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Promoting Humanitarian Innovation Exchanges

Developing Models for Humanitarian Innovation Knowledge Bases

March 2015

WORLD HUMANITARIAN SUMMIT

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Table of Contents

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Executive Summary (1/2)

Motivation and Context

- Humanitarian crises occur with distressing regularity, creating needs for assistance that are growing in scope and scale
- To effectively address these challenges given resource constraints, humanitarian actors increasingly recognize the **need for innovation** in the sector
- Key bottlenecks to innovation in the humanitarian space are:
  - A **lack of consensus on "what works"** and an **inability to compare** new solutions and practices
  - **Insufficient processes, infrastructure, tools, and talent** to identify, support, validate, and disseminate innovations

Opportunity

- To address these innovation bottlenecks, the humanitarian sector should take a **holistic view** of the components that foster or inhibit the identification and spread of effective innovation and **examine their interactions and dependencies** to design appropriate solutions
- An **innovation knowledge base (IKB)** – the ecosystem of players, processes, technologies that **enable valid comparisons about what works** and **create incentives and governance mechanisms to act on and adopt that innovative knowledge** – can be designed to take this comprehensive view to facilitate innovation
- By **applying this holistic lens** to the humanitarian space and **exploring the IKBs in analogous sectors**, we can create **IKB models that are customized to the humanitarian context** and provide a range of potential solutions to stimulate and sustain innovation in the sector

Core Objectives

- Our objectives are to:
  1. **Articulate distinct IKB models**, drawing from analogous sectors, to spur innovation in the humanitarian sector
  2. **Enable the field to have an extended conversation** about what IKB is most appropriate and **to design a hybrid IKB** best suited to the unique needs of the sector

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Executive Summary (2/2)

Research Methodology

- We examined **case studies in five analogous sectors** (military, healthcare, construction, technology, and academia/engineering) **to identify core success factors of IKBs** that could be applicable to the humanitarian sector
- Findings from our case studies led to **three generic IKB models – Research-Oriented, Solution-Driven, and Experiential** – that were found to successfully stimulate innovation knowledge sharing and adoption
- We explored the unique contextual characteristics and challenges faced by the humanitarian sector to **identify core barriers to innovation in the humanitarian system** to best tailor these generic models to the humanitarian context
- **Three tailored IKB models – Research Navigator, Solution Mobilizer, and Experience-Based Validator – were formed** customized to the humanitarian context
- Finally, we drew inferences from each model to **identify specific tradeoffs** that could be used as building blocks to **design a hybrid IKB**

Tailored IKB Models for the Humanitarian Sector

Research Navigator: A central research authority that interfaces directly with affected populations to collect robust data on their needs and the impact of interventions, and uses this evidence base to inform funding priorities and drive progress

Solution Mobilizer: Builds a portfolio of proven innovations and lessons learned by, first, pooling funding to create dedicated financing for innovation and partnerships and, second, using a stage-gated process to synthesize lessons and evaluate effective ideas for additional funding at each stage

Experience-Based Validator: An external knowledge network that focuses on collaborations with non-traditional humanitarian actors to translate and develop innovations from other sectors and leverages practitioner experience to evaluate and endorse successful, high-impact innovations

Research Methodology and Core Findings

Our Approach

To articulate IKB models for the humanitarian sector, we analyzed analogous sectors to inform generic models, conducted interviews and research to understand the humanitarian context, and designed customized models

Context & Supporting Evidence

Proposed Models

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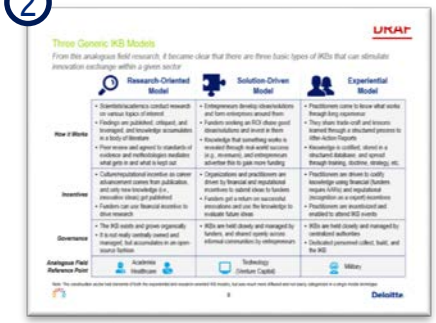
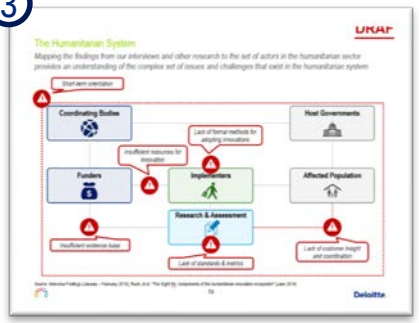
Drawing Inferences from Analogous Sectors

Model development began with an exploration of analogous sectors to identify core success factors that could be applicable to the humanitarian sector

② 

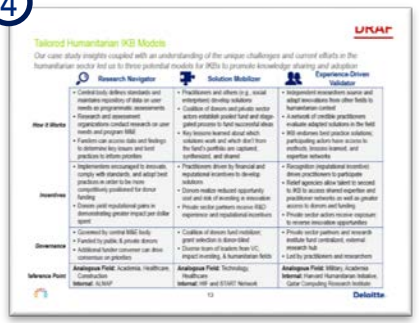
Leading to Generic Models

Findings from our case studies suggested three potential generic models that could be used to stimulate innovation knowledge sharing and adoption

③ 

Exploring the Humanitarian Context

Generic models were then evaluated against the unique contextual characteristics and innovation barriers faced by the humanitarian sector through interviews and research

④ 

Developing Tailored Humanitarian IKB Models

After examining these core barriers, the generic models were tailored to meet those specific challenges and align to relational dynamics in the humanitarian sector

Case Studies to Inform Innovation Knowledge Base Models

To get a sense of the range of IKB options from which the humanitarian sector might draw, we conducted research on five analogous sectors

Sector	Sector Definition	Relevance to Humanitarian	Strength of Innovations	Strength of Innovation Ecosystem
Military and Defense 	Those charged with defending states and their citizens and supporting the prosecution of war. This includes armed forces, civilian oversight agencies, and companies/research institutions developing and delivering military solutions and technology.	High	High	Medium
Construction 	The organizations and individuals involved in the planning and development of new buildings and other types of infrastructure. For our purposes, this includes architects, engineers, contractors, construction companies, and suppliers.	High	Low	Low
Healthcare 	The stakeholders involved in the delivery of medical services and the development and regulation of new medical procedures and solutions (other than pharmaceuticals). Key players include health care providers, medical schools, regulatory agencies, and professional associations.	High	High	High
Academia – Engineering 	The stakeholders involved in academic research and teaching of engineering sciences, including universities and their staff and students, government bodies and funders, and industry end users.	Low	High	Medium
Technology – Software 	The organizations and individuals involved in the technology sector focused on Internet-based and software solutions including games and mobile applications—narrowed to organizations that offer technology as a service rather than using technology to enable other functions.	Low	High	High

Sector Snapshots

Each of the analogous sectors examined takes a slightly different approach to an IKB based on its specific challenges and contextual characteristics

Military and Defense

The military IKB is characterized by its **focus on collecting and integrating lessons and experience from practitioners**.

- Relies on a strong centralized governing bodies process to source and disseminate innovations
- Utilizes rigorous training institutions, systems, and doctrine to disseminate innovations and new practices

Construction

The construction IKB is characterized by a **fragmented network** of small players who **individually collect and disseminate new insights** within their own organizations.

- Demonstrates success in spreading standards across the industry via the ISO's construction guidelines
- Professional associations yield mixed results

Healthcare

The healthcare IKB **prioritizes research and evidence-based decision making**.

- A strong central coordinating body – the World Health Organization – convenes national and subnational actors to align around common goals, fund high-priority challenges, and share knowledge
- Benefits from strong publicity and high levels of funding for R&D and innovation

Academia – Engineering

The engineering academia IKB is **oriented around researchers** and publications to share innovations and knowledge.

- Government funding and academic-industry partnerships play a key role in driving innovation and research
- Peer-review and publication processes help promote sharing of knowledge throughout the sector

Technology – Software

The Internet and software-based technology sector is characterized by its **lack of a formal IKB** and **focus on scaling specific solutions**.

- Near-instant market feedback loops help drive innovation in the sector
- Angel investors and venture capital (VC) firms provide funding and advice throughout the innovation lifecycle

Three Generic IKB Models

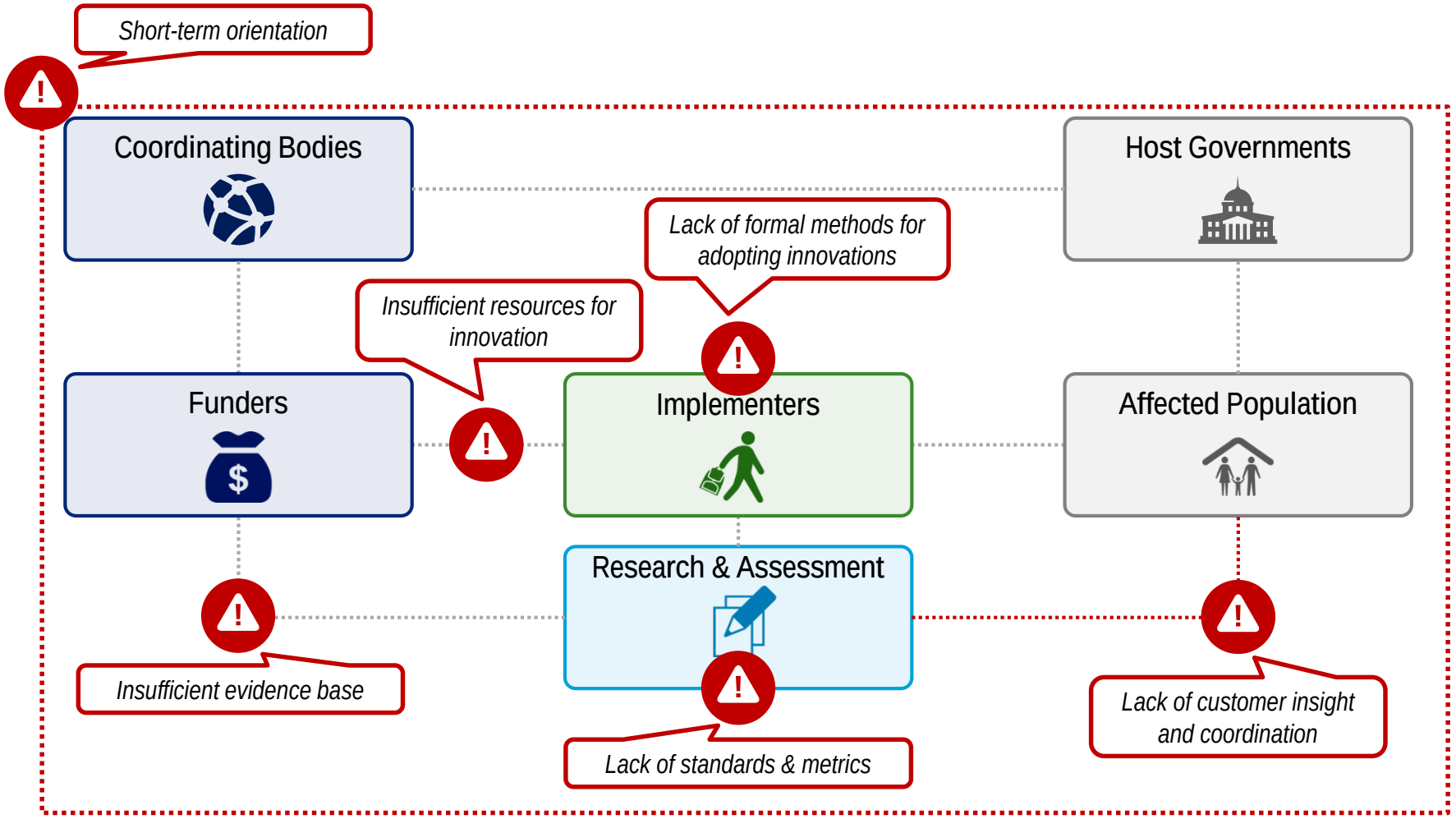
From this analogous sector research, three basic types of IKBs emerged that can stimulate the exchange of innovation knowledge within a given sector

	Research-Oriented Model	Solution-Driven Model	Experiential Model
How it Works	• Scientists/academics conduct research on various topics of interest • Findings are published, critiqued, and leveraged, and knowledge accumulates in a body of literature • Peer review and agreed upon standards of evidence and methodologies mediate what gets in and what is kept out	• Entrepreneurs develop ideas/solutions and form enterprises around them • Funders seeking a ROI chase good ideas/solutions and invest in them • Knowledge that something works is revealed through real-world success (e.g., revenues), and entrepreneurs advertise this to gain more funding	• Practitioners come to know what works through long experience • They share tradecraft and lessons learned through a structured process in after-action reports • Knowledge is codified, stored in a structured database, and spread through training, doctrine, and strategy
Incentives	• Culture/reputational incentives as career advancement comes from publication, and only new knowledge (i.e., innovative ideas) get published • Funders can use financial incentives to drive research	• Organizations and practitioners are driven by financial and reputational incentives to submit ideas to funders • Funders get a return on successful innovations and use the knowledge to evaluate future ideas	• Practitioners are driven to codify knowledge using financial (funders require After Action Reports) and reputational (recognition as an expert) incentives • Practitioners are incentivized and enabled to attend training events
Governance	• The IKB exists and grows organically • It is not really centrally owned and managed but accumulates in an open-source fashion	• IKBs are held closely and managed by funders, and shared openly across informal communities by entrepreneurs	• IKBs are held closely and managed by centralized authorities • Dedicated personnel collect, build, and sustain the IKB
Analogous Sector Reference	Academia - Engineering Healthcare	Technology	Military and Defense

Note: The construction sector had elements of both the experiential and research-oriented IKB models, but was much more diffused and not easily categorized in a single model archetype.

