenge



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Sec. 3. How to set up the UX Challenge

3.1 Timeline

Below we provide a Gantt chart of all the activities needed to set up and execute a UX Challenge. This particular Gantt shows the schedule for a UX Challenge held during the first week of October. Notice that tasks regarding both the selection of Companies and Solvers are done *before* the summer break. This is mandatory, as it is the only viable plan to have all participants engaged and appropriately trained in time.

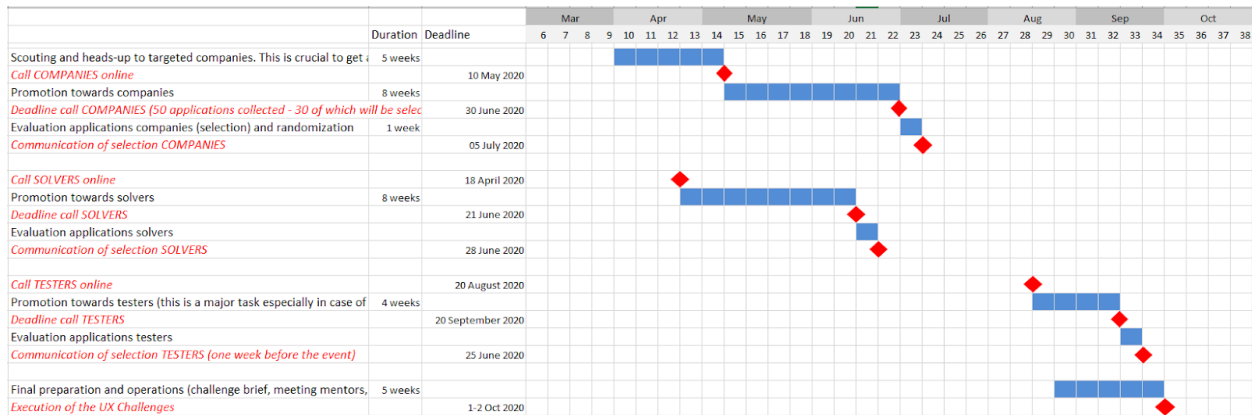


Figure 12: Timeline of the UX Challenge

Besides the timeline, below we provide a thorough description of the main activities that the partner needs to take care of in order to set up a UX Challenge, timewise.

3.2 Preparation of partners' touchpoints

Each partner will have to set up the following online touchpoints that will be utilized by the targeted audience to get information and apply to the Challenge.

3.2.1 Webpage

A **webpage** describing the overall gist and value proposition of the initiative. The webpage should include: A brief description of the initiative; who are the targeted audiences; why each audience should participate (value proposition); pictures, from past editions or commercial stock pictures; all information about when and where the initiative will take part plus details; link to legal documentations such as the public Call for Selection of the audiences (see below) as well as the Privacy Policy document; call to actions (link to Application Forms - see below); a contact email. Partners feel free to get inspired and use contents from HIT's webpages on the UX Challenge: www.trentinoinnovation.eu/ux-challenge-2

3.2.2 Calls for selection

Public Calls for Selection of the audiences. These documents clarify to all three audiences (companies, solvers, testers), what are the rules of initiative, in legal terms, and what criteria will be utilized by the Challenge host to select applicants, as well as to award prizes. The most important is the Company call for selection. Company selection criteria will apply at two levels:



A) Eligibility criteria (required to participate in the 200SMEchallenge project and be selected either as in the treatment or in the control group).

1. **[MANDATORY]** The applicant company must be a SME – Small or Medium sized Enterprises, meaning meeting both the following criteria:

- a. Size: having a headcount < 250 employees [AND]
- b. Turnover: having a 2019 turnover <= 50 M€ [OR] Balance sheet total <= 43 M€

2. Completing the “Company Application” in its entirety, meaning:

- a. Sending “UX Challenge Application Form” (. word format) to the specified email address;
- b. Completing the online “Baseline Survey”. This is linked from the UX Challenge Application Form.

