elrha

Humanitarian procurement:
challenges and opportunities in the adoption of WASH product innovations

Scaling Series

CONTENTS

ABOUT ELRHA

We are Elrha. A global charity that finds solutions to complex humanitarian problems through research and innovation. We are an established actor in the humanitarian community, working in partnership with humanitarian organisations, researchers, innovators, and the private sector to tackle some of the most difficult challenges facing people all over the world.

We equip humanitarian responders with knowledge of what works, so that people affected by crises get the right help when they need it most. We have supported more than 200 world-class research studies and innovation projects, championing new ideas and different approaches to evidence what works in humanitarian response.

Elrha has two successful humanitarian programmes: Research for Health in Humanitarian Crises (R2HC) and the Humanitarian Innovation Fund (HIF). The HIF programme improves outcomes for people affected by humanitarian crises by identifying, nurturing and sharing more effective, scalable solutions.

The HIF is a globally recognised programme leading on the development and testing of innovation in the humanitarian system. Established in 2011, it was the first of its kind: an independent, grant-making programme open to the entire humanitarian community. It now leads the way in funding, supporting, and managing innovation at every stage of the process.

> We equip humanitarian responders with knowledge of what works, so that people affected by crises get the right help when they need it most.

FOREWORD

By Cecilie Hestbaek and Abi Taylor, HIF's WASH and Scale teams

Developing new, more effective ways of delivering aid is imperative for addressing the reality that humanitarian need is increasing, while funding is decreasing. But without systems for integrating these innovations into aid delivery, work and resources are wasted and great ideas don't reach their full potential. There is an urgent need to generate greater impact from successful investments in innovation.

Since its inception in 2011, Elrha's HIF has funded over 50 Water, Sanitation and Hygiene (WASH) innovations. Many of these innovations, often supported by the HIF from an early stage, are now reaching maturity and are increasingly ready to be adopted on a large scale. We have already seen some successfully solving problems across a range of contexts: for example, the Oxfam Handwashing Station, developed between 2015-2019, is now being produced in the thousands and providing access to better handwashing facilities for hundreds of thousands of people affected by crisis.

However, for many innovators, the path to scale can be a bit like navigating a maze in the dark. Our 2018 'Too Tough to Scale' report found that uptake of innovation in the humanitarian sector is being stifled. Reasons for this include the underlying incentive structures that work against the adoption of new solutions, a lack of normal markets that would exist in other contexts, and the lack of a fully functioning ecosystem to support innovation (Elrha, 2018).[1] The HIF is helping innovators to address these barriers by providing funding, as well as non-financial support. However, not all barriers can be directly addressed by the innovators themselves. There is a pressing need for innovation actors, including funders like ourselves, to also consider demand: the market that will absorb the new solutions that are developed. We can no longer rely solely on the assumption that when a problem is prioritised by the humanitarian sector, that same sector is well set up to adopt and adapt to the solution once ready. In this paper, we look in more detail at this 'demand side' of innovation; at the people and systems that will adopt our funded innovations. The study, focused on WASH product procurement structures, is the first of a planned series of research and funding activities which aim to help us better understand and experiment with how to address the barriers to the adoption of innovation.

We have a mature innovation portfolio and substantive presence in the WASH sector: through past and present funding we are working with a range of promising WASH solutions that are currently trying to scale. The entry points and barriers within WASH procurement systems are highly relevant to this work, and to the successful adoption of solutions. We hope this paper will help guide their efforts to scale, as well as encourage wider change in the procurement of innovative products at system level. Some of the findings and recommendations of this paper may well apply to other aspects of the humanitarian sector beyond WASH - we hope to explore this further in the future.

With this paper, we call for concerted action by humanitarian agencies, donors and coordinating bodies. As a sector, we must coordinate and align expectations and requirements for evidence and specifications for new products. We must invest in long-term partnerships that see innovations through from inception to scale. And we must find new ways to finance this. The problems highlighted in the paper are complex, but they are solvable. Here, we shine a spotlight on concrete and urgent recommendations that we all can – and must – take up to ensure innovation fulfils its potential and contributes to improved outcomes at scale for people affected by crisis.

ACKNOWLEDGEMENTS

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GLOSSARY

GLOSSARY AND ABBREVIATIONS

Advance market commitment: The term refers to a binding contract, typically offered by a government or other financial entity and often used for vaccines, used to guarantee a viable market for a product once it is successfully developed. (See World Health Organization's section on Immunization, Vaccines and Biologicals).

Buyer group: The group involved in the purchase of a product or service. Often includes donors and humanitarian agencies.

Clockspeed: The cycles that underpin an industry, and the speed with which sector-wide and organisational processes happen.

CSO: Civil society organisation.

DFID: UK Department for International Development (now replaced by the UK Foreign, Commonwealth & Development Office).

Demand side: Factors affecting the demand for an innovation.

Diffusion curve: The process and stages in which an innovation diffuses across a 'market'.

ECHO: European Civil Protection and Humanitarian Aid Operations.

ECW: Education Cannot Wait, a global fund to transform the delivery of education in emergencies.

FCDO: UK Foreign, Commonwealth and Development Office.

HEA: Humanitarian Education Accelerator, led by UNHCR and funded by ECW.

Localisation: Localisation is the process of recognising, respecting and strengthening the leadership of local and national actors (see Localising the Response by Organisation for Economic Co-operation and Development, (OECD) 2017), so they are better engaged in the planning, delivery and accountability of humanitarian response (see Unpacking Localization by International Council of Voluntary Agencies (ICVA) and the Humanitarian Leadership Academy (HLA) 2019) in order to address the needs of people affected by crises.

Longitudinal Demand: All the demand in a market for a future period of time. A common methodology for assuring longitudinal demand is to put in place forward purchasing agreements. A second approach is the use of advanced market commitments.

Long-term agreements (LTAs): Long-term contractual arrangements for supply of goods and services.

Minimum viable product (MVP): A product with enough features to attract early-adopter customers and validate a product idea early in the product development cycle. In industries such as software, the MVP can help the product team receive user feedback as quickly as possible to iterate and improve the product.

NGO: Non-governmental organisation.

Paradigm innovation: A change in the underlying mental models that govern our approach, e.g. encouraging a structural shift towards local manufacture of necessary relief items rather than importing ready-made items, which is often a key feature of the humanitarian supply chain. (See Field Ready's use of 3D printing techniques.)

GLOSSARY AND ABBREVIATIONS

Payment by Results (PbR) contract: A type of public policy instrument whereby payments are contingent on the independent verification of results.

Payment in arrears: Payment in arrears can refer to the practice of compensating a service provider after the terms of the agreement has been met. This use of arrears accounting indicates that payment will be made at the end of a certain period, rather than in advance.

Position innovation: A change in how a product or service is targeted and delivered, e.g, detection and screening of severe acute malnutrition by mothers/caregivers, rather than community health workers (see Action Against Hunger's bracelet for measuring malnutrition).

Process innovation: A change in how a product or service is created or delivered, e.g. developing a user-centred design approach to delivering sanitation services in emergencies. (See HIF Rapid Community Consultation Challenge.)

Product/service innovation: A product or service change to what is offered, e.g. developing culturally-appropriate menstrual hygiene management.(See IFRC's MHM Kit.)

RFP: Request for proposal.

Single sourcing: The purchase of an individual type of product from just one supplier.

Supply side: Factors affecting the supply of innovations.

Target impact group: The group that the product or service is intended to benefit, such as communities without access to potable water.

UNHCR: United Nations High Commissioner for Refugees.

UNHRD: The United Nations Humanitarian Response Depot.

UNICEF: United Nations International Children's Emergency Fund.

USAID: United States Agency for International Development.

User group: The group that physically uses the product or service, such as WASH staff carrying out a needs assessment using a digital data gathering application on their phone, or people affected by crisis using a household water filter.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The humanitarian sector has made great strides in the past decade to support the development of innovations.

The emphasis has been on the **supply** of innovations to solve priority problems, while there has arguably been insufficient focus on the **demand** for innovations and the partnering and procurement processes that **connect supply and demand**. More attention and solutions to achieve this connection would enable the uptake of innovation at a much larger scale in the humanitarian sector.

With nearly a decade of support for WASH innovation in the sector, Elrha's Humanitarian Innovation Fund (HIF) has seen many of the promising innovations it funds struggle to achieve widespread adoption in the WASH sector. To understand this better, Elrha commissioned this report in order to:

- Provide guidance for innovators seeking to have their innovations adopted within the humanitarian sector.
- Identify challenges in the current system for procuring and adopting innovations.
- Provide recommendations for ways of addressing these challenges.

This paper focuses on the **demand side** for product innovations and the **connection between supply and demand, namely procurement**. It is based on a review of humanitarian agencies' catalogues, databases and process documents, supplemented by 31 interviews with humanitarian WASH practitioners, innovators, third party suppliers and manufacturers.

On the **demand side**, the research identified a number of challenges:

- Specifications being too tight, reducing the scope for innovative products to be considered. Also, specifications for the same products differing between agencies; creating 'markets of one'.
- Performance requirements for WASH products determined by the need to have a reliable solution, and to have it quickly and at volume in an emergency response. These requirements can often be beyond the capabilities of innovation teams at the start of their scaling journey.
- Funding of innovations focused almost exclusively on the 'supply' of innovation, with insufficient attention paid to how to stimulate the demand.
- Significant difficulties for innovations to move beyond 'innovator' users to early adopters in the humanitarian sector. Disincentives for adoption outweigh incentives to adopt.

- Unclear evidentiary requirements for innovators, with humanitarian agencies continually seeking more evidence before they are willing to use an innovation.

Connecting supply and demand in the sector also has some significant challenges. Most notably:

- Procurement processes are often opaque, overly bureaucratic and risk averse.
- Partnerships that are formed to create innovations are suddenly thrust into competitive procurement processes after the product has been piloted. This can disincentivise innovation.
- Clockspeed; the speed at which sector-wide and organisational processes happen has significant impact on when, where and how procurement is carried out. This leads to sector-specific idiosyncrasies that need to be factored into the thinking around innovation adoption.

Recommendations that stem from these challenges are at two levels. For the demand side, the recommendations are at a systems level, and will require further discussion, research and collective action to achieve. Recommendations for the connections between supply and demand are at a more immediately actionable level. Although a number require collective action across the sector, the mechanisms and relationships are already in place to make many of them implementable in the near future.

Demand Side Recommendation Areas:

1. **Stimulate early adoption**: Find ways to incentivise early adoption.

2. **Harmonise and Aggregate Demand**: Find ways to aggregate demand across agencies to reduce friction and costs and, most importantly, create a more viable 'market' for innovators.

3. **Create Longitudinal Demand**: Turn future need projections into demand, through mechanisms such as forward purchasing commitments.

Connecting Supply and Demand Recommendation Areas:

1. Improve the **transparency** of humanitarian agencies' procurement processes, so that innovators can be guided on where to take their WASH products. Foster stronger **knowledge management** around innovations entering the WASH sector within and across humanitarian agencies.

2. **Address procurement and specification** challenges by aligning specification and procurement systems across agencies where possible and by updating value-for-money (VFM) and other requirements so that they are more holistic, outcome-focused and incentivise the adoption of innovations.

3. Innovators need to **localise** wherever possible, following the welcome trend of the localisation of WASH procurement.

4. Foster better **partnering and collaboration** to address trust issues that are present between suppliers and 'customers' within the sector.

The focal point of this research has been decision-making at the headquarter level of international humanitarian organisations. More research and discussion is needed to further explore and map decision-making at local level, the importance of other types of actors, such as governments and national humanitarian organisations, and to test the validity of this paper's recommendations within these systems.

This report assesses humanitarian agencies' procurement processes that are relevant to the adoption of innovations. It also looks at wider aspects: stimulating demand for WASH innovations, and structural challenges in connecting the supply and demand for innovations.

The report is a starting point for further research and discussion. It focuses on decision-making at the headquarter level of international humanitarian agencies. Further work is needed to explore local decision-making on procurement, and the role of other important actors, such as governments.

INTRODUCTION
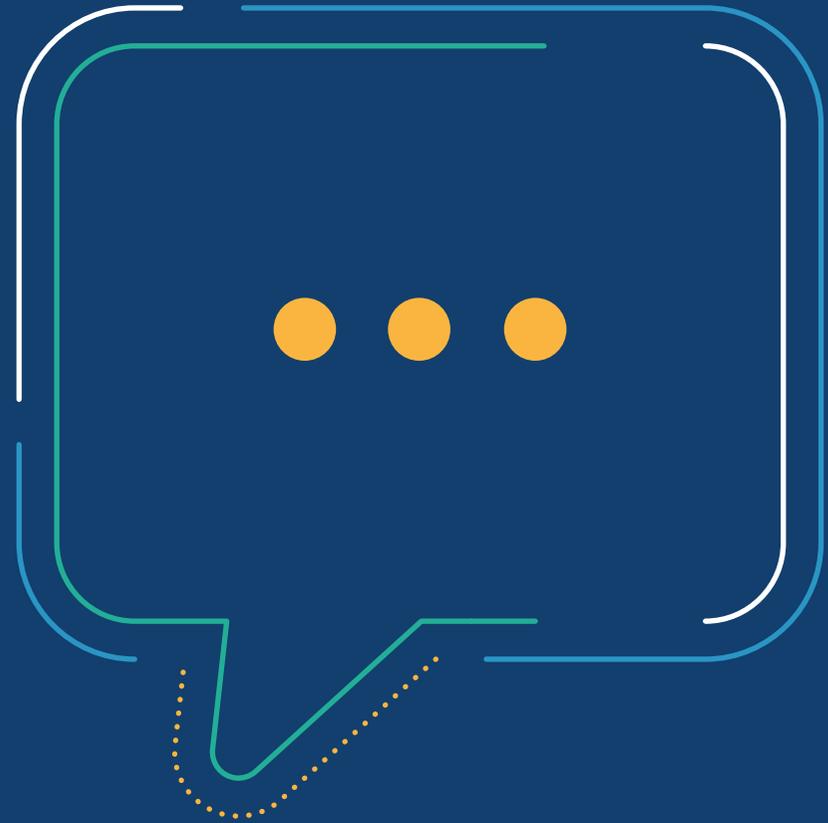
INTRODUCTION

The past decade has seen the emergence, growth and establishment of innovation as a prominent asset within the humanitarian sector.

Numerous innovation funds and programmes have been launched, supporting many new products, processes and services. However, scaling innovations continues to prove difficult for the sector.

This challenge was clearly identified in the middle of the 2010s (McClure and Gray 2015, Elrha 2018) and has since been the focus of a number of innovation scaling programmes. These include Elrha's Journey to Scale, Creating Hope in Conflict: a Humanitarian Grand Challenge Transition to Scale, and the Education Cannot Wait-funded Humanitarian Education Accelerator (HEA), led by UNHCR. These programmes have provided invaluable support to innovation teams, but they have almost exclusively focused on supporting the 'supply' of innovations into the sector.

