MAY 2017

Inventory of Digital Technologies FOR Resilience in Asia-Pacific

The ROCKEFELLER FOUNDATION

fhi360
THE SCIENCE OF IMPROVING LIVES

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Introduction

This inventory was developed by *FHI 360*, with grant funding from the *Rockefeller Foundation*, to support resilience practitioners and the broader development community to identify digital technologies that have the potential to enhance resilience outcomes, particularly in Asia. It was primarily populated through a crowdsourced call for submissions that took place in March 2017. Given the crowdsourced nature of this inventory, responsibility for the accuracy of the content rests solely with the individuals who made submissions. Inclusion in this inventory is by no means an endorsement by the Rockefeller Foundation or FHI 360.

Although the focus of this call was for digital technologies from Asia, some of the submissions are from outside of Asia as well. The summary findings for the inventory include data from all submissions, whether or not they were from Asia. However, the inventory itself only includes technologies that are being implemented in Asia. Entries are organized alphabetically according to organization/firm name. You can quickly jump to entries by clicking on a letter in the navigation bar at the bottom of each page. Please note that some of the entries have been edited for brevity and/or clarity.

For the full list of submissions*, including unabridged entries, those from outside of Asia and any that were added after the publication of this PDF version, visit *https://goo.gl/1ZUt4k*. To learn more about this work, contact Josh Woodard at jwoodard@fhi360.org.

** Note that not all submissions were accepted for final inclusion in the online inventory. Only those that showed a clear link to resilience were included. If you have any questions as to why your submission was not included, please email jwoodard@fhi360.org.*

Digital Technologies for Resilience

Summary Findings

Geographic profile

A total of more than 125 submissions were made in response to the public call, which were narrowed down to those with clear resilience relevance. Below is the distribution based on countries in Asia-Pacific referenced at least twice.

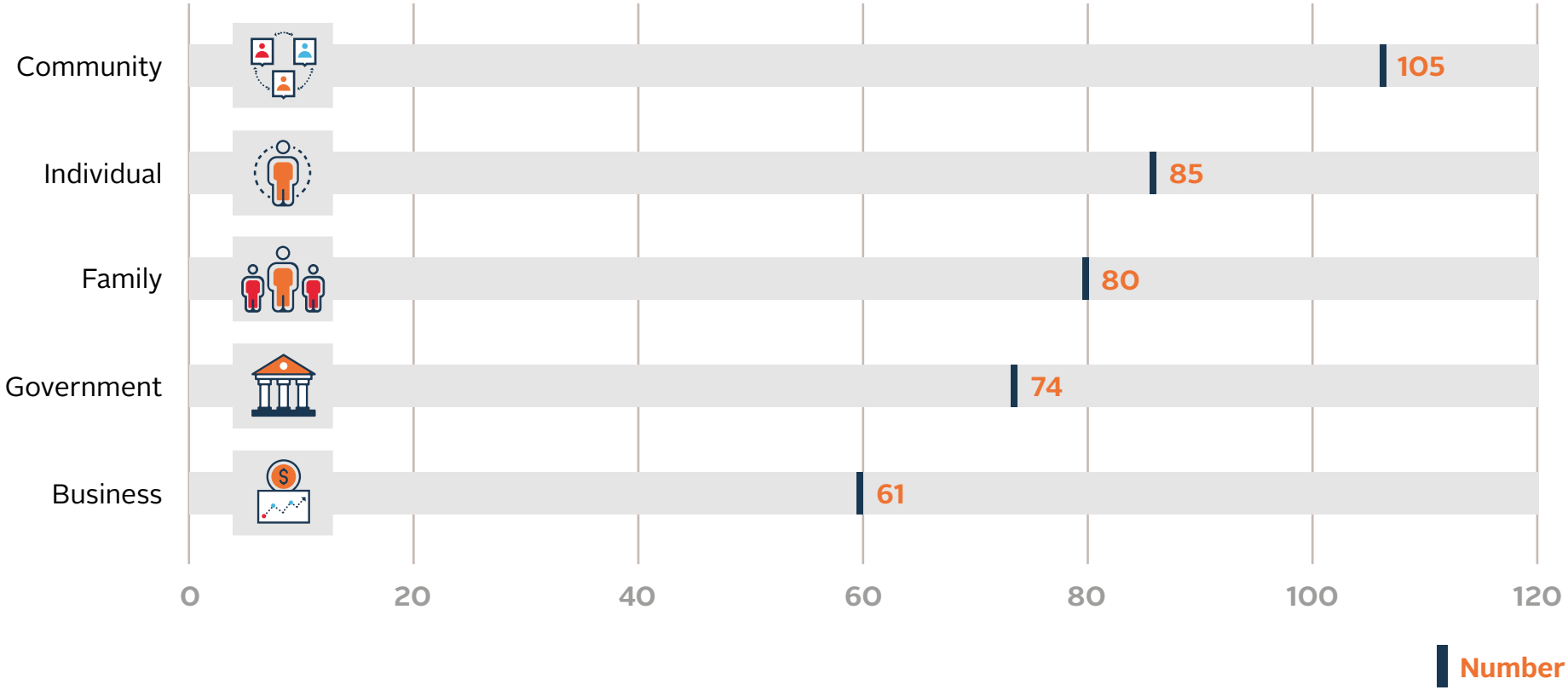
What types of digital technologies are you using?

*Based on all entries, not just those from Asia-Pacific.**

** These numbers may include a few instances of double counting due to use of similar keywords in the same submission.*

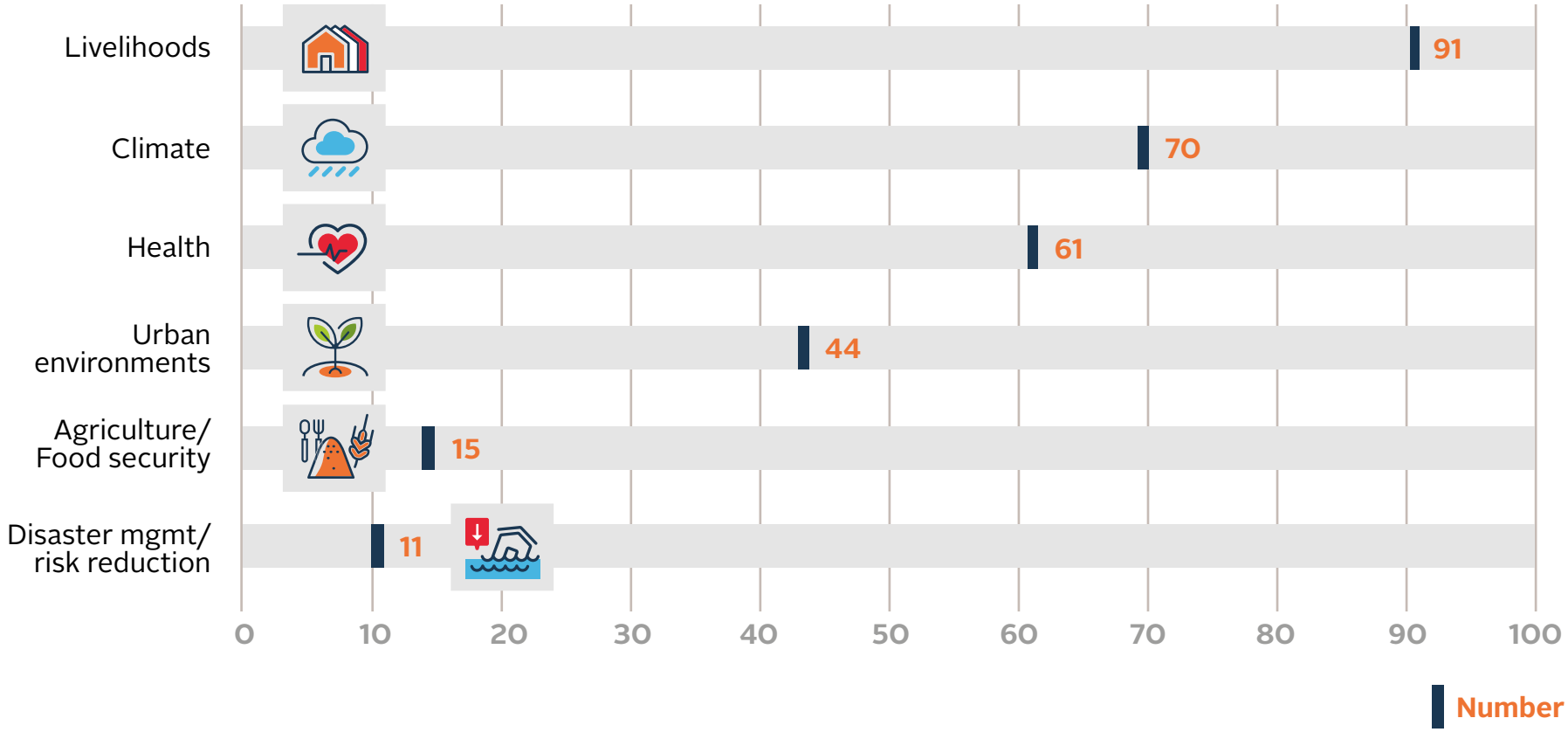
At what level/scale does the technology enable resilience?

Based on all entries, not just those from Asia-Pacific. More than one answer could be selected per submission.



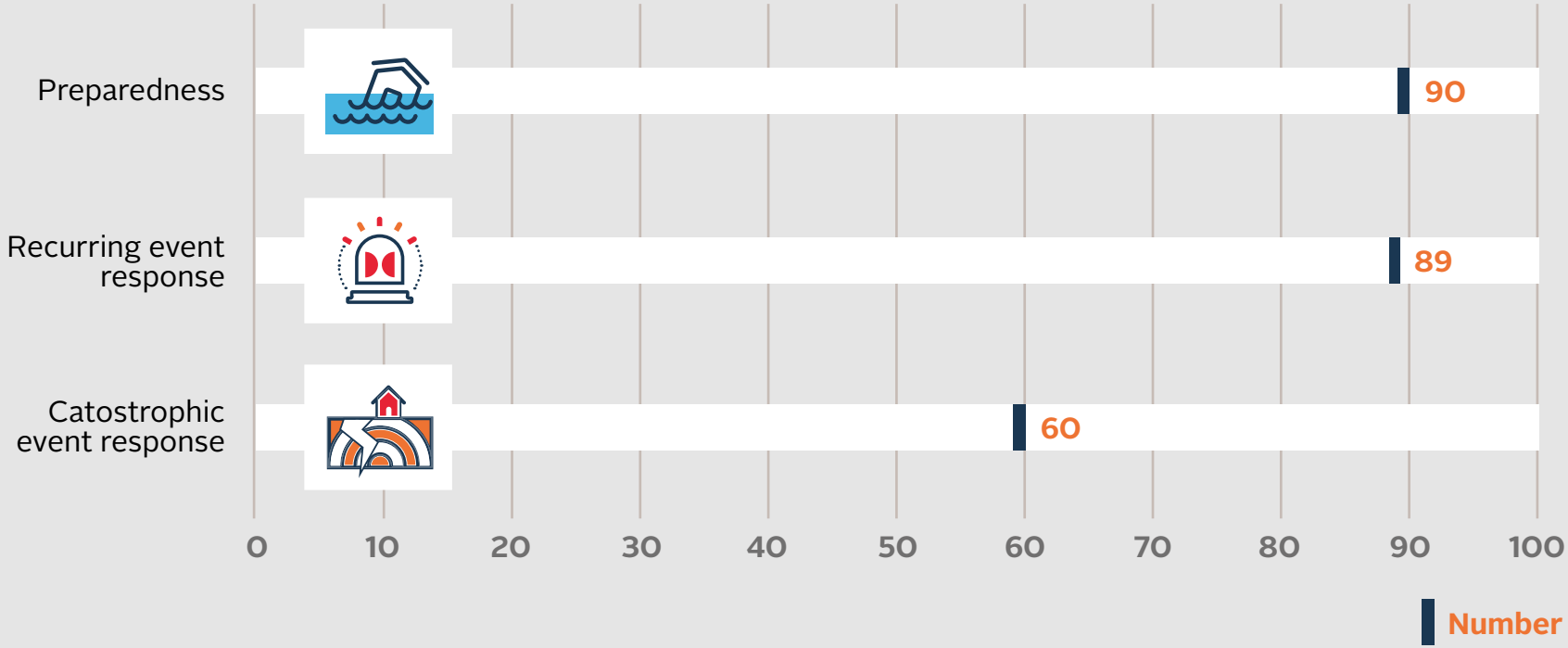
Which of the following systems does your digital technology support?

Based on all entries, not just those from Asia-Pacific. More than one answer could be selected per submission.



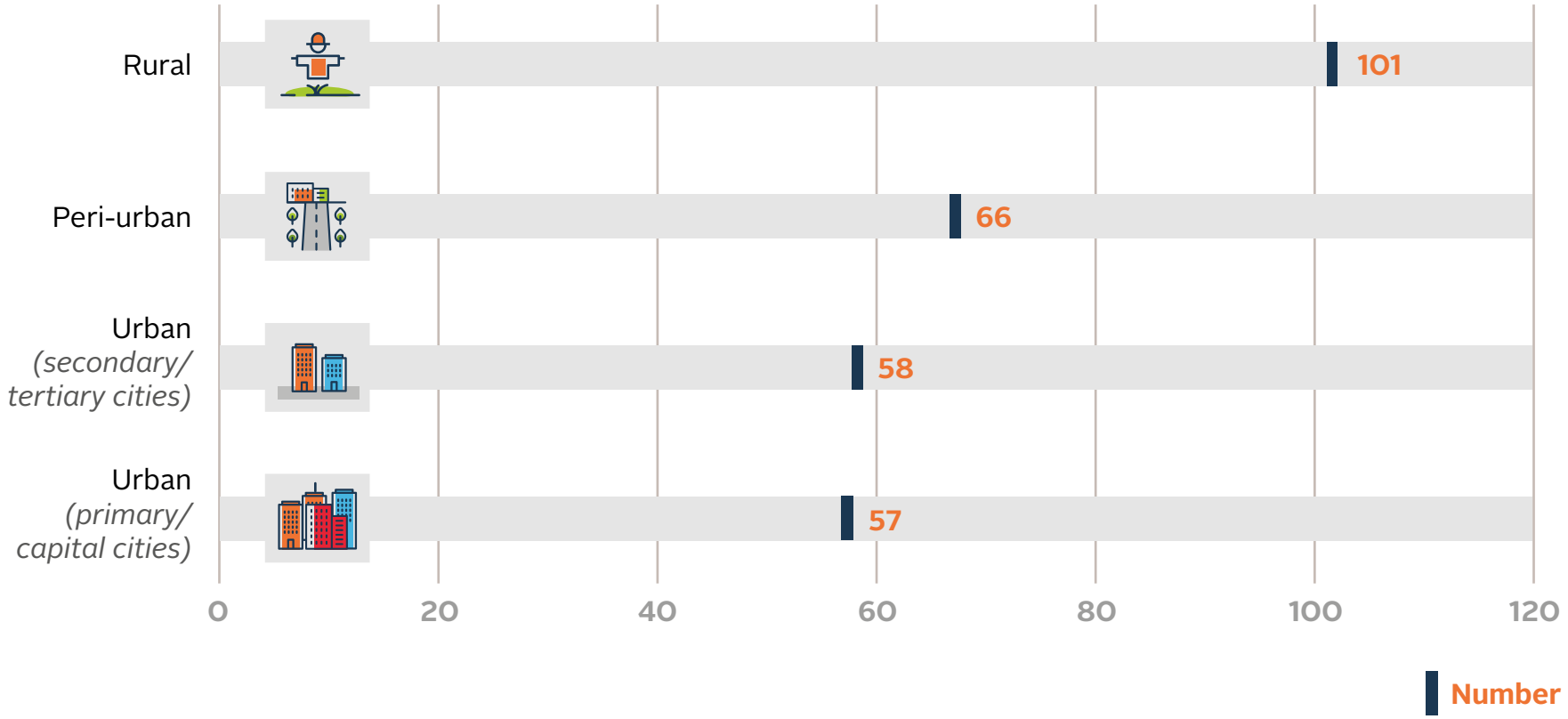
What is the primary focus of your digital technology?

Based on all entries, not just those from Asia-Pacific. More than one answer could be selected per submission.



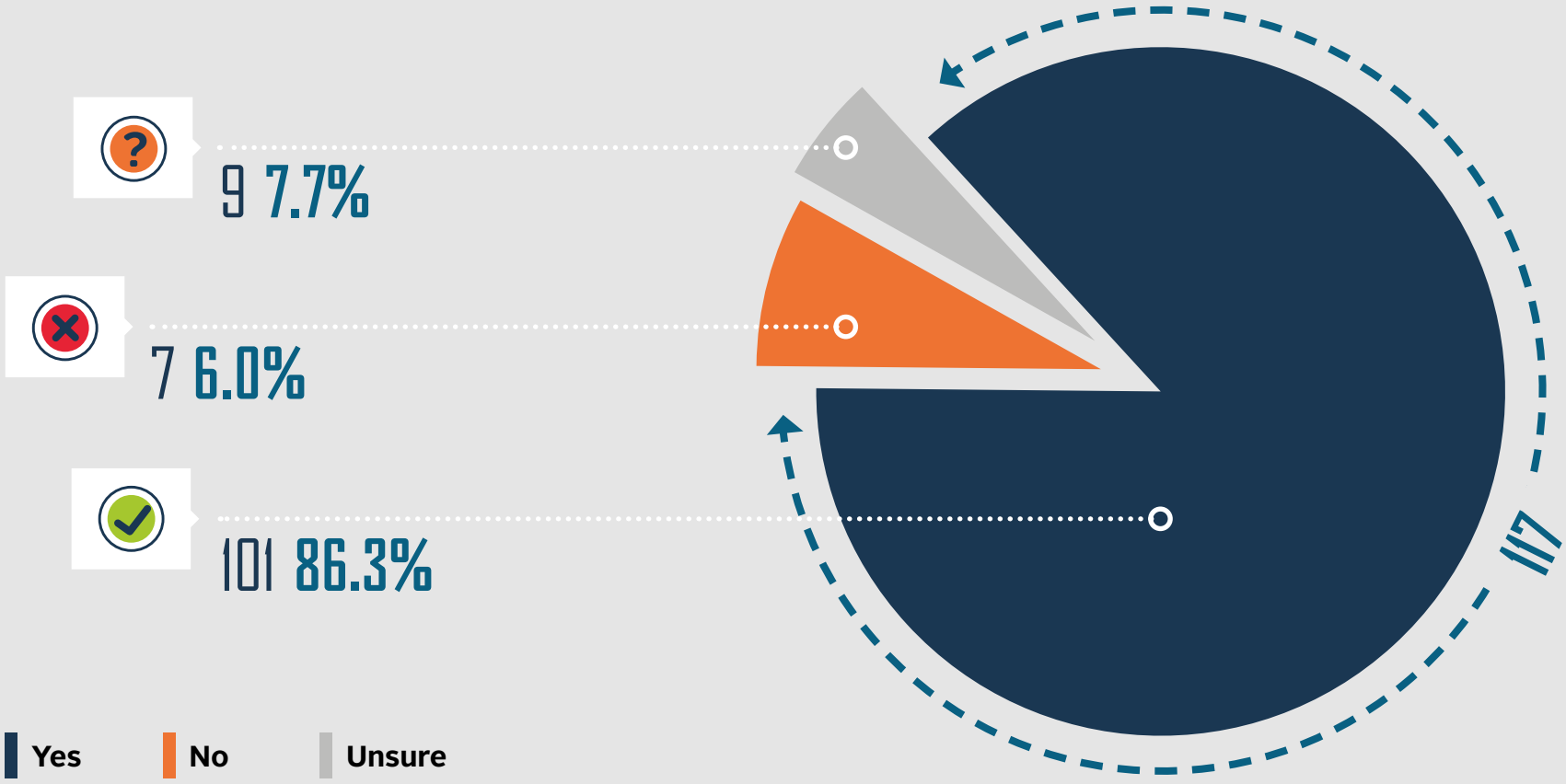
In what context is the digital technology primarily used?

Based on all entries, not just those from Asia-Pacific. More than one answer could be selected per submission.



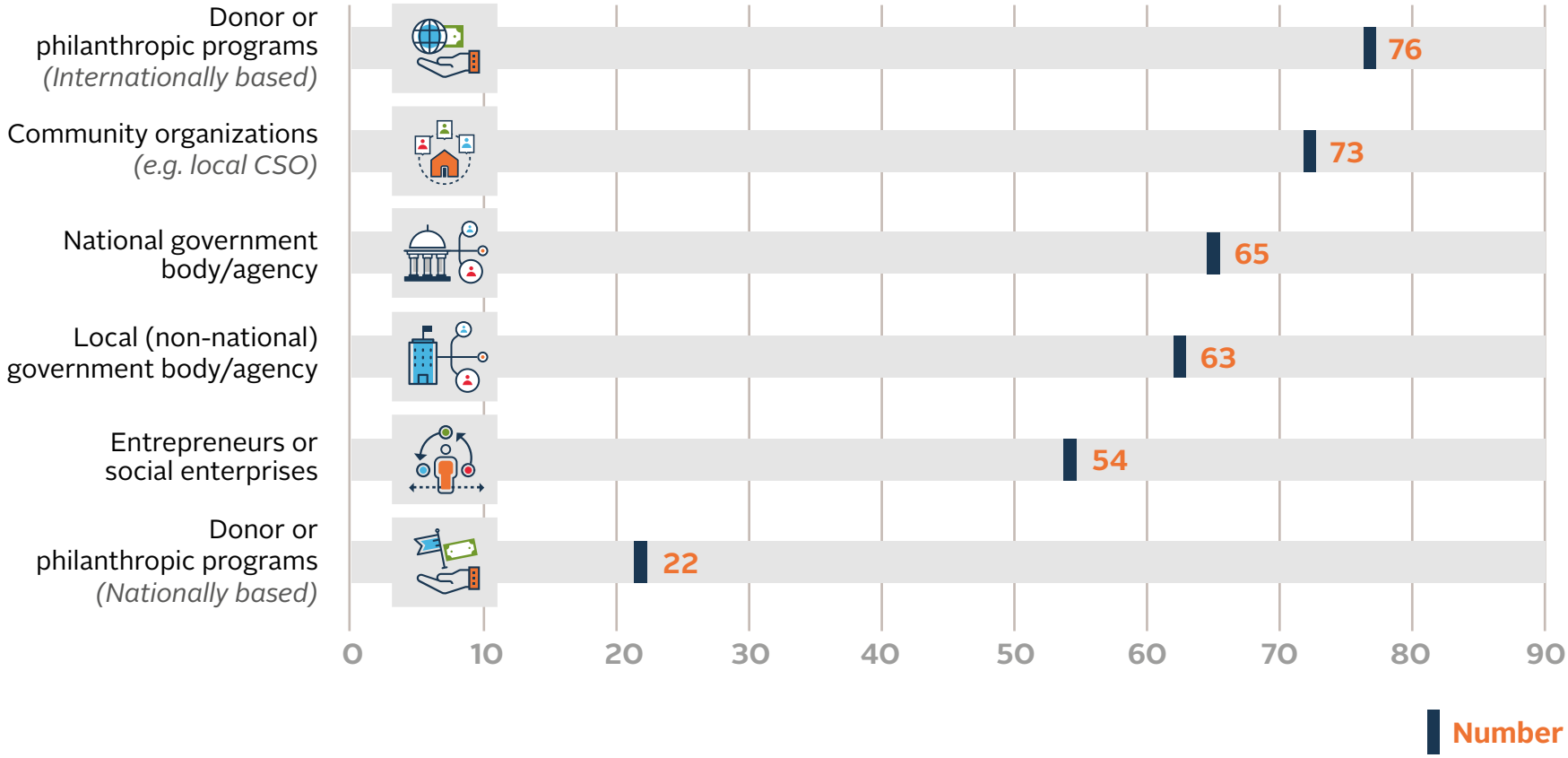
Does your technology have a pro-poor focus or seek to empower the poor?

Based on all entries, not just those from Asia-Pacific.



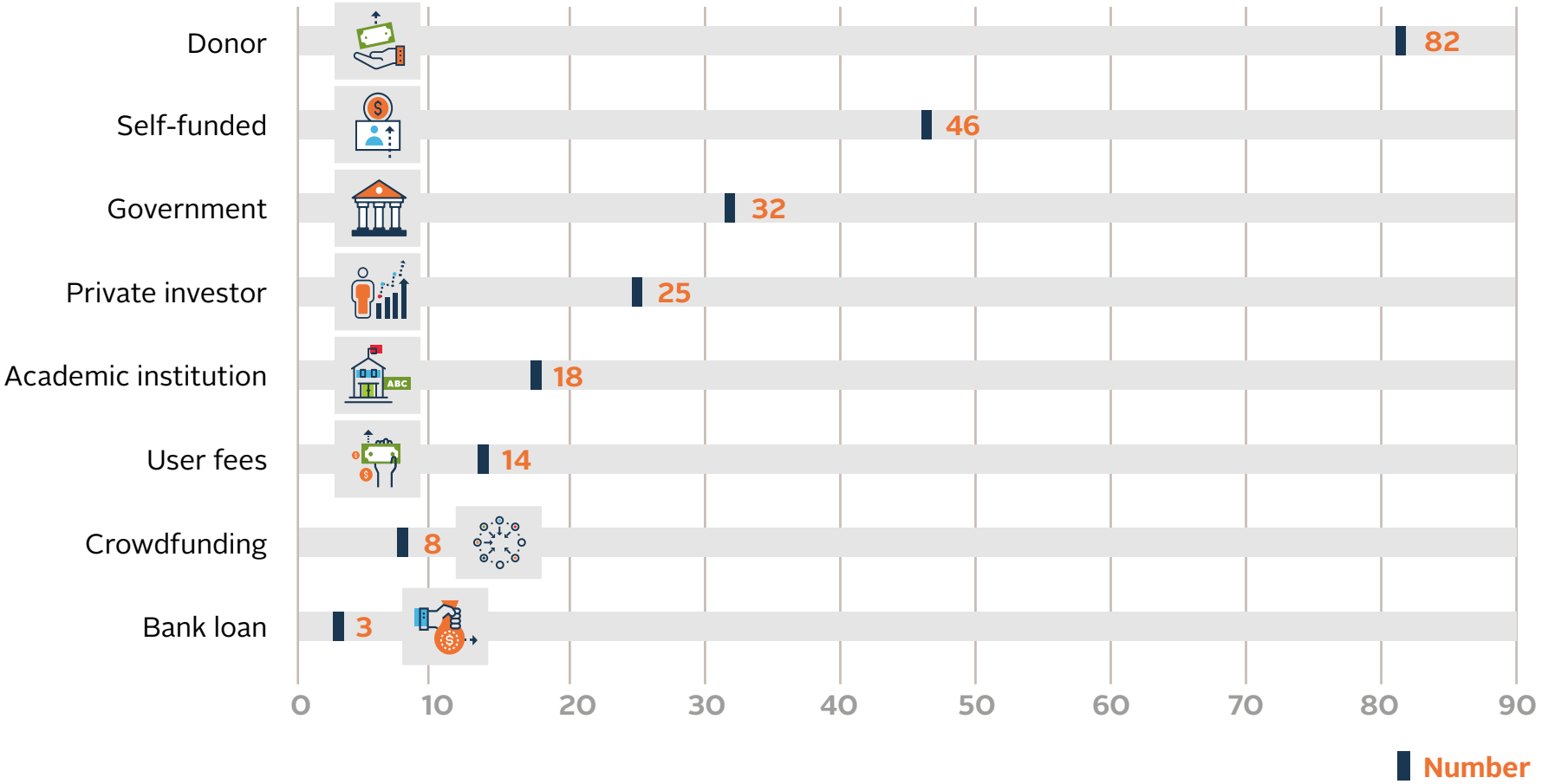
Which of the following were significantly involved in developing and deploying this digital technology?

