

# User entrepreneurs in times of crisis: Innovators you can count on

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As humans, crises give us pause, causing us to reevaluate our priorities, our interests, and our behaviors. They generate a need for quick thinking, innovation, and actions in support of the common good. The COVID-19 pandemic, striking in its worldwide grip on the human population, is just one example. Natural disasters such as storms, wildfires, earthquakes, and hurricanes and man-made disasters such as climate change; and social, political, and economic strife have and are altering how people live and work. The need for innovation in light of these challenges is immense. User entrepreneurship—“the commercialization of a new product and/or service by an individual or group of individuals who are also users of that product and/or service” (Shah and Tripsas, 2007, p. 123)—is one important source of such innovations. Users, driven by necessity, are often forced to innovate in times of crises.

Our 2007 SEJ piece proposed a process model of user entrepreneurship that contrasted with the conventional model of entrepreneurship and documented the prevalence of user entrepreneurship in the juvenile products industry. A subsequent study showed that 46% of *innovative* startups (and 10.7% of all startups) that survive to 5 years or more are founded by user entrepreneurs (Shah, Smith, & Reedy, 2012). In this piece, we reflect on the role of user entrepreneurship in providing the innovations that might help us adapt to, as well as combat, crises—and suggest adjustments and extensions to the theory of user entrepreneurship that we proposed in our prior work.

## 1 | POSTFOUNDING ADAPTATION: EXPOSURE TO USER KNOWLEDGE INFORMS PIVOTS IN TIMES OF CRISES

Our original model focused on how the process leading to firm formation for user entrepreneurs differed from classic models of entrepreneurship. As we gauged the responses of user-founded firms to COVID-19, we observed that some of these differences also mattered postfounding. Specifically, the deep need-related knowledge and privileged access to a user community that often helped user entrepreneurs identify and validate their ideas before firm founding helped them adapt.

For instance, Kidadl is a classic example of user entrepreneurship: “Struggling to find inspiration online for brilliant child-friendly experiences, they wanted a better way to uncover fantastic family fun to enjoy. After creating a Facebook group that quickly grew to thousands of users and lots of brainstorming late into the night, Kidadl was born” (Kidadl.com, 2020). Their business connected parents with providers of novel family experiences through an online platform. In response to COVID-19, their connections with the parent community helped them identify an opportunity to pivot. While their first instinct might have been to make a minor shift in the platform and connect

parents to online or socially distanced experiences, the founders instead decided to develop original content, resulting in a 500% increase in website traffic. Cofounder Hannah Feldman explained: “We’ve pivoted by doubling down on editorial output within the business. Our writing team, comprised mainly of part-time working parents, is producing the kind of content other parents need at this critical time” (Coleman, 2020). While testing of this theoretical extension is needed, observations such as these lead us to suggest that, in times of crisis, user-founded firms possess unique advantages in their ability to sense environmental change and quickly react and adapt.

## 2 | BUILDING THE COMMONS: OPEN DESIGN AND USER ENTREPRENEURSHIP

Our original model was silent about the importance of open design in the process of user entrepreneurship. Open design applies core principles of the open-source software movement—the free and open exchange of knowledge and voluntary, collaborative work (e.g., Raymond, 1999)—to the design of physical artifacts: Design information is freely and publicly shared so that anyone can replicate and/or build on/improve the artifact. Open designs provide a basis upon which users can build and can serve as a vehicle for encouraging widespread diffusion, adoption, and continued improvement of a user entrepreneur’s innovation(s). The COVID-19 crisis illuminates the importance of the commons as both fuel and fire for user innovation and entrepreneurship.

Users, as well as others, benefit from open access to knowledge, tools, physical resources, and designs. In light of this, we are seeing an increase in openly available designs, particularly for personal protective equipment (PPE) and ventilators, as well as efforts by governments to make standards freely available. For instance, several open-source efforts were initiated to generate ventilator designs that could be created with readily available components (Temple, 2020). The open-source nature of these designs means that designs are available as part of the commons, that is, for anyone to use without the need to pay for/secure intellectual property rights (Solon & Glaser, 2020). Along similar lines, the European Commission made the standards for producing PPE and other medical supplies freely available in an effort to increase production (European Commission, 2020). Thus, around the world, users, makers, and engineers are creating open-source versions of much-needed medical equipment and producing them on a small scale using 3D printing and other technologies (Fracassi & Romaioli, 2020; Petri, 2020).