3. Applying within the set deadline.

B) Suitability criteria (utilized by the project partner to make up a ranking of the most suitable eligible applications, in order to meet the goals of the 200SMEchallenge project). These criteria are not mandatory, though we recommend partners to use them.

1. Products that can be learned and used by the end user without the need for specific training, documentation, or previous experience (score: 1-5)
2. Products directed to end users that do not present characteristics that might make it difficult or impossible to involve such users in the Challenge as Testers (for example, users affected by serious illness or disability (score: 1-5)
3. Relevance of digital interaction in overall user experience of the product (score: 1-5)
4. Innovativeness of the Product’s value proposition (score: 1-5)
5. Presence and clarity of motivations and expectations that caused the company to apply to the Challenge (score: 1-5).

To prepare and publish a Call for Selection for Companies will be mandatory for all partners (also those that are not under public law), as such document will clearly state the functioning, regulations and expected output of the UX Challenge, which has to be the same throughout the seven instances, for validation purposes. Below we link to draft versions of the Call for Selection documents. Partners should create their own version of the documents, reviewing and updating where appropriate. However, changes should not impact on the overall format and companies’ added value of the UX Challenge. Here is the [link to the folder including the Call for selection](#) documents.



3.2.3 Application forms

The original version of the application forms will be provided by the coordinator: these might have to be carefully translated into the national language by partners. Here is the [link to the folder including the Application forms](#). As for the Companies Application, this is completed when a company fill in two separate forms:

A. **Companies Application form**

1. **UX Challenge Application form:** This form collects all the information that one partner needs to verify the *suitability* of a company application (e.g. Large Enterprises are not suitable for involvement). It collects information about the company (size, turnover), the referent persons, the submitted product, and the problem the company seeks to solve via the Challenge. The form also links to other documents such as the Partner's Privacy Policy (GDPR compliant) and the Call for Selection. Some parts of the application form (such as partner name and contact details - marked in yellow) will have to be updated by partners before publishing the form. This form is published on partners' websites. The form will have to be filled in by applicant companies and sent via email to partners. MS Word format proved to be the most effective format to collect high quality applications: on one side, it's easier for companies to reply to all questions (text) and add snapshots from product, plus URLs on a Word doc instead of an online form; also, Word doc allows to easily provide early feedback and review on draft applications (in case this is in line with the criteria set out in the Call for selection). Overall, a company that will provide a high-quality application will also be a company committed to the initiative. Very important, the UX Challenge Application form links to a second, external and this time *online* data collection tool (the Baseline Survey), which is entirely part of the overall Company Application Form.
 2. **Baseline Survey (BS).** The BS is a short google form that contains questions needed to track initial (baseline) information about companies which are relevant to the RCT - Randomized Control Trial Study. Previous experience and current knowledge of user-centered design methods are tracked. Completing the BS should take not more than 15 minutes: this can be done *after* the applicant sends the UX Challenge Application Form (.doc) (e.g. a few days after, in order to make it easier). To fill in the BS is mandatory for an applicant company to complete the application process. This way, applications missing the BS will be rejected. Important: all data collected by the Company Application Form (.doc + google form) will have to be shared by partners to the project coordinator, the WP3 Lead and the WP4 Lead for project management reasons.
- B. **Solvers Application Form:** this comes as a google form and collects all the information that the partner needs to select the right solvers to the UX Challenge.
- C. **Testers Application Form:** this comes as a google form and collects all the information that the partner needs to select the right testers to the UX Challenge. Profile of the testers of course will depend on the selected products. Therefore, it's important to keep in mind that the selection of testers will come after the selection of companies and solvers.



3.3 Getting prepared for the company outreach

3.3.1 Company selection dashboard

The company selection dashboard is a google sheet designed to help partners keep track of the company's outreach and selection process. It is designed in order to resemble both the phases of the designed SME selection funnel, as well as the practical promotional actions that the partner needs to do with SMEs. In Particular, column “O” (Application status) is very useful, as it contains data validation options that will allow partners to position each prospect on the above mentioned funnel. Notice that the file has been built “bottom up”, used and refined throughout three editions of the UX Challenge so we strongly recommend partners to use it. It’s important that all partners use the same dashboard as Task 3.1 Lead will have to coordinate and oversee the overall process (therefore it’s good to have a common format upon which to check progress). Here is the [link to the Company selection dashboard](#) (the link connects to a filled example; in the same folder an empty file can be found, to be utilized by partners).