Based on all entries, not just those from Asia-Pacific. More than one answer could be selected per submission.



How has the development and deployment of your digital technology been funded?

Based on all entries, not just those from Asia-Pacific. More than one answer could be selected per submission.



Digital Technologies for Resilience

Inventory

Inventory

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
510 - Data Initiative by Netherlands Red Cross **Name of your technology:** Community Risk Assessment & Prioritization Toolbox **Contact person:** Marc van den Homberg marcjchr@gmail.com **Website:** https://profiles.510.global	Philippines, Nepal, Malawi	Currently, the process of prioritizing areas for humanitarian interventions is time-consuming and subject to biases. Our solution merges two data innovations to make this process faster and more efficient. (1) The Community Risk Assessment tool collects risk indicators – on Vulnerability, Coping Capacity and Hazards Exposure – from the leading INFORM index subnationally and visualizes it in a dashboard. Specific indicators are determined per country based on a consultative process with key stakeholders and data providers as well as big data methods, such as OSM-based proxy indicators. The assessment is used for pre-disaster prioritization, but also forms an invaluable baseline set in the response phase. (2) The Priority Index model predicts post-typhoon priority areas, by applying machine learning to pre- and post-disaster (rainfall, wind speed) as well as historical typhoons. This results in prediction of priority areas within 12 hours of a typhoon, much faster than currently.	Our digital community risk assessment and priority index toolbox enables and facilitates data exchange on and analysis of risk indicators among key stakeholders active in development and humanitarian aid. Its deep subnational nature leads to a better situational awareness and understanding of communities that are at risk, which directly benefits both the communities and outside stakeholders, to align and target actions that strengthen resilience. (The key risk components of Vulnerability and Coping Capacity relate strongly to resilience.) Our focus on collecting data not only "on" but also "with" communities, leads to participatory decision making and digital inclusion of communities, making especially poor communities more risk aware and more likely to take effective risk reduction actions. Already we employ remote mapathons and field mapping to include community information. This will be further developed through academic thesis research on community inclusion in the next 6 months.	**Technologies used:** Machine learning, big data analytics, OpenStreetMap, PostGIS database, dashboard visualizations, Python-based scraping of government-websites **Level/scale:** Community **Systems supported:** Climate, Health, Livelihoods, Urban environments, We combine data into a generic risk indicator, which – depending on the context – can relates to all the above systems. **Primary focus:** Preparedness, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Unspecified. Include Red Cross National Societies, UN OCHA and Shelter Cluster.	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/agency **How it's funded:** Crowdfunding, Government, Self-funded

What, if any, impact has your digital technology had to date?

The (pre-disaster) Community Risk Assessment has not been used explicitly yet, although - for example during post-typhoon deployments to the Philippines - it has been extensively discussed and finetuned with future end-users at the Philippine Red Cross, Malawi Red Cross and other agencies. This resulted in Letters of Support from Red Cross Societies of The Philippines and Malawi, as well as the Netherlands, British, American, Canadian societies and the IFRC, UN OCHA, University College London and INFORM. The (post-disaster) Priority Index model has been used with two typhoons already. During Philippines typhoons Haima (Oct 2016) and Nina (Dec 2016), our team ran the model to estimate damage on municipal level within 12 hours of the respective typhoons. These results were shared with Philippine Red Cross, UN OCHA and the Shelter Cluster, which were very well received, since it gave them a geographic overview of damage and thus of priority areas, when none other info was yet available or would be for another week. See here and here for results that were shared for respectively Haima and Nina. See here and here for blog posts about the Haima case.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
ACDI/VOCA, Inc **Name of your technology:** Data Analytics **Contact person:** Scott Vickland svickland@acdivoca.org **Website:** www.acdivoca.org	Philippines, Kyrgyzstan, Ghana, Colombia and several others	We use smart cards and manual data collection tools to collect data on our program beneficiaries across a number of indicators. These vary by project, but we have a standard set of 12 we try to collect on every project for monitoring and evaluation purposes. We use data analytic techniques with R to do network analysis on correlations between various indicators and interventions we provide to see what predictive relationships might exist.	A better understanding of the raw data we collect on our beneficiaries - we have data on over 600,000 at the time of this writing - helps us to better design future interventions, as well as strengthen the predictive capacity of our monitoring and evaluation tools. In an early example, we can predict with good accuracy, all things being equal, the expected decrease in infant mortality if a mother attends a hand-washing clinic and is observed by a program agent afterwards washing hands in her home. We are expanding our analysis to understand challenges to proposed crop substitutions in various settings, for example, why maize farmers might resist changing to soybeans and what specific interventions have the highest likelihood of encouraging change. We find that in many of the settings where we work, climate changes are forcing the adoption of new crops or techniques or changing one type of livelihood out for another.	**Technologies used:** Smart cards and tablets to collect beneficiary information across our indicators and then perform data analysis with R to construct data network models. **Level/scale:** Individual, Family, Community **Systems supported:** Health, Livelihoods, Agriculture **Primary focus:** Recurring event response **Context:** Rural **Users:** Less than 50 at the moment	Yes	**Development and deployment:** National government body/agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) **How it's funded:** Donor, Government, Self-funded
What, if any, impact has your digital technology had to date?	Not specified					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
aWhere **Name of your technology:** Agriculture Intelligence Platform **Contact person:** Jacklyn Ward jacklynward@awhere.com **Website:** www.awhere.com	We have global coverage for the agricultural earth, which includes nearly all countries including south, southeast, and eastern Asia.	aWhere ingests millions of data points every day and processes that data to output our interpolated proprietary weather. We put this 'base' data to work by running it through our developed systems and models, as well as other data sets, to produce actionable information. We utilize an ecosystem of big data technologies (Hadoop, Spark, R, Python, PostgreSQL) to mine this derived weather information and augment it with other sets we acquire from partners. Our philosophy is to use academic studies as a jumping off point for our internal analyses, and then use big data tools to explore the data sets and refine our models. We constantly innovate in our domain by leveraging analytical techniques that were developed for other uses but can be applied to our work.	aWhere's platform provides users enhanced information to increase yields, drive farm efficiency, and improve the lives of small-holder farms on a global basis. Also, by having a better overall understanding of the weather impacting their fields, farmers can more efficiently manage water, fertilizer, and other inputs while still maximizing yield.	**Technologies used:** Big data analytics, satellite data, ground station data, doppler radar, Agriculture Intelligence Platform **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods **Primary focus:** Preparedness, Recurring event response **Context:** Rural **Users:** Estimated impact of 500,000 smallholder farmers as of EOY 2016. We also serve numerous companies and organizations around the world.	Yes	**Development and deployment:** Local (non-national) government body/ agency Entrepreneurs or social enterprises Academic institution **How it's funded:** Government, Private investors, Self-funded
What, if any, impact has your digital technology had to date?	In our Esoko project in Ghana, of the 20,000 mobile users, 91% received a text once a week, 89% found the information meaningful, and 90% agreed it gave them "positive changes in life." In our iShamba project in Kenya, of the 400,000 users, we only saw a 0.45% drop out rate. Farmers experienced a 50% yield increase and an 80% output increase. 63% said they made changes in their practice due to the information.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Bangladesh Institute of ICT in Development (BIID) **Name of your technology:** eKrishok **Contact person:** Shahid Uddin Akbar shahid.akbar@biid.org.bd **Website:** www.ekrishok.com	Bangladesh, Kenya	eKrishok is a mobile app, help desk and web based solution as a decision making tool for farmers as well as small businesses in agricultural sector. The application offers extension services, entrepreneurship and business planning solutions to make proper planning to run their farm and businesses smartly. Users can use the application by downloading, making a phone call or visiting the website. Till now BIID using an alternate business model to spread the service among the target groups which is more 'subsidy' based and in the process of 'commercialization' jointly with input companies and telecom operators. The principle of the business model will be 'Zero Cost Extension'. Private sector companies are getting engaged since the service facilitate business intelligence data on user behaviour and market trends.	The service enable clients to become more smart in managing their farm and business through integrating informed decision making process which will lead to increased income and reduce operational cost.	**Technologies used:** Mobile application, web solution and business data **Level/scale:** Individual, Family, Business, Government **Systems supported:** Livelihoods, Entrepreneurship **Primary focus:** Recurring event response **Context:** Urban (primary/capital cities), Rural **Users:** 135,000	Yes	**Development and deployment:** National government body/agency Entrepreneurs or social enterprises **How it's funded:** Crowdfunding, Private investors
What, if any, impact has your digital technology had to date?	All together more than 500,000 users have used the service and more than 50,000 beneficiaries have already been identified over the last 7 years.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Bangladesh Microtechnology Ltd **Name of your technology:** Microtechnology Mobile Banking **Contact person:** Nazmuzzaman nazmuz.zaman@bdmitech.com **Website** www.bdmitech.com	Bangladesh	Microtechnology has designed a Mobile Financial Services platform that provides secure Mobile Money Transfer solutions. This platform has been conceived to be integrated into existing mobile network and banking infrastructures, allowing mobile operators and financial institutions to offer a value added service through their existing infrastructure.	This Microtechnology Mobile Banking has been designed to serve the unbaked population in the rural area. The target audiences for this service is the people who are unprivileged and live under the poverty line. This solution can be deployed country wide using mobile technology. The rural people can avail the service at no cost.	**Technologies used:** USSD, Mobile Apps, QR Code **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Rural banking **Primary focus:** Catastrophic event response **Context:** Rural **Users:** 1,000,000	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency Entrepreneurs or social enterprises Bank **How it's funded:** Bank loan, Self-funded
What, if any, impact has your digital technology had to date?	Not specified					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
BBC Media Action **Name of your technology:** Kilkari **Contact person:** Victoria Hollertz Victoria.Hollertz@bbc.co.uk **Website:** Kilkari case study	India	In January 2016, the Government of India launched a nation-wide mobile health programme designed by BBC Media Action. The service, 'Kilkari', is designed to benefit nearly 10 million new and expecting mothers by providing audio based maternal and child health messages on a weekly basis.	Kilkari (a baby's gurgle in Hindi) helps new and expecting mothers make healthier choices and lead longer, healthier lives.	**Technologies used:** mobile phones and IVR **Level/scale:** Individual, Family **Systems supported:** Health **Primary focus:** Preparedness **Context:** Rural **Users:** 2 million subscribers	Yes	**Development and deployment:** National government body/agency Donor or philanthropic programs (Internationally based) Mobile Services Companies **How it's funded:** Donor, Government, User fees
What, if any, impact has your digital technology had to date?	Kilkari seeks to increase the capacity of pregnant women, new mothers and their families to adopt healthier behaviours, through increasing their knowledge, shifting attitudes and building selfefficacy. The objective is to improve family health – including family planning, reproductive, maternal, neonatal and child health, nutrition, sanitation and hygiene - by generating demand for healthy practices.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
BluPoint Ltd **Name of your technology:** BluPoint **Contact person:** Prof. Mike Santer mike@blupoint.org **Website:** www.blupoint.org	Jordan, UAE, India (in proposal stage), South Africa, Tanzania, Ghana, Nigeria, Zambia, Kenya, U.K.	BluPoint enables free, unlimited access to curated digital content in camps for displaced people. BluPoint Hubs are designed to deliver focused quality material and services by empowering the mobile devices people already own, even basic phones and FM radios. BluPoint is rapidly deployable and scalable. The hubs require no electricity or Internet and can provide entire communities with an intranet infrastructure at a moment's notice. Providing an on-demand "walled-garden" of multimedia content for all ages; BluPoint can deliver: school curriculum; healthcare education; entertainment; news; and any web based content. The walled-garden reduces issues of security and inappropriate content reaching people in need. Curated content is free at the point of use for all, even watching video is without cost. BluPoint works with any device via Wi-Fi, Bluetooth and FM Radio even in locations without Internet. The hubs are Solar-powered and portable, reaching inaccessible and off-grid communities.	BluPoint technology is designed to deliver digital content to off-grid and offline communities in the remotest environments. The hubs themselves are resilient, able to travel to any community regardless of the infrastructure in place there. Providing a pop-up solar-powered intranet service with content that the community need and want in their own language, free at the point of use. The BluPoint hubs require no existing technology to be in place to provide value, all people need is the devices they already own, even if this is as simple as an FM Radio. Deploying the hubs provides communities with up to 4 terabytes of digital content aimed specifically at building their resilience to the stresses and shocks in their environments. This curated content is remotely updatable so it can adapt with changing environments so people are always prepared and informed. The FM radio transmissions improve accessibility so the most vulnerable can access information regardless of their literacy level.	**Technologies used:** FM, Bluetooth, Wi-Fi, Self-repairing adhoc Mesh Network, Intranet, Solar low energy, Cellular communication, 3G, 4G, big data analysis, Mobile devices including Smart Phones, feature phones, dumb phones, tablets, laptops, Wireless Radio, TV Whitespace, IP65 (Rain and Dust Proof), Internet of Things, Sensors, Ethernet, Smart Broadcasts on FM Radio and Bluetooth, Interactive Bluetooth, Smart caching. **Level/scale:** Individual, Family, Community, Business, Government, Humanitarian Response (Camps for Refugee and displaced persons) **Systems supported:** Climate, Health, Livelihoods, Urban environments, Education **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 30,000	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency Donor or philanthropic programs (Internationally based) CSR of Global Organizations **How it's funded:** Academic institution, Government, Private investors, Self-funded, User fees

What, if any, impact has your digital technology had to date?

During a 3-month project in South Africa over 50,000 people in 16 locations, using whatever mobile device they could access, had free access to 7,804 lessons and 123,777 pages of content including Wikipedia for schools. Given the project costs this equates to just over 1p a day per potential user. This represents an amazing potential ROI compared to the price of a library, tablets, or Internet connectivity. The number of pages served during the 3-month pilot on Wi-Fi, Bluetooth and FM Radio was 14,244. The feedback from the deployment includes faster matriculation through grades by students, improved attendance of students and teachers, and self paced learning exciting students with video content delivered at faster than 4G speeds. Please see the links below from partnering companies and our own website blog.

https://careers.dixonscarphone.com/social-hub/connecting-across-the-globe-making-lives-better-with-blupoint
https://www.blupoint.org/change-lives-in-south-africa/
https://youtu.be/gxkhM321Z5k

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
BRAC **Name of your technology:** Remote Sensing and GIS for river bank erosion prediction **Contact person:** Md Jafar Iqbal jafar.iqbal@brac.net **Website:** http://www.brac.net/	Bangladesh	The technology involves a number of stages which begin with remote sensing analysis of high resolution satellite images for the identification of erosion risk area. Combined application of GIS with the result of remote sensing analysis leads the way to spatial presentation of risk area. Later the GPS survey and land use map analysis with ERDAS Imagine 14.0 (Remote sensing) and ArcGIS 10.3 (GIS analysis), spatial data of risk areas have been identified. The overlay analysis of risk area and social map resulted the risk map with vulnerable areas. Once the vulnerable sites are identified, a number of dissemination materials are prepared including base maps, posters and leaflets; the materials are then distributed among members of the community, community meetings are organized to spread awareness and inform the vulnerable community about the extent and possibility of erosion. Red and yellow flags are used to mark zones addressed in details on precise location according to the GPS point.	Dissemination of erosion prediction results have helped the community to develop their personal as well as community level preparedness to respond to the calamity. The posters/maps along with leaflets distributed among stakeholders in all levels increased awareness on erosion prone areas. Communities now have enhanced knowledge to avoid becoming victims of a disaster that once left them destitute overnight. According to the local community, the prediction results of erosion prone areas helped them to plan resettlement; they shifted their valuable belongings to a safe place and relocate their house before it was too late. One individual stated, "Thanks to this technology, we were informed that not to make the mistake of sowing jute in our field which fall under 70% threat of river bank erosion."	**Technologies used:** Remote sensing, Satellite image analysis and GIS. **Level/scale:** Individual, Family, Community **Systems supported:** Climate, Livelihoods **Primary focus:** Preparedness **Context:** Rural **Users:** 3,000	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/agency **How it's funded:** Donor

What, if any, impact has your digital technology had to date?	Yes, it increased the community level disaster preparedness for river bank erosion and allows them to save their houses and resources.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Cadasta Foundation **Name of your technology:** Cadasta Platform and Suite of Digital Tools **Contact person:** Kate Chapman kchapman@cadasta.org **Website:** www.Cadasta.org	Indonesia, Nigeria, India, Bangladesh, Kenya, Tanzania, Haiti, Nepal, Myanmar, Kosovo, USA	Cadasta Foundation harnesses cutting edge technology to expedite the documentation of land and resource rights to build stronger, more sustainable and resilient communities. Cadasta develops and promotes the use of simple digital tools and technology to help partners efficiently document, analyze, store, and share land and resource rights information. Our fit for purpose digital data collection forms allow partners to collect data quickly and easily using GPS-enabled smartphones and tablets in the field. No internet connection is needed to collect data. Once an internet connection is available, the smartphones and tablets can upload data onto our secure cloud-based platform. Our flexible platform can store, organize, and analyze many types of data including: GPS coordinates, footage from drones, digital maps, video interviews, photographs, paper records, tax receipts and other documentation -- creating an evidence base and advocacy case for vulnerable communities' claims to the land.	The Cadasta Platform is designed to document the relationship between people and the land and resources they rely on. The platform creates a digital record of land and resource rights that can help efforts to: • Plan and deploy government services and infrastructure where they are needed most • Inform, plan, and deliver urban resilience strategies for governments' most at-risk citizens • Identify potential conflicts over land and resources • Prepare for and recover from disasters • Certify sustainable farms and track sustainable farming production • Identify landless families • Incrementally establish evidence of rights – even in the absence of government support By creating an accessible digital record of land, housing and resource rights, we help empower individuals, organizations, communities, and governments with the information they need to make data-driven decisions and put vulnerable communities and their needs on the map.	**Technologies used:** Cadasta Platform, at its core, is built on top of a robust API (Application Program Interface, a set of routines, protocols, and tools for building software applications). This allows integration into existing tools such as GeoODK, QGIS and Field Papers. This same API allows the Cadasta platform to be extended for specific use cases and integrated with other existing software. By using a flexible API based approach, our tools can more easily fit into existing workflows. **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 15 partner organizations have uploaded records related to tens of thousands of families and communities.	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency, National government body/ agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Donor

What, if any, impact has your digital technology had to date?

Cadasta's suite of digital tools has been used by the non-profit Uttaran in Bangladesh to document the land rights of more than 13,000 families. The government followed up by issuing formal land records to all of these families and incorporating the data from this project into their official government digital land registry.

Cadasta's suite of digital tools has been used by the non-profit JEI, part of Slum/Shack dwellers International, to document land and resource rights across more than 30 communities across Lagos. The data collected allows the communities, home to more than 26,000 families, to build their case for rights to the land they reside on by documenting their use of the land and empowers communities to hold the government accountable if they are forcibly evicted.

In a pilot project in Andhra Pradesh, India the non-profit Landesa worked to update old government land records using Cadasta's digital tools and platform. This community-based approached proved more efficient and cheaper than the government's current process and will be expanded once funding is identified.

Cadasta's suite of digital tools is being used in Indonesia to document the rights of smallholder oil palm farmers who lack formal land tenure. Through the documentation of land use and rights local officials can issue localized land rights documentation and land use permits, which plays a key role in ensuring that palm oil is harvested sustainably, and can eventually lead to traceability of palm oil and compliance with Roundtable on Sustainable Palm Oil (RSPO) certification. Such a program is critical to boosting income for smallholders farming sustainably and protecting forests.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Catholic Relief Sevices **Name of your technology:** Participatory GIS **Contact person:** Ian Carlo Zuniga iancarlo.zuniga@crs.org **Website:** www.crs.org	Philippines	Participatory GIS (PGIS) is a community-based approach to mapping where residents use a mobile app to plot out their own neighborhoods. Using an easy-to-use, customized mobile application (ArcGIS Collector), they themselves can map key features within their areas like evacuation centers, water sources, location of social services or anything that they think would be important in times of disasters and emergencies. They can also add in valuable information about these key features like details on its usability, vulnerabilities, capacities, etc. Furthermore, they can map out inherent risks like where floods usually occur, previous incidents of fire, areas vulnerable to landslides, storm surges and the like. Through overlay and spatial analysis, we can then produce detailed risk assessment maps of their area. PGIS revolutionizes risk mapping from normally hand-drawn maps to high quality GIS maps. These digital maps are stored in the cloud preventing damage/loss during storms.	Mapping and planning for disasters and emergencies in communities in the Philippines frequently result in crude and incomplete maps/plans. Conventional methods employed are oftentimes arduous and inefficient. With the use of the mobile app and the methodology, communities would be able to easily and efficiently map out their areas of concern. The approach aims to build disaster resilient communities and empower local government officials and every household to be able to effectively plan and responsively reduce the risks of disasters and emergencies in their communities. In this way, residents would be aware about the hazards and what resources they can use within their areas. On the other hand, community officials would be better informed about the needs of their constituents. The resulting maps and data gathered were used to create various plans for disaster risk reduction and management which are rightly inclusive, resilient, sustainable, and reflective of the communities' needs.	**Technologies used:** Mobile App (ArcGIS Collector, iForm), ArcGIS, and QGIS **Level/scale:** Individual, Family, Community, Government **Systems supported:** Climate, Urban environments, Rural Environments **Primary focus:** Preparedness, Recurring event response **Context:** Peri-urban, Rural **Users:** We've only implemented the project in the community level, so our users are basically the community officials who we've partnered with and as of right now, we've supported 50 communities and around 250 users	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency Donor or philanthropic programs (Internationally based) **How it's funded:** Donor

What, if any, impact has your digital technology had to date?

One of the community heads where we implemented the PGIS project had said, "Our risk, hazard and vulnerability maps of the barangay were all beautiful with hand-drawn detail. But they were all destroyed during Typhoon Yolanda. The PGIS project will help us to have readily available maps wherein we can update them anytime. It will also help us for future infrastructure/risk assessment planning."

Gregorio Lantajo
Chairman of Barangay San Joaquin
Palo, Leyte, Philippines

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
CAWST **Name of your technology:** Household Water Treatment (HWT) Mobile App **Contact person:** Olivier Mills omills@cawst.org **Website:** www.hwts.info	The HWT App will be part of CAWST's platform of online services. This app is still under development but we (CAWST) have a network of over 3,000 organizations in 190 countries using our online and mobile tools. We have over 2,000 users from Asian countries.	The Household Water Treatment (HWT) App provides technical information on how to choose and use point of use low-cost drinking water treatment solutions. This is an offline first app allowing its use in areas with no internet connection. The information is based on the online platform: www.hwts.info If the device is connected the user can get immediate technical support from CAWST's technical advisors through the online chat system through the App allowing for immediate troubleshooting and decision making.	Household level water filtration allows people to continue to treat their water in the event of a shock or stress (i.e. if the water source changes or becomes contaminated due to a natural disaster or slower changes related to climate change). The HWT App provides technical information on life saving household water treatment technologies to educate individuals and organizations at all stages of the disaster-to-development continuum. The information provided is simple, accessible and practical; designed for users that are looking for answers to questions on point-of-use water treatment solutions, from technology options to implementation best practices. The HTW App's offline-first capability enables access to life-saving technical guidance even without internet access (which is more likely in the event of an emergency).	**Technologies used:** Mobile App **Level/scale:** Individual, Family, Community **Systems supported:** Health, Livelihoods **Primary focus:** Preparedness, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** CAWST has over 12,000 users using its online platforms and recently launched multiple mobile apps. Our existing user base is comprised of NGO, Government and local organizations, which is also the target audience for this app.	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency, National government body/ agency Donor or philanthropic programs (Internationally based) **How it's funded:** Donor, Self-funded
What, if any, impact has your digital technology had to date?	This app has not yet been deployed but will leverage CAWST's existing success with digital platforms: CAWST's online platforms, deployed in 2012, now reach 12,000 users in 190 countries. Our WASH Education tools, shared through these online platforms, have helped organizations educate and train over 3.3 million people in the last three years.					

