UX Challenge playbook

UX CHALLENGE

SME CHALLENGE

Contents

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Jake Knapp

DESIGNER, AUTHOR OF "SPRINT" AND "MAKE TIME"

'Jake Knapp is the inventor of Design Sprint which plays a key role in this Playbook. He created the Design Sprint process when he was with Google Ventures. He has worked with some of the most innovative companies in the world, coaching them om design strategy and time management. We have asked him to give his take on what Design Sprint is and why it works. Read his answers here:'

What is the Design Sprint process?
The Design Sprint is a five-day process for starting big projects. The big idea is to build and test a prototype in just five days. That's insanely fast, but because of the checklist of activities in the Design Sprint, it's totally doable.

Why should you do the Design Sprint?
There are a lot of reasons: It's fast, it's fun, it brings the team together... but the key reason to do a Design Sprint is seeing the future.

Here's what I mean: Teams spend a lot of time thinking, discussing and arguing about what might happen. "Should we do it this way, or that way? Will people do this or that?" With a Design Sprint, you quickly make one or two or three prototypes, you show those prototypes to customers, and then you can watch what happens. It's like jumping in a time machine and fast forwarding months or even years to when your project is finished, to see what that might look like, then coming back to the present and making your plan based on what you learn. So when you begin with a Design Sprint, you can kind of see the future—and of course, seeing the future is really helpful for any business.

Why do Design Sprints work?
I've worked with hundreds of companies, from tiny startups to tech giants, and I see the same things everywhere: We all have too many projects, too much email, too many distractions. We all wish we didn't have so many meetings and so much discussion. We all wish we understood our customers better. We wish we could just block it out and do our best work on the most important thing. Well, the magic of the Design Sprint is that—at least for one week—you can do that. The game is changed. Because of the highly-structured process, you can focus, you have time to think, you can take risks, you can work on that most important project together with the key people on your team, and your customers are always at the center of it all.

Photo by: *Airyka Rockefeller*

200 SME CHALLENGE

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Christian Bason Ph. D.

CEO, DANISH DESIGN CENTRE

As an independent, government-backed foundation, the Danish Design Centre (DDC) works to advance the value of design for business and society. Since 1978, we have worked with thousands of SMEs in Denmark and abroad to introduce them to the power of design thinking and methodologies as they seek to innovate new products and services that differentiate them in the market and provide competitive value to their customers. Ultimately, we see our role as building capacity for innovation and sustainable growth by design.

Design, more than ever, is a business critical discipline which ultimately determines what price you can charge and how profitable your business is. That is because it is design decisions that shape the customer experience and value-creation as they interact with the company's offerings. A 2018 study titled "Design Delivers" by the DDC among a representative sample of Danish firms show that 90pct of companies that use design as a strategic resource report higher earnings, and 80 pct find that design strengthens their brand. A key reason for the strong business impact of design is the attention to end users and the care designers and design thinkers take to conduct in-depth user research, involvement in co-design of ideas and concepts, and testing of new solutions with users to ensure they create the intended value. In a digital context, the power of great design is even more profound, as UX and digital design is the key to truly transformative digital experiences.

I am very pleased that we have had the opportunity to be a key partner in producing the guide you now hold in your hands (or view on your screen). Innovation agencies and other system actors need to bring the skills and mindset of designers to SME's in order to raise their competitiveness and contribute to innovation and prosperity.

I strongly recommend this guide, and hope you enjoy the reading.

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Esteban Pelayo

EURADA - EUROPEAN ASSOCIATION OF DEVELOPMENT AGENCIES

This Guide presents interesting results for European innovation agencies which can be implemented directly to improve their impact on the competitiveness of companies developing digital products. The use of awards is a better incentive in the context of open innovation. The UX Challenge is a turnkey scheme for those innovation agencies wishing to support digital companies to develop better interfaces by using user experience design and living labs.

From the point of view of EURADA - The European Association of Development Agencies -, one of the most outstanding outcomes of the 200SME challenge project is the use of the randomized control trial method (RCT) for the validation of the UX Challenge impact on SMEs. In the public sphere in which innovation agencies operate, it is complex to set up reliable evaluation mechanisms to assess the impact of business support programs. Often, inconsistent data are used to support design and evaluation of new programmes. RCTs allow establishing an experimental approach in innovation agencies, and therefore respond perfectly to a need to facilitate innovation in support interventions.

Innovation agencies should take this RCT as an example and use it for monitoring and measuring impact of new support programs for companies. At EURADA we are convinced that RCTs will have a great future in our field.

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Foreword by the authors

NICOLA DOPPIO, *HUB INNOVAZIONE TRENTINO*
KADI VILLERS, *SCIENCE AND BUSINESS CAMPUS TEHNOPOL*
CHRISTINA MELANDER, *DANISH DESIGN CENTER*

The capability to innovate products and services is a key factor that supports competitiveness and allows companies to flourish and grow in time. However, there are many factors that hinder innovation, especially in SMEs - Small and Medium-sized Enterprises. For that reason innovation public policies are constantly experimented, at all governmental levels: National, Regional and European.

This guide results from a project funded by the European Commission aimed to set up, execute and evaluate the impact of a new scheme for supporting user-centered open innovation in Small and Medium-sized Enterprises (200SMEchallenge - more info in the final section).

This scheme consists of an open innovation initiative that can be activated by innovation intermediaries (innovation and development agencies, business representative associations, higher education institutions, technology transfer institutions) to allow SMEs in sourcing solutions to new product development and innovation challenges by leveraging on the contribution of young design talents (students, startups, young researchers).

The initiative, which we have called UX Challenge, especially focuses on finding solutions to problems in the digital realm, by means of user-centered design methodologies and techniques applied to the design and development of software, digital applications, and human-machine interfaces.

The UX Challenge was first launched in Trentino (Italy), in 2017, with the aim of fostering knowledge transfer and cooperation between top-level researchers and technology in HCI - human computer interaction, the companies from a flourishing ICT industry cluster, and a number of startup and service providers specialized in user-centered design.

The UX Challenge was successfully run in Trentino between 2017 and 2019, allowing the gathering of evidence for impact on companies. Then in 2020, thanks to the funding provided by project 200SMEchallenge, the contest was replicated in other six countries (Finland, Estonia, Lithuania, Denmark, Germany and Spain) with the aim of collecting more thorough evidence for impact on companies, validating it as an effective tool to support open innovation in SMEs, and creating the conditions for a wider adoption in innovation agencies across Europe.

The project was a success: it involved altogether almost 200 SMEs and 500 people (among young design talents, user-experience design professionals, human-computer interaction researchers, and citizens acting as product end-users), and allowed to validate the UX Challenge as an effective tool to foster user-centered open innovation at a regional level.

We wrote this guide to share our experience and allow innovation and development agencies to learn more about user-centered open innovation, and how to practically set up and launch new initiatives for supporting its adoption in SMEs.

We hope you'll all enjoy it!



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How to use this guide

This guide was designed to support innovation agencies, development agencies, research and education institutions, businesses, as well as public administrations, to learn how to set up an open innovation initiative to foster the **user-centered design** of products and services.

In particular, we present in detail the UX Challenge, a hackathon-alike **innovation contest** that allows companies to engage with design talents and professionals with the aim to test and improve the user experience and usability of digital products and services.

One of the main features and benefits of the Challenge is that **end users** are specifically selected to take active part in the process as testers or co-designers. The outputs that companies can source from the initiative are new interface mockups and prototypes, tested and validated with users and potential customers.

The guide is divided into a number of sections that can be read as stand-alone parts:

- **Section 1** includes the theoretical and methodological references that act as a ground for the initiative: key concepts such as open innovation, user-centered design, and the design sprint are introduced. Key readings are suggested.
- **Section 2** describes the UX Challenge format in detail, breaking it down into a number of building blocks (or design elements) that are typical of an open innovation contest. We present the initiative this way because we want the reader to know that some elements in the original format may be tuned and changed when adopting and replicating the UX Challenge in a new context.
- **Section 3** includes practical information on how to set up and host a UX Challenge for success: the section features a number of hints and tips gathered by seven innovation agencies that replicated the Challenge in seven different contexts.
- **Section 4** shows what are the outcomes and impacts of the UX Challenge in terms of increased knowledge and awareness of user-centered design in SMEs, as well as provides an introduction on the Randomized Control Trial - RCT methodology, that can be used to validate impact of public policy and interventions.
- Finally, **section 5** features all information about project 200SMEchallenge and its partners, including contact information.

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1

Why user-centered open innovation is key

Supporting open innovation in SMEs with innovation contests

Innovation prizes and contests are open innovation initiatives that offer incentives for advancing research, technology, and generally **addressing unsolved innovation problems** that often impact society as a whole . Their success in supporting innovation in companies led to prizes and contests being recognized and studied as effective **innovation policy instruments**. 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.

Over the last decade, innovation prizes and contests 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. Companies, especially LE - Large Enterprises, also utilize prizes to identify talents and investment opportunities or find cheaper alternatives to in-house research and development. Besides that, Innovation Contests or Innovation Challenges can be organized by innovation agencies at a local or regional level to allow SMEs to connect and collaborate with other entities in order to achieve open innovation in business, products, services, or technology. 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 need to be carefully **designed, planned and executed** by innovation agencies.

Although Innovation Challenges 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…). 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 forms a design framework for your own Innovation Challenge: The Innovation Challenge Design Canvas.

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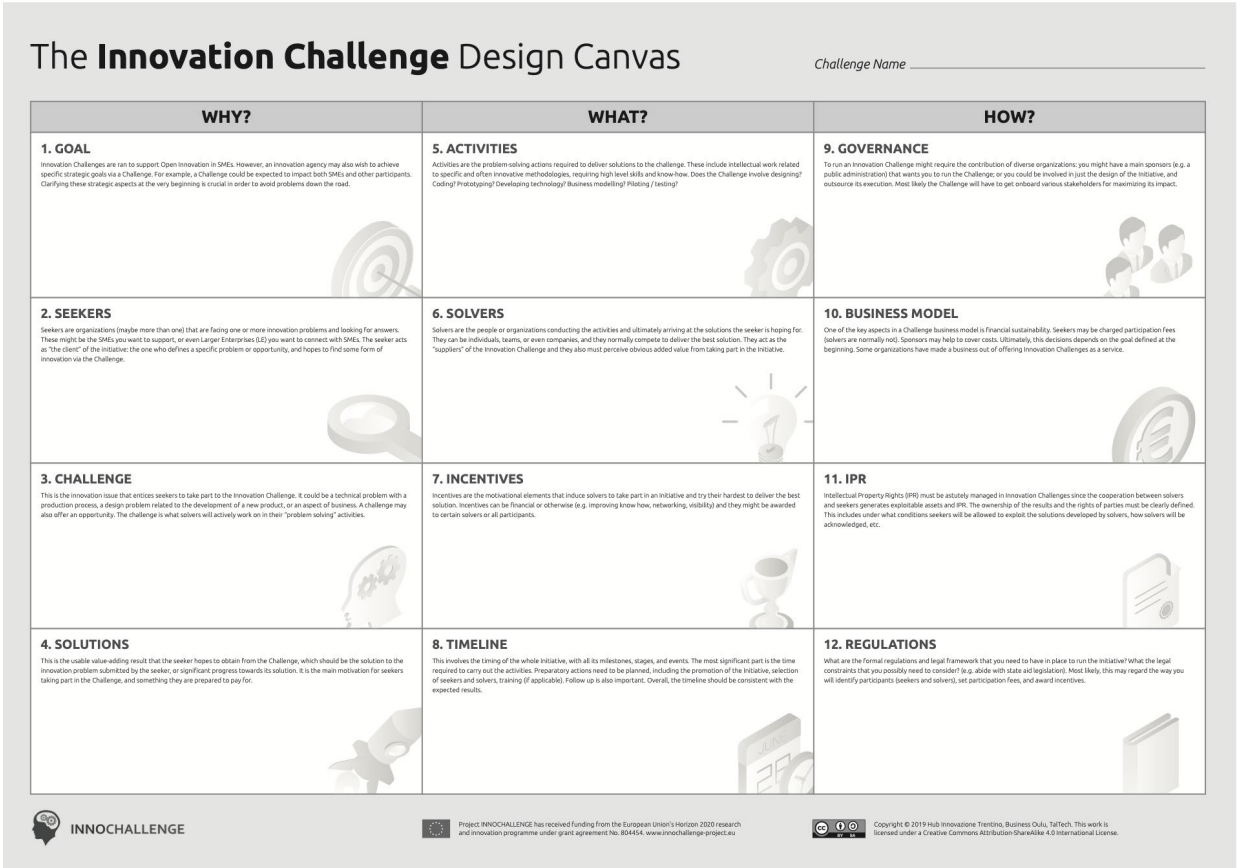
Figure 1. The Innovation Challenge Design Canvas

The Innovation Challenge Design Canvas was developed in the context of European project INNOCHALLENGE, funded by the H2020 call INNOSUP-05 - Peer learning of innovation agencies. The Canvas, along with its Guide, can be freely downloaded from www.innochallenge-project.eu. The Canvas was developed upon a peer-reviewed action research study based on a sound corpus of field data, and involving both open innovation practitioners and scholars in the design process.