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Company	www	Telephone	Address	Referent per	Notes about contacts with company	Fit / interest	UX 2019_Application status							
2	Tecnoalpin	.com	xxxxxx				vv	8 Selected (confirmed)							
3	Nevicam	www.nevicam.it	xxxxxx				vv	8 Selected (confirmed)							
4	DEENOVA (già SLPA - Santa Lucia Phar	http://www.slpa.eu/	xxxxxx		Nicola		vv	8 Selected (confirmed)							
5	Wurth Phoenix	https://wurth-phoenix.com	xxxxxx		Nicola	Hanno in mente un paio di challenge (redesign di alcuni flussi/funzionalità e design mobile app) di un loro prodotto i cui utenti sono sistemisti.	v	8 Selected (confirmed)							
6	Marangoni Meccanica	.com	xxxxxx				vv	7 Selected but did not confirm (withdrawe							
7	Thread Solution S.r.l.	thread_solution	xxxxxx	via Roberto da S	Nicola	Pochi progetti/clienti: diversi progetti di ricerca su wearable con grande attenzione alla UX	vv	5 Have applied							
8	Dedagroup Wiz	https://www.dedagroup.it	xxxxxx			Gestionali, ERP, ma anche per PA		4 Confirmed interest, said that will apply							
9	Wonderflow	.ny.eu	xxxxxx			Sono già molto bravi in design. Widget v		4 Confirmed interest, said that will apply							
10	TRIENT CONSULTING GROUP SRL	www.trientgroup.it	xxxxxx	Via Marino Stenii	Silvio	Sono B2B prodotti difficili da progettare; app ma non innovative	v	2 Contacted, thinking of it (to go back)							
11	DIMENSION SRL	http://www.dimension.it	xxxxxx			Mobile App Finance di Phonenix Infor	vv	2 Contacted, thinking of it (to go back)							
12	BELKA	.com	xxxxxx			Sono già molto bravi in design. Widget v	vv	2 Contacted, thinking of it (to go back)							
13	Corehab		xxxxxx				v	2 Contacted, thinking of it (to go back)							
14	Cardioline	tri.medici.	xxxxxx		Nicola			1 Email sent, waiting							
15	SiWeGo	.ny.eu	xxxxxx				vv	1 Email sent, waiting							

Figure 13: Company selection dashboard

3.3.2 Creating a team to promote the initiative

Selecting companies, solvers, mentors, and testers is perhaps the hardest part of setting up a UX Challenge. Altogether these tasks account for more than 50% of the overall effort required to host the UX Challenge. Therefore, its crucial for partners to count of committed and professional staff devoted to the following activities: i) setting up relevant partnerships with local and regional stakeholders; ii) communicate the initiative, its value proposition and functioning to the targeted audiences, possibly coordinating a communication effort involving local partners too; iii) support the targeted audiences in going through the application phases, possibly reviewing applications (in the case of companies); iiiii) managing the application selection process in the light of the legal framework provided by the Call for Applications.



3.4 Company outreach and involvement

In order to execute the Challenge, the organizer has to involve selected people from four different audiences: companies (SMEs benefiting from the UX Challenge), solvers (most likely students), testers (citizens), and mentors (UX design professionals supporting the solvers). Below we provide guidance to partners on how to outreach and select these audiences.

Selection of companies and solvers should be executed by partners by the end of June 2020. Call for selection of companies and solvers should stay open for two months at least, in order to allow partners to actively promote the opportunity to the audiences, as well as to allow for interested parties to spread the voice.

3.4.1 Company target profile

Target companies have two main requirements.

