



Annual Report 2017

United Nations
World Food Programme
Innovation Accelerator



**INNOVATION
ACCELERATOR**



Federal Ministry
for Economic Cooperation
and Development



Federal Foreign Office

Bavarian State Ministry
of Food, Agriculture and Forestry



Foreword

Dear reader,

In 2017, conflict and recurrent climate shocks continued to drive hunger. For the first time in twenty years, the number of people not getting enough to eat increased from 795 million in 2015 to 815 million. In addition to ending conflicts, it's clear that we need bold, new approaches to tackling one of the world's biggest challenges: achieving Zero Hunger by 2030.

At WFP, we believe that innovation is crucial to improving the lives of those furthest behind and accelerating the pace of the fight against hunger. WFP's history shows a clear ability to build new approaches and technologies that deliver assistance to those who urgently need it. Over the past two years, the Innovation Accelerator has actively introduced new ideas to the organization and offered a support channel for internal innovations to reach fruition. At the end of its second year of operation, WFP's Innovation Accelerator has supported more than 30 projects around the world with seven innovations set to scale up in 2018 and beyond. These projects have the potential to impact millions of people over the coming years, thanks to the efforts of WFP Country Offices as well as support from partners.

We believe our approach to leveraging new technologies has paid dividends, both for WFP's operational effectiveness and for the people we serve. On the one hand, the use of frontier technologies such as blockchain and artificial intelligence is helping WFP respond to humanitarian and development challenges with greater speed and effectiveness. On the other, digital breakthroughs are helping to connect smallholder farmers to the information they need, and giving Syrian refugees a fresh chance in the online workplace.

To expand proven innovations and boost the Accelerator's capacity to find future technologies and approaches, we are calling on others in both the public and private sectors in 2018 to join our efforts. We must take advantage of the momentum and opportunities of innovation and technology to provide a brighter future for those in need.

The Innovation Accelerator was made possible thanks to the generous support of the German Ministry for Economic Cooperation and Development, the German Federal Foreign Office and the State of Bavaria. I wish to thank those who have enabled WFP to improve the lives of millions of people boldly, creatively, and with the utmost enthusiasm.

Sincerely,

Robert Opp

*Director of Innovation & Change Management
UN World Food Programme*

1. Introduction

1.1. Growing our Ambition to Achieve Zero Hunger

Since its inception, the WFP Innovation Accelerator has quickly established itself as a leader in humanitarian and development innovation by delivering impact for the people WFP serves. In 2017, progress consolidated as the Accelerator applied learnings from its first full year of operations and renewed its ambition, focusing on innovations that multiply reach and impact.



ENSURING THE SCALE UP OF PROMISING PROJECTS



SOURCING PROJECTS & STRENGTHENING OPERATIONS



POSITIONING WFP AS A LEADER IN TECH FOR GOOD

Scaling Proven Innovation Projects

In 2017, the Accelerator dedicated additional resources to the scale-up of seven proven innovation projects, namely: Building Blocks, Hydro-Sahrawi, Tech for Food, SCOPE CODA, ShareTheMeal, Farm to Market Alliance (FtMA) and Zero Post-Harvest Losses.

To support their expansion, the Accelerator provided expert technology and business model support, leveraged public and private networks and integrated the innovations with existing WFP operations. Working closely with WFP colleagues in the field and at headquarters, the Accelerator helped overcome specific technology and business model challenges to help innovations scale. This often took shape through the provision of expert resources for digital tool development or engaging key partners and stakeholders for joint pilots or co-funding.

Importantly, the Accelerator's scale-up innovations represent different strands of WFP's corporate priorities. Projects such as Tech for Food, Hydro-Sahrawi and Farm to Market Alliance offer viable and sustainable business models for local communities to thrive. Others are optimising WFP's core operations and ensuring WFP is better able to serve those in need. For example, WFP's Building Blocks innovation is leading the way in the use of blockchain technology, making WFP's cash-based transfer operations faster, more secure and cheaper. In reaching 10,500 Syrian refugees in Jordan in May 2017, WFP was the first United Nations (UN) agency to successfully implement blockchain technology at large scale.

Sourcing Innovative Ideas from Start-ups and WFP Innovators

In 2017, the Accelerator received a significantly larger number of applications. More than 1,160 applications – from both external start-ups and WFP innovation teams - were submitted to the Accelerator, marking a four-fold increase from the previous year. The increase in the number of applications received in 2017 highlighted the depth of ideas and potential that exist outside of WFP for tackling hunger.

Following a thorough selection process, a total of 29 teams participated in three Innovation Bootcamps held at the Accelerator's base in Munich. The Bootcamps provided a great opportunity for staff and external start-ups to quickly understand problems and develop cutting-edge solutions over five-days of workshop and module work. Following the initial mentorship provided through the Bootcamps, the most promising teams officially entered the Accelerator's project pipeline through the Sprint Programme.



WFP as a Leader in 'Tech for Good'

Through participation in the global innovation conversation, the Accelerator has benefited from increased access to partners and external start-ups. In 2017, the Accelerator continued to shape the 'innovation for good' conversation at a global level through the sharing of lessons learned, best practices and a demonstrated knowledge of implementation challenges. Expanding on WFP's reputation as a solutions-oriented organisation that delivers in the world's harshest environments, the Accelerator has helped to establish WFP as a frontrunner in the use of cutting-edge technologies such as artificial intelligence (AI) and blockchain.

Granting existing and potential partners close-up access to its approach, technologies and core activities (such as Innovation Bootcamps) has allowed the Accelerator to secure additional resources and expertise. The Accelerator and supported projects engaged with more than 65 partners and participated in around 100 industry events, including workshops and speaking engagements on the topics of humanitarian and development innovation, technology and entrepreneurship. In addition, the Accelerator and supported projects obtained extensive media coverage in 2017, both in Germany and internationally, with a total of 150 media mentions including features in the Frankfurter Allgemeine, Die Zeit, Fast Company, Reuters and the BBC.

1.2. WFP Innovation Accelerator: Core Operations at a Glance

SOURCING	1K+	990	170
	APPLICATIONS	EXTERNAL STARTUPS	WFP TEAMS
BOOTCAMPS	4	29	
	INNOVATION BOOTCAMPS	PARTICIPATING TEAMS	
SPRINT & SCALE-UP	23	30	368K
	PROJECTS	COUNTRIES	BENEFICIARIES REACHED
THOUGHT LEADERSHIP	3	150	
	FIELD INNOVATION HUBS OPERATING	MEDIA MENTIONS	

2. Expanding the Accelerator's Reach

2.1. Map of Projects Supported by the Innovation Accelerator



	PROJECT	LOCATION	PROJECT	LOCATION
SCALE-UP PROJECTS	Building Blocks	Pakistan, Jordan	Farm to Market Alliance	Tanzania, Kenya, Zambia, Rwanda
	Hydro-Sahrawi	Algeria	SCOPE CODA	South Sudan, Uganda, El Salvador
	ShareTheMeal	Haiti, Jordan, Yemen, Nigeria, South Sudan, Lebanon, Cameroon, Bangladesh	Tech for Food	Iraq, Lebanon
	Zero Post-Harvest Losses	Uganda, Tanzania, Burundi, Cote d'Ivoire, Rwanda, Sudan, Mali, Mozambique, Malawi, Ghana, Kenya, Zambia		
SPRINT PROJECTS	AgriUp	Guatemala	AIMS	South Sudan, Sudan, Niger, Tajikistan, Afghanistan
	Cargo on Demand	Tanzania	ColdHubs	Nigeria
	Farm from a Box	Tanzania	Food Computers	Jordan
	Dalili	Lebanon	Groasis	Colombia
	Maano - Virtual Farmers Market	Zambia	Nutrifami	Colombia
	Rice Fortification	Mali	RUDA	Colombia
	Self-Driving Trucks	Uganda	Storytellers	Chad, Guatemala
	Sustainable School Meals	Malawi	Transformers	Kenya

2.1. Implementing at Scale

The WFP Innovation Accelerator believes that by rapidly identifying, testing and scaling innovative solutions, WFP can accelerate the fight against hunger. Innovation Bootcamps are often the first point of contact for start-ups and internal-WFP teams, who take part in 5-days of design workshops and expert consultations to develop their projects. Bootcamp teams that are selected for the Sprint Programme receive support to reach a 'proof of concept'. For projects that show significant potential to yield impact, the Accelerator provides additional support to replicate or scale the solution across WFP's global operations. Quickly recognising and supporting innovations that demonstrate clear ability to reach scale allowed the Innovation Accelerator to further increase its overall impact in 2017.

