

# “OPER.TEN” Transform Emergency Now! Facing Covid-19 with Open Innovation and Human Centered Design

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## ABSTRACT

The paper presents “OPER.TEN”, a ten days program that hybridized Human Centered Design (HCD) with Open innovation (OI), developed in response to the Covid-19 pandemic. The program adapted an HCD methodology to face the challenges of designing during a pandemic, such as relying on remote interactions only. The article presents methodological challenges as well as tools and methods developed to overcome those challenges. OPER.TEN, Transform Emergency Now! is a hybrid methodology that relies on HCD and OI tools and principles. OPER. TEN ensures fast implementation of the results involving stakeholders of the territory with implementation capacity. The final network involved Universities, Companies, Municipalities, and Government. After the design phase, three of the four solutions were successfully implemented. Results report how to hybridize an HCD with OI to push rapid implementations.

*Keywords:* Covid-19, Coronavirus, Open Innovation, Human Centered Design, Case Study

## INTRODUCTION

The Covid-19 pandemic demonstrated how helpful Human Centered Design (HCD) responses are, in understanding the worldviews and ecosystems for users (White et al., 2020). More specifically, Design Hacking demonstrated their central role in creating our future individual, community, and social ecosystems (White et al., 2020). Against a pandemic, speed is crucial, and open innovation (Chesbrough, 2003, 2019) (OI) helps to empower the human capital distributed around the world to launch rapid testing of possible solutions (Chesbrough, 2020). This article aims to show “OPER.TEN”, a program that links university, industry, government, public, and the environment to push fast implementation. The program methodology hybridizes an HCD approach with OI. The approach also includes suggestions to overcome problems that the design team had to face during the pandemic (e.g., keeping relationships virtual). As a result, the program was able to rapidly produce testable solutions concepts that have been successfully implemented to tackle the pandemic challenges.

# 1. THEORETICAL BACKGROUND

## 1.1. Human Centered Design (HCD)

The term “human centered design” has evolved over time and can be seen in the international standard ISO 9241-210, which describes “approach to systems design and development that aims to make interactive systems more usable by focusing on the use of the system and applying human factors/ergonomics and usability knowledge and techniques”. According to ISO 9241-210, every HCD process should be based on the following principles:

- The design is based upon an explicit understanding of users, tasks, and environments;
- Users are involved throughout design and development;
- The design is driven and refined by user-centred evaluation;
- The process is iterative;
- The design addresses the whole user experience;
- The design team includes multidisciplinary skills and perspectives.

Giacomin (2014) notes that the engineering-based concept of HCD as the science of human use and interaction with objects or services has, with time, given birth to a very complex network of different approaches. Those approaches have in common the attention to human meanings and behaviors, that can be resumed in a paradigm that “is based on the use of techniques which communicate, interact, empathize and stimulate the people involved, obtaining an understanding of their needs, desires, and experiences which often transcends that which the people themselves actually realized” (p. 610). Sanders (2008) gave an adequate representation of the ongoing transformation from the “design for” to the “design with” mindset with her evolving map of design practice and design research. She focused on “People Centered Innovation” as a cluster that included participatory design and user centered design methods, halfway between research-led and design-led approaches. We can resume this as a field of action in which multidisciplinary experts interact with stakeholders and users, stimulating each other during a research process that applies participatory methods and applied ethnography to identify issues and problems otherwise invisible, co-design solutions, and test it through fast prototyping. According to the ISO 924-210, the HCD approach aims at designing a solution that meets users’ requirements through a structured process, as shown in Figure 1.