- i. **Size.** They must be SMEs - Small and Medium Sized Enterprises, i.e. meeting the following two criteria: i) #employees < 250 [AND] ii) Turnover <= 50 M€ [or] Balance sheet total <= 43 M€, therefore including startups. Large Enterprises are out of target. Each partner has to achieve 30 valid applications from this target audience.
- ii. **Industry.** They must design and or develop products or services having a digital interactive user interface. These could be mobile apps, software, of other types of digital interfaces (e.g. touch screens) to command industrial machineries. Therefore, not only software house or design firms are targeted, but also manufacturing companies. However, it is crucial to target the company that actually designs and develops the interface: it might be a design firm or a software company acting as a supplier to the manufacturing company (or the manufacturing companies itself, in certain cases).
- iii. **Design readiness.** Partners should try to involve companies who has not known, utilized, or benefitted from user-centered design so far. We know this is hard to estimate, however this will make it possible to maximize impacts of the initiative, as well as increase perceived value and commitment from the companies that will be selected.
- i. **Location.** Better targeting SMEs from the partner's region as the Challenge needs companies to take part in its operations during the two days. However, companies may be outreached at a national level. Companies commit to take part in the initiative in case they are selected. Taking part in it via conf-call is not an option.

3.4.2 Outreach

Each partner commits to appropriately communicate the initiative to at least 50 companies. However, the critical KPI relate to the SMEs that will actually send an eligible (and hopefully suitable) application (target=30 per partner). To make this happen, we suggest proceeding as follows:

- i. Partners make up a list of *lead customer* companies in the *Company selection dashboard* sheet. Leads are companies whose profile is in line with the defined target above, and that we want to



approach. As per the actual numerosity of companies that it's good to target, in order to reach the expected result (30 eligible applications), please see the next paragraph.

- ii. Depending on the targeted company, the partner will decide what is the better communication mean. Based on our experience we strongly encourage partners to directly talk to companies, better if during face to face meetings. The UX Challenge is a new initiative, and most companies do not know what a Design Sprint is. A face to face meeting is the best way to explain all that, and to make sure the company understands its value and strategic business potential. Below the company outreach funnel.
- iii. How to effectively communicate the value proposition and benefits of the UX Challenge to companies? Here is a way to shortly pitch the UX Challenge to a prospect company: *“The UX Challenge allows you to spot and solve usability problems of your product, as well as source new design solutions in only two days, for free. Outputs are very actionable and fully exploitable by companies. Real users are involved in test and co-design activities, making the outputs more reliable. Besides gaining actionable prototypes, you will get to know the most recent UX design methods, and potential design partners (or young designers to hire).”*
- iv. More detailed communication contents and tools (e.g. draft emails) are included in Deliverable D5.1 Project Communication Plan. We strongly encourage partners to look into that, as it includes draft emails utilized in the previous editions with all the information needed to promote the Challenge.

3.4.3 Companies selection funnel and stage-gate deal flow

Each partner will have to reach a goal of 30 applications from eligible SMEs (in line with the above-mentioned company target profile). To do so, partners will have to adopt methodologies and practices typical of sales management.

- i. Overall, a sales funnel will be utilized to monitor the deal flow: each stage of the funnel is a gate that only some companies (or deals) manage to go through. Stepping from one stage to the next one is also called “conversion”. Each stage has a name. This means that only a given percentage of the “Targeted” companies (those in stage 1) will convert into “Applicants” (stage 2) - whereas Applicants are companies that actually send an application. Similarly, only some of these (hopefully the large majority) will convert into “Eligible” (stage 3) companies: indeed applications coming from Large Enterprises must be rejected, as they are not eligible. In case partners were to receive more than 30 eligible applications, those applications will be evaluated also according to suitability criteria (some products are more suitable to take part to the UX Challenge than others). Suitable applications will be then Selected (stage 4). Finally, according to a randomization process, about 25% of the Selected will be allocated to the Treatment group, i.e. will take part in the UX Challenge - therefore ending up in the final stage of the funnel (“Treated” - stage 5). Below we show this funnel.
- ii. Companies located in the same funnel stage can however be assigned a different status in the Selection Dashboard. For instance, each Targeted company shall be considered at the very beginning a **lead** customer, i.e. a customer that we would like to engage, but we don't know whether it can be somewhat interested in our offering or not). In case the customer reply to our offering, and in case after an initial interaction (via a call or a meeting) we are to assume that it is



interested to apply (e.g. it tells us that will apply), then such customers shall be assigned the status of a **prospect** customer, though staying still in the grey stage of the funnel (1 – targeted). Only in case we'll receive its application, then it will convert into an actual "Applicant".