In total, Accelerator-supported innovations reached more than 360,000 beneficiaries - of which more than half were reached through the activities of scale-up projects. For instance, by investing in the technical development of blockchain technology, the Accelerator prepared to serve 100,000 people in Jordan's Azraq refugee camp by early January 2018. Likewise, by testing and reducing the cost of household hydroponic kits, the project Hydro-Sahrawi prepared to serve additional 2,000 direct beneficiaries in Algeria in 2018 and introduce the initiative to new countries such as Chad, Jordan and Sudan. Initial cost savings have proven the additional potential of these innovations to achieve even more at scale, and to provide true benefit by facilitating collaboration with other humanitarian and development agencies on the one hand, and increasing resilience on the other.

2.2. Dedicated Scale-up Support

Throughout 2017, seven projects were supported in the scaling of their geographical coverage and impact. Thus, the Accelerator invited donors to contribute to the rapid expansion of proven solutions, such as Building Blocks or Hydroponics, to new locations through a specifically designed Innovation Fund. The Accelerator then worked with donors on the strategic allocation of funds to ensure it aligns with project needs. To continue achieving impact at scale, in 2018 the Accelerator seeks additional funding from governments, corporations and individuals.

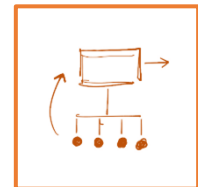
In addition to fundraising, the Accelerator developed and tested models for the scale-up of its initiatives across WFP operations. These can be grouped into three main categories:

- Projects embedded into corporate processes
- Projects scaling from country to country
- Initiatives that expand through 'centres of excellence'

Tested Scale-up Models

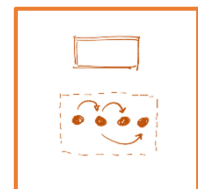
Projects Embedded into Corporate Processes

A first model used to enable high-impact innovations to reach scale is the integration within WFP corporate processes and initiatives. The projects SCOPE CODA and Building Blocks are examples of such scale-up model.



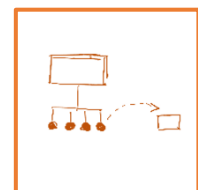
Projects Scaling from Country to Country

A second model tested in 2017 was the gradual 'country to country innovation' scale up, exemplified by the projects Hydro-Sahrawi and Tech for Food.



Initiatives that Expand through 'Centres of Excellence'

Thirdly, innovation such as the Farm to Market Alliance and Zero Post-Harvest Losses were supported to scale through informal 'centres of excellence', collaborating with local non-governmental organizations (NGOs), private partners and academia.



2.3. Scale-up Initiatives

Rising with Building Blocks

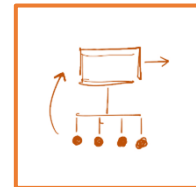
Pakistan & Jordan

Building Blocks seeks to make WFP's cash transfers more secure, traceable, cheaper and collaborative using blockchain technology. The project targets refugees and their families.

In early 2017, WFP ran a 'proof of concept' to confirm basic assumptions around the capabilities of blockchain in authenticating and registering transactions in Sindh province, Pakistan. Shortly after, WFP began implementation of the blockchain system in Azraq's refugee camp in Jordan, allowing 10,500 Syrian refugees to redeem their cash transfers on the blockchain-based system – and preparing to reach 100,000 in January 2018.

By implementing the technology in that specific context, the Accelerator allowed WFP to reduce banking fees by 98%, saving approximately USD 4,000 per month. The plan for 2018 is to scale to serve all 500,000 Syrians served by WFP in Jordan. In addition, scale-up to two new country offices and an interagency pilot are planned for 2018.

Blockchain is a distributed ledger that automatically records all transactions and stores them securely for everyone to see. This enables independent entities to rely on the same, secured and immutable source of information without the need for third-party oversight.



10K

PEOPLE ENROLLED

98%

REDUCTION IN
BANKING FEES



To ensure assistance reaches those who need it most, the blockchain system in Jordan integrated with existing iris-scanning technology that uses biometric identification, and which allows refugees to redeem their allowance with a scan of their eye. The transaction is debited from the refugee's virtual wallet that sits on the blockchain, ensuring WFP has a full, in-house record of every transaction.

Through Building Blocks, WFP provides greater security and privacy for Syrian refugee families, as sensitive data is no longer shared with third parties such as banks or phone companies used for mobile money transfers.

The pilot in Jordan has already allowed WFP to significantly reduce third-party Financial Service Provider (FSP) fees, and could lead to monthly savings of approximately USD 150,000 after the scaling of the system to serve all refugees across Jordan.



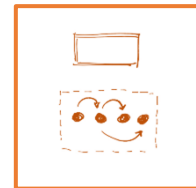
Empowering with Tech for Food

Lebanon & Iraq

Tech for Food is a unique programme that puts job opportunities in the global digital economy within reach of young adults in conflict-affected communities.

The project targets literate women and men aged between 18 and 35 from refugee and host communities, with specific focus on the most vulnerable. Since 2016, Tech for Food has hosted training sessions across four different campuses in both Lebanon and Iraq.

In 2017, the initiative impacted the lives of over 3,000 people by directly training 750 students, 60% of whom were female. To empower and enable them to provide for their families, the initiative connected many participants to digital training or work opportunities with companies in Europe and the USA. In total, participants of the Tech for Food trainings delivered over 20,000 hours of real-life work.



750

STUDENTS TRAINED

60%

FEMALE STUDENTS

20K

HOURS OF WORK
DELIVERED

In 2017 the project expanded to cover two additional locations in Lebanon, launched in Iraq, and began preparation for scale-up to additional countries such as Turkey. Plans for 2018 include the expansion of training resources, the facilitation of market linkages and the set-up of a financing mechanism to ensure the self-sustainability of the initiative.



By offering tailored digital training courses, Tech for Food provides hard (e.g. data cleaning, picture tagging) and soft skills that help bridge the gap between poverty and a new career in a globalized job market as online freelancers. The project provides the necessary infrastructure for these activities to take place by collaborating with local organisations and universities. Crucially, it offers long-term opportunities that can improve the lives of refugees and their families, as well as local host communities.

The benefits are twofold; firstly, it allows WFP to engage with the local government and local private sector in a capacity building role, and secondly, it injects new life into the local economy.

The initiative could impact 100,000 people in the next five years, helping refugees reduce their reliance on humanitarian assistance and enabling WFP country offices to optimize resources and reach more people in need.