The Humanitarian System

The generic models frame the "solution set" for IKBs that could be applicable to the humanitarian sector, but must take into account the complex set of actors and challenges that exist in the humanitarian system



Source: Interview Findings (January – February 2015); Rush, et al. "The Eight Rs: components of the humanitarian innovation ecosystem" (June 2014)

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Core Barriers to Innovation for the Humanitarian Sector

We validated these core challenges through 30 interviews with leaders in the humanitarian sector and innovation management and distilled them into a set of five core innovation barriers that inform our tailored models

Barrier	Drivers	Implication for Innovation	Illustrative Interview Finding
Short-Term Impact Orientation	• Budgets are short-term (project or annual) and organizations evaluate and incentivize their people on similar timelines	• Donors fund specific projects rather than taking a portfolio approach to innovation • Fear of failure and a reluctance to rapidly develop and test ideas	*"A key barrier preventing effective knowledge sharing in the sector is the lack of investment in its infrastructure—you need to have a space to convene and broker ideas and connections."*
Lack of Innovation Resources	• Donors are driven to fund quick, visible wins or projects in the direct provision of aid • Bias from funders towards funding large agencies	• Lack of funding for organizational innovation capacity • Lack of talent and organizational support for innovation processes	*"The system is focused on delivery and getting things to people – there's not a huge amount of space for innovation. The way it's financed doesn't help – donors want things that are visible, that make them look good."*
High Burden of Proof for Adoption	• Weak mechanisms to share best practices and belief that issues are context-dependent • Reluctance to try unproven methods because lives are at risk	• Evidence for new practices has to be robust and communicated well to be adopted • Perverse incentives push actors away from collaboration and partnerships	*"In the humanitarian context, competition leads to inefficiency because actors don't want to lend credibility to competitors by adopting their process or methodology or innovation"*
Lack of Standards & Metrics	• High-degree of fragmentation and diverse stakeholders • No governing authority to define standards	• No standards for data collection or impact measurement • Difficult to identify/communicate challenges and compare solutions to determine what works	*"In terms of innovation – how do you define what's in vs. what's out? Its not just about what works for each innovation, its about what becomes the new minimum standard."*
Lack of Alignment on Major Issues	• No agreement on the "right" set of issues to address • Diverse sub-sectors involved	• Lack of resources for later stages of the innovation process • No prioritization of systemic issues across clusters	*The knowledge base underpinning the sector is very broad – water engineers, nutritionists, logisticians, etc. The clusters all feel that their problems are unique and the most important."*

Source: Interview Findings (January-February 2015); Rush, et al. "The Eight Rs: components of the humanitarian innovation ecosystem" (June 2014)

Current Efforts to Address Innovation Barriers

Actors in the space have made some attempts to address the core barriers, but current efforts do not effectively address the core barriers in a holistic manner to enable knowledge sharing, innovation, and adoption

Core Barrier	Example of Actors Addressing Barrier		Effectiveness to Date
Short-Term Impact Orientation	USAID FROM THE AMERICAN PEOPLE DIV	USAID's DIV program invests comparatively small amounts in a portfolio of relatively unproven concepts and continues to support only those that prove they work through a stage-gated funding process	Highly attractive model for sourcing & scaling innovations; however, the venture fund's focus is significantly broader than just the humanitarian field
Lack of Funding Resources for Innovation	HIF humanitarian innovation fund	Humanitarian Innovation Fund (HIF) offers grants for problem identification, development, and scaling of innovative solutions	Widely considered a leader in the field, but the fund is relatively small and lacks the scale to be transformative
High Burden of Proof for Adoption	UNHCR innovation unicef innovation	UNHCR and UNICEF have developed innovation labs and initiatives that are actively experimenting and piloting with new ideas on the ground	Able to test and develop innovations applicable specifically to refugees/children, but limited ability to stimulate broader adoption by other actors
Lack of Standards & Metrics	ALNAP HAP PEOPLE IN AID The Sphere Project	Multiple organizations have made efforts to issue certifications for individual practitioners and devised a set of benchmarks for quality and accountability	Highly respected in the sector; however, organizations have overlapping mandates and competing standards
Lack of Alignment on Major Issues	Harvard Humanitarian Initiative HUMANITARIAN FUTURES PROGRAMME planning from the future	Academic programs such as the Harvard Humanitarian Initiative and the Humanitarian Futures Programme (King's College) use evidence and data to determine issues to solve in the sector	Able to identify key problems within a specific situation or context, but unable to holistically identify problems across the entire sector. Some programs are highly specialized and focus on specific niches (e.g., women in conflict)

Tailored Humanitarian IKB Models

Our case study insights coupled with an understanding of the unique challenges and current efforts in the humanitarian sector led us to three potential models for IKBs to promote knowledge sharing and adoption

Research Navigator

*A **central research authority** that interfaces directly with affected populations to collect robust data on their needs and the impact of interventions as well as defines the standards and metrics for the collection of this data. The IKB uses this **evidence base to influence donors and inform funding priorities**, thereby driving progress*

Analogous Sector: Healthcare, Construction

Solution Mobilizer

*Builds a **portfolio of proven innovations and lessons learned** by, first, **pooling funding** from multiple donors and creating dedicated financing **for collaborative partnerships and innovations** and, second, using a **stage-gated process** to synthesize lessons and evaluate effective ideas for additional funding at each stage*

Analogous Sector: Technology, Healthcare

Experience-Driven Validator

*An **externally hosted, independent knowledge network** that focuses on **collaborations with non-traditional humanitarian actors** to translate and develop innovations from other sectors and **leverages practitioner experience** to evaluate them in the field to ultimately endorse successful, high-impact innovations*

Analogous Sector: Military, Academia

Tailored Humanitarian IKB Models Details

These three models have different knowledge types, involve different players that incentivize change, and have differing governing structures that distinguish each model from the others

	Research Navigator	Solution Mobilizer	Experience-Driven Validator
How it Works	• Central body defines standards and maintains repository of data on user needs as programmatic assessments • Research and assessment organizations conduct research on user needs and program M&E • Funders can access data and findings to determine key issues and best practices to inform priorities	• Practitioners and others (e.g., social enterprises) develop solutions • Coalition of donors and private sector actors establish pooled fund and stage-gated process to fund successful ideas • Key lessons learned about which solutions work and which don't from the fund's portfolio are captured, synthesized, and shared	• Independent researchers source and adapt innovations from other fields to humanitarian context • A network of credible practitioners evaluate adapted solutions in the field • IKB endorses best practice solutions; participating actors have access to methods, lessons learned, and expertise networks
Incentives	• Implementers encouraged to innovate, comply with standards, and adopt best practices in order to be more competitively positioned for donor funding • Donors yield reputational gains in demonstrating greater impact per dollar spent	• Practitioners driven by financial and reputational incentives to develop solutions • Donors realize reduced opportunity cost and risk of investing in innovation • Private sector partners receive R&D experience and reputational incentives	• Recognition (reputational incentive) drives practitioners to participate • Relief agencies allow talent to second to IKB to access shared expertise and practitioner networks as well as greater access to donors and funding • Private sector actors receive exposure to reverse innovation opportunities
Governance	• Governed by central M&E body • Funded by public & private donors • Additional funder convener can drive consensus on priorities	• Coalition of donors fund mobilizer; grant selection is donor-blind • Diverse team of leaders from VC, impact investing, & humanitarian fields	• Private sector partners and research institute fund centralized, external research hub • Led by practitioners and researchers
Reference Point	Analogous Sector: Healthcare, Construction Internal: ALNAP	Analogous Sector: Technology, Healthcare Internal: HIF and START Network	Analogous Sector: Military, Academia Internal: Harvard Humanitarian Initiative, Qatar Computing Research Institute

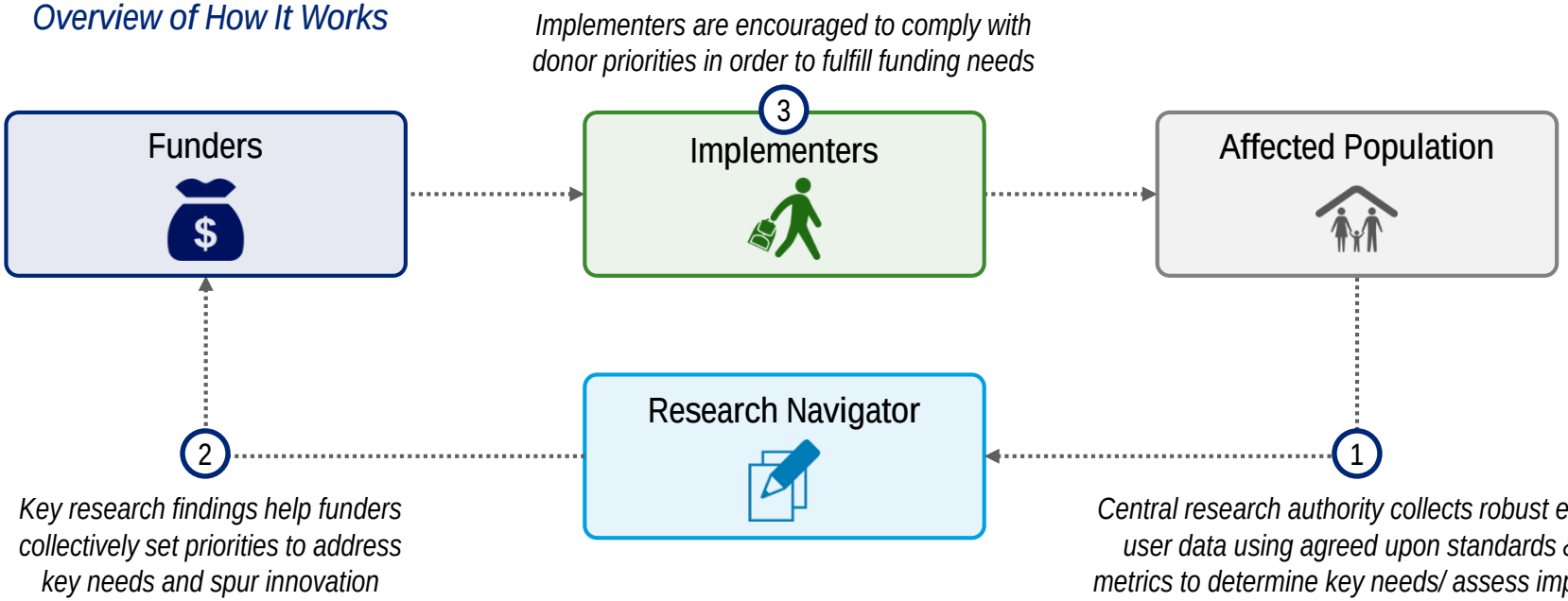
Model 1: Research Navigator

Model 1: Research Navigator Description

What Is It?

*This model is a **central research authority** that interfaces directly with affected populations to collect robust data on their needs and the impact of interventions as well as defines the standards and metrics for the collection of this data. The IKB uses this **evidence base to influence donors and inform funding priorities**, thereby driving progress*

Overview of How It Works



Impact Achieved

1. Addresses issues of limited user-centered design and ensures that funding priorities are evidence-based
2. Creates a financial and reputational mechanism to aggregate data in order to align the sector on key prioritized issues and move the field forward in a concerted manner

Model 1: Research Navigator Overview

*This model is a **central research authority** that interfaces directly with affected populations to collect robust data on their needs and the impact of interventions as well as defines the standards and metrics for the collection of this data. The IKB uses this **evidence base to influence donors and inform funding priorities**, thereby driving progress*

How It Works

Key Players

- Central Research and M&E Body:
  - Defines standards & metrics and maintains and supports a robust, centralized repository for ethnographic research (user needs assessment) and program assessment data
  - Synthesizes data to clearly communicate key user needs, problems, and best practices
- Research & Assessment Actors: Conduct ethnographic research on affected populations and implementer assessment using standards
- Funders: Establish and enforce evidence base and consensus around priority issues; Tie funding to prioritized issues and M&E compliance
- Convener *(optional)*: Partners with central body to prioritize issues and best practices and convenes funders to drive consensus on priorities

Knowledge Creation

M&E actors conduct and collect standardized data on user needs as well as assessment of current implementer programs

Knowledge Usage

Implementers or funders can access this data to determine key issues and best practices and guide decision making

Analogous Sector Reference Point(s)