- iii. Utilizing a stage-gate and funneled approach, featuring specific conversion rates from one stage to the next one, and knowing the value of those conversion rates once the process starts, allows the partner to appropriately manage the deal flow, reaching the targeted goals by putting the right number of prospects on the first stage of the funnel (i.e. targeting more companies). E.g. if your conversion rate from stage 1 to stage 2 is 30%; the conversion rate between stage 2 to stage 3 is 80%; the conversion rate between stage 3 to stage 4 is 90% (and these may still be optimistic), then the conversion rate from stage 1 to stage 4 will be $30\% \times 80\% \times 90\% = 0.30 \times 0.8 \times 0.9 = 0.216 = 21.6\%$. This means that for a partner to have 30 suitable SMEs selected for the project (stage 4 "Selected"), it might need to target $30 / 21.6\% = 139$ companies.
- iv. The good news is that partners can increase the conversion rate depending on how they 1) select targeted prospect companies, and how they 2) approach them to illustrate the initiative. E.g. by talking to companies via telephone might raise the conversion rate from stages 1 to 2 (assuming the others unchanged) to 50% (therefore requiring to target 83 companies); similarly, having a face to face meeting with pre-selected prospects, instead, might bring it up to 80%, requiring to target approximate 52 companies.
- v. Therefore we strongly encourage partners to build *bottom up* relations (investing time and effort to talk and meet them), instead of (only) broadcasting the opportunity *top-down*, using institutional channels: though that might allow to reach out to hundreds of companies with a very limited effort, isn't very likely that only a small portion of them will be a prospect customer, and will therefore convert to an applicant.
- vi. On top of that, the partners shall be aware from the beginning that it will take 80% of the overall effort to achieve the last 20% of the targeted goal. This means that, out of 30 applications, most likely the first half will come rather easily; while the last 5 will be very hard to achieve. Also, remember that we are talking about *suitable* applications (applications from companies not in line with the target might keep coming, but this will not help reaching the goal).
- vii. Of course, partners should leverage on local partnerships (e.g. with company representative's institutions, and other innovation agencies) to feed the deal flow. We strongly encourage partners to start engaging local partners and stakeholders as soon as possible, months before the actual application will open.