In 2016, Anas joined Tech for Food's digital skills programme in Beirut. After graduating from the basic course, he moved straight into the advanced class, where he built his digital literacy and image annotation skills, and focused on app and web development. In 2017, Anas created an app to provide companies with image annotation services, and started working with agencies in Russia and the USA.

Building Resilience with Hydro-Sahrawi

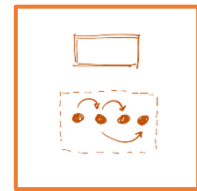
Algeria

Since the 1970s, Sahrawi people have been residing in refugee camps in the desert of south-west Algeria with the support of international aid. Today, Hydro-Sahrawi is using low-tech hydroponic units to help Sahrawi refugees grow fresh green animal fodder locally and strengthen food security in the community.

In 2017, the team tested different hydroponics solutions with refugees through various iterations, moving from an initial high-tech solar-powered container to the design and implementation of small, DIY household units built with locally procured materials and at 10% of the cost. As a result, training and sensitization campaigns were conducted alongside of the installation of 50 large units as well as smaller household kits to grow barley.

The units and kits allow refugees to grow barley grass from seed in just 7 days, using up to 90% less water and no additional inputs. In total, an average of 2,000kg of fodder were produced per day across existing high-tech and low-tech units, as well as household kits. Working with a local engineer - the entrepreneur behind the idea - and experts from Fraunhofer Institute, WFP and Oxfam overcame key technical challenges to bring the solution to scale.

Goats fed with fresh fodder increased their milk production by 250%, whilst meat quality and quantity improved considerably. Refugees were also able generate additional income by selling surplus fodder.



50

NEW UNITS INSTALLED

2K

KG FODDER PER DAY

2.6K

PEOPLE REACHED

The success of the Algeria model will allow WFP to take the technique to scale within the Sahrawi camps in 2018 and implement it in similarly challenging environments such as Chad, Jordan and Sudan. In addition to scaling of the existing project in Peru to additional beneficiaries in 2018, the project aims to explore the possibility of cultivating crops for human consumption and enhancing the efficiency of the solution by re-using or desalinizing water.

Hydroponics is a soilless cultivation technique that enables plant growth in areas that are non-fertile, arid or urban with limited space. It is a cost- and time-efficient method, requiring about 90% less water than traditional agriculture. The semi-nomadic Sahrawi refugees greatly value livestock for milk and meat. However, due to the Algerian desert's arid climate, agriculture is extremely poor and goats in the camps often end up eating garbage. Thus, WFP and local experts developed a low-tech system to grow barley for use as animal fodder by refugees in camps in Tindouf, south-western Algeria. The fodder increases the refugees' access to milk and meat, thereby improving food security in the camps.

Hydroponics is particularly suited to harsh environments such as those in which many of the world's refugee camps are located. The low-cost model can easily be scaled and replicated in other vulnerable communities.

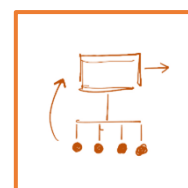


Azuha (right), a 25-year-old mother, was one of the first people to benefit from the joint WFP and Oxfam project in Dakhla camp. After introductory training, she has been working hard to maintain and grow her unit, protecting it from wind, sandstorms and keeping it cool from the sun. Taleb (right), a local Sahrawi engineer involved in the project, is helping her and other families with their units.

Digitizing Mother and Child Nutrition with SCOPE CODA

El Salvador, South Sudan & Uganda

Conditional on Demand Assistance, also known as SCOPE CODA, is a monitoring tool for social protection and nutrition treatment programmes that uses handheld devices and contactless cards to capture, integrate and visualize key information and outcomes in real-time. The project targets health workers working with pregnant women, young mothers and children under two years of age.

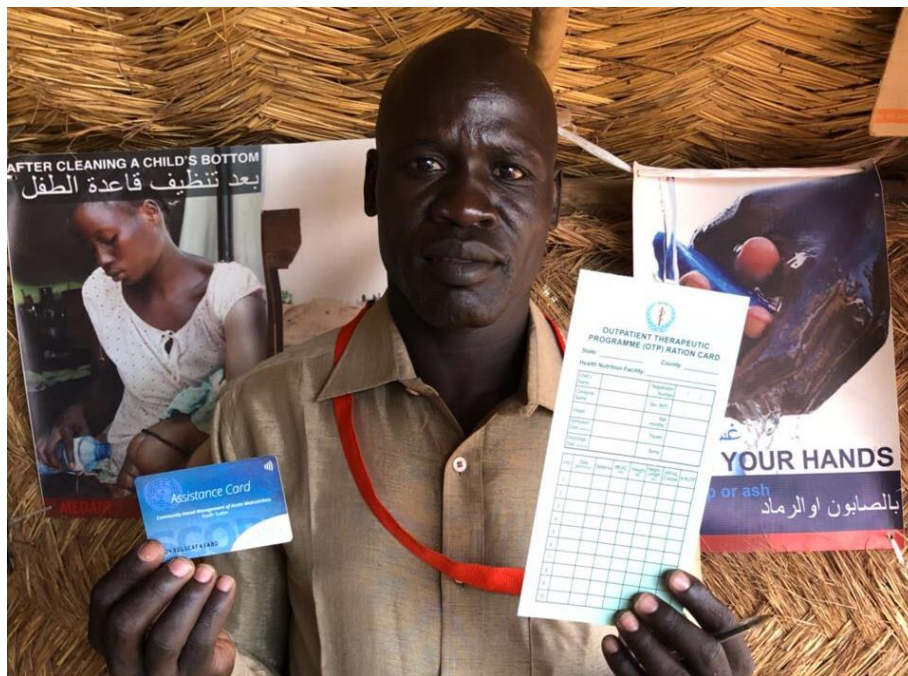


Following a successful pilot project in El Salvador in 2016, MAPS evolved into a corporate scale-up innovation in 2017 under the name of SCOPE CODA, a joint initiative by the Accelerator and the WFP Nutrition and Technology Divisions. The innovation integrated within SCOPE, WFP's beneficiary management system, with the plan to scale it as corporate tool in 10 countries in 2018 and 2019. In 2017, the first scoping missions to Tanzania and Uganda validated the solution and allowed to collect key data to inform the 2018 implementation in South Sudan and Uganda.

Moving from a paper-based to a digital system can increase programme efficiency by minimizing manual error and time-consuming processes in data entry, analysis and reporting. CODA provides a unified platform for all stakeholders involved in Community Based Management of Acute Malnutrition (CMAM), including national governments, international organizations and implementing partners, to access and share programme information.

SCOPE CODA helps frontline community workers tailor and optimise assistance for those who need it most by providing real-time information on programme participation and performance.

In El Salvador, WFP achieved about 74% in cost savings for field monitoring, unlocking additional resources which could potentially reach 20% more women and children with the same amount of funds. By facilitating coordination, CODA can also assist decision makers in the development of effective and evidenced-based strategies to address malnutrition.



Tanzania, Kenya, Zambia, Rwanda

A diagram showing a central switch connected to four nodes (represented by circles). A dashed arrow points from the switch to a separate device (represented by a rectangle).

In 2018, the project will focus on scaling the Digital Market Place to Rwanda and Zambia and roll out additional app features, including revenue and sustainability strategy tools.