Name of your organization/firm	Countries deployed in?	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Cloud to Street **Name of your technology:** Global Flood Risk Dashboard **Contact person:** Bessie Schwarz bessie@cloudtostreet.info **Website:** www.cloudtostreet.info	Our work is at a global scale, but we create local flood vulnerability assessments in cooperation with national governments and development agencies. In partnership with our client the World Bank, our technology is deployed in the Uttarakhand region of India and we are scoping out feasibility to launch in the coming year in Nepal. Outside of Asia, we are currently working in Senegal and Argentina and have performed flood risk assessment in the State of New York in the United States.	Cloud to Street leverages the power of newly available satellite data and pairs it with local demographic and other information to provide accurate, quickly updateable comprehensive flood vulnerability assessments. These assessments present a realistic picture of risk boundaries and overlay both physical inundation extents as well as social vulnerability factors to reveal those populations most at risk. The information is innovative in its global scope as well as in the fact that it is updated rapidly as new satellite information is available due to the flood detection algorithms. These vulnerability assessments are hosted on a web platform that allows for local decision makers and governments easy access for their use in planning. In addition, they are optimized to allow for crowdsourced flood data (sourced from a mobile application) to be integrated into the platform and update the risk profile information in near real time.	Cloud to Street's web platform, delivers dynamic and locally-relevant insights on flood risk to decision-makers on the ground. This decision support tool for can help governments, NGOs, and communities in developing countries enhance resilience by providing tools for disaster preparation and response. In Nepal, it will be used national and local governments, armed forces, and communities to support emergency management decisions. In Uttarakhand, district managers will use the platform to better position disaster response before floods hit. Cloud to Street's risk assessment approach is designed to be co-produced with vulnerable communities. By crowdsourcing (on and offline) flood observation and holding community focus groups, we involve local people throughout the process help improve the accuracy of assessment and lay the groundwork for more inclusive decision-making processes between relevant national and international stakeholder groups.	**Technologies used:** Global satellite imagery, social media and cloud-computing. Powered by Google Earth Engine. **Level/scale:** Community, Government **Systems supported:** Climate, Livelihoods **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Peri-urban, Rural **Users:** Number not specified. Include development bank, government, and NGO clients.	Yes	**Development and deployment:** National government body/ agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Government, User fees, Fellowships

What, if any, impact has your digital technology had to date?	Our tools have been instrumental for national and state pilot assessments for disaster planning. In partnership with the World Bank and local governments in India, we have identified 197,000 vulnerable people at extreme social and physical risk to flooding in Uttarakhand. In partnership with the Agence Française de Développement (AFD), Data-Pop Alliance, and Senegal's Agence nationale de la statistique et de la démographie (ANSD), we selected five priority watersheds in Senegal and identified 97,000 people at extreme social and physical risk to flooding. [http://librairie.afd.fr/en/nt25-va-vunerability-flooding-senegal/] We are working to create similar risk information for Nepal and Argentina in 2017.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Code Innovation LLC **Name of your technology:** Self Help Group App **Contact person:** Elie Calhoun elie@codeinnovation.com **Website:** www.codeinnovation.com	India, Ethiopia, Tanzania, Kenya	Since 2013, the Self Help Group app has been co-designed with partners and active SHGs to be a robust facilitator guide capable of supporting SHG needs, including professional development for group facilitators; six months of meeting content around empowerment and livelihoods designed to sharpen the financial and business literacy of groups; thematic learning modules focused on disaster resilience; monitoring capabilities that shed light on needs & priorities of SHGs; and social functions that enable knowledge sharing. The curriculum is sequenced to support facilitators from community mobilization to a detailed script for weekly meetings. The front-end is for SHG facilitators, while the back-end is for program coordinators who need aggregate group data. The app is created for use in no-bandwidth environments by SHG facilitators, while the data gathered is optimized for program decision-makers managing multiple SHGs across a geographic area.	Our partners continue to use the app in drought prone regions and gather data on the potential of the SHG app as a program for building resilience and helping to "graduate" people from humanitarian aid. Findings indicate that SHG members use the initial stages of their group formation to smooth consumption and cope with shocks and stresses. Savings are used to ensure access to cash for SHG members as they cope with a crisis. As their asset base grows over time, SHG members invest in small businesses, access health care, and send their children to school. As a result, the app offers a very high value for money intervention that delivers tangible results not only in terms of individuals being able to cope in the short term with shocks and stresses, therefore reducing the humanitarian aid burden, but also building long term and sustainable resilience with significant development outcomes.	**Technologies used:** Mobile app, E-learning, Digital financial services for the poor **Level/scale:** Individual, Family, Community, Business **Systems supported:** Climate, Health, Livelihoods, Financial literacy **Primary focus:** Preparedness, Recurring event response **Context:** Peri-urban, Rural **Users:** Approximately 8,000	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) International and national organization implementing partners **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	The overall outcome of the SHGs over time is that SHG member's resilience is improved. These gains were documented in the 2013 cost benefit analysis of the SHGs in Ethiopia, with quantitative data gathered on increases in income, higher school attendance, access to low interest loans, a nd fewer stress sales. Numerous qualitative benefits were also documented that are not included here. The findings demonstrate that investment in SHGs delivers between £58 and £173 for every £1 invested. These returns were documented in groups that had been meeting for between 4 and 10 years. So far, the groups created using the SHG app have been meeting for almost 3 years and we anticipate sharing evaluation data in early 2018.				

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
CVISNET Foundation, Incorporated **Name of your technology:** Movable and Deployable ICT Resource Unit (MDRU) **Contact person:** Jeffrey N. Llanto beam@ishare.com.ph **Website:** www.mdru.org	Philippines and Japan	The MDRU system has the ability to utilize standard WiFi signals to accommodate communication & information processing functions that can be rapidly transported or moved to any disaster zone areas. The unit can be deployed within a reasonable short time to establish the network and launch ICT services and can connect to the outside world via satellite connection. The highlights of the MDRU system is the use of ICT by utilizing smartphones as an ideal communication tool to interconnect the residents of the community. A Vehicle type and an Attache Case type are the MDRU models available for deployment. It is equipped with an array of communications equipment, servers, storage devices and battery. It can operate with a radius of 300 meters and can be extended to another MDRU facility located on another remote area. The system also has capabilities to handle data and multimedia file sharing with an Evacuation Management System.	The MDRU system allows local officials, resident and first responders in an affected area to communicate with each other and coordinate different activities during disaster. Utilizing smartphones and tablets the residents can can easily interconnect and coordinate with relief and evacuation group.	**Technologies used:** VOiP, Mobile application, Wireless communication equipment and application, Server based applications **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 50 core group and 150 pilot residents	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Donor

What, if any, impact has your digital technology had to date?	The MDRU equipment has been tested to different weather conditions in Japan and in the Philippines. The pilot project includes the equipment and facility which is currently implemented in the island of Cebu, Philippines. Activities such as social preparations, participatory training and disaster drills were conducted to the pilot areas. The MDRU project has been recognized internationally including the Information Society Innovation Fund - Asia in 2016 and was awarded by the SEED Alliance during the 2016 Internet Governance Forum in Mexico. Additional information can be obtained at: http://www.mdru.org/index.php/reports/itu-report http://www.isif.asia/Awards2016 http://discover.isif.asia/2016/12/seed-alliance-at-igf-mexico/

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Daastan **Name of your technology:** Qissa **Contact person:** Syed Ommer Amer ommer.a@daastan.com ommeramer@gmail.com **Website:** www.daastan.com www.MeraQissa.com www.Daastan.com/TheStoriesUntold/a-war-within/	Pakistan	Last year, we launched a signature event called 'The Stories Untold' which is a themed short story writing competition. Through it, we engage local community to talk about the challenges which they are facing. We improve the stories through our editors, market them and publish them on our selfpublishing platform called Qissa. The published stories are then tracked using technology and their impact is then quantified. We ran a successful prototype for Peacetech Lab few months back.	We ran a successful prototype for Peacetech Lab for their goal 'how to reduce conflict in society' in which we launched a competition and generated stories which were read by local community. We tracked them using technology.	**Technologies used:** We are using Azure Cloud Services, centOS, PHP/MySQL, Html5, Jquery and its extensions, Google Analytics, Cloudflare for security and SSL along with Vesta CP **Level/scale:** Individual, Family, Community **Systems supported:** We are content platform so we help reshape the opinions of a society. We fit more in 'educating masses' category which helps people understand what to do in case things go wrong through stories. **Primary focus:** Preparedness **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities) **Users:** 1,600 users registered on site who read our content	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency Entrepreneurs or social enterprises **How it's funded:** Self-funded, Micro grant from Peacetech Lab

What, if any, impact has your digital technology had to date?	By pushing more than a 1,500 people to reshape their mindset by reading the published content (38 stories) on our site and not only reaching out to almost 350,000 people during a period of two (02) months on social media but also engaging 40% of them (via likes, comments or shares). Overall we received around 100+ reviews on the books we published which proves that people did read those stories and it did changed the way they saw things. At one point where local Pakistani bloggers covered the activities and wrote reviews on their blogs about the stories which they loved the most. An Indian print news paper published a cover story about the impact of our work on their page 1 as a headline. The traction which we received overall proves that the event was a great success and needs to be carried out after regular intervals.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Development Gateway **Name of your technology:** Complex Emergencies Dashboard **Contact person:** Martha Staid mstaid@developmentgateway.org **Website:** www.developmentgateway.org	The dashboard hosts data for 11 countries in South and Southeast Asia: Bangladesh, Bhutan, Cambodia, India, Laos, Myanmar, Nepal, Pakistan, Thailand, Sri Lanka and Vietnam. It will be deployed for global access in summer 2017.	The Complex Emergencies Dashboard is a public, online geospatial mapping tool designed to visualize trends in disaster vulnerability, climate security, conflict, governance and disaster aid. The interactive tool displays datasets produced by the Complex Emergencies and Political Stability in Asia (CEPSA) program for 11 countries in South and Southeast Asia. The dashboard allows users - such as policymakers and researchers - to visualize where areas of insecurity overlap, in order to improve preparedness and inform the design of responses to complex emergencies. Users can examine how the distribution of security outcomes varies across different environmental hazards, disaster types, governance factors and economic conditions. Data is regularly updated, and can help local and national governments identify potential areas to invest in resilience at the community level. The map also displays external GIS data on topics including food security and migration.	The Complex Emergencies Dashboard aims to integrate data into policy planning and resilience-focused interventions in Asia. The dashboard provides governments and NGOs with interactive mapping tools to analyze complex emergencies and their contributing factors, including natural disasters, conflicts, and climate change. Dashboard users can seek "hotspots", where a confluence of factors makes an area particularly vulnerable to disaster or emergency; this can spur action and investment to improve preparedness and grow resilience where it's needed most. The tool may also help identify the inverse: resilient communities that researchers and governments can learn from, to replicate their success. The dashboard allows policymakers to quickly access reliable data to support evidence-based decision making around complex emergency prevention and response. Users can choose how to disaggregate and visualize relevant data, to gain insight into where and how local resilience should be enhanced.	**Technologies used:** Geospatial mapping, ArcGIS, indicator layers, data analytics and visualizations, React, Leaflet, D3, Postgres Postgis **Level/scale:** Community, Government, Academia **Systems supported:** Climate, Livelihoods **Primary focus:** Preparedness **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities) **Users:** The tool will be launched publicly in summer 2017	No ✕	**Development and deployment:** National government body/agency Research institutions **How it's funded:** Academic institution, Donor, Government

What, if any, impact has your digital technology had to date?	The Complex Emergencies Dashboard hosts data of interest to national and local governments in 11 Asian countries, and the US Department of Defense, which funded the project in order to advance national security policy. Dashboard data is relevant for researchers, policymakers and disaster response planning teams worldwide, particularly teams working on climate change, conflict resolution, resilience, natural disasters and aid.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Digital Naturalism **Name of your technology:** Hiking Hackathons and Mobile Laboratories **Contact person:** Andrew Quitmeyer cnmqaj@nus.edu.sg **Website:** www.digitalnaturalism.org	Singapore, hopefully soon to Indonesia and Malaysia. Previously Panama, USA, Philippines, and Madagascar	I develop and lead multidisciplinary workshops with field biologists, designers, and engineers to make scientific tools and interactive artwork in the jungle. To do this, we also create "Mobile Laboratories" consisting of special backpacks, clothes, and equipment to create and repair technology in the wild. This equipment and these expeditions were even spun on into a international Television show by Discovery Networks called "hacking the wild" (Airs in Asia May 28) in which you can see some of the mobile laboratory equipment we created. Other examples include the Philippines floating hackerspace developed with the fishing village community there.	They learn how to monitor their own environments, make better decisions about the value of their own land (especially in poorer rural communities) before potentially signing away rights to it. Helps maintain pride over natural areas by developing empathy through monitoring creatures.	**Technologies used:** Open source microcontrollers and platforms (Arduinos, multiple environmental sensors, wireless communication devices), mobile apps. **Level/scale:** Individual, Community, Business, Government, Educational / School systems **Systems supported:** Climate, Urban environments, ecosystems **Primary focus:** Preparedness, Recurring event response **Context:** Peri-urban, Rural **Users:** 35	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises Self funding, and education **How it's funded:** Academic institution, Crowdfunding, Donor, Government, Private investors, Self-funded, User fees
What, if any, impact has your digital technology had to date?	Spin off international television show, series of expeditions around the world, community based field laboratories around the world, and more still in development.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Echo Mobile **Name of your technology:** The Echo platform **Contact person:** Fabrice Romeo sales@echomobile.org **Website:** www.echomobile.org	Ecuador, Kenya, Malawi, Mexico, Myanmar, Pakistan, Tanzania, Uganda and Zambia	The Echo platform is a cloud-based mobile-enabled communication and management platform, operated and developed in Kenya by Echo Mobile. Through the Echo platform, organisations leverage on a variety of mobile channels such as SMS, USSD IVR and Android data collection apps, to enable cost-effective monitoring and communication with targeted populations. Through these real-time conversations, organisations are able to better understand their field operations, extend their reach, and give voice to the communities they serve. To access the Echo platform, users can use any computer with internet to log-in. The user then sets up custom communication messages using a simple point-and-click survey builder tool and pushes it to end-users via the mobile channels of choice (SMS, IVR, etc). As recipients engage and respond from their mobile phone, the data is synced back to the platform where it is aggregated and visualised as summary statistics. Data can also be exported for further analysis.	The Echo platform capitalises on the ubiquitous mobile phone to facilitate real-time information gathering and response. For instance, a dozen of organisations accross the globe, including in Asia, are using the Echo platform to mesaure their social impact on the population they serve and use the data collected to setup processes to further enhance the resilience of people at the base of the pyramid. Furthermore, the Echo platform helps organisations gather real-time reports from communities to coordinate emergency response. Governments and parastatal institutions, for example, have used the Echo platform for engaging with officials in remote areas of Malawi to report on extreme weather conditions before deploying response resources. Moreover, to further build community resilience before a disaster occurs, various organizations use the Echo platform to engage with communities listening to their concerns and equipping them with information tools.	**Technologies used:** The Echo platform integrates with 2G channels such as SMS, USSD and Interactive Voice Response (IVR) as well as 3G channels such as Android data collection apps. **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Rural **Users:** 2 million	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Entrepreneurs or social enterprises **How it's funded:** Self-funded, User fees

What, if any, impact has your digital technology had to date?	
	Impact measurement in Pakistan and Myanmar: Echo Mobile is working with two inclusive businesses in Asia to enable mobile data collection and analysis as part of UNDP's Business Call to Action Impact Measurement Service. In Myanmar, GE Healthcare is using Echo's platform to engage doctors and patients in rural hospitals and measure the impact of GE's award-winning VScan Access ultrasound technology. In Pakistan Naya Jeevan, a health insurance provider using Echo to engage low income beneficiaries of its incentive-based health plan that aligns corporate business operations with the work of lower income employees, distributors, or suppliers in their value chain. Enhancing coping mechanism to extreme weather conditions in Malawi: Echo Mobile is working with UNICEF Malawi on a mobile-enabled flood response reporting system for teachers in affected areas. Through SMS surveys, conditions on the ground are tracked in real-time on customized dashboards built on top of the Echo platform.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Faculty of Information Technology, Monash University **Name of your technology:** Smartphone app **Contact person:** Graeme Johanson graeme.johanson@monash.edu **Website:** Centre for Organisational and Social Informatics http://infotech.monash.edu/research/about/centres/cosi/	Indonesia	Development of a smart phone app to aid pre-natal health and good nutrition among poor rural women in Sulawesi, Indonesia. The app will contain health and nutrition information, and enable women to phone into a knowledge database (also on the worldwide web) where they can have questions about pre-natal care and nutrition answered. Data on the quality of care and nutrition will also be collected on the phones, and aggregated, for evaluation and future monitoring.	At the moment the mortality rate among pregnant women and their new-borns is very high, even by Indonesian standards. Stunting is common among malnourished children. Local agriculture does not provide a sufficient diet, and local women are not aware of this. The app will deal with these issues, with the assistance of local health workers in villages. Text literacy will not be required, because the app will translate into local spoken language. Health authorities will be able to track improvements (or not) in public health, and make better provision for the rural women.	**Technologies used:** Phone app **Level/scale:** Individual, Family, Community **Systems supported:** Health, Livelihoods, rural subsistence farms **Primary focus:** Preparedness, Recurring event response **Context:** Rural **Users:** About 1 million will benefit	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/agency Donor or philanthropic programs (Nationally based) **How it's funded:** Donor, Government
What, if any, impact has your digital technology had to date?		Still in development				

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Faculty of Information Technology, Monash University **Name of your technology:** Smartphone app **Contact person:** Graeme Johanson graeme.johanson@monash.edu **Website:** Centre for Organisational and Social Informatics http://infotech.monash.edu/research/about/centres/cosi/	Bangladesh	The app is being designed to provide useful information for 1 million Rohingya asylum seekers in Cox's Bazaar, to help them to survive, to find work, to keep in touch with dispersed family.	Rohingya asylum seekers have nothing -- no homeland, no shelter, no food, poor health, no education. They are 'on the hoof', trying to scrape together a basic existence.	**Technologies used:** Smartphone app **Level/scale:** Individual, Family, Community **Systems supported:** Health, Livelihoods **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Rural **Users:** App in development	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/agency Donor or philanthropic programs (Internationally based) **How it's funded:** No funds as yet. We are working with the International Organisation for Migration (IMO).
What, if any, impact has your digital technology had to date?		Still in development				

Name of your organization/ firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
FairAgora Asia **Name of your technology:** Verifik8 **Contact person:** Marc-Olivier Roux marco@fairagora.com **Website:** www.verifik8.com	Thailand, Indonesia, Philippines, Vietnam	Verifik8 data analytics software measures, monitors and verifies seafood producers' (particularly small scale) social and environmental performances to de-risk buyers' operations and improve transparency in the supply chain.	With better information management and farming practices, small scale producers can secure their market access, ensure a regular livelihood, prepare better for future shocks and stresses, recover more quickly when they need to launch a new crop or request support for equipment.	**Technologies used:** Data analytics software to measure, monitor and verify performances, connecting to any sensors, GPS or solution to improve reliable data acquisition **Level/scale:** Community, Business **Systems supported:** Livelihoods, Sustainable Agriculture **Primary focus:** Preparedness, Recurring event response **Context:** Rural **Users:** 100 aquaculture farms	Yes	**Development and deployment:** Community organizations (e.g. local CSO) National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Academic institution, Self-funded
What, if any, impact has your digital technology had to date?	Pilots demonstrated improvement in farm management which benefited to farmers & community livelihood.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Field Ready **Name of your technology:** 3D printing **Contact person:** Ben Britton ben.britton@fieldready.org **Website:** ww.fieldready.org	Nepal, Turkey, Jordan, Syria, Haiti, Kenya	We are embarking on an ambitious programme to develop a series of 3D printing kits that can be purchased and adopted by humanitarian organisations. The project will pioneer 3D printing kits to make essential medical devices needed by healthcare facilities, and a 3D printing water pipe-fitting kit for deployment in Refugee camps in Nepal. The project will draw on extensive experience in Nepal 3D Printing medical supplies after the devastating 2015 earthquakes. We partner with international and local partners to make tweezers, umbilical clamps, fetoscopes, otoscopes, forceps, braces, electrical parts, pipe-fittings and more. The project will distill what we have learned into a small, easy-to-use 'kit' that can be used by untrained personnel. Imagine: with coffee machines, you can make café-style coffee, without a café. Likewise, our medical device kit will make factory-style medical devices and pipe fittings wherever they are deployed, without a factory and its supply chains.	This project will create kits that mean that, for the first time, a medical practitioner will be able to make the medical implements they need in their clinic – on-demand without depending on supply chains vulnerable to disruption after disaster. It will also enable a rapid response to disaster or supply chain breaks and gaps, thereby boosting resilience of communities in which the kits are deployed. The immediate beneficiaries will be medical personnel and aid workers who will have the supplies they need to do their work – without needing to improvise or do without – to help people in need of medical attention, thus improving preventative and reactive health provision.	**Technologies used:** Deployable 3D printing, 3D digital design **Level/scale:** Community, Business, Government **Systems supported:** Health **Primary focus:** Recurring event response, Catastrophic event response **Context:** Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 2 international organizations piloting	Unsure	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency **How it's funded:** Donor, Government, Private investors
What, if any, impact has your digital technology had to date?	Kit development is in a prototyping stage - 3D printed medical products have been deployed to Haiti and Nepal in the wake of their earthquakes. The impact of these deployments was to shortcut supply chains that were creaking or broken and deliver lifesaving health supplies to communities most effected by those disasters.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
FieldSight **Name of your technology:** - **Contact person:** Justin Henceroth JustinH@unops.org **Website:** www.FieldSight.org	Nepal	FieldSight is a new technological platform that deploys mobile data collection technology across all stages of humanitarian and development projects to support quality assurance and to reduce risk. By both collecting data in digital formats and linking it across assessment, project implementation, and project monitoring, FieldSight provides critical field-level data for project staff and implementing organizations that allows them to better track progress throughout the life-cycle of a project, allowing them to identify issues and respond in real-time. At the same time, features in the platform that support communication, feedback, and the delivery of project materials, support two-way communication with field sites, enabling a more engaging and effective project implementation.	FieldSight contributes to higher quality construction and project implementation, reducing risk in communities and leading towards greater infrastructural resilience. At the same time, the data generated by the application supports better response and decision-making amongst users and governments, leading to more institutional resilience. Finally, the act of engaging local companies and communities in ensuring higher-quality, resilient project implementation builds their capacity to do so in the future, leading to greater community and individual resilience.	**Technologies used:** Mobile App, Web App, OpenDataKit, Kobo Toolbox, Digital Dashboard **Level/scale:** Individual, Family, Community, Business, Government, International Organization **Systems supported:** Climate, Livelihoods, Urban environments, Disaster Relief and Humanitarian **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Peri-urban, Rural **Users:** 10 Organizations, 200 unique users	Yes	**Development and deployment:** Local (non-national) government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Academic institution, Donor, International Organization

What, if any, impact has your digital technology had to date?	The product is in beta-testing mode now; however it has already been used to identify key quality errors and construction defects across the entire infrastructure portfolio of one INGO in Nepal, which will allow those mistakes to be corrected immediately; and it has been used to conduct a multi-hazard risk assessment the government is using to identify the most at-risk communities in the earthquake affected districts in order to target support for resettlement and relocation.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
FOCUSinfinity Foundation **Name of your technology:** Participatory videos to empower school children to become Green Citizens **Contact person:** Keerthiraj Siddapura keerthiraj2005@gmail.com **Website:** www.focusinfinity www.foundation.org www.greenbells.org	India	We are a non-profit organisation, working in partnership with primary schools to amplify their efforts to empower children to become Green citizens. We have adopted participatory methods in making videos on different environmental issues and resilience aligning with the EVS syllabus. Teachers' screen these videos to school children in align with their EVS module. Later the adoption of the taught sustainable practices are recorded as videos by children themselves and communicate their own stories creatively and upload to our video portal. These uploaded videos are assessed for recognition/award within the schools and inter-school to motivate children.	Present teaching methodology such as: • Text and activity based books • Fun/game based activities • Demonstration and practical classes at schools • Animated videos • Workshops and field visits, are more limited to classroom or school premises and importantly there is a lack of follow-up, motivation and parents involvement for the adoption of taught sustainable practices, failing to carryover the message for life. This indicates the need for an effective medium to make resilience more effective, more participatory and habitualizing it as a way of life. To address the above mentioned gaps in 2016 we started an initiative, working in partnership with primary schools to amplify their efforts empower children to become Green citizens. We have adopted participatory methods in making videos on different environmental issues involving teachers, children and parents.	**Technologies used:** Video production equipment: Digital camera/camera phone, editing software, video portal to upload and share videos, and analytics **Level/scale:** Individual, Family, Community **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** We are in a pilot phase (startup), at present we are working with 10- 15 schools in South India	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises Schools **How it's funded:** Donor, Self-funded, User fees, CSR

What, if any, impact has your digital technology had to date?	We have started our pilot very recently (around 6 months). As of now, around 100 students have adopted sustainable practices in their daily life by our approach.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
GFDRR Innovation Lab **Name of your technology:** Think Hazard! **Contact person:** Stuart Fraser sfraser@worldbank.org **Website:** www.thinkhazard.org	Global	ThinkHazard! is a simple tool that enables people to discover the level of hazard, for multiple hazards, in any location around the world. It is often difficult for development sector professionals to know where to find robust and accurate data on disaster and climate risks, and to interpret often highly technical outputs. It is also difficult for them to know whether they are looking at the correct risks for an area. ThinkHazard! provides users with a hazard level for 11 hazards, recommendations of how users can manage each hazard, and provides additional information relevant to the hazard and location. The tool draws on multiple scientific and engineering data sources to provide the level of hazard, and is designed to become increasingly comprehensive over time as users contribute new data and information. This open-source tool was developed in partnership with global experts and currently utilizes more than 80 scientific hazard datasets, compiled from around the world.	ThinkHazard! enhances resilience of development projects, by arming project managers, planners, and beneficiaries with information about multiple natural hazards that might affect their project location, and expert guidance on the key approaches to reducing risk from each of those hazards. By using this information in their planning and execution of the project, managers can reduce risk to the project over its lifetime, enhance the safety of staff and beneficiaries, and overall make the project more resilient to multiple risks.	**Technologies used:** open-source geospatial technologies (GeoNode), open-source code **Level/scale:** Community, Business, Government, International/ regional development organization/sector **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 14,000 (1,000 per month)	Yes	**Development and deployment:** Donor or philanthropic programs (Internationally based) **How it's funded:** Donor