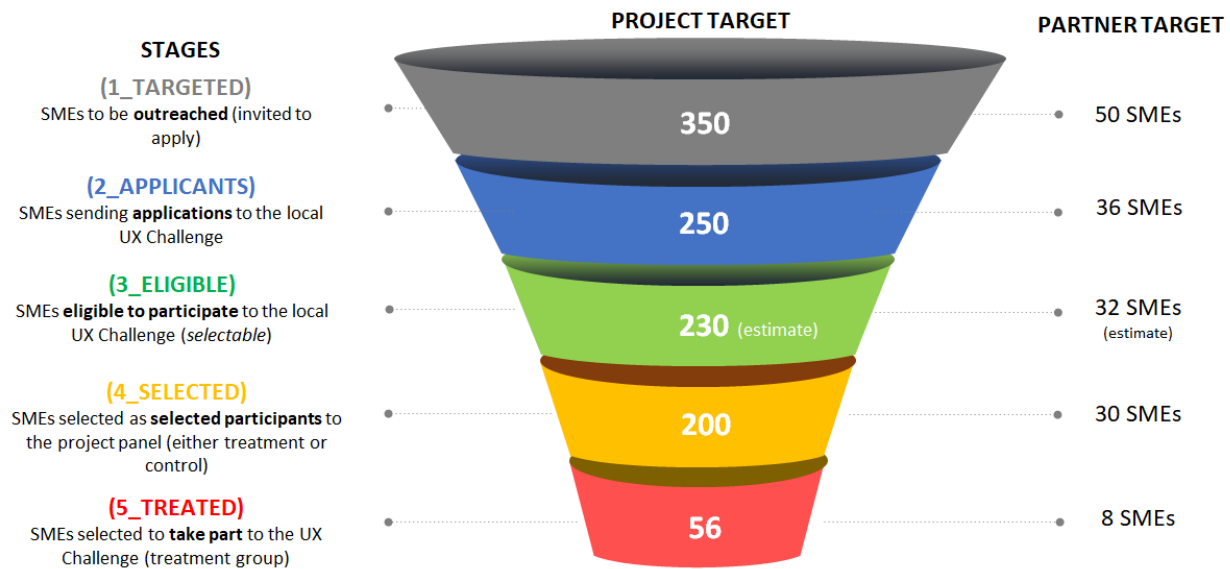


Figure 14: Company selection funnel

Once applications will be closed, the following selection process will take place:

- i. Selection of the **Eligible** applications (*Stage Gate 2 to 3*): This is done by partners, according to the criteria specified in the public call for selection. Remember that the SME requirement is mandatory
- ii. Selection of the most **Suitable** applications to take part in the 200SMEchallenge project panel (*Stage Gate 3 to 4*). These include both the treatment and the control group. This is done by partners. It is mandatory that each partner selects at least 30 eligible applications.
- iii. Selection of the eligible and suitable products that will actually take part in the UX Challenge (*Stage Gate 4 to 5*). This is done by FBK partner, following a process that will include randomization. FBK will communicate the result of this selection step within 4 weeks.

3.5 Involvement of solvers, mentors and testers

1. *Involvement of solvers.* Solvers are mainly students, therefore they can be outreached throughout local universities of other channels (could be organizations or associations promoting events on design or digital innovation). Each UX Challenge should count on 40 solvers. At least one team of solvers will have to be matched to one selected company: we recommend creating teams of 5 solvers (this also mitigate the risk of one or even two dropouts). Bottom line a partner needs to involve 8 companies, making up to 40 solvers. It's good practice to have a short list of reserve solvers. Altogether, one partner should aim to receive between 60 and 90 applications from solvers, in order to make sure the best one is selected. Project partners shall establish local partnerships with these players. Besides using online communication (e.g. social media, web, emailing) a very effective strategy is to identify university professors teaching certain courses (e.g. interaction design, human computer interaction, User experience design, information science, innovation management) and ask them to pitch the initiative in class. Similarly, to companies,



solvers will have to go through an application process. Only solvers with relevant skills and motivation shall be selected. Solvers shall be involved months before the Challenge. We strongly recommend partners to select all the solvers before the summer break. We strongly encourage partners in selecting solvers by means of a public call for selection: albeit this might not be legally required to some project partners, having a clear document including all the regulations makes life easier (less questions from applicants; process less prone to errors). These selection processes were validated throughout 3 editions of the UX Challenge.

2. *Involvement of mentors.* Mentors are UX design professionals that will support teams in the execution of the UX Challenge. They may be either freelancers or affiliated with a design firm, or even a software company. The buy-in for them to take part in the Challenge is to get in touch with potential clients (SMEs) and potential new talents to hire.
3. *Involvement of testers.* What said for companies and solvers also apply to testers. The problem with testers being that if the project partner had never done this before, this can really be a daunting task. Indeed, testers cannot be random people: they have to apply as potential users or customers of the products selected in the Challenge. And at least 4 users have to be selected per product / team (plus one reserve). This way, if 8 companies are selected to the treatment group and will take part in the challenge, each partner will have to select some 40 citizens applying to 8 different profiles. The way this is done at Hub Innovazione Trentino is via a website that is utilized for this purpose. Partners can have a look here to understand how to explain to citizens what this is about, and how to make it possible for them to apply. [Link to an example page form clarifying requirements for testers.](#)

3.6 Preparation of the Challenge

Selecting companies, solvers, mentors, and testers is perhaps the hardest part of setting up a UX Challenge. This process probably accounts for more than half of the overall effort required to host the UX Challenge. This is due to the considerable marketing effort required to select the right applicants. However, below we list a number of crucial tasks that need to be done by one partner to prepare for the UX Challenge.