30K

FARMERS REACHED
WITH THE APP

80

ORGANIZATIONS
DIGITIZED OPERATIONS

3M

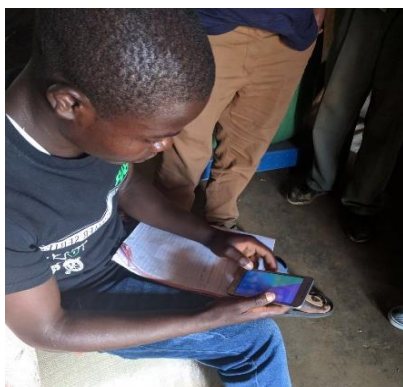
USD IN TRANSACTIONS

FtMA seeks to transform the food chain in emerging markets by building a demand-driven economy that links farmers with buyers and other key market players such as suppliers of finance, inputs and technical expertise.

Through the digitalisation of core business processes, farmers can aggregate and sell crops, order climate-smart input and post-harvest equipment, track loans and receive advisory services. This helps increase farmers' productivity, profitability, resilience and strength as reliable market players.

Buyers enter into stable buying relationships with smallholder farmers - typically through contracts extending beyond one season. Smallholders use this stability in demand as collateral to access finance used for seeds, fertilizer and machinery to improve their productivity and incomes

FtMA allows farmers and buyers to build stable relationships, for instance facilitating the aggregation and sale of produce from local farmers at farmer organization level.



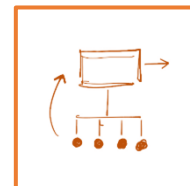
Giving Opportunity with ShareTheMeal

Haiti, Jordan, Lebanon, Nigeria, Cameroon, Yemen, South Sudan, Bangladesh

ShareTheMeal is WFP's award-winning fundraising app that allows smartphone users to provide children with life-saving food with a simple tap on their phones. The idea is simple: with just a tap and USD 0.50, every single smartphone user can feed a child for one full day. Users can easily see where the money goes with every donation, and can monitor the progress made collectively through social giving towards a specific fundraising goal.

The innovation places the fight against hunger in the hands of global citizens, making it mobile, social and transparent. In 2017, the project focused on improving the user experience to increase retention rates and individual donations.

Throughout the year, the app introduced various innovations including 'Camera Giving', which invites users to take pictures of their meals and donate by sharing the photo with social networks. An additional 340,450 users joined the ShareTheMeal community in 2017. With a total community of over 1 million users, the initiative funded 9,610,028 meals. A pilot tested the feasibility of a peer-to-peer function to be rolled out in early 2018. With geo-location and context aware features, better payment options, increased feedback for donors and integrations with big technology players, Share the Meal aims to raise USD 20 million for WFP in 2018.



Fatima lives with her family in Gubio Camp. She is one of the 2.6 million people in Northeast Nigeria facing extreme hunger. The ShareTheMeal community is raising funds for the provision of assistance for children most at risk.

9.6M	\$0.50	340K
SCHOOL MEALS	TO FEED A CHILD FOR A DAY	NEW USERS

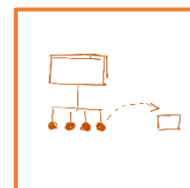
Protecting Gains with Zero Post-Harvest Losses (PHL)

Uganda, Tanzania, Burundi, Cote d'Ivoire, Rwanda, Sudan, Mozambique, Mali, Malawi, Ghana, Kenya, Zambia

By preventing smallholder farmers from losing large portions of their crops after harvest, WFP helps increase the availability of food worldwide. PHL is a long-standing WFP initiative that targets smallholder farmers and their families that face the challenge of recurrent harvest losses and food insecurity. Since inception, 140,000 farmers joined the initiative and now continue to use hermetic (airtight) storage. On average, the incomes of participating farmers have tripled, families have gained increased access to food through lean seasons and improved their health and nutrition.

In 2017, the Accelerator provided business modelling and management support including for the scale up from Uganda to Sudan, Burundi, Tanzania, Rwanda, Mozambique, and Cote d'Ivoire, with 25,131 new farmers receiving training and access to hermetic silos. The Zero Post-Harvest Losses initiative is planning to scale up in multiple countries, including Sudan in 2018.

Through training on the use of improved post-harvest handling methods, combined with subsidized hermetic storage equipment to guard against insects, rodents, mould, and moisture, the project can increase food availability at the household level, enable farmers to control timing of crop sales and therefore increase household income. If scaled, the innovation could help save more than 20 million metric tons of food - valued at USD 4 billion - each year in sub-Saharan Africa.



6

ADDITIONAL COUNTRIES



By helping farmers and their families protect their agricultural gains, the Zero Post-Harvest Loss initiative is strengthening food security and reducing the need for external assistance during the lean season.

2.4. Growing a Strong Sprint Project Portfolio

In 2017, the Accelerator supported 16 projects through its Sprint Programme. The Sprint Programme is an intensive 3 to 6-month acceleration programme that helps WFP innovation teams and start-ups build quick and simple prototypes to test feasibility and impact. The Accelerator promotes the use of human-centered design and lean start-up methodologies to build sustainable and solution-oriented innovations.

At both a selection and sprint planning level, the Accelerator collaborated with WFP Country Offices and corporate divisions to shape the pilots to ensure future scalability. The first concrete effort towards sourcing external start-ups further stressed the need for the Accelerator to involve stakeholders as early as the selection process. Innovations that fail to reach proof of concept are 'graduated' from the programme, allowing the Accelerator to redirect resources to solutions that can deliver impact in scale-up phase or source new innovative high-potential ideas.



2.5. Sprint Projects

AgriUp

Guatemala

The digital app AgriUp provides timely and location-specific information to smallholder farmers in isolated communities, helping improve their crops, livelihoods and nutrition. The project targets small grain producers and agricultural workers, as well as women and children under 5 years.

The 2017 pilot fine-tuned the project design to ensure effective information delivery to the target population. Supported by TIGO, a local private sector telecommunications partner, the team developed the digital platform to automatize the sending of information. Thanks to the endorsement of the Guatemalan Ministry of Agriculture, AgriUp largely surpassed its goal of reaching 15,000 farmers, gaining 22,000 users. In 2018, AgriUp plans to secure financial support to further expand.

AgriUp is integrated with WFP's nutrition programmes, allowing beneficiaries to access key information provided through community trainings. Timely and accurate information on weather, market prices, crop loss prevention and other farming tips helps to increase the resilience of communities to climate change, prevent recurring losses and improve nutrition.



AIMS

South Sudan, Sudan, Tajikistan, Afghanistan, Niger

The Asset Impact Monitoring System (AIMS) uses satellite imagery to monitor the positive changes of WFP's Food Assistance for Assets (FFA) and engineering programmes on local landscapes.

A 2017 sprint proved the value of AIMS in monitoring and optimizing FFA programmes, resulting in donor attention and additional country offices expressing an interest in using the innovation.

Plans for 2018 include the expansion to between 5 and 10 WFP Country Offices, who will work with the AIMS team to analyse 100 assets per year.

Medium- and high-resolution imagery taken using satellites provides an opportunity for WFP to monitor the long-term and large-scale landscape impact of its FFA and engineering programmes, even in areas where access or resources are limited. The ever-growing archive of satellite images allows users to “go back in time”, to compare past and present situations and understand how the landscape has evolved. Finally, satellite sensors are also capable of detecting biophysical variables that human vision cannot, such as groundwater content, temperature surfaces and vegetation cover health.



Cargo on Demand (CODE)

Tanzania

Cargo on Demand (CODE) is a simple and scalable online platform that matches demand for humanitarian and development cargo to local transport companies.

The innovation helps local truck drivers and small companies in place where WFP operates to compete for aid cargo contracts, thereby saving money for WFP and improving the income and livelihood opportunities of local workers. A 2017 pilot in Tanzania focused on collecting key data, validating the problem statement and field-testing the solution through a pro-bono mobile applications configured and integrated with WFP operations.