The adoption of innovations is an under-researched area, and it's not well understood. That is particularly so in respect of the mechanisms, such as procurement processes, that support or inhibit this adoption. This report focuses on procurement of innovative products, and the flaws that need to be addressed. We examine existing structures that can inhibit the procurement of innovative products, so despite innovations being supplied in the sector, current structures might not allow implementation of new ideas (Storsjo, 2017). We also discuss how procurement is potentially vulnerable to irregular and illegal activities, such as fraud and corruption, leading to donors and procuring agencies being cautious of enabling flexibility (which we highlight as being key for innovations to be adopted) in the approach to procurement. In addition, we look at how involving suppliers in research for innovation and subsequent procurement can be seen as risky (Storsjo, 2017), as it potentially compromises the independence of the procurement process. This often leads to an inherent bias towards tried and tested products that are competitively priced. It can also mean suppliers are kept at arm's length by the procuring agency in order to meet strict requirements designed to combat fraud and corruption.

This approach to procurement has become dominant in the humanitarian sector. However, it is one that would appear to create issues for suppliers of innovative products and services. That is particularly so for those that are still being developed and iterated, where there needs to be a collaborative relationship between the supplier and the procuring agency. In the context of WASH innovations, numerous products having been developed over the past two decades and become widely used in the humanitarian sector. These include the Oxfam bucket, the latrine slab, and the use of EcoSan (urine diversion toilets). However, there are still significant barriers to the uptake of WASH innovation in the humanitarian sector. This is despite progress in finding solutions to the WASH challenges identified in the 2013 Gap Analysis in Emergency Water, Sanitation and Hygiene Promotion (Bastable and Russell, 2013), as well as significant investment from funders such as Elrha and the Bill & Melinda Gates Foundation.

In its work with WASH innovation grantees, and in various meetings and discussions with WASH specialists, Elrha observed a pattern of WASH innovations hitting barriers within procurement processes that prevent these innovations from being widely adopted and integrated (Elrha, 2018). Based on these observations, Elrha commissioned this short research study to explore and begin a conversation about decision-making in WASH product procurement.

This report assesses international humanitarian agencies' procurement processes that are relevant to the adoption of innovations. It also looks at wider aspects: stimulating demand for WASH innovations, and structural challenges in connecting the supply and demand for innovations.

The primary audiences for the work are innovators/product developers and humanitarian WASH agencies, procurement specialists and policymakers.

Methodology

The research team reviewed relevant literature and humanitarian agency WASH supply catalogues, databases and other relevant documentation; a total of 20 documents and reports.

This was followed up by interviews with 31 key informants across the following groupings of actors involved in supplying WASH products to the humanitarian sector:

- **Humanitarian WASH agencies** at the global and national levels, with a mixture of supply chain and WASH technical staff.
- **H2H (humanitarian-to-humanitarian) start-ups**[2] that have developed WASH innovations.
- **International manufacturers** that have long-term agreements (LTAs) to supply humanitarian agencies with WASH products.
- **Third-party suppliers** that source and procure products for humanitarian organisation tender processes.
- Members of **Elrha's HIF WASH** Technical Working Group (HIF WASH TWG).
- Members and secretariat of the **Global WASH Cluster**.
- **Institutional donors**: European Civil Protection and Humanitarian Aid Operations (ECHO) and UK Foreign, Commonwealth & Development Office (FCDO).

The sample for interviews was decided based on an initial list that covered the major WASH-focused humanitarian agencies, the Global WASH Cluster (GWC), HIF WASH TWG, and a group of H2H innovators. That initial list of invitees was then expanded through a snowball sampling technique, which brought in a group of third-party suppliers and manufacturers, as well as further in-country humanitarian agency staff. A full list of organisations interviewed is at Annex 1.

A research workshop was then held with approximately 20 attendees who had been interviewed for the study. The workshop outlined the initial findings from the research and sought feedback on these from the group.

The findings, analysis and recommendations in this report are based on document reviews, interviews of key informants, and the research workshop. The report contains numerous quotes from interviewees. Each interview was recorded and the quotes come directly from the transcripts of these recordings. The authors have intentionally kept these anonymous, only identifying the stakeholder group the interviewee was in.

Limitations

The report is based on a limited number of interviews and a targeted review of international humanitarian agencies' central supply/warehouse catalogues, websites, and related documentation. It is therefore a snapshot, and the recommendations should be expanded with further research, particularly on decision-making at local levels, and discussed in key fora within the sector to test and expand the nuances of the analysis and recommendations.

The report looks at product innovations. We acknowledge, and this was raised by a number of interviewees, that many interesting and potentially impactful innovations within WASH are process innovations. This report does not specifically cover process or paradigm innovations, but we believe that many of the findings and recommendations apply to process, as well as to product innovations. The distinction between product and process innovations is often blurred, as there are always processes that need to be 'wrapped around' products in order for them to be adopted and used.

Click to see endnote reference (2)   16

MAPPING THE HUMANITARIAN PROCUREMENT SYSTEM

MAPPING THE HUMANITARIAN PROCUREMENT SYSTEM

Humanitarian Agency Value Chains

There are many organisations and agencies that respond to humanitarian emergencies: local CSOs and NGOs, national and international NGOs, UN agencies, private sector and government agencies. Most international humanitarian agencies are 'vertically integrated'. That is, they have headquarters (HQs) in the global north, regional offices, country offices and local response teams. Some of the international agencies will partner with local NGOs and CSOs, but many directly implement projects themselves.

Figure 1 right shows how this model works. The majority of funds are channelled through, or are financially administered by, HQs through to country offices and/or implementing partners. Reporting on the situation and on the implementation of projects flows from country offices and implementing partners to HQs.

The position of WASH staff in these organisations varies, but they are generally at HQ and country level. Decision-making about procurement and innovation is spread across these two locations, based on whether it relates to global use and prepositioned stock, or specific emergency responses.

Figure 1: Vertically integrated organisation structure

Income & Influence | HQ/s | Regional Offices | Country Offices | Implementing Partners | Impact

Funding

Reporting
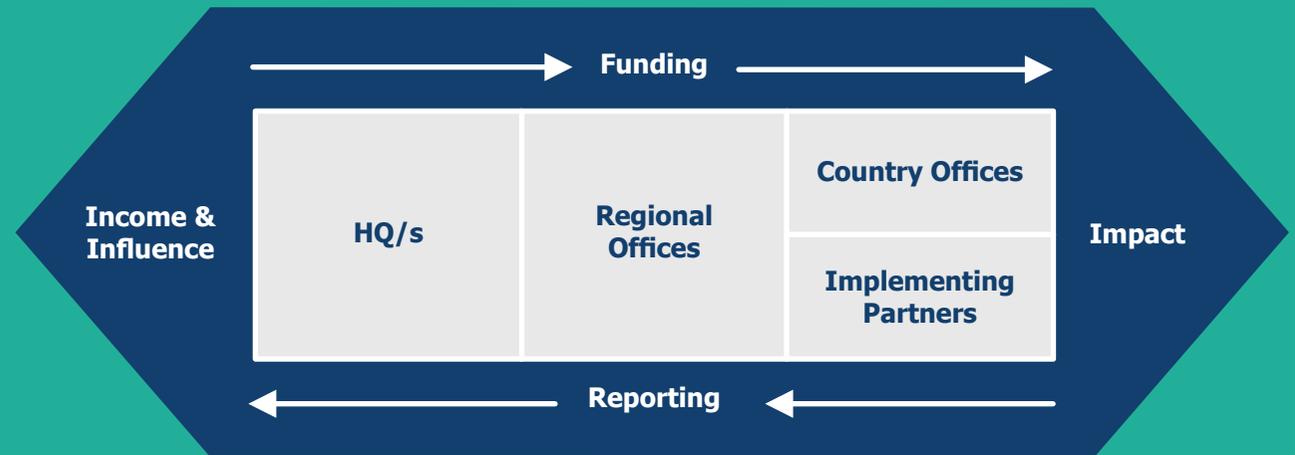
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Procurement

Catalogues and Databases

A review of catalogues and databases was carried out for six agencies: Oxfam, Save the Children, International Federation of Red Cross and Red Crescent Societies (IFRC), United Nations International Children's Emergency Fund (UNICEF), The United Nations Refugee Agency (UNHCR) and Médecins Sans Frontières (MSF). An overview of the approaches for WASH supplies can be found in the following tables:

Table 1: WASH product catalogues and databases

Organisations	Database/ Catalogue link	Database/ Catalogue	Specific process for reviewing new innovations/products	Decision-making for inclusion in catalogue
Oxfam	Oxfam Supply Centre	Database is continuously updated and is available for other agencies to purchase from.	First round of review in the supply team, then passed to WASH team. Bi-weekly meeting of global WASH advisors to review innovations.	Formal. Decision made by a small team in the Supply Centre, in consultation with global WASH group and others.
SCI	Save The Children's Standard Products Catalogue	Catalogue in pdf format, last updated 2011.	Monthly call where products are reviewed. Piloting under WASH advisers remit. Any new products go through this process.	Formal. Decision made between technical, supply chain and finance teams.
UNICEF	Unicef Water & Sanitation Supply Catalogue	Database is continuously updated and is available for other agencies to purchase from.	Quarterly review meeting led by Supply Division. Local authorities need to be involved in some emergency settings. Flow diagram of assessment process provided and website provides direction to suppliers/service providers to join United Nations Global Marketplace (UNGM).	Formal. Quarterly review meeting used to decide adoption of new products.

Organisations	Database/ Catalogue link	Database/ Catalogue	Specific process for reviewing new innovations/products	Decision-making for inclusion in catalogue
UNHCR	UNHCR WASH Equipment Specifications	Catalogue in pdf format, last updated 2016. Provides specifications only.	Now join UNICEF quarterly review meeting. Previously no formal structure.	Informal. Led by senior WASH staff. Recent move to work with UNICEF on quarterly review.
IFRC	Red Cross Items Catalogue	Online catalogue/ database with items available to purchase by the Federation, ICRC, national societies and humanitarian procurement centres.	Two entry points: (1) from partners (NGOs, UN) reviewed by regional WASH expert; or (2) from HQ.	Formal. Review by a panel of regional WASH experts at HQ.
MSF	Not accessible online.	Four to six catalogues for internal use only and in pdf format.	No specific process.	Formal. All five sections of MSF need to agree entry in catalogues.

Update processes for catalogues

- Online catalogues, such as Oxfam's, are continually updated. No date is provided for the last revision.

- Save the Children and UNHCR both provide pdf versions of their catalogues, which were last updated in 2011 and 2016 respectively.

- MSF catalogues are not available through a regular internet search and can only be obtained by contacting MSF directly.

Procurement directly from catalogues

- Oxfam and UNICEF have comprehensive online catalogues. Agencies can buy products directly, or locally within a country/regional response with the technical product specifications provided.

- IFRC, by contrast, uses a system of modular procurement. All items for a response are provided for an Emergency Response Unit (ERU) as a standardised and prepacked kit. The catalogue does not provide details of items that would enable local replication.

Reference to innovations in catalogues

- Only Oxfam and UNICEF provide reference to innovation in their catalogue.

- Oxfam directs the reader to a web page which describes how Oxfam innovates, but with no point of access to support for potential external innovators.[3]

- All suppliers to UN organisations must be registered on the United Nations Global Marketplace (UNGM).[4] UNICEF therefore directs the supplier (innovator) to join the UNGM for their services/products to be considered for inclusion in their catalogue, but there is no reference to how innovative solutions, or any products not yet in the catalogue, will actually be assessed. The flowchart included in Figure 2 is not typically shared with prospective suppliers.

- Save the Children, IFRC, UNHCR and MSF provide no information in their catalogues regarding innovation.

Table 2 shows an emergency response comparison of procurement. For most agencies, a significant amount of procurement occurs in the field during a response. This may either be through the centralised procurement system using LTAs with established suppliers, or directly in-country. Although all agencies have some form of global pre-positioning in readiness for an emergency, there is an increasing move towards localised procurement. The outlier in this is IFRC which prepositions standardised kits that are procured through LTAs on tight specifications. This approach is designed to enable non-specialist staff to use the standard kits.

Table 2: Emergency response supply comparison

| Organisations	Decision taken at Field or HQ for individual response	Procurement mechanisms	Pre-positioning
Oxfam	Country/response level, with input from HQ.	In country emergencies, rules are relaxed, with 'First Phase Minimum Requirements' procedure applying. Local tender on basis of specifications developed by field staff and WASH advisors.	Yes, in the Oxfam warehouse in the UK.
SCI	Most decisions taken at country/response level.	Local tender on tight specifications, then go to international tender if not available locally.	Yes, some items held with UNHRD in Dubai.
UNICEF	Country/response level.	Both detailed specifications and RFPs with target product profiles and tenders.	Yes, emergency supply list items both with suppliers and in global and regional warehouses.
UNHCR	Country/response level.	LTAs and specifications provided for local procurement.	Yes, of limited core relief items.
IFRC	HQ standardisation of pre-packed kits.	LTAs. Tender on tight specifications, as they must conform to requirements of the kit.	Yes, of structured kits.
MSF	Country/response level.	LTAs and local procurement.	Try to have suppliers hold products.

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Processes

Oxfam, Save the Children, IFRC and MSF do not have a standard documented process for assessing innovation, although Oxfam and SCI have regular meetings to discuss innovation, progress on current innovations and ideas for new innovations. UNICEF does not have specific guidelines for innovators seeking to enter the sector, but does have an assessment process - shown in **Figure 2** right.

An innovator or supplier that approaches UNICEF is sent a standardised email outlining the procurement process, where to get information about upcoming tenders, and how to access the technical review committee's quarterly review of new products.

'PIP' in **Figure 2** stands for Product Innovation Projects. UNICEF manages a portfolio of PIPs that respond to the needs outlined in UNICEF's Strategic Programme areas.