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Involving users in innovation

Industries, Public administrations and NGOs can innovate products or services in two ways: with a top-down or with a bottom-up process. In the first scenario, the output is designed according to what the company/public administration thinks is the best way to develop that particular service or product, while in the second scenario **users or potential users are involved** at the very beginning of the design process. User experience design is the discipline that systematizes this way of proceeding and that is the core of the UX Challenge initiative.

Accordingly, **User Experience design** is the discipline, the process, the set of techniques that enables designers to ideate, evaluate, investigate and design the experience of the users of tangible and intangible products. It implies a thorough understanding of the environment the product is collocated within, in order to shape or reshape the interaction accordingly both to scientific cognitive and behavioural evidence with the aim of ameliorating and innovating the product or service.

It is all about how the **user feels the interaction** with the product, and how this influences product's success, experience and use. A product designed according to user experience principles is a usable, fun and especially an efficient product that satisfies user's needs- that have to be investigated profoundly beforehand.

"User experience" is a term created in the 1990s, when Donald Norman started working for Apple. But its practice grounds in Taylorism/Scientific Management, when a focus on the interaction between the worker and the machine started to be posed. Tightly dependent on both computer revolution and web revolution in the past 40 years, today UX design is a **fast-growing industry**, with new challenges linked to affirmed technologies, such as Artificial Intelligence.

But why should your company care about UX?
User Experience design is about developing products/services that are appreciated by the user, thus it is inevitably about creating and selling products and services that the user wants to buy or continue to use.

Understanding the user at the beginning of the development of a project **saves time and money.** Revenue, customer retention, team productivity, support costs, development costs and development time are the six areas of business that can guarantee a Return on Investment (ROI) on User experience.

According to IBM, for each dollar spent on easen the use of a product or service, 10 to 100$ are returned. This is because users do not return to something they had a **bad experience** with and because the company invests less resources on customer support activities. Additionally, from the results of a research conducted by the Design Management Institute we know that design-driven companies in the period 2003-2013 had an average performance that was **228% higher** than that of non design-driven companies.

How should a company develop its first UX design project?
Designing for User Experience is often a complex process, but it becomes easier if it is guided by a design framework. A **design framework** is a set of coherent tools and techniques that helps you to analyse and solve the problem(s), explore and identify possible solutions and develop for better experiences. Some of the existing and widely used frameworks have been developed by companies, because one size does not fit all.

Among those most commonly used, you can get started with:
(see next pages)

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Design thinking

the most known framework, it was developed by Nobel Prize Herbert Simon in 1969. It is a non-linear model, which means that the phases it is composed of can be carried out in whichever order and each phase can - and should be- iterated. The phases are: Empathise, Define, Ideate, Prototype, Test.

It emphasizes the importance of having tangible outputs at the end of the whole process.

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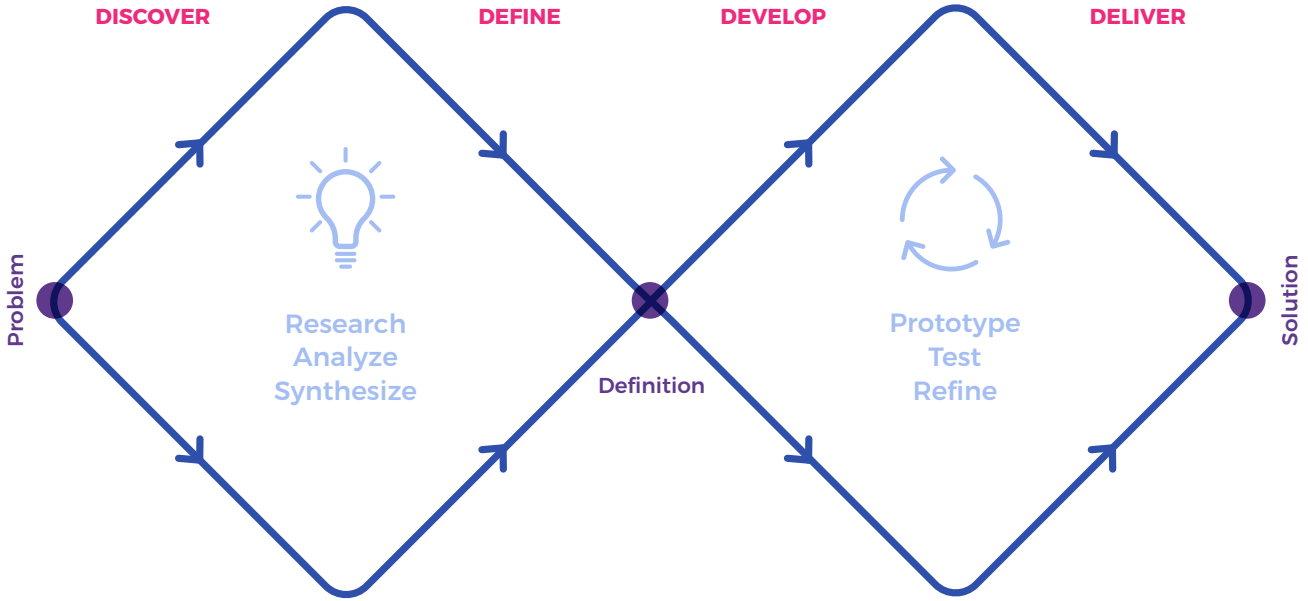
Double diamond

popularized by the British Design Council at the beginning of 2000. It comprises 4 phases, structured in two separate diamonds: Discover (divergent phase) - Define (convergent phase); Develop (divergent phase) - Deliver (convergent phase). It has a thorough focus on user research, thus could not be always easily implementable.



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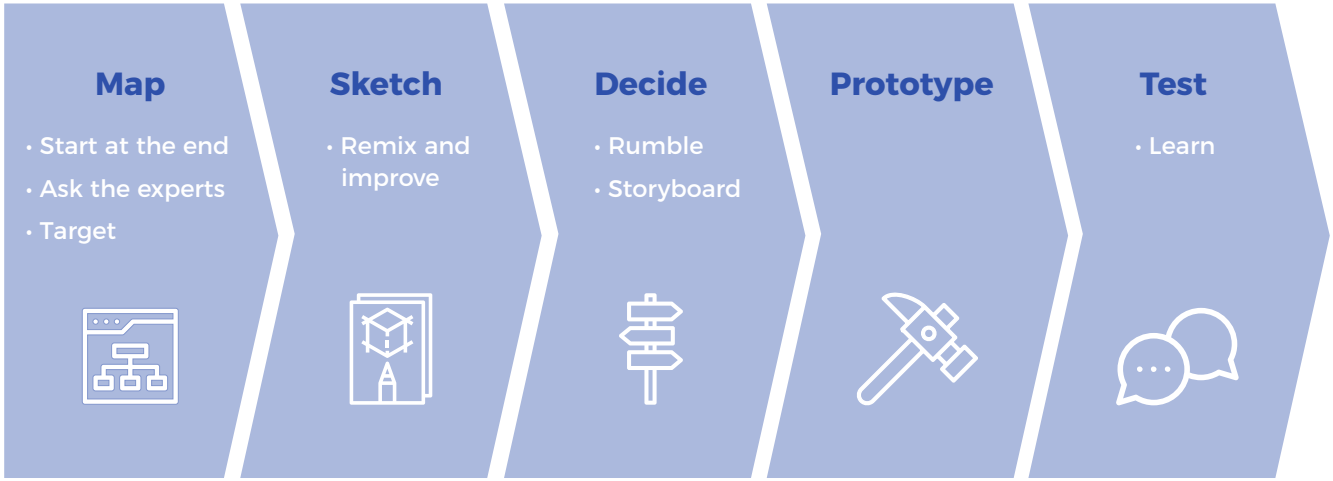
Design sprint

was developed by Google Ventures in 2010. Moving from the Design Thinking approach, the Design Sprint is a more specific, five-day process that enables companies / teams to solve business problems. To each day of the week, starting with Monday, there is a corresponding phase: Map, Sketch, Decide, Prototype, Test.



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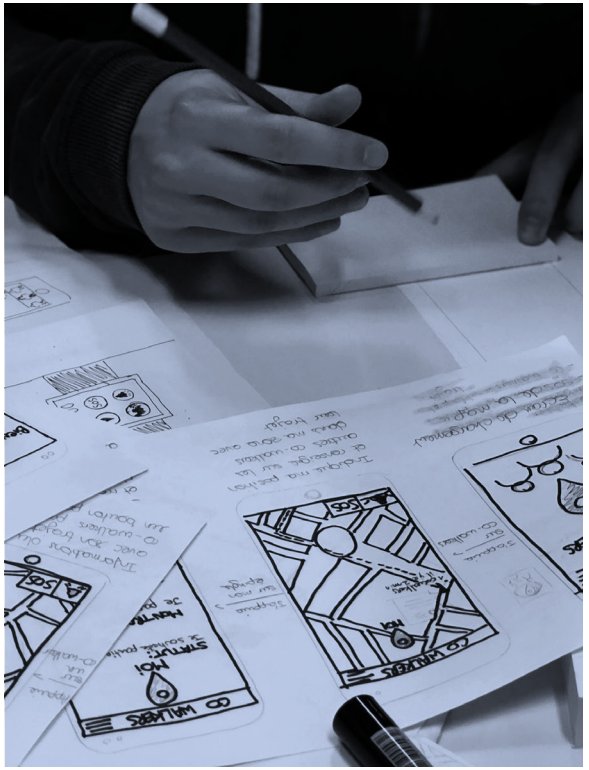
How to make user-centered innovation happen: the Design Sprint

The Sprint (also: Design Sprint) is a five-day process for applying design thinking approaches to **find solutions** to business and product development problems through design, prototyping, and testing ideas with customers.
The Sprint was developed at **GV - Former Google Ventures,** startup incubator and accelerator from Alphabet, with the purpose of effectively fostering product development and innovation in startups. The Sprint is at the core of the UX Challenge: in this section we provide an introduction to its five phases. We strongly recommend the reading of the "Sprint!" book by Jake Knapp and colleagues (you can find the full reference in the Suggested readings section).

1. Mapping the problem
The overall purpose of the initial phase of the Design Sprint is to create a thorough **understanding of the problem** at hand. Like many other innovation processes, the Sprint starts out by setting a direction for the rest of the process by establishing an overall long-term goal. The objective must be ambitious and reflect the company's expectations of the outcome of the process. After that, it is necessary 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 creating 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.

2. Sketching future solutions
The second phase of a Sprint focuses on developing **ideas of solutions** to the set challenge. Overall, this part of the sprint is about expanding the horizon of the team (diverging), also by seeking inspiration from other products or services, possibly from other domains and / or from the company's own product portfolio. The main task of this phase is for single participants to develop **visual ideas** (sketches). The individual sketches play a key role in Sprint as it will ultimately be one or more of these sketches that form the basis of the final prototype to be developed later in the process.



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3. Making the difficult decision

The two previous phases concentrate on expanding the understanding of the problem and generating alternative ideas of solution. The first part of the third phase is devoted to **deciding** which of these solutions provides the best answer to the presented challenge. The selection is done through a critical analysis and **discussion** of each solution, and a final voting.

The chosen solution idea is still only a sketch and contains no detailed description that can serve as a 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. The storyboard will become the foundation of a testable prototype of the chosen solution.

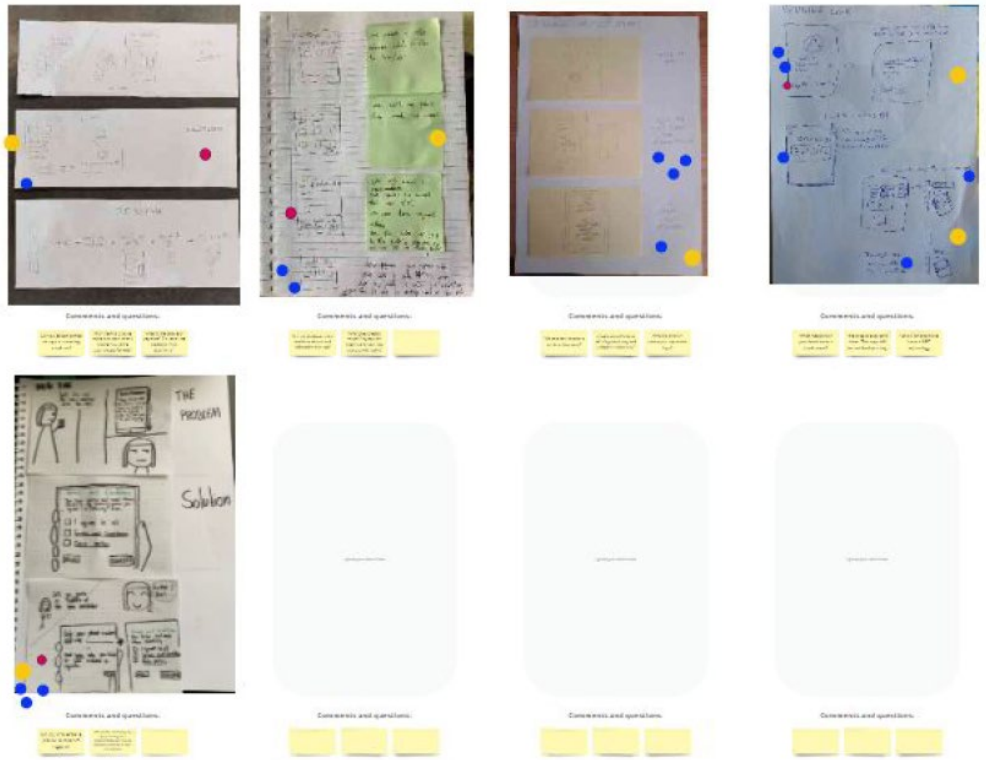

Figure 6
Voting of sketchy ideas - Zupit team, UX Challenge Trento (IT)

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4. 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 is important to clarify what is in the Sprint methodology. A Sprint 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 Sprints 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 value proposition, usefulness and acceptance of functionalities rather than the visual appearance of the ideated solution.