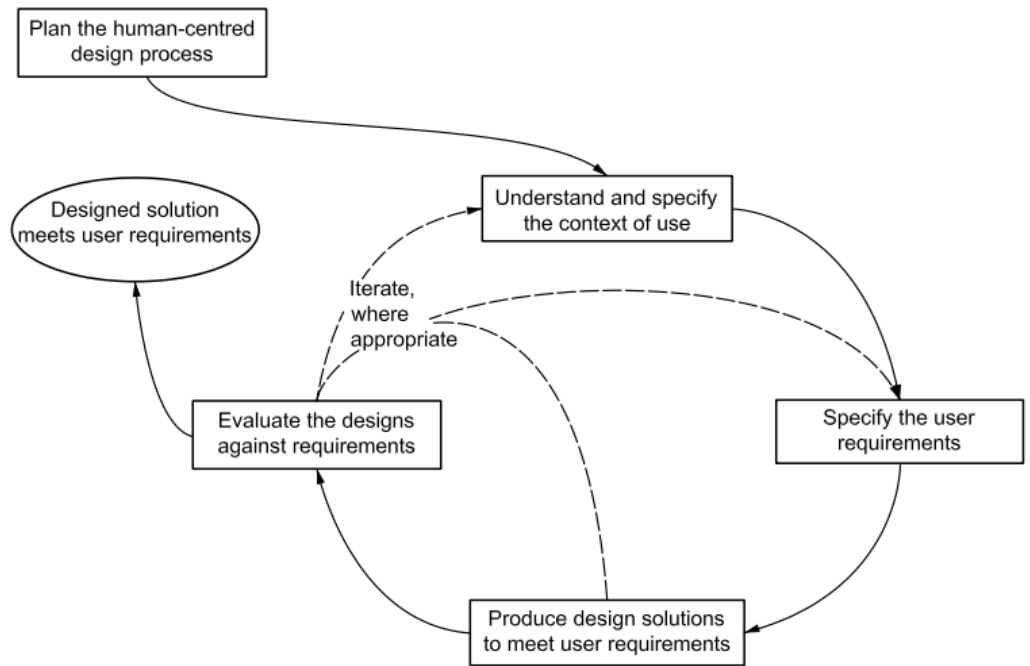


Figure 1. The HCD process (ISO 9241-210).

The HCD process lifespan depends on various factors, such as the number of design iterations that allow understanding the needs of the people involved in the research, empathizing with them, and then developing a tested solution concept. However, based on the authors' experience, on several case studies (e.g., the IDEO field guide to human centered design<sup>1</sup>), and assessments on the duration of each HCD phase (Maguire, 2001), the HCD process duration is measured in months.

## 1.2. Open Innovation (OI)

In the management literature, OI is defined as “a distributed innovation process that involves purposively managed knowledge flows across the organizational boundary” (Chesbrough and Bogers, 2014) (p. 3). With a broader perspective, OI is described as a shift from the traditional closed innovation paradigm (where organizations have full control of their knowledge and do not cooperate to innovate) towards open models of collaboration (Gassmann and Enkel, 2004; Enkel et al., 2009). In those models, organizations acknowledge the value of external competences and know-how and choose to exploit both internal as well as external ideas. These open models of collaboration include many actors who gained increasing importance in collaborating with firms during the OI era, such as Startups, Spin-offs, Venture capitalists, Employees, Lead users, Individuals, Inventors, Innovators, and, among all, Universities. In particular, since the diffusion of the Technology Transfer Offices, university efforts to commercialize science have evolved (Kochenkova et al., 2016), and new pathways are emerging, such as the spin-off creation based on research results (Munari et al., 2016), crowdfunding of entrepreneurial projects (Meoli et al., 2019), and an interesting novel approach relates to the activation of OI initiative (Enkel et al., 2009). Over the years, several companies have used Hackathons (Mohajer Soltani et al., 2014) and other OI forms to generate creative ideas (Dahlander and Wallin, 2020), involving universities in their programs. In particular, the typical Design Hackathon process lasts from 1 to 3 days, focusing on developing an idea through rapid prototypes (e.g., sketches, digital interfaces, mockups), as shown in Figure 2.