What, if any, impact has your digital technology had to date?	Our technology has been viewed by over 14,000 users in 191 countries. It has stimulated research groups and commercial entities to contribute hazard data, growing the databank of underlying scientific knowledge of hazard levels. In some cases, these data are not otherwise shared anywhere else so we have opened up some data to the development community. ThinkHazard! has been used in World Bank project planning and by external organisation such as Aga Khan Foundation to establish base knowledge of what hazards exist in project locations. It has stimulated many positive responses in the DRM community with regards its data sharing capabilities.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
GFDRR Innovation Labs **Name of your technology:** GeoNode **Contact person:** Vivien Deparday vdeparday@worldbank.org **Website:** -	Sri Lanka, Nepal, Bangladesh Philippines, Malawi, Iraq, USA	GeoNode is a fully free and open source platform for sharing, mapping and managing geospatial data between organizations and to the general public. It permits users to attractively display available geospatial data, download these layers in a variety of formats, list useful metadata, set permissions for access and display the data on basic maps. Permissions and access between organizations can be managed in the GeoNode. Crucially, it is built in a way the facilitates customization to different contexts, allowing GeoNode maintainers to make the GeoNode that best fits their country, organization or use case.	Resilience data is often unavailable, difficult to access or in the wrong format. Even when people and institutions want to share they often lack technology to do so easily with a minimum of hassle. This makes using data for disaster preparedness difficult and for disaster response almost impossible. GeoNode greatly eases this task and automates a lot of the data sharing steps that now happen manually, if at all, and lets users focus on data quality and analysis instead.	**Technologies used:** Geospatial technology of all sorts, from all sources: from GPS devices and smartphones to UAVs and satellites **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** There are almost 500 GeoNodes in use around the world, serving tens or hundreds of thousands of technical users.	Unsure	**Development and deployment:** Local (non-national) government body/ agency National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Bank loan, Donor, Government

What, if any, impact has your digital technology had to date?	GeoNode started as a project to serve the international community after Haiti and has since been adopted by almost 500 organizations, governments and companies as the solution for their data hosting and sharing needs. It's no longer a project principally of our team but instead steered by a committee of key users contributing funds to various aspects of the increasingly sophisticated software. It's hard to calculate the impact of data sharing because by its nature it enables the activities of other, often anonymous users. These users rarely report back that GeoNode made their work possible. We collect statistics on data downloads and views but these are a poor substitute. GeoNode is the road beneath the feet of many data users: important, but largely unremarked on, except in its absence. Concrete examples of GeoNode's utility include: quickly sharing daily updates of vital crowdsourced GIS data to the international community during the West Africa Ebola Response; sharing base data between agencies during last year's Kelani River Basin floods in Sri Lanka; and facilitating data access to fundamental data layers during the response to Nepal's 2015 Earthquake.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
GFDRR Innovation Labs **Name of your technology:** Open Data for Resilience **Contact person:** Vivien Deparday vdeparday@worldbank.org **Website:** www.opendri.org	Sri Lanka, Vietnam, Bangladesh, Nepal	We employ OpenStreetMap, the editable wiki map of the world, to collect disaster resilience data used by governments and disaster managers. This makes sharing of project specific data automatic, preventing duplication of data collection effort in the long run and allowing government partners to reuse or build on the data for other work. We train partner organizations inside the government and out to reuse the data for their own use cases and involve them in the data collection itself. We use free and open source technology to accomplish all these tasks. The outcome is not just more efficient data sharing but a more open, collaborative approach to governance and engaged citizens.	After an Open Data for Resilience project, disaster managers, communities, companies and other resilience actors can use and improve important resilience data easily, with a minimum of hassle, using free and open source tools. We usually export regular updates of the resulting data into familiar formats via the GeoNode platform, exposing users unfamiliar with OpenStreetMap to the data in formats they know how to use.	**Technologies used:** Mobile apps, crowdsourcing platforms, remote sensing / UAV imagery **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Several hundred casual users, with a few dozen dedicated GIS power users at key government agencies.	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/agency Donor or philanthropic programs (Internationally based) **How it's funded:** Crowdfunding, Donor, Government
What, if any, impact has your digital technology had to date?	Our data collection has been used to model flood events in Sri Lanka and coordinate the response to actual flooding there and plan for cyclones and floods in Bangladesh. Most notably, our exhaustive mapping of Kathmandu in 2012-2013 proved invaluable to the coordination of humanitarian relief efforts within the city during the response to Nepal's 2015 Earthquake. Importantly, because our data is completely in the open, on a public platform, we forego the use of metrics or reporting tools. This means we don't capture the many small scale re-uses of the data by everyday users, local authorities, or others who have no clue that we are the origin of the data.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Good World Solutions **Name of your technology:** Laborlink **Contact person:** Christina Chao cchao@goodworldsolutions.org **Website:** http://goodworldsolutions.org/	China, India, Bangladesh, Vietnam, Cambodia, Turkey, UK, USA, Malaysia, Nepal, Peru, Brazil, Colombia, Sri Lanka, Mexico, El Salvador, Uganda, Brazil	Laborlink has deployed locally-appropriate mobile-based technology, especially Interactive Voice Response (IVR), to poll 1 million workers about their most urgent needs and working conditions. Translating worker voices into actionable analytics to enable socially responsible supply chains, Laborlink gives workers a free and anonymous channel to report on working conditions, opinions and needs in real time. Workers simply answer short, multiple-choice surveys with their touch-tone keypad and receive educational messages about their rights and local services, via SMS or voice recording. Surveys cover every aspect of working conditions and worker well-being. It also helps surface the voices of more marginalized workers, such as women and migrants. Laborlink's automated IVR technology works on basic feature phones and does not require literacy or any outside technology.	From our clothes to our phones, thousands of everyday consumer goods are products of factory labor in developing Asia.The ILO estimates that 20.9 million people endure forced labor, and 6,000 die daily of work-related accidents or diseases. Asian factory workers are often deprived of overtime pay, and most have little idea how their wages are calculated. This leaves millions in poverty and exacerbates vulnerability, as millions of Asian factory workers are young women with limited formal education, often the only formal wage earners in their families. And exploited factory workers are often invisible, with no means to communicate their needs to the outside world. Laborlink gives workers a platform to voice concerns, and can also deliver training or educational content, enabling two-way communication. Through a secure user interface, companies and NGOs access survey outcomes from across their supply chains to find actionable insights to make better business and sourcing decisions.	**Technologies used:** IVR/WeChat surveys, Data analytics and visualizations through Tableau, piloting wearables, piloting telepresence robots **Level/scale:** Individual, Community, Business **Systems supported:** Livelihoods, Urban environments, Worker voice **Primary focus:** Recurring event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities) **Users:** 1,000,000	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Private sector - brands, apparel, electronics CPG companies **How it's funded:** Donor, Government, User fees, Earned revenue from clients/brands

What, if any, impact has your digital technology had to date?	1,000,000+ workers reached to date, 480 factories surveyed, 3,500,000+ data points, and shared learnings

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Groundtruth, LLC **Name of your technology:** - **Contact person:** Ralph Lin ralph@groundtruthdata.com **Website:** www.groundtruthdata.com	India	We help smallholder farmers by gathering granular data on weather and agricultural conditions. These data capture microclimatic patterns often missed by satellite imagery and can be critical to smallholder farmers. Our data collection platform consists of 3 parts: 1. low-cost weather stations, 2. Interactive voice response (IVR) crowdsourcing platform to collect self-reported weather conditions from farmers, and 3. cloud-based analytics platform to combine data from our sensors and crowdsourced data together with satellite imagery to form a granular picture of weather and growing conditions.	Despite growing over 60% of the food consumed in the world, smallholder farmers are the most susceptible to climate change. Granular weather data can support financial instruments such as weather insurance and cross-validate global weather data sets/models. Weather insurance helps farmers better adjust to shocks caused by climate change. These data can also support early warning/disaster response systems such as FEWSNet.	**Technologies used:** low-cost internet-of-things (IoT) weather stations to be installed in farmers' fields (sensors), crowdsourcing (via IVR), cloud analytics **Level/scale:** Community, Business, Government **Systems supported:** Climate, Livelihoods, agriculture **Primary focus:** Preparedness, Catastrophic event response **Context:** Rural **Users:** None at this time. 1,000+ farmers by June 2017.	Yes	**Development and deployment:** Community organizations (e.g. local CSO Local (non-national) government body/agency Donor or philanthropic programs (Internationally based) **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	We are in the processing of deploying our first POC system this summer.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
HandsUp **Name of your technology:** HandsUp **Contact person:** Dan Jebamony dan@handsup.help **Website:** www.handsup.help	Nepal, Fiji, Sri Lanka	HandsUp connects communities affected by disasters with people & organisations that can help. We're different to other crisis maps, in that we are high-touch as opposed to just high-tech. We use technology to enable a team of volunteer coordinators and a network of local contacts to collect and manage help requests. How it works: needs data is rapidly and inexpensively crowdsourced by an extensive network of trusted requesters, working with an active backend of volunteer coordinators. Requests are dispatched to informal responders, allowing for information disintermediation. Distributed diaspora and the general public can contribute to crowdfunding efforts at a per-request level, donating to the efforts of reliable responders in regions they are concerned about. Aggregated request data will be pushed to formal responders to assist with their decision making.	We provide a lifeline for marginalised communities to request help in times of crisis, and we connect them with responder organisations. We enhance resilience of our audience by building relationships in pre-crisis time and also by working with the informal, as well as the formal, response community. Most crisis maps in developing countries are reactive - they are set up after the event, and rely on contacts from social media and readily available sources. As a result, they report the needs of more connected communities, furthering the gap for vulnerable groups. We engage members of communities pre-crisis, so that when a disaster occurs they are aware of and invested in our platform, and are therefore ready to request help via our coordination team and work together as a local focal point for responder organisations. By working with more agile informal responders, we increase the likelihood of remote & smaller communities being helped.	**Technologies used:** Web application (localisation, workflows, granular roles and access control, crowdfunding), mapping via Open Street Map, API-enabled data exports **Level/scale:** Community, Business, Formal responders - INGOs, military, etc **Systems supported:** Climate, Urban environments, Natural disasters **Primary focus:** Recurring event response, Catastrophic event response **Context:** Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 310	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Donor or philanthropic programs (Internationally based) **How it's funded:** Donor, Self-funded, World Vision grant via Nepal Innovation Lab
What, if any, impact has your digital technology had to date?	250 users, 150 reports, 48 connections made - see Fiji pilot numbers on slide 12					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Health Songs International **Name of your technology:** Video **Contact person:** Rob Greaney rob@healthsongs.org **Website:** www.healthsongs.org	Fiji and Laos	We have developed a new style of Disaster Risk Reduction film. This film provides teachers and students the skills required to ensure their safety and the safety of the people around them. They learn about the six standard operating procedures for Safe Building Evacuation; Safe Assembly; Evacuation to a Safe Haven; Shelter-in-Place; Lockdown; and Safe Family Reunification. Students and teachers also learn the safety rules for fire, earthquake, flood, storms, and lightning. What makes this film different is that we've effectively used animation to create a highly engaging set of lessons. At the end of each lesson are some action oriented activities to help reinforce the lesson's key messages and we have also included some of our own unforgettable songs on the key messages. This project was funded by the EU and produced by us (Health Songs) for Save the Children. It is now in 700 primary schools and 150 secondary schools in Fiji.	Because of the style of video, made for children and not for specifically for adults, full of colour and songs and really fun activities, the video experience grabs the children from the very start. It enthrals them to see a local character in a local setting (superimposed in the actual classroom) explaining about local hazards. Because of this emotional investment from the children, they are much more engaged and consequently they learn so much more and retain the information longer. The inclusion of songs helps carry the message back into the community as children play and sing.	**Technologies used:** Video, animation **Level/scale:** Individual, Family, Community **Systems supported:** Climate, Health, Livelihoods, Urban environments, Child protection, Food security, Shelter, DRR, Peace, Psychosocial **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Approximately 200,000 Fijian school children and their families	Yes	**Development and deployment:** National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises, Save the Children Health Songs International **How it's funded:** Donor, EU, Save the Children

What, if any, impact has your digital technology had to date?	The initial first run of 500 DVDs was increased to another 1,000 copies based on demand from other schools and families in Fiji. Monitoring and Evaluation is currently under way but the anecdotal evidence based on filed visits is that the film is a smash hit with both children and teachers. The Fijian MOE is absolutely thrilled with the entire project and there are plans to expand and build on this brand.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
HelpAge **Name of your technology:** Alert **Contact person:** Saffi Jones saffi.jones@helpage.org **Website:** www. alertpreparedness.org	The ALERT Project plans to pilot the software in 8 countries: Bangladesh, Democratic Republic of Congo, Haiti, Kenya, Mozambique, Pakistan, Philippines and Somalia	The ALERT Project aims to contribute toward an improvement in effective delivery of humanitarian assistance to disaster-affected communities. The outcome of the project will be to increase emergency preparedness capacity in 8 pilot countries and provide the humanitarian community with an information management system that facilitates an increased level of emergency preparedness and maintains their operational preparedness at a consistent and appropriate level. The system will be designed to be freely available and compatible with the wide range of humanitarian agencies irrespective of their size or mandate. ALERT is one of the key innovation projects under the START Network, and is funded by the UK Department for International Development (DFID) as part of its Disaster and Emergency Preparedness Programme (DEPP) Portfolio.	How prepared agencies are to respond to a disaster can often mean the difference between life and death for those affected. Improving preparedness means, when a disaster strikes agencies have the necessary resources for an immediate, effective, appropriate response and the individuals responsible know how to use those resources. ALERT is one of the key innovation projects under the START Network, and is funded by the UK Department for International Development (DFID) as part of its Disaster and Emergency Preparedness Programme (DEPP) Portfolio. ALERT will help meet key criteria set out in the World Humanitarian Summit including meeting principles laid out in the Charter 4 Change and localisation agenda.	**Technologies used:** Mobile app, Data **Level/scale:** Individual, Family, Community, Business **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/ tertiary cities), Peri-urban, Rural **Users:** 150 users (country offices) in the next year for trialing in 6 countries	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency Donor or philanthropic programs (Internationally based) **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	ALERT is not rolled out in country yet but at moment convening groups and putting preparedness on the agenda.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Humanitarian OpenStreetMap Team (HOT) **Name of your technology:** OpenStreetMap and OpenMapKit **Contact person:** Mr. Tyler Radford tyler.radford @hotosm.org **Website:** www.hotosm.org	In Asia: Indonesia, Sri Lanka, Bangladesh, Nepal, Philippines. Many other countries including Uganda, Tanzania in East Africa.	OpenStreetMap is the free, open, digital map of the world. Like wikipedia, anyone can contribute to the map and improve it. OpenMapKit is an Android-based application for easily creating surveys and contributing to OpenStreetMap.	Huge swathes of many of the most vulnerable places in the world do not exist on any map. This missing map data can have significant consequences, including being left out of urban and service delivery planning, and leading to less than optimal DRR/DRM decision making. Conversely, accurate, reliable and up-to-date maps can fill critical gaps for humanitarian response and long-term resilience (e.g. planning and carrying out Malaria reduction programming, MSF vaccination campaigns, improved urban planning). HOT's participatory mapping process involves those living in vulnerable places in contributing to the global OpenStreetMap project, with the goal of filling in gaps on the map. All data produced is openly and freely available to any NGO or community organization via openstreetmap.org. At the same time, young people, often living in some of the world's most vulnerable places, are taught the latest GIS skills and become aware of assets and vulnerabilities in their communities.	**Technologies used:** Web app, Mobile app **Level/scale:** Community, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Approximately 3 million; 30,000 focus on usage for disaster and humanitarian purposes	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/agency Donor or philanthropic programs (Internationally based) **How it's funded:** Donor, Government

What, if any, impact has your digital technology had to date?	To date, HOT and Missing Maps partners have put an area home to 30 million people on to the world map for the first time. Maps have been credited with helping stop the spread of Ebola, contributing to Malaria reduction, and enabling rapid response and recovery after the Haiti and Nepal earthquakes. Specifically in Asia (In addition to the 2015 Nepal earthquake), OpenStreetMap is becoming the primary data source for disaster risk management and building community resilience nationally. OpenStreetMap is being used to map the two largest cities in Indonesia (Jakarta and Surabaya).

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Hysteria Collective / Pekakota **Name of your technology:** Mobile Base Communication and Big Data Applications **Contact person:** Ahmad Khairudin mbuh.adin@gmail.com **Website:** www.Petasmg.com www.grobakhysteria.or.id www.pekakata.or.id	Indonesia	We develop an online mapping platform by using OpenStreetMap to identify public facilities & other physical forms in Semarang. Currently, online mapping that we have done cover the inner highway area with many specific details especially on Purwodinatan village. OpenStreetMap is used as the main layer that combined with Ushahidi to make a participatory report platform that cover some catagory issues for example, disaster and emergency, waste & polution, crime, public facility, urban planning & development, tidal wave, social community, etc. We hope this mapping platform could be accessed easily by the public so they could report base on the issue that we cover. This data hopefully could help the public in advocating process and in presenting their issue or potential in front of local goverment.	Reporting mechanism is created to raise awareness toward a site or particular area. By having the awareness, personal or community could be more perceptive toward issue that emerge in their area such as flood, tidal wave or other disaster. By reporting, they give an important data as part of advocating strategy. Without enough data, it will be difficult for them to present it to local goverment regarding the change of policy including the disaster issue itself. What make us different from other organizations is that beside using online application, we do the anthropology based work & also use art to trigger the public awareness toward their environment. The combination of offline & online method, technology and cultural work, the resilent could be achieved. Not only resilient upon disaster but also culture that will improve public advocation strength.	**Technologies used:** Mobiled-based communication and Big Data analytics **Level/scale:** Individual, Family, Community, Government **Systems supported:** Climate, Livelihoods, Urban environments, Culture **Primary focus:** Preparedness, Recurring event response **Context:** Urban (primary/capital cities), Urban (secondary/ tertiary cities) **Users:** It depends on the situation but approximately 10 - 25 users	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/agency, Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Self-funded

What, if any, impact has your digital technology had to date?	We combine the use of technology with our activity that could be seen at www.petasmg.com & www.pekakota.or.id that connect each other. Those two websites are filled with our offline activity in public that relate to disaster & social integration issue. We also connect it with art activity that could be seen here to help the public in understanding the values that we offer.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
IFFCO Kisan Sanchar Limited **Name of your technology:** Agriculture VAS Solutions **Contact person:** Sonakshi Pandey sonakshi145@gmail.com **Website:** www.iffcokisan.com	India	Every day, 4 free voice messages are delivered to the farmers. Each voice message is of 1 minute duration and covers diverse areas related to agriculture such as soil & crop management, animal husbandry, market rates, weather, health, government schemes, etc. Farmers can get a solution to their problems/ queries through helpline. Subscribers, who have missed a voice message or would like to listen to the messages again, can listen to messages again. Live 'phone-in' programs are organised where experts related to a pre-announced subject are available for more focused personalized advisory. Mobile based quizzes based on the content provided are organized. We promote special Communities with common interests to extend focused services. These communities receive highly customised information. A total of 55 communities are formed in association with like-minded partners. The country is divided into 108 zones to provide contextual information on the basis of agro-climatic conditions.	Our major focus on small & marginal farmers of India by improving their informed decision making ability through access to timely, latest, relevant & scientifically validated information. The small & marginal farmers of rural India, predominantly poor & illiterate, face a major challenge of overcoming their own poverty before they could produce enough to feed their fellow countrymen. Paucity of timely & relevant information is felt to be one of the major impediments in making informed decision making on subjects ranging from choice of crops to be sown to disposal of their produce. Improper choices & exploitation by middle men are some of the consequences which frequently manifest in debt traps & farmer suicides. Timely, up-to date and pertinent advisories are believed to help farmers to reduce cost through optimal utilization of inputs, increasing yield, improving quality, take informed decisions in other spheres of life impacting quality of his/her family.	**Technologies used:** Agriculture VAS, Agriculture Mobile Application **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Livelihoods, Agriculture, Veterinary **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Peri-urban, Rural **Users:** 3.87 million	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/agency **How it's funded:** It is a joint venture between 3 companies

What, if any, impact has your digital technology had to date?	
	The positive impact of IFFCO Kisan's communities is available for assessment through the following: More than 2,000 scientifically collected individual testimonials Positive impacts on communities such as goat rearing women of Theni (Tami Nadu) who have successfully cleared their bank loans ahead of time, improved their economic and social status Life-saving alerts to one lakh fishermen of Odisha during recent cyclones IFFCO Kisan also worked with BBC foundation to support their Health initiatives in Bihar. We hand hold and continuously guide the livelihoods of rural people and also employ people in rural areas.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Impact Terra **Name of your technology:** Golden Paddy (Shwe Thee Nhan) **Contact person:** Kay Valckx impact@impactterra.com **Website:** www.impactterra.com	Myanmar	Our mobile application Shwe Thee Nhan provides our users, whom are mostly farmers in Myanmar, with an easy-to-use visual interface and real-time, targeted content such as weather forecasts, input crop market prices, product information, farming best practices, news, risk announcements, and much more. Besides, as in Myanmar farmers see Facebook as the internet, we also have an active community on Facebook. Our Shwe Thee Nhan Facebook page has more than 150,000 farmers being interested and highly engaged in our posts, by sharing, liking and commenting. We see ourselves as an independent platform and succesfully partner up with local governmental agricultural bodies, local CSOs and NGOs, international NGOs, international and local knowledge institutes, agribusiness companies, money providers and other social enterprises.	Farmers have with our Golden Paddy (Shwe Thee Nhan) platform better access to information, finance and market. Besides, with our application, we can send alerts when risks and disasters occur.	**Technologies used:** Mobile app, Facebook **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Livelihoods **Primary focus:** Preparedness, Recurring event response **Context:** Rural **Users:** Couple of thousand on our mobile Android application, more than 150,000 on our Facebook page.	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Self-funded
What, if any, impact has your digital technology had to date?	Not specified					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Insite Solutions **Name of your technology:** - **Contact person:** Thomas Kraft thomaskraft@mac.com **Website:** www.insite-solution.com	USA, Costa Rica, Indonesia	End to end full interoperable digital data collection and traceability. Products function as complete processing system, fully replacing analog records.	Data allows for better understanding of fishery stock health, effort, overfishing. Supporting science based management of fisheries.	**Technologies used:** Smart phone, GPS trackers, touch screen computers, scanners, printers, servers, cloud **Level/scale:** Community, Business, Government **Systems supported:** Livelihoods, Urban environments, Seafood sustainability **Primary focus:** Preparedness **Context:** Rural **Users:** 6	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/ agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Self-funded
What, if any, impact has your digital technology had to date?	Vastly improved the data available for fishery scientists to better evaluate fishing effort and stock health.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
International Food Policy Research Institute (IFPRI) **Name of your technology:** Risk-contingent credit (RCC) **Contact person:** Liangzhi You l.you@cgiar.org **Website:** http://www.globalresiliencepartnership.org/teams/1ifpri-harnessing-power-tech/	Kenya, India, and South Asia, Africa	Under Global Resilience Partnership, IFPRI won a project titled "Satellite Technologies, Innovative and Smart Financing for Food Security (SATISFy)". SATISFy team is scheduled to implement a market-based, innovative insurance embedded credit solution in the form of Risk-Contingent Credit (RCC), a social safety net that could mitigate drought related production risk and can also provide access to credit for agriculture. RCC is an insurance-linked financial product which, when triggered, offsets loan payments due to the lender. The triggering event is defined around measurable covariate risks of a catastrophic nature such as price drop or drought that affect crop yields. The underlying risk is captured through the development of a satellite-derived drought index that integrates environmental key variables (e.g. rainfall, vegetation and soil moisture) based on state-of-the-art remote sensors.	RCC is an innovative financial instrument that not only reduces crop production risk faced by the farmers but it also provides access to credit to the farmers. Most lenders are reluctant to lend to farmers because of the financial risks associated with crop failure or radical decreases in market prices. Because RCC targets downside business risk, it simultaneously reduces financial risk and exposure. This risk balancing effect will not only encourage increased supply of and access to credit but also will encourage risk-rationed farmers to increase the use of credit. Thus, by increasing financial depth, financial breadth, access and usage, RCC is a highly inclusive financial product for enhancing farmers' resilience.	**Technologies used:** Sensors, mobile app, satellite images, and mobile payment (e.g.M-Pesa in Kenya) **Level/scale:** Family, Community **Systems supported:** Climate, Livelihoods **Primary focus:** Recurring event response, Catastrophic event response **Context:** Rural **Users:** Our pilot study has 1,000 households	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Private investors
What, if any, impact has your digital technology had to date?	It is still in a pilot stage.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Khushi Baby **Name of your technology:** Reachi **Contact person:** Ruchit Nagar team@khushibaby.org **Website:** www.khushibaby.org	India	Khushi Baby is a platform to track and motivate maternal and child health. It starts with a digital necklace that makes medical history wearable. This necklace functions as a decentralized health record for last mile populations who otherwise go uncounted. The record can be read/updated with a simple scan of an Android application by the community health worker, anywhere and at any time, without relying on internet connectivity. Data is eventually synced to a dashboard for district health officials to use to improve resource management and rural community engagement for life-essential services.	Under the lens of resilience, in so far as Khushi Baby's application, it is reducing the burden on children by ensuring immunization. A healthy family is more capable of withstanding shocks, and supporting others when disasters strike. Programmes to build resilience through health interventions focus on community and family nutrition and health care, as well as prevention and treatment of diseases and malnutrition. They also address reproductive and psychosocial health, and equitable access to health and nutrition services. Khushi Baby's software platform allows for accountable tracking of mothers and infant health to empower healthy and resilient communities.	**Technologies used:** Near Field Communication, Android mobile app, Web app (dashboard), GPS, biometric authentication, programmable voice calls, big data analytics **Level/scale:** Individual, Family, Community, Government **Systems supported:** Health **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Rural **Users:** 646 mothers, 184 children, 59 nurses in first month and half	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Academic institution, Crowdfunding, Donor, Grant Agencies

What, if any, impact has your digital technology had to date?