The CODE app allows small-scale businesses and freelance truck drivers compete for contracts when demand for humanitarian deliveries is high. Drivers are able to put themselves forward and compete for contracts to deliver goods on behalf of WFP. By supporting local transport capacity and strengthening the local market, the initiative can reduce programme costs by around 5%. In turn, WFP saves resources by avoiding brokerage fees and connecting directly with truck drivers in case of sudden onset of emergency.

Moving forward, CODE aims to provide a platform for other aid organisation to connect with local drivers.



Cold Hubs

Tanzania

ColdHubs is a solar-powered cold storage solution designed to reduce the problem of post-harvest losses of fresh fruits and vegetables in Africa, Latin America, and Southeast Asia. The project is targeting smallholder farmers and their families in Tanzania.

Following the participation in the April 2017 Innovation Bootcamp as an external start up, Cold Hubs closed a key partnership with AgaKhan foundation and worked on preparing a field pilot expected to start in March 2018. Plans for 2018 include a scoping mission to Tanzania and tailoring of the ColdHubs container to local weather conditions, followed by the installation of a ColdHub unit in the Mtwara region, an informative launch event and ongoing impact monitoring.

Through a “plug and play” modular, solar-powered walk-in cold room, ColdHubs offers 24/7 off-grid storage for the preservation of perishable foods such as fruit and vegetables. The solution can protect agricultural gains through cooled storage adapted to local weather conditions, sustainably reducing food insecurity, under-nutrition and dependence on external support.



Dalili

Lebanon

Dalili is a smartphone application that allows refugees and host communities to access fairer prices and deals for vital commodities. The project targets Syrian refugees and vulnerable host communities in Lebanon.

A 2017 pilot in Bekaa Valley, Lebanon, initially tested the solution with users through the messaging app WhatsApp. This allowed for the rapid defining of product requirements, which led to the creation of the Dalili application with local developers. An android version of the app was officially released in November 2017 and achieved 358 individual downloads in less than two months. Of this, 26% are regular users of the app. Scale-up goals for 2018 aim at both increasing the quality and volume of users, as well as improving user experience.

Leveraging the relationships built between WFP and its contracted retailers, Dalili collates and displays items, prices and promotions at grocery stores. Without leaving their homes, refugees receiving WFP assistance can browse online and find the best prices and deals for the products they want to buy. Doing so improves their purchasing power and overall shopping experience.

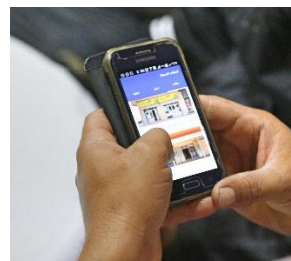
Besides improving the purchasing power of a WFP allowance and helping refugees and vulnerable communities be more food secure, Dalili also fosters market efficiency, improving competition and ultimately reducing the prices for most popular products. For the 700,000 refugees in Lebanon currently receiving WFP assistance, Dalili could potentially lower the prices of vital commodities by 5%.

358

INDIVIDUAL
DOWNLOADS

26%

REGULAR USERS





Refugees in Beeka Valley tested and provided feedback on the Dalili app in November 2017. A large number of users were impressed with how the app helps identify the cheapest products across all WFP contracted stores.



Dalili allows refugees and vulnerable host communities to browse the deals and stock availability at WFP contracted stores. A WhatsApp prototype was used in the early stages to test price comparison, reviews, transportation offers and promotion display.

Farm from a Box (FFAB)

Tanzania

Farm from a Box is a US-based social enterprise that has built a complete ecosystem of smart-farm technologies from a modified shipping container. Each unit contains tool and technologies help local communities grow their own food and earn an income. The innovation is currently supporting vulnerable smallholder farmers and their families in the Kigoma region of Tanzania.

Launched in September 2017, the pilot was supported by the local government and partner World Vision Tanzania. However, unfavourable weather conditions led to the decision to further fine-tuning the solution's parameters, and identifying suitable crops for testing. In December, 56 participants began working in the fields using the solution.

Plans for 2018 include a potential replication of the pilot in more favourable weather conditions, to better understand participant retention and demonstrate the value added of the irrigation technology.

A single Farm from a Box unit provides 56 smallholder farmers (who support families of between 3-9 family members) with a complete ecosystem of smart farm technologies that enhance agricultural productivity. Tools range from renewable power and micro-drip irrigation, to information and communications technologies. A training programme covering sustainable farming practices, business management, and technology maintenance helps farmers boost productivity and improves household food security.



Food Computers

Jordan

The WFP pilot tests the use of high-tech Hydroponic Food Computers to identify highly nutritious and high revenue crops to be cultivated to support to refugees and vulnerable communities. The project targets refugees and vulnerable host communities in Jordan.

In February 2017, the Accelerator team kicked off a pilot in Jordan to test the feasibility of using Food Computers developed by the Massachusetts Institute of Technology (MIT) Media Lab. Running experiments on various crops the pilot helped evaluate the potential of the technology under location-specific conditions, and highlighted the need to continue exploring various indoor growing solutions in 2018.

The Food Computer is a controlled-environment agriculture technology platform that uses robotic systems to control and monitor climate, energy, and plant growth inside of a specialized growing chamber. Each specific set of conditions can be thought of as a climate recipe that can be adapted to different contexts, including the harshest environmental conditions. Jordan's dry climate can heavily threaten the food security and the livelihoods of refugees as well as their host communities. A hydroponic solution can offer opportunities to not only grow food for their families, but also sell high-revenue produce on local markets, reducing the strain on the national infrastructure.



Groasis

Colombia

Groasis provides simple planting boxes made from recycled paper that allow vulnerable populations to plant and grow productive trees in challenging conditions. Trees can be grown in the bucket in combination with vegetables. This allows the crops to grow in areas ravaged by heat, draught and erosion – with a chance of survival greater than 90% and using 90% less water.

Through the project, women and vulnerable communities in degraded areas receive planting boxes. Following their participation in the April 2017 Innovation Bootcamp as an external start-up, the Groasis team started a pilot with the WFP Colombia Country Office in Almaguer municipality, where they identified target communities and selected suitable plant species to introduce and test. In 2018, the team plans to complete implementation, gather initial learnings and monitor impact.

Groasis is a Dutch agriculture company that has pioneered technologies designed to grow trees and plants in dry areas. Their inventions use 90% less water than irrigation methods, which reduce the cost of planting and farming by boasting plant survival rate, increasing bio-diversity and fertility of degraded land. Groasis' solution can increase nutritional diversity and improve farm productivity for smallholder farmers. The initiative also ensures gender and age equality in access to innovative farming technologies.



Maano - Virtual Farmers Market

Zambia

Maano – Virtual Farmers Market is a mobile app where farmers’ surplus and buyers’ demand for crops is advertised and traded. The project targets smallholder farmers in rural and remote areas.

In 2017, the first phase of the pilot in Zambia proved successful. At global level, the team dedicated continued efforts to exploring the integration of Maano within corporate processes to enable scale up of the project. The Maano app was launched on Google Playstore in April 2017, with the first transaction taking place in May. By the end of 2017, 150 metric tonnes (mt) had been traded for a total value of USD 50,000.

Plans for 2018 include testing of scalability in Zambia and replicability in other contexts with new country offices. To ensure the integration of Maano within corporate structures, the business case and scalability assumptions will be tested and further refined.



1K

FARMERS REACHED

54%

REDUCTION IN COSTS

50K

USD OF TRADED
CROPS

By connecting smallholder farmers to profitable and sustainable markets digitally, Maano increases their market access, improving their livelihoods and enabling them to take themselves out of hunger. The app provides a transparent, open and trustworthy space for smallholder farmers and buyers to negotiate fair prices and deals.