Figure 2: UNICEF New Product Review Process. Adapted from UNICEF, 2020.
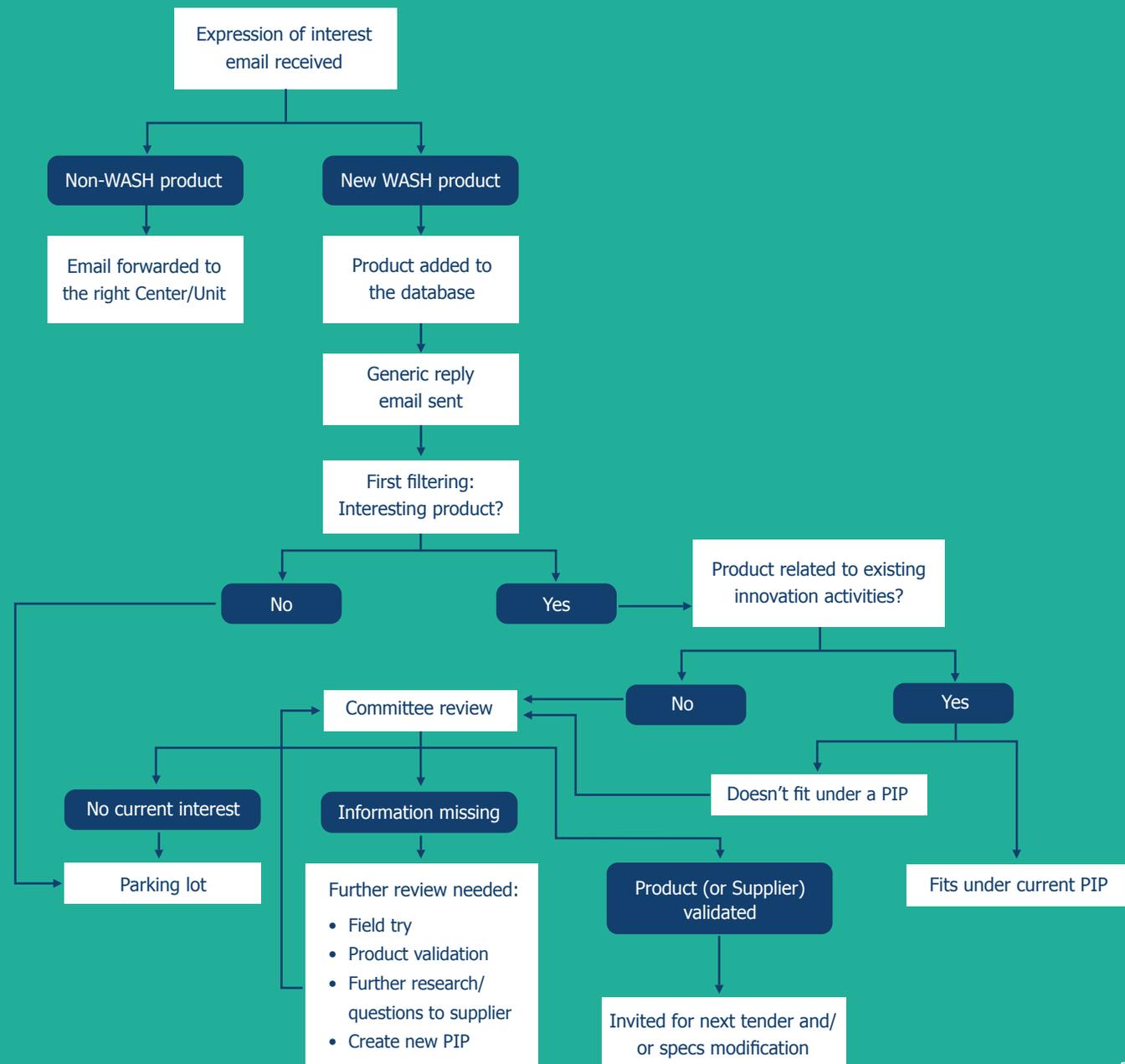
Decision-Making and Product Specifications

Systems and processes, decision-making and product specification development vary across humanitarian agencies. The decision-making processes for adoption of new innovations at a local and at a global level also have different degrees of codification across humanitarian agencies. Some have fairly thorough process maps and decision trees, while others do not have documented processes.

There were some discrepancies in information provided by staff within the same agencies, and we concluded that terminology, visibility, knowledge and adherence to standardised policy and practice was missing in a number of agencies.

There are several commonalities across most of the different agencies' procurement processes and supply chain management systems. These include:

- LTAs with manufacturers or suppliers are used as flexible contracting tools for WASH items that are ordered frequently. These agreements contribute to reducing future lead times, as they eliminate the need to obtain quotations and prices can be fixed for the duration of the agreement.

- Increasing localisation of procurement, with the majority of response-level purchasing being decided by WASH operational staff at the country and humanitarian response level.

- Decisions on whether to include a product in a global database or catalogue are taken at the global level by a core group of technical specialists.

- Specifications are generally detailed, prescriptive, 'input level' specifications for most procurement. They can be determined at the local and/or global level. Local level specification decisions are for items to be used in that particular response. Global specification setting is usually for: (a) items that are procured through global level LTAs; (b) catalogues; and (c) decisions that have significant potential health impacts, such as water treatment products.

Supply Chains

The humanitarian WASH supply chain is a complex system made up of different types of actors. **Figure 3** provides a simplified map of this.

H2H start-ups are organisations or social businesses that are less than 10 years old and whose main purpose is to develop products and services for development and humanitarian purposes.

Third-party suppliers are intermediaries that procure products on behalf of humanitarian agencies. They usually do so when there are multiple products within a single tender.

Local manufacturing and engineering companies within emergency response countries produce WASH products (including reproducing items, such as the Oxfam bucket) and carry out installation/construction work.

Some **humanitarian agencies** hold stocks of products that they supply to other humanitarian agencies from their own warehouses.

There are international manufacturers that supply humanitarian agencies with WASH products. It is common for these manufacturers to hold LTAs to supply the agencies; one interviewee in a humanitarian agency stated, "Almost everything is bought under LTAs."

A number of these international manufacturers do not have a profit margin that is comparable to their private and public sector markets, but they are willing to provide products at a cheaper cost as part of their corporate social responsibility.

Figure 3: Humanitarian WASH 1st Tier Supply Chain
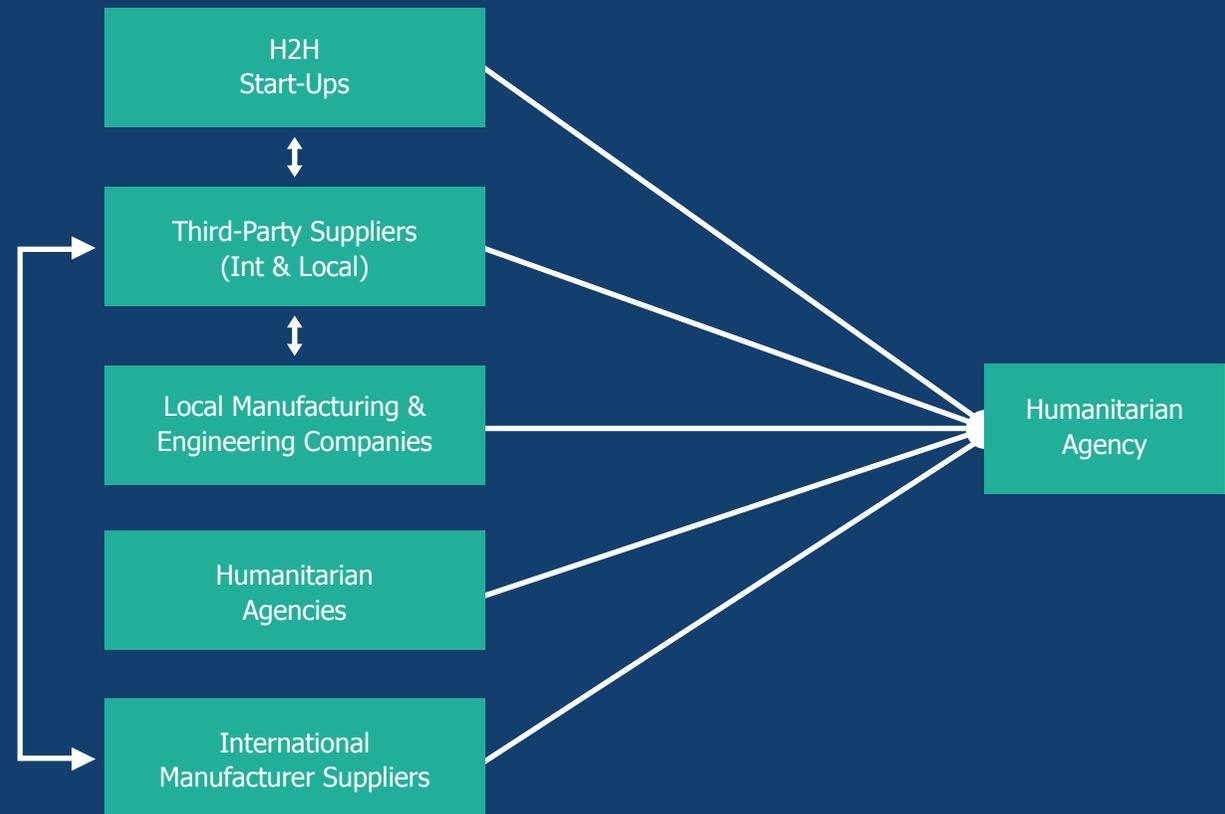
During interviews, a number of key points emerged about the structure of this supply chain, and the different suppliers. Most pertinently, many innovations are incremental improvements to products that come about following user feedback from humanitarian agencies to their suppliers within LTAs (what one interviewee called 'customisation'). Such innovations aren't subject to any form of external tender or 'innovation challenge' that innovations are often sought through. Rather, this continuous product improvement and innovation is part of a good customer-supplier relationship. This means that often the search[5] for solutions to problems identified within a humanitarian response starts and ends with existing suppliers with whom WASH agencies already have LTAs.

Localisation of Procurement

In interviews there was a clear indication that practice is starting to follow policy in regard to the localisation of procurement. Interviewees consistently referred to the increasing levels of localised WASH product procurement. As one interviewee working in a protracted humanitarian crisis stated, "Just under 6% of the cost is for offshore procurement – a very low amount. Of that, most products are for water safety, such as for Aquatabs. The rest is for the water testing – for the water laboratory that we're providing to support the local government."

Among the factors driving localisation is humanitarian agencies' attempts to embody the spirit of localisation set out in the Grand Bargain[6]. Impacts of this approach:

- A reduced administrative burden on humanitarian agencies to deal with import processes, etc.

- As international humanitarian agencies become less operational, some tend (where possible) to use local manufacturers and engineering companies for WASH infrastructure.

- Local markets in many countries have improved over recent years, and there is more trust in products purchased from local sources.

Impacts of localisation

- A reduction in many agencies' central prepositioned stocks. A tangible outcome highlighted by one interviewee was: "We don't really use the hygiene kits anymore as we've broken it down into individual items purchased locally. We just provide the key items like menstrual hygiene kits, buckets and collapsible jerrycans. Next year there are just 10,000 hygiene kits on the plan as contingency stock."

- Agency product catalogues are used as a source of specifications for local procurement, rather than to be purchased from.

- At least one manufacturer is setting up agents in key countries where humanitarian procurement takes place. This is to ensure they are able to benefit from the shift towards local procurement.

The level of localisation in purchasing should not be seen as a completed journey. There are still instances where quality is an issue for some products in-country. However, in general, interviewees believed that the quality of locally produced products is increasing. And a benefit of local production is that product quality issues can be addressed in person, and in many cases resolved quickly.

Another significant factor raised is the ability of local manufacturers and suppliers to produce the volume of products required in the tight timeframes often set for emergency supplies. Proximity advantages may not be sufficient to offset this.

Click to see endnote references (5) (6)

The use of local third-party suppliers to source and procure WASH items can give the impression that procurement is increasingly localised, as purchases are 'in-country'. What happens in many cases is, in effect, outsourced procurement to local logistics companies. These companies will often be importing goods from outside the country. Therefore, while this provides jobs in the third-party supplier, this procurement is not impacting the local manufacturing and engineering markets. **Innovators seeking to supply humanitarian agencies need to be aware of the role of third-party suppliers**, and from where these suppliers are purchasing products to fulfil humanitarian agency orders.

The welcome increase in local procurement provides opportunities for locally based innovations that could emerge from local innovation programmes and entrepreneurs. However, localisation creates a challenge for out-of-country innovators who are seeking to have their solution adopted; they will need to find a way of 'localising', which is likely to be costly. The case study from Bangladesh (right) shows how localisation can be navigated by innovators.

CASE STUDY 1
Local sourcing example

This case study considers the shift towards locally procured innovations, with a focus on process and adaptive innovation rather than the development of new products. Localised approaches, such as in Bangladesh, also help overcome bureaucratic delays in international procurement and importation procedures.

The refugee crisis in late 2017 and early 2018 brought the total number of Rohingya living in Bangladesh to almost one million. Since then, UNICEF and Action Against Hunger have been tasked with the coordination of WASH-related activities across the humanitarian response, as co-chairs of the Cox's Bazar WASH Sector.[7]

The main challenges when sourcing WASH supplies to import have been long lead times, customs delays, and a shortage of warehouse space. This has meant that WASH sector members have increasingly sought to localise their procurement.[8]

To do so, UNICEF and Action Against Hunger have adopted an agile and collaborative approach, often working with local artisans or engineering firms, on the development of innovative designs and usage for small-scale Faecal Sludge Management (FSM) sites.

They've come up with creative ways to use up-flow filters, and make concrete tanks and baffles, tanks made with angle iron frames and tarpaulin membrane, and plastic tanks filled with coconut husks used as a filter medium.

This work explored innovative ways of adapting to the availability of local materials, and has led to the development of a FSM kit that can quickly be set up. Before procuring items such as soap, the WASH sector will carry out a market assessment for price and availability, and capacity of the private sector to supply. Also factored in will be considerations such as the type of soap the refugees want (including brand or colour). For WASH innovators, localisation and contextualisation is key to be able to address this level of customisation.

The Impact of LTAs on the Adoption of Innovations

Partnerships, and their strength (or otherwise), were cited in a number of the interviews. These partnerships included co-creation, field-testing, modifications of products within LTAs, and the diffusion of some successful products. They related to all stages of the product development and procurement cycle.

The scope and length of LTAs were identified by a number of innovators and aid agency workers as a key dynamic affecting innovation procurement in the WASH sector. These agreements reduce 'friction' in procuring established products. They also more easily allow for products to be tweaked, and for incremental innovation to happen. It seems that most of this incremental innovation by LTA holders happens in the middle of LTAs, as suppliers are reticent to seem too speculative or innovative when negotiating a new LTA. This leaves 'competitors' feeling that innovation between the parties to an LTA creates a disadvantage for them when LTAs are opened up for renewal. This is because new product specifications stemming from incremental innovations under the existing LTA, mean that the incumbent supplier is better able to meet the specifications on the products in the next LTA process.

The situation may be particularly challenging for some start-up organisations. As LTAs are generally reserved for businesses that can provide a suite of products[9], it is difficult for start-ups within one or two innovative products to secure this type of contract.

> It seems that most of this incremental innovation by LTA holders happens in the middle of LTAs, as suppliers are reticent to seem too speculative or innovative when negotiating a new LTA.

Click to see endnote reference (9)

CHALLENGES FOR WASH INNOVATION ADOPTION

CHALLENGES FOR WASH INNOVATION ADOPTION

Challenges for WASH innovation adoption can be categorised into two types. The first is the demand for new humanitarian WASH products and services. The second is the mechanisms, policies and processes that link supply with demand, particularly procurement.

Challenge Area 1: Demand Side

There are a number of challenges on the demand side for innovations. Five came up consistently in the research:

1. Specifications
2. Performance requirements
3. Funding
4. Diffusion
5. Evidentiary requirements

Demand Side Challenge 1: Specifications

The form of specifications from humanitarian agencies is a significant issue affecting suppliers. The tighter the specification, the less room there is for innovation. That is because the specification is about the design of the item, not the outcomes it delivers.