Healthcare

Construction

Incentives

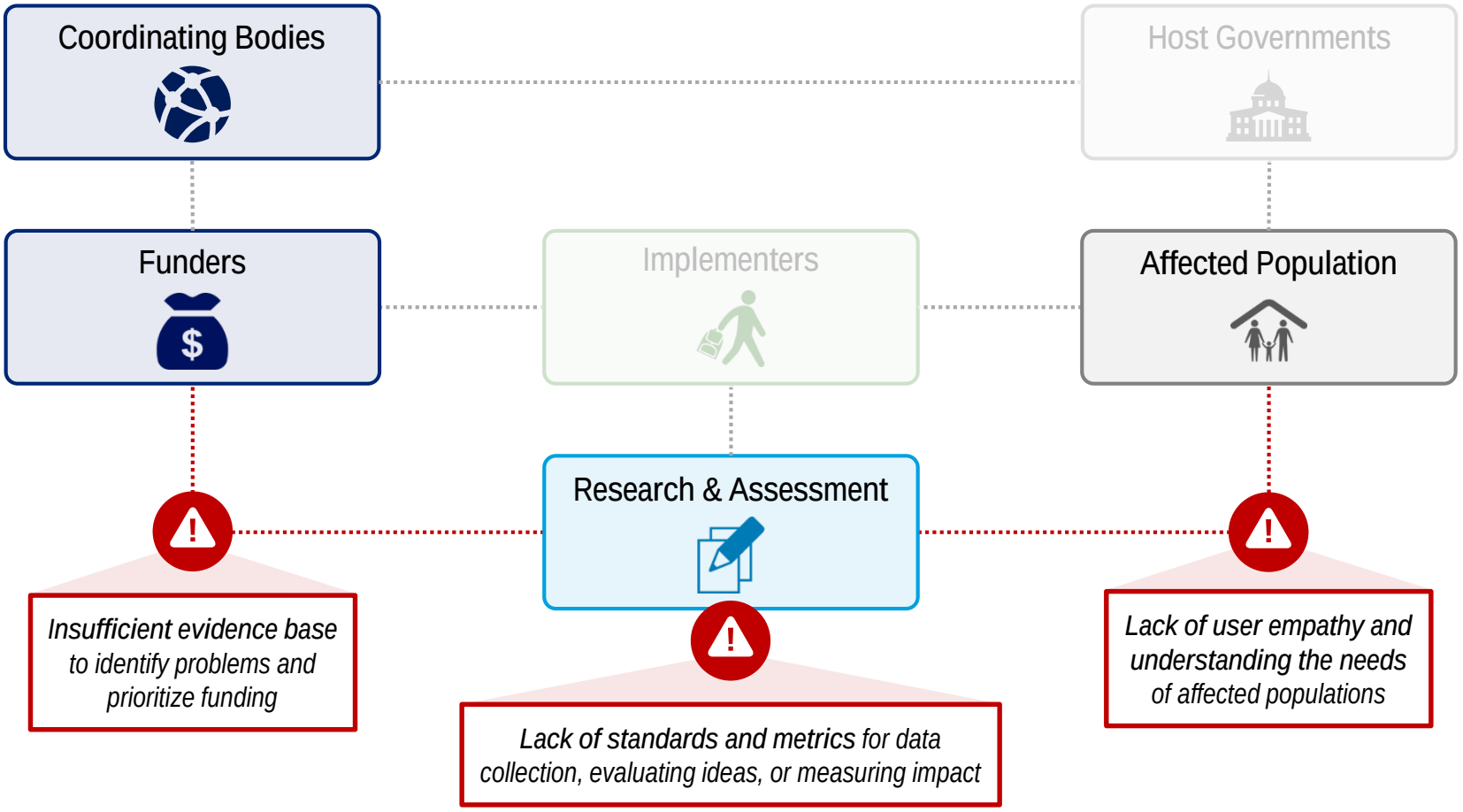
- For **implementers**: Encouraged to innovate, adopt best practices, and pursue areas of greatest need to demonstrate more impact and, thereby, become more competitive for funding; compliance with standards and use of best practices is *incentivized by funding*
- For **traditional donors**: *Reputational incentives* to demonstrate greater impact per dollar spent to stakeholders by enabling systematized impact assessment; additional reputational incentives are in place through *peer enforcement* to ensure that funders require compliance with M&E standards and promote adoption of best practices
- For **non-traditional donors**: Encourages more participation from private sector and other non-traditional donors where funders are *driven to seek a strong evidence base*

Governance

- **Funding:** Key public and private donors in the humanitarian sector; additional funding through implementer membership fees and access to advanced reports and analytics
- Requires a **central body** (e.g. ALNAP) to define standards & metrics, maintain central repository of user needs and program assessment data, and to ensure data is compliant with standards
- An additional **funder convener** can help convene funders and drive consensus on priorities, but funders may also be able to self-govern and play this role

Key Barriers and Challenges Addressed

The model addresses a critical gap in standardized research and M&E processes as well as a missing feedback loop connecting the needs of affected populations back to funders, coordinators, and implementers



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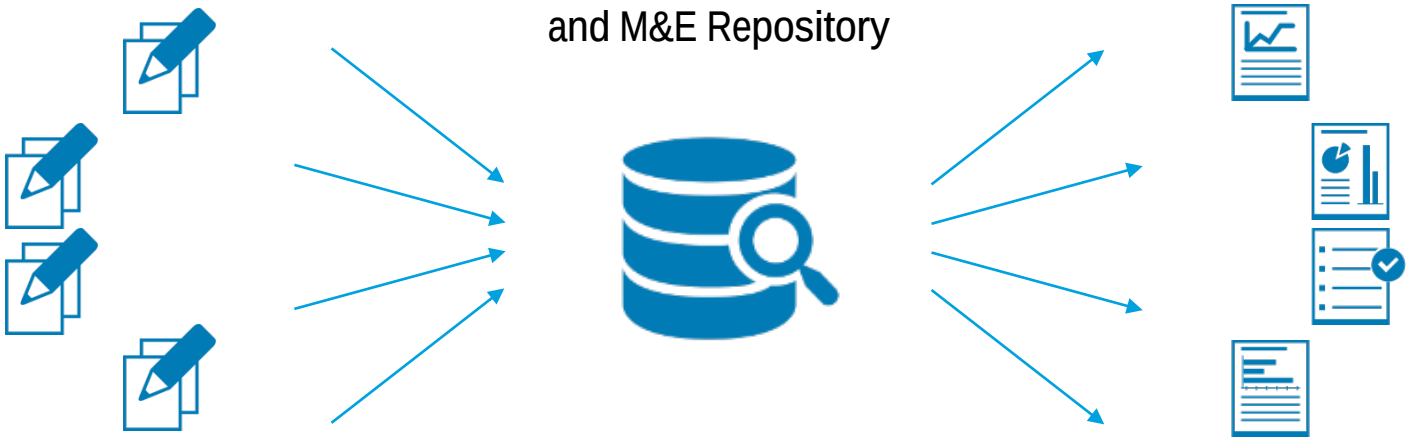
How It Works – Repository of Knowledge

The central research and M&E authority would maintain a robust repository that serves as a sector-wide hub for data and analysis related to affected population needs and program assessments



Inputs
M&E data on user needs, feedback, program assessments, etc. that is compliant with defined standards, metrics, and formats

Capabilities
Robust, secure data repository with quick, intuitive, and flexible user-centric functionalities (e.g. powerful search function); Online access for funders and compliant implementers)

Outputs
Customizable reports synthesizing information on needs, problems, best practices, etc.; Sector-wide reports available online and additional reports or analytics available for a fee

Key Research Personnel Needed to Support the Navigator's Repository

- *A team of full-time M&E professionals to collect and codify user needs and program assessment data in the field*
- *Professional researchers (e.g., think tank employees or fellows) contracted to specific research questions or initiatives to analyze findings and produce outputs*

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How It Works – Methodologies & Processes

A set of specific structures, tools, and processes are needed to promote the consistency, quality, and relevance of information collected and analyzed

Key Elements Needed

Data Standards

- Clear **standards for the collection of data**, including:
  - Data formatting (coding language, software program(s) used, etc.)
  - Frequency, types, and granularity of data required
- Formal methods and protocols for **ethnographic research** and M&E

"Money alone may not work if the innovations being funded do not meet the needs of the affected populations and if information sharing in the sector is not solved."

Common M&E Standards & Metrics

- **Aligns both what is captured** (metrics) **and how they are reported** (units, cuts and views required, etc.) for both user needs and program evaluation
- Research collects a standardized set of metrics in order to **enable program comparison** across organizations & more **clearly assess best practices**

Reference Point: *The International Standardization Organization (ISO) sets standards across the construction sector, which are used compare actors and create a market signal to distinguish qualified providers*

Clear Communication Channels

- Create open **communication and feedback directly between funders and research and assessment bodies**, which can be supported by partnerships between the central research body and the convener
- Continually evaluate and refine metrics and data standards to improve funders' decision making process

Reference Point: *WHO serves as a global health convener by setting norms and standards, monitoring implementation and needs, and using this information as evidence to shape the broader sector agenda.*

Incentives

A feedback link from affected populations to funders through a centralized M&E body creates both financial and reputational incentives to align on key problems, create shared standards and metrics, and adopt best practices

Research & Assessment

- Central research and M&E body (e.g. ALNAP) is driven by the:
  - Financial incentive to access **increased funding** and **close links** to key donors in the sector
  - **Reputational prestige** of playing the central role in establishing standards and professionalizing the sector
- Increased funding from donors and members would enable ALNAP to establish a repository and play this role that closely aligns with its **goals to address issues of accountability** and standards in the sector

Funders

- Incentivized by the **prestige of tying funding to impact** (innovations and best practices)
- Financial incentive to **show greater impact per dollar spent** in order for public and private donors to attract more contributions
- Collective **peer enforcement** to ensure all funders require compliance with established standards and promote the adoption of best practices
- Evidence-based prioritization incentivizes **more private sector participation** in the humanitarian sector and expands the base of funding and resources available

Implementers

- Donors **tie funding to compliance with established standards**, incentivizing implementers to use those standards and align efforts with funders' priorities
- Targeted funding for prioritized issues can incentivize implementers to both **adopt best practices and/or innovate** to address key issues or problem areas
- Systematized impact assessment and the feedback loop tying performance to funding **encourage and motivate implementers to demonstrate more impact** – either by adopting best practices or innovating better practices – due to the **reputational disincentive** of being associated with bad results

"If you want to get good data, you need to publish bad data."

Governance

A central body, e.g. ALNAP, would establish standards & metrics, maintain the central repository, and synthesize data; another convening body would coordinate across funders to identify key problems and set funding priorities

Central Research and M&E Authority

Leverage ALNAP (or other leading M&E body's) existing clout to create a central authority in the sector to:

ALNAP
Strengthening humanitarian action through evaluation and learning

1. Define **standards & metrics** for data collection, monitoring, and evaluation
2. Maintain and support a **robust, centralized M&E repository** across the sector
3. Synthesize data to **clearly communicate key needs, problems, and best practices**

Funder Convener (Optional)

Additionally, a strong body with established leadership that commands respect among funders (e.g. an existing body like UN OCHA or a joint governance council with representation from major funders) can:

- Work closely with the central M&E authority to **enable evidence-based identification and prioritization** of key issues and best practices
- **Convene funders** to fund and recognize the central research and M&E body's expertise and authority, as well as to **drive consensus** around tying funding to prioritized issues
- Serve as a **peer enforcement mechanism** to ensure all funders require **compliance with M&E standards** and promote adoption of best practices

*Partnership with a strong international figure or body outside of the humanitarian sector (e.g. UN Secretary-General, Bill and Melinda Gates, Bill Clinton) can help get **buy-in from key stakeholders** to kick start the IKB*

Key Considerations

The Research Navigator can make significant impact in facilitating innovation, though substantial effort may be required to establish and enforce standards and build ALNAP's capacity to play a central role

Impact

- Improves the ability to **correctly identify problems, address most pressing needs** for the affected population on the ground, and **assess best practices and lessons learned in a standardized format**
- **Professionalizes the sector** by improving data collection, establishing a common set of standards & metrics for M&E, and creating clear channels for communication and feedback
- **Mobilizes and prioritizes resources** towards key issues, best practices, and innovations

Feasibility

- **Moderate level of feasibility due to ALNAP**'s existence and presence as a strong and well-respected organization; increases the ease of implementation by reducing the need to create a similar organization to play the role of governing body
- By incorporating feedback from affected populations and better identifying user needs, the IKB **builds on existing motivations for funders** to finance initiatives with the most impact on the ground
- **Implementers are most directly incentivized by funding**, which can be used to ensure compliance with standards and adoption of innovative practices

Potential Risks

- It may be **difficult to reach agreement on standards** and metrics across clusters
- **Relies heavily on funders requiring and retaining ability to enforce compliance with established standards**, especially in the initial phase after establishing the IKB
- Current M&E efforts focus on evaluation of implementer initiatives and not on the collection of data from affected populations
- Though ALNAP is currently the largest, most well-respected M&E organization in the humanitarian sector, **significant resources will be required** to enable ALNAP to successfully play the governance role of the central research and M&E body and to maintain a robust, centralized M&E repository

Model 2: Solution Mobilizer

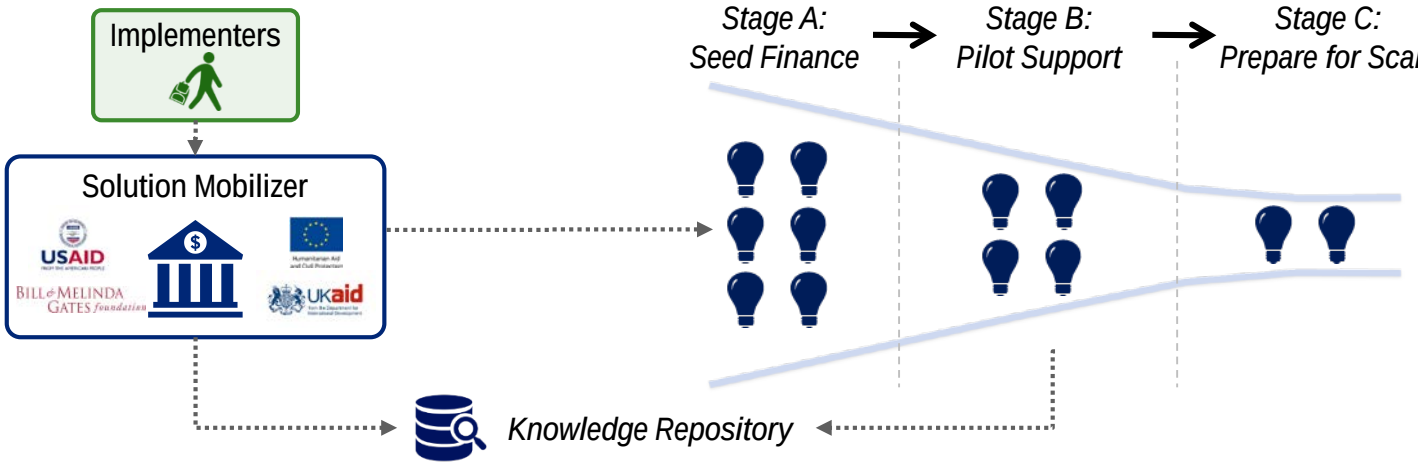
Model 2: Solution Mobilizer Description

What Is It?