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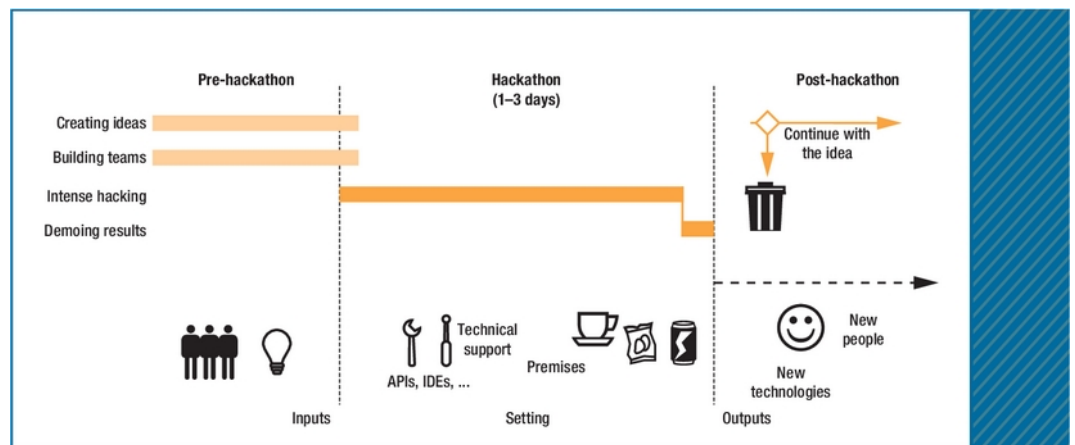


Figure 2. The typical hackathon process (Page et al., 2016).

In these short-term and intensive events called hackathons, participants aim at developing working prototypes as a possible solution to a beforehand well-defined problem (Mohajer Soltani et al., 2014).

### 1.3. Universities initiatives based on OI and HCD related to Covid-19 emergency

In these times of crisis, Universities launched several OI and HCD initiatives. For instance, Emily Carr University of Art + Design proposed “Together Vs. Virus”<sup>2</sup>, a country-wide online hackathon for people of all backgrounds. Many of the San Diego Bay area universities participated in the alliance who promoted “D4SD”<sup>3</sup>, a huge event based on design and design thinking to address difficult civic challenges in San Diego. USC has organized “USC Technology Innovation Bootcamp 4HS: Fighting Covid-19,”<sup>4</sup> a 3-weeks program for selected high-school students to develop new solutions to fight the wide range of challenges from the Covid-19 pandemic. That program includes topics of HCD, Customer discovery, Creative business model development, Engineering prototyping, Agile methodology, and Communication to investors and technology managers. MIT launched an OI initiative based on the rapid development of open-source low-cost ventilators<sup>5</sup>. The University of Pisa, together with the Italian Institute of Technology (IIT), carried out a project - called LHF connect - which allows hospitals to build their proximity robot providing the instructions and the software needed following an open-source model<sup>6</sup>.

## 2. METHODOLOGY

Among all the OI forms, the Design Hackathon approach has recently been hybridized with HCD to overcome the problem of obtaining technologically impressive solutions that lack a deep understanding of the problems from the users’ point of view (Taylor and Sherman, 2020). According to this perspective, in the middle of a severe pandemic, it was necessary to “humanize” Hackathons and speed up HCD efforts to deliver fast implementations.

OPER.TEN<sup>7</sup> (Transform Emergency Now! 10 days for a change) is a program that links university, industry, government, public, and the environment through multidisciplinary teams of students. OPER.TEN links OI and HCD approaches (as described in chapter 1) to take advantage of the synergy of both: in facts, users, stakeholder, and experts have been asked to cooperate in the research and to design the development of solutions to four

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challenges related to the phase 1 of the Italian Covid-19 emergency. Private and public organizations and companies patronized the four challenges.

**Table 1: Innovating the design process: a synergy between HCD and OI**

	<b>HCD</b>	<b>Hackathons</b>	<b>OPER.TEN</b>
Duration	Months	Days	Weeks
Focal activities	Research	Ideas development	Implementation
Outcome	Tested solution concept	Working prototype	Human Centered viable solution

Companies and organizations' involvement has been considered a critical factor in developing design solutions that could be fastly implemented. The ten days lasted from March 25th to April 5th, 2020. OPER.TEN was promoted and powered by OPER.SPACE, the OI center of the University of Bologna, in collaboration with Almacube, the incubator of the University of Bologna, and Almalabor, the digital fabrication and coworking space of the University of Bologna. The program involved multidisciplinary teams of students from three Universities in the Emilia Romagna region (the University of Bologna, the University of Modena and Reggio Emilia, and the University of Ferrara), who are alumni of OPER.SPACE's OI programs. Each team was supported by a design thinking coach – namely, experienced innovation design professionals who work at the OPER.SPACE OI center - and had the opportunity to rely on a network of professors, experts, and professionals related to the three Universities. The main actors involved throughout the program are described in Table 2.