3.6.1 Creation of the challenge brief documents

A challenge brief is a very short document (less than half a page) that describes and breaks down the challenge into three aspects: 1) the problem (or opportunity) one team has to tackle, which is described in detail. The more narrow the problem, the easier it will be for solvers to tackle it; 2) What “the world should look like” without the problem: this is the ideal to-be scenario that the company seeks to achieve by means of a solution, whatever it may be; 3) the type of output that solvers are expected to deliver (a prototype, a mockup, validated use scenarios...). The challenge brief is prepared to make sure that companies, solvers and mentors are on the same page. The challenge brief is drafted by the organizer, starting from the information that the company has provided in the application form. After that, the draft is shared with the company for discussion and alignment. Finally, the brief is shared with solvers and mentors. Notice that the organizer shall actually prepare the challenge brief *before* embarking in the tester’s selection process: indeed, testers profile is selected depending on the challenge (the information about a product, available on the application form are normally not enough for the organizer to select testers). One challenge brief must be produced for each company. Here is a [link to an example of a challenge brief](#).



3.6.2 Creation of teams

In the UX Challenge creation of teams is done by the organizer. Teams are taking into account a number of drivers: skills and seniority is perhaps the most important: most skilled solvers should be identified and put in different teams, ideally acting as team leaders. Also, some solvers might want to make up a team with friends or colleagues, and this should be supported. Finally, the organizer could share all the challenge briefs with the solvers in advance and ask them which company / challenge they would like to work on. This is good practice.

3.6.3 Creation of the Challenge Dashboard document

The Challenge Dashboard is a simple google sheet where companies are matched with challenge briefs (in short), with the teams of solvers, the mentors, and with the testers. This is very useful for the organizer and possibly for the mentors to keep track of the whole complexity of the initiative. On top of existing information, in this spreadsheet the organizer can add details about how teams could address a given challenge (e.g. goal of tests, etc.). Here is a [link to an example of a Challenge Dashboard](#).

3.6.4 Training of solvers

This comes as a 2 hour training session, possibly in the late afternoon, some 10 days before the challenge. The partner must brief solvers about i) the overall schedule of the UX Challenge, and other practical information including regulations (consider that not all solvers might have read the Call for Selection, which explains what the UX Challenge is); ii) the Sprint methodology, declined into the 2-day version of the UX Challenge - not the standard one (not all the solvers might know the exact method yet); iii) the team that they'll be part to. Mentors are strongly encouraged to come, although they might be busy. It's best that mentors get to know the teams before the Challenge. Overall, this training session is crucial as it has to provide all solvers and mentors all they need to be operational at the very beginning of the challenge. In order to carry out the training, the partner should make use of slides. These are made available by the project coordinator and can possibly be tweaked by partners.

3.6.5 Provide for a proper venue

The UX Challenge needs a large open space venue that has the following requirements: i) can host up to 100 people during the final plenary event; ii) can host up to eight team corners made by tables for some 6 people, whiteboards, walls to stick sketches; iii) separate rooms to carry out the tests (interviews and audio / video data recording need silence and concentration to be executed). The organizer should cater for proper food throughout the two days so that solvers and mentors are not distracted from their task (time is super tight: you do not want any solver to leave the building!)

3.7 How to manage the UX Challenge

Full details about this will be provided by partners during the two months prior to the execution of the initiative. In the meantime, the following Medium article written by Nicola Doppio features important tips the organizer of an UX Challenge should take into account for a successful management of the 2 days event.