*This model builds a **portfolio of proven innovations and lessons learned** by, first, **pooling funding** from multiple donors and creating dedicated financing **for collaborative partnerships and innovations** and, second, using a **stage-gated process** to synthesize lessons and evaluate effective ideas for additional funding at each stage*

Overview of How It Works

1. *Practitioners apply to a pooled fund for grants rewarding innovations and partnerships*
2. *A stage-gated process unlocks streams of funding (i.e., from private sector partners) and support for the most effective and promising ideas at each stage*



3. *Proven innovations and key lessons learned are captured in a centralized repository by the Solution Mobilizer and shared with the broader sector*

Impact Achieved

1. Reduces the high perceived opportunity cost of investing in innovation rather than the provision of direct aid to help overcome short-termism within the sector
2. Creates a dedicated source of funding for innovation and increases the relative share of humanitarian assistance invested in innovation activities

Deloitte.

Model 2: Solution Mobilizer Overview

*This model builds a **portfolio of proven innovations and lessons learned** by, first, **pooling funding** from multiple donors and creating dedicated financing **for collaborative partnerships and innovations** and, second, using a **stage-gated process** to synthesize lessons and evaluate effective ideas for additional funding at each stage*

How it Works

Key Players

- **Donors:** Coalition of major donors establishes pooled fund for humanitarian innovation and cross-sector partnerships
- **Implementers & non-traditional actors:** Apply to the fund for grants to develop innovative solutions
- **Partners:** Private sector (e.g. corporate) actors and others provide additional funding for innovations at later stages of development in order to pilot and scale up
- **Mobilizer organization (central IKB):** Synthesizes key lessons learned from funded innovations and shares with broader field

Knowledge Creation

Key lessons learned about which solutions work and which do not from the fund's portfolio are captured, synthesized, and shared

Knowledge Usage

Solutions proven to work receive additional funding from private sector partners to achieve scale

Analogous Sector Reference Point(s)

Technology

Healthcare

Incentives

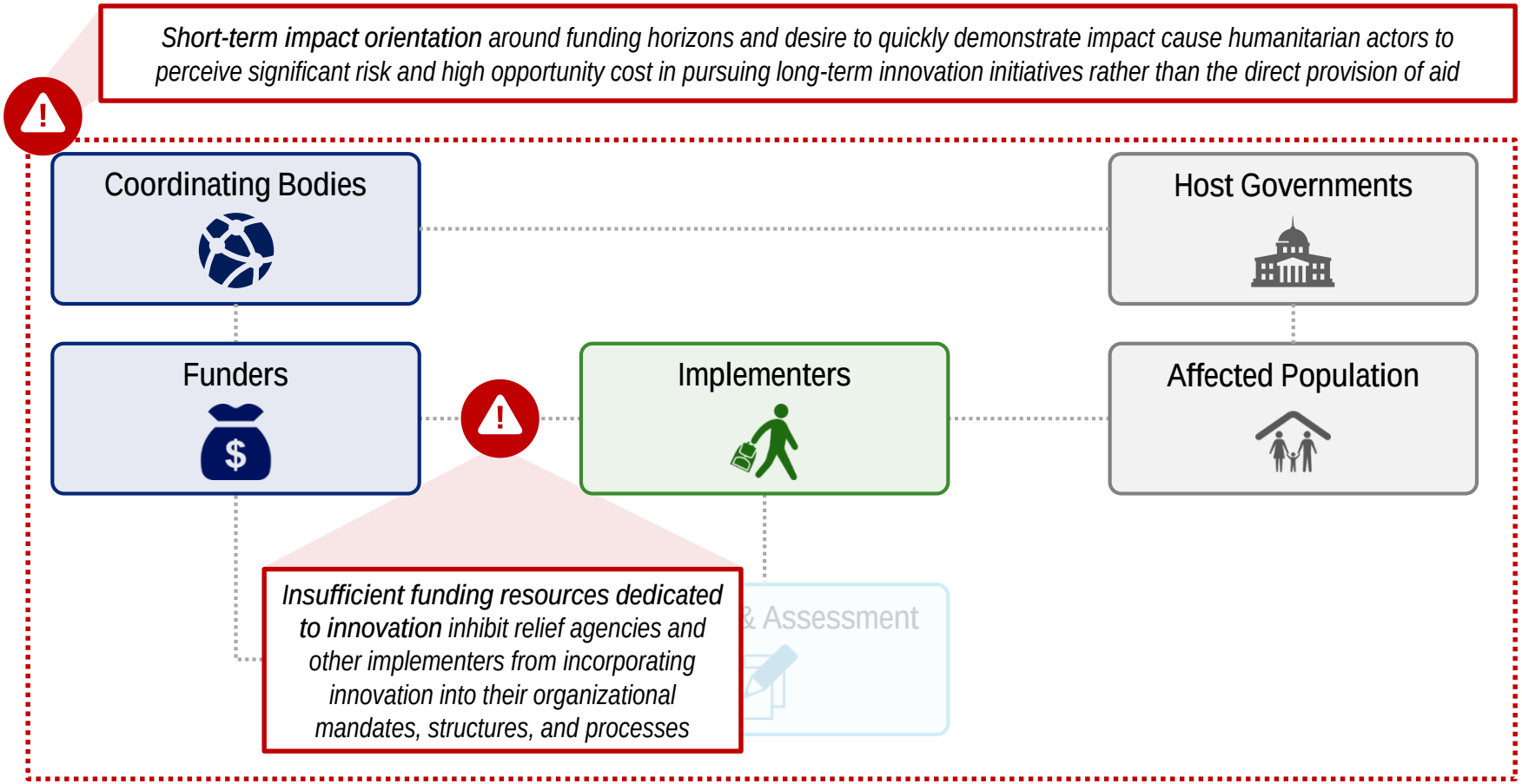
- For **donors**: Pooled funding *reduces opportunity cost* of investing in innovation rather than direct aid and creates opportunities to unlock net new funding from private sector actors thereby growing the total market for humanitarian assistance
- For **implementers**: Creates a *market pull mechanism* encouraging and enabling humanitarian relief agencies to build innovation into their organizational mandate, structure, and operations in exchange for financial resources
- For **partners**: Provides opportunities to build *reputational capital*; learning opportunities for operating in a crisis situation, and collaborative R&D opportunities with ideas that have already been initially vetted

Governance

- **Funding:** A coalition of key public and private donors, including both humanitarian and non-humanitarian sector funders
- **Operations:** Mobilizer is an independent entity and led by:
  - A **Steering Committee** of donor representatives and representatives of the independent mobilizer entity responsible for setting overall strategy
  - A **funding panel** of independent (donor-blind) experts responsible for making all funding selection decisions
  - An **Advisory Board** of corporate partners
  - A **management team** of humanitarian leaders; venture capitalists or impact investors responsible for overseeing operations

Key Barriers and Challenges Addressed

Short-termism, insufficient funding, and anti-collaborative behavior on the part of implementers could be addressed through a pooled funding model for innovation and partnerships



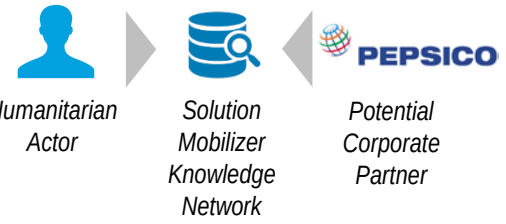
How It Works – Repositories of Knowledge

An open repository facilitates the creation of partnerships through a technology-enabled network directory and collects key lessons learned from funded innovation solutions

1 Knowledge Network Directory

- Dynamic, open-source **online network directory** (housed by the IKB) connects humanitarian actors with potential partners
  - Maintains detailed information on "**who knows what**" and enables individuals and organizations to tag their areas of expertise
  - Quickly enables humanitarian actors to **find the right partner organization**
  - Gives humanitarian actors streamlined access the right **point of entry** at potential **private sector partners**

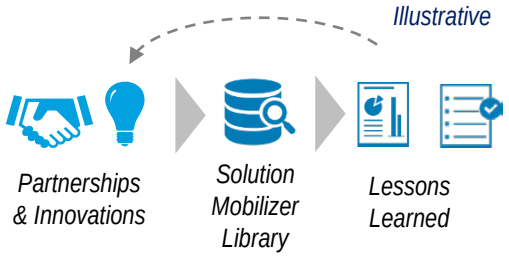
Illustrative



2 Library of Lessons Learned

- All innovations and partnerships funded by the pool require **evaluation** and **"after-action" reporting**
- Pool establishes common set of **metrics and standards for data collection from grantees** in order to enable comparison across initiatives
- **Key lessons learned** are codified and synthesized at a level that still provides benefit for practitioners and future grantees **without divulging proprietary** IP developed in conjunction with private sector partners

Illustrative

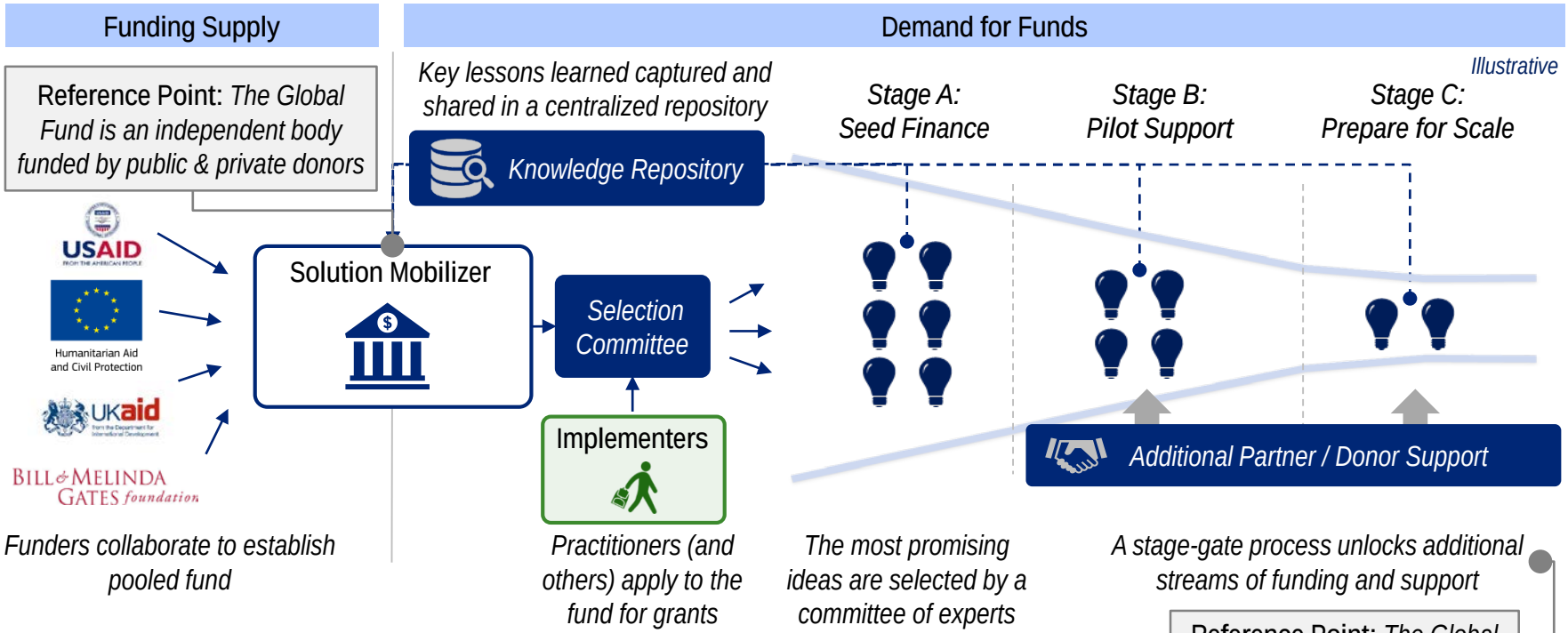


"The private sector has R&D resources but there are issues around intellectual property that need to be addressed"

Reference Point: *The World Health Organization operates a Global Health Observatory which uses collected data to publish analytical reports highlighting key health trends and indicators*

How It Works – Methodologies & Processes

A multi stage-gated process enables access to funding for innovative ideas from seed to scale and encourages cross-sector partnerships that span NGOs, public institutions, and private enterprise



Stage-Gated Evaluation and Funding Process

- Donor-blind expert panel selects best ideas submitted by implementers for initial seed funding
- Initiatives are **re-evaluated based on potential for impact and scaling** for **additional funding rounds**
- The fund **connects initially vetted and funded ideas to private sector actors** who may be interested in **providing additional investment to further develop or scale**
- Scaled solutions resulting from partnerships are co-branded
- Funding is **contingent upon utilizing a common set of evaluation criteria** and **metrics** for the mobilizer to **share key lessons learned** with the broader sector in order to foster greater collaboration

Reference Point: *The Global Fund leverages a performance-based funding model tying continued funding to health outcomes*

Deloitte.

