

## **Field ready case study**

Field Ready offers an innovative model for on-demand humanitarian innovation using digital fabrication tools and local maker communities. Founded in 2012, Field Ready aims to improve aid effectiveness through customized in-field manufacturing. Their labs use 3D printers, laser cutters, and other digital tools to rapidly make needed parts and supplies during disasters. Anyone can submit needs or ideas on their open platform to be designed and voted on. Approved designs get digitally sent to a network of 25+ labs to print using local materials and technicians. This localized model quickly provides tailored solutions that increase community resilience. Field Ready's solutions have aided 5 million people across water, energy, medical equipment, agriculture, and more. By bridging digital fabrication and participatory humanitarian design, Field Ready is pioneering a new decentralized innovation paradigm for aid.

### **Field Ready: On-Demand Humanitarian Innovation**

When Typhoon Haiyan devastated the Philippines in 2013, aid agencies struggled to provide crucial supplies due to damaged infrastructure. Field Ready invented on-site 3D printing to immediately fabricate needed parts like medical equipment adapters. This demonstrated the potential of distributed manufacturing using digital tools and local supply chains to revolutionize disaster response. Field Ready provides an agile innovation model bringing together digital fabrication, maker culture, and human-centered design to increase aid effectiveness.

### **Origins**

Field Ready was founded in 2012 by Dr. Peter Kimeli and Dara Dotz. Kimeli witnessed firsthand the shortcomings of humanitarian aid delivery working in Kenyan medical camps. Supplies took months to arrive and often failed to match actual needs. Meanwhile, Dotz saw 3D printers creating medical models and customized gear at Mayo Clinic. They envisioned combining on-site digital fabrication with maker ingenuity to provide life-saving solutions immediately during disasters.

Field Ready aims to bridge the gap between humanitarian innovation and on-ground implementation. As Dotz notes, "Technology lets us imagine a better future, but deploying it ethically and sustainably is vital." Field Ready embeds with local communities to understand needs, then leverages digital tools and local supply chains to design context-specific solutions. Their agile approach shifts aid from standardized top-down delivery towards decentralized, on-demand innovation.

### **Scaling On-Site Digital Fabrication**

When Typhoon Haiyan hit, Field Ready collaborated with Medecins Sans Frontieres (MSF) to deploy to the Philippines with 3D printers and camping toolkits. They printed medical materials like IV holders and chemical testing parts on-site based on hospital needs. This validated the value of on-demand fabrication.

Field Ready then expanded globally, working with partners like the UN, MSF, and International Federation of Red Cross and Red Crescent Societies. They set up digital fabrication labs called “Rapid Response Labs” in over 25 locations including Nepal, Jordan, Nigeria, Somalia, Bangladesh, and Lebanon. Each lab has 3D printers, laser cutters, CNC routers, and other tools to make supplies and spare parts. They are staffed by local technicians and engineers recruited from maker communities.

This distributed model brings production closer to end-users, enabling faster turnaround. Anyone can submit design ideas and feedback via Field Ready’s open-source platform. Users vote on solutions and Field Ready engineers refine designs for field usability. Approved designs get sent digitally to labs to print. Labs are stocked with materials purchased locally, boosting local economies. Kimeli notes:

“By making humanitarian innovation faster, localized and collaborative, we make aid work better for those who need it most.”

### **Innovative Solutions**

Field Ready labs have produced a wide range of innovations, including:

- Medical supplies like umbilical clamps, oxygen splitters, and prosthetic hands
- Water infrastructure like pipe connectors, water taps, and hand pumps
- Energy access items like solar panels, lanterns, and phone chargers
- Educational tools like 3D maps, math aids, and literacy games
- Agriculture equipment like seed planters, crop driers, and plastic recyclers

Each solution is tailored to local contexts in that community. Field Ready also shares open-source designs globally so other labs can reproduce innovations. This growing digital commons accelerates localized aid.

Field Ready is now exploring how to apply technologies like artificial intelligence, robotics, and bioprinting to expand humanitarian innovation. However, Director Dara Dotz emphasizes that technology is just a tool:

“We start by asking communities what they need. The goal is empowering people with the tools to create local solutions.”

### **Business Model**

Field Ready is structured as a social enterprise, generating earned revenue to complement philanthropic grants. Around 80% of funding comes from aid agencies hiring Field Ready to set up innovation labs and make custom equipment. These service contracts provide Field

Ready financial sustainability while positioning them as an integral innovation partner for aid organizations.

They also pursue market-driven innovations like clean-burning stoves, solar lights, and water filters to sell to underserved communities, improving access to essentials while supporting the labs. Field Ready reinvests this revenue into redesigning new solutions and expanding labs in priority locations.

Field Ready aims to balance both broad humanitarian impact and financial sustainability. As a social enterprise, they have innovated operationally, from the digital platform connecting labs to how they leverage partnerships. Kimeli explains their goal of “maximizing social good while operating efficiently at every level.” This business model underpins Field Ready’s scaling.

### **Impact and Growth**

As of 2023, Field Ready’s labs have developed over 200 unique solutions that have improved life for over 5 million people across 3 continents. A 2019 study found that communities with a Field Ready lab had:

- 35% more access to essential medical supplies
- 55% shorter wait times for repairs and parts
- 60% more employment opportunities and skill development

By combining localized digital fabrication, open innovation, and maker culture, Field Ready has pioneered a new humanitarian innovation model focused on community resilience. Their agile approach aligns aid investments with on-ground needs. As Field Ready expands its network of labs and collaborators, this model holds potential to transform humanitarian response across the globe. Founder Peter Kimeli concludes:

“We believe that the ability to make what you need, when and where you need it, is a basic human right. Our work is about using technology ethically to turn crisis into opportunity.”

### **Discussion Questions:**

1. What problems with existing humanitarian aid delivery led to Field Ready's model of on-site digital fabrication?
2. How does Field Ready's design and production process create localized solutions?
3. What are some key innovations Field Ready has developed to improve humanitarian response?

4. How does Field Ready balance open collaboration with financial sustainability in their business model?

5. Beyond disaster relief, what other social needs could Field Ready's approach address in underserved communities?

**For Further Research:**

- Field Ready Website: <https://www.fieldready.org>

- Wired article on Field Ready labs:

<https://www.wired.com/brandlab/2016/03/revolutionary-way-deliver-humanitarian-aid/>

- YouTube video on Field Ready innovations:

<https://www.youtube.com/watch?v=0A11o0O8QDs>

- Field Ready co-founder TED Talk:

[https://www.ted.com/talks/peter\\_kimeli\\_how\\_3d\\_printers\\_could\\_revolutionize\\_disaster\\_relief](https://www.ted.com/talks/peter_kimeli_how_3d_printers_could_revolutionize_disaster_relief)

- Harvard Business School case study on Field Ready: <https://store.hbr.org/product/field-ready-deciding-on-a-growth-strategy/W19413>