In Zambia, as well as many other parts of Africa, rural smallholder farmers are faced with numerous obstacles, particularly as they struggle to access information and means to reach markets where they can gain better prices for their crops. This often leads to farmers not being able to sell their produce or having to accept bad deals.

In 2017, Maano reached 1,196 farmers and mobilized 50 local lead farmers. The initiative helps strengthening the livelihoods of smallholder farmers and their families. All users – both buyers and sellers - are also benefitting from the reduced transaction costs. For example, WFP reduced procurement costs by 54% when using Maano to supply 40 schools in the Home Grown School Meals programme in Zambia. The Accelerator has expectations that this project can be taken to scale in 2018.



The Maano Project Manager, presented the innovation at the UN Forum on Science, Technology and Innovation for the Sustainable Development Goals in New York in May 2017. Maano was selected by the STI Forum Committee as an exceptional and inspiring innovation, with the potential for improving smallholders' incomes and achieving SDG 2 on Zero Hunger.

Mainner (left) is a farmer from a rural area in Pemba district. Charity (right) is a small-scale trader in Lusaka's Soweto market. In September 2017, Charity purchased 150 kg of bambara nut from Mainner through the Maano app.



Nutrifami

Colombia

Nutrifami is a digital learning tool that upskills food insecure families in Colombia on nutrition and food, dietary diversification and positive lifestyle habits. Through Nutrifami, communities can access nutrition-based learning activities, such as games, and learning modules focused on 'smart purchasing' techniques. With a specifically tailored web design, the app can be accessed through basic smart phones, internet cafes or the government's 'kioscos digitales'.

In 2017, the Nutrifami team completed a pilot testing the use of an offline modality that allows remote communities living in rural areas to access the tool. By working with private and public partners, including the government of Colombia, Nutrifami reached 6,844 beneficiaries by the end of 2017. Initial data suggested that households who participated in the project increased fruit and vegetable purchases by 23 percent. Nutrifami also released a localised version called "Nutrifami Pacífico" for indigenous and afro-Colombian communities living on the Pacific coast of Colombia and Ecuador.

In 2018, Nutrifami plans to reach up to 20,000 people, as part of a bi-national project with WFP Ecuador, which is funded by the Adaptation Fund.

By promoting smart purchasing choices, Nutrifami users learn how to integrate fruits, vegetables and dairy products into their diets. In turn, by using the data collected through the platform, WFP is able to better track and target vulnerable people and plan future food assistance. This helps both reduce malnutrition, a major health issues in Colombia, and optimize WFP nutrition programmes.



Rice Fortification

Mali

Rice Fortification aims to provide essential vitamins and minerals to large numbers of people and improve the nutritional status in parts of the world where rice is the main staple food. The project targets school children suffering from, or at risk of malnutrition.

In the 2017 Mali pilot, the team was able to reach its target of fortifying 1,500 MT of rice, distributing it to approximately 600 schools in eight regions prior to the beginning of the school year. This resulted in 118,000 school kids receiving 150g of fortified rice per day. In 2018, the project will continue to provide fortified rice through the WFP School Meals programme and share key learnings.

As part of WFP's efforts to tackle malnutrition, the fortification of rice can provide a viable option to complement regular food baskets and improve the effectiveness of school meal programmes. Fortified rice kernels look, taste and cook like ordinary rice and are combined with regular rice at a ratio of 1 to 100. Through the pilot, WFP aims to demonstrate the replicability of the model to other countries in the West Africa region, to tackle malnutrition and prevent child stunting.



Rapid UAV Data Analysis (RUDA)

Colombia

RUDA is a developmental project using artificial intelligence (AI) to analyse imagery collected by Unmanned Aerial Vehicles (UAVs) in order to improve decision making in emergencies. Through faster and more accurate data analysis, RUDA aims to help Emergency Coordinators better locate and access affected populations. RUDA builds on WFP's existing work on the use of UAVs (also known as drones).

Although UAVs can efficiently collect remotely sensed image data in emergency situations, data analysis can be highly time-intensive and requires careful interpretation to extract meaningful information. Automating, or partially automating, some of this process with machine learning techniques could greatly reduce the time required to carry out the analysis and get better information into the hands of coordinators and the broader humanitarian emergency response.

Initially borne out of an AI workshop conducted by the Accelerator (see more information in section 3), the first phase of RUDA saw the collection of raw imagery from WFP drones operating in Myanmar and Colombia. This data was then used to help build and train an AI algorithm, with technical support provided by AI experts from Google and the Fraunhofer Institute. To support with significant data annotation work, RUDA linked up with students of the Tech for Food project.

Plans for 2018 include the building and field-testing of a reliable product.



Self-Driving Trucks

Uganda

Self-Driving Trucks is a developmental project exploring AI to support emergency coordinators in the delivery of aid to communities affected by emergencies. The innovation aims to harness the potential of self-driving and remote controlled technologies to allow humanitarian access to conflict and disaster-struck areas, speed up the delivery of life-saving aid and limit the risk to human life.

Following a joint kick-off workshop, the Accelerator and the German Aerospace Center (DLR) developed basic technical and operational concepts to equip and operate a remote controlled truck delivering relief goods. Furthermore, the team conducted initial data collection in Uganda in light of an upcoming pilot in 2018.

To meet WFP's specific operational needs, the team is engaging with truck manufacturers and companies for technical support around connectivity, remote and near field sensing, navigation and data communication links.



Sustainable School Meals

Malawi

The Sustainable School Meals initiative supports local and sustainable food production in schools serving vulnerable communities. The current pilot targets schoolchildren in poor areas of Malawi.

In 2017, the team worked on training implementing partners and started a pilot with schools in the Salima and Dedza districts of central Malawi. Together with the Malawian Foundation for Irrigation and Sustainable Development (FISD), the team led the building of water tanks and setting up of pipe wells at both sites, as initial steps in the upgrading of the irrigation infrastructure. To ensure the sustainability of the initiative and scale across the area, contracts were awarded to local implementation partners for three additional schools. Implementation and testing of small-scale tunnel farming will start in March 2018 after the ending of the rainy season.

Through the project, WFP helps schools harness underground water reserves by using pumps and wells, as well as integrating food productions techniques, such as hydroponics, to maximise food production in harsh environmental conditions. Following training on agri-business strategies, schools are encouraged to cover initial investment and maintenance costs by selling surplus on the local market. The expected potential of the project – if successfully adopted by schools in Malawi – will be increased food self-production capacity, a reduction in cost of WFP-funded school meal programmes and better nutrition for thousands of school kids.



Storytellers

Chad & Guatemala

Storytellers is an innovative communication project that enables people in need to produce and tell their own stories through a series of hands-on digital communications training. The project targets young men and women in humanitarian emergencies.

Following the first pilot in 2016 in Jordan, during which 29 Syrian refugees in Jordan completed their communications training, the initiative moved to Chad and Guatemala in 2017. In Chad, 35 Sudanese refugees graduated at the beginning of June and set up a Storytellers club, which works with WFP to offer communications and training opportunities. In Guatemala, where 30 students participated, several succeeded in accessing scholarships with local organisations thanks to the training.

Through training in areas ranging from visual communication, such as photography or filming on a smartphone, social media and best practices in digital journalism, the Storytellers project gives the opportunity to refugees, displaced and vulnerable communities to act as communicators on behalf of WFP and share authentic stories with a large online audience.