Incentives

The mobilizer establishes a financial incentive to stimulate the development of innovative solutions and creates opportunities to spur collaboration both within the humanitarian sector and with private sector actors

Funders

- Reduces the opportunity cost of investing in innovation and partnerships (as opposed to direct aid)
  - Funders contribute a relatively small amount on an individual basis, but the sum total of the pooled funds is able to achieve a scale that no individual donor would likely be willing to spend exclusively on innovation
- Diffuses risk of spending untested innovations across multiple actors
- Creates opportunity to unlock net new funds from non-traditional humanitarian actors (i.e., corporations or entrepreneurs)

Implementers

- Attracts implementers with significant financial incentives: Offers dedicated financial resources in exchange for identifying and developing innovative solutions with high potential impact

> *Investment works—we need more micro-grants, innovation funds, and challenge prizes"*

- Enables relief agencies and other implementers of humanitarian aid to incorporate innovation into their organizational mandates, structures, and processes
- As with funders, reduces opportunity cost of investing in innovation and partnerships (as opposed to direct aid)
- Establishes mechanism for non-traditional humanitarian actors (e.g., academics) with R&D expertise to enter the space and submit proposals

Private Sector Partners

- Private sector companies may be motivated to fund humanitarian partnerships and innovation initiatives for:
  - Reputational capital and/or corporate social responsibility programs
  - Learning opportunities for working in crisis or conflict situations
  - R&D opportunities to collaborate with non-traditional partners
- Enables access to a set of ideas that are not completely untested and have already received initial screening

Governance

The IKB would have a governance model that excludes donors from grant selection and leverages the experience of a range of experts on innovation, financing, and the humanitarian sector to build legitimacy

Potential Pool Fund Governance Structure

Steering Committee

Membership: Donor representatives and select management team member(s)

Role: Sets the overall direction and strategy for the fund; authorizes organizational decisions

Funding Panel

Membership: Selection is blind to donors; panel is comprised of senior leaders with expertise in venture financing, innovation, as well as humanitarian action

Role: Panel is responsible for deliberating and selecting innovation initiatives to receive funding; Donor-blind grant selection creates a checking mechanism to ensure impartiality

Reference Point: *Venture capital firms often leverage the practical expertise of an "Entrepreneur in Residence" to assist the core investment team in critical funding decisions*

Management Team

Membership: Leaders in humanitarian action; venture capitalists or impact investors

Role: Manages the day to day operations of the fund; coordinates and executes fundraising activities to attract capital to the fund; leads collection and synthesis of key lessons learned

Advisory Board

Role: Provides partners with exposure to ideas receiving seed funding for pilots & prototyping to spark their interest in investing to scale these ideas; ,marquee partners build legitimacy for organization & funding process

Potential Members:

Illustrative Examples

Google, VISA, DHL, IKEA, P&G, PEPSICO

Key Considerations

The Solution Mobilizer could unlock a significant uptick in innovation by humanitarian actors; however, the buy-in of key donors and private sector partners is critical to build legitimacy for the IKB

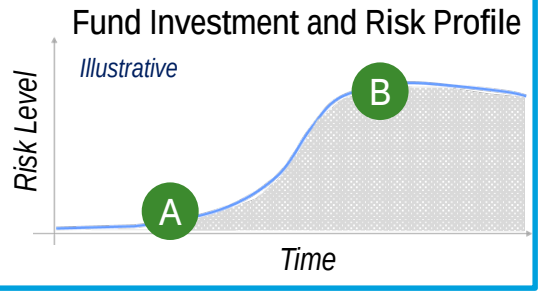
Impact

- **Creates a dedicated source of funding for innovation** and increases the relative share of humanitarian assistance invested in innovation
- Creates a pull mechanism to **increase both the volume and quality of potential solutions** being explored and tested
- Encourages and **rewards existing and new collaborations** both among humanitarian actors as well as among humanitarian and non-humanitarian actors
- Successful funding and scaling of solutions **reduces perceived risk** and **opportunity cost** of investing in innovation

Feasibility

- **Moderate level of feasibility** given similar efforts (e.g., HIF) but will require significantly more scale
- Additional work may be needed to **develop appropriate methodologies to demonstrate the relative impact and efficacy** of specific solutions
- In order to attract initial donor funding, the fund could **focus initially on relatively lower risk investments**
- Over time, the fund can **increase the level of risk** in the portfolio to make "big bets"

A *Likely short-term and focus on partnerships that create efficiency gains and improve core operations* → B *Investments are likely to be longer-term programmatic initiatives with potential for significant disruption*



Potential Risks

- Success of the model is predicated on **the buy-in of key donors and the presence of private sector partners** willing to provide funding and partner with humanitarian actors
- The mobilizer will need **credibility in the eyes of the entire humanitarian sector** in order to fund long-term, potentially transformative disruptions
- The model assumes the financial pull incentive of access to funding outweighs **the current competitive dynamics between actors** that often stifle collaboration

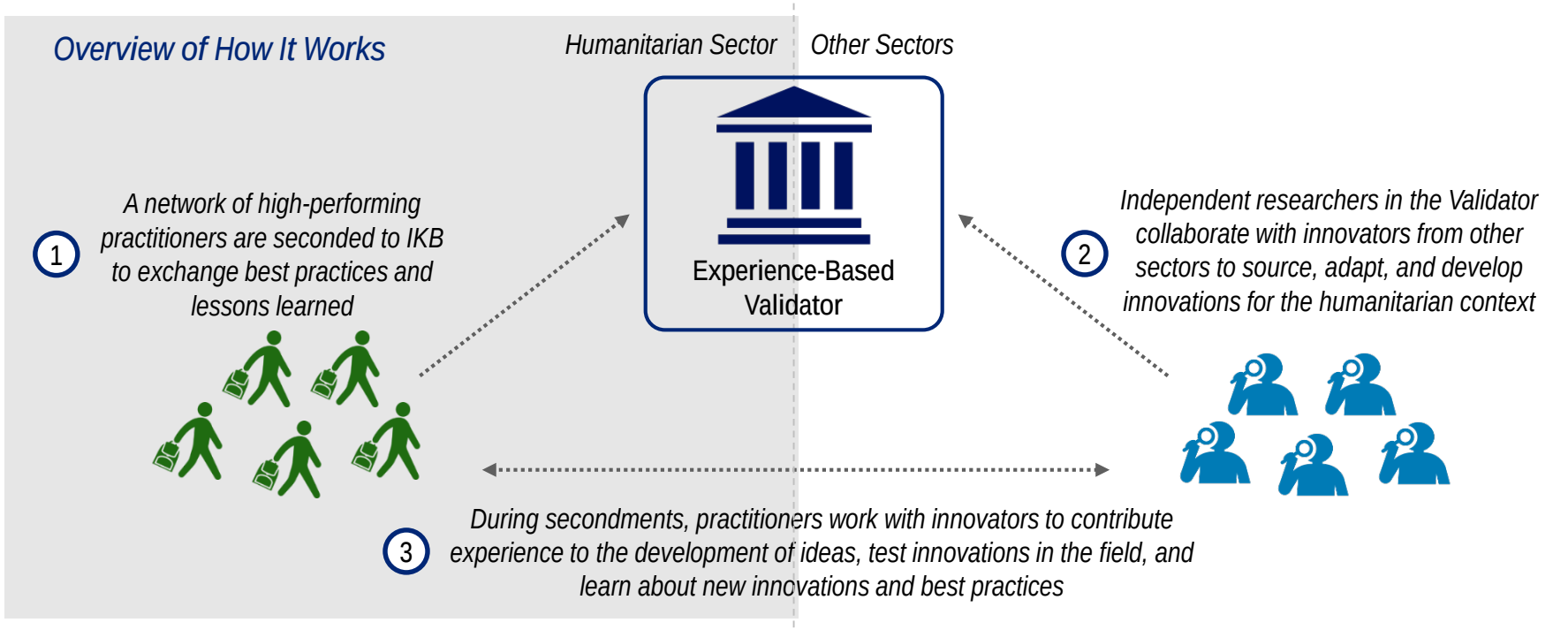
Model 3: Experience-Driven Validator

Model 3: Experience-Driven Validator Description

What Is It?

This model is ***an externally hosted, independent knowledge network*** *that focuses on* ***collaborations with non-traditional humanitarian actors*** *to translate and develop innovations from other sectors and* ***leverages practitioner experience*** *to evaluate them in the field to ultimately endorse successful, high-impact innovations*

Overview of How It Works



Impact Achieved

1. Recognizing and sharing knowledge both already present in the sector and adapting from other sectors, while building internal sector capacity and talent for innovation
2. Creates dedicated funding and platform for innovation while circumventing internal short-termism

Model 3: Experience-Driven Validator Overview

*This model is **an externally hosted, independent knowledge network** that focuses on **collaborations with non-traditional humanitarian actors** to translate and develop innovations from other sectors and **leverages practitioner experience** to evaluate them in the field to ultimately endorse successful, high-impact innovations*

How it Works

Key Players

- **Research Institution Host:** Academic institution or think tank hosts the IKB and translates potential innovations to the humanitarian context
- **Private Sector Partners:** Serve as partners in identifying and sourcing potential innovations from the private sector
- **Private and Corporate Foundations:** Research-oriented and corporate foundations with demonstrated interest in humanitarian field act as donors to the IKB
- **Humanitarian Practitioners:** Seconded employees of relief agencies constitute the knowledge network of practitioners that will test and evaluate adapted innovations in the field

Knowledge Creation

Two key components to knowledge creation: (1) An Independent, application-driven research hub translates solutions from private sector and adjacent fields to humanitarian context that are then (2) tested in the field by a network of credible humanitarian practitioners and key successes and failures are recorded

Knowledge Usage

Solutions found "to work" are endorsed by the IKB as best practice; detailed after-action reports are produced and actors participating have access to methodologies, lessons learned, and expertise networks

Analogous Sector Reference Point(s)

Military

Academia

Incentives

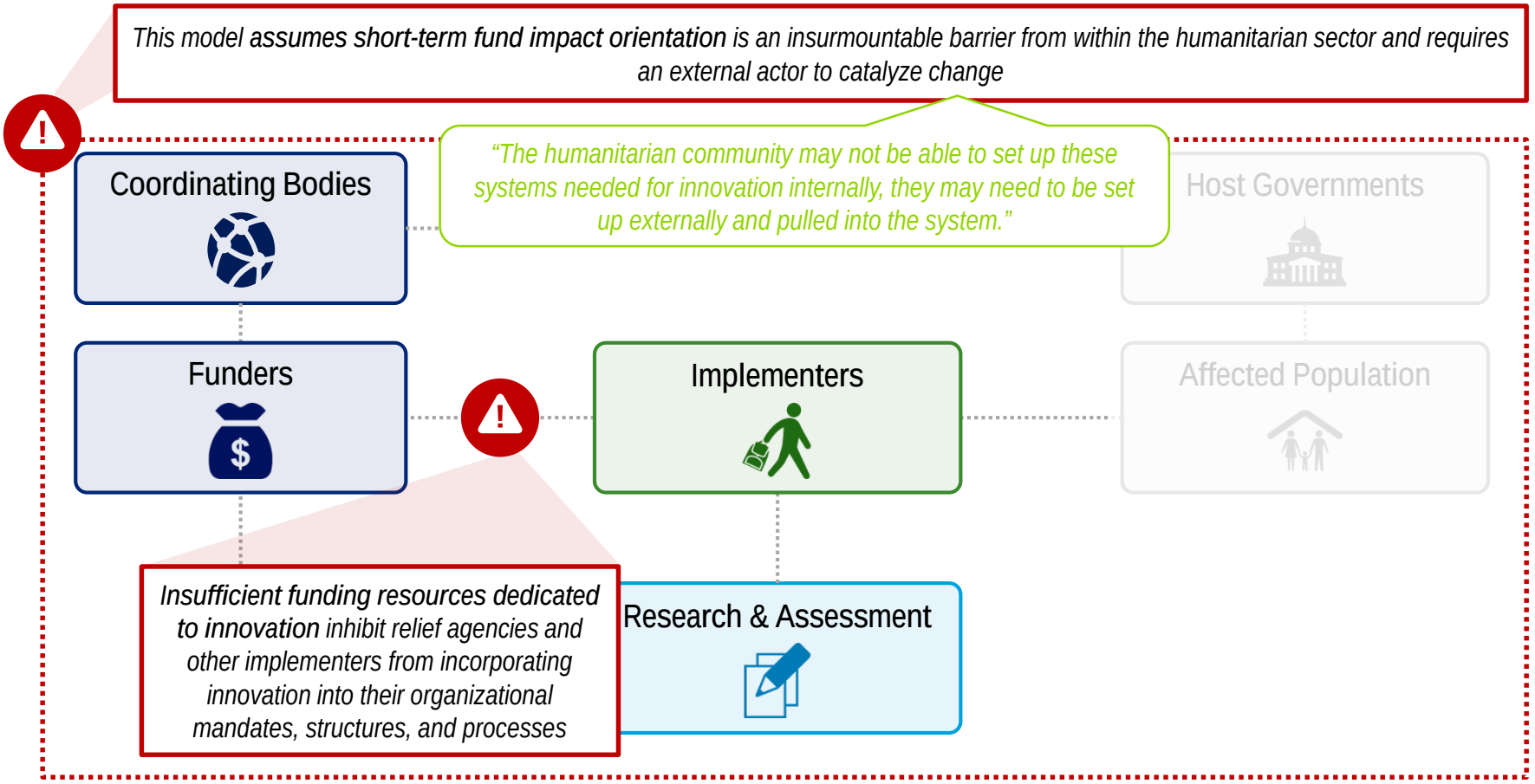
- For **individual humanitarian practitioners**: Secondment to the IKB to serve as a member of the knowledge network creates *individual reputation and professional development* opportunities
- For **relief agencies** and NGOs: Allows their employees to participate in the knowledge network (be seconded) *in exchange for access to repositories* of after-action reports, key lessons learned, trainings, and personal networks of expertise
- For **private sector partners**: Provides opportunities for *reverse innovation learning and research opportunities* because innovations created in humanitarian crisis situations may have potential for commercial application and scaling