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 Sprint, 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.

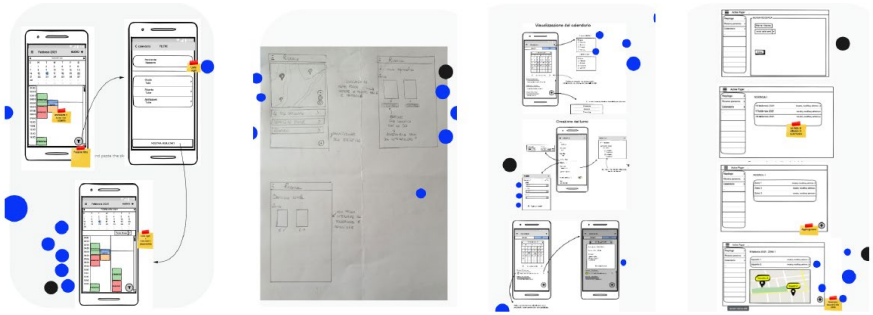

Figure 7
Alternative interface and use flow wireframes - Active Pager team, UX Challenge Trento (IT)

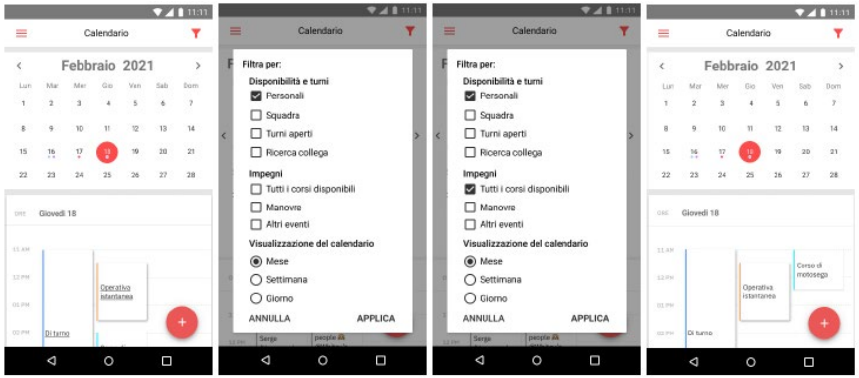

Figure 8
Testable prototype user interfaces - Active Pager team, UX Challenge Trento (IT)

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5. 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 users** 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 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.

Figure 9
Mobile app prototype testing session with a user - UX Challenge 2019, Trento (IT)

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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 created and piloted by Hub Innovazione Trentino (an innovation agency located in northern Italy) with the aim of **raising the awareness of companies about the benefits of user centric design**, as well as boosting their capacity to engage in open innovation processes.

One thing has to be clear though: design can't be done in just two days. Companies having critical issues with the design and user experience of complex or strategic products or processes usually 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 enables companies to acknowledge that they do **have a design problem**, and that they must act on that. Not only: it also indicates what could be the right solution (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 its working principles are, and what its added value is. The overarching goal of 200SMEchallenge project was 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 approach across Europe.**

Figure 10
Solvers interacting with mentors and companies from the 2018 edition of the UX Challenge in Trento (IT)

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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-centered 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 format is an adapted, more condensed version of the Design Sprint**, encapsulated into a hackathon event. This format is intended 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:

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

The team mix: The Design Sprint is executed by members from the beneficiary company (many of whom 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 and young talents (Solvers) and professionals (Mentors) with a background in service, UX/UI design and/or HCI (human-computer interaction). 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.

The working model of the UX Challenge is described hereafter following the overall framework of all design dimensions featuring an innovation contest. 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 or industries).

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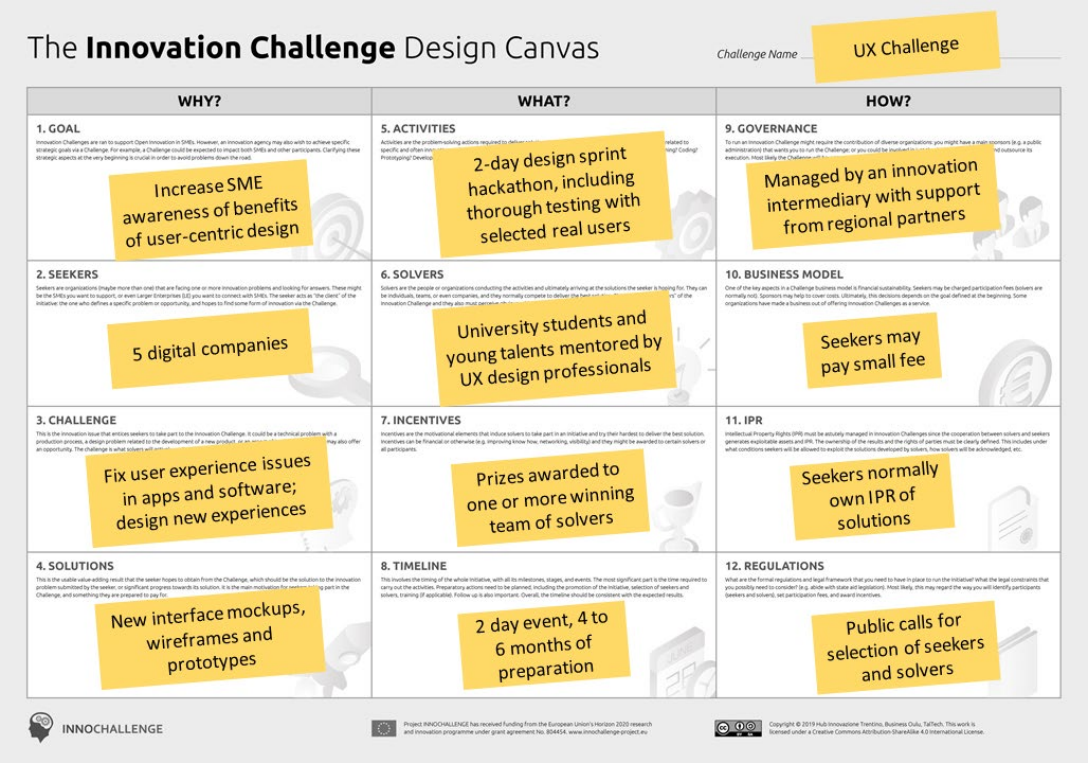

Figure 11

The working model of the UX Challenge described with the Innovation Challenge Design Canvas.

1. Goal. Strategic goal of the UX Challenge is to accelerate the **adoption of user-centric 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 shorter versions of a Design Sprint aimed at designing or innovating products and services.

2. Seekers. These are the beneficiary companies – SMEs – mainly developing digital products and related services, but they can also belong to the manufacturing industry, or beyond. Companies apply to the Challenge with their products. Products are such as mobile app, web app, software, or other digital interfaces utilized to operate production machineries and lines. The number of Seekers in a UX Challenge may vary from 3 to 10, depending on the available resources and expected impac

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 herewith in Figures 12 and 13.

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Figure 12
A web application identifying monitored patients at imminent risk of a sudden cardiac arrest (based on ECG signal), allowing doctors and nurses to save lives

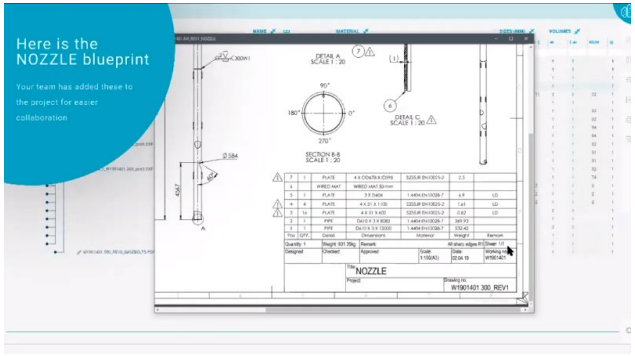

Figure 13
A bill of materials (BOM) is a comprehensive inventory of raw materials, assemblies, subassemblies, parts and components needed to manufacture a product

4. Solutions. Actionable design components and insights allowing companies to implement and industrialize an improved version of the selected product: these could be interactive prototypes developed with specific softwares, interface mock-ups, videos from user testing, user journeys, documents including guidelines for UX redesign etc.

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5. Activities. Within the UX Challenge the condensed 2-day Sprint.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 products and services (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. The 2-day Challenge finally culminates with a 1,5-2 hours long Plenary Session organized as an event open to the public, at which the teams pitch their solutions to all participants. This may involve more than 100 people in the audience.

In order to execute those activities, some resources are needed. The Sprint involves **a testing phase which requires the involvement of real end users.** 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 products and companies. This can be quite challenging, especially in the case of B2B products. Incentives for Testers are normally some relevant vouchers (at a value of about 30€). For the easier outreach and selection of the Testers a dedicated database or platform can be used. The organizer can also ask for support from the selected companies in order to get in touch with their potential customers. Overall, organizers have to have in place a selection process which ends up in identifying and bringing to the UX Challenge the needed testers in the morning of the 2nd day. Notice that day 2 could be a working day, making this rather hard to accomplish.

Figure 14
Solvers interacting with mentors and companies from the 2018 edition of the UX Challenge in Trento (IT)

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6. Solvers. Solvers are university students (including Ph.D. students) and young professionals (recently graduated students, junior designers already working) mainly with a background in UX design, interaction design and human-computer interaction (computer scientists, designers, sociologists, psychologists, economists). Solvers are organized into teams and each team is mentored by at least one Mentor (a UX design professional or researcher). Mentors take part in the two days free of charge. Team formation is driven by the organizers. Each team normally counts 4 to 5 solvers. Each team is associated with one product / company. In total one UX Challenge involves about 50 solvers.

7. Incentives. Teams' results are evaluated by a jury, possibly involving all beneficiary companies, Mentors, and external experts. Usually only one winning team is awarded. A reward is provided to all Solvers from the winning team (could be free participation to a conference, or free access to a training or MOOCs). However, following current literature on incentives at prize-driven events, the UX Challenge leverages on intrinsic motivations of Solvers (professional learning experience and connection with companies).

Figure 15
The UX Challenge requires a large open space to host the activities.

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8. Timeline. Execution of the UX Challenge sprint endures 2 days plus a half-day of training for Solvers upfront (5-10 days before the Sprint itself). Overall, the process for outreaching and selecting all participants needs to start at least 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 partnerships, legal, marketing and communication aspects) may require further 2 to 4 months.

9. Governance. The UX Challenge is organized by an innovation support intermediary (e.g. Hub Innovazione Trentino - www.trentinoinnovation.eu) that is responsible and accountable for the realization of the initiative and can leverage on local partners in the ecosystem 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 all partners are aware that the accountability is upon one party only.

10. Business Model. Participating companies are normally required to pay a small fee to take part in the UX Challenge. Solvers or Mentors do not pay, in fact, Solvers are provided incentives or rewards, and the same goes for Testers. Mentors are also provided with some gifts. All costs needed to execute a UX Challenge (we estimate them as between 7 to 10 K€ in direct costs, plus 4 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.

11. IPR. In order to make the full exploitation capacity from companies possible, IPR of results are to be owned by the participating companies. However, different IPR policies may be applied. NDAs - Non Disclosure Agreements - are signed by Solvers and Mentors with regards to both solutions and submitted challenges.

12. Regulations. The outreach and selection of Seekers (companies) and Solvers (young talents) is managed via two separate 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): 1) relevance of the product and challenge to the user experience domain; 2) feasibility (e.g. learnability of the product); 3) potential business impact of the Sprint application; 4) clarity of the submitted challenge; 5) soundness of the motivations brought by the applying company. A third open call is normally managed to identify the Testers.

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Variants of the UX Challenge

Format of the UX Challenge

Originally and preferably the UX Challenge is organised in a **physical format** meaning that all the programme, teamwork, mentoring sessions and customer testing take place face-to-face in one location. This allows efficient direct communication with abundant discussion, interaction and socialising between different parties involved and enables smooth networking with creating new contacts for both professional and personal purposes. Working in physical settings helps to build a suitable supporting atmosphere and teamwork dynamics for obtaining better results and also save time and working process inefficiencies in terms of avoiding technical challenges and errors in different online channels.

Running the event in a physical format makes it possible to stick to the 2-days timeframe as **other formats - online or hybrid - require a longer time-span** due to the challenges of keeping the focus of the participants' attention on their screens.