- 15,000 vaccinations tracked to date
- 5x improvement in retention of the infant's medical record compared to paper card alternative
- Decrease in data collection from 30 days to 2.5 days after implementation of the KB platform
- Significant generation of discussion and satisfaction among mothers attending immunization camps who received the necklace within the community
- 33,000 mothers and children will be tracked in rural Udaipur in the coming year
- http://www.khushibaby.org/KhushiBabyAnnualReport_2016.pdf
  http://www.khushibaby.org/images/featuredIn/RuchitNagar_KhushiBaby_Thesis.pdf

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
LinkAiders **Name of your technology:** Reachi **Contact person:** Pernille Skjødt pernille@linkaiders.com **Website:** www.linkaiders.com	The Reachi system is still under development and targets disaster prone countries, focusing on South and South-East Asia. The Reachi system is being developed in cooperation with the Danish Red Cross (DRC) and will be pilot tested in the Philippines with the Philippine Red Cross (PRC) during 2017/2018. The Philippines will be the first country of deployment and the beach head market to Asia. Next county is planned to be either Bangladesh or Nepal, which will be decided during 2017.	Immediately following a devastating disaster, affected areas have no access to mobile coverage or power. Information cannot reach relief coordinators, who must act blindly, based on contingencies. There is a need for a resilient information management system, efficiently providing overview of the disaster impact within the first critical 72 hours, where lives can be saved. The Reachi system will create overview of the impact of disasters 20 times faster than possible today. The solution consists of disaster-proof communication devices that send data from device to device until it reaches its destination, thereby connecting first responders and relief coordinators. The data is based on predefined questionnaires and easy to analyse and visualise. The Reachi system is the first to combine resilient network technology with robust hardware at an accessible cost. It will be sold to humanitarian organizations in disaster-prone countries, utilizing their existing capacity of volunteers.	Reachi targets individual volunteers and their communities as well as the wider humanitarian community. The Reachi devices are designed for local volunteers, allowing them to report the urgent needs in their local community in the immediate aftermath of a disaster, even when communication networks have been ravaged. The Reachi system further allows relief coordinators to inform the volunteers and ask them to take specific action. Knowing when/if relief is coming and how to help is an important aspect when building resilience. By having valid information on the extent of damages and needs of the affected populations, early information can improve the planning and prioritization of a disaster relief operation during its onset for a more effective response, thereby helping save lives. The Reachi system is equally important to humanitarian action to ensure the affected communities are promoted to the centre of humanitarian action as engaged participants and not merely as recipients of aid.	**Technologies used:** Wireless Mesh Network technology designed for large-scale and mobile deployment, Satellite technology (uplink), Data analytics and visualisation, User Experience design. **Level/scale:** Individual, Community, Government, Humanitarian organisations and the UN cluster system. **Systems supported:** Health, Livelihoods, Urban environments, Disaster response **Primary focus:** Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/ tertiary cities), Peri-urban **Users:** O	No	**Development and deployment:** Community organizations (e.g. local CSO) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Government, Private investors, Self-funded
What, if any, impact has your digital technology had to date?	Implementation is planned for 2018.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
LIRNEasia **Name of your technology:** CROP Advisor: A mobile based technology **Contact person:** Dr. Chatura Rodrigo chatura@lirneasia.net **Website:** www.lirneasia.net	Sri Lanka	The CROP Advisor is focused on vegetable growing farmers who are in the export value chai. These are produce that goes to the EU market. They need to comply with the Good Agricultural Practices (GAP) guidelines. The CROP Advisor allows farmers to learn about the GAP guidelines and comply with them. It also facilitates them to connect with the agriculture advisory services on diseases using MMS and voice massages. It also facilitate direct calls thorough the App.	In the normal scenario the farmer has to wait till the extension officer comes to the field to get guidelines on the GAP systems and especially to get advices on diseases. Sometimes there are disease that spread at endemic level and need quick advices. The APP allows the farmer to get connected real time with the advisory services through MMS, Voice massages, Skype and Vibre.	**Technologies used:** Mobile App **Level/scale:** Individual, Community, Business **Systems supported:** Climate, Health, Livelihoods **Primary focus:** Recurring event response, Catastrophic event response **Context:** Peri-urban, Rural **Users:** 140	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/ agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	The baseline survey is just completed, The next step is to implement the quasi-experiment. Final results of the adoption and the significance of the APP will be available by September 2017. The APP is already fully developed..					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
LIRNEasia **Name of your technology:** m-Health Real-Time Biosurveillance Program **Contact person:** Nuwan Waidyanatha nuwan@lirneasia.net **Website:** http://lirneasia.net/projects/2008-2010/evaluating-a-real-time-biosurveillance-program/	India, Sri Lanka	First of its kind to field-test an integrated end-to-end operational system using mobile phones and intelligent statistical analysis software in the area of real-time disease surveillance. It sought to detect outbreaks in near-real-time, but also to notify early warnings at the health centers and healthcare workers. The data collection leg of the system involved government healthcare workers digitizing the inpatient and outpatient data and then using advanced detection algorithms such as Spatial-Temporal Scanning, Bayesian Modeling and Multi-Stream Real-Time Monitoring to detect public health events of interest. SMS, Email, and the Web was used to share the events of public health interest to keep healthcare workers aware of the situation.	Being aware of the public health situation allows for healthcare workers and the public to better prepared and prevent the spread of diseases. Sick people are unproductive. Moreover, sick people depletes family savings that are necessary to recover from shocks. Policy-makers can make use of the rich categorical data for generating empirical evidence to decide on and improve services for targeted populations to improve their quality of live expectancy.	**Technologies used:** mobile app, predictive analysis, **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Health, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** none	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency, National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Academic institution, Donor, Government

What, if any, impact has your digital technology had to date?

Over a period of 15 months, more than 130,000 individual patient records were collected in India and more than 330,000 in Sri Lanka. The m-Health ICT system identified over a dozen instances of potential disease outbreaks with the local health authorities confirming most of them. The project dramatically reduced time taken for outbreak detection and alerting, from the current period of two-to-three weeks down to a single day. Importantly, the project also demonstrated how low-cost mobile phones and existing commercial cellular infrastructure and services could be utilized to enable primary health centers to report patient information even as they record them.

The T Cube Web Interface (data analysis and visualization tool) was found to be useful for supporting long-term planning and the allocation of health resources, as well as regional and national health planning. It was found to be helpful in tracking chronic and lifestyle diseases, such as geographic pockets of respiratory infections. The project showed a 40% reduction in Government Public Health expenditure and an incremental effectiveness ratio of monitoring and reporting all disease (communicable and non-communicable) opposed to reporting 20 infectious diseases.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Loughborough University **Name of your technology:** Community Slope SAFE **Contact person:** Professor Neil Dixon n.dixon@lboro.ac.uk **Website:** www.slopealarms.com	Trials will commence in Malaysia from April 2017 and Myanmar from summer 2017	Research at Loughborough University has resulted in development of Community Slope SAFE, a novel sensor for detecting the onset of slope movements hence providing an early warning of landslides. The sensor listens to the 'noise' generated by the landslide as the ground starts to move and if this 'noise' exceeds a pre-determined threshold a warning is sent wirelessly to a base station housed in the community. This triggers a siren and strobe light to warn the community of the landslide so that they can activate an agreed response (e.g. evacuate the area). This community operated system has been designed to be very low cost compared to traditional monitoring approaches and simple to use. The aim is to provide protection and save lives in low and middle income countries. Currently, landslide prone areas in these countries are not monitored due to the high cost and globally many thousands of people are killed annually. This new technology could make a profound difference.	A primary cause of landslides in Asia is intensive rainfall events. Population growth and changes in land use are resulting in more communities living in areas susceptible to landslides. If an early warning of an imminent failure can be provided to the community this will allow evacuation resulting in reduced loss of life. Such systems are common in high income countries using established technologies. However, in low and middle income countries these systems are not used due to prohibitively high costs. Community Slope SAFE provides a first opportunity for vulnerable communities to benefit from robust landslide early warning. Advanced warning of a potential landslide can also allow action to stabilise the slope and to protect or divert critical infrastructure (e.g. roads and pipelines) thus enhancing resilience and quality of life.	**Technologies used:** Sensors with wireless connectivity **Level/scale:** Individual, Family, Community, Business **Systems supported:** Health, Livelihoods, Urban environments, Critical infrastructure (e.g. transport links, water supply) **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Peri-urban, Rural **Users:** A few tens involved in trials	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Donor or philanthropic programs (Internationally based) **How it's funded:** Academic institution
What, if any, impact has your digital technology had to date?	It is early days as the first trial will start in April.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Mastercard **Name of your technology:** Mastercard Send **Contact person:** Przemek Praszczalek przemek.praszczalek@mastercard.com **Website:** www.mastercard.com	The solution uniquely enables humanitarian organizations with a global payment solution for Cash Transfer Programming (CTP) – a solution that enables rapid response to urgent needs anywhere in the world via electronic cash disbursement. The solution was deployed in the U.S. for use in Indonesia.	Mastercard Send technology facilitates the disbursement of funds to a variety of account types – payment cards, mobile money, bank accounts, and cash-out agents – from anywhere in the world, enabling organizations to more efficiently distribute funds in local markets. The technology brings with it the capacity to transform the future of humanitarian cash programming. In 2016, Mastercard and the American Red Cross joined forces to pilot Mastercard Send (in a first trial in the humanitarian sector) to distribute funds digitally to families in Indonesia via their mobile phones for the purchase of water and other items during the drought season. It targeted vulnerable populations with messaging to encourage the purchasing of water and other critical items to meet daily needs. Over 700 households in the Bekasi region successfully received electronic cash grants via the pilot program.	For many Indonesians, water sources are distant, contaminated or expensive. Mastercard and the American Red Cross worked together to alleviate this problem by distributing funds to families in Indonesia via their mobile phones for the purchase of water and other items during the drought season. Families in Indonesia have used their aid money to purchase clean drinking water, groceries, hygiene supplies, and even help pay for their children's education. Digital and mobile delivery of funds gave beneficiaries a safe and convenient way to access aid via a phone many of them already owned. Receiving digital funds also gave them the control and flexibility to spend their aid money on what they needed most.	**Technologies used:** Mastercard Send, a digital payments platform **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Health, Livelihoods **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Over 700 households in the Bekasi region successfully received electronic cash grants via the pilot program.	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) **How it's funded:** Self-funded
What, if any, impact has your digital technology had to date?	http://newsroom.mastercard.com/2016/08/19/innovating-for-humanity-mobile-technology-brings-relief-to-indonesians-in-midst-of-drought/					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Medic Mobile **Name of your technology:** mHealth **Contact person:** Jay Evans jay@medicmobile.org **Website:** www.medicmobile.org	Nepal, India, Indonesia, Bangladesh	Medic Mobile is a software toolkit that combines smart messaging, decision support, easy data gathering and management, and health system analytics. Our tools are free, open-source, and designed alongside people delivering care in the hardest-to-reach communities. Our mobile app and other tools support evidence-backed workflows, helping to ensure safe deliveries, track outbreaks faster, treat illnesses, keep stock of essential medicines, communicate about emergencies, and more.	Medic Mobile's tools/approach build resilience in 3 ways in addition to the tools being open source and free of any user charges: 1) Community ownership. Local communities in Nepal support our tool set along with the FCHVs that use it via local funds. The local community pays for the continuing cost. So, if there is ever a MoH shortfall or interruption in funding the program keeps running and being used for routine and outbreak surveillance by CHWs. 2) District level health offices use the dashboards weekly to monitor activity. Each DHO manages the dashboard views and impact indicators as part of their routine activities. These can be adjusted post disaster to monitor outbreak/emergencies. 3) At the central level, the MoH is up-taking training on the platform into their routine training for CHWs. This would allow almost any health worker in Nepal to report pre/post disaster.	**Technologies used:** SMS forms, SIM app, mobile app, web app. **Level/scale:** Individual, Community, Government, Community Health Worker **Systems supported:** Health **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/ tertiary cities), Peri-urban, Rural **Users:** 14,000	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/ agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Academic institution, Crowdfunding, Donor, Government
What, if any, impact has your digital technology had to date?	Not specified					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Mercy Corps **Name of your technology:** SMS Weather Messaging System **Contact person:** Arzu Culhaci aculhaci@id.mercycorps.org **Website:** http://mercycorps.org	Mongolia	Herders in Mongolia have traditionally depended on generalized, and sometimes inaccurate weather information from TV and radio to prepare their herds for extreme weather conditions such as snow, dust storm and heavy rain. To provide more accurate and timely weather information, Mercy Corps has developed a mobile messaging system that provides sub-district level weather and forage information directly to herders' mobile phones. The SMS system delivers on-demand weather and pasture forage updates in response to text prompts from users.	By using SMS weather message information households can plan ahead of extreme weather events. Especially herders are now able to better plan for activities such as camp and herd migration, shearing their sheep, and cutting hay based on changing weather conditions, thereby protecting their livestock.	**Technologies used:** SMS Weather Messaging System **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Livelihoods, Pasture Forage **Primary focus:** Preparedness **Context:** Rural **Users:** 5,400 people	No	**Development and deployment:** Local (non-national) government body/agency National government body/agency **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	According to an assessment conducted by Mercy Corps, more than 90% of the respondents had experienced positive changes as result of using the SMS weather forecast information, while 9% were able to make savings. Even though herders were the main target of this technology, it quickly had a multiplier effect. Over time, a wide range of actors from various sectors started using the SMS system to plan ahead of time. For example, district (soum) doctors now use the information for better planning purposes before they travel to rural areas for emergency service provision.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Mercy Corps **Name of your technology:** Sumbawa Loan Product **Contact person:** Arzu Culhaci aculhaci@id.mercycorps.org **Website:** http://mercycorps.org	Indonesia	Mercy Corps Indonesia partnered with Syngenta, Bank Andara, ACA, a rural bank, and 8Villages to develop a loan product for smallholder farmers. The loan provides capital to farmers for agriculture inputs and when the farmers sell their maize to the local buyer, the loan is paid back with the remaining balance for the smallholder farmer. The loan is applied for and payments are tracked via Andara Link, a mobile platform, and farmers receive agriculture messages from 8Villages. The loan is insured against loss by a weather index-base provided by ACA.	The Sumbawa loan product that can be accessed by smallholder farmers has shown to increase yields and income enabling farmers to save money and better for and respond to shocks and stresses. The product is also insured against extreme drought and cyclones, allowing farmers to recover the cost of inputs.	**Technologies used:** Mobile app **Level/scale:** Individual **Systems supported:** Livelihoods **Primary focus:** Recurring event response **Context:** Rural **Users:** In this loan cycle there are 1150 farmers. Bank Andara, Mercy Corps and the other partners are looking to expand the product to additional rural banks in the next loan cycle.	Yes	**Development and deployment:** Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Self-funded
What, if any, impact has your digital technology had to date?		Supporting documentation available upon request.				

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Mercy Corps **Name of your technology:** Mobile Data Collection and LISA Application **Contact person:** Arzu Culhaci aculhaci@id.mercycorps.org **Website:** http://mercycorps.org	Indonesia	Mercy Corps is partnering with Bank Andara, Syngenta Indonesia, BPR Pesisir Akbar, ACA Insurance and 8villages to provide access to bundled advisory and financial services through affordable, unified platforms and mobile phone channels for corn farmers in Sumbawa Island. Through the Agri-Fin Mobile Program, Mercy Corps and its partners are using a mobile data collection application that provides them with a better understanding of farmer profiles, while helping monitor crop conditions, validate the field condition for insurance claims as a result to drought or cyclones, and monitor agricultural input distribution through digital vouchers. 8villages' LISA product is a mobile platform that empowers local smallholder farmers to receive agricultural tips and submit their problems to experts. It also allows farmers to report data on farming, harvest and post-harvest activities using SMS.	The provision of bundled advisory and financial services through these applications has supported farmers to bounce back after a drought or cyclone disaster, both of which are covered by the crop micro-insurance policy. Farmers can directly report any claim by simply texting the message to a dedicated number. The loan product coupled with these applications has shown to increase yields and income enabling farmers to save money and better prepare for and respond to shocks and stresses. The information collected through these two applications also helps financial institutions better understand the risk profile of farmers while integrating local financial services, market information and agricultural tips into a single, comprehensive mobile phone-based package.	**Technologies used:** Mobile Application **Level/scale:** Individual, Family, Business **Systems supported:** Livelihoods **Primary focus:** Recurring event response, Catastrophic event response **Context:** Rural **Users:** 805 people	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Financial institutions Entrepreneurs or social enterprises **How it's funded:** Donor, Private investors, Self-funded, User fees, Private companies
What, if any, impact has your digital technology had to date?	The mobile data collection application and LISA application have been applied during the third planting season (November 2016 – February 2017), and therefore impact data is not available yet. However, Mercy Corps is planning to conduct and impact assessment in close collaboration with research institutes in 2017.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Mercy Corps **Name of your technology:** Digital Survey System **Contact person:** Arzu Culhaci aculhaci@ id.mercycorps.org **Website:** http://mercycorps.org	Nepal	Through its Managing Risk through Economic Development (MRED) program, Mercy Corps uses a "Nexus" approach that focuses on the cultivation of crops or plant species that both extend community disaster mitigation measures and augment household income. In Nepal, we cultivate sugarcane to reduce siltation and inundation of agricultural fields while reclaiming crop land from eroded rivers and generating income from sugarcane sales. To support communities, Mercy Corps uses a digital survey system (ODK) for data collection and to map potential sugarcane cultivation areas (sandy river banks) with geotagged information.	The use of the digital survey system (ODK) for data collection and mapping has highlighted potential areas for sugarcane cultivation expansion, thereby providing additional income opportunities for communities, increasing household savings and protecting them from floods.	**Technologies used:** Mobile Application, GIS **Level/scale:** Individual, Community, Business **Systems supported:** Livelihoods, Conservation effort/ River Bank Protection **Primary focus:** Recurring event response **Context:** Rural **Users:** 1 sugarcane company	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Educational Institution/ Private Actors **How it's funded:** Donor, Private investors
What, if any, impact has your digital technology had to date?	Partnership with the private and public sector, who started using this data collection technology for their business forecasting and operations, has led to the development of the sugarcane sector in Mercy Corps' operational areas and uptake of the ODK.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Microimage Mobile Media (Pvt) Ltd **Name of your technology:** Disaster and Emergency Warning Network (DEWN) **Contact person:** Shenali Kirindagamage shenali@mimobimedia.com **Website:** www.mimobimedia.com	Sri Lanka	DEWN is one of the first of its kind mass alerting for early warning usage. Born over 10 years ago it has evolved with the changing mobile landscape to stay relevant with the mobile technology. DEWN supports many infrastructures however deployed often on GSM technology with outbound messaging via SMS, cell broadcast, mobile app notifications etc. DEWN supports Common Alerting Protocol (CAP) which is an XML based data format for exchanging public warnings and emergencies between alerting technologies. DEWN can set priority groups for message broadcasts, regional groups based on requirements etc. Further supports media groups to integrate to the alerts via API. Once information regarding a disaster is received by the Disaster Management Center/ Authorized party, the information is verified, and thereafter customized alerts are dispatched. Messages can be received by mobile phones or the specially developed DEWN Alarm devices.	DEWN is an innovation based on widely available mobile communication technologies such as short messages (SMS), cell broadcast (CB) and out bound dial (OBD), which aimed at rendering a cost effective and reliable mass alert system. The network connects mobile subscribers, police stations, identified religious/social community centres and even the general public to a national emergency alarming centre. The DEWN is a web based application. It connects to SMSC (for SMS) and CBC (for Cell Broadcasting) and it offers many features with advanced configuration and customization capabilities. Based on the type of message the priority groups are selected and transmission is complete with network congestion in mind by DEWN. Early warning message helps to escalate drive any management protocols to ensure the best course of actions are taken at ground level.	**Technologies used:** Mobile app, GPS technologies, CAP, cell broadcasting, SMS, social media integrations **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/ tertiary cities), Peri-urban, Rural **Users:** 764	No ✕	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency Entrepreneurs or social enterprises **How it's funded:** Self-funded
What, if any, impact has your digital technology had to date?	DEWN was initiated after the Tsunami in Sri Lanka in 2004 to ensure the safety of the locals and people around warning them before it's too late. Warnings/weather alerts along with the forecasted time, location and date are notified up to date through the mobile app and messages to the users to take necessary actions for their safety (Eg: cyclone warnings,tsunami warnings, weather alerts and etc).					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Ministry of Agriculture **Name of your technology:** AgINTEL **Contact person:** Takili Tairi takili.tairi@agriculture.gov.ck **Website:** www.agriculture.gov.ck	Cook Islands	Survey system to measure market, enterprise and holdings on crop production influencing price to help forecast new price and production.	Helps combat the reliance on imported and un-nutritional foods and improve healthy eating nutritinious food and healthy living.	**Technologies used:** Simple database microsoft and captured using CAPI **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods **Primary focus:** Preparedness, Recurring event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Rural **Users:** 4 agencies	Yes	**Development and deployment:** Community organizations (e.g. local CSO) National government body/ agency Regional organizations SPC **How it's funded:** Donor, Government
What, if any, impact has your digital technology had to date?	Farmers preparing to choose which crop would have the greatest influence in demand and supply while taking advantage of forecasted market price using AgINTEL.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Mistral Mobile **Name of your technology:** Money Mobility Suite **Contact person:** Ludwig Schulze Ludwig.schulze@mistralmobile.com **Website:** www.Mistralmobile.com	India, Ghana	The Money Mobility Suite eliminates the technological barriers to providing mobile financial services. Money Mobility Suite works on any phone, on any network and anywhere—allowing you to reach and serve more customers, faster, and more cost-effectively than ever before. The Money Mobility Suite gives you complete flexibility and control over your mobile services. With the Money Mobility Suite, financial services can be delivered with the customers' existing mobile phone whether the simplest or smartest mobile phone. No need for a data connection, or the latest smartphone technology.	The Money Mobility Suite enables financial inclusion for all. With even the simplest mobile phone, an individual can better control their financial well being thereby enabling their resilience to any life impacts and in some cases, have access to loan products to smooth their cash flow and manage against shocks.	**Technologies used:** Mobile app **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments, All above require means for payments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 7 million	Yes	**Development and deployment:** Entrepreneurs or social enterprises Co-operative bank Retail banks **How it's funded:** Government, Private investors, Self-funded, User fees
What, if any, impact has your digital technology had to date?	Not specified					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Mobile Accord, Inc. (MAI) **Name of your technology:** GeoPoll **Contact person:** Michelle Williams michelle@geopoll.com **Website:** https://research.geopoll.com/	Afghanistan, Azerbaijan, Benin, Burundi, Cameroon, Democratic Republic of the Congo, Ethiopia, Ghana, Guinea, Indonesia, Iraq, Ivory Coast, Jordan, Kenya, Kyrgyz Republic, Liberia, Madagascar, Malawi, Mozambique, Nigeria, Philippines, Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Tunisia, Turkey, Uganda, Zambia, Zimbabwe	GeoPoll is the mobile engagement platform of Mobile Accord, Inc., a US-based small business, with expertise in real-time mobile data collection, insights and analytics, one-way messaging campaigns, and dashboard visualizations which can be used for activity design, adaptive program management, and monitoring and evaluation, and mobile based project activities. GeoPoll has conducted over 2,200 individual mobile surveying projects (with projects varying across daily, weekly, monthly or one-off surveys) since the inception of the GeoPoll product in 2010. GeoPoll establishes relationships with mobile network operators (MNOs) in each country to engage with subscribers on their networks to conduct surveys. GeoPoll reaches out to mobile subscribers to request their participation in a mobile survey to solicit their feedback. The means completing the survey (whether via text, call or web) is always free to the respondent, reducing the economic barrier for participation.	The GeoPoll platform allows bilateral donors and their implementing partners, multilateral organizations, NGOs, national governments, research institutes, universities, and private sector companies to implement behavior change communication campaigns, monitor and evaluate indicators that measure the impact of program interventions, and make informed programming decisions related to beneficiaries' resilience with real time analysis and insights from mobile data. An illustrative example includes GeoPoll's on-going food security analysis on behalf of the WFP in over 10 countries across Africa. GeoPoll is using mobile based data collection to access some of the region's most hard to reach communities and capture critical data on food consumption, coping behaviors, market prices, perceptions of food security, and diet diversity of women. International donors, local governments, and other stakeholders are using the publicly published data to track the situation on the ground and design appropriate humanitarian interventions for beneficiaries.	**Technologies used:** Short message service (SMS), interactive voice response (IVR), computer assisted telephone interviewing (CATI) and mobile web/mobile application communications **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments, Agriculture & Food Security **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** GeoPoll has partnerships currently with 85 mobile network operators to rapidly deploy mobile surveys and one-way messaging campaigns for full service mobile engagement on behalf of partners to over 320 million mobile network subscribers worldwide.	Yes	**Development and deployment:** Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Government, Private investors