Governance

- **Funding:** Combination of private and corporate foundations and an endowed host research institution sustain the IKB
- The Validator has multiple structural components including:
  - A **management team** of both humanitarian practitioners and researchers overseeing core operations and fundraising efforts
  - A team of non-traditional humanitarian (i.e., unaffiliated with a UN agency or relief NGO) **innovation experts and researchers** responsible for sourcing and adapting innovations
  - **Advisory panel** of senior humanitarian practitioners tasked with selecting applicants being seconded as innovation fellows
  - **Network of seconded humanitarian practitioners** evaluating adapted solutions in the field

Key Barriers and Challenges Addressed

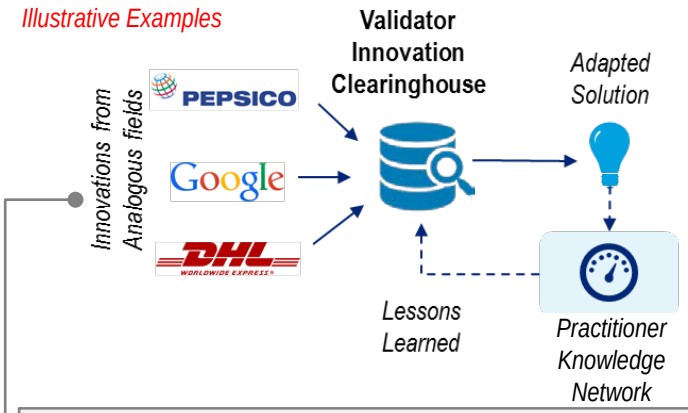
The model addresses the lack of dedicated resources and capacity for innovation under the assumption that current actors within the space are unwilling or unable to overcome short-term impact orientation



How It Works – Repositories of Knowledge

The Validator would maintain repositories of ideas as well as tools for networking with individuals with expertise from which to draw ideas and determine "what works"

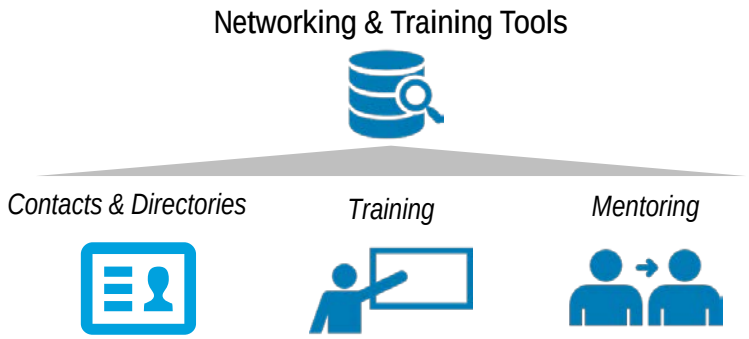
1 Innovation Clearinghouse



Reference Point: *Defense Intelligence Agency's "NeedipeDIA" program leverages external partners to spur innovations*

- Innovation clearinghouse **scans, captures, and prioritizes the universe of potential innovations** in analogous sectors that can be translated for use in the humanitarian context
- Clearinghouse **synthesizes and maintains a curated collection of both successful and unsuccessful ideas adapted** and evaluated
- Wisdom generated is **open to participating organizations through an online platform** that uses standardized but flexible coding system to tag and categorize specific solutions, methodologies, and processes, and lessons learned

2 Networking & Training Tools



- Reports and methodologies alone are useful tools, but significantly more powerful when paired with **access to the knowledge creators**. An interpersonal repository would include:
  - Access to interactive and **impactful trainings and mentoring** from experts
  - Digital platform for **connecting with a network of innovators** from both traditional humanitarian organizations as well as partner organizations
- Additionally, the Practitioner Knowledge Network connects current fellows and alumni through a database to enable targeted networking and relationship building as well as a core resource to get questions answered for actors across organizational boundaries

Deloitte.

How It Works – Methodologies & Processes

Defined communication channels, standards for certifying innovations, and protocols for recruiting and operating the Practitioner Knowledge Network are crucial to a successful Validator model

Communication Channels

- **Internal Channels**: Clear channels between the research hub and the practitioner knowledge network are needed to transmit key findings to core staff operating the IKB
- **External Channels**: Agreed upon processes and points of contact for identifying and prioritizing innovations outside of the humanitarian space for translation

Practitioner Knowledge Network

- Build relationships with key humanitarian actors to **nurture a strong reputation** for the research hub and practitioner knowledge network program and communicate value prop to potential fellows
- Construct a highly **selective application process to second strong performing humanitarian practitioners** to the network for a period of 6-12 months
- Develop **curricula and systems for training** practitioner knowledge network fellows on agreed upon knowledge collection standards and processes

Reference Point: *The Center for Army Lessons Learned and Rapid Equipping Force embed knowledge officers in combat units to collect, curate, and disseminate battlefield insights about "what works"*

Endorsement & Synthesis

- Focus endorsement largely on the **experience-driven expertise** of practitioners who recognize key success factors of potential solutions in conjunction with data & metrics
- Develop **rigorous and standardized criteria** for endorsing and advocating the adoption of innovations developed and adapted by the research hub for the humanitarian sector
- Host and make key wisdom gained available to the broader humanitarian community in exchange for **dues** or practitioner organizations **allowing and encouraging talent to be seconded to the Practitioner Knowledge Network**

Incentives

Reputational incentives for individual practitioners as well as for private sector and foundation partners will drive them to staff, collaborate with, and fund the validator

Individual Practitioners

- **Individual reputation** and **professional development opportunities** for practitioners to serve as fellows in the knowledge network
  - Opportunity for individuals to **evaluate and assess potential solutions** outside of the bureaucracy, politics, and other limitations of day-to-day work
  - Practitioners gain opportunity to **position themselves as authoritative experts** on specific solutions

Implementers

- **Relieves** implementers of **cost of innovation by outsourcing** the R&D process to the externally-focused IKB
- Implementers will see value in adopting high impact innovations that are produced and vetted by the Validator; however, the IKB **must establish itself as credible** to stimulate adoption of ideas
- Wisdom developed by the validator is **only available to relief agencies in exchange for participation** (i.e., allowing and encouraging practitioners to be seconded to the knowledge network) or in **exchange for annual membership dues or a fee**

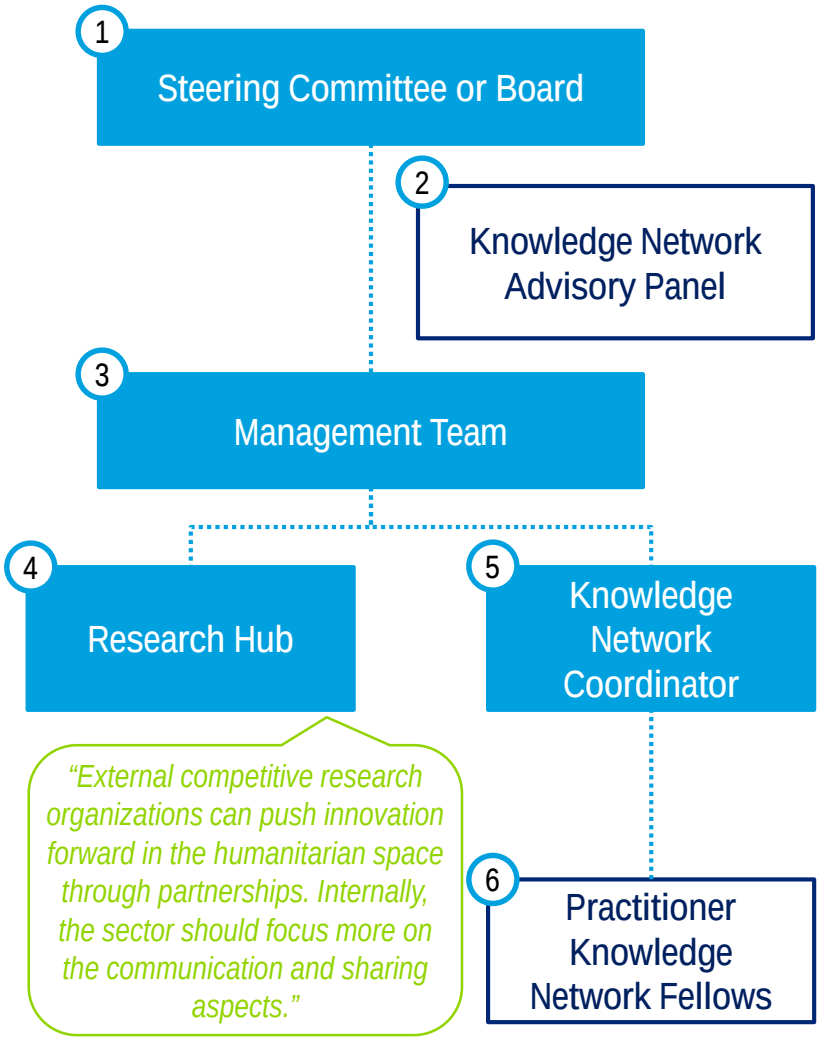
Private Sector Partners

- Initial donors for this model are **unlikely to be traditional humanitarian donors** (e.g., bilateral development agencies)
- Private sector actors will be motivated by opportunities for **'reverse innovation" learning and research opportunities** because innovations created in humanitarian crisis situations may have potential for commercial application and scaling

  "Corporations have both genuine desire to help and self-interest due to reputational and CSR benefits"
- Research institutions will be driven by **reputational as well as academic motivations** to host a high-profile research hub with strong ties to industry

Governance

The Validator would sit outside of the traditional humanitarian action ecosystem to retain third party objectivity and enable the IKB to challenge previously held orthodoxies within the sector



1. Steering Committee: Composed of a combination of senior humanitarian thought leaders, major funders (e.g., private sector representatives), and representatives of host research institution
   Role: Responsible for setting strategy and approving key decisions
2. Knowledge Network Advisory Panel: Consists of independent group of highly respected humanitarian practitioners
   Role: Selects applicants into the practitioner knowledge network and approves key standards and methods used in collecting and codifying lessons learned and "what works" and builds legitimacy for the IKB
3. Management Team: Nimble team of both experienced humanitarian practitioners and innovation researchers
   Role: Manages core operations of the IKB and responsible for building relationships with potential partners and leading IKB fundraising efforts
4. Research Hub: Staffed by a group of non-traditional humanitarian researchers and/or academics
   Role: Sources and translates potential solutions from adjacent fields and sectors to the humanitarian context
5. Knowledge Network Coordinator: Humanitarian practitioner
   Role: Responsible for developing curricula and rolling out training to knowledge network fellows before their deployment and supporting fellows during deployment to the field
6. Practitioner Knowledge Network Fellows: Humanitarian practitioners seconded from UN agencies and NGOs
   Role: Evaluate and assess potential adapted solutions in field context; synthesize key findings and endorse "winners" to spur adoption

Key Considerations

The Validator has the potential to address key innovation barriers, but requires significant financial resources and buy-in from both non-humanitarian foundations and traditional humanitarian implementers

Impact

- **Creates dedicated funding for innovation** without diverting resources from immediate humanitarian action
- External structure enables the IKB to **challenge orthodoxies and advocate for disruption**
- Establishes **new linkages** with private sector and other fields
- Circumvents internal short-termism and **takes longer-term approach to innovation**
- **Builds internal sector capacity** and talent for innovation

Feasibility

- **Low to moderate level of feasibility** and requires relationship building outside of the traditional humanitarian ecosystem to find both funders and a host research institution
- Requires **significant effort and resources** to identify and align on the structural mechanisms **to establish an external research institution that will house the IKB**
- Ability to unlock traditional donor funding over time is largely **predicated on the credibility** of the IKB