**Table 2: Actors involved in the OPER.TEN program**

<b>Team</b>	<b>Network involved</b>	<b>Main responsibilities</b>
Design teams	MSc students	Design activities (see Table 3)
Teaching team	Design Thinking coaches	Students recruitment, Identification of possible partners, Methodological support, Process and output guidelines
Referent professor	An expert academic in the field of innovation management	Coordination of the program
Support circle	Professors, Companies, Municipality, Start-up connected to the University network	Feedback during presentations

The teaching team conducted preliminary research carrying out interviews with 20 stakeholders involved in the front line fighting Covid-19 (e.g., doctors, nurses, government officials, politicians) that led to 30 different challenges that were ranked and chosen for relevance and cognitive proximity to university students. Selected challenges were four, one for each team:

1. How might we support senior citizens who live alone and are currently experiencing isolation due to the lock-down, being more connected to other people, and doing physical activities without leaving their houses?
2. How might we minimize the risk of infections within supermarkets and grocery stores?
3. How might we help parents in lock-down to entertain and spend quality time with their children while dealing with their current smart working routine?

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4. How might we enhance citizens to practice remote activities during the lock-down to be connected, informed, and keep up with their professional and educational path?

The table below presents the program's structure designed with an HCD approach and adapted from Hackathons (Mohajer Soltani et al, 2014) as a ten days Design Thinking marathon.

**Table 3: OPER.TEN process structure**

Day	Design activities	Goals of the day	Suggested tool for the design team (HCD tools - regular; OI tools - bold)
1	Kick-off	<ul style="list-style-type: none"> <li>• Project and team set-up</li> <li>• Understand the design context in terms of actors involved, products and services already on the market, and innovations and initiatives in the field of the challenge</li> <li>• Identification of users' problems</li> </ul>	<ul style="list-style-type: none"> <li>• Desk research</li> <li>• Actors map</li> <li>• <b>Map of existing company assets</b></li> <li>• <b>Benchmark of existing solutions</b></li> <li>• Users interviews</li> <li>• Online surveys</li> </ul>
2	Research and need definition	<ul style="list-style-type: none"> <li>• Identification of the most relevant need of the main stakeholders</li> <li>• Identification of opportunity areas</li> </ul>	<ul style="list-style-type: none"> <li>• Stakeholders interviews</li> <li>• Users and experts' interviews</li> <li>• Personas</li> <li>• User journey map</li> <li>• Stakeholder map</li> </ul>
3	Challenge definition and design space exploration	<ul style="list-style-type: none"> <li>• Definition of the challenge reframed</li> <li>• In-depth research of the context</li> </ul>	<ul style="list-style-type: none"> <li>• Collaborative sense-making</li> <li>• Desk research</li> </ul>
4	Ideation and prototyping	<ul style="list-style-type: none"> <li>• Wider generation of ideas</li> <li>• Test of the ideas</li> </ul>	<ul style="list-style-type: none"> <li>• "How might we" questions</li> <li>• Brainstorming</li> <li>• Rapid prototyping (e.g., sketches, digital interfaces, mockups)</li> <li>• User test with stakeholders</li> </ul>
5	Ideation and need refinement	<ul style="list-style-type: none"> <li>• Need refinement</li> <li>• Definition of the concepts</li> <li>• Test of the concepts</li> </ul>	<ul style="list-style-type: none"> <li>• Prototyping</li> <li>• User test</li> <li>• <b>Impact and feasibility assessment</b></li> </ul>
6	Milestone	<ul style="list-style-type: none"> <li>• Present the concepts to the teaching team and available partners</li> <li>• Select the quicker concept to implement</li> <li>• Definition of an action plan to implement the concept</li> </ul>	<ul style="list-style-type: none"> <li>• Presentation</li> <li>• Feedback analysis</li> <li>• <b>Gantt</b></li> <li>• <b>List of experts, skills, and resources needed</b></li> </ul>
7	Prototype iteration	<ul style="list-style-type: none"> <li>• Further development of the selected concept</li> <li>• Plan a system prototype test</li> </ul>	<ul style="list-style-type: none"> <li>• <b>List of constraints for features to build</b></li> <li>• System map</li> </ul>
8	Concept refinement and communication	<ul style="list-style-type: none"> <li>• Definition of the user experience</li> <li>• Definition of the communication strategy</li> <li>• Test of the prototype</li> </ul>	<ul style="list-style-type: none"> <li>• User journey</li> <li>• <b>Technical blueprint</b></li> <li>• <b>Communication strategy tools</b></li> </ul>
9	Implementation	<ul style="list-style-type: none"> <li>• System definition (e.g., skills, resources, timing, materials)</li> <li>• Definition of an implementation roadmap</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Roadmap of implementation</b></li> <li>• <b>Resources map</b></li> </ul>
10	Final presentation	<ul style="list-style-type: none"> <li>• Presentation of the outcome</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Handover to organizations</b></li> </ul>