The tightness of specification at an individual agency level restricts the range of innovative products that might be considered. For example, if procurement specifications for a WASH tender call is for soap of certain dimensions and compounds, this rules out not only different types of soap that might not meet the specifications, but also more innovative products such as Supertowel - an antimicrobial material that can clean the hands with minimal water and no soap. Supertowel is what is known as a paradigm innovation (Bessant and Tidd 2018); an innovation that is outside the usual way of thinking about what a product or service is. Procurement processes with tight specifications will consistently miss such innovations.

A specification concern that is potentially even more significant is the lack of alignment across humanitarian agencies on specifications for products that are very similar. This was raised in a number of interviews. For producers to invest in innovations, the investment must be commercially viable. This requires a level of confidence that humanitarian agencies will purchase the product in sufficient volumes to justify the development and ongoing production costs. A lack of forward commitments to purchase in the sector is part of the issue. A compounding problem is that agencies often issue specifications that are so specific that even a slight difference from other agencies' orders (say on two or

three of the specifications) will lead to products used by other humanitarian agencies not being considered. Humanitarian agencies' rationale around specifications will often be based on programmatic or logistical requirements. However, this approach means that each agency becomes a 'market of one' (e.g. latrine slab thickness of 35mm for Oxfam, and 55mm for Save the Children). For innovators and manufacturers, the cost of making changes for each individual agency can become financially and operationally prohibitive. In turn, this means that the products can't be produced at sufficient volumes to create economies of scale, where the agencies benefit from a reduction in cost and producers benefit from increased revenue from significantly larger volumes. There appears to be a lack of consideration, or indeed priority, given in the sector to the fact that small changes in specifications can have significant impacts on manufacturing cost drivers, such as re-tooling, batch volumes,[10] production line utilisation, etc. This affects suppliers' willingness and ability to provide the best value items.

The differences in agencies' specifications, and the tightness of specifications, varies. Issues around this came up repeatedly when speaking with third-party suppliers, international manufacturers and H2H start-ups.

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One third-party supplier in a country in the Global South claimed they had "seen a number of local businesses go to the wall, or not supply to the humanitarian sector, because of overly specific specifications".

An international manufacturer noted the wider issue of humanitarian specifications for products not aligning with similar commercial products specifications:

"If aid agencies could agree specs that align with commercial buyers, we would be able to hold much more stock because we wouldn't have to store 'special' aid products with out-of-date specs, or specifications that are specific to a certain agency."

Demand Side Challenge 2: Performance Requirements

There are several issues with the supply of innovations to the sector and how they are perceived. This is particularly the case for early-stage innovations that could be considered Minimum Viable Products (MVPs).

In innovation practice, MVPs are products that are designed to be tested to see if the core hypothesis behind the solution is correct. It is a way of developing solutions quickly, garnering real-world application learnings and eliminating bad ideas early. For those working in emergency responses, who need dependable solutions that can be quickly and easily implemented, the fact that new solutions may not have been fully developed and tested by the time they need to be piloted in an emergency response setting creates a challenge: the product may not reach the standards they require. The assessment by many WASH staff will be on the performance of the product as it is, rather than the potential performance of the product once it is fully developed. This means that potentially impactful innovations are not adopted because they do not yet meet the performance criteria that the user requires. Rejecting these innovations is entirely reasonable and responsible; core humanitarian standards of quality and accountability have to be met. Therefore, humanitarian agencies' uptake of innovations that are still in the process of being developed and honed will always be weak in the emergency relief context. The immediate humanitarian need overrides time investment in developing better solutions. This significantly impacts the adoption of innovation.

Demand Side Challenge 3: Funding

Many humanitarian donors in the past decade have taken on two roles. The first is their traditional role as a 'customer of impact' (Gray and Hoffman 2015). They 'buy' a certain amount of humanitarian 'impact' from a humanitarian agency on behalf of the disaster-affected community. Acting in this role, the donor is seeking to meet humanitarian needs, maximising current impact from the funding they provide.

The second role is that of 'investors in potential future impact' (Gray and Hoffman 2015) through funding innovation. This has led to the creation of entities and programmes such as Elrha's HIF, Creating Hope in Conflict: a Humanitarian Grand Challenge fund, and other programmes and initiatives at the sector and individual agency levels. In this role, humanitarian donors have been primarily concerned with the 'supply' of innovation, relying on the 'demand' for the innovations to naturally emerge from humanitarian agencies, as long as the innovations addressed priority problems.

However, the humanitarian sector can be seen as 'an asymmetrical multi-sided platform'. This means that the buyers, users and target impact groups in the humanitarian sector are often different actors. The 'power' resides in donors as 'buyers' where it comes to funding, and in humanitarian actors as 'users' when it comes to information about what is happening in an emergency response. As has been noted consistently for decades, there is often a lack of agency experienced by the 'target impact group' disaster-affected communities, regarding the products and services they receive. This leads to significant perverse incentives becoming ingrained in the humanitarian sector.

Donors and humanitarian agencies often feel they lack agency to make the changes required to align incentives and take a more holistic systemic approach to humanitarian action, innovation and procurement.[11]

When donors act as 'customers', their behaviour creates a number of impacts on the 'demand side' for innovation, particularly relating to the application of donor Value for Money (VFM) requirements.

Donors as customers - VFM impact

Interviewees didn't find that institutional donors were placing too many requirements on them in relation to the procurement of specific products, apart from some origin source stipulations by a few donors.

Where funders are in the mode of being 'customers of impact', procurement guidelines will invariably seek the best VFM option. For instance, ECHO states that 'contracts shall be awarded to the bidder offering the best value for money', and it provides weighted award criteria so that it's possible to assess the quality of the proposals using the set objectives and priorities (ECHO, 2011). Typically, the weighting on VFM ranges between 30% and 70% of the decision criteria in a procurement process.

The unintended consequences of the application of VFM by donors and humanitarian agencies in the adoption of WASH innovations are:

- The purchase of inferior quality products at lower prices. These products then need maintenance, repair or replacement sooner than higher quality products.

- Negative impacts on innovations that have not yet been able to reduce their cost of production through economies of scale and other cost savings associated with more established products.

- Wider impacts of the innovation (e.g. reduced waste, recycling, contribution to the local economy) are not sufficiently taken into account. For example, one humanitarian agency respondent highlighted the problem with tight technical specifications that do not take account of the broader impact within the community: "[The] Kakuma social enterprise portable toilet - good health and social outcomes. But too expensive to be adopted by partners just looking for VFM." An overemphasis on VFM, or not using sufficiently holistic VFM measures, can therefore reduce the likelihood of an innovation's success in a procurement process.

Many of the regulations around VFM and contracting practices have a strong rationale at an individual project level, in terms of good stewardship of public funds and seeking to combat fraud. However, they can create problems at a systems level when it comes to fostering agile and innovative procurement approaches that could stimulate the adoption of innovations in the humanitarian sector.

An example of this was discussed by one humanitarian agency staff member: "There needs to be better alignment on procurement rules between FCDO, ECHO and USAID to tackle problems around compliance. This is often a barrier and we could do much better for smaller agencies if we could do procurement on behalf of them, but we can't do that because of compliance and the risk that other agencies aren't prepared to take."

"[The] Kakuma social enterprise portable toilet - good health and social outcomes. But too expensive to be adopted by partners just looking for VFM."

Demand Side Challenge 4: Diffusion

Innovation funders are those who are investing in 'potential future impact'. These include Humanitarian Grand Challenge, GSMA and Elrha (innovation funders supported by the UK FCDO, United States Agency for International Development (USAID), Netherlands Ministry of Foreign Affairs and other institutional donors) and Bill & Melinda Gates Foundation.

This funding has increased the supply of innovations. However, there is insufficient thinking around the alignment of this support to donors' roles (particularly institutional donors) as 'customers of impact' when they are funding WASH humanitarian programming. **Currently, there is a gap between strategies to support the supply of innovations, and policies and procedures for funding regular humanitarian programming**. This gap is contributing to a 'chasm' for innovations at the early adopter group stage of the Rogers Diffusion of Innovation Curve (Rogers, 2003). This early adopter group sits between where the innovators are working with innovative organisations (labelled 'innovators' on the Rogers Diffusion of Innovation Curve) to develop and pilot the initial product, and where the innovation can compete with more established products for regular humanitarian funds (early majority), as shown in **Figure 4** right.
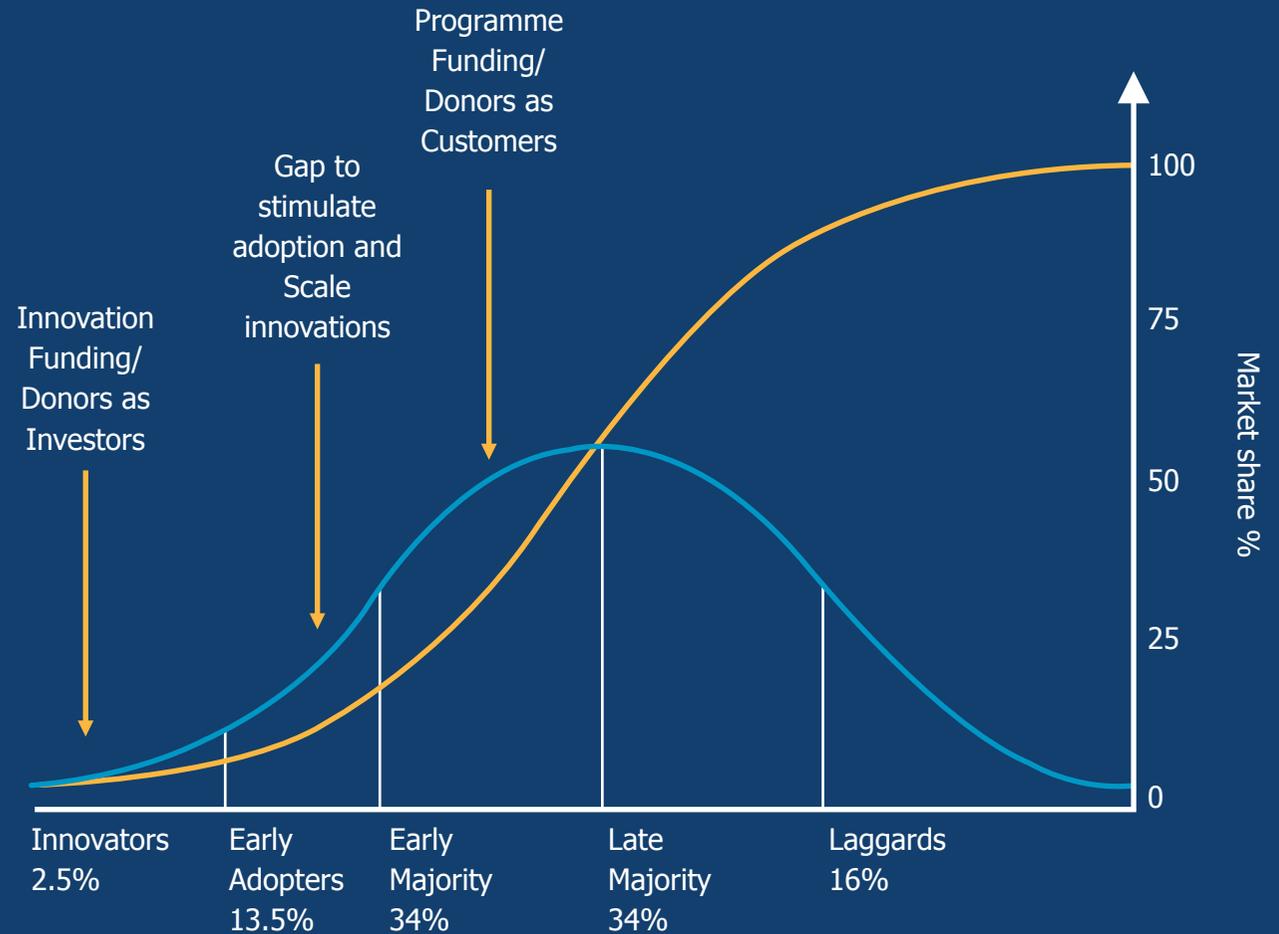

Figure 4: Adapted from Rogers Diffusion of Innovation Curve

The problem for many innovations is that, by the time their innovations are being used by 'early adopters' and 'late majority' humanitarian agencies, they need to be able to ensure that all their costs are covered through regular humanitarian programme grants and contracts. However, to do this, they need to have built sufficient evidence in multiple contexts, developed their organisation, reduced their costs of production and deployment, and created a viable business model in order to compete effectively in procurement processes. The early adopter group's risk appetite is normally not as great as that of the innovator group, but is greater than the early majority group. Currently, the costs of adoption by humanitarian agencies (financial, reputational, risk, transactional) appear to outweigh the incentives to adopt the innovation within this critical early adopter group.

Some institutional donors are acutely aware of the problem, as one interviewee from a donor stated:

Elrha starts things up and points out needs and promotes projects in innovation, [this] then needs to be handed over to someone else. In principle to whoever wants to use it but that's where it falls through and much of [the] potential is lost. [We] need to link up with [the] programmatic level, there's a big hole, no structure to guide it through.

Demand Side Challenge 5: Evidentiary Requirements

The H2H start-ups interviewed as part of this research have tested their products in at least one humanitarian response, and most have done so in numerous countries. Yet many are facing a challenge where for each new organisation, and each new emergency response, they often have to 'prove' their innovation by trying to forge a partnership with a humanitarian agency to run a pilot. This is not limited to WASH innovations, and is what we term 'perpetual pilots'. This challenge can be seen in the (H2H start-up) interviewee quote below: "All conferences end with the statement 'more evidence is needed.' But they [humanitarian agencies] don't support gathering that evidence."

This is further complicated by products not being trusted for trials if they don't already have evidence that supports them. One interviewee in a humanitarian agency stated,

"It's a bit of a chicken and egg because we want to experience more commodities in the field and the field tests, but we wouldn't change our specifications or put them in the catalogue unless we had some kind of evidence that they work. So it's that kind of catch-22, you need the evidence, but at the same time you also need new products."

This is not just an issue for start-ups, but for humanitarian agencies too. One interviewee from a humanitarian agency told us, "[A UN agency and a donor] have been obstructive, leaving us needing to demonstrate products with our own money. It is [only] then that donors came on board." There is therefore a significant need for partnerships that enable the funding and access for innovators to trial their products in emergency responses, and carry out the necessary research around those pilots. One respondent stated, "The space to innovate in the response is needed for those who are coming in from outside the sector. When we trialled our product in the response we realised that although the filter works, maintenance was cumbersome."