Potential Risks

- It may be **difficult to initially secure sufficient partner and research institution funding** to set up the IKB without involvement of a major private foundation (e.g., Gates or Rockefeller)
- **Without strong perceived credibility** from traditional humanitarian actors, the **Practitioner Knowledge Network could struggle to spur wider adoption**
- Relief implementers (e.g., UN agencies, NGOs) must see value in the lessons learned and knowledge created by the IKB or they **may be reluctant to allow their staff to be seconded to the Practitioner Knowledge Network**

Comparison of Alternative Models

Option Coverage of Core Barriers

Each of the three IKB models addresses different core barriers to innovation and knowledge exchange in the humanitarian sector

		Research Navigator	Solution Mobilizer	Experience-Driven Validator
		This model is a central research authority that interfaces directly with affected populations to collect robust data on their needs and the impact of interventions; it also defines the standards and metrics for the collection of this data. The IKB uses this evidence base to influence donors and inform funding priorities, thereby driving progress	*This model builds a portfolio of proven innovations and lessons learned by first pooling funding from multiple donors and creating dedicated financing for collaborative partnerships and innovations, and second, using a stage-gated process to synthesize lessons and evaluate effective ideas for additional funding at each stage*	*This model is an externally hosted, independent knowledge network that focuses on collaborations with non-traditional humanitarian actors to translate and develop innovations from other sectors, and leverages practitioner experience to evaluate them in the field to ultimately endorse successful, high-impact innovations*
	Core Barriers			
1	Short-Term Impact Orientation		✓	✓
2	Lack of Funding Resources for Innovation	✓	✓	✓
3	High Burden of Proof for Adoption	✓	✓	(✓)*
4	Lack of Standards & Metrics	✓		
5	Lack of Alignment on Major Issues	✓		

* Note: This is a secondary benefit of this model

Key Decisions to Make / Levers to Pull

Deconstructing the IKB models reveals that they can be shaped by pulling a variety of different levers or asking a series of strategic questions, with three being the most important to explore

	Lever / Strategic Questions	Potential Choices
1	What type of knowledge does the IKB seek to create and capture?	• Experiential Knowledge (e.g., practitioner experience and endorsement) • Robust data and evidence base • Portfolio of innovations/solutions
2	Does the primary source of innovation come from within or outside of the sector?	• External (i.e., from the private sector and other fields) • Internal (i.e., from within traditional humanitarian actors)
3	Who is the primary agent of change? Whose behavior would most influence the change we are seeking?	• Donors • Implementers • Researchers (internal or external to humanitarian sector) • Private Sector
	What incentive drivers exist to stimulate that change?	• Financial resources • Reputational capital
	Whose behavior will ultimately be shifted/affected by the IKB?	• Donors • Implementers • Private sector
	What level of centralization is needed to make the model work?	• Spectrum from decentralized to highly centralized
	What level of formality in the governance and operating structure is needed to make the model work?	• Spectrum from low formality (organically operated) to high formality (owner-operated)

Components of Archetypal Models

The three archetypal models below demonstrate different combinations of the strategic levers; these building blocks highlight the key differences between the ecosystem models that can be used to construct a hybrid model

Key Levers	Research Navigator	Solution Mobilizer	Experience-Driven Validator
1 Knowledge Type	Robust research evidence base	Portfolio of solutions / ideas	Experiential knowledge (e.g., practitioner experience and endorsement)
2 Internal or External	Internal to humanitarian sector	Internal to humanitarian sector	External to humanitarian sector
3 Agent of change (who)	Internal researchers Donors	Donors	External researchers Implementers
Incentive Drivers Used	Reputational capital Financial resources	Financial resources	Reputational capital
Whose behavior is changed?	Donors → Implementers	Donors → Implementers	Implementers
Level of Centralization	Highly centralized	Coalition of actors	Diffused
Level of operating and governance formality	Formal – Owner-operated	Mid-Formal – Coalition-operated	Mid-Formal – Loosely-Operated

Key Discussion Questions: Internal Working Group Model Discussion

These open questions are intended to encourage a more detailed, iterative discussion around these models

Plausibility

Are the models' stories plausible and will they resonate with the audience at the World Humanitarian Summit?

Clarity

Are the models clear and distinct? What outstanding questions remain?

Levers

Do the current models' levers make sense? Do they show enough coverage across the range of possible levers? Are these the right set of models to illustrate the possible combinations?

Feasibility

How would you alter the models to strengthen their feasibility?

Constructing a Model

(for facilitation workshop)

Key Discussion Questions: Facilitated Group Discussion

Several open questions can help facilitate discussion around these models and to help develop an ideal hybrid model that can spur innovation in the humanitarian space in preparation for the World Humanitarian Summit

1 Model Refinements

- Which model do you feel best **resonates**?
- What **adjustments** would you make to this model? Why?
- What **would have to be true** for this hybrid model to work?
- What are the key **motivating factors** to ensure all players participate?

2 Lever Verification

- What **lever options** are most important to you?
- Are there any lever options from other models that you would **borrow** in crafting your hybrid model? Why?

3 Piloting & Implementing

- How could you **best test out** a hybrid model?
- Who would you **validate** it with first?
- What **evidence** would you need to show to get buy-in?

Constructing an Alternative Model

A IKB model can be constructed by making a series of strategic choices for each lever, the first three being the most important; ***select the best option for each key lever, making sure the model is internally consistent***

Key Levers	Your Model			
				Circle selected option for each lever
1 Knowledge Type	Experiential Knowledge	Robust Evidence Base	Portfolio of Solutions	
2 Internal or External	Internal to the Sector	External to the Sector		
3 Agent of change (who)	Implementers	Donors	Researchers	Private Sector Actors
Incentive Drivers Used	Reputational Capital	Financial Resources		
Whose behavior is changed?	Implementers	Donors		
Level of Centralization	Highly Centralized	Coalition of Actors	Entirely Diffused	
Level of operating and governance formality	Formal – Owner-Operated	Mid-Formal – Coalition-Operated	Mid-Formal – Loosely-Operated	Informal – Organically-Operated

Considerations when Making Choices:

- Who are major champions for this model?
- What is the funding stream to sustain the model?
- Who is going to pay to establish the model?
- Are there enough resources – time, people, money?

IKB Model Template

*High-level summary of **how** and **why** the IKB model works*

How it Works

Key Players

- Key Player 1: Description of role
- Key Player 2: Description of role
- Key Player 3: Description of role
- …

Knowledge Creation

Description of how knowledge is created by actors in the sector and collected in the IKB's knowledge repository(ies).

Knowledge Usage

Description of how actors access and use the knowledge from the IKB.

Analogous Field Reference Point(s)

References to the fields this IKB draws upon

Incentives

- Descriptions of the incentive mechanisms that motivate actors to participate in the IKB in order to make it an effective system to stimulate innovation in the humanitarian sector.

Governance

- Descriptions of the governance structure required to run the IKB – Who will run it? How will it be funded? How will it be structured?

Appendix

Key Components of an IKB

Defining an Innovation Knowledge Base

Innovation knowledge bases[1] serve to facilitate the spread and adoption of knowledge across platforms to the wide variety of actors participating in a given sector

What is an Innovation Knowledge Base (IKB)?

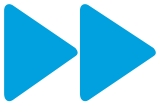
An IKB is a collection of systems, norms, and incentives designed to support the ideation, articulation, sharing, and adoption of innovation knowledge relevant to actors across a defined sector or field

- *Repository of Knowledge* – IKBs are a central "clearinghouse" for innovation knowledge, but they are **broader than a repository** that stores and provides access to a shared body of evidence
- *Methodologies & Processes* – IKBs establish a set of **processes for creating and utilizing innovation knowledge** in the defined space
- *Incentives* – IKBs create a **set of incentives to stimulate participation** in innovative processes by the various actors within a sector
- *Governance* – IKBs are **supported and influenced by a governance structure** that determines where the IKB is housed, key decision-makers, and how the other components interact to effectively stimulate innovation in the sector

Relevancy for the Humanitarian Sector

Need for Innovation Knowledge Sharing among Disparate and Diverse Stakeholders in the Humanitarian Space

Alignment on Common Standards of Validity and Burden of Proof to define "What Works"



Incentives and Lean Mechanisms to Drive Rapid Response & Adoption of Innovations in the Field

IKB Components

An IKB's components, while distinct, are mutually reinforcing and include a repository of knowledge, methodologies & processes, incentives, and governance structure

How it Works — *Why it Works*

Repository of Knowledge

- At the core of an IKB is a **centralized repository** that enables the intuitive and dynamic collection, codification, and flow of knowledge between users
- Repositories **go beyond collections of documents** and research and **include access to individuals** with relevant expertise through **trainings** and **interpersonal networking tools**

Methodologies & Processes

- An effective IKB introduces procedures to **determine what should and should not be included** in its' repositories and how relevant innovation knowledge is both created and used
- Processes include **defining metrics and standards** and **establishing clear lines of communication** between actors

Incentives

- Incentives are mechanisms that **compel actors to participate in the IKB** and at the heart of "what makes it work"
- IKBs play a role in **shaping the culture** of the ecosystem they serve by establishing a set of these incentives to **encourage and reward** both the **sharing as well as the adoption** of innovative knowledge and solutions

Governance

- The governance model of the IKB ultimately **supports and influences the way in which these three components are structured** and **how they interact with each other**
- Governance determines **where** (i.e., in which organization or institution) **the IKB is housed** and who the **key decision-makers** are that set its strategy and manage core operations

Repository of Knowledge

A robust and well-designed repository of innovation knowledge is central to highlight best practice and enable knowledge flows

Repository of Knowledge

Component Objectives

*At the core of an IKB is a **flexible platform** coupled with a comprehensive directory of interpersonal networks that enables the intuitive and dynamic collection, codification, and flow of knowledge between users*

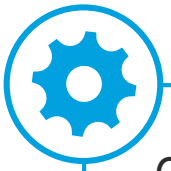
Key Attributes & Considerations

- Serves as a **central clearinghouse** for the aggregation, storage and access of knowledge and tools pertaining to innovation in the humanitarian space, including: Innovation methodologies and POVs, Metrics & data reporting, Blogs & microblogs, Wikis, etc.
- Documents and **maps "who knows what"** across the broader sector to create valuable new relationships and channel knowledge flows where they are needed most
- Facilitates **interpersonal learning** through training and knowledge advisors
- Maintains **highly adaptable, flexible, user-centric** design to respond to evolving needs over time
- Designed to **quickly, intuitively, and proactively** provide users with what they need, e.g.: Retains a powerful **search function** to provide easy access to shared knowledge and archived materials

Source: Deloitte Knowledge Management Basics, Stan Garfield, January 2014; "4 Reasons Knowledge Management Solutions Fail", Jean Pagani, Deloitte

Methodologies & Processes

A set of clear and common processes are needed to administer the creation and usage of innovation knowledge captured



Methodologies & Processes

Component Objectives

An effective IKB introduces **procedures** *to* **define standards** *and* **determine "what works"** *that are utilized by the entire community. These procedures and standards serve, in turn, to and influence the behaviors of actors across the broader space*

Key Attributes & Considerations

- **Defines the bounds** of the broader community that the IKB serves
- **Defines shared standards** of validity and establishes the threshold at which an idea, process, or methodology becomes sufficiently vetted for inclusion the IKB
- Establishes **clear communications channels** that facilitate and support conversation and collaboration between actors
- Establishes structures and processes related to the **day-to-day operations** of the IKB
- Enforces **shared standards** to ensure consistent and valid inputs and sharing of information through continual maintenance and moderation of the IKB
- **Reduces the barriers** to knowledge capture and sharing through proactive mechanisms (e.g., after action reports)

Source: Deloitte Knowledge Management Basics, Stan Garfield, January 2014; Onions, P.E.W. and de Langen, "Knowledge Management Governance," 2006

Incentives

Incentive structures are critical to promote and enforce established norms and shape a culture within the sector that embraces innovation

Incentives

Component Objectives

*IKBs serve a **clearly defined set of networks and communities** and play a role in **shaping the culture** of that community by establishing a set of incentives to **encourage and reward** both the **sharing as well as the adoption** of key ideas, solutions, and practices proven to work*

Key Attributes & Considerations

- **Shape and codify cultural norms** to make desired customs more explicit (e.g., norms around contribution, adoption, sharing, use, peer review, etc.) and foster a culture of collaboration, knowledge sharing, and innovation
- Apply **push and pull mechanisms** to promote and incentivize the adoption of innovations deemed by the community as "valid"
- Take the form of either **rewards** for exhibiting desired behaviors or **disincentives** to dissuade actors from continuing to exhibit undesirable behaviors

Governance

The governance model ultimately influences the way in which the other three components of an IKB are structured and how they interact with one other