In Chad, the project has helped the country office guide local media attention towards the conditions of Sudanese refugees in the Eastern region of the country, whereas in Guatemala it helped the local communications team build new relationships with local newspapers and potential partners. One successful awareness campaign could help hundreds of people to find livelihoods opportunities.



Transformers

Kenya

Transformers aims to repurpose surplus or ugly food - previously destined for landfill - into nutritious school meals for thousands of schoolchildren in schools, orphanages, charities or street homes.

In 2017, the team worked on integrating the pilot into WFP Kenya's Country Strategic Plan and source additional implementation funds. In 2018, the project will focus on incorporating lessons learnt, optimizing the operating model and integrating within key WFP programmes.

Through the Transformers project, WFP aims to tackle two problems with one solution, repurposing cosmetically unsatisfactory fresh foods (CUFFs) into fruit and vegetable sources for children in vulnerable and poor areas, as well as improving food systems and making them more sustainable.



3. Finding the Best Ideas

3.1. Sourcing Efforts

Attracting a diverse and large number of applications is important for ensuring a diversified innovation pipeline for the Innovation Accelerator. Through different marketing and operational activities such as Innovation Challenges, partner collaborations, design workshops and one-on-one feedback sessions, the Accelerator significantly increased the number of ideas suitable for participation in Bootcamps and the Sprint Programme.



INNOVATION CHALLENGES



PARTNERSHIPS



DIRECT ENGAGEMENT

Innovation Challenges continue to play a central role in the recruitment of new innovation projects. In 2015 and 2016, the Accelerator used Innovation Challenges to mainly target internal WFP teams, with more than 250 ideas received in 2016. In 2017 the focus was extended to another key market - external start-ups. In total, 1,160 applications were received, including both WFP teams and external applicants. By working with partners and collaborators, for instance, through the Global Impact Challenge launched with California-based think tank Singularity University (SU), the Accelerator attracted an increasing number of tech start-ups from around the world, strengthening its position in the global 'tech for good' sphere.

1K

INNOVATIONS RECEIVED IN
TOTAL

4

INNOVATION CHALLENGES

29

BOOTCAMP TEAMS
SELECTED

3.2. Strengthening the Pipeline

In addition to more emphasis on sourcing high-impact and scalable innovations in 2017, the Accelerator committed greater energy to increasing the quality of applications and future impact of projects from selection stage. With the aid of the same lean start-up and human-centred design methodologies applied to innovation projects, the Accelerator worked on standardizing sourcing processes and aligning the selection criteria with corporate priorities. Recognising that it takes time to introduce new projects to WFP Country Offices and operations, the Accelerator initiated conversations with relevant Country Offices as early as the review and selection stage.



In 2017, Innovation Bootcamps provided for continuous opportunities to effectively engage with and assess the strength of teams and solutions, upon which sprint funding for prototyping is contingent. As Innovation Bootcamps are intended to ensure the constant flow of impactful projects, they serve as a venue to offer the highest value mentorship for participants and to enable the Accelerator to select the most promising teams.

Based on the testing of various learning approaches, the Accelerator evolved from a fixed learning model to a flexible curriculum that allows teams to choose from 12 modules that best fit their needs and requirements. To maximize the value of Bootcamps, pre-arrival research tasks and post-Bootcamp assignments were designed and tailored to each participating team. This allowed for more meaningful and targeted discussions during module work, for instance following early interaction with potential beneficiaries and a preliminary assessment of team motivation and solution viability.

4. Leading the Conversation

4.1. Implementing Cutting-Edge Innovation

In 2017, the Accelerator was recognized as one of Fast Company's 'Most Innovative Companies' in the food sector. The award placed WFP among internationally recognized brands such as Starbucks and Chobani.

By proving its leadership in enabling innovation in the humanitarian-development context, the Accelerator pushed the boundaries in the fight against hunger and effectively leverage exponential technologies and disruptive innovations than can address the most pressing hurdles and save lives. The support of both WFP and external experts,) helped in the implementation of new technologies and business models in field contexts.

Building Blocks and Tech for Food are prominent examples of the Accelerator's efforts to implement cutting-edge innovation, with both initiatives moving from initial exploration to pilots and scale up in 2017. Such innovation projects have not only furthered WFP's experience in areas such as blockchain technology, artificial intelligence (AI) and the future of digital work, but they have already concretely impacted the people that took part in and benefitted from the programmes.



**BUILDING
BLOCKS**

PILOTS IN
JORDAN & PAKISTAN

500K

PEOPLE EXPECTED TO BE
REACHED IN 2018

**TECH FOR
FOOD**

PILOTS IN
IRAQ & LEBANON

100K

PEOPLE EXPECTED TO BE
REACHED IN 5 YEARS

4.2. Driving the Search

Investing in the exploration of cutting-edge technologies for use in the humanitarian sector is a critical path to improving the lives of vulnerable communities both today and in the future. Throughout the year, the Accelerator and its projects carried out over 45 workshops in Munich and field locations, which helped guide and upskill WFP staff in working on cutting-edge innovations and provided opportunities to explore the potential of new technologies on real use cases or directly with users. Workshops brought together WFP staff and industry experts to explore themes and technologies such as artificial intelligence (AI), unmanned aerial vehicles (UAVs), digital identity, as well as innovative financing.

Enablers included private sector partners and collaborators such as XPRIZE, Google, Singularity University, Facebook, as well as leading German academic and technology partners, such as the German National Academy of Science and Engineering (acatech), the German Aerospace Center (DLR) and Fraunhofer Institute.

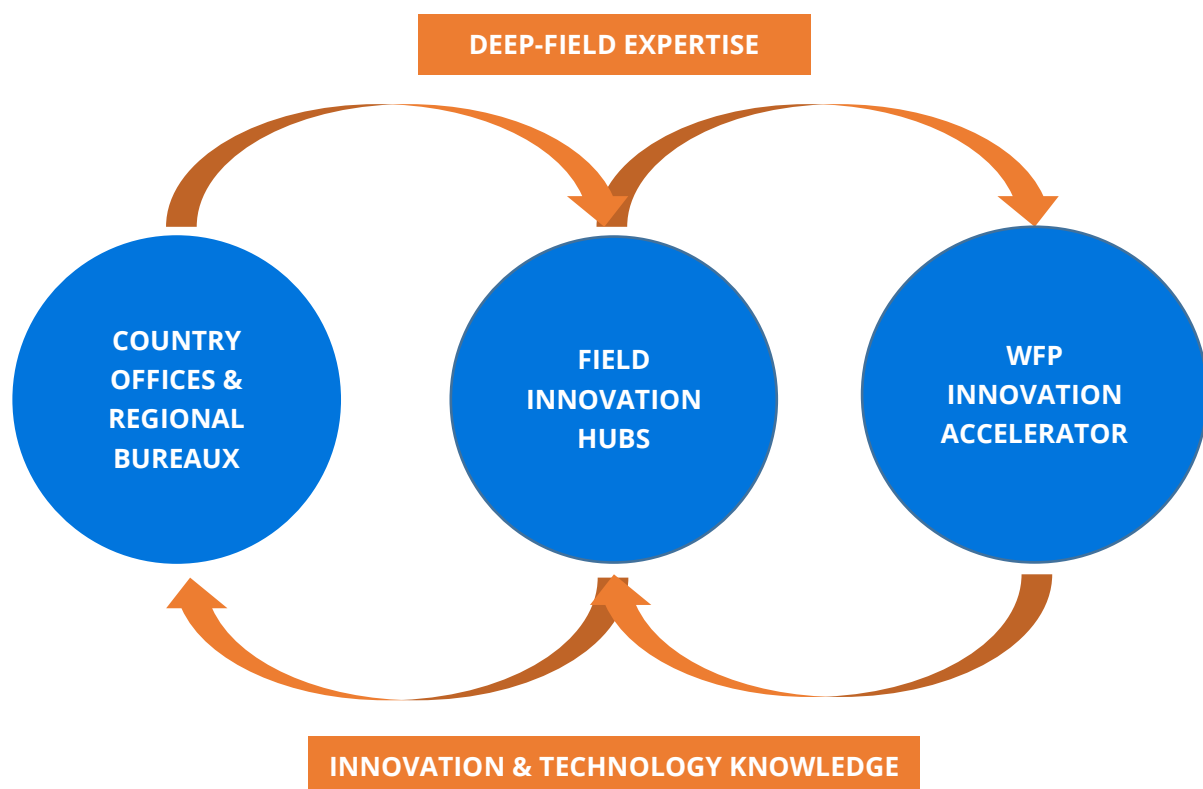
The Accelerator also actively supports WFP's efforts in promoting greater interagency collaboration. As such, WFP is the co-lead of the UN Innovation Network together with UNICEF, as well as a founding member of the Global Humanitarian Lab who helped in the establishment of the Global Alliance for Humanitarian Innovation (GAHI). The Accelerator also co-hosted interagency workshops on topics ranging from resilience, digital identity for refugees, displaced and stateless, as well as corporate donor reporting. Representatives from IFAD, FAO, UNDP, UNHCR, UNICEF, UNDSS, UN Secretariat, World Bank, the private sector and academia all participated in some capacity.



