

DESIGN | MAKE | PROTECT

A report on the open source maker and manufacturer response to the COVID-19 PPE crisis

Download the full report at: osms.li/impact



OSMS and NoM collected data from **1800 respondents** from **March to September 2020**. Below are the **key report findings**.

WHO

Maker organizations, re-tooled manufacturers, and networks of volunteers

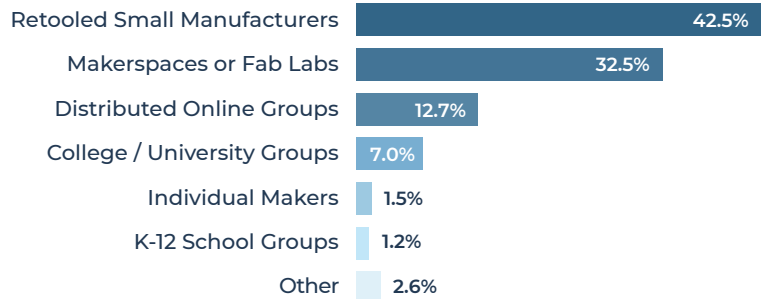
42,000+
Citizen Responders

86 Countries with Local Response Efforts

93%
Volunteers

50 US States, Washington DC, and Puerto Rico

Production Per Organization Type



WHAT

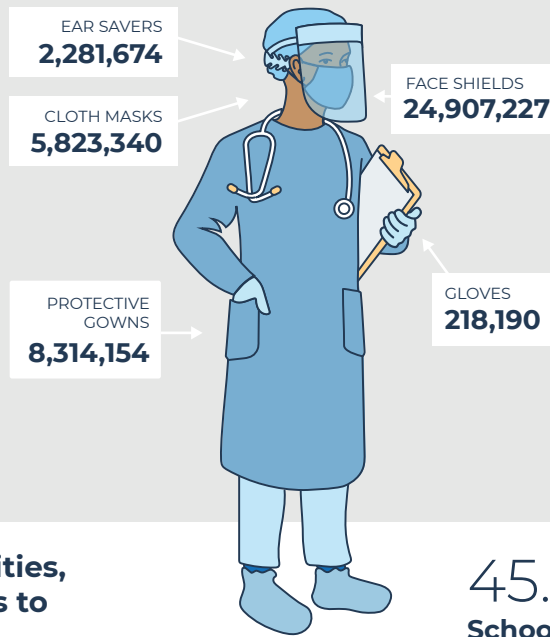
Created hundreds of new open source designs for medical supplies

200+ DESIGNS

available in the OSMS Library for **35 categories of PPE & supplies**

6,000% increase in unique visitors to the NIH 3D Print Exchange within 24 hours of engaging the maker community

Numerous medical inventions



Manufactured & delivered

OVER 48 MILLION pieces of PPE and medical supplies

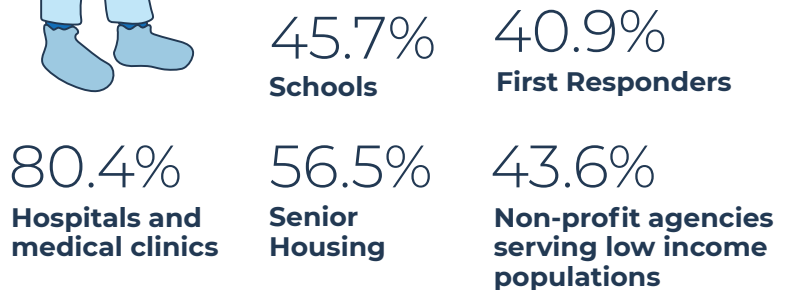
worth **\$271 million** including critical items such as:



WHERE

Serving their entire communities, from major hospital networks to underserved populations