## 2.1. HCD methodology for Covid-19

The HCD approach reported in Table 3 was adapted to face Covid-19 challenges, such as the fact that the design team could not meet users for interviews or observe them in the context. The teaching team developed a vademecum for remote design research and cooperation to ensure a homogeneous and significant effort by all the teams and reduce coordination time. It provided tips and online tools suggestion like the following:

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- Communication channels: a Slack team workspace for real-time written communications between team members. A shared Slack workspace, "Ten tutti", to link useful material or contacts. A Slack teaching team channel for any doubt/need/proposal to be addressed to the whole T-team. A Slack inspiration channel to share insights and ideas with other teams.
- Interaction with users, stakeholders, experts, companies, and organizations: Google meet for interviews and focus groups; Google surveys for the evaluation of contextual factors, needs, scenarios, concepts. A shared list compiled by the University of relevant professors and experts to be contacted. A shared list of users ready to be interviewed in different fields. Access to University, Almacube, and Almalabor website and social media to communicate the program and test ideas and solutions with the crowd.
- Visual cooperation and co-design: Google docs, Google Jamboard, Miro for System map, User journey, Service blueprint, Roadmap of implementation, System and Resources map.
- Time management: to ensure standard working hours, a Google sheet in which each team member marks the slots of working hours on the project and the slots in which he/she will be available on Slack so that the other team members have no qualms about contacting him/her.

## 2.2. OI for faster implementation

Innovation is often measured in terms of expected costs, but in the middle of a severe pandemic, all these issues are far less critical than the capability to deliver a solution sooner (Chesbrough, 2020). The first OI effort involved stakeholders from the territory. To facilitate involvement, the design effort was presented as a hackathon, as it is one of the most renowned OI methodologies that recently gained popularity among companies to test new products and generate new ideas (Rosell et al., 2014). The design team had to keep in touch with an extensive list of stakeholders and possible champions from the territory. The teaching team created the first list of significant stakeholders while defining the challenge, and the team had to expand it, leveraging word of mouth and personal connections as a snowball. Moreover, to ensure implementable solutions, for each challenge, the team, in accordance with the coach and program coordinator, had to identify a stakeholder (e.g., a company or a public body) that could have enough resources to bring the final solution to life.