Without an answer to what constitutes sufficient evidence, H2H start-ups are stuck in a seemingly endless cycle of perpetual pilots. This requires a significant amount of effort in identifying partners who are willing to pilot, trying to find funding for the pilot implementation, and evidence generation.[12]

Click to see endnote references (12)

Challenge Area 2: Connecting Demand and Supply Effectively

For innovations to be adopted, there need to be efficient, effective and transparent linkages between innovators and customers (buyers, users and target impact groups). **The processes connecting the two largely fall into two camps: competitive, such as tendering in procurement processes, and collaborative, such as partnerships**. A number of challenges in both areas emerged in the research. These include systemic challenges that are structural within the humanitarian sector that impact the ease of connection between innovators and customers, whether collaborative or competitive, and particularly so in relation to clockspeed. Clockspeeds are the key cycles within an industry that dictate the time it takes to carry out core processes (e.g. the whiskey industry has product clockspeeds of 8-20 years, whilst disposable fashion has a product clockspeed of 6-8 weeks).

Connection Challenge 1: Procurement Processes

Key issues for the adoption of WASH innovations that emerged from the research were:

- **A lack of transparency**. There is very mixed behaviour by procuring agencies. One supplier experienced poor behaviour on multiple occasions: "As a traditional supplier, you are dependent on the timelines, requirements, etc, but even then they sign agreements then void them, or change the rules, etc, mid-stream, or even after signing agreements." Therefore, not only do suppliers struggle to map and access the humanitarian sector, once they have achieved this, they often find that dealing with humanitarian agencies is not as transparent as it could be.

- Another issue for those trying to supply the humanitarian sector with WASH products is the lack of transparency in **how the sector makes decisions, and the purchasing processes adopted by individual humanitarian agencies**. This means that innovators, and even those seeking to sell established products, can waste inordinate amounts of time trying to map and navigate the system and the decision-making processes of individual agencies. One interviewee said, "We can't get [UN Agency] to do a pilot with our product. Even getting to speak to someone who could make a decision on that is a nightmare." Another interviewee said that it took them two years to "get their heads around" the humanitarian sector, and this was despite generous support from Elrha and Oxfam, among others in the sector. The difficulties were further described by an established international manufacturer that has significant LTAs with humanitarian agencies: "In order to know what products are required you need to attend various forums, different humanitarian summits, exhibitions, etc, … nothing is easily accessible for us."

- Woven through multiple interviews was the view that the humanitarian sector is too **risk averse**. This is particularly an issue where the investments required are substantial, moving beyond investment in piloting innovations towards placing substantial orders that would shift the innovation to mainstream use by an agency. One respondent said, "Generally people are risk averse, the more senior people are in [the organisation] then the more risk averse they are. You can often do things at a small scale, because there's a bigger risk appetite. It's not the rules necessarily which are wrong but possibly that we don't as an organisation have a culture of being a bit more risk-taking."

- **Single sourcing** can make it difficult for innovators to break into the humanitarian marketplace. As one interviewee outlined: "A new product can be obtained under a single source justification, so we would have to make a business case for a waiver."

This creates another barrier, or at least increased friction, for single product innovations to be adopted. It can be even harder for single product innovations to gain an LTA, particularly as the ability to deliver in larger quantities will be required within LTAs. An interviewee told us, "For a small social organisation it can be difficult to prove we can supply in large volumes."

The **bureaucracy** in tendering processes can be too onerous for many start-ups. Meeting criteria can put strains on small businesses and organisations, placing them at a disadvantage compared to larger businesses that have dedicated financial, legal and administrative capacity. One respondent said, "Paperwork that is required [is] hard to meet [e.g.] for the UN."

- The move towards **localised procurement** poses significant challenges to WASH innovation start-ups. They often do not have the capability to produce in each response country, and don't have the resources to develop and support a network of local suppliers. To quote one interviewee: "[We] also learnt that country offices make their own decisions. How do you access the country office?" Yet at the same time, it can be difficult for innovators at the local level who are seeking to contribute to building the local economy. One interviewee who had been involved in such a local production approach stated, "There needs to be higher value on truly locally produced. The impact for producing locally has an impact both on the economy and on the solutions. This isn't reflected at the moment."

As identified by Warner and Obrecht (2016), **gatekeepers** play a critical role for innovations in the humanitarian sector. There is a small group of technical advisers across humanitarian agencies who hold a significant amount of influence over the adoption of innovations in their own agencies.

Some humanitarian agencies hold significant 'soft power' within the sector, whether due to them being viewed as a technical leader (e.g. Oxfam), or through their purchasing power (e.g. UNICEF). These agencies can make or break an innovation's journey into the sector. Gatekeepers in the sector have themselves played a significant role in developing and adopting innovations. If an innovation is not encountered or accepted by this group, then it stands a far slimmer chance of being adopted in the sector.

Connection Challenge 2: Partnerships

The interviewees we spoke to consistently cited the importance of partnerships, but also the issues that emerged when it came to partnerships and the adoption of innovations.

In the first stage of the diffusion curve, the development and testing of innovations is often carried out through partnerships between the product developers and a humanitarian agency that is in the 'innovator' group for the product. These partnerships are usually highly collaborative.

But partnering is often also needed at the 'early adopter' phase, and these partnerships can be more difficult to build. For those in the innovator group of humanitarian agencies that have piloted an innovative product, their ability to collaboratively partner with the product developers beyond the piloting stage is restricted. Orders beyond that stage are moved into the humanitarian agencies' procurement processes.

What was once a collaborative relationship suddenly sees the product developer in a pool of competitors in an open procurement process.

Intellectual property

The issue of intellectual property (IP) was raised repeatedly by suppliers of all types. There was a general fear, and some experience, of IP being appropriated and used by agencies. One interviewee when talking about an INGO stated, "Having taken all our suggestions [they] then handed over the ideas to our competitors."

Even where partnerships were strong and had a high degree of trust, IP was a key point of friction between the parties. For example, a start-up talking about their work with a partner said, "[We] have a very close collaboration with [partner], their roles were clearly defined. No challenges. The only possible challenge was intellectual property as [we] needed to keep IP. We need to have future roles of partners very clearly defined."

Collaboration and competition

A tension arises as interactions between innovator and agency shift from highly collaborative towards competitive. This was identified by many interviewees, from both the supply and the demand side of products. Processes that start out as collaborative often end up in a competitive process when moving from the innovator stage of the diffusion curve to the early adoption stage of ordering the innovation at a larger scale. One humanitarian agency staff member articulated this well:

"I think one of the lessons from the latrine slab is that once you've gone a certain way, you're going to feel committed to that partnership to gain a fair degree of co-creation and to build a good relationship with that supplier. But then when you finally come to the LTA, in that case we have two products, one is significantly more expensive than the other. So obviously if a country office is ordering, they're going to ask for the cheapest version. So that's one challenge of going through that process."

This is an issue that is not unique to the humanitarian sector and is one that other 'public' sectors have been grappling with. Iossa et al. (2018) argue that using a traditional pre-commercial procurement model for addressing the barriers that the current procurement system puts in place for innovations may not be beneficial in low commercial value humanitarian contexts.

Under this model, innovation research and production are considered separately, which allows for competitive development in stages with multiple sources. Iossa et al. say that an alternative – the innovation partnership - is more likely to be beneficial when the innovation is highly valuable for the public (or voluntary sector) procurer but where there is no significant demand for it from the private sector. This can frequently be the case in the humanitarian sector, where there is limited demand for an item in the private sector but the innovation has value for the humanitarian agency in terms of meeting the needs of affected populations.

Figure 5 right shows the typical product innovation life cycle *outside* the humanitarian sector, from Phase 0 of research, through Phases 1, 2 and 3 of exploration, prototyping and development, through to Phase 4 of commercialisation (Iossa, 2018). This illustrates the point at which a dislocation appears in the humanitarian innovation process in terms of partnerships between agencies and innovating suppliers. Typically, a partnership is developed to progress through research and solution design, up to the point of developing and piloting an innovation (Phase 3 in **Figure 5**). But at this point, the procurement process of the humanitarian agency intervenes and a competitive procurement process must be carried out. The investment that the innovating supplier has made in the process may be entirely lost if they are not competitive in the final tender. This can disincentivise their future investment in innovation.

This was the case for a number of interviewees. One telling quote was:

"Collaboration on joint pilots work, creating insights and experience for free, but then you go through a procurement process that can exclude [us]. Innovation and procurement policies don't really align."

Figure 5: Typical public sector product innovation cycle (Based on Iossa et al., 2018, p. 744)
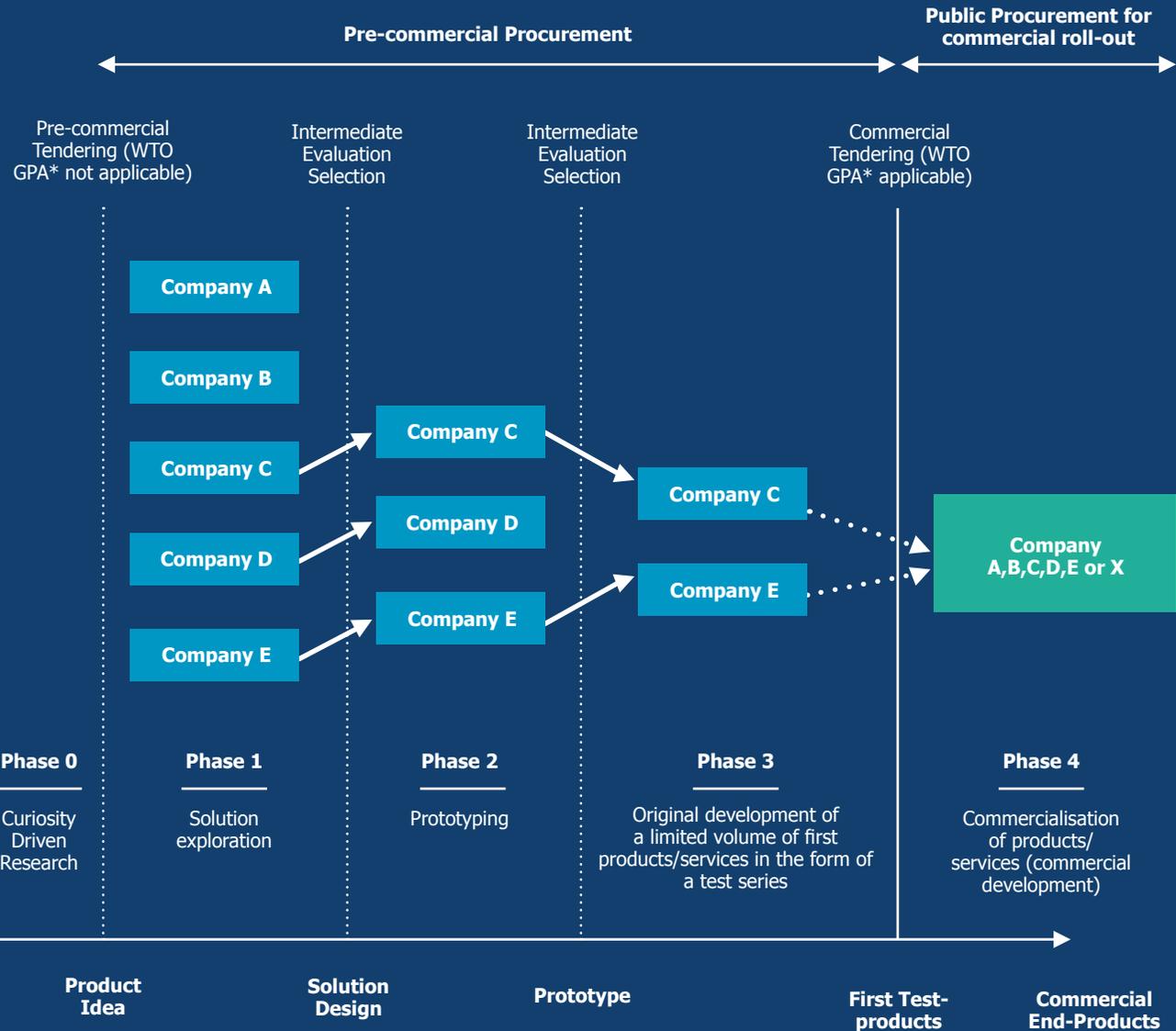
GPA = Government Procurement Agreement

By adopting an innovation partnership approach to procurement, aid agencies would have a process to maintain the relationship with innovation suppliers they have worked with, and more consistently move from piloting to adopting an innovation.

Personality-based partnerships

A partnership's success can be highly dependent on personalities, and rapport between just a few people. This is true even in more formalised LTA supplier-procurer partnerships. It was telling that a number of suppliers would provide very different accounts of their experience with the same humanitarian agency; the stakeholder experience appears to differ, depending on who within the agency the stakeholder is engaging with. This is another area where gatekeepers hold significant influence over what is procured and deployed in humanitarian emergencies, and how relationships are managed.

Time

Another common partnership theme is the time it takes to create and maintain these arrangements. That is particularly so where there is co-creation of an innovation or co-development of product specifications. The investment of time can seem to be a significant transaction cost, but it also has the potential to create greater impact through a more solid partnership relationship established at an early stage in the innovation.

This time commitment extends beyond the co-development of innovations, to establishing the adoption of an innovation. We were made aware of adoption processes through partnerships that took in excess of 18 months, with others taking longer - such as in the case study below.

CASE STUDY 2

Bangladesh Innovation Partnership Case

In Cox's Bazar (as in other emergency contexts), there is a need for latrines with access for people with disabilities.

UNICEF's innovation team started an innovation project to ensure emergency latrines can be accessible to persons with disabilities in the first phase emergency response through an add-on the emergency sanitation slab. As a result five products were reviewed after a global LTA of which two were selected for field testing. Following successful testing in Angola, 50 prototypes were tested; 25 of one design and 25 of another in Cox Bazar.

The entire innovation process took over three years of collaboration between the users, product developers and UNICEF. Both add on products have been incorporated into the UNICEF supply catalogue since 2020.

This case shows that innovation partnerships are possible, and are a viable way of getting products into humanitarian agencies. But this is a long-term process which requires time, energy, commitment and resources from both the adopting agency and the innovators.[13]

Click to see endnote reference (13)   40

Multi-stakeholder partnerships

In numerous cases there is a need for multi-stakeholder agreements to facilitate procurement. These agreements are not just between humanitarian agencies and their suppliers, but may also be with local authorities and other actors. This creates further complications for start-ups seeking to create and manage these relationships in order to secure a pilot or an order.

Piloting partnerships

One of the key partnership areas cited by innovators was the need for partners to help them pilot an innovation. The main stumbling blocks for this were:

- Connecting with humanitarian agencies if you were not one yourself.
- The humanitarian WASH agency was not a co-creator of the innovation.
- Insufficient funding for multiple pilots across multiple contexts, with multiple partners.

As shown above, most agencies would not consider purchasing unless they had tried a product. This means that each prospective sale can require an initial partnership with a humanitarian agency at the country level to agree on and implement a trial before that agency commits to a purchase. The need to build so many partnerships to secure orders is therefore a significant barrier for innovators.