What, if any, impact has your digital technology had to date?	GeoPoll's projects have led to positive impacts across food security, health, governance, and impact evaluation programs. For example, during the 2014-2015 Ebola epidemic in Western Africa, GeoPoll implemented a number of projects focused on the emerging health crisis in Sierra Leone, Liberia, and Guinea. In total, GeoPoll worked with 9 partners during the crisis and reached over 100,000 mobile phone subscribers across West Africa to gather information on behavioral change, health information and community knowledge, and the humanitarian response to the emerging food security situation.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
mPower Social Enterprises **Name of your technology:** Geodata to control potato late blight in Bangladesh (GEOPOTATO) **Contact person:** Mridul Chowdhury mridul@mpower-social.com **Website:** http://www.mpower-social.com/	Bangladesh	Late blight (Phytophthora infestans) is the most common and highly destructive, fungal disease in potato, tomato and other solanaceae crops in Bangladesh. Annual potato yield losses due to this disease have been estimated at a staggering 25-57%. With Geodata to control potato late blight in Bangladesh (GEOPOTATO), mPower has developed and is implementing a decision support service (DSS) in Bangladesh for an optimal control strategy of late blight in potato. The decision support service will provide farmers with preventive spray advice when a late blight infection period is predicted to occur. The decision support service also evaluates past sprays, which may result in curative spray advice when, despite past sprays, infection is likely to have occurred in the past few days. This early warning system can enable huge cost savings for farmers as they would no longer need to resort to expensive fungicides for damage control.	Right now, late blight can be controlled retrospectively but only through frequent and costly applications of fungicides. The degree of control heavily depends on the timing of the fungicide application in relation to local weather conditions, crop development and disease pressure. Through our technology the efficiency of late blight control has been improved considerably by informing farmers in time about predicted infection periods of the potato crop and the effectiveness of past spray applications.	**Technologies used:** Publicly-available satellite data, decision support system, SMS and voicemail **Level/scale:** Individual, Community **Systems supported:** Climate, Livelihoods **Primary focus:** Preparedness, Recurring event response **Context:** Rural **Users:** 130	Yes	**Development and deployment:** Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Private investors
What, if any, impact has your digital technology had to date?	Through our ongoing pilot intervention in Munshigonj district of Bangladesh, we have raised awareness of the benefits of the GeoPotato program among 1,000 farmers to-date. Among these, 130 farmers have been positively impacted. The next phase of our pilot programme will be implemented in Rangpur district.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
mPower Social Enterprises **Name of your technology:** Primark Pashe Achi Compensation Monitoring Platform **Contact person:** Mridul Chowdhury mridul@mpower-social.com **Website:** http://www.mpower-social.com/	Bangladesh	The Pashe Achi Project is an initiative that was taken by Primark aimed at providing long-term financial compensation to the vulnerable individual and families affected by the Rana Plaza incident on 24th April, 2013. To ensure optimum transparency and real-time response to the beneficiary needs, mPower Social Enterprises Ltd. has developed for PRIMARK a Compensation Monitoring Platform which would enable tracking of livelihood condition of subjected beneficiaries in the Pashe Achi program.	Our technology is ensuring a much greater level of transparency and real-time response as it relates to the disbursement of compensation support and funding to those directly and indirectly affected by the Rana Plaza incident - including the workers who were injured by the incident as well families of workers who were casualties of the incident - thus contributing to efficient reach of financial aid and emergency services to beneficiaries when they most require.	**Technologies used:** Mobile data collection with geo-tagging. Interactive online platform. **Level/scale:** Individual, Family, Business **Systems supported:** Health, Livelihoods **Primary focus:** Preparedness, Recurring event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban **Users:** The Pashe Achi platform was accessed by three categories of users: Field Officers (to register and update info on beneficiaries), Helpline Operators (who were accessible to beneficiaries for querying the status of compensations etc.) and Management Staff of Primark who were able to monitor and track the provision of compensation and benefits to beneficiaries (496 beneficiaries in total).	Yes	**Development and deployment:** Entrepreneurs or social enterprises **How it's funded:** Private investors
What, if any, impact has your digital technology had to date?	Not specified					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
MS Swaminathan Research Foundation **Name of your technology:** Fisher Friend mobile application **Contact person:** Anirban Mukerji anirmukerji@gmail.com **Website:** http://www.mssrf.org/?q=ffma	India	The Fisher Friend Mobile Application was conceptualized in the aftermath of the 2004 tsunami which wreaked havoc in the lives of fishermen and made them fearful of going out to sea. The Fisher Friend Mobile Application provides comprehensive information on oceanic conditions such as wind speed, wind direction and wave height in the local language of the fishermen. Fishermen use this information to determine when it is safe to go to sea. Fisher Friend leverages the smartphone's GPS feature to map the coordinates of Potential Fishing Zone (PFZ) Advisories, which are provided by the Indian National Centre for Ocean Information Services located in Hyderabad, as well as to chart a course to the PFZ. The mobile app also alerts the fishermen when they're approaching the international boundary line, enabling them to change course and avoid crossing the border which could result in financial losses and incarceration.	The Fisher Friend mobile application provides information on wind speeds, wave heights, high waves, cyclones to Artisnal marine fishermen thus enabling them to be prepared for extreme weather conditions, not venture into sea when such extreme weather conditions occur and save their lives and equipment.	**Technologies used:** Mobile App, Smart Phone **Level/scale:** Individual, Family, Community, Government **Systems supported:** Livelihoods **Primary focus:** Preparedness **Context:** Rural **Users:** 3,000	Yes 	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/agency Donor or philanthropic programs (Internationally based) Government Scientific Institution **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	The mobile application has been used by over 10,000 fishermen though monthwise usage varies. The usage of the fishermen is tracked using Google Analytics and the feature providing Ocean State Forecast is the most popular feature. Every quarter MSSRF surveys fishermen using the application and the fishermen speak about the benefits of using the application. During the recent cyclone, which hit the east coast, many fishermen said that they received cyclone warning and didn't venture into the sea.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Nexleaf Analytics **Name of your technology:** ColdTrace **Contact person:** Shahrzad Yavari shahrzad@nexleaf.org **Website:** www.nexleaf.org	India, Cambodia, Laos, Timor L'este, Ethiopia, Haiti, Mozambique, Kenya	Vaccines save lives, and billions are spent every year to vaccinate children in low-resource parts of the world. But frequent equipment failures at clinics expose vaccines to temperatures that destroy them, leaving children vulnerable to deadly diseases. ColdTrace is a wireless remote temperature monitoring (RTM) solution for cold chain equipment (CCE) in rural clinics and health facilities. ColdTrace records and wirelessly transmits temperature and power availability data to a server in near real time using the cellular network. The system sends SMS ("text") messages to key personnel whenever vaccines are in danger of going beyond the safe temperatures of 2°C-8°C. Through the cloud-based ColdTrace web dashboard, vaccine delivery stakeholders including national Ministries of Health can see how vaccine refrigeration equipment is performing at a glance, enabling smarter vaccine cold chain management.	Close to 1.5 million children die every year from vaccine-preventable diseases. This is partly because all across the developing world, children receive damaged, ineffective vaccines due to catastrophic equipment failures along the supply chain. However, with inexpensive real-time monitoring and targeted communications, we have shown that countries can get vaccines to kids more safely and efficiently. The ColdTrace sensor tracks fridge temperature and clinic power availability, and alerts healthcare workers via SMS ("text" message) when vaccines are in danger. By providing real-time data, ColdTrace gets actionable information to the right people at the right time to ensure that children everywhere receive safe, effective vaccines, improving immunization for greater resilience. Additionally, ColdTrace data paints a real-time picture of power availability in remote clinics, giving governments information about the resilience and infrastructural soundness of their health systems.	**Technologies used:** Wireless sensors, data analytics, cloud analytics, web-based dashboard, automatic data collection via SMS/GPRS **Level/scale:** Individual, Family, Community, Government **Systems supported:** Health **Primary focus:** Preparedness **Context:** Rural **Users:** 7,029 ColdTrace devices	Yes	**Development and deployment:** Donor or philanthropic programs (Internationally based) **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	ColdTrace currently protects vaccines for more than 6.1 million babies born each year. Every day, $27.8 million worth of vaccines are protected by over 7,000 devices in 7 countries.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Nexleaf Analytics **Name of your technology:** StoveTrace **Contact person:** Tara Ramanathan tara@nexleaf.org **Website:** www.nexleaf.org	India	Every day, about 3 billion people rely on open fires inside their homes to cook meals. Exposure to the resulting indoor smoke kills more than 4 million people around the world each year. These fires also emit high quantities of black carbon, which is the second-largest contributor to global climate change. "Clean" cookstoves are designed to replace these harmful cooking methods, but many obstacles exist to achieving widespread adoption. StoveTrace is a cloud-based monitoring system designed to track clean cookstove usage in remote locations. StoveTrace combines wireless sensors with powerful cloud-based analytics to enable responsive clean energy interventions. It's a key component of the Sensor-Enabled Climate Financing (SCF) model, which rewards rural women who switch to clean cooking. Women receive mobile payments based on clean cookstove usage data from StoveTrace, empowering them to repay microloans to purchase clean cookstoves and earn additional income.	StoveTrace is a key component of Sensor-Enabled Climate Financing, a clean energy implementation method that encourages adoption of clean cookstoves through micropayments made directly to the women who switch to clean cooking. SCF payments are based on stove usage validated by our StoveTrace platform. These climate fund payments make clean cooking affordable for rural women, addressing a major barrier to large-scale energy access. StoveTrace has helped more than 700 households afford clean cookstoves, and women in 3 villages in India are currently receiving payments. By prioritizing the cultural and practical needs of women who prepare food for their families, StoveTrace empowers women to become climate warriors, and helps them build cleaner, healthier communities. As climate change worsens, the poorest 3 billion will be the most impacted. SCF has the potential to bring sustainable funding for renewable energy to this population, strengthening their resiliency to climate change.	**Technologies used:** Wireless sensors, data analytics, cloud analytics, web-based dashboard, mobile money app, automatic data upload via SMS/GPRS **Level/scale:** Individual, Family, Community **Systems supported:** Climate, Health, Livelihoods **Primary focus:** Recurring event response **Context:** Rural **Users:** 754 households	Yes	**Development and deployment:** National government body/agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) **How it's funded:** Academic institution, Donor
What, if any, impact has your digital technology had to date?	StoveTrace has enabled the reduction of 502.6 tons of CO2e from 720 households in India. Through the Sensor-Enabled Climate Financing model, women in 2 states in India have received mobile money payments for their continued use of clean cookstoves.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
NOAH **Name of your technology:** PRINS - Philippine River Inundation and Network System **Contact person:** Jo Briones jblt.briones@gmail.com **Website:** www.noah.up.gov.ph/prins	Philippines	PRINS (Philippine River Inundation and Network System) is a system used to determine possible barangays (villages) across the country that can be at risk from river inundation during extreme weather events. Using rain contours generated by interpolation using radial basis functions and accumulated rainfall from upstream rain gauges, barangays located at the downstream area of a river basin are given at least 5 hours lead time before the possible overflow happens. The webapp is utilized by the NDRRMC during their Pre-Disaster Risk Assessments as a tool to help them make timely and important decisions such as evacuations.	The target audience, which are the Local Government Units (LGUs) and and the National Disaster Risk Reduction and Management Council, will be able to prepare in advance and make timely decisions during extreme weather events using the information produced by PRINS. Early evacuation of potentially at-risk barangays would lead to fewer to zero casualties, diverting post-disaster efforts in rehabilitation and recovery. Continuous information from PRINS during recurring extreme weather events can also shed light on a community's susceptibility to flood hazards, which would be necessary in crafting better preparedness plans, e.g., zoning, construction of evacuation centers, pre-positioning of assets, etc.	**Technologies used:** Weather sensors (automatic rain gauges, automatic stream gauges, automatic weather stations, automatic rain and stream gauges), machine learning and network analysis, web app **Level/scale:** Community, Government **Systems supported:** Climate, Disaster Management **Primary focus:** Preparedness, Recurring event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 2. NDRRMC and NOAH	Yes	**Development and deployment:** University **How it's funded:** Self-funded
What, if any, impact has your digital technology had to date?	The technology that we developed has been utilized primarily during extreme weather events in the Philippines. The NDRRMC during its Pre-disaster Risk Assessments used the tool to warn LGUs in areas deemed by PRINS to be at risk of flood inundation.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
OpenAQ **Name of your technology:** - **Contact person:** Christa Hasenkopf christa@openaq.org **Website:** https://openaq.org	Our technology is available world wide, and provides data from 47 countries. The countries in Asia: Bahrain, Bangladesh, China, India, Indonesia, Kuwait, Mongolia, Nepal, Philippines, Singapore, Taiwan, Thailand, Turkey, and Vietnam. The full list countries for which we can aggregate data can be found here.	We are an open-source community that has built the only global, real-time and historical open air quality data platform in the world. On top of this platform, we have created a grassroots, global community of scientists, engineers, journalists, policy folks, technologists and activists that use and build on top of these data, as well connect with each other to fight air inequality. To date, our one of a kind air quality data portal enables access to 47 countries, and receives 500,000 to 700,000 data requests per month from across the world. Members of our community have used the platform and connected with each other to do previously impossible science, journalism, and policy.	Our system enables individuals, organizations and governments unprecedented access to air quality data in a universal format, and a growing user community form which to pull resources and tools. Our system enables the previously impossible existence of universal alert systems for populations and instrument systems to be developed. It also is a tool for governments to use in order to easily share their collected data. To date, several governmental entities have contacted us directly or indirectly in order to share their data on our platform, and we have evidence that points to our data has been used in air pollution mitigation policy analyses (e.g. India's even-odd car policy). In the long-term, our system enables previously difficult or impossible access to data for public health policy and science. In general, this platform enables individuals and local communities to access previously difficult or impossible access data and to connect with other communities around air inequality.	**Technologies used:** Open data, Big data, Open API, Node.js, HTML, CSS, Javascript, Docker, React, PostreSQL, all infrastructure is hosted on Amazon Web Services, Open-source community **Level/scale:** Individual, Community, Government **Systems supported:** Climate, Health, Urban environments **Primary focus:** Preparedness, Recurring event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities) **Users:** We receive 500,000 to 700,000 data requests to our system each month. To date and via Google Analytics, we know our platform has been accessed by more than 2,150 cities in 135 countries.	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises Private sector: Development Seed's in kind development contributions **How it's funded:** Donor, Government, Self-funded, non-profits and in-kind corporate donations

What, if any, impact has your digital technology had to date?	Our community has created open-source materials that allow others to more easily visualize air quality data, build apps and bots, conduct research, and convene diverse sectors in a community to develop a local coalition against air inequality. Our platform has connected individuals with data and other like-minded individuals such that they could create data-driven journalism, and has spurred research and policy work. Our aggregated data has been displayed by the UN Environment Program on UNEPLive Data Portal , appeared in Times of India and the Ulaanbaatar Post. Our community has posted statements in Huffington Post and the Clean Air Journal (this invited commentary was the work of 12 individuals in the OpenAQ Community in 10 countries).

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Operation ASHA **Name of your technology:** eCompliance **Contact person:** Sonali Batra sonali.batra@opasha.org **Website:** www.opasha.org	India, Cambodia, Afghanistan, South Africa	eCompliance is a Biometric technology that uses fingerprinting and iris scanning in order to provide adherence to the DOTS protocol of Tuberculosis. In DOTS, the patient has to take medication under direct supervision. In our centers when the patient comes in to take his medication his fingerprint and the counselor's fingerprint is taken simultaneously. This proves that the patient has indeed taken the medication. Also, if a patient misses a dose, our system sends a text alert to our health workers who then go to the patient's house to give him the medication and provide some counseling on why it is important to take the medication regularly. This way we have reduced default from 21% to 3%. Default is when a patient drops out of treatment and chances are very high that he can develop MDR-TB which is fatal. Our system also ensures 100% accuracy and transparency of results.	Tuberculosis is a national health crisis. Our Biometric based technology enables underprivileged communities in urban as well as rural areas to become resilient in the face of this crisis. It reduces default rate by sending the health workers a text message when a patient misses a dose. The health worker can then go to the patients house and give him the medication. This ensures that the defaulters do not contract MDR-TB which is almost fatal. It is of paramount importance of ensuring the survival of a huge percentage of these patients.	**Technologies used:** Android tablet, fingerprint reader, server, EMR **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Health, Livelihoods **Primary focus:** Recurring event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** About 9,000	Yes	**Development and deployment:** Donor or philanthropic programs (Internationally based) **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	We have reduced default rate from 21% to 3% of tuberculosis treatment of our patients.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Opportunities NOW Myanmar **Name of your technology:** Mr. Finance: Financial Education Chatbot **Contact person:** Matt Wallace matt@opportunitiesnow.org **Website:** www.opportunitiesnow.org	Myanmar	Mr. Finance Chatbot delivers financial education to the Base of the Pyramid. Myanmar's mobile revolution is proving to be app-less. People use messenger services but rarely download apps because of limited storage. This bot lets us deliver emotionally engaging content through a common platform to any smart phone user. Through notifications we can send timely reminders to induce behavior change. We can use geolocation and past user behavior to provide customized services to specific users. The bot is interactive and UX is intuitive–a must in a frontier market that is low in tech literacy. Mr. Finance is effective for microfinance institutions, which want to support capacity building for their borrowers for risk management but are limited by tight operating margins. The bot automates the process of training borrowers to make better financial decisions, creating a immediate-response customer service tool and a direct messaging link scalable to thousands of users.	Resilience for microenterprise owners requires preparedness for peaks and troughs in income, and requires sound financial management. Effective financial education is emotionally engaging, interactive, includes timely nudges that trigger desired behavior, and sends clear messaging that is easily grasped. In Mr. Finance we designed a gamified novel in which the user makes a series of decisions for a relatable character. This strengthens the decision-making of micro-enterprise owners. Next, we use broadcasts and notifications to remind business owners to make smart decisions. For instance, at the end of a day of work many forget to set aside income from the day for savings. The chatbot can nudge the user to make the right decision at the right time. Finally, the financial education messaging we provide is short, simple, and easily actionable. Many financial education training modules are in-depth, highly theoretical, and delivered lecture-style. This chatbot takes the opposite approach.	**Technologies used:** Chatbots, Facebook messenger, JSON API, Geolocation **Level/scale:** Individual, Family, Community, Business **Systems supported:** Livelihoods **Primary focus:** Preparedness, Recurring event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 350	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	We are in pilot stage now. Results ahead!					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Pact **Name of your technology:** TRANSMIT - Tracking and Sharing Mulit-Sector Issues with Technology **Contact person:** Zach Center zcenter@pactworld.org **Website:** www.pactworld.org	Cambodia	TRANSMIT uses technology to aid active citizens and committed government officials to improve local government responsiveness and accountability by making information about local issues raised, increasingly accessible and transparent. The innovation consists of a mobile application linked to a web-based database that allows citizens and officials to communicate and track issues that are raised at the local level, and which provides national level policy makers greater insight into how issues are addressed or not addressed at the local level.	Through this innovation, community members are better able to voice critical community-based issues to their local government officials, and then have a mechanism for following up on how government responds to these issues. Many of the issues raised are about strengthening resilience systems around natural resource management, open markets, access to justice, and defense of basic human rights.	**Technologies used:** Mobile application; online database. **Level/scale:** Community, Government **Systems supported:** Climate, Health, Livelihoods, Cuts across all community-based issues. **Primary focus:** Preparedness, Recurring event response **Context:** Peri-urban, Rural **Users:** 157	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/agency Donor or philanthropic programs (Internationally based) **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	With the use of TRANSMIT, 153 community issues have been raised by citizens to local government through a transparent tracking system. As of January 2017, of these issues raised, 65 have been publicly clarified or addressed by local government officials in the TRANSMIT system.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
People in Need **Name of your technology:** Tepmachcha - Flood Detection Units **Contact person:** James Happell james.happell@peopleinneed.cz **Website:** http://ews1294.info/about	Cambodia	People in Need has integrated a number of technological innovations as part of their Early Warning System. Our sonar based, solar powered, GSM enabled, open source stream gauges are designed to provide early warning in the event of a flood to residents in the affected areas. When a flood condition is detected, the device triggers a mobile phone call to registered users with a pre-recorded voice message via our Interactive Voice Response (IVR) system. It also records water levels at regular intervals for later analysis of flooding patterns or to inform more complex hydrological analysis. Our Tepmachcha (flood detection) devices read the level of water at regular intervals and then use a cellular data connection to report that level to an Internet hosted server. If the system detects water level in excess of pre-defined WARNING or EMERGENCY limits, it sends a command to our Somleng IVR platform to trigger a voice message to be sent to users in the affected area(s).	By providing early warning messages to users in vulnerable areas, our Early Warning System increases the resilience of our beneficiaries in the event of natural disasters in Cambodia. Our flood detection units in particular are a focused method of providing localised early warning in the event of an imminent flood situation. The flood detection units are calibrated to send advance warning of dangerous water level events to users registered in the surrounding areas. Users are able to better prepare themselves, their families and their livelihoods during these events, whether it is moving people, livestock and goods to higher ground or relocating to predefined safe sites. Unlike many other Early Warning Systems, the messages triggered by our system are almost instantaneous, eliminating any possible human error and delaying the warnings.	**Technologies used:** Sensors, IoT, IVR **Level/scale:** Individual, Family, Community, Government **Systems supported:** Climate, Livelihoods **Primary focus:** Preparedness **Context:** Peri-urban, Rural **Users:** 50,000+	Yes	**Development and deployment:** Local (non-national) government body/agency National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Self-funded

What, if any, impact has your digital technology had to date?	The Early Warning System has been used on four occasions during severe storm events in Cambodia since the system was activated in late 2015. More than 30,000+ respondents were contacted during one particularly large event. The users were sent a warning message via their mobile phones to tell them prepare for the storm event, which was used by the recipients to prepare themselves for the weather. Our flood detection devices have only been installed since late November, and thankfully for the people in the coverage areas, there have been no events to trigger the devices. They have been collecting data in these areas since this time, which is extremely useful for future flood forecasting and prediction. The data is available publicly for all meteorological organisations. We are hoping to increase the coverage of the flood devices (up to 20 by the end of 2017) and then during a flood occurrence, the people will be warned in advance.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
PetaBencana.id **Name of your technology:** PetaBencana.id **Contact person:** Etienne Turpin turpin@mit.edu **Website:** https://www.petabencana.id	Indonesia	PetaBencana.id is a free, web-based platform that harnesses the vast use of social media during emergency events. By gathering, sorting, and visualizing data, PetaBencana.id transforms the noise of social and digital media into critical information for residents, communities, and government agencies. The platform adopts a "people as sensors" paradigm, where confirmed reports are collected directly from the users at street level, removing the needs of expensive and time-consuming data processing. Reports are displayed alongside relevant emergency data, creating an accurate, real-time data to make more informed decisions. Since its debut in 2013 in Jakarta, in 2017 PetaBencana.id is working collaboratively with the National Emergency Management Agency to deploy this platform in 3 mega cities in Indonesia: Greater Jakarta, Surabaya, and Bandung, and served over 50 million residents and government agencies to monitor flood events, improve response times, and share emergency information.	When users submit the flood report via their preferred social media or instant messaging apps, reports are displayed on the web-based map in real-time, and accessible by residents, government agencies, and communities. We creates civic co-management among residents and government, where residents can communicate with each other to help families and friends avoid the risk of flood, and communicating their needs in surviving the flood with the government to improve response times and address the needs effectively. With the interface specially built for the government, we enables them to share validated flood information collected by field officers, making the flood map more reliable. We also enables stakeholders to make more informed decisions, by integrating relevant data from other apps & systems (e.g. infrastructure performance, rapid assessment) through open API. Our output API can be used to extract collected data for longer term planning in disaster management & urban environment.	**Technologies used:** Open Source Software, cloud server, open API, web-based map and reporting system, chat bot deployment in social media & instant messaging **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Livelihoods, Urban environments **Primary focus:** Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban **Users:** 50 million residents and government agencies in 3 megacities	Unsure	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Academic institution, Bank loan, Donor, Government, Private investors

What, if any, impact has your digital technology had to date?

Since 2013, the free web-based flood map PetaJakarta.org (preliminary study of PetaBencana.id) was used by hundreds of thousands of residents during monsoon flooding. It is was also adopted by the Jakarta Emergency Management Agency (BPBD DKI Jakarta) to monitor flood events, to improve response times, and to share emergency information with residents. In 2016 we received more than 8000 reports in Jakarta province.

Since the launch of PetaBencana.id, the map was accessed by more than 4 million map loads. During the flood in Jakarta, Feb 21st, 2017, PetaBencana.id received more than 1000 reports in 24 hours, and the website was accessed by 250 thousand users at a time and viewed more than 400 thousand times. Our cite was cited by Governor of DKI Jakarta to deploy the army for flood mitigation, and used by transportation business firms to help drivers avoid the flood. This year, National Disaster Management Agency will receive Asia Geospatial Excellence Award for PetaBencana.id as the best practice in harnessing the power of geospatial information and technology in impacting the lives of people at grassroots level and strengthening disaster preparedness. To see the PetaBencana.id impacts, evolution, and awards received, please see our scrapbook here.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Plan International Myanmar + Overseas Development Institute **Name of your technology:** Rapid Response Research (RRR) **Contact person:** Jeremy Stone jeremykieron.stone@plan-internatioinal.org **Website:** http://www.braced.org/about/about-the-projects/project/?id=eb1fb3dd-2d5f-4301-9302-acc33236Of8f	Myanmar	BRACED's Rapid Response Research (RRR) aims to track how people are responding to disasters in real-time, to support more effective targeting of resilience-related programmes and improve understanding of what makes people resilient to disaster risk. RRR seeks to understand how people respond to disaster risk by collecting data over time through a mobile phone panel survey in Myanmar. Given timing constraints on project activities, the RRR is looking to change its implementation strategy from a post-disaster context to a pre-disaster context. Two thousand mobile phones will be distributed to a specified disaster-prone area and data collected in a longitudinal manner on resilience-related themes and to capture recovery aspects should a disaster event (either small or large) affect the area. This will help project managers and designers refine preparedness and response activities to shocks and stresses that are faced by communities in the surveyed area and inform wider programming in Myanmar.	The data collected from households will be from a randomly selected panel of respondents. This will provide a wide variety of data about how different groups of people respond over time to different shocks. This will in turn help project planners and local government design more targeted activities to help communities to prepare for specific shocks. In the event of a shock happening during the survey data about response will also be available to help see how different groups act at different stages after a disaster to allow more effective response activities to be delivered in future events	**Technologies used:** Mobile phone data collection **Level/scale:** Individual, Family, Community, Government **Systems supported:** Climate, Livelihoods, decision making for project design **Primary focus:** Preparedness, Recurring event response **Context:** Peri-urban, Rural **Users:** The phones will be distributed to 2,000 HH's	No	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency Donor or philanthropic programs (Internationally based) National survey company **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	N/A to date					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Practical Action,Bangladesh **Name of your technology:** People centered Agro-Meteorological Advisory Service **Contact person:** Syed Mahmud Hasan syed.mahmud@practicalaction.org.bd **Website:** www.practicalaction.org.bd	Bangladesh	Bangladesh is one of the first line victims of ongoing and upcoming threats of climate change due to its geographical location, poverty and higher dependence on climate sensitive sectors like agriculture. Agriculture is highly dependent on climate and accurate climate information is necessary for farming decisions, from land preparation and crop selection to timing of planting, exposure to diseases, input management and harvesting could be guided to optimize benefits from a localized weather forecast, if it is provided, timely. This assists farmers to organize themselves better in order to get maximum benefits. Therefore we have designed an agro-met advisory service for the flood vulnerable communities of riverine districts on a regular interval. Seven day agro-met advisories are prepared in consultation with Bangladesh Meteorological Department and Agricultural Information Service which is disseminated in voice clip format with what to do in pre and post flood in local dialects.	Despite Bangladesh being a low-income country, the mobile technology market is in many ways ahead of its time. The total number of mobile subscriptions has crossed the 130 million mark, around 42% of the population. There is therefore great potential to apply mobile technology to flood, agricultural and climate change challenges to advance flood-resilient development. With access to EWS and the ability to respond effectively, men and women farmers, fisherman, and entrepreneurs are better able to compete in local markets. This has created enhanced versatility of 64,680 flood vulnerable people under 15 unions of the riverine northern districts in Bangladesh by effective use of weather forecasts, flood early warnings and technological innovations. By getting this early warning, citizens now can take shelter with their cattle which can save a minimum of household value of 50,000 taka (£500). So if a voice message cost £0.1 then the return on investment is more than 5,000 times higher!	**Technologies used:** Interactive Voice Response concurrent Voice Call Blast, Mobile Based Data Collection Application **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (secondary/ tertiary cities), Peri-urban, Rural **Users:** 64,680	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/agency Donor or philanthropic programs (Internationally based) **How it's funded:** Donor

What, if any, impact has your digital technology had to date?