The alternative format of the UX Challenge would be a 100% online event which has been tested and proven as working in the COVID-19 pandemic circumstances. This means that all - the programme sessions, teamwork and mentoring sessions, but also customer testing interviews - are conducted in online channels and platforms, like MS Teams, Zoom, Google, Facebook Messenger, WhatsApp, Miro, Trello, Mural, Sharewell, and many other similar alternatives. **Compared to the physical format, the online format allows somehow comparable efficiency in the working process but almost eliminates the socializing and networking aspect** in the whole programme which all the stakeholders highly appreciate as a motivator and an additional benefit of their participation. Also, communication in different web-based channels often poses technical challenges (such as logging in and connecting to sessions, internet connection quality, session functionalities like screen sharing or chat options, etc) which do affect the work flow and therefore might affect the quality of the results and/or the whole event experience of the participants. In terms of costs and budget, of course, an online event is more affordable to organise.

Another alternative would be to run the UX Challenge in a **hybrid format** where, teamwork would happen face-to-face but the mentoring sessions and customer testing would be organised over the web channels. This kind of setting would allow more flexibility in terms of selecting and engaging the Mentors and test customers but would be more complicated and challenging to communicate, coordinate and monitor.

Duration of the UX Challenge

As already described, the UX Challenge has been designed as a 2-days condensed version of the original Design Sprint. Well, that duration has been valid and reasonable as long as the event has been organised in a physical format. Today, when online or hybrid formats are under discussion, we have to consider longer durations accordingly. When in physical format it is acceptable to fit the programme into two long and intensive days, it is not feasible in online formats as it is much harder to keep the attention span of people online and also avoid people multitasking during their scheduled programme activities. Therefore, alternatively **3 to 5 days durations have been designed and applied for the UX Challenge, with standard full or half days programme cycles.** This, again, has enabled us to design a more adaptable and customized program by dedicating more time and attention to some specific preferred phases (problem scoping, customer validation, prototyping, or other). Some of the sample programme structures with different durations are exhibited in Figures 17,18 and 19.

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Figure 17
Timeline and structure of the 2-days UX Challenge

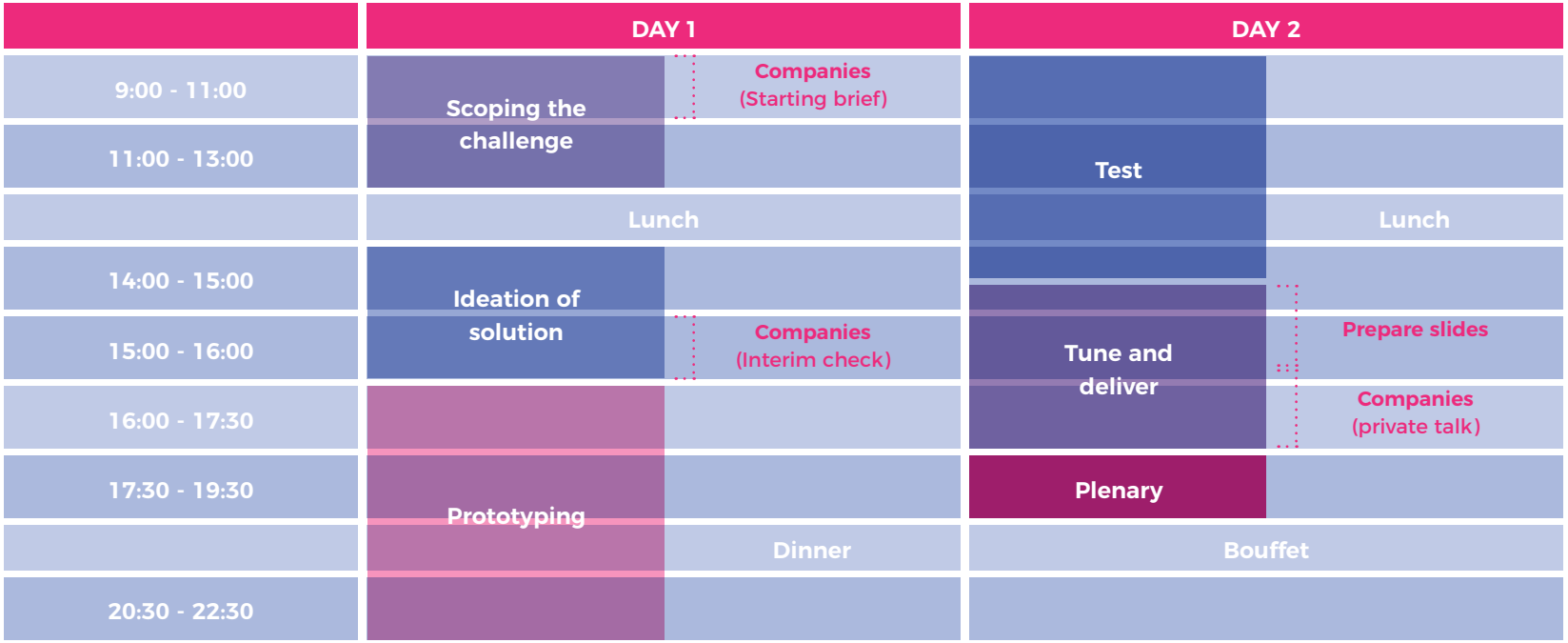

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Figure 18
Timeline and structure of the 3-days UX Challenge

	MON	TUE	WED	THU	FRI
9:00 - 11:00			Map the problem	Prototyping	The results Results to companies
11:00 - 13:00					
14:00 - 16:00			Ideation Decision	Tests	Plenary event
16:00 - 18:00					
Evening					

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Figure 19
Timeline and structure of the 5-days UX Challenge

	MON	TUE	WED	THU	FRI
9:00 - 11:00	Map the problem	Ideation	Prototyping	Tests	Results to companies
11:00 - 13:00		Decision			Prepare pitches
14:00 - 16:00					Plenary event
16:00 - 18:00					

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Goals of the UX Challenge - for companies
As defined originally, the goals of hosting and running UX Challenges is to introduce user centered design approach and open innovation opportunities and benefits to companies, also to spread the mindset of applying design as a problem solving methodology. But all that is from the organizer's point of view.

From the participating SMEs' viewpoint the purpose of joining a UX Challenge would normally be to **go through the 5 steps of the Design Sprint, focusing on finding a solution to a design problem and then testing and validating it with the potential users.** This requires that the design problem is pre-defined, well analysed and scoped for the sprint at least in the very first phase of the UX Challenge event itself, but why not even a few days prior to the event internally by the company team.

How to integrate user research is an open point in the Design Sprint, especially if the company has a product that already exists, but which needs improvements or a redesign process of its current User Experience. With the experience collected in 3 years we decided to anticipate the testing phase at the beginning of the Design Sprint journey, provided the company has a product or a prototype that can already be tested.
We called this kind of 'upside-down' process of the Sprint **Reverse Sprint** and that defines the goal of the UX Challenge for a company to **go through the 5 steps of the Design Sprint, but focusing on finding and validating the design problem and then designing a solution for it**. In this scenario, the testing will be conducted on the existing product while the results delivered by the team will be a redesign of the existing prototype/product.

Timewise, if the team is very capable, ready to work extra hours and no big surprises emerge, it might even be feasible to combine the two sprints and two test and validation cycles into the same UX Challenge event but normally two separate events would make more sense to obtain better quality and a more reliable outcome.

Solvers at the UX Challenge
As aforementioned, Solvers at a standard UX Challenge are university students and young professionals.
What can add value to teamwork and mix of available competences and expertise is recruiting **one more senior participant into each of the Solvers' teams.** With their background experience either in design or, why not, customer research, product or service development or other related fields they can bring valuable insight into the teamwork, balance the team dynamics and support the Mentor in their guiding and assisting role at times when the Mentor is not around. Experience has shown that for more senior participants it is equally motivating to work with students and young professionals on real-life challenge-based projects from time to time.

Testers' recruitment for the UX Challenge
Testers at the UX Challenge are recruited by the organizer via an open public call. The needed profiles are previously defined by the Seekers (companies) based on their products and services being developed and tested in the UX Challenge. Therefore, sometimes the companies can recommend or allocate some of their **existing customers to act as Testers** in the process but for the sake of objectivity and new insights it is preferred to engage new and neutral potential customers who have had no experience yet with the product or service.

In some cases when the product or service is very specific and has an equally specific and limited potential user base (e.g. medical devices for special conditions, some specific technology, product or service designed for an exotic or unknown market etc) it can be very challenging to identify, reach and onboard the right customer segments. In these cases, **usability testing platforms** can be of great help and a good alternative channel - like Sharewell.eu, Maze.co, Lookback.io, Usertesting.com, etc. They

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usually bring along some costs for the organizer but guarantee a bigger pool of potential Testers in case of challenging customer groups.

Incentives to join a UX Challenge

The incentives for the Solvers to participate in a UX Challenge can vary from one event or culture to another. Ideally, intrinsic motivation like professional and personal learning experience and contacts with companies and Mentors and possible further collaboration with them would be the main motivators for the students to join. Also, access to some relevant (user centered-design related) study courses, training programmes or events. But considering that some participants might be more senior and that alternative competitions or learning programmes are organized targeting the same participants, some additional incentives can support the recruitment to UX Challenges. Also, not only the winning team is allowed to receive prizes but **more than one team can be awarded for their outstanding results.**

Additional incentives could include (monetary or in kind) prizes from the participating companies, from the partner network of the organizer (e.g. some design agency, association of the design industry, organisations where the Mentors come from etc), or the organiser themselves.

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3

Why and how to organize a UX Challenge?

Why hosting a UX Challenge?

Now that we clarified what the UX Challenge is, before focussing on how to make it happen, we should ask ourselves: why should an innovation agency host open innovation contests such as the UX Challenge?
We asked this question to the innovation agencies partners of the 200SMEchallenge project.

Nicola Doppio
Innovation Officer

Hub Innovazione Trentino

"

At Hub Innovazione Trentino our mission is to foster technology transfer. We use innovation contests and challenges to let SMEs - Small and Medium Sized Enterprises know about new emerging technologies and new innovation paradigms. In our experience, the UX Challenge can be a fast and effective tool to show the benefits and feasibility of user-centered design in companies, also involving human-computer interaction researchers as experts, in a way to foster knowledge transfer from the academia to the industry.

Emma Jade Wang
Project Manager

Danish Design Centre

"

At the Danish Design Centre, we believe that the combination of working experimentally, applying design and co-creation into work practices, is how companies create solutions to challenges. In our experience, the UX Challenge creates a space of opportunity by opening the doors for the unique collaboration between students, professionals within the field and Small and Medium Enterprises. By bringing new knowledge within the field of UX Design from students, and combining with real life experiences from mentors, this unique dynamic generates a whole new level of value when addressing specific SME challenges.

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Miriam Mohr
Project Manager

Steinbeis Europa Zentrum

”

For us at Steinbeis Europa Zentrum, organizing the UX Challenge was a great opportunity to explore new ways to foster innovation capacities in our region. By bringing together companies and students, the UX Challenge was a perfect combination of a user-centered design approach, open innovation, SME support and fun for all participants.

Vitalija Kolisova
Head of Communication

Lithuanian Innovation Centre

”

Fostering innovation through consultancy or financial support services is one thing but providing it with the access to ready-to-use innovative solutions creates a more tangible connection with the company.
In this regard, UX Challenge is a unique business support method that embodies both practical and personal aspects of the innovation services towards SMEs – something we at Lithuanian Innovation Centre aim at. It allowed us to get to know our clients better, to connect with them on a more personal level and to provide them with a very concrete and timely solution, the results of which could be witnessed almost immediately.

Kadi Villers
Innovation Manager

Science and Business Campus Tehnopol

”

Tehnopol as an enabler of innovation and growth is on the mission to support Estonian companies in their ambition to scale, grow and succeed. For that, we combine and coordinate the engagement of different resources, methodologies, competences, stakeholders, information, contacts, tools, and people.
UX Challenge and its methodology proposes a perfect format to offer all of these benefits to the participating companies and therefore bring innovation and growth opportunities closer to them. A novel and unique hands-on methodology with real customer validation, a mix of design and related external competences on different seniority levels, professional knowledge sharing and contacts exchange between the companies, the mentors and the participants - this all together serves to solve real user experience related problems for companies and help them create better and more user-centric products and services.

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Juan Antonio Bertoli
Manager

Espaitec

"At Espaitec, Parc Científic i Tecnològic de la Universitat Jaume I, our focus is strengthen our 360º innovation triangle: fostering university entrepreneurship to improve the society wealth, facilitating knowledge transfer between industry and academia and supporting the generation of competitiveness through innovation for our startups, spinoffs and Small and Medium Sized Enterprises. In our experience, the UX Challenge is an excellent co-creative mechanism to develop open innovation solutions to cope with business fabric technology challenges involving Quadruple Helix agents.

Hannu Hiltunen
Senior Advisor

Business Oulu

"Business Oulu's mission is to help local businesses succeed. Oulu Region is a thriving digital innovation ecosystem and has a long standing tradition in the design and production of technical equipment. The UX Challenge was a great way for us to bring user-driven understanding to businesses. User-oriented design will become part of our annual service package.

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How to set up the UX Challenge?

Once we have clarified the reason *why* an innovation agency may decide to host a UX Challenge, we can focus on *what* needs to be done to set it up and make it happen, and *how* to do it in order to maximize results and impacts.