Connection Challenge 3: Clockspeeds

There are various cycles that create an industry 'clockspeed'. A number of the clockspeed cycles in the humanitarian sector are antithetical to innovation. The disaster management cycle, associated funding cycles (e.g. some funders not willing to commit to more than a year), and cognitive dissonance of treating protracted crises as 'temporary' (even for decades-old refugee camps), are all important factors in hindering innovation.

The disaster management cycle is a good example of how understanding the sector clockspeed can aid humanitarian innovation adoption. Innovations are often not welcome in the early days of a response, as the responders have immense pressure to deliver life-saving support in a critical time period. At this point, responders want to ramp up the delivery of tried and trusted products. However, from a procurement perspective, it should be a good time to introduce new products, as procurement rules and processes are often relaxed in the first 90 days of a humanitarian response.

This potential boon for innovative products often does not materialise. That's because the relaxation of the procurement rules often expires between the time the innovative product is identified and when it would be purchased. As one respondent outlined, "There are [procurement] thresholds that are reduced in the first phase of a response in the first three months.

But what happens more often than not, is they will reduce the threshold in the first three months, but by the time funding comes and you're getting your stuff and making payments, the threshold has gone, so you have to redo your proposal." So, even where there seem to be opportunities to procure innovations in the early stage of a humanitarian response, in reality it is often very difficult to take advantage of the changes in procurement procedures.

The early recovery period of the disaster management cycle provides a number of critical enablers:

- There is more time and capacity to absorb new things.
- There is more certainty on what money will be available to trial new things.
- There is a greater understanding of the particular contextual needs.

However, these windows of opportunity do not always lead to the adoption of new WASH products or methods. For H2H start-ups there are still two fundamental challenges faced at this stage. The first, as we have shown above, is that they need to be able to deploy people on the ground in these emergencies to make connections, which can be both logistically and financially very difficult. The second is that although there is early recovery money available, this is funding that is seeking immediate impact, not investing in future impact.

Those difficulties are in addition to the overarching challenge that innovation funding is subject to the unpredictability of the clockspeed of the sector, as one H2H start-up stated:

"[We have innovation] grants without any commitment or restrictions. Periods are good, 18 months, but sometimes if you want to test in [an] emergency and there is no emergency in a couple of months it is complicated."

The timings that dictate the clockspeeds in the humanitarian sector are systemic factors that are not easily changed. Understanding them, and their impact on the procurement process for innovations is something that innovators should be mindful of, as they seek to get their innovations adopted.
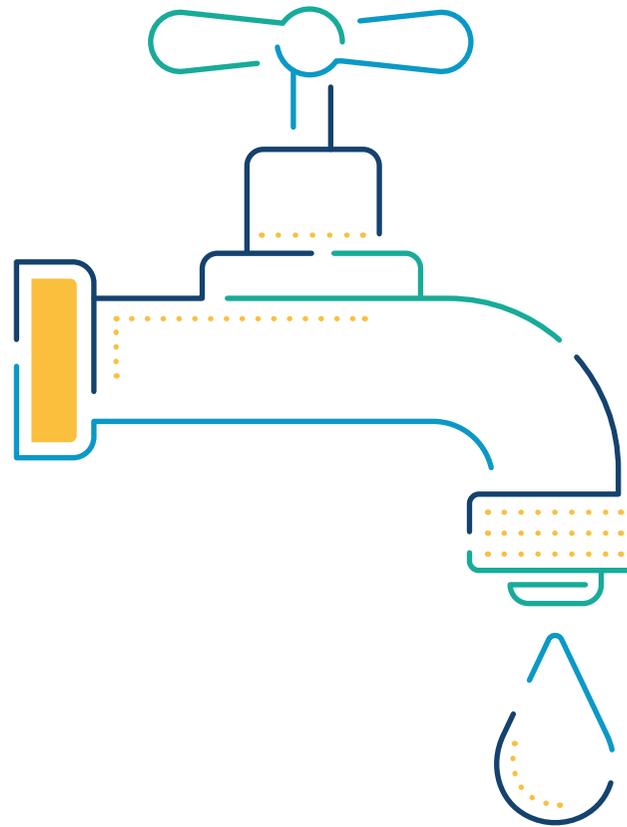
RECOMMENDATIONS
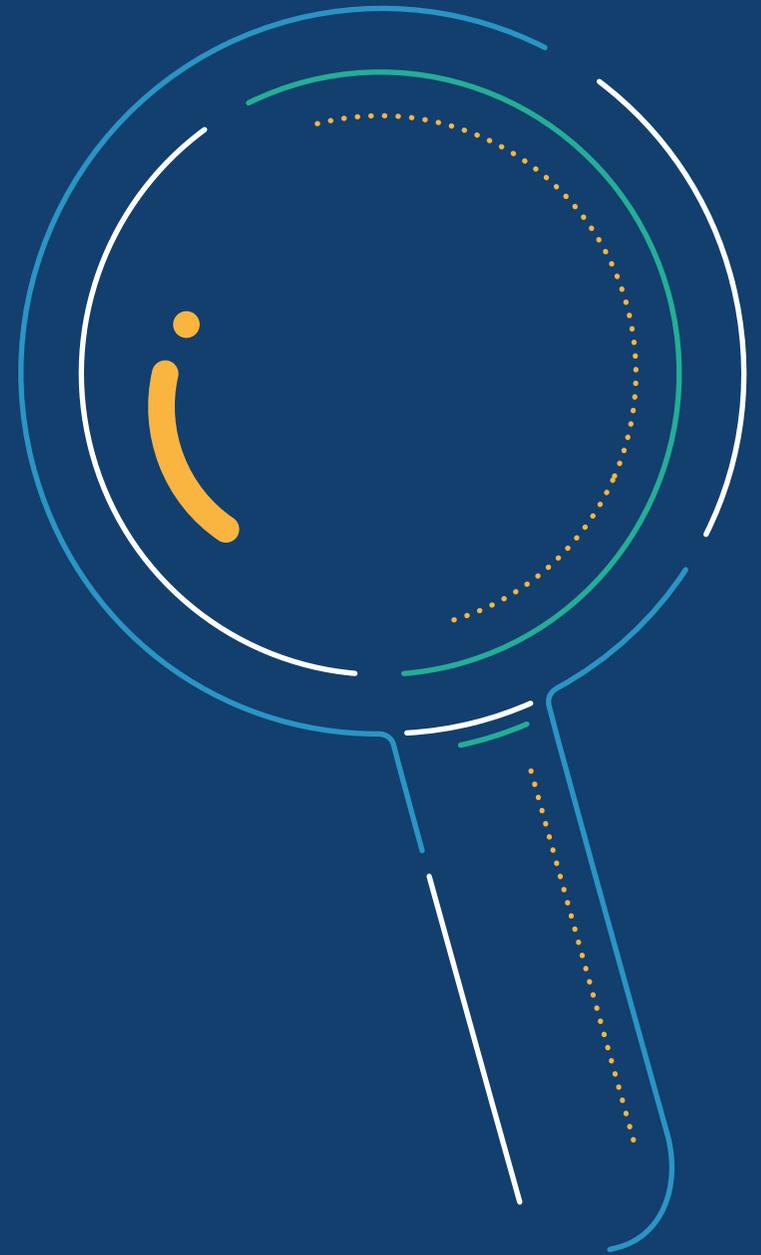
RECOMMENDATIONS

Demand Side Recommendation Areas

The plethora of 'innovation challenges' and funding to create innovations in the humanitarian sector has stimulated the creation of more and more pilot programmes. Innovations are coming through, but many of them still struggle to get beyond the perpetual pilot stage. There has not been an end-to-end pathway created that enables innovations to cross the early adopter chasm.

This paper puts forward three recommendation areas in which systemic improvements could be made to enable WASH to cross this chasm. These are:

1. Stimulate early adoption
2. Harmonise and Aggregate Demand
3. Create Longitudinal Demand

Demand Side Recommendation Area 1: Stimulate Early Adoption

The early adopter stage of WASH innovation diffusion is critical, but it is difficult for innovators to navigate. This report has clearly shown that there is a disconnect at the adoption stage in how funders approach innovation and programme funding. As outlined above, most innovation funding goes towards the supply of innovation, whilst regular humanitarian programme funding does not sufficiently support the demand for innovative products and services.

Some actions that could be taken to fill this chasm are:

- Fund multiple pilots in multiple locations with multiple humanitarian agencies for the same innovation. This would allow the innovation to be tested in new contexts and with different organisations. It would also enable the impact of the innovation to be researched and documented. (All of which is critical to build the evidence base needed to support adoption.)

- Partnership brokering. Trialling and piloting innovations with a view to purchasing them, requires partnerships to be formed. Supporting this with partnership brokering to help innovators find the right partners and build trust between them should increase the chances of success for the partnerships.

- Assess VFM criteria to ensure that they bias towards locally produced (not just locally procured) goods and services that are seeking to create positive social and environmental impact in disaster-affected communities.

- Innovation funders should be prepared to dedicate a good proportion of their post-pilot funding towards working capital and organisational development for start-ups. This would enable these start-ups to be more competitive, more quickly. They would be helped to reduce their product's complexity, cover the full product lifecycle, develop organisational structures and position them to meet the volumes required in many tenders. In essence, they would be provided with sufficient funding to truly scale. There has been some investment in scaling by humanitarian donors, such as Humanitarian Grand Challenge, Humanitarian Education Accelerator (HEA) and HIF, but the amounts of funding (although vital for recipients) often aren't enough to fully support scaling. As one respondent stated, "The thing is the HIF grants are just too small and I would say the same thing for the call from Humanitarian Grand Challenge, etc. It's $180,000 but it's not enough."[14] This is notable when compared with some of the other donors providing significant funding for scaling promising interventions for humanitarian problems. These include Audacious, MacArthur Foundations 100 & Change and Larsen Lam Iconiq Impact Award, which provide $10-$100 million to scale innovations.[15]

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- Where possible, individual agencies should seek to take the recommendations of Iossa (2018) and assure a certain level of purchasing from partners they are innovating with (based upon requirements and specifications being agreed and met). That could avoid innovation partners being pushed into a competitive procurement process once a pilot has been completed. This recommendation is in addition to that relating to sector-wide forward purchasing commitments for innovations.

A further recommendation is for the development of a learning agenda that outlines the adoption stimulus methods for 'public goods' in other sectors.

Demand Side Recommendation Area 2: Harmonise and Aggregate Demand

The aggregation of demand came up repeatedly in interviewees and in the workshop. The main suggestions were about **better coordination to break down the silos that exist between agencies when it comes to specification setting, procurement and new product assessments.**

An example of a centralised initiative for assessing WASH innovations is the WHO International Scheme to Evaluate Household Water Treatment Technologies. It shows how one organisation can lead an initiative for innovation and technology assessment in one specific area of WASH. The scheme evaluates the microbial performance of household water treatment (HWT) technologies against WHO health-based criteria. The results of the evaluation can then be used by Member States and other agencies to evaluate and select appropriate technologies for their own context.

Another example at a country level is where UNICEF Cox's Bazar produces an annual supply list. In partnership with the sector members, it agrees the minimum design and/or outcome requirements for key WASH products, based on needs assessments. Where there are different options to consider for an item (or service), partners can make their own choices. Innovation can happen in the local design and acquisition of kits of WASH items, rather than the products themselves. This innovation takes account of WASH sector standard designs for latrines, bathing cubicles, handwashing stations and an anaerobic baffled reactor – for various faecal sludge management (FSM) sites – among other products, all of which are manufactured on-site, nearby or nationally. This shows how efforts can be coordinated among WASH humanitarian agencies.

Most interviewees believed that the WASH cluster had the primary role in carrying out coordination for these purposes. Some interviewees suggested that individual agencies with particular specialisms could be designated to lead on certain aspects of the coordination and collaboration. The main aspects of that role, whether carried out by a single body or a number of bodies, could be to:

- create a joint 'search' mechanism for new products to meet identified needs at a country or global level. This could be based on in-country assessments and the Global Gap Analysis that is due to be published (Elrha: forthcoming).[16]

- harmonise specifications, and seek to create common outcome indicators for product categories amongst WASH agencies. To quote one manufacturer: "We would like one particular modality around standardisation on specifications and quality of products."

- jointly assess new WASH products, and establish a joint agency catalogue or database. This should include, where possible, multi-agency pilots of new products.

- seek to combine procurement and 'innovation challenges' across agencies, to create a larger market that is more attractive for new product developers.[17]

- share learnings on innovation development and adoption, including matchmaking and best practices for adoption.[18]

We would suggest that the country and global-level WASH clusters review these recommendations, and consult with members of the cluster about the roles they could or should play. As the WHO example above shows, there are agencies other than the cluster for the WASH sector that could take on some of these roles.

Click to see endnote references (16-18)

Demand Side Recommendation Area 3: Create Longitudinal Demand

Humanitarian funding requirements (needs), based on UN appeals have increased by 136% in the past decade. Funding, although not keeping pace with need, has still increased by 12% in the past five years (Global Humanitarian Assistance Report 2019).

The world is becoming increasingly volatile, uncertain, complex and ambiguous, which will lead to increased humanitarian crisis and needs. It can be confidently predicted that humanitarian need will continue to increase, and that humanitarian funding will be required for decades to come.
The combination of humanitarian need and humanitarian funding creates a fairly reliable (if somewhat lumpy) demand curve for humanitarian products and services. Yet the humanitarian sector behaves as if this isn't the case.

The forecasting of humanitarian needs, particularly in relation to supply chain implications, is patchy in practice and almost non-existent in literature (Altay and Narayan 2020). Understanding the relationship between needs, funding and demand as economic phenomena, is only touched upon in literature on the topic (Mohan, Gopalakrishnan and Mizzi 2011, Park, Kazaz and Webster 2018). Short-term funding and planning cycles within the sector significantly reduce the humanitarian sector's ability to engage in forward purchasing practices. Those practices would stimulate demand and provide incentives for even better innovations, based on the increased viability of innovators supplying to the humanitarian sector.

The lack of forward purchasing commitments, and the 'lumpiness of demand', mean that the humanitarian market is not seen as a viable option by some to develop and scale innovations. An example was provided by one interviewee:

"If it's a short period of time where they want to come up with a concept and make it a product, for a manufacturer like us it's not as easy to take on the risk because if I need to make a prototype of say a slab, in order for me to do that, I need to invest in tooling straightaway - costing perhaps £50,000.
Not a lot of suppliers or manufacturers will want to go to that expense because you don't know what the risk will be. You can invest £50,000 and then after a month the project can be cancelled."

Systemic and structural change may be a long and tortuous road. But one interviewee cited the case of UNICEF and Plumpy'nut: "It would be useful to bring together the policies and processes of innovation and procurement…. It can happen, e.g: Plumpy'nut manufacturing [was] built based on UNICEF agreeing to a long-term purchase agreement."