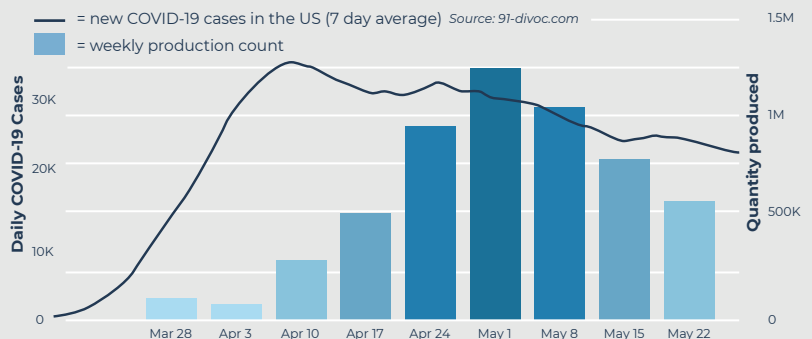
Schools, non-profits, senior housing and hospitals all received PPE and medical supplies. The following percentages of makers reported distributing supplies to these recipients:



WHEN

Swiftly pivoting to address critical shortages

Makers are tooled for rapid prototyping — and they were indeed fast. Maximum production capacity was achieved in only six weeks; whereas traditional manufacturing took several months to reach its full production potential.



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Below are key insights about what enabled the citizen response to COVID-19 supply shortages, as well as common challenges makers and manufacturers faced.

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ASSETS

OPEN SOURCE INFORMATION

We were able to prepare and organize **weeks before the virus reached our country** due to the experiences, resources, procedures, source files, etc. shared by the maker community as a whole.

*Andres Hermes
TecLab, Guatemala*

COMMUNITY NETWORKS

71% of respondents depended on networks, community platforms and personal introductions

It's been fantastic **not only to share but compare and review** what people have been doing.

*Sam Haynor
Something Labs,
San Francisco, CA*

VETTED DESIGNS

50% of respondents made use of open source design repositories

Without the **pre-vetted designs AND production instructions** we would have spent too much time reinventing the wheel and not enough time producing.

*Nathaniel Fairbanks
Makelt Labs, Nashua, NH*

NEEDS

GOVERNMENT SUPPORT

Less than 3%

received any government financial support through sales or grants.

24%

reported establishing a new relationship with some level of government.

Now that we know that makerspaces can fill such a vital role [...] **we need lawmakers to invest funds** towards organizing these efforts and making sure they have the materials and support needed to ramp production back up when needed.

*Craig Farrington
Factory Two, Flint, MI*

COORDINATION OF SUPPLY & DEMAND

I learned that **distribution is the most expensive and difficult thing to accomplish** — manufacturing is comparatively quite easy!

*Sam Neff
Richmond High Robotics Team 841
Richmond, CA*

Most of our sales and distribution were based on **personal contacts**.

*Will Holman
Makers Unite, Baltimore, MD*

CLARITY ABOUT LIABILITY

Quite a few people felt they couldn't use their business/shop to make PPE or personally engage in PPE production **because of liability fears**.

*Diana Hamann
Hollywood Helps Hospitals
Los Angeles, CA*

FUNDING

63% depended on in-kind donations of materials, tools and labor.

13% of respondents listed lack of funding as their primary reason for slowing production.

We're about to lose our shorts. We've had a good response in fundraising, however, **our costs in production and rent for the space have put us in debt to deferred rent**.

*Joey Loman
Synergy Mill Makerspace, Greenville, SC*

ACCESS TO TESTING

Cost is prohibitive. Traditional testing of basic mask safety, efficacy, and filtration costs \$3-5k per mask design and don't include validation for reuse. For FDA (510k) approval costs are typically 5-10x higher.

*Dr. Jocelyn Songer
MakerMask*

ABOUT THE AUTHORS

The Community Impact Report is brought to you by Open Source Medical Supplies & Nation of Makers, with additional support and data from The Fab Foundation.



Open Source Medical Supplies informs and empowers makers, engineers, manufacturers, local organizers, experts, and institutions around the world working in their communities to meet medical supply challenges stemming from global crises. osms.li/home



Nation of Makers supports the full range of organizations that impact makers by encouraging connections, broadly sharing resources, facilitating funding opportunities, engaging in policy development, and advocating for the maker movement. www.nationofmakers.us