Notice that these three areas overlap with the three sections (or columns) of the **Innovation Challenge Design Canvas**, designed and published within the Innochallenge project in 2019 (www.innochallenge-project.eu) and already referred to several times in this Guide as a very helpful tool to support this first and most crucial step in setting up any future UX Challenge.

Following below we provide a **list of to-dos for implementing the UX Challenge throughout five consecutive phases.**

1. Planning

- Create a **Project Plan** (Gantt chart or other) to foresee and pre-plan all project activities with concrete timing and deadlines related to these. Select the event dates!
- Plan for and put together a good **Project Team** who will manage and support all the organisational and administrative tasks in project planning and execution later on.
- Draw a **budget** for the project with all the direct and indirect costs that you can foresee at this early stage, plan an approx 10% buffer to cover unforeseen costs that will probably occur in later stages.
- **Consider all the variants** in UX Challenge format, duration, participant profiles etc and select the most appropriate under the current circumstances, also considering the goals and expectations of the participating companies.
- Try to **define all the necessary stakeholders and partners** that you will need for a successful event (sponsors for prizes, partners to support your communication and recruiting activities etc).
- Define **clear processes and concrete criteria for selecting and onboarding the project participants** into your UX Challenge event. This will be very helpful information for yourself as well making your work much easier in the communication phase.

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	Deadline	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
Call COMPANIES online	10 May 2020			◆					
Deadline 'Call COMPANIES online'	30 June 2020				◆				
Communication of selection COMPANIES	5 July 2020					◆			
Call SOLVERS online	18 April 2020		◆						
Deadline 'Call SOLVERS online'	21 June 2020				◆				
Communication of selection SOLVERS	28 June 2020				◆				
Call TESTERS online	20 August 2020						◆		
Deadline 'Call TESTERS online'	20 September 2020							◆	
Communication of selection TESTERS	25 October 2020								◆

Figure 20

Example of a UX Challenge preparation Project Plan (Gantt chart)

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1. Promotion and communication

- Manage the promotion of the UX Challenge **as you would launch an innovative product into the market**: create a marketing strategy, design a marketing funnel based on a stage-gate approach, create a communication plan (included communication touchpoints, channels, target groups, deadlines, people responsible for communication etc). When designing the funnel take into account potential drop-outs among both companies and solvers.
- Process single applications with the aim of **converting** these from prospects to leads to customers.
- Create - with your own marketing team or with an external communication partner - clear and attractive main **messages that support and describe the value proposition of the event.** Don't forget to come up with a separate message for each separate target group.
- Leverage on your **partners' channels** to promote the initiative and reach the right groups of companies and solvers;
- Manage the deal flow according to a **funnel-alike** stage-gate marketing process, using metrics and KPIs estimates and monitoring on each phase, as well as conversion rates from one phase to another.
- Prepare the necessary **administrative documents and forms for all programme participants** to have them ready in the recruiting process. This includes:
- application forms for companies, solvers and testers.
- selection dashboards for companies, solvers and testers.
- NDA (non-disclosure agreements) for mentors.

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STAGES

1: TARGETED
SMEs to be outreached
(invited to apply)

2: APPLICANTS
SMEs sending applications
to the local UX Challenge

3: ELIGIBLE
SMEs eligible to participate in
the UX Challenge

4: SELECTED
SMEs selected as selected participantsto the
UX Challenge

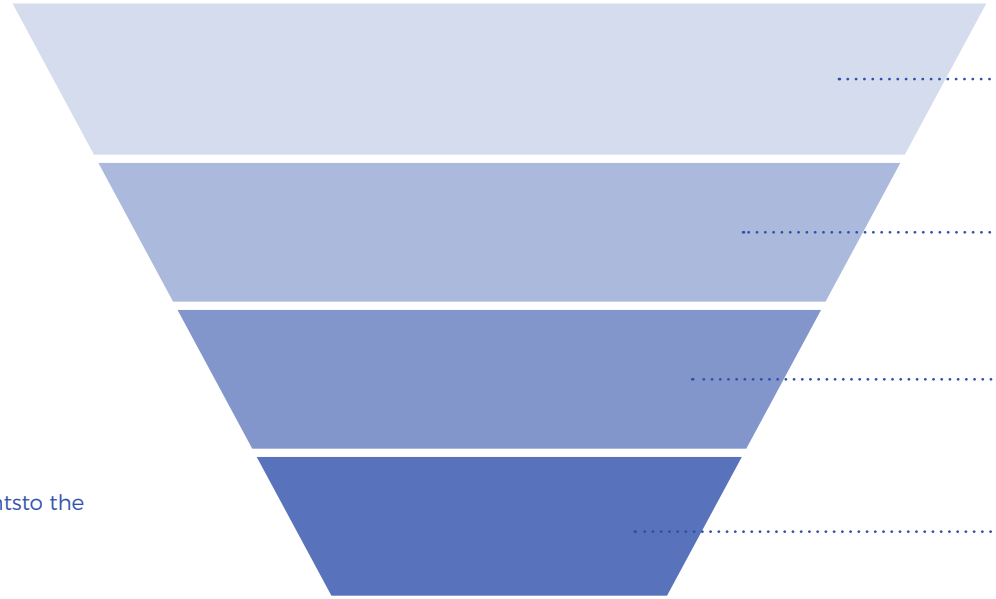

Figure 21
Example of a company selection funnel

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3. Preparation

- Make **bookings for specific UX Challenge dates for all the main programme resources** that are the basis for a successful event, and that includes both material resources and people: event venue, programme technical support (if needed), catering, programme moderator (if planned), jury members etc.
- Help and guide the companies with **filling in their challenge briefs.** Prepare a template for that. A challenge brief is a one-pager that describes and breaks down the challenge into three aspects: 1) the problem (or opportunity), 2) what the world would look like without the problem, 3) the type of output that solvers are expected to deliver (a prototype, a mockup, validated user scenarios).
- Double check if the **products are ready** for the challenge: they need to be accessible and testable by the solvers and the testers.
- Invest as much as time as possible in preparatory activities with companies (**managing their expectations** about the goal of the sprint, the process itself, and the expected outputs) - organise 1:1 calls or (video) meetings to discuss and explain
- Work through the solvers' profiles and data that they disclosed in the application/registration process to **form optimal teams from them and assign each team to work on a specific challenge** (provided you have asked their preferences regarding the challenges and consider this as one aspect in team formation).
- **Put the team members into contact with each other** already so that they can start getting to know each other, discuss the challenge and develop good team dynamics.
- Prepare the **necessary support materials** (with tasks and dedicated templates) for the initiative. This could be a Playbook, a UX Challenge guide, or a Miro board. This serves to give a concrete structure for teams' activities. You can find the UX Challenge Design Sprint Miro board for free use at this link.

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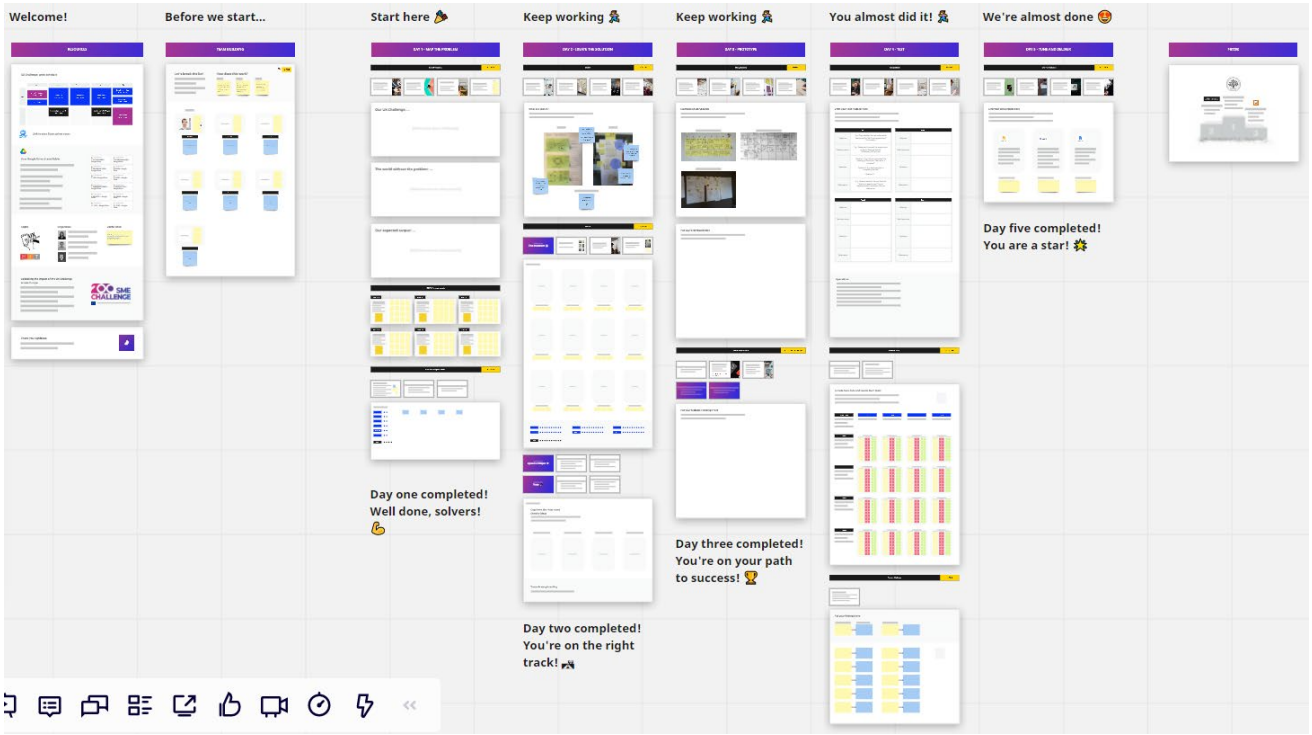

Figure 22
The UX Challenge Design Sprint Miro board
https://miro.com/app/board/o9J_lUXNGTw=/

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- Set up **the communication channels for all programme participants** to ensure quick and operational exchange of information - channels like Slack, Zoom, MS Teams, or similar. The idea is to create an online platform for scheduling video calls, collecting and editing files, live chatting with the mentors, the organisers, the companies and why not between the teams themselves. This all should be ready by the start of the programme and introduced to all programme participants in advance.
- When pre-scheduling the programme sessions online, **create as few sessions/links as possible** to avoid confusion and being lost in the abundance of different links. For instance, for each team create one Mentoring Session with one link to be active and used throughout all 3 or 5 days of the event.
- Run the **briefing sessions to both the Solvers and the Mentors about a week or a few days before the UX Challenge.** Schedule at least 2 time slots for both sessions and run them twice to make sure that everybody will find a suitable time to attend.The briefing for the Solvers should include:
    - what the UX Challenge is (goals, format, process, ti meline)
    - technical aspects of the event (programme participants, schedule, tools, channels, communication)
    - Design Sprint methodology overview (incl. concrete tasks for teams)
    - All necessary contacts (incl the organisers') and time for Q&A.
- The Mentors' briefing should include:
    - Event and programme info.
    - Input info from the companies and expected outcomes.
    - Results evaluation process and criteria.
    - Mentors and their role.
    - Mentors' schedule, tasks, communication channels.
    - Tasks and tools for teams.

To avoid technical issues as much as possible - especially if the event is organised 100% online - test the platforms, communication channels and tools several times and in different situations prior to the event. It is good to involve third party people to test breakout rooms, ability to share and access documents etc.

4. Execution

- **Kick the sprint off** in the morning of Day 1 where you once again go through the most important aspects of the whole programme. Even though you have run the briefing sessions with the Solvers - almost a week has passed, they might have forgotten or misunderstood some of the important info and it makes sense to go over the crucial info and give them an opportunity to ask their last questions.
- Regularly stay in touch with the Mentors and the companies' representatives (via Slack, for instance) to **monitor progress and implementation of tasks to identify possible issues**, especially in the beginning of the sprint (phase 1: Mapping the problem);
- **Increase the number of Testers** and user testing interviews, if possible - that is the most valuable part in the process for the companies and has the biggest impact on the credibility and usability of the results. Use dedicated user testing platforms to access more specific and difficult user segments.
- **Give enough time for presenting, commenting and understanding the results**, to all - the Solvers, the companies, the jury and the participants in the audience of the Final

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Event. The process, the findings and the actual outcomes form the core of the value that the whole initiative provides so these should be put in focus when ending the programme and drawing conclusions and key takeaways.

- As the Project Manager and organiser of the whole event, **be available and act as the single point of contact** for all parties and stakeholders involved to guarantee smooth information and programme flow and jump in whenever unexpectancies arise.

5. Follow up

- After the UX Challenge is over, **collect instant feedback and insights from the Mentors** (even informally, if not formally). For most of them, this kind of event will have been the first of its kind to participate in and their comments might help you collect ideas for initiating other programmes to promote and support the adoption of user-centered design methodologies.
- Organise **informal phone calls with participating companies** to evaluate their satisfaction with the outcomes and gather data for improving your future UX Challenges. Use the same evaluation method across years to compare results.
- **Disseminate the results to foster the impact** among the current and the potential partners, the programme stakeholders, in the media, etc.
- Provide **UX Challenge completion certificates** to the Solvers as they might want or need to add them to their CV-s and/or projects portfolios.