The WASH sector could advance even further on stimulating Longitudinal Demand by establishing the preconditions and formalising a sector-wide process to **trial a joined-up innovation challenge, with forward purchasing commitments as the ultimate challenge prize.** If such a trial were successful, it could provide a basis for further pushing through the systemic changes required in the humanitarian sector. These might include joined-up long-term needs forecasting; interoperable interoperable ERP (Enterprise Resource Planning) systems[19]; and improved distributed manufacturing, such as digital fabrication (Crosini et al. 2019) of WASH products, etc. Creating the mechanisms for making forward purchase commitments is a methodology that is well established across multiple domains, and so should be technically (if not politically) straightforward to introduce.

Another possible structural change would be the restructuring of funding mechanisms, where appropriate, to **enable the 'servitisation' of WASH products**. Servitisation is where a product that was a single purchase becomes a service which has recurring payments for the product's utilisation, and in some cases tied to the outcomes for service users. It could unlock procurement processes for WASH innovations, as well as create a more sustainable and contextually appropriate business model.

A move to servitisation would be a significant business model shift. This shift hasn't yet reached the humanitarian sector, but has taken place in other sectors over the past two decades – for example, in the area of IoT (Internet of Things), and in the area

of distributed ledger systems (blockchain) (Zwitter and Boisse-Despiaux 2018, Coppi and Fast 2019). Both could be used to underpin a servitisation of WASH products. The example below provides an illustratration of how this could work.

WASH Product Servitisation Illustration

A donor, instead of funding the purchase and installation of community water filtration systems as a one-off grant, funds the delivery of potable water per litre. Using sensors connected to a filter, measuring both quality and water volume dispensed, the data could be triangulated with other digital data gathering methods (to assess how the water was being used). This would enable this data to be connected to a smart contract that would see automatic payments made, based upon the output and outcome data. Payments would not be reliant on traditional reporting systems, but rather on a smart metering system (including a dashboard). Monthly payments could therefore be scheduled on a multi-annual contracting basis in a protracted crisis, such as in long-term camps and host communities.

Not all WASH products are appropriate for servitisation, and there would be a number of operational and MEAL (Monitoring, Evaluation, Accountability and Learning) hurdles that would need to be overcome, particularly regarding the qualitative impact effects of a WASH intervention. Servitisation is most appropriate in protracted crises which require multi-year humanitarian aid. With these caveats and conditions in place, there are a number of significant advantages in the responsible and ethical use of servitisation in the humanitarian sector:

- The funder is truly paying for outcomes and not for inputs.

- The supplier has a longer-term, smoother demand cycle to work with. This should be a better way to stimulate and sustain WASH innovations.

- People affected by crisis are more likely to see WASH facilities and products maintained and kept in working order. Service providers' accountability would improve, as they would be incentivised to maintain uninterrupted services.

Additional benefits that could come from a smart contracting approach to outcomes-based payments include:

- Funders could have access to live data on outcomes and could avoid administration around making payments. This would reduce funders' transaction costs, whilst improving the visibility of

outcomes and the impact of funding. Innovators and suppliers would be paid automatically, based on service performance. They would also have reduced reporting requirements.

- Smaller humanitarian agencies and innovation suppliers would be able to access larger Payment by Results and Payment in Arrears contracts. This is because smart contracting would enable more regular payments, reducing the lag time between service provision and payment, and therefore also reducing the need to pre-finance work.

- Fewer cashflow issues for innovation suppliers and humanitarian agencies. Under traditional reporting and funding cycles, humanitarian agencies have to wait weeks - and sometimes months - between submitting reports and receiving payments.

- The potential to incorporate third party, digitally gathered 'satisfaction' survey results into the contract. This would give disaster-affected populations greater influence over the performance levels of providers.

There is significant scope within the humanitarian sector to establish greater Longitudinal Demand for innovations. Funding modalities, planning cycles, demand forecasting, and servitisation present clear opportunities that the WASH sector could explore.

Connecting Supply and Demand Recommendation Areas

The research highlighted the need for policy and practice changes in the areas that connect supply and demand. This would improve the process of WASH innovation adoption across the sector.

We offer practical recommendations in the following four areas:

1. Transparency and knowledge management
2. Procurement and specifications
3. Localisation
4. Partnering and collaboration

Connection Recommendation Area 1: Improve Transparency and Knowledge Management

Transparency

To those on the outside of humanitarian agencies, the humanitarian sector is opaque and confusing. There needs to be more transparency, including in the WASH procurement processes and for all those seeking to supply innovative products to the sector. There needs to be greater clarity around how the humanitarian system works and how procurement decisions are made. This wouldn't be onerous to achieve.

Some concrete actions that would improve transparency are:

- Agencies publish their processes and how those processes work (see the UNICEF example in this report). In particular, any processes that are specific to new products and innovations.

- Harmonise the procurement processes between agencies as much as possible.

- Make the procurement processes and contacts more visible on an easily accessible public website, as well as on agencies' own websites.

- Create a well-publicised and well-run product pitching and assessment process, in a forum such as the Emergency Environmental Health Forum. This suggestion was put forward by one manufacturer: "Nowadays people have limited time and resources to look at new things, so it would be good to try to find a forum where you can introduce something in a way that you're not going to affect your IP."

- Increase transparency of procurement within agencies. Some examples of good practice came through from agencies. These were around linking supply chain staff and technical WASH staff and finance staff (Save the Children) and other sector staff (Oxfam) to make combined decisions. Bringing in associated sectors would increase the likelihood of better decisions relating to VFM, and the inclusion of sector-spanning products (innovations that have impacts across sectors), and sector-agnostic products (innovations that are not sector-specific) in the procurement process.

Those five actions alone would have a significantly beneficial impact on the transaction costs for humanitarian agencies and for WASH innovation suppliers.

Knowledge Management

The sharing of innovations within agencies, across countries and throughout the sector at large is extremely important, yet also very difficult to achieve. There is a need to improve this knowledge management inside and across humanitarian agencies.

It's a challenge for all organisations. Networks such as the Global WASH Cluster, and platforms such as the Emergency Environmental Health Forum, play key roles in sharing information and data, both horizontally and vertically, within the humanitarian sector. But other opportunities also need to be explored. For example, there could be greater utilisation of the HIF supported KnowledgePoint[20] - an online Q&A forum for WASH practitioners to access technical support and share expertise beyond their immediate network. In addition, training, support and incentives should be designed to facilitate behaviour change and the adoption of WASH innovations.

Connection Recommendation Area 2: Procurement and Specifications

Specifications are a significant challenge area that hamper the procurement of WASH innovations. In addition to the specifications recommendations in the demand side recommendations in this report, the following recommendations for humanitarian agencies would further support procurement processes in becoming more open to innovations.

Procurement

Humanitarian Agencies should:

- have a clear, documented system for searching for, and assessing, innovations.
- wherever possible, take a cross-sector and cross-functional approach to procurement to ensure that innovations are assessed for all their benefits, and to ensure that paradigm innovations are not missed.
- make their processes for assessing new innovations clear to potential suppliers, such as on a public website.
- try to align and simplify procurement rules to reduce barriers for H2H start-ups.

Specifications

Humanitarian agencies and funders should:

- where possible, create outcome specifications for products, which would enable paradigm innovations to be included.
- where outcome specifications aren't feasible, make every attempt to use output specifications that would facilitate more innovative products to be considered.
- review their VFM criteria to ensure they are outcome-focused and holistic; assessing local economy and environmental impact.

In addition, humanitarian agencies should seek to align their category specifications in order to create a higher volume and simpler-to-navigate market.

Connection Recommendation 3: Localise Supply

The trend towards localised procurement is one that WASH innovators should embrace. For those seeking to supply innovative products to humanitarian agencies, it is critical that the distribution, and (where possible) the production of WASH products takes place at the country- level in countries with major humanitarian crises. This can be done through a number of actions:

- Establish local distributor and reseller relationships for participation in local procurement processes.
- Plug into local manufacturers/establish distributed manufacturing capability/explore licensing options for the local production of the product.
- Establish relationships with local third-party suppliers to supply into their larger orders.

Connection Recommendation Area 4: Build Trust

Partnerships to develop and pilot innovations are critical in humanitarian innovation. Many such partnerships have been successfully established.

However, there are two challenge areas: the first is the transition from collaboration to competition, highlighted above. The second: trust.

A number of interviewees voiced concern about IP. One manufacturer outlined how building trust might happen:

"That's a massive thing. If there was a forum where agencies can go to raise a problem, then you can reply to that system in an appropriate and confidential way – because everything has to be private and confidential until it becomes an open forum and tenders – that would be good."

That suggestion is useful, but it is also a mechanistic way of dealing with issues regarding trust and IP. There is a deeper issue, which is the number of manufacturers, third-party suppliers and H2H start-ups that believed that humanitarian agencies had not worked with them in good faith during the development of innovative products. In order to address this:

- Training on IP should be introduced for staff involved with innovation and procurement.

- Humanitarian agencies should develop and implement ethical guidance and standards on the development and sharing of IP by and with suppliers. These guidelines and standards should be shared with and agreed to by all parties, in order to increase clarity and trust.
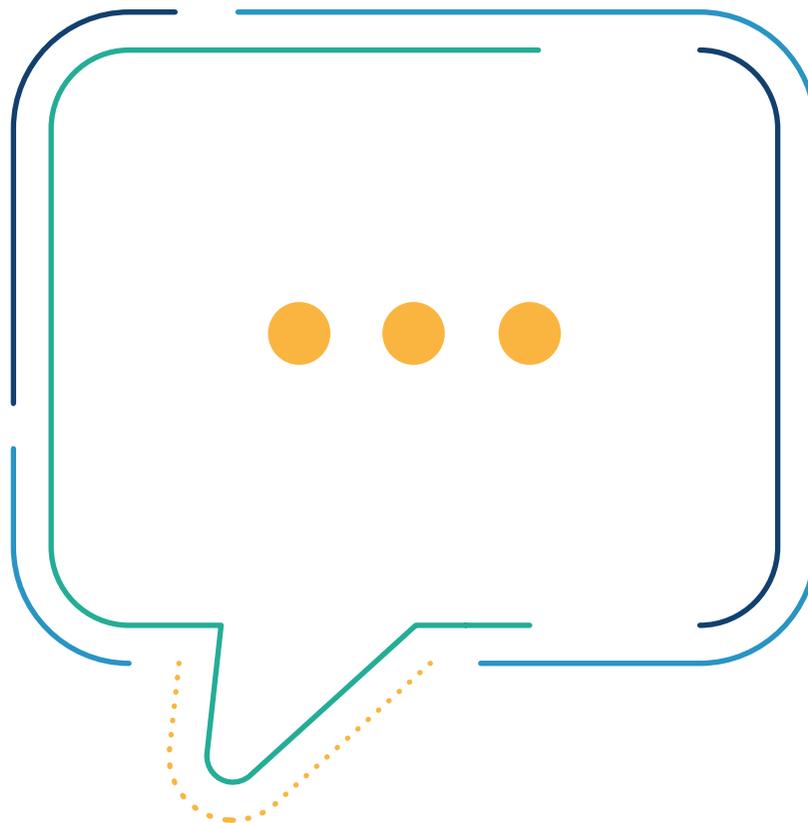
CONCLUSIONS
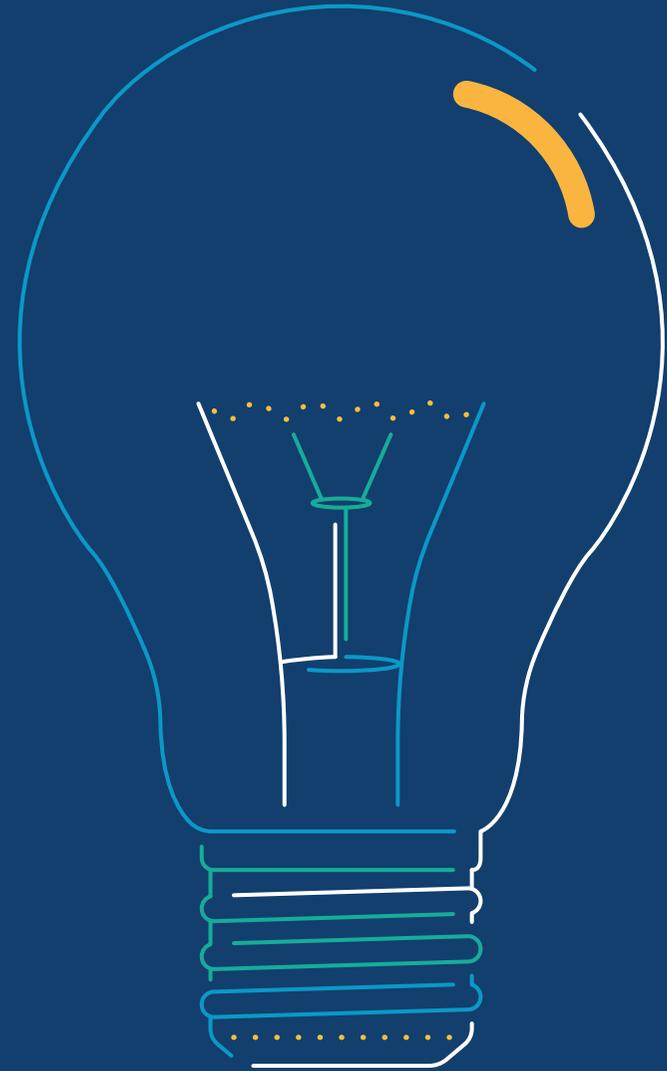
CONCLUSIONS

The increased focus on humanitarian innovation over the past decade has led to the development of a number of WASH product innovations. Whilst some of these have been integrated into mainstream programming, significant challenges remain for innovators seeking adoption of their products by humanitarian agencies, and for aid agency staff seeking to adopt new innovations.

The supply of innovations is not being met with significant demand for them. Where there is demand, the connection between supply and demand is often suboptimal, creating barriers for suppliers of innovations and for aid agency staff. This is particularly so in relation to procurement, and it is why this research was commissioned.

A number of the barriers are within the policies and practices of individual agencies, but even greater challenges are present at the sector level. Other challenges are created by what are very positive developments within the humanitarian sector; the increasing localisation of aid means that innovators such as H2H start- ups and larger manufacturing companies need to rethink their production and supply models.

Many of these challenges can be addressed relatively quickly through concerted action by key WASH sector actors.

Demand

There is a need to stimulate 'early adoption' in the sector to address the chasm between early-stage innovation partnerships, and regular humanitarian programme funding and procurement processes (as opposed to innovation funding-supported innovation). Providing mechanisms such as forums and platforms to increase the knowledge within the sector regarding new inventions is useful, but it is not enough to stimulate early adoption.