<https://uxplanet.org/how-to-pack-multiple-design-sprints-into-a-hackathon-format-628c59aa8354>



3.8 What to do after the UX Challenge

In order to maximize the capability for the UX Challenge to bring about the expected impact, after the execution of the UX Challenge, the organization hosting the UX Challenge is encouraged to do the following actions:

1. *Follow-up*: Schedule a 30 mins phone about 10 days after the challenge with all the participating companies (separately) to help companies think how to follow up on the outputs of the UX Challenge. Follow up activities that the organizer might suggest to the companies (normally they don't involve the organizer, this way making it more scalable and sustainable) are the following: inviting solvers to present and possibly further discuss Challenge results key persons / teams at the company; initiating collaborations with one or more solvers to further mature the outputs of the challenge (e.g. improving the design of the prototype); starting collaborations with mentors to industrialize those outputs; hiring some solvers; organize another sprint in-house again involving some solvers. These facts are clear evidence of success of the UX Challenge. Anyway, the role of the host here may vary (from accompanying each company via case management, from being disintermediated after the call).
2. *Measure satisfaction*. Try to measure satisfaction with results and impact. Collect structured data for customer satisfaction and potential impact (both qualitatively and quantitatively, solvers presenting results to other people in the company). For partners of project 200SMEchallenge this will involve making sure that the selected companies will fill in the FuS - Follow Up Survey, as well as reporting results of regional pilots.

3.9 Critical risks and success factors of the UX Challenge

Risks	Critical success factors
Collecting 30 applications per each partner is a very challenging task	<ul style="list-style-type: none"> • Prepare informative, usable and appealing touchpoints for all participants • Start early in outreaching companies (especially providing heads-up – the call doesn't need to be open); don't wait • Set a date as soon as possible (e.g. by mid-March) and send out save the date to possibly interested participants • One-to-one promotion with tailored messages (e.g. via phone and meetings, not only mail) • Have one committed salespeople managing and responsible for the company application deal flow
Not all products are suitable for the UX Challenge (too complex products or products for very specific user profiles)	<ul style="list-style-type: none"> • Try to target and select products that are easy to learn, and that have users that are not too hard to recruit. Otherwise execution will be very hard and results unsatisfactory



<p>The partner cannot involve competent solvers and/or mentors</p>	<ul style="list-style-type: none"> • Establish strong partnerships with relevant universities as they will have to act as a channel to source (enough) competent solvers • Establish liaison with UX design firms and freelancers as they will have a crucial role in motivating and inspiring the teams, as well as in possibly offering a follow up to the companies
<p>People get to the UX Challenge without knowing what that is and what they have to do, this way preventing to deliver high quality results</p>	<ul style="list-style-type: none"> • Invest time and effort in identifying a sound challenge brief with companies • Invest time and effort in training solvers • Invest time and effort in organizing explaining mentors what role they are expected to play and also have a meeting with them altogether if possible, possibly to be co-located or merged with the solver training session
<p>Teams are not productive</p>	<ul style="list-style-type: none"> • Outreach and select competent solvers (students from the right courses, with some hands-on project and teamwork experience) • Try to create teams in a way that they are balanced, but also allow for spontaneous team formation (commitment is normally higher)
<p>Teams lose momentum and commitment</p>	<ul style="list-style-type: none"> • The organizer can hardly intervene on this: mentors should be selected and briefed in order to take care of this, and to coach and motivate people, to make sure teams are productive, follow (more or less) the process and get to the results
<p>Logistic issues during the test phase</p>	<ul style="list-style-type: none"> • There will be dozens of citizens flocking in the UX Challenge venue on morning day 2 for the tests. Make sure you appropriately plan and manage this whole process (e.g. having telephone numbers of each tester)
<p>Getting unprepared to the final event</p>	<ul style="list-style-type: none"> • The set deadlines for the solvers to send the deliverables to the organizer must be met (not negotiable). Make sure solvers and mentors are aware of this. • Promote the final event so that many relevant people will show up (80-100)

	<ul style="list-style-type: none">• Make sure to re-organize the event location (tables, seats) in order to easily accommodate all the participants
You complete a great UX Challenge, but the outer world won't know about that	<ul style="list-style-type: none">• Invest in communication, engaging with media representatives right from during the company and solver outreach phase



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