We also see many examples of users—whether individuals, firms, or nonprofit organizations—sharing their designs with others, who can then replicate and use, as well as improve, the innovations. We might think of users diffusing their designs for free or at a low cost in light of COVID-19 as an example of social user entrepreneurship. For example, Deere & Co., a manufacturer of agricultural, construction, and forestry machinery, designed and manufactured a number of innovations for their own use to help protect employees and shared details and open-source files on their website (deere.com, 2020). These innovations ranged from divider screens for computer workstations, mask straps that lessen strain on the ears, polyvinyl chloride (PVC) covers for hand-pushed carts, and others. As firms continue to innovate for their own use, we expect they will share some of these crisis innovations with others: doing so allows suppliers, buyers, and competitors to protect their employees and continue operations, allowing many to benefit while not eroding competitive advantage.

Similarly, around the world, physicians facing shortages of PPE have developed product, service, and organizational innovations to reduce the risk of exposure to the virus. They share their innovations freely through discussions, social media posts, and on physician newsgroups; as a physician friend expressed: “Few made it a for-profit endeavor, given it was a pandemic and lives were at risk.” For example, physicians all over the world shared designs for face shields that could be assembled with a 3D printed “headband” and clear plastic. Then, when patients had trouble seeing the faces of their medical providers and found the pictures on badges too small, physicians and nurses created and wore laminated facecards or large buttons on top of their PPE to help make patients feel more comfortable (Echegaray, 2020). Physicians all over the country shared designs for face shields that could be assembled with a 3D-printed “headband” and clear plastic.

### 3 | COLLABORATION BETWEEN USER ENTREPRENEURS AND OTHER KNOWLEDGE SOURCES

A final extension to our model is considering the benefits of user collaborations with others. Crises necessitate timely responses, and collaborating across knowledge domains is faster than learning independently. We see a number of examples where users, producers/manufacturers, academics, and/or volunteers with special expertise pooled their knowledge to react to the need for ventilator designs that could quickly be produced given the wide and rapid spread of COVID-19. The Galway VentShare project, for example, is an ongoing collaboration between physicians and Irish med-tech firms; the system, which enables the splitting of ventilators across patients, is designed such that hospitals can modify the ventilators they have on hand and allow for customization to each individual patient's lung capacity (galwayventshare.com, 2020; O'Sullivan, 2020).

Partners may also have production assets and expertise that users lack. For example, academic engineers and scientists at the University of Illinois, Urbana-Champaign and physicians from the local hospital system collaborated to design a gas-operated ventilator and are working with Belkin, a consumer electronics firm, on plans to produce the ventilator, although in this case, regulatory approval will be needed and may present an obstacle (Belkin, 2020; illinois.edu, 2020). Coupling users' understanding of needs and design with firms' production capabilities may be especially beneficial in crisis situations. In times of crises, corporations have tremendous capabilities that can be adapted or redeployed, as well as expertise in generating production, process, and supply chain innovations that can be used to produce necessary equipment quickly, in large quantities, and to specification.

### 4 | CONCLUSION

Ingenuity and responses in the collective interest are needed when humans face rapid and unpredictable changes. The examples of user entrepreneurship that we observe showcase human ingenuity, need, and compassion while also illuminating the importance of informed adaptation, open design, and collaboration. We suggest that informed adaptation, powered by deep engagement with the community of users affected by a crisis, is likely to result in better products and services, as well as the survival of businesses during difficult times. We also propose that open design can be both an input to and an output of user-driven design processes; having a commons upon which to draw helps users to innovate, as well as to replicate and improve upon others' innovations without fear of legal ramifications, leading more users to quickly contribute to the creation and replication of designs that can save and improve lives. Finally, we illustrate how user collaboration with scientists, firms and their employees, and policymakers can bring together a wealth of diverse knowledge and resources to rapidly create and implement solutions in a time of crisis. We are grateful to the users who are contributing their skill and effort to keep us all safer in light of COVID-19; as a planet, we must work together.

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