4.3. Nurturing WFP Innovators

Creating a culture of innovation and equipping field staff with the skills to effectively implement innovation is key to the long-term success of the Innovation Accelerator. Aside from supporting innovative projects and exploring cutting-edge solutions, the Accelerator used its position at the intersection of private sector innovation and deep field challenges to support staff with their efforts and ultimately increase impact. This included the creation of dedicated field innovation hubs and the hosting of several workshops and hackathons in Nairobi, Beirut, Brazzaville and other field locations.

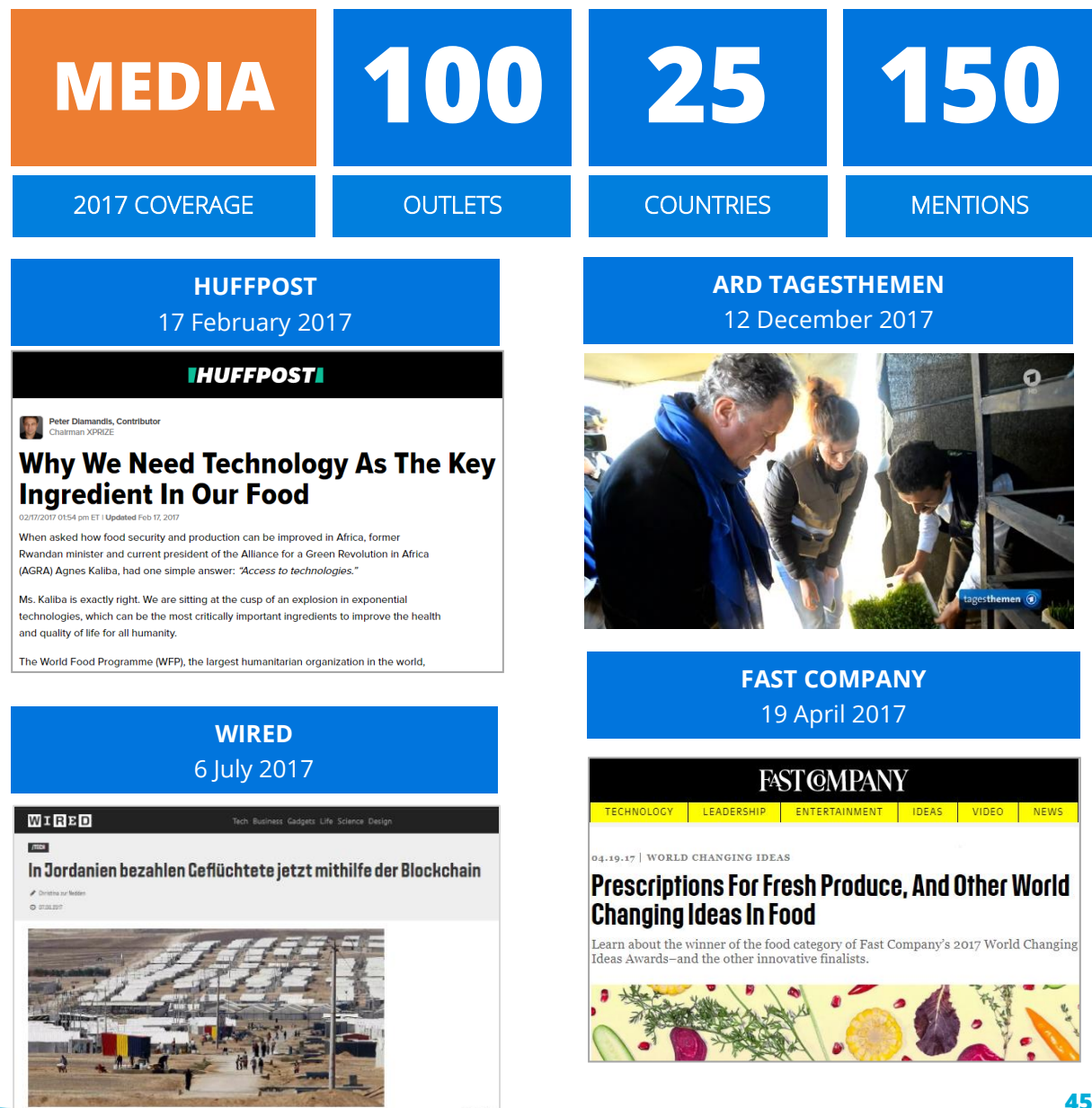
In 2017, three hubs began operating in Tanzania, Lebanon and Kenya, with the goal of providing a 'sandbox' for experimentation and piloting new innovations in realistic field conditions. Hubs also promote cross-pollination of ideas, and represent a safe testing ground for high impact Accelerator-led initiatives, such as Tech for Food.



4.4. In the Spotlight

As a result of increasing efforts in sourcing, sprint and scale-up activities in 2017, the Accelerator-secured growing interest from major media outlets and special visibility within the tech for good, social impact and financial technology spaces. From print to segments on major German national television outlets, such as ARD, ZDF and 3Sat, to articles by digital giants of the likes of BBC Click, Wired, Quartz, Reuters and Upworthy, the Accelerator garnered 150 press mentions in 2017.

Accordingly, the Accelerators digital presence continued to grow across its Twitter channels and wfp.innovation.org. Online channels acted and will continue to act as touch points for budding entrepreneurs, media partners and investors wishing to work with or cover the Innovation Accelerator, providing global visibility to the Accelerator's donors and partners.



Stay Connected

- Reach out to global.innovation@wfp.org
- Visit our website: <http://innovation.wfp.org>
- Follow us on Twitter: <http://twitter.com/wfpinnovation>
- Sign-up for email updates: <http://eepurl.com/drHcjX>

Published by the WFP Innovation Accelerator

The Innovation Accelerator was made possible thanks to the generous support of the German Ministry for Economic Cooperation and Development, the German Federal Foreign Office and the State of Bavaria.

WFP Innovation Accelerator
Innovation and Change Management Division
Munich, Germany

global.innovation@wfp.org
innovation.wfp.org

© United Nations World Food Programme

May 2018