1. http://policy.practicalaction.org/resources/publications/item/delivering-early-warning-systems-for-the-poorest-from-flood-vulnerable-to-flood-resilient-communitie
2. https://www.slideshare.net/halimmiah52/early-warning-through-voice-messages-3-october-2016-rugby
3. http://practicalaction.org/blog/news/why-we-should-invest-in-disaster-management/

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Praekelt.org **Name of your technology:** Mentor To Go **Contact person:** Ambika Samarthya-Howard ambika@praekelt.org **Website:** http://mentortogo.org/ www.praekelt.org	India	A mobile mentoring program connecting girls in rural areas to professional women, Mentor to Go builds on the existing in-person mentoring service developed by Mentor Together. The vulnerable girls enrolled in the programme are expected to demonstrate increased self-confidence and perceptions of self-efficacy, increased knowledge. The Android app for mentors connects them to their mentee via free calls, and is supported by an open-source back-end. The programs offers a flexible schedule to accommodate women's household responsibilities, professional obligations, and girls' school timings.	Gender disparity in India, particularly in rural areas, is a huge impediment to girls' access to economic opportunities, education, and community leadership. While evidence around mentorship has shown a proven impact for improving girls' self-confidence, girls in India often have trouble accessing mentorship because of limited mobility and lack of available female mentors. Through mobile devices, girls in rural India now have the ability to learn from professional women in India and will be better equipped to respond to financial instability, child marriage, and barriers to continued education.	**Technologies used:** Mobile app, call routing, feature phones **Level/scale:** Individual, Family **Systems supported:** Livelihoods, Gender equity/ education **Primary focus:** Recurring event response **Context:** Rural **Users:** 250 existing mentor and mentee pairs	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency Donor or philanthropic programs (Internationally based) **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	Although we launched in early 2017, we are seeing a qualitative positive response and retention in girl mentees and mentors.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
PT 8villages Indonesia **Name of your technology:** PETANI **Contact person:** Sanny Gaddafi s.gaddafi@8villages.com **Website:** www.8villages.com	Indonesia	PETANI is an education and communication application that focuses on empowering people in the villages, starting with farmers but including other micro businesses too. We help farmers increase yields, we help micro businesses improve, we help government to have a direct engagement with the unreachable, and ultimately connect rural communities with MNCs, turning CSR into value.	Farmers can solve their problem right away, receive information about market price, and connect with direct buyers.	**Technologies used:** SMS, Android Application, Mobile-web **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Livelihoods **Primary focus:** Recurring event response **Context:** Rural **Users:** SMS (more than 100k), Android & Mobile-web (More than 10k)	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/ agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Private investors, Self-funded
What, if any, impact has your digital technology had to date?		Increase farmer yields, connect farmer to companies and banks				

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Pulse Lab Jakarta **Name of your technology:** Haze Gazer **Contact person:** Lee Jong Gun jonggun.lee@un.or.id Imaduddin Amin imaduddin.amin@un.or.id **Website:** http://hazegazer.org	Our focus is experimenting with digital data sources primarily in Indonesia but our mandate covers Asia Pacific region more broadly. HazeGazer.org is being extended to not only cover Indonesia but also Malaysia and Singapore.	To support the management of peatland fires and haze with more timely data and more information on the dynamics of the disaster, we developed "Haze Gazer", a crisis analysis and visualisation tool that utilises multiple sources of new data such as text, images and videos taken from social media and other information from open data. The platform enhances disaster management efforts by providing real-time insights on the locations of fire and haze hotspots, strength of haze in population centres, locations of the most vulnerable cohorts of the population; and response strategies of affected populations. The dashboard integrates the existing functionalities of the current information system used by the authorities such as hotspot on prioritize area, dynamic hotspot over time and adds new functions such as real-time air quality, ground-truth information from social media, population density and the location of related place of interest for instances schools and hospitals.	Using the information gathered via this dashboard will enhance the national disaster management authorities in Indonesia to get more accurate data in near real time which will allow for quicker and more effective decision making related to peatland and fires. All data sources are analysed and visualised in an easy manner on one single dashboard. Similarly the dashboard can be used for monitoring other crises too in the area by feeding in relevant data sources.	**Technologies used:** GIS Data, Big Data analytics, Text Processing, Image processing, Social Media Mining, Sensor (air quality and visibility) **Level/scale:** Government **Systems supported:** Climate, Health, Disaster Management **Primary focus:** Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/ tertiary cities **Users:** The platform was launched at January. Until now, the dashboard has been accessed more than 1,OOO times from multiple countries. In addition, this dashboard is deployed in the President of Indonesia's situation room.	No	**Development and deployment:** National government body/agency **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	Haze Gazer has been installed in the President's situation room.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Pulse Lab Jakarta **Name of your technology:** Cyclomon **Contact person:** Lee Jong Gun jonggun.lee@un.or.id Imaduddin Amin imaduddin.amin@un.or.id **Website:** http://cyclomon.org (not open to public yet)	Our focus is experimenting with new digital data sources primarily in Indonesia but our mandate covers Asia Pacific region more broadly. Based on a request from UN agencies based in the Pacific region to develop a cyclone monitoring system, CycloMon is currently covering 18 countries in the Pacific, namely Australia, Cook Islands, Fiji, French Polynesia, Kiribati, Marshall Islands, Micronesia, Nauru, New Caledonia, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Island, Tonga, Tuvalu, Vanuatu	The South Pacific has been greatly affected by devastating cyclones combined with vast geographical spread of the Pacific with sparse population, it is difficult for the national governments to have extensive reach where it matters and when. In order to help the authorities, Pulse Lab Jakarta has developed a cyclone monitoring dashboard. The dashboard automates the acquisition and processing of data from multiple sources and visualises the analysis of this data in an easy to digest manner. It allows the authorities to monitor the latest cyclone related information at a regional level such as the cyclone's trajectory with speed and cyclone type categories. Information from social media is also gathered and analysed to capture conversations related to disaster preparedness and recovery. Information on disaster impact can be gleaned from geolocated photos posted on social media as well as other open data sources which gives relevant decision making information to government authorities.	The information gathered via this dashboard will enhance the national disaster management authorities in the South Pacific countries to get more accurate data in near real-time which will allow for quicker and more effective decision making. All data sources are analysed and visualised in an easy manner on one single dashboard. Similarly the dashboard can be used for monitoring other crises too in the area by feeding in relevant data sources.	**Technologies used:** GIS Data, Big Data Analytics, Social Media monitoring **Level/scale:** Government **Systems supported:** Climate, Disaster Management **Primary focus:** Catastrophic event response **Context:** Urban (primary/ capital cities), Urban (secondary/tertiary cities) **Users:** 1-10 users (Cyclomon is not open to the public but is used by policy/ decision makers only)	No	**Development and deployment:** National government body/ agency **How it's funded:** Donor
What, if any, impact has your digital technology had to date?		Cyclomon is still at early prototype stage.				

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Radya Labs & Open Data Lab Jakarta **Name of your technology:** DARU **Contact person:** Antya Widita antya@webfoundation.org **Website:** www.radyalabs.com labs.webfoundation.org	Indonesia	DARU is a software application that supports the command center system of the Jakarta Fire Department for better planning and coordination of the mobilization of fire trucks. DARU uses Vehicle Tracking System (VTS) & On-Board Unit application which utilizes open data from the Jakarta Fire Department including the location of fire hydrants and fire stations and in return will provide data such as real-time location of fire trucks, fire-accidents, fire-prone areas, and more to public. DARU aims to help the Jakarta Fire Department to improve their public service delivery in firefighting by utilizing Open Data based system for a better planning and coordination of firefighting. The main target beneficiaries are the Jakarta Fire Department in the short term, and the city's citizens in the long term.	DARU aims to help the Jakarta Fire Department to improve their public service delivery in firefighting by utilizing Open Data based system for a better planning and coordination of firefighting. Currently, the department uses manual fire accident data input (using printed forms) and manual coordination of firefighting (using walkie-talkies). DARU helps automating the process by utilizing open data such as location of fire hydrants and fire stations and help improving the effectiveness of firefighting planning and coordination. DARU also captures the performance data of firefighting activities, e.g. duration, route taken, etc; for the basis of continuous improvement of the firefighting process and open it to public so that everyone can help analyzing and providing inputs/ recommendation. This will enhance the city resilience towards fire accidents.	**Technologies used:** Mobile application, sensors and cloud techhnology **Level/scale:** Community, Government **Systems supported:** Livelihoods, Disaster Preparedness **Primary focus:** Preparedness, Catastrophic event response **Context:** Urban (primary/ capital cities), Urban (secondary/tertiary cities) **Users:** 1	No	**Development and deployment:** Local (non-national) government body/ agency Donor or philanthropic programs (Internationally based) research institute **How it's funded:** Donor, Self-funded
What, if any, impact has your digital technology had to date?	The technology hasn't been deployed yet, but is planned to be tested this year.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Red Dot Foundation (Safecity) **Name of your technology:** Safecity **Contact person:** ElsaMarie DSilva elsamarieds@gmail.com **Website:** www.safecity.in	India, Kenya, Nepal, Cameroon	Safecity is a platform that crowdsources personal stories of sexual harassment and abuse in public spaces. This data which maybe anonymous, gets aggregated as hot spots on a map indicating trends at a local level. The idea is to make this data useful for individuals, local communities and local administration to identify factors that causes behaviour that leads to violence and work on strategies for solutions. Safecity aims to make cities safer by encouraging equal access to public spaces for everyone especially women, through the use of crowdsourced data, community engagement and institutional accountability.	It encourages understanding and reporting of sexual violence. It provides information that can be used to increase and improve situational awareness for better individual choices regarding personal safety. It provides information that the community can use to mobilise and organise themselves around the issue and hold service providers like the police and municipal authorities accountable in doing their jobs. Creates a space for conversation on a taboo topic making it easier to break the silence.	**Technologies used:** Ushahidi crowdmap, Safecity Facebook bot, Missed Call, Data Analytics, Social Media (Twitter and Facebook) **Level/scale:** Individual, Family, Community, Government **Systems supported:** Urban environments, Gender based violence **Primary focus:** Preparedness, Recurring event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban **Users:** 100,000	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency Entrepreneurs or social enterprises **How it's funded:** Donor, Self-funded, Revenue from corporate workshops

What, if any, impact has your digital technology had to date?

- Police in Mumbai and Delhi changed their beat patrol timings and increased vigilence.
- Municipal authorities and elected representatives in Delhi assured the community that clean toilets would be made available.
- Transportation authorities issued "women only" bus licences in Kathmandu.
- Police in Mumbai, Delhi and Goa are accepting monthly trend reports of Safecity data.
- Integrated our child sexual abuse awareness program into the Delhi police's Parivartan school program.
- Leadership development amongst young women and men to enable gender equality, prevention of VAW and gender equal spaces.
- Over 13,000 people have attended our awareness workshops on sexual violence and Know your legal rights.
- We have been partnering with NGOs in 8 neighbourhoods in Delhi and 2 in Mumbai positively impacting the lives of over 10,000 families.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
SAFECAST **Name of your technology:** bGeigie, Pointcast, Solarcast **Contact person:** Pieter Franken pieter@safecast.org **Website:** www.safecast.org	Safecast focus is worldwide - volunteers decide where they will operate, not Safecast. In Asia we are specifically active in Japan, Taiwan, Hongkong, Singapore, South Korea and are looking to expand into other S.E. Asian countries.	Safecast is a platform that allows citizens to measure their environment for radiation and air quality with mobile and fixed sensors, and share the measurements as open, trustworthy data to build context around the data so it is meaningful to local communities and powerful to engaging authorities to take action	Open environmental data creates a trustworthy baseline for citizens to respond to threats in their environment. These could be disasters, or daily exposure to harmful elements. Open data builds trust and leads to rational action and empowered dialogues with governments.	**Technologies used:** Radiation sensors, PM Sensors, 3G, Bluetooth, Lora(WAN), solar powered sensors, cloud based big data (over 60,000,000 measurements), open hardware/ software, Arduino, state of the art GIS visualization tech, Android/iOS apps, realtime monitoring, etc. **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 1,000+	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) **How it's funded:** Academic institution, Crowdfunding, Donor, Self-funded

What, if any, impact has your digital technology had to date?	Gradual baselining of our planet, with over 60,000,000 locations measured till date. Dialogues with local and central governments in Japan, Europe and US. Bringing opponents together around the same table to focus on facts. Publication in scientific journals about our methods. Correcting misleading reporting about our environment. Many links available on request.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Sahana Software Foundation **Name of your technology:** Sahana Alerting and Messaging Broker (SAMBRO) **Contact person:** Nuwan Waidyanatha nuwan@sahanafoundation.org **Website:** https://sahanafoundation.org/sambro/	Myanmar, Maldives, Philippines	SAMBRO interconnects early warning Publishers (Alerting Authorities) and Subscribers (Pubic, Emergency Services, In-Line Agencies, and Civil Society). It makes use of the ITU-T X.1303 (CAP), all-hazard all-media, international warning standard to interchange messages from Alerting Authorities who are using disparate ICT systems. SAMBRO visually shares the aggregated situational-awareness information across all agencies. It offers drill-down and filtering capabilities using interactive maps. The single entry of a warning message is automatically disseminated to targeted recipients over multiple channels (Email, SMS, Social Media, FTP, RSS, Web, and Mobile-APP) and in the desired languages.	The situational-awareness and timely dissemination that SAMBRO implements improves the institutional responsiveness to all-hazards in a nation. Moreover, it supports cross-boarder coordination of risk information.	**Technologies used:** open source, web services, mobile apps, GIS, **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Approximately 500 in each country	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/agency National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Government, Private investors

What, if any, impact has your digital technology had to date?

Maldives, Myanmar, and Philippines adopted the ITU-T X.1303 CAP warning standard. They are 3 of the 23 of the countries including North America, Australia, Europe, Taiwan, Indonesia who have implemented CAP. The CAP messages produced by the three countries are received by the World Meteorological Organization advocated Filtered Alert Hub; which is available for member states to subscribe to specific alerts. Google and the IFRC Preparedness Center are two other consumers making use of the CAP feeds in their products to share knowledge with people.

All three countries operationalized and have been using the system since October 2016. They share alerts over the web, social media, RSS, email, and SMS. Maldive's "dhandhaana" is narrowing the response times and reaches 500 focal recipients in the 180+ inhabited Islands [1]. Philippines aggregates flood and storm warnings are made available for situational-awareness in the Barangay removing the need for laborious communication trees [2]. Maldives share meteorological, hydrological, and seismological warnings with all Stakeholders down to the Townships [3]. Recent major events such as the typhoon and floods in Philippines and earthquake and floods in Myanmar, in 2016, made use of the system to mitigate the impact to lives and livelihoods.

We applied an agile (SCRUM), prototyping, and action research oriented implementation approach. The CAP implementation challenges, in the three country context, have been published [4] and others have been submitted. We have also shared the technical reports that discuss performance and acceptance evaluation, which was used to develop further recommendations for Institutional and Technical coherence in three countries [2] & [3]. These are valuable lessons for future Implementations, especially in Asia.

It is uncertain what the actual impact for strengthening resilience is and such a study is necessary. However, it is a major step towards sharing timely risk information giving communities advance notice to mitigate their losses such as with saving their livestock, harvesting available crops, securing valuables (e.g. electronics), and official documents.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Sahana Software Foundation **Name of your technology:** Mobile Pictographs in support of Disaster Communication with Linguistically Challenged **Contact person:** Nuwan Waidyanatha nuwan@sahanafoundation.org **Website:** https://sahanafoundation.org/pictographs	Sri Lanka, Philippines	We are combining symbology (or pictographs to be precise) with mobile phones to exchange risk information with linguistically challenged people (i.e. low-literate & functionally illiterate).	Pictograph enabled communication will empower communities of practice in disaster and climate change to include all linguistically challenged populations. It will bring about change in ways which risk is perceived and communicated by the low-literate and functionally illiterate. Moreover, pictograph enabled communication empowers interconnection of these marginalized populations for knowledge mobilization in the given context.	**Technologies used:** Mobile app, visual design **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Working with 70+ low-literate individuals	Yes	**Development and deployment:** Community organizations (e.g. local CSO) National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Self-funded

What, if any, impact has your digital technology had to date?	We have identified and verified the need for pictograph enabled disaster communication. The realization is through a probing exercise carried out with targeted communities. Other interactions were with researchers and practitioners. The project is still in its early design stages and has not field tested the intervention yet, to discuss any impact.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Save the Children **Name of your technology:** Comprehensive School Safety Assessment Suite **Contact person:** Marla Petal marla.petal@savethechildren.org.au **Website:** www.savethechildren.net	Lao PDR. Some parts in Indonesia. Interested in expanding in Lao, and Cambodia, Vietnam, and Thailand. Beginning in Fiji and Mexico.	We are using, testing and expanding the Comprehensive School Safety Assessment Suite with mobile tools for i) crowd-sourcing school hazard and vulnerability exposure ii) School Safety Self-assessment and iii) School Facilities Light Technical Assessment, with partners in the Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector. Currently used for risk reduction, post-disaster damage and needs assessment modules are planned. The address three of major drawbacks associated with prior types of assessment: #1 Rather than being extractive, it empowers citizens and school-based management as information providers, and returns automated report-back with recommendations and guidance to improve school safety. #2 Rather than generating unused data, user portal provides automated and ad hoc reports for planning and decision-making. #3 Rather than deploying costly professional assessment, it efficiently triages those schools that require technical assessment.	• These tools engage and empower community members, school-based management, and sub-national and national level education sector management, respectively. Photo data collection enhances ability to use the data for remote planning and decision-making, and resource allocation. • Crowd-sourced phone app is designed to build awareness and demand for safe schools. • School Safety Self-Assessment tablet app is designed to gather non-technical data for risk reduction. Schools receive automated reports with guidance and recommendations, based on their response. National and sub-national education authorities have access to aggregated data (and photos) for planning and decision-making. Easy access to school-level and sub-national aggregated data allows for efficient use of limited resources for maximum impact of risk reduction initiatives.	**Technologies used:** Digital Toolset: Mobile phone and tablet apps returning automated reports and recommendations. Online portal to provide easy access to automated reporting on data. The tools can draw upon existing hazard mapping data, and can be integrated with existing Education Management Information Systems. **Level/scale:** Community, Government, School **Systems supported:** Climate, Health, disaster risk reduction, child participation in risk eduction **Primary focus:** Preparedness **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Lao PDR: 150 schools (12 districts accessing 1 tablet each). Fiji (TBD)	Yes	**Development and deployment:** Local (non-national) government body/ agency National government body/agency Donor or philanthropic programs (Internationally based) National subject-matter experts **How it's funded:** Donor

What, if any, impact has your digital technology had to date?

- Pilot schools in Lao PDR now have access to automated reports with recommendations for local action, and are implementing recommended measures.
- Donor agencies are able to better assess requests for small grants to support risk reduction
- Education authorities are accessing user portal to review risk data from schools and integrating this intelligence into national level planning and decision-making
- These technologies support us in achieving impact at scale. This will permit a paradigm shift from the deployment of minimally-trained social mobilizers at a small scale, to the development of strategies and tools to facilitate engagement of much larger groups of people, across diverse settings, in the processes

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Sidekick Healthcare Services Pvt ltd **Name of your technology:** - **Contact person:** Manav Chaudhary manav@sidekickedge.com **Website:** -	India	Poor decisions leads to poor choices which impacts the health outcomes in any society. This leads to stresses and chronic shocks in the form of an outbreak or ongoing disease burden for the society. Healthcare is one of the fundamental pillars for any society to thrive. Our collaboration platform brings service provider, clinical & operational teams, individuals and families, research institutes and policy makers on the same platform to leverage the true potential of the technology. It enables improved decision making leading to better healthcare outcomes for the communities. In the process, we generate tremendous value for each of the stakeholders. Immediate return on investment, amazing ease of use, near real-time information flow are the current focus of the platform in rural / semi-urban locations. The solution has been deployed for over 50+ villages and city based clusters in North India since Jan 2017.	Sustainable strengthening of capabilities is required to enhance resilience for individuals and communities. Technology has to lead to improved decision making which should lead to actions and resilient individuals. Our platform (Technology + Services) generates information for decision making on daily basis instead of 'after the fact' which is the case with some of the solutions trying to address healthcare challenges. That information leads to decision making on regular basis in real-time leading to 'call for action'. That leads to immediate intervention. For the service delivery team, it enables improved transparency & trust, collaboration and sense of satisfaction. Global funding agencies benefit as their financial resources are deployed in a more effective way and lead to focused interventions immediately instead of in the future. Collectively, it prepares individuals and communities to learn and prepare for shocks and stresses better.	**Technologies used:** 1. Web technologies (various), 2. Mobile technologies (various), 3. Analytics (various) **Level/scale:** Individual, Family, Community, Business, Government, Healthcare Research & Funding Agencies **Systems supported:** Health **Primary focus:** Preparedness, Recurring event response **Context:** Urban (secondary/ tertiary cities), Peri-urban, Rural **Users:** We have two B2B partners using the technology platform for 5,000+ families	Yes	**Development and deployment:** Local (non-national) government body/ agency National government body/agency Entrepreneurs or social enterprises **How it's funded:** Self-funded, User fees

What, if any, impact has your digital technology had to date?	The immediate impact includes: - Improved productivity - Real-time information sharing between stakeholders - Faster decision making - Pro-active management of risks for the individuals and communities However, we will be able to share the quantifiable numbers in next few months after consultation with our B2B partners.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
SweetSense Inc. **Name of your technology:** SweetSense **Contact person:** Evan Thomas evan.thomas@ sweetsensors.com **Website:** www.sweetsensors.com	India, Bangladesh, Kenya, Ethiopia, Uganda, Rwanda	SweetSense Inc.'s mission is to improve the resilience, transparency, accountability, and cost-effectiveness of water, energy, and infrastructure projects implemented in resource and power constrained regions of emerging markets through the development and deployment of universal IOT solutions for different service types, combined with robust analytic platforms enabling site-specific service delivery and quality feedback. We develop and deploy cellular and satellite connected sensors monitoring water quality, air quality, sanitation quality, service delivery, operations and maintenance in remote areas of emerging markets where water, sanitation and energy services are often intermittent.	The resilience of water, sanitation and energy services is dependent upon credible and continuous indicators of reliability, leveraged by funding agencies to incentivize performance among service providers. In many countries, these service providers are usually utilities providing access to clean water, safe sanitation, and reliable energy. However, in rural areas of emerging markets, there remains a significant gap between the intent of service providers and the impacts measured over time. SweetSense Inc. develops IOT solutions to address these information asymmetries and enable improved decisions and response. We are directly measuring the performance and use of these interventions in a way that has not previously been possible. Our data is used in lieu of anecdotes to drive reliable and sustainable services.	**Technologies used:** SweetSense Inc. creates Internet of Things (IOT) solutions to improve the quality and value of water, sanitation, and energy services in emerging markets in developing countries. SweetSense Inc. addresses needs across a broad diversity of customer requirements in resource and power-constrained environments through the design and deployment of unified IOT hardware solutions that migrate site-specific complexity to our cloud-based analytics and machine learning platform. **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods **Primary focus:** Preparedness, Recurring event response **Context:** Peri-urban, Rural **Users:** 2,000 sensors in 15 countries serving over a million people.	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Academic institution, Donor, Government, Private investors, Self-funded

What, if any, impact has your digital technology had to date?	We have deployed in 15 countries and are actively involved in scaling this technology globally - we also publish on our work

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Tata Consultancy Services **Name of your technology:** mKRISHI® RSDP **Contact person:** Aditya Tiwari tiwari.aditya@tcs.com **Website:** https://www.tcs.com	India	mKRISHI® is a platform for stakeholders in the agri-supply chain like farmer & fishermen. Technologies used are mobile phone, web, IVR, GIS, GPS, Automatic Weather Station, Sensor networks, speech. It helps information exchange. Using mobile phones/simple phones the farmer is able to ask questions to agri-experts, see weather forecast, click photograph. TCS partnered with IARI, CRRI, OUAT to digitally connect climatically vulnerable 400+ villages in four states, advising 20,000 queries of 10,000 farmers, 1.5Lac weather forecast hits. mKRISHI® partnered with CMFRI, INCOIS India to make available Potential Pelagic Fishing Zones, Wind Speed, Direction, Wave height, to fishermen on their mobile handsets. mKRISHI® with content in local language. Increased yield and reduce diesel use. In natural disasters like cyclone like Hudhud (2014), Phailin (2013) in the North Indian Ocean, it played a role to disseminate critical information to farmer & fisherman about crop management and warning against venturing into sea.	The farmers and fishermen who are dependent on nature for their livelihood. They still follow traditional methods of their occupation. Global warming is changing the environment, hence interventions are needed to reduce & respond to climatic stress. The challenge was how to spread the message of climate change & interventions to 6.8 lakh villages across India. Similarly without the potential fishing zones (pfz) information fishermen would have to spend diesel in boats to search for the fish catch. At 5 % adoption level of the 'mKRISHI® service, it was estimated that they saved approximately 30% of diesel (3 lakh liters of diesel per year). This saved 23% of subsidy given by the Government to these fishers per liter (approximately to the tune of Rs 35.88 lakh/ year in 13 villages). Carbon load & financial burden of the Government decreased. (Source: CMFRI NAIP Report Nov 2013). Farmers got to know about heat resistant & stress tolerant crop varieties. Weather forecast helped be ready for adverse event.	**Technologies used:** We are using mobile phone, web, IVR, GIS, GPS, automatic weather station of partner, sensor networks, speech etc. **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Livelihoods **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Rural **Users:** 35,000	Yes	**Development and deployment:** Local (non-national) government body/ agency National government body/ agency **How it's funded:** Self-funded
What, if any, impact has your digital technology had to date?	https://drive.google.com/open?id=OB418b5vJL_kKSTZyRHNDQnV6UTQ					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Tata Consultancy Services (TCS) **Name of your technology:** mKRISHI® - Patented Mobile based Personalized Service Delivery Platform **Contact person:** Dr. Srinivasu Pappula (Ph.D. CISSP) srinivasu.p@tcs.com **Website:** www.tcs.com	India	The PRIDE™ (Progressive Rural Integrated Digital Enterprise) powered by the TCS mKRISHI® platform is one of the innovative business models, which is being promoted to overcome the inefficiencies prevailing in the current agri value-chain, especially in emerging economies. It is a self-sustaining, economically viable rural entity made possible through the appropriate intervention of Social Networks, Mobility, Analytics, Cloud, IoT which enable a revolutionary cyclic data optimization process. This involves continuous data collection from the field, aggregation of the collected data and secure transmission through the cloud. Various specialized data analytics algorithms act on the data and the insights gained through this are used to direct the on-field operations. Thus, the complete gamut of agricultural transactions across the value chain are converted into scientific, data-driven processes which remove a lot of the uncertainty currently prevailing in the farmers' lives.	PRIDE™, powered by the TCS mKRISHI® platform, is designed to enhance the climatic and market resiliency of the farmer members which also increases their financial resiliency. During the crop planning phase, the past, present and future information on the climate and market front are used to advise the farmer on the best crops for the particular piece of land owned by the farmer. This information is encapsulated in the AgriCrol™ (Agricultural Crop Protocol), a revolutionary repository of information which is completely personalized. By following the information in the AgriCrol™, the farmer is assured of significant climate and market resiliency which is further enhanced through aggregation facilitated by the PRIDE™, disease and pest detection, weather prediction and so on. As we come closer to harvest, various market resilient steps such as market linkages, post-processing, storage options are introduced which enable the farmer to become "climate-smart" and "market-smart".	**Technologies used:** Mobile, Web, Interactive Voice Response (IVR), Mobile App, Big Data Analytics, Internet of Things (IoT), Social Media, Cloud **Level/scale:** Individual, Family, Community, Business, Government **Systems supported:** Climate, Health, Livelihoods, Urban environments **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Half a million active farmers across 10 states in India	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/ agency Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Self-funded
What, if any, impact has your digital technology had to date?	Reduction in pesticides – 15% Reduction in fertilizer usage – 10% Average increase in yield – 48% Average increase in profitability – 45% Average increase in compliance to best practices – 75% Increase in rural employment					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
TechSoup Asia Pacific **Name of your technology:** Service Provider directory for NGO Capacity Building **Contact person:** Matt Jung mjung@techsoup.org **Website:** To be launched in May 2017	China	In partnership with the Ford Foundation, TechSoup Asia Pacific is developing an online website / database and off-line training series for NGO capacity-building that will connect Chinese nonprofit organizations with technical capacity building service providers. These service providers offer a variety of capacity-building consulting services in a range of areas, including financial management, strategic communications, leadership training, strategic planning, and legal. The pilot will aim to increase engagement between NGOs and service providers through a user-friendly, integrated online service provider database platform, supported by a training event series and online case study content. We will support these NGOs to engage a few service providers each, and share best practices in effective service provider engagement, as we identify the best mechanisms for capacity building.	NGOs are often the front-line service providers in impactful, development and resilience projects and initiatives. In order to grow their programs and scale their impact, they need a variety of capacity-building help. Many Asia countries face an ever-changing legal landscape, a lack of government support, and a constant struggle to utilize new technologies that can improve their program work. With more access to experienced consultants that are already prepared to work with NGOs, NGOs can grow and be better prepared for resilience challenges.	**Technologies used:** Mobile responsive website, and analytics **Level/scale:** NGOs and CSOs **Systems supported:** We support all NGOs in these categories **Primary focus:** Preparedness **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban **Users:** 25 NGOs in the pilot	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises Business consultants interested in supporting NGOs **How it's funded:** Self-funded, TCS Donor