Table 4: OI activities of OPER.TEN

Day	OI activities
1 to 5	<ul style="list-style-type: none"> <li>• Identify possible stakeholders of the territory</li> <li>• Engagement of key stakeholders in the project to get their commitment to participating, through interviews and email</li> <li>• Involvement of stakeholders as users of the participatory design efforts</li> <li>• Involvement of the stakeholders' organizations during the milestone in the audience to give feedback (e.g., as representatives of their company and not only as individual participants)</li> </ul>
6 (Milestone)	<ul style="list-style-type: none"> <li>• Feedback from the involved stakeholders regarding the intermediate design results. In particular, the teaching team asked the involved organizations to support the design team by listing other experts, skills, and resources needed</li> </ul>
7 to 9	<ul style="list-style-type: none"> <li>• Involvement of the stakeholders in activating possible test cases with the participatory design approach. This is to speed up the design team's testing capabilities</li> </ul>



Day	OI activities
	<ul style="list-style-type: none"> <li>Involvement of the stakeholders to comment and support the design team in developing the designed solution implementation roadmap. This makes the implementation roadmap not only a generic roadmap but a roadmap that could be implemented by some actors of the territory</li> </ul>
10 (Final presentation)	<ul style="list-style-type: none"> <li>During the presentation, make a clear call to action, clarifying what is needed to bring the designed solution to life</li> </ul>

After the end of the final presentation, to guarantee a real social impact, the design team (or the coach) worked for some other days with the identified partner to transfer the knowledge and support the partner in becoming the implementation champion. To do this, the design team prepared an implementation roadmap with the selected partner. Once the organization involves a larger circle of employees for the implementation phase, the design team helps the company team to go through the implementation roadmap so that the solution can come to life.

### 3. RESULTS

In the middle of a pandemic such as Covid-19, the most relevant variable that should be considered to analyze an innovative intervention's impact is its rapid implementation. Either the solution is implemented now, or it makes no sense to pursue it. The OPER.TEN program was designed to quickly implement solutions to help people in dealing with Covid-19 and 40 days after the completion of OPER.TEN three of four solutions were implemented (Digitali e Uguali<sup>8</sup>, Esci i nonni<sup>9</sup>, Kit-Insegna). We report, as a reference for readers, cards presenting the implemented solutions in the Appendix. To succeed in this, the program identified challenges relevant in the Covid-19 scenario and suggested codesign online tools to the design teams, so that an HCD approach could be implemented despite social distancing. It was the first time that design teams (and coaching and teaching teams) had to question the effectiveness of many of the traditional field research and co-design tools because of the covid contextual factors. Empathy, which is such a precious result of direct interaction between people and designers, was not anymore achievable in the usual way. The availability of online communication and cooperation instruments has been crucial for the development of OPER.TEN. All the people involved in the HCD process have participated in the experimentation of new forms of remote collaboration for each of its steps. This experiment's results have produced enough data, insights, and ideas to grant the development of a design solution implemented for a significant part. The prototyping for co-creation and test phases can be considered the hardest to be developed, mainly when the design solution encompasses physical devices. Teams focused more on the system design definition and the concept proposal of service models prototyped and tested through visual examples or storytelling. The codesign online tools applied can be considered useful and practical but still insufficient to completely substitute direct interaction. However, the proposed methodology has been demonstrated to be an excellent way to involve users, stakeholders, experts, organizations, and companies in what Sanders (2008) calls the People Centered Innovation process. The program reported suggestions to hybridize the HCD approach with an OI approach, to successfully leverage the territorial and network resources during the design and implementation phases. Those resources proved incredibly helpful during the implementation phase by unlocking territorial resources and local networks to enable fast implementation of the proposed solution. For example, the Digitali e Uguali team

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was able to access a city association (AUSER), the School district Office, a teacher of a school (IC5), and a family with a child in need to test the full service of a donation of a computer to a student within one day. Even if this is a preliminary result based on a few case studies, we believe that the OPER.TEN programs could also contribute to empowering other Human Centered Design Open Innovation efforts to face the Covid-19 pandemic, and – more generally - to shed light on OI bundled with HCD as a process that should be taken into consideration to address complex social challenges in emergencies.