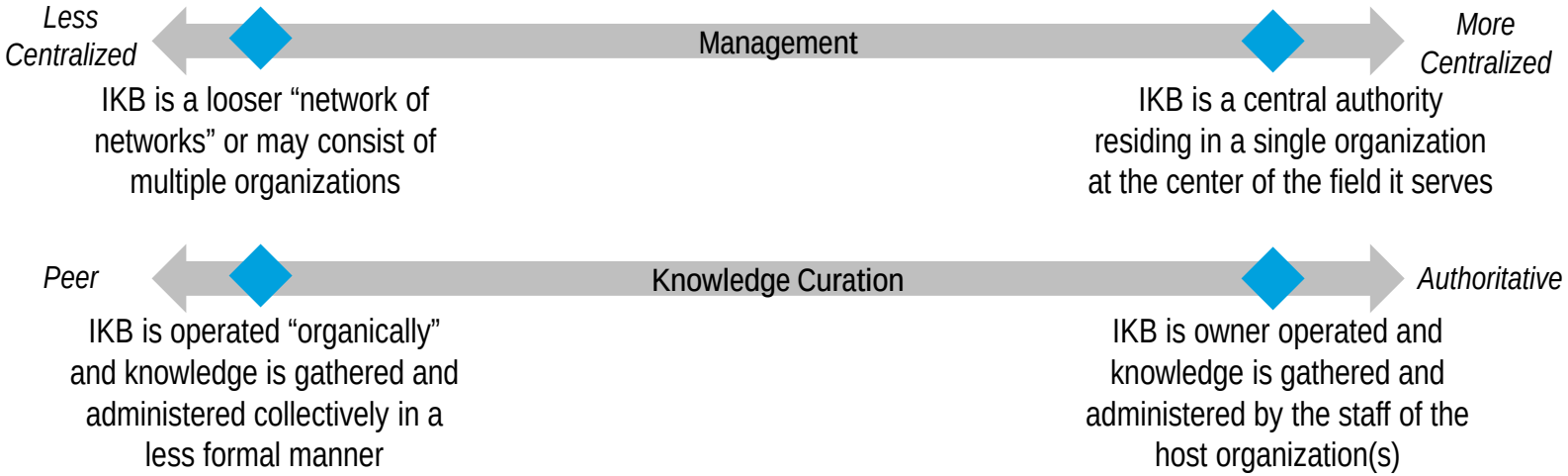
Governance

Component Objectives

Governance determines ***in which organization(s) or institution(s) the IKB resides****, who holds* ***responsibility for financing*** *the IKB,* ***defining its strategy*** *and leading it, who is responsible for knowledge curation versus network management, and what other bodies (e.g., board of directors, advisory panel, etc.) are needed to* ***oversee key functions***

Key Attributes & Considerations

IKB governance structures can vary on two key dimensions:



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Understanding the Current Humanitarian System

Key Actors in the Humanitarian Sector

The humanitarian sector is composed of several actors playing four primary roles in the larger ecosystem

Representative Examples – Not Comprehensive

Funding & Coordination

Coordinating Bodies

OCHA, IASC

Coordinate relief activities of relief agencies in conjunction with host governments

Donors

USAID, Humanitarian Aid and Civil Protection, Bill & Melinda Gates foundation, IKEA FOUNDATION

Public and private donors fund implementers, coordinating bodies, and monitoring & evaluation groups

Pool Funders

HIF, START NETWORK

Provide funding & other resources to implementers

Implementation

Relief Agencies

OXFAM, WFP, UNHCR, Save the Children, Medecins Sans Frontieres Doctors Without Borders, World Vision, mercy MALAYSIA

Provide "on the ground" humanitarian goods & services to the affected population

Suppliers

Procurement partners in provision of aid

Recipient

Host Governments

Local government requests help from relief agencies & other international entities

Affected Population

Users of humanitarian aid and often first respondents/informants

Research & Assessment

Academia

Studies and interacts with various actors in the system

Monitoring & Evaluation Groups

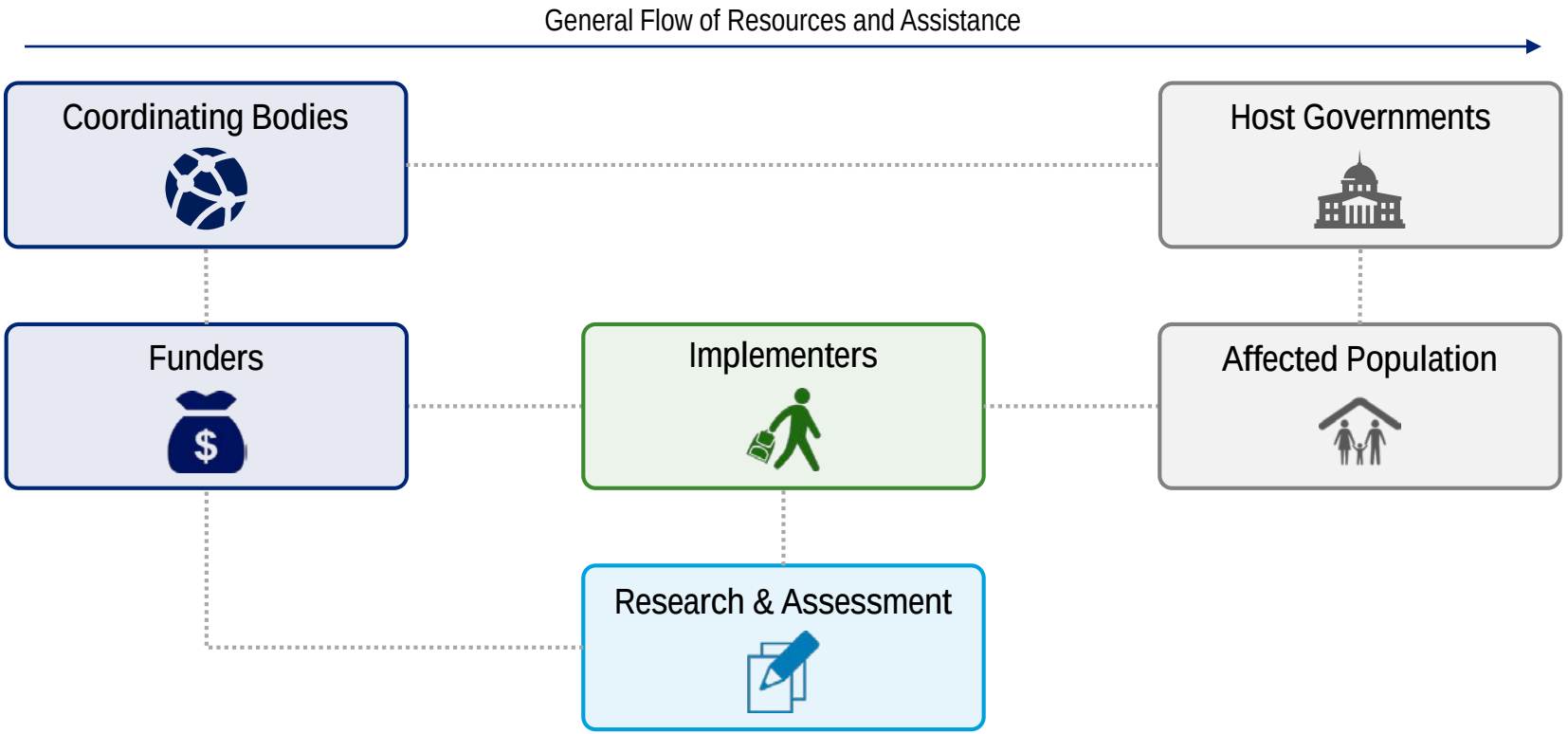
ALNAP, HAP, PEOPLE IN AID, The Sphere Project

Study & assess the performance and efficacy of actors and systems across the sector

Source: ALNAP, "State of the Humanitarian System" (2012); UN FTS; OCHA Policy Paper "Humanitarian Innovation: The State of the Art" (2014)

Interactions between Actors in the Humanitarian Sector

Despite the complexity of the dynamics between actors, a central Funder-Implementer-Recipient relationship guides how actors interact in the humanitarian sector



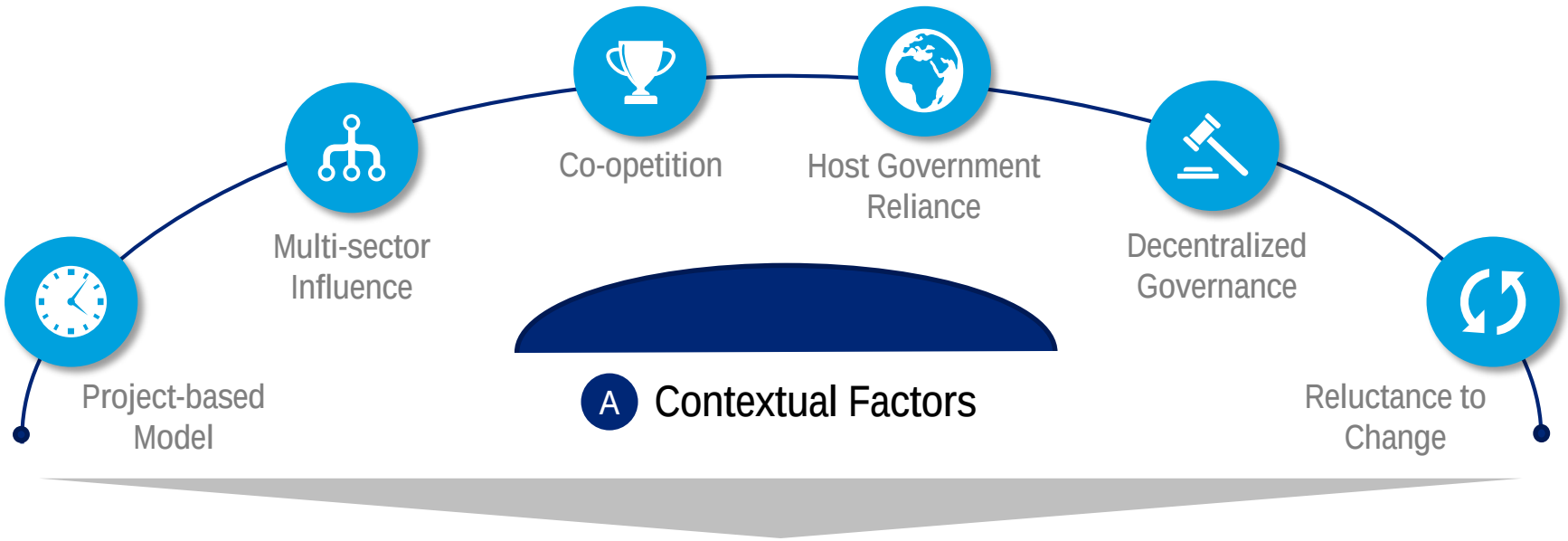
Due to the nature of the Funder-Implementer-Recipient relationship, there is **no direct consumer-facing feedback loop connecting affected populations to funders and coordinators**, resulting in information asymmetry

Source: ALNAP, "State of the Humanitarian System" (2012); UN FTS; OCHA Policy Paper "Humanitarian Innovation: The State of the Art" (2014)

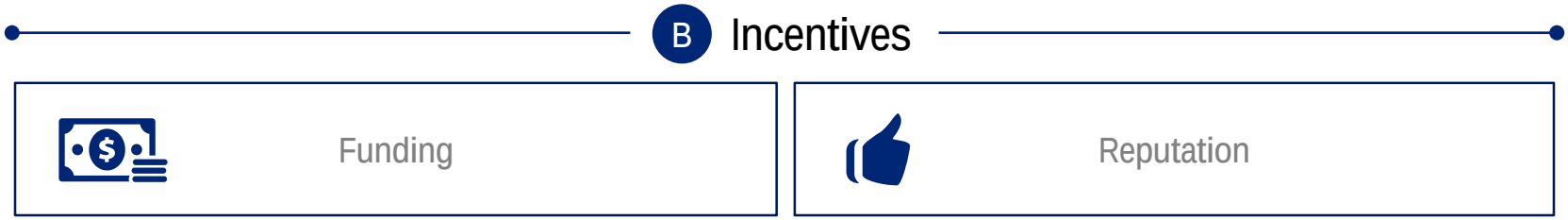
Contextual Factors and Incentives Driving Key Actors

The dynamics and linkages between actors create a set of contextual characteristics and incentivize actors to behave in certain ways with respect to innovation knowledge sharing and adoption

The unique contextual characteristics of the humanitarian sector…



…inform and influence the specific incentives that can be leveraged to stimulate innovation knowledge sharing and adoption



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Key Contextual Characteristics

Six unique contextual characteristics of the humanitarian sector shape the way that actors operate as it pertains to fostering innovation

A Contextual Factors

	Description
Project-based Model	**Intensive and reactive bursts** of activity triggered by a humanitarian event or crisis result in **highly "operations-focused" work** and short-term funding cycles
Multi-sector Influence	Though often described as a single sector, humanitarian work **draws actors from the private, public, and NGO spaces**; and utilizes many diverse fields (e.g., logistics, health) to provide an integrated response
Co-opetition	Actors are generally working towards common goals or outcomes; however, interests are not always completely aligned as actors are **often competing for limited funding resources**

	Description
Decentralized Governance	While coordinating bodies (e.g., UN OCHA; IASC) exist to delineate roles and ensure effective response, there is **no centralized entity with authority** to truly govern the entire humanitarian sector
Host Government Reliance	The ability to provide assistance is completely **dependent upon the permission** and engagement of host governments
Reluctance to Change	Actors are often **reticent to divert resources away from direct aid or "tried and true" methods** when lives are at risk; there is a perceived high opportunity cost for expenditure on innovation (i.e., incremental food, medicine, etc.)

Defining Incentives Types