What, if any, impact has your digital technology had to date?	This is just a focused China pilot now, but we are in discussion with our TechSoup Asia partners in Southeast Asia to start similar pilots. For China, we have gotten supportive interest from prominent NGOs that have been assessed to be able to utilize such capacity building. We are organizing the initial comprehensive directory of service providers. We hope to leverage our Techsoup.Asia technology donation program and e-commerce experience (which has enabled over 35,000 NGOs and CSOs in the region to access more than US$400 Million in technology resources to date) to develop and scale the program.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
Telenor Pakistan **Name of your technology:** Mobile Agriculture **Contact person:** Farzeen Zaidi farzeen.zaidi1@telenor.com.pk **Website:** www.telenor.com.pk	Pakistan	Telenor Pakistan has the largest rural market share which amounts to approximately 22 Million subscribers. We are also the biggest digital access provider and financial services provider for rural population of the country. In line with its vision of "Empower Societies" and working towards UN's SDGs, Telenor Pakistan launched its "KHUSHAAL ZAMINDAR" service for smallholder farmers which make up 89% of Pakistan's 30 Million farmer base, in December 2015. The service provides localized, contextualized and customized weather forecast, agronomic and livestock advisory through robo-calls and SMS to help increase crop yield, reduce post-harvest losses, safeguard food's nutrition and better manage adverse climatic effects and natural resources. 2.5 Million farmers are currently benefitting from this free service covering a range of cash crops, fruits, vegetables, fodders and livestock in multiple languages.	Prosperous farmer service is for small holder farmers with the aim to create awareness about the best farming practices and livestock management. We provide localized, contextualized and customized advisory related to 3 to 5 day weather, cash crops, fruits and vegetables, Livestock. Changing weather pattern is a big hindrance for farmers to plan their agriculture calendars. Small holder farmers don't product enough crop and they don't get the right prices of their crops in the market. Farmers also suffer from post-harvest losses. Control on these losses can result in availability of 20-40% more vegetables, crops and fruits. Our service encourages the farmers to adopt modern and better methods of farming so that they can reduce the use to pesticides and fertilizers which are indirectly contributing towards climate change. By minimizing the negative impact of pesticides we can protect the environment. Farmers can also connect with Agri Experts through weekly Live-show.	**Technologies used:** Interactive Voice Response (IVR and SMS based service), request based Out Bound Calls, Push text messages, Data Analytics for user acquisition **Level/scale:** Individual, Family, Community, Women **Systems supported:** Climate, Health, Livelihoods, Food and Agriculture **Primary focus:** Preparedness, Recurring event response **Context:** Rural **Users:** 2.7 million	Yes	**Development and deployment:** Donor or philanthropic programs (Internationally based) Initially the project was launched with the help of GSMA **How it's funded:** DFID through GSMA Mobile Agriculture program
What, if any, impact has your digital technology had to date?	https://www.youtube.com/watch?v=VwPlvjJYqfs					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
UNESCO Bangkok **Name of your technology:** Gamification, Mobile Game Application **Contact person:** HyunKyung Jasmine Lee hk.lee@unesco.org **Website:** tanahthegame.com http://www.floodfighterthegame.com/	Countries in Asia and the Pacific region are the main target of the initiatives. With regards to language coverage, two applications are available respectively 5 different languages – Sai Fah: the Flood Fighter (Bahasa, English, French, Korean and Thai) and Tanah: the Tsunami and Earthquake Fighter (Bahasa, English, Nepali, Spanish and Thai).	The two applications accommodate "Gamification" strategy which uses game elements and game design techniques in non-game contexts in order to effectively convey the key lessons in a more interesting and engaging way. Game elements/design techniques such as quests/challenges (e.g. finding objects and clearing the given tasks), avatars, progression, and levels are utilized in order to attract the attention of young learners while non-game contexts such as experiences of Indian Ocean Earthquake and Tsunami in 2004 and Nepal Earthquake in 2015 are taken in order to provide lessons that could be applied to real life cases. Key lessons for flood safety and earthquake and tsunami safety were collected from various resources including Public Awareness and Public Education for DRR (PAPE) from IFRC and analyzed to design game stages. Key concept of the initiatives is that the players naturally learn important lessons while they enjoy playing the game.	These mobile game applications provide key lessons to equip young learners with knowledge that contributes to strengthening their level of preparedness in a very simple but interesting and fun way. For instance, through these applications, players would learn lessons such as where to set up your furniture to ensure that it will not block your way out when you evacuate, how to use fire extinguisher, and etc. which the users could immediately apply to their daily lives. The initiatives are primarily focused on enhancing level of preparedness at individual level which could ultimately have impact on community and even national/regional level in a longer term. For instance, after young users learn basic lessons on preparedness through playing these games, they, as change agents, could help not only themselves but also their friends, parents, and neighbors become aware of the relevant issues and prepared with the key knowledge.	**Technologies used:** Mobile application, gamification, and big data analytics **Level/scale:** Individual, Family, Community **Systems supported:** Urban environments, Education **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Both applications have been downloaded more than 250,000 times in 150 countries in the world.	Unsure	**Development and deployment:** Community organizations (e.g. local CSO) National government body/agency Donor or philanthropic programs (Internationally based) Entrepreneurs or social enterprises UNESCO Offices **How it's funded:** Donor, Government, UNESCO Offices
What, if any, impact has your digital technology had to date?	We have collected data which shows test scores of pop up quizzes of 3,300 users. The trend of the data shows positive improvement after the users play the games.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
United Nations Development Programme Bangkok Regional Hub **Name of your technology:** UAVs and VR **Contact person:** Sanny Jegillos sanny.jegillos@undp.org **Website:** http://www.asia-pacific.undp.org	Currently UAVs in Maldives and VR in Nepal	In partnerhip with DJI and WeRobotics and in close collaboration with the National Disaster Management Centre in the Maldives, UNDP is training island councils to risk map islands vulnerable to coastal erosion and training coast guards and fire fighters to use UAVs for search and rescue and setting up knowledge hubs for learning exchange and sustainability. UNDP produced a VR film on the post 2015 earthquake to build empathy and raise resources for long term recovery. The film was presented in the exhibition booth at the Asian Ministerial Conference on Disaster Risk Reduction in New Delhi in November 2016. Events will be organised along with a crowdfunding campaign to raise resources for Nepal around the second earthquake anniversary in 2017.	The UAVs in the Maldives are helping the Government to make risk informed decisions for communities affected by sea level rise/ coastal erosion based on risk maps produced.	**Technologies used:** In addition to UAVs and VR, UNDP has worked with Microsoft to develop a mobile app for debris clearance that was used in Nepal. UNDP is also working with PulseLab Jakarta on big data analytics for disaster related data. UNDP has an MOU with GloriousLabs for using VR and IOTs for disaster risk reduction. **Level/scale:** Community, Business, Government **Systems supported:** Climate, Urban environments **Primary focus:** Preparedness, Recurring event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 100 trained in the Maldives and growing	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Local (non-national) government body/ agency National government body/ agency **How it's funded:** Private investors, Self-funded
What, if any, impact has your digital technology had to date?	Please see Maldives story here.					

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
University of Bremen / International Lab for Local Capacity Building **Name of your technology:** Mobile4D **Contact person:** Dr. Thomas Barkowsky barkowsky@uni-bremen.de **Website:** http://www.capacitylab.org/project/mobile4d	Lao People's Democratic Republic	Mobile4D is a smartphone-based disaster alerting and management system in Laos. In case of natural disasters such as floods, fires, and diseases, a fast and secure flow of information is essential to cope with the situation. Mobile4D allows both for timely notification of affected stakeholders and easy and barrier-free crowdsourcing of disaster information on the local level. Modern information technology helps people improve the information flow in case of disasters and provides an early warning system. Mobile4D consists of three parts: an Android app which allows people in the villages to receive warnings and make contact with people in the administration to get help; a web front-end which allows the different administrative layers to send out warnings and provide further information, e.g., safety advice and contact information for questions; and the disaster management server, which handles the incoming disaster warnings and sends out notifications to the people who are in danger.	Natural disasters threaten people anywhere, but in developing countries they often have severe consequences. Disasters are a main reason for poverty as they prohibit continuous development. Besides large catastrophes, developing countries are often confronted with smaller-scale problems like local outbreaks of human, plant, or animal diseases. These type of incidents may have severe consequences for individuals, families, and communities. Also, problems may spread and affect further areas and turn into larger-scale problems. To cope with problems of any kind, the bidirectional flow of information (from the local level up to administrative authorities and vice versa) is a critical issue towards suitable measures to restrict the impact of the problem at hand. Mobile4D as a bidirectional location-based disaster alerting and reporting system allows for sending emergency warnings from the administration to affected people and to report disasters at the local level as a crowdsourcing effort.	**Technologies used:** Mobile app, central data server, web portal, location-based services **Level/scale:** Individual, Family, Community, Government **Systems supported:** Health, Livelihoods **Primary focus:** Recurring event response, Catastrophic event response **Context:** Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 100	Yes	**Development and deployment:** Local (non-national) government body/agency National government body/agency **How it's funded:** Academic institution, Crowdfunding, Government

What, if any, impact has your digital technology had to date?	After a pilot phase in thee Lao provinces, Mobile4D is now deployed all over the country. The Android app is freely available to any potential user via the Google Play Store. The system is continuously being extended to cover new types of issues. The most recent extension is related to report occurrences of locusts (yellow-spined bamboo locust, ceracris kiangsu) in its various states of development, which has become a growing problem in Southeast Asia over the last couple of years.

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Viamo (Previously known as Human Network International (HNI) and VOTO Mobile) **Name of your technology:** 3-2-1 Service **Contact person:** Aimee Rochelle arochelle@hni.org Jamie Arkin jarkin@hni.org **Website:** Viamo website in development (hni.org & votomobile.org)	3-2-1 is currently live in: Botswana Cambodia DRC Ghana Madagascar Malawi Mozambique Nigeria Uganda Zambia We have plans to launch 3-2-1 in Nepal, Rwanda and Tanzania before the end of 2017.	The 3-2-1 Service is a mobile phone information service to prepare resource-poor individuals to take action to improve their well-being. Callers use their own mobile phones, no matter how simple, to proactively retrieve information across a range of topics using Interactive Voice Response (IVR), SMS, or USSD, anytime, anywhere, free of charge. In a series of "listen, then choose" steps, callers use their telephone keypad to select from among hundreds of pre-recorded voice messages. Topics include: weather, health, agriculture, financial literacy, gender, WASH, among others. For example, as climate change increasingly affect vulnerable populations, and information such as accurate forecasts and emergency weather alerts are hard to access, 3-2-1 provides a solution--content on weather condition preparedness, automated 6-day weather forecasts, and emergency weather alerts based on live data from Earth Networks' weather stations and available to the public from the palm of their hands.	The 321 strategy represents a paradigm shift in development. People do not have to wait passively for the information they need, but rather pro-actively consult the 3-2-1 Service's directory of messages. Furthermore, utilizing IVR, which is accessible even on the most basic phone, allows these important messages to be heard by all citizens, regardless of their socio-economic, education, or technology levels. Now everyone can have access to the education to help them make the best choices possible. For example, allowing people to use their mobile phones to access the 6-day weather forecasts and weather preparedness information, they can decide what action to take (e.g., take the boat out fisihing that day) depending upon what the forecast is, and apply the best preparedness practices they've learned all from the palm of their hands, using a tool they already own.	**Technologies used:** The 3-2-1 Service uses IVR, SMS, USSD, and a zero-rated website as channels accessible to the public. It also uses APIs to connect platforms such as Earth Networks with ours to host automated weather content. **Level/scale:** Individual, Family, Community, Business **Systems supported:** Climate, Health, Livelihoods, Agriculture, Finance, Gender **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Rural **Users:** Globally, the 3-2-1 Service has been accessed by over 7 million individuals making over 70 million inquires	Yes 	**Development and deployment:** Community organizations (e.g. local CSO) National government body/ agency Donor or philanthropic programs (Internationally based) **How it's funded:** Donor - Content development fee for INGOs, NGOs, CSOs, etc. who want to add content (e.g., nutrition, financial literacy, etc.) to the service

What, if any, impact has your digital technology had to date?	Quantitative research supported by the GSMA Connected Women Program indicates that use of the 321 Service changes behavior. Specifically, 62% of female 321 users surveyed reported that the gender equality information changed their lives or behaviors. Furthermore, 91% believed that the content improved their ability to make household decisions, 96% reported that it had added value to their lives, and 82% of men and women strongly agreed that the gender equality information has improved their knowledge on the importance of education for girls.

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Win Miaki Ltd. **Name of your technology:** Weather Agro-met Advisory Service (WaaS) **Contact person:** Remizius Remi remizius.remi@miaki.co **Website:** win.miaki.co	Bangladesh	Our innovation is to introduce a digital platform coupled with weather and agriculture info to deliver through different ICT channels like OBD/ IVR/ SMS/ App push so that every registered farmer can avail weather agro-met information from the platform. We call it Weather Agro-met Advisory Service (WaaS). This service will help farmers to protect crop/ fisheries/ livestock from extreme events related direct effect and pest related indirect effect by providing the following specific (crop, crop stage, time, location and person) information: 01. Advance weather info, 02. Possible effects of adverse weather, 03. Advisories to protect their crop/ fisheries/ livestock from the adverse weather through Effect, Prevention and Control related information. All driven by algorithm and CMS hosted in cloud servers.	Geographically Bangladesh stands in a calamity prone area where natural disasters are very common especially in the coastal belt areas. From our system smallholder will get the weather updates along with agro-met solution to protect their produce to secure their produce. WaaS would have a great impact on the livelihoods empowering them with proper information to properly manage the adverse climatic condition and disaster hence securing their produce. This service will also help smallholder farmers to take the right decision and save the farm produce against disaster and calamity ensuing the higher profit utilizing optimum resources. Mobile phone is the quickest and safest way to reach small scale farmers to provide agro-met info and we prefer it as primary channel. WinMiaki has already implemented WaaS in limited scale to help farmers with his/ her business community/ local/ regional level to enhance his/ her business growth and opportunities and of course the resilience.	**Technologies used:** Mobile App, Data analysis, Content CMS, Weather API, SMS, OBD **Level/scale:** Individual, Community, Business **Systems supported:** Climate, Livelihoods, Agricultural production Recurring event response **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Peri-urban, Rural **Users:** 210, 200 (directly and indirectly)	Yes	**Development and deployment:** Donor or philanthropic programs (Internationally based) Donor or philanthropic programs (Nationally based) Entrepreneurs or social enterprises **How it's funded:** Donor, Private investors, Self-funded, User fees

What, if any, impact has your digital technology had to date?	We have been running this for couple of months and yet we need some time to assess the impact. But from a UX field visit we have found that this service has been changing the thought process of rural farmers toward decision making.

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World Food Programme and Pulse Lab Jakarta **Name of your technology:** VAMPIRE (Vulnerability Analysis Monitoring Platform for the Impact of Regional Events)/PRISM (Platforms for Real-Time Information Systems) **Contact person:** Katarina Kohutova katarina.kohutova@wfp.org Jonathan Rivers jonathan.rivers@wfp.org Lee Jong Gun jonggun.lee@un.or.id Imaduddin Amin imaduddin.amin@un.or.id **Website:** http://pulselabjakarta.id/elnino	Cambodia, Indonesia	VAMPIRE/PRISM is a climate and hazard impact surveillance system that fuses multiple data streams including satellite data products, routine government reports, other secondary information and community survey data. It provides integrated map-based visualizations of the extent of disaster affected areas in near real-time, identifies areas/ populations most at risk and provides data on the impact the disaster has on affected populations' coping and resilience strategies. Using ESRI technology and open source software, the system automates data acquisition and processing, dramatically accelerating the ability to take informed decisions. Integration of remote sensing information with government monitoring and social protection systems enables decision-makers to visualize the evolution of disasters and their impact on poor and vulnerable populations, ensuring disaster response is evidence-based and human-centered.	By providing rapid access to information on the number of people requiring assistance and on geographic priorities, the disruption of weather extremes and natural disasters can be minimized. The system enables early warning, preparedness and response, which can prevent malnutrition, livelihoods and food security from worsening, and ultimately save lives.	**Technologies used:** Remote Sensing data (precipitation, meteorological drought models, vegetative health indices) ResourceMap Mobile data collection and data management application Interactive, map-based platforms, decision-support systems Data integration hub that links multiple data sources, including remote sensing, data collection applications/ modalities, government systems/ social protection databases **Level/scale:** Government **Systems supported:** Climate, Livelihoods **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (primary/capital cities), Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** 7 in total- 5 Provincial Committees and the National Committee for Disaster Management in Cambodia; and the Executive Office of the President of Indonesia	Yes	**Development and deployment:** Local (non-national) government body/ agency National government body/ agency **How it's funded:** Donor, Self-funded

What, if any, impact has your digital technology had to date?	In Indonesia, the Executive Office of the President integrated the systems into its early warning system in the President's situation room. The system assists the President and his team monitor food security across the nation and to identify critical hot spots for disaster impact, especially related to food access, and areas where disaster prevention is required. Upon request of the Government of Sri Lanka, the system is being integrated and customized for drought monitoring in Sri Lanka's Disaster Management Authority. In Cambodia, VAMPIRE/ PRISM has recently been requested to serve as the foundation of the country's emergency information systems, adopting the various tools and technologies to support the government reporting systems and integrating platforms into provincial and national emergency coordination centers. VAMPIRE/PRISM is in the process of rolling out to all provinces and will be fully established by 2018.

Name of your organization/firm	Countries deployed in	Description of digital technology	How does it enhance resilience for your target audience?	Additional details	Pro-poor focus?	Who's involved?
World Food Programme **Name of your technology:** mVAM in PNG (mobile Vulnerabilty Analysis and Mapping) **Contact person:** Venkat Dheeravath venkat.dheeravath@wfp.org **Website:** http://vam.wfp.org/sites/mvam_monitoring/papua_new_guinea.html	Papua New Guinea, Afghanistan, Myanmar and Nepal	WFP used mVAM innovative technology in Papua New Guinea (PNG) using Digicel mobile network, Call Center operators interviewed a total of 8,416 households by phone between during El Nino and after emergency food assistance in 2016. Surveys were conducted in the two main languages spoken in PNG: Tok Pisin and English. Households were then randomly selected from Digicel's mobile subscriber database. Within each LLG, the survey targeted 19 households for interview. However, due to the location of Digicel's mobile phone reception towers and the current location of the mobile phone subscribers, achieving this target was not always possible. LLGs which had fewer than five responses have been excluded from the analyses. As per standard survey procedures, respondents' consent was obtained prior to the interviews. All respondents received a 2 kina airtime credit incentive after completing the survey. The Survey is cheaper and quicker to provide most recent food security situation in the country.	From early 2015 through about mid-2016, Papua New Guinea (PNG) was severely impacted by one of the strongest El Niño Southern Oscillation events in recorded history. The effects included successive episodes of floods, frost and drought that caused widespread damage to infrastructure, crop production, and livestock. To assess the effect of El Niño in PNG, WFP implemented a mobile phone-based survey (mVAM) in early 2016 for 231 Local Level Governments (LLGs).The results were used to classify LLGs into four food security phases: low, moderate, high and severe food security impact. The mVAM Survey was cheaper and quicker to collect the data for entire country in PNG in a shorter period. A total of nearly 1.5 million people whose food security had been highly or severely impacted by El Niño-induced drought and frost in 54 LLGs. WFP subsequently targeted the worst affected LLGs and provided emergency food assistance to over 265,000 people during the period June-October 2016.	**Technologies used:** mVAM and Mobile APP **Level/scale:** Individual, Family, Community **Systems supported:** Climate, Health, Livelihoods, Food security monitoring **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Urban (secondary/tertiary cities), Peri-urban, Rural **Users:** Many	Yes	**Development and deployment:** Community organizations (e.g. local CSO) Donor or philanthropic programs (Internationally based) **How it's funded:** Donor, Self-funded
What, if any, impact has your digital technology had to date?	265,000 people					

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World Food Programme **Name of your technology:** 72 hours Assessment Approach **Contact person:** Siemon Hollema siemon.hollema@wfp.org **Website:** -	Nepal, Vanuatu, Philippines (+ platform capable for entire region)	The 72 hours assessment approach leverages geospatial information, along with hazard impact data (e.g., shakemaps or typhoon trajectories) to provide an immediate initial estimate of the disaster's likely impact regarding location, numbers of people, and response needs; decision makers use this information to orient their emergency response efforts. Currently WFP is exploring different mechanisms for quickly validating these initial estimates using a range of digitally-based data sources and gathering tools, including mobile (SMS), social media (e.g., Facebook/ Twitter), and interpretation of satellite imagery using machine learning.	For HHs and communities - ensuring that resilience-directed funds and Government support are appropriately and effectively targeted based on evidence/needs. For Governments, strengthens ability to project/forecast/ model expected impacts, areas of vulnerability, and thus to better prepare/preposition for eventual hazards.	**Technologies used:** big data analytics (satellite imagery, telecom service provider data); mobile (ODK-based) apps **Level/scale:** Individual, Family, Community, Government **Systems supported:** Livelihoods, Food security, nutrition **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Rural **Users:** 7+ countries in Asia with established SDI platforms	Yes	**Development and deployment:** National government body/agency Donor or philanthropic programs (Internationally based) **How it's funded:** Donor, Government
What, if any, impact has your digital technology had to date?	Supported initial response activities during Nepal earthquake, Vanuatu and Philippines typhoons (Pam and Hagupit). https://www.wfp.org/72-hours-emergency-assessment					

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Worldwide Fund for Nature **Name of your technology:** Building Resilience Amidst Climate Change **Contact person:** Edgardo Tongson etongson@wwf.org.ph **Website:** wwf.org.ph	Philippines	We developed technology-based solutions to help farming communities in a watershed in Isabela Province to respond to shocks such as flooding and drought brought by El Nino, La Nina and Climate Change. We installed rain gauges, agro-meteorological stations and river level sensors in strategic locations in a watershed. Data can be viewed realtime via internet and combined with government supplied data to warn communities of impending typhoons and floods. Daily weather and climate data are used to run corn production models (i.e. DSSAT and AquaCrop) that runs online through an internet connection. This enables government extension workers to diagnose yield gaps of farmers arising from water stresses or fertiliser deficiencies. Daily weather forecasts are pushed to cell phones of farmers allowing them to make timely farm decisions such as when to sow, when to apply fertilisers, when to harvest and when to dry.	The technology allows residents to evacuate early during heavy rains. Access to daily weather forecasts empower farmers to make timely farming decisions.	**Technologies used:** Weather sensors (rainfall, temp, soil moisture, humidity, radiation), Water level sensors, Auto data logging, Transmission using sms, Crop model interface, Visualisation tools using internet, Pushing weather forecasts to farmers' cell phones via SMS **Level/scale:** Individual, Family, Community, Government **Systems supported:** Climate, Livelihoods, disaster preparedness **Primary focus:** Preparedness, Recurring event response, Catastrophic event response **Context:** Rural **Users:** Early flood warning systems - c.a. 5,000 residents; smart farming - c.a. 1,000 farmers enrolled	Yes	**Development and deployment:** Local (non-national) government body/ agency National government body/agency Donor or philanthropic programs (Internationally based) Local state university IBM Co. **How it's funded:** Donor
What, if any, impact has your digital technology had to date?	The pilot phase benefitted 5,000 residents since 2013 from warnings issued by partner government officials. No deaths reported from super Typhoon Lawin last October 2017. 1,000 farmers have access to crop calendars and daily weather forecasts. The system can be expanded to cover other cities and towns.					

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Inventory of Digital Technologies for Resilience in Asia-Pacific

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