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## ENDNOTES

<sup>1</sup>[https://d1r3w4d5z5a88i.cloudfront.net/assets/guide/Field%20Guide%20to%20Human-Centered%20Design\\_IDEOorg\\_English-0f60d33bce6b870e7d80f9cc1642c8e7.pdf](https://d1r3w4d5z5a88i.cloudfront.net/assets/guide/Field%20Guide%20to%20Human-Centered%20Design_IDEOorg_English-0f60d33bce6b870e7d80f9cc1642c8e7.pdf)

<sup>2</sup><https://www.ecuad.ca/calendar/together-vs-virus-online-hackathon-against-covid-19>

<sup>3</sup><https://d4sd.org/>

<sup>4</sup><https://viterbiinnovation.usc.edu/community/usc-technology-innovation-bootcamp-fighting-covid-19/>

<sup>5</sup><http://news.mit.edu/2020/ventilator-covid-deployment-open-source-low-cost-0326>

<sup>6</sup><https://www.unipi.it/index.php/news/item/18055-emergenza-covid-19-lhf-connect-il-progetto-per-la-realizzazione-rapida-di-un-robot-per-la-telepresenza-e-la-telemedicina>

<sup>7</sup><https://magazine.unibo.it/archivio/2020/03/25/problemi-quotidiani-al-tempo-del-coronavirus-studenti-al-lavoro-per-trovare-soluzioni-innovative>

<sup>8</sup><http://www.digitalieuguali.it/index.html>

<sup>9</sup><https://www.instagram.com/esci.nonni/?hl=it>

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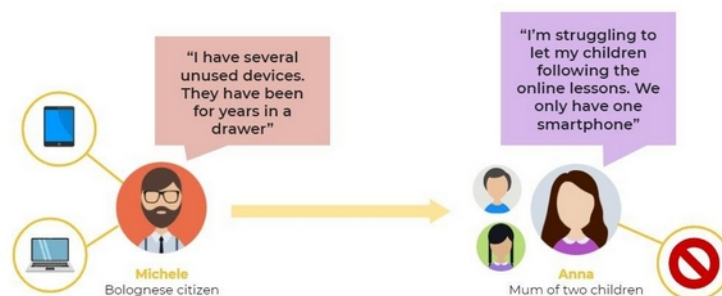
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## APPENDIX

Table A: Digitali e Uguali

### Digitali e Uguali

ISTAT, the Italian National Statistic Office, pointed out an issue regarding one-third of Italian families that do not own digital devices (personal computers, smartphones, tablets) in the middle of a pandemic. This matter of fact leads these families in isolation and brings difficulties in adapting to the new remote practices. Incredibly, only one in four Italian children have the instruments they need to take part in education from their homes' safety. Thus, the design team carried out a survey collecting 85 answers highlighting that 45% of families own unused devices, whose 63% is still working. The survey also figured out that 53% of families that own unused devices are willing to donate. To test these results, the design team developed a prototype, asking the reached families to donate their device, which led to the identification of 20 smartphones, 11 personal computers, and six tablets ready to be donated. As described by the design team itself, the emergent design context is shown in the figure below (Source: OPER.TEN final presentation).



Thus, the design team prototyped and implemented a system to connect Michele (the donor) and Anna (the beneficiary). The design team helped Michele in backing-up, resetting, and sanitizing, partnered with Auser, a courier service that delivered the device and helped Anna correctly set the personal computer donated in terms of first access and use of equipment. The team went through a specific learning process that helped them figure out most of the problems needed to be addressed to design and implement such a system. To sum up, the design team probed people's participation through a survey and prototyped the whole service by delivering one laptop to a child by the end of the project. The developed solution is a digital platform - called Digitali E Uguali to connect people who have surplus devices with children who need them to attend remote school lessons. The project involved two institutions acting as developers for the online platform (Yoox Net-A-Porter Group and the Municipality of Bologna) and a logistic partner to collect and transport the device (Auser). The platform has been active online since the 8th of May, which means just 33 days after the end of the process. The CEO of Yoox Net-A-Porter, the partner company engaged during the program, stated, "We have already donated hundreds of laptops ourselves. I invite you as individuals and businesses to donate via the platform".