A number of measures for stimulating adoption by humanitarian agencies should be considered by funders. They range from targeted procurement process exemptions, to funding pilots in multiple contexts with multiple agencies, to ensuring that there is sufficient 'scale' funding for innovators to be able to develop their organisations and products to the level at which they compete with established products. Progress in this area will require greater risk- taking by funders in their roles as investors in future potential impact.[21]

Secondly, fragmentation of the humanitarian WASH product market, which is already a small volume and low value market for suppliers, is negatively impacting its viability as a market that can support innovations. Aggregate volumes ordered are potentially reduced because of the divergence in many agencies' specifications relating to essentially the same products. Total volume for individual products is reduced due to the divergence in many agencies' specifications relating to to those same products, as well as because of individual agency purchasing of supplies, and the localisation of procurement. This makes the development and manufacturing of innovative products less economically viable than it could be, particularly where innovators might be seeking to localise production and/or distribution. Harmonising and Aggregating Demand, particularly at the local level, would provide incentives and a more viable market to supply to.

Finally, there needs to be a focus on creating Longitudinal Demand. This is currently hampered by a fundamental systemic issue: the cognitive dissonance within the sector of witnessing humanitarian needs consistently increasing year-on-year but budgeting in short-term cycles. Reliable Longitudinal Demand could be created through practices such as forecasting need, forward purchasing commitments and the servitisation of products.

As illustrated in this report, creating some experiments to address this issue could unlock transformative changes through encouraging more innovation, reducing costs, enabling business model innovation, and ultimately contributing to increased agency of, and accountability to, disaster-affected communities.

Connecting Supply and Demand

The conclusions and recommendations for connecting supply and demand are less systemic, and more practical. Simple actions could be taken, such as humanitarian agencies increasing the transparency of how they search (or accept inbound sales pitches) for, assess and procure innovations. Where possible, creating shared access points through forums and better knowledge management within and across agencies will also help in diffusing new ideas and innovations across the sector.

The alignment of procurement and specifications across agencies will not only contribute to creating a more viable market (as highlighted above) but will also reduce friction and, eventually, costs. Concerted efforts to harmonise specifications and processes are one solution. A second solution is to ensure that specifications are set at the output or outcome level wherever possible, as this will provide access into procurement processes for position and paradigm innovations.

Innovators need to localise distribution and, where possible, production. The increase in local procurement across humanitarian agencies is a hugely positive step for local economies and environmental impact (at least where products are locally manufactured) and supports the sector's localisation agenda. For innovators, engaging with this trend could include licensing, local manufacturing and distributed digital fabrication for production, and partnerships with distributors, resellers and third-party suppliers.

When innovation partnerships are transferred into open competitive procurement processes, that step change is generally not being managed well across the sector. There is a lack of end-to-end thinking, which creates unanticipated barriers for many innovators when transitioning from piloting innovations with a humanitarian agency to becoming a regular supplier. The use of time-bound forward purchasing commitments that reflect the investment of both parties in the creation of the product is one way of addressing this.

There are significant challenges facing developers of humanitarian WASH product innovations in having them adopted at a viable scale within the sector. However, there is also a willingness among many individuals in the humanitarian WASH sector to support innovations that could have greater impact than existing products. The key is for the sector to find the time, space and resources to collectively find solutions.

For funders, the primary issue that needs to be addressed is how to align their roles as 'investors in potential future impact' and 'customers of impact' in order to provide an end-to-end system for the adoption and scaling of innovations (a difficulty acknowledged by a number of individuals within funding agencies, but which doesn't appear to have become an institutional priority). Individual funders do not necessarily need to cover all areas themselves. But, together, they should be able to foster an ecosystem that can align support for supply and demand - and for connections between the two - to facilitate the widespread adoption and diffusion of WASH innovations.

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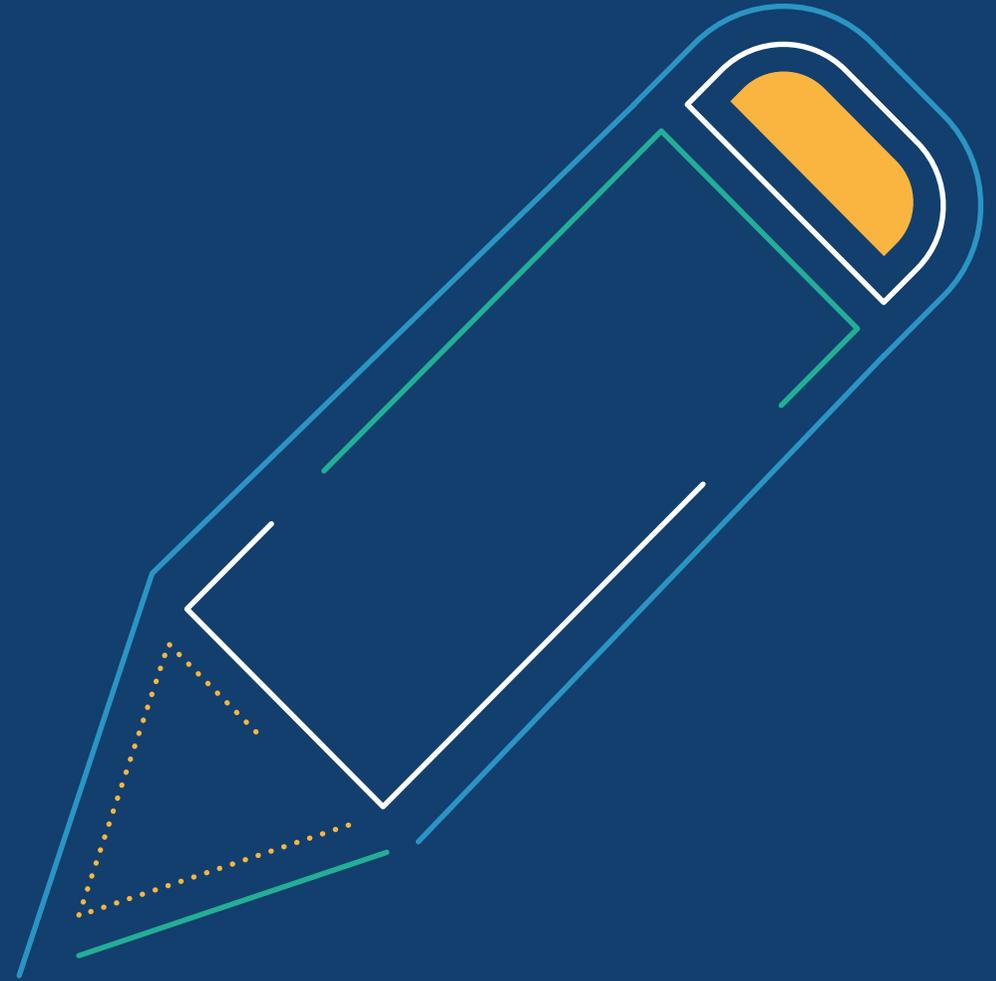
ENDNOTES

1. Elrha. (2018) 'Too Tough to Scale? Challenges to Scaling Innovation in the Humanitarian Sector.' Elrha: London.

2. For the purposes of this report, an H2H start-up is any organisation that could qualify as a small or medium-sized enterprise that is less than 10 years old, and which sells into, or partners with, established humanitarian organisations as all, or part of, its innovation diffusion strategy. This aligns with other authors studying new ventures (Forbes 2005).

3. Oxfam Supply Centre: How we innovate

4. UNICEF Suppliers and Providers

5. For more information on search methodologies see the Humanitarian Innovation Guide accessed 5/12/20.

6. The Grand Bargain commitments regarding localisation do not include commitments to supporting the local economy through humanitarian response, just to support local organisations carrying out humanitarian response more directly. Grand Bargain Commitments accessed 05/12/20.

7. The Inter-Sector Coordination Group (ISCG) provides a framework for the WASH sector under the leadership of the Bangladeshi Department of Public Health Engineering (DPHE).

8. While local procurement is Bangladesh Government policy, not all (WASH) goods needed to support the Rohingya emergency response were available locally.

9. There was one case where a humanitarian agency said that it would enter into an LTA for a single product.

10. Using a P-Q Pareto Analysis, this means that instead of standard equipment being 'runners' or 'repeaters' on a production line, they essentially become 'strangers' - significantly reducing possible efficiency savings.

11. Point based on workshop discussions with donor representatives and humanitarian agencies in 2017 and 2018.

12. Developing evidence for scaling innovations is something that has been identified as a problem within the humanitarian sector for more than five years, and there have been some attempts to resolve this in the education sector with the Humanitarian Education Accelerator. However, this type of funding is rare, and collecting evidence that would be seen as attainable and appropriate in development contexts (e.g. RCTs) is exceptionally difficult to achieve in humanitarian contexts

13. For further information, read UNICEF's article: Inclusive innovation transforms a standard latrine into a disability-friendly solution accessed 17/05/2021

14. It should be noted that Humanitarian Grand Challenge and Elrha's Humanitarian Innovation Fund (HIF) have recently significantly increased their funding available for individual innovations seeking to scale.

15. These are currently in discussion between a number of agencies under the umbrella of Net Hope

16. For more guidance on 'search', see the Humanitarian Innovation Guide, Search section accessed 04/01/2021

17. The aggregation of innovation and procurement efforts across humanitarian agencies did come up as a practice that a number of agencies had engaged in, but it was the exception, rather than the rule.

18. For more guidance on adoption and 'adaptation', see the Humanitarian Innovation Guide, Adaptation section accessed 04/01/2021

19. However, these donors are not focused solely on the humanitarian sector.

20. Knowledge Point forum accessed 18/1/21

21. This approach of investing heavily before an innovation can pay for itself is critical for success in other industries.

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ANNEX 1

ANNEX 1: KEY INFORMANT INTERVIEWS BY ORGANISATION

Contact	Organisation	Division / Location
Peter Harvey (Chair of HIF's TWG)	United Nations International Children's Emergency Fund	Supply Division
Franklin Golay	United Nations International Children's Emergency Fund	Supply Division
Omar El Hattab	United Nations International Children's Emergency Fund	Global WASH
Emmett Kearney	UNHCR	Global WASH
Sue Hodgson	Save the Children	Humanitarian Supply Chain
Abraham Varampath (HIF's TWG)	Save the Children	Global WASH
Joos Van den Noortgate (HIF's TWG)	Médecins Sans Frontières	Innovation & Training
Alvaro Villanueva	Action against hunger	Logistics & Procurement
Martijn Blansjaar	Oxfam	Logistics & Supply Division
Andy Bastable	Oxfam	Global WASH
Ed Blagden	Oxfam	Logistics & Supply Division
Rachel Hastie	Oxfam	Global Protection
William Carter	The International Federation of Red Cross and Red Crescent Societies (IFRC)	Innovation, Development & Procurement

Monica Ramos	Global WASH Cluster	
MD. Akhtar Hossain & Enamul Hoque	Oxfam	Bangladesh
Martin Worth	United Nations International Children's Emergency Fund	Bangladesh
Emma Tuck	United Nations International Children's Emergency Fund	Yemen
Peter Nyamoko	Save the Children	Yemen
Kit Dyer (HIF's TWG)	Norwegian Church Aid	Global WASH
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Craig Ball	Butyl Products	Sales
Oliver Mathew & Carl Dolby	EvenProducts	Sales
Georgios Protopapas	Dunster House	Sales
Torben Holm Larsen & Trine Angeline Sig	Real Relief	
Mauricio Cordova	FairCap	
Adrian Dongus	AfriPads	
Diptesh Shah	Spartan Relief	Sales
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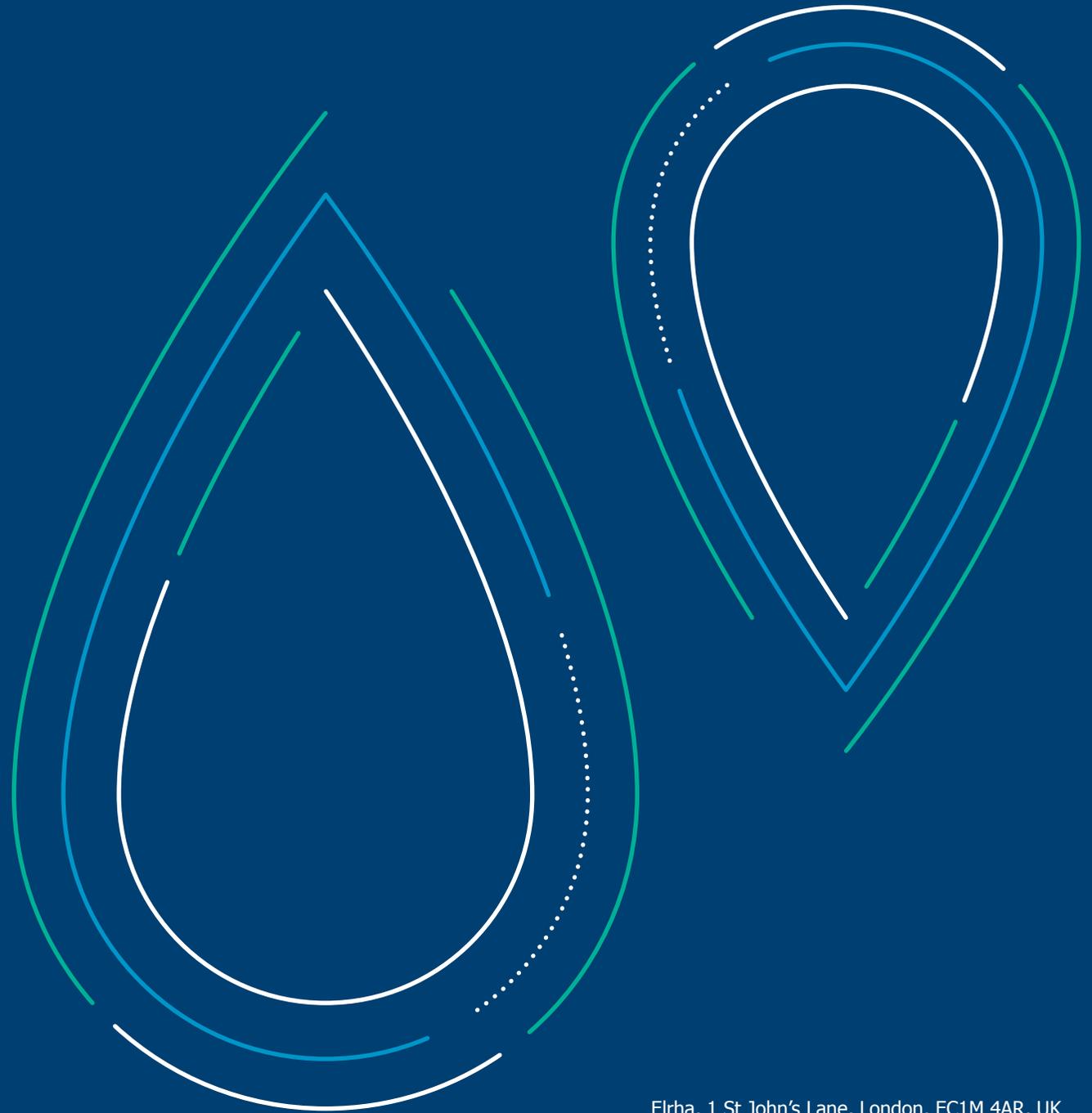
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