Figure 23
The UX Challenge completion certificate for Solvers

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Hints and tips from the 200SMEchallenge Project Partners

In Spring 2021, innovation agencies from **7 European countries** launched their modified versions of the UX Challenge under the guidance of Hub Innovazione Trentino (HIT) who is the creator of the initiative and has run it for a few years already. Due to the COVID-19 pandemic, all of the 7 sprints were run in a 100% online format and as the six countries launched the programme for the first time, context and business culture specific modifications were applied. Therefore, even though each of the agencies ended up with a very rewarding and positive experience both for themselves and their participating companies (and other stakeholders as well), each of them picked out their own **notions and learnings from the whole process that might be helpful for anybody setting up and launching their own UX Challenge for the first time.** We have listed these here for you:

Format

- If possible, run the event as a physical event to allow socializing and **networking** adding a lot of value for all participants.
- Also consider a **blended (hybrid) format** for the event - maybe to run the programme activities (briefings, kick-off, mentoring sessions, etc) online but teamwork, user testing, final presentations in physical settings to allow networking and socializing to add value to the whole experience.
- Try organising the event in an international setting by engaging **foreign students** or Mentors - to leverage on your international partners' network and enable a more intense cross-border exchange of knowledge and expertise.

Preparation

- More help and pre-work with **problem scoping** and description should be done before the actual event (organizer, company, and why not the Mentor included as well).
- Run a **briefing session** session for the companies as well (to manage expectations, increase commitment, help with problem scoping etc).
- Make sure to plan and engage a large enough **staff** to successfully manage the preparation and execution phases of the sprint.

Participants and recruitment

- Recruit only the **best companies** and challenges (who get the highest scores in the company selection dashboard).
- Don't recruit only students to act as Solvers but involve other, more experienced design and **UX enthusiasts** as well.
- Companies should consider giving out **prizes** for the teams. That would create more motivation for participants and more support for the organizer in recruiting Solvers. Note: the prizes from different companies should be with comparable value and more or less "equal" in that sense to avoid unnecessary bias.
- If possible, let the **Solvers choose** the challenges (or at least state their preferences) they would be working on. This helps to minimize the drop-out in the beginning of the programme.

Communication

- Do a good and thorough preparation of the UX Challenge. Provide as much information as possible to all participants involved in advance and **clear instructions** for everybody - expectations management and communication are the key. Especially with online events, more attention to detail is necessary and more time to communicate this information to all participants is needed.
- Try to find **partners** that can help to attract Solvers, Testers and Mentors to the event.
- Give the reason(s) and explain why a specific team won the challenge, bring out specific relevant **evaluation criteria** assessed. This makes the whole process transparent, avoids disappointment and helps to guarantee a positive experience for the participants.

200 SME CHALLENGE

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Programme and execution

- More than one team could be solving a company's challenge. This could create a kind of **competitive** aspect, plus offer a choice of solutions to the company.
- If possible, integrate the UX Challenge with **study courses** for students to create synergy between the benefits for the students and the companies.
- Companies would like to be **more involved** in the whole event and have similar briefing about the design sprint methodology as the Solvers had.
- Decide if you want to leave the programme participants **freedom** to choose their own communication software tools or you want them to use what the organiser has chosen. It might be a good compromise to provide a recommended framework, but leave it open for the participants to choose another direction.
- In case of a physical event, make sure to leave time for a joint **celebration** after the UX Challenge is completed. It would be great to have a gathering with drinks and snacks to share the first impressions and emotions and wrap up the experience for oneself.
- Mandatory **breaks** would be a good idea to increase work efficiency and allow time for socialising and networking.

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4

Impact of the UX Challenge

Results and outcomes of the UX Challenge

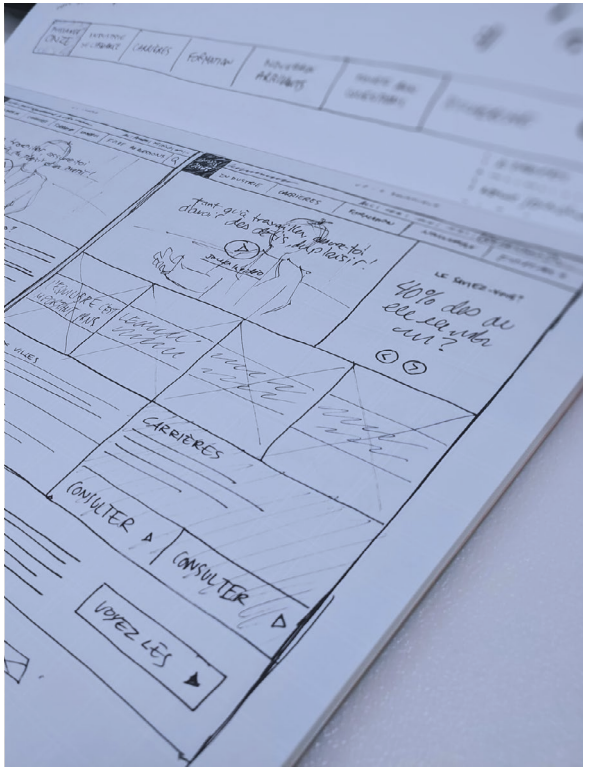
The UX Challenge brings about positive results and impacts on participating companies at different levels, which are normally evaluated separately, by means of qualitative methodology (semi-structured interviews after a few weeks from the end of the initiative):

- **1) outputs:** what the companies can practically bring home from the initiative, from a tangible standpoint.
- **2) other results:** less tangible value-adding results that the companies can gain by participating in the Challenge.
- **3) outcomes:** follow up activities that the company decides to launch in the short to medium term as a direct result of the participation in the Challenge.
- **4) impacts**: medium to long term positive benefits experienced by the company as a direct or indirect outcome from participating in the UX Challenge.

Here is some **suggestive evidence** about the benefits normally produced by the UX Challenge in companies, across the 4 evaluation dimensions.

1. Actionable outputs:
Companies participating in the UX Challenge are usually very impressed by the outputs delivered by the solvers, in terms of novelty and maturation (implementation readiness), also in the light of the short time available.

All outputs are tangible (not just "ideas") and fully exploitable by companies (IPR is owned by them). But, what outputs are we talking about, ultimately? The UX Challenge delivers three strands of outputs to the beneficiary companies:
App and software interface prototypes with different degrees of maturation:
interface **mockups and sketches**, focussing on high-level features. Developed on paper, whiteboards, or Google Slides / Powerpoint.
interface **wireframes and mid-level prototypes**, focussing on information architecture and user flows, with low graphic details. Developed on prototyping software such as Balsamiq, Marvel, or just Google Slides.
testable prototypes, with clear links between screens, detailed user flow, graphical details, and some copy. Developed on prototyping software such as Sketch, Figma, Adobe Xd, inVision.
Results from **user testing**, in terms of user feedback on prototypes (or as-is version of product), and insights for improvement (both at usability level and utility / value proposition level). This comes in the form of text quotes or field data, e.g. interview audio or video recording.
Guidelines for improvement of the overall design, developed by the solvers, on top of the previous outputs: these are more consultancy-level insights impacting on the product development process as a whole.



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2. Other results:

Aparts from the outputs, the UX Challenge allows participating companies to bring home other less tangible though very relevant direct results, which can be fully implemented. These are such as:

- **Talent scouting:** solvers are young bright minds willing to go the extra mile to excel in the same technology or business field as the benefiting companies.
- **Improved networking with potential partners:** mentors are usually experienced professionals that may act as product development and innovation partners to the benefiting companies. Other beneficiary companies may also act as potential business partners, co-innovators, or even customers.

Improved knowledge, know-how and awareness of benefits of innovation methodologies, such as the design sprint, design thinking, user-centered design, and technology user-testing, especially.

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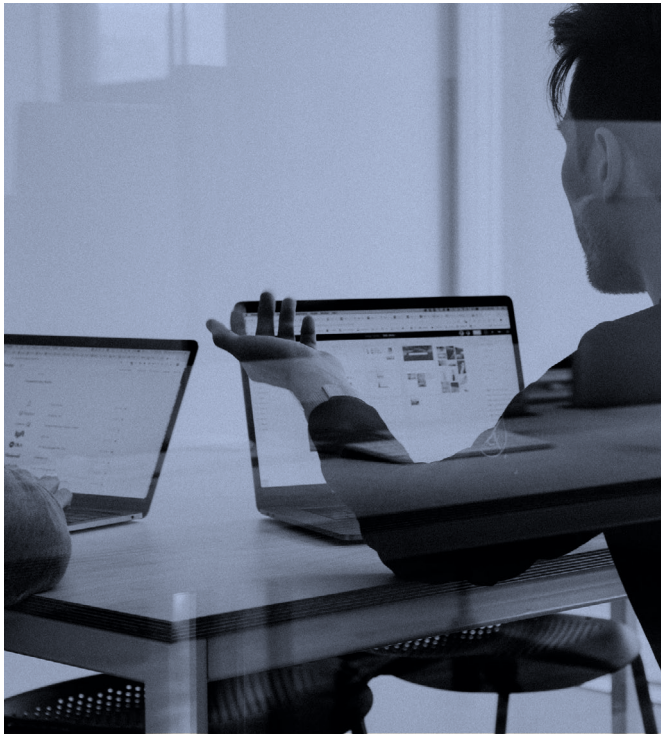
3. Promising follow-up outcomes:
Aparts from the outputs and the other results that companies gain from the UX Challenge, what happens next? There are many **outcomes and follow up activities** that normally companies do as a results of participating to a UX Challenge:

- **industrialization** of the challenge outputs into a market-ready version, and their industrialization within new or improved products and services. This is the most impactful outcome, and happens rarely, as it requires very mature outputs, but especially, it requires full alignment between the challenge timeline and the product development process, which is hard to achieve, and risk-prone for the company.
- **Further maturation** of the outputs, possibly by means of additional design sprints, to achieve future industrialization, or further assess feasibility. This can happen in a variety of ways: by the company's personnel alone; with the involvement of the team of solvers (or part of it), who may also be awarded additional prizes or incentives given by the company; hiring one or more solvers with a short-term project contract, or within an internship; with the involvement of one mentor (a freelance UX designer, a Design firm, a HCI researcher or professor). In this final case, a formal R&D collaboration is established between the company and one product development partner. This is possibly the most fruitful outcome, as the scope of such collaboration normally spans well beyond the scope of the challenge, and can impact on the company business as a whole.
- Solvers can be invited to make a **presentation** about the outputs at the company premises, with a larger audience, with the aim of creating momentum for initiating a product innovation process.



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4. Long-term impacts:
Aparts from the outputs, results and outcomes, participating in the UX Challenge brings about **medium to long-term impacts** in the company business, such as the following.

- **Increased knowledge** of user centered design, UX design and usability methodologies, including the design sprint; increased awareness of the benefits of such methodologies, as well as open innovation in general; increased know-how about how to implement these methodologies in practice. All these impacts on the capacity of **design advocates** within the company to make the case for the need to start adopting UCD, and to create momentum for change within the company. This impact is based on the capability of the UX Challenge to make available evidence that supports company decision making at the management level. Often, this evidence is used to consolidate already existing business hypotheses.
- **Adoption of UCD methods** in projects other than one subject to the Challenge, possibly with innovation partners beyond the solvers or mentors from the Challenge. This is most common for usability testing, and user research, which can be purchased in the market and applied to all kinds of products and services, and development projects.
- Based on the previous, one company may decide to take up more structural changes, such as **hiring a UX designer**, and/or **creating a design team** within the company (in case of medium-sized enterprises). This will have a major impact with regards to the capability to implement UCD in future projects.

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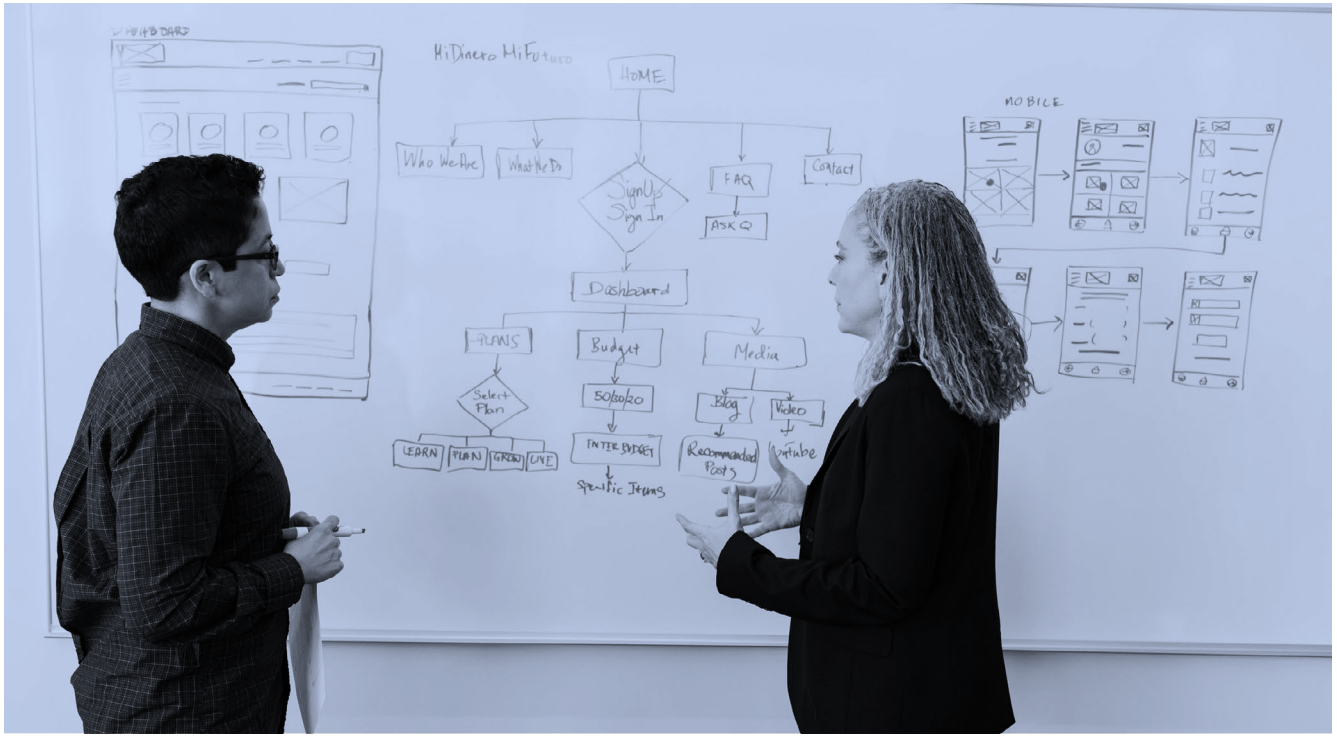
Feedback from beneficiaries SMEs

With nuanced differences in placing the focus of the main perceived benefits, **the UX Challenge is seen by the SMEs as a novel methodology for solving real challenges of companies and a great tool to apply user centered design principles.** Involvement of external experts, hands-on experimental mode and a unique format of collaboration between different stakeholders are regarded as the main benefits for the participating companies. Add the layer of flexibility and working model with variants and you have one of the best known problem solving methodologies not only for design problems but adaptable to other business domains as well.
Here is what some of the beneficiary SMEs think about the UX Challenge.



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I discovered a new way of preparing the proof of concept [..] Also, it was a great opportunity to see how the ideas take form within only 24 hours, and how to test them on the go. Thank you very much for the new experience and looking forward to the new events like that!

Peter Golovko
CEO of FintechLab, Lithuania

FINTECH LAB

"

WeUse found it of great help to get some external UX/UI designers looking at the design of our app, to see new possibilities and make the visuals more user friendly. [..] The output from the UX Challenge was very satisfying and some of the ideas and concepts have afterward been implemented into our product. [..] WeUse would be happy to join another time for the UX challenge because we believe that the process brings a lot of value to the company and gives some students a unique opportunity to get to work on some real company issues.

Emil Busch
Co-Founder of WeUse, Denmark

"

The participation in this event has given us a more customer-centric product vision, new ideas that we intend to implement to be more competitive, and it has transmitted to us the value of teamwork in record time. [..] The different contributions we received helped our product evolve and mature towards a much more visual tool, more usable and therefore more competitive. [..] Also, the initiative gave smaller companies such us visibility in the market, which is good.

Raúl Monferrer Agut
Director of the consulting area and projects,
Faythe Consulting S.L.

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We at Techinspire were very pleased with the UX Challenge. The event was fun and well organized. The international student team was very skilled and we received both confirmation of our own opinions and new very important observations of user needs in the development of our new system. We are now able to continue the development in the right direction and further strengthen the observed properties. We encourage every company to participate in the UX Challenge. The time spent on the UX Challenge was well spent.

Tiia Juntunen
Marketing Manager at Tecinspire

tecinspire

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We decided to participate to the UX Challenge with a twofold objective: first to experiment a different approach to innovate our solutions primarily aiming at an improvement of the user experience instead of at an incremental increase of features; second to scout talents and to investigate methodologies that could support us in transforming our corporate processes in the future. Although the short time available, the team was capable of approaching a very challenging context characterized by an extremely high technical specialization of users and tasks, providing insights on how to reorganize our product interface in a way that it can now empower the users and allow a faster and intuitive access to actions. Overall, the UX Challenge gave us very promising ideas and insights to pursue our improvement goal and to blend our development process.

Michele Vescovi
R/D Manager, Praim Srl

Praim

"

The team gave extra suggestions on how to make the solution work even better, so we got additional bonuses that we couldn't even imagine. If we are at level 1 at the moment then this solution will bring us definitely to level 4. On the usefulness aspect: when the team presented the solution to us, one of our main questions was "How quickly can we get it up and running?" So I think this shows how useful the solution will be for us. Hopefully we can do the MVP already next week, the smallest part, and then more difficult parts in the coming weeks.

Siim Sirel
MRP Implementation Project Manager
Eziil Production Intelligence

EZIIL PRODUCTION INTELLIGENCE

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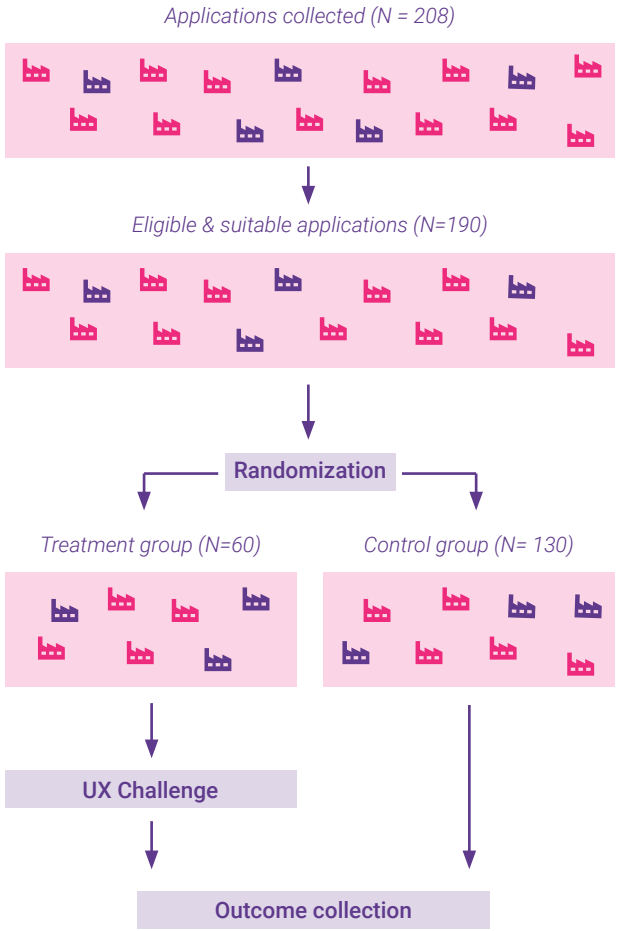
Validation of UX Challenge impact

The impact of the UX Challenge in SMEs has been validated through a **Randomized Control Trial (RCT)**. The RCT methodology is conceived to estimate the causal effect of an action, or treatment: like administering a drug, or benefiting from a policy measure. This is done by measuring and observing significant differences in key performance metrics (e.g. health, revenues, or awareness of benefits of user centered design – in our case) between two statistically equal groups of subjects or organisations: one undertaking the treatment (in this case the UX Challenge), and one not.

The European Commission funded the **200SMEchallenge** Project with the exact aim to set up an RCT validation study on the effectiveness of the UX Challenge: between February and April 2021 the initiative was implemented, with the same format, in 7 countries, involving altogether 192 SMEs, 60 of which participated in the UX Challenge as beneficiaries (treatment group), while the remaining acted as control group.

The main hypothesis that we wanted to test with the RCT was that the UX Challenge could increase both **knowledge and awareness of benefits of user-centered design** in the participating companies. We did not plan to measure any impact on actual behaviours (let alone business or financial metrics, such as turnover), as such changes could not be observed in the short term. Indeed, the post-treatment measurement was done via a survey three weeks after the end of the initiative.
We hereby report the **main findings** from such validation study. Full information about the RCT study plan (including how to set up your own RCT trial) can be found in a separated and dedicated deliverable, available on the 200SMEchallenge project website (www.200SMEchallenge.eu).



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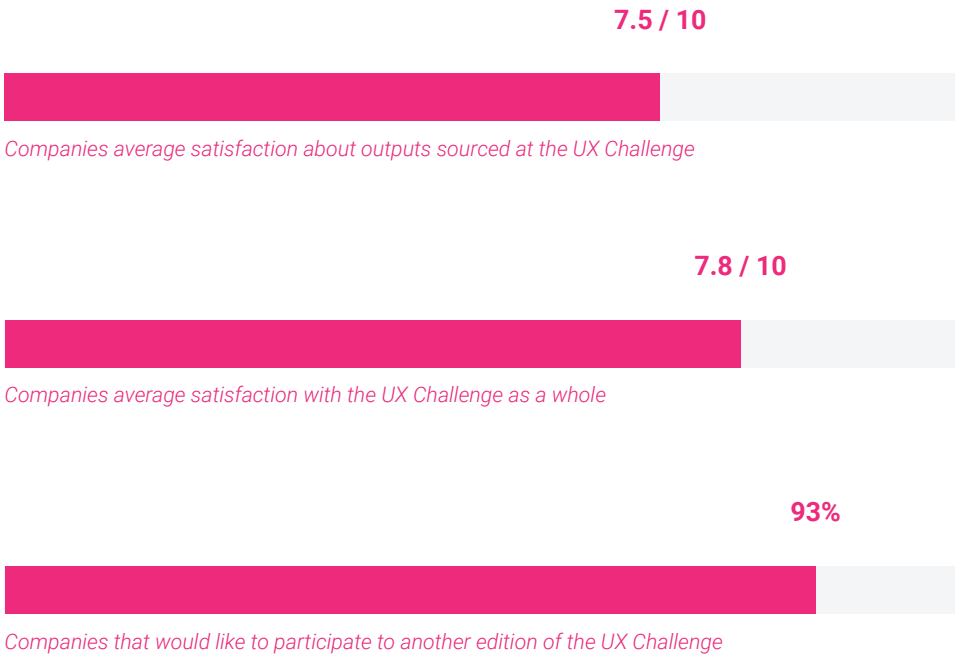
1) Satisfaction with the UX Challenge is very high

The average satisfaction score with participating companies with the UX Challenge is very high. The average **satisfaction score about the acquired solutions** (designs, wireframes, prototype, user testing results) is **7.5 out of 10.** The average satisfaction with the UX Challenge itself is even higher: 8.8 out of 10. This suggests that there are other factors that impact on satisfaction (e.g. the possibility of doing networking, talent scouting, knowing a new methodology, as mentioned above). Finally, **93%** of respondents declared that they would likely **apply to the next edition** of the UX Challenge (Slightly + Mostly + Completely agree to the sentence), while 68% declared that they would almost surely apply (Mostly + Completely agree).



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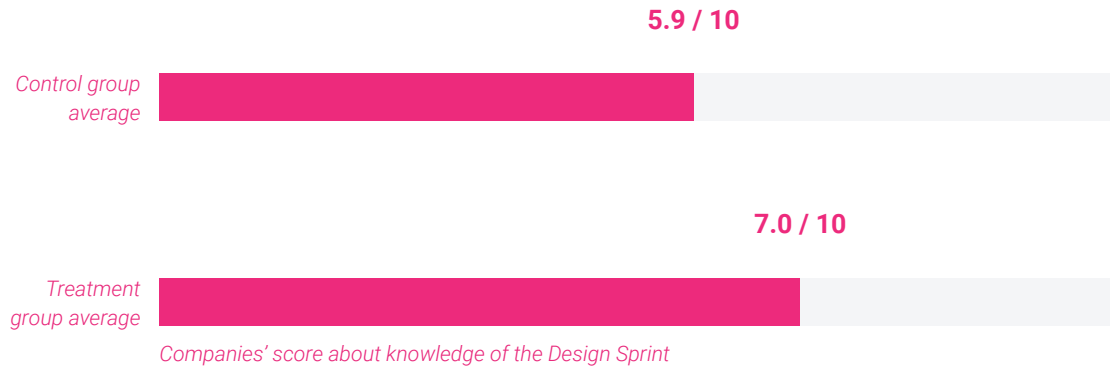
2) The UX Challenge increases the knowledge about Design Sprint.

The companies that participated in the UX Challenge show a **19% increase** in the scores regarding the knowledge of the Design Sprint and its five phases.* This means that the UX Challenge can increase the knowledge of Design Sprint by almost one fifth in SMEs, which is considerable impact.