Table B: Esci i nonni

← esci.i.nonni
⋮

**30**  
Post

**159**  
Follower

**485**  
Seguiti

**Nonni.felici.di.essere.nonni**  
Centro culturale

♥ #relationshipgoals  
👉 distant but close  
🏆 funny #challenge  
👴👵 #escinonni

I tuoi nonni non possono uscire, escili tu!

Segui

Messaggio

E-mail

⌵

#relationship

#escilaricetta

#escinonni

In Italy, according to the Health Ministry, the mortality rate for people between the ages of 80 to 89 due to the Covid-19 pandemic was 42,2 %. This matter of fact led older adults in isolation since their families decided to buy groceries and medicals for them in order to avoid the risk of contagion. According to the expert psychotherapists interviewed by the Design Team, "The main problems concern being alone but also feeling alone", especially for the self-reliant seniors that have their interests, such as "playing cards with friends, performing gentle exercises, making a cake for someone". Thus, the Design Team decided to focus on this category of seniors performing several rounds of interviews. What wowed the team was that many of them learned how to use mobile phone applications to make video calls, especially to feel closer to their nephews.

On the other hand, the research highlighted the nephews' trend of posting on social networks pictures with their grandparents. To foster this relationship, the Design Team came up with the solution concept Esci i nonni, which aims to collect stories about grandparents' personal life. The solution goal is also to switch from seniors' common perception as a category of frail care-taker people to "grans" as caregivers and source of knowledge and wisdom. The initiative was tested through a social campaign on Instagram, where nephews were asked to publish instant-stories about their grans. The campaign prototype #escinonni has collected over 300 followers in a few days and has incremented the time that nephews and grandparents spent on video calls. The developed Instagram page has now reached 159 followers, and 30 different posts of 30 different life stories have been published.

Table C: Kit-Insegna

**Kit-Insegna**

During the Covid-19, half of the Italian children (53.53%) experienced more significant irritability, intolerance to the rules, excessive tantrums and requests, and still one in five mood changes (21.17%) and sleep problems including difficulty falling asleep, agitation, and frequent awakenings (19.99%). This emergency led to many difficulties for their parents, especially those who started working from home during the lockdown. In particular, Internazionale emphasized the difficulties children need to face due to the lack of a vis-a-vis educational program, which affects their parents. One of the main redundant issues relates to the number of homework teachers provide to children: "Last week, my son was requested to fill 40 boards!". After different rounds of interviews, the design team discovered that this problem concerns teachers' difficulties in communicating with children and managing the development of remote activities. Besides, according to the expert psychologists interviewed by the Design Team, children "need to maintain contact as directly as possible with their teachers". Thus, the Design Team ideated a support Kit for teachers who take care of the growth of children aged 3 to 6. The Kit aims to facilitate teachers in using communication tools and support parents with well-defined educational activities, which positively affects their workload, providing a better family organization.

**Gioco dei travasi**

**Occorrente:**  
due ciotole e vari oggetti

**Svolgimento:**  
prendere due ciotole, una piena e una vuota e fa travasare degli oggetti dall'una all'altra.

**La tua maestra**

**Scopri l'oggetto**

**Occorrente:**  
oggetti, cassetto

**Svolgimento:**  
nascondere gli oggetti all'interno di alcuni cassetti e farli cercare.

**La tua maestra**

**Non cadere!**

**Occorrente:**  
nastro adesivo e/o spago

**Svolgimento:**  
traccia sul pavimento con il nastro adesivo e/o dello spago un percorso e seguilo restando in equilibrio

**La tua maestra**

**Basket**

**Occorrente:**  
bicchieri e palline di carta

**Svolgimento:**  
realizza delle palline di carta e posiziona dei bicchieri lontano rispetto a te, centra il canestro!

**La tua maestra**

Mincoilelli, G., Cocchi, N., Dosi, C. & Vignoli, M. (2020). "OPER.TEN" Transform Emergency Now! Facing Covid-19 with Open Innovation and Human Centered Design. *Strategic Design Research Journal*. Volume 13, number 03, September – December 2020. 658-668. DOI: 10.4013/sdrj.2020.133.28