** The estimate is statistically significant at conventional levels*



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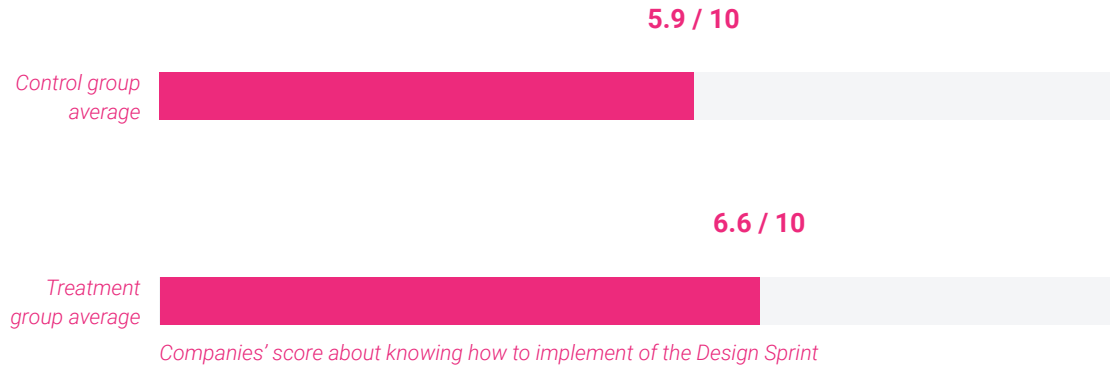
3) The UX Challenge increases the know-how to implement Design Sprint

Apart from the increase in knowledge, we observed another even more impactful evidence: the companies that participated in the UX Challenge showed a **12% increase** in their practical capability to implement the Design Sprint: this means that that not only the UX Challenge impacts on the knowledge of the Design Sprint, but also it allows SMEs to significatively learn how to set it up and implement it throughout its five Design Sprint phases.



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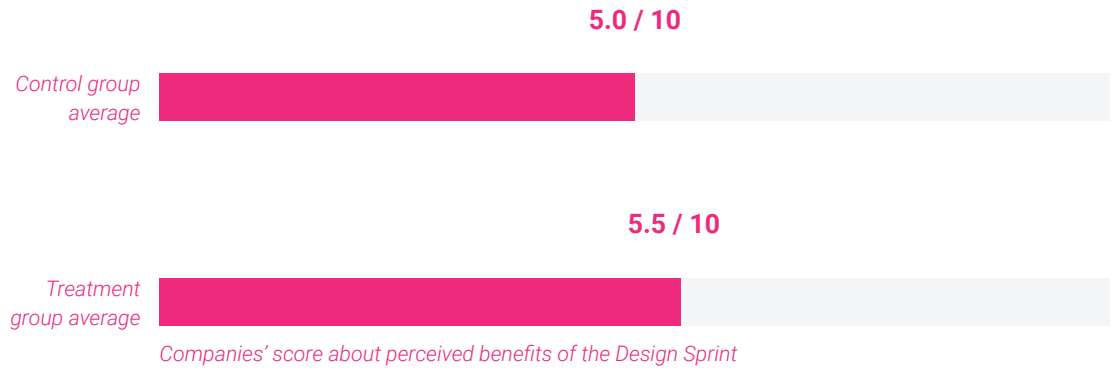
4) The UX Challenge may increase the perceived benefits of adoption of UCD

Finally, the study also collected suggestive evidence that the UX Challenge **increases the perceived benefits of adoption** of user centered design methodologies, including the design sprint, by 9%. Unfortunately, this measure is not statistically significant, and should therefore be explored and validated with further research.*

** The response rate in the follow up survey was very high in the treatment group (95%) but substantially lower in the control group (63.1%). This differential response rate may constitute a threat to the comparability of the two experimental groups. To address this issue, a number of statistical checks have been performed and conservative impact estimates, obtained through a set of multiple regression models, are shown. For more details, please refer to Deliverable 4.4.*



Companies' score about perceived benefits of the Design Sprint

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Suggested readings

SEMINAL BOOKS, ARTICLES AND RECENT RESEARCH PAPERS

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About this guide

Project 200SMEchallenge

Design-driven Open Innovation Challenge for 200 SMEs (200-SMEchallenge, in short) is a European project funded by the INNOSUP-06-2018-2020 call of the **Horizon 2020 Research and Innovation work programme of the European Commission** (code 284212). The project ran between 2019 and 2021 with the aim of allowing 7 innovation agencies to set up, deliver and evaluate the **impact of the UX Challenge,** a novel SME innovation support initiative following the tenets of Innovation Challenges. In particular, the UX Challenge supports digital SMEs to source strategic insight on market needs and technology requirements during the early stages of a new product development (NPD) process during a 2-day innovation contest.

The project was coordinated by HIT - Hub Innovazione Trentino (IT), and partnered by the leading European **innovation agencies** Business Oulu (FI), Tehnopol Tallinn (EE), Lithuanian Innovation Centre (LT), Danish Design Centre (DK), Steinbeis Innovation (DE), Espaitec (ES), and top-level technology and research centre Fondazione Bruno Kessler (IT).

Over the course of the project, partners built capacity to set up and host the UX Challenge in the seven represented countries, involving altogether almost two-hundred Small and Medium-sized Enterprises. The execution of the UX Challenge was embedded into a **research study** aimed at validating its impact on SMEs. In particular, the utilized methodology was the randomized control trial (RCT), that consists in a large scale **A/B test** where two statistically equivalent groups of subjects (SMEs, in this case) are exposed to different treatments (including no treatment at all), with the aim to observe a significant change in relevant metrics (e.g. performances) in the treated group, which allows to conclude that the change was caused by the treatment.

Thanks to this methodology, which involved administering online surveys to 192 SMEs, twice in the course of three months, the project collected **sound quantitative evidence** that the UX Challenge can be used to **increase the knowledge and awareness of benefits of user-centered design in SMEs.** This way, innovation agencies and other innovation actors (including public and private institutions) wishing to accelerate the adoption of UCD - user-centered design, can set up and host a UX Challenge with that purpose.

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Partners

HIT – Hub Innovazione Trentino *is a regional innovation agency whose assets are provided by the Autonomous Province of Trento. HIT shareholders include the major Trentino representatives from academy and research (University of Trento, Bruno Kessler Foundation and Edmund Mach Foundation) and the regional Development Agency (Trentino Sviluppo S.p.A.), therefore involving all the actors of the different domains within the Knowledge Triangle.*

HIT is entitled by the Regional government to support the regional economic development through technology transfer and coordinating the participation of the local innovation ecosystem to European, national and local strategic initiatives in the innovation domains including National Technology Clusters, EIT KIC, EUSALP and Vanguard Initiative.

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www.trentinoinnovation.eu

BusinessOulu *is a non-profit business support agency owned by the City of Oulu. Its mission is to enhance innovation led economic growth and improve employment in the framework of the Oulu's industry policy. BO supports entrepreneurship and companies to start and scale up. BO contributes actively to reinforcing the local innovation ecosystems (12000+ companies) and platforms together with local research, education, business organizations and citizens. A comprehensive range of business and innovation services are provided to support SMEs, startups and growth companies to generate significant added value for business.*
Innovation services utilize best practices developed to promote business from challenges and ideas to the market, i.a. UX (User Experience). Assets included in the ecosystem: OULLabs living lab testing and specialist services including PATIO user community (1000+ users), Demola services bring companies and students together for product development, Tellus Innovation Arena and Oulu Innovation Alliance. BO has coordinated Future Health flagship programme 2014- 2017.

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The **Tallinn Science Park foundation** *is a science and business campus which aims to advance technology-based entrepreneurship in Estonia, bring scientists and entrepreneurs together and provide suitable conditions and a suitable environment for the realisation of breakthrough business ideas. Today, there are nearly 200 companies (from startups to Skype), which is situated close to Tallinn University of Technology and are located in tech-campus Tehnopol. Tehnopol supports the adoption of promising new technologies and accelerates the growth of technology-based companies. Tehnopol's services are primarily targeted at tech companies. We provide our clients with suitable rental spaces, opportunities for close cooperation with universities and international networks and the support of experts.*
For growing companies Tehnopol offers a value adding set of business development services (export contacts, mentoring etc.) that help to develop and expand more efficiently. All services are personal and in accordance with company's needs. Business services are focused on three business areas: health and green technologies and ICT.

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Lithuanian Innovation Centre *(LIC) mandated by its shareholders – the Ministry of Economy and Innovation, the Ministry of Education, Science and Sports, and the Lithuanian Confederation of Industrialists – implements national innovation policy through provision of innovation support services. Its main goal is to increase Lithuanian international competitiveness by stimulating innovation in business through: a) increasing capability of companies to innovate; b) accelerating adoption of new technologies and commercialization of advanced research results; c) reducing risk of innovation implementation, and d) supporting development of innovation policy recommendations and implementation strategies for relevant public institutions.*
LIC positions itself as a public consultancy organisation with a mission of advising establishments interested in innovation-related issues. The largest group of clients comprise SMEs and R&D labs. LIC has a regional reach to locations over Lithuania .

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LITHUANIAN INNOVATION CENTRE

As Denmark's national design centre, it is the **DDC's** *mission to promote the use of design in business and industry, to help professionalise the design industry and to document, promote and brand Danish design in Denmark and abroad. In other words, the DDC aims to ensure the best possible meeting between the supply and demand sides in the design field.*
The DDC's key approach in this encounter is systematic experimentation with design-based value creation in companies. The DDC operates in a complex environment at the intersection of business and industry, the design profession, education and research institutions and public institutions.

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Danish Design Center

Steinbeis-Europa-Zentrum *(SIG) of the Steinbeis Innovation gGmbH, belongs to the Steinbeis Foundation for Economic Promotion. The Foundation runs approximately 600 so-called "Technology Transfer Centres" mainly in Baden-Württemberg, but also in other regions in Germany and Europe. The Technology Transfer Centres are mostly attached to research*
organisations in order to guarantee close connection between R&D and industry.
More than 3.000 researchers, consultants and engineers carry out more than 20.000 contracts per year to improve strategy, product and process development of companies. Since 2008, SIG has been a member of the regional European Enterprise Network (EEN) consortia. For several years, SIG has been the Contact Point (NCP) for SMEs in the region of Baden Württemberg.

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STEINBEIS-EUROPA-ZENTRUM

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Fundació General de la **Universitat Jaume I** *(FUGEN) is a general-purpose foundation governed by Universitat Jaume I of Castellon whose role at the University is developing / managing different general-purpose activities. The management of ESPAITEC, Science and Technology Park has been entrusted to FUGEN by the Universitat Jaume I of Castellon and, therefore, owned 100% it. ESPAITEC is the science, technology and business park of Jaume I University in Castellón, Spain. ESPAITEC was set up in 2007 for the purpose of offering quantitative and recognised contribution to both socio-economic development in the province of Castellón and the diversification of its industrial fabric. It emerges as an initiative based on the intense connection of the Universitat Jaume I in the industrial fabric and the growing demand for support services for enterprise development.*

Currently FUGEN is supporting around 40 SMEs settled in ESPAITEC (under different level of life cycle) that generate more than 300 highly qualified jobs including their own staff members and those of other parties.

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Fondazione Bruno Kessler *is a research non-profit public interest entity that is ranked at the 1st place for scientific excellence within 3 different subject areas (ICT, History and Sociology) and for the economic and social impact according to the quality of research ANVUR evaluation for the period 2010-2014 in Italy. Being the result of a history that is more than half a century old, through 2 scientific hubs, 7 research centres, 410 researchers, 2 specialized libraries, 7 laboratories, FBK aims to results of excellence in science and technology with particular emphasis on interdisciplinary approaches and to the applicative dimension.*

The Research Institute for the Evaluation of Public Policies (FBK-IRVAPP) is a research centre primarily aimed at carrying out public policies analysis using counterfactual impact evaluation tools. FBK-IRVAPP conducts evaluation research in the following areas: Active and passive labour policies; Education policies; Family policies; Health policies; Welfare policies; Industrial policies; Development policies.

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FONDAZIONE BRUNO KESSLER
IRVAPP
ISTITUTO PER LA RICERCA VALUTATIVA SULLE POLITICHE PUBBLICHE

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Nicola Doppio has a 10-year experience in designing and managing multi-stakeholders research, innovation and consultancy projects in the field of business administration, total quality management, technology R&D, new product development, service design and innovation management. He works at Hub Innovazione Trentino and manages the design, bid and execution of research-industry Open Innovation H2020 project grants, including EIT KICs. He is responsible for managing Open Innovation contests for industrial problem-solving connecting companies to researchers and young talents. He trains and coaches students and startups on topics such as service design, user experience, new product development and innovation strategies, lean startup method. Previously, Nicola has managed EU-wide Living Lab projects involving leading digital corporates, universities and research centres in co-design and real life trialing of hi-tech digital products and concepts.

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Kadi Villers is an innovation expert from Estonia with international experience in designing and implementing Innovation Programmes, in People Development and Project Management. Currently Kadi works with corporate innovation services as Innovation Manager at Science and Business Campus Tehnopol but her previous professional experience includes positions of the Head of Programme Development at European Innovation Academy in France and Italy, Knowledge Management Specialist at Amadeus IT Group in France, Project Coordinator at Estonian Association for Personnel Development, and Project Manager at Baltic Event Service. Kadi has an MBA in change and innovation from IAE Aix-en-Provence Graduate School of Management in France and an MA in economics from Tallinn University of Technology in Estonia.

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Christina Melander is program director at the Danish Design Centre. She has been working in the intersection of strategic design, business development, and innovation for more than 20 years, developing programs and projects in the design field as well as across industries, giving advise at policy level, and implementing strategy and policy.

Christina holds an MSc in Design and Communication Management from the Copenhagen Business School specializing in design processes in small and medium-sized companies. During the last two decades, Christina has built up a huge network, nationally and internationally. She is the creator of the Design Ladder and the DIN-model, a guide for design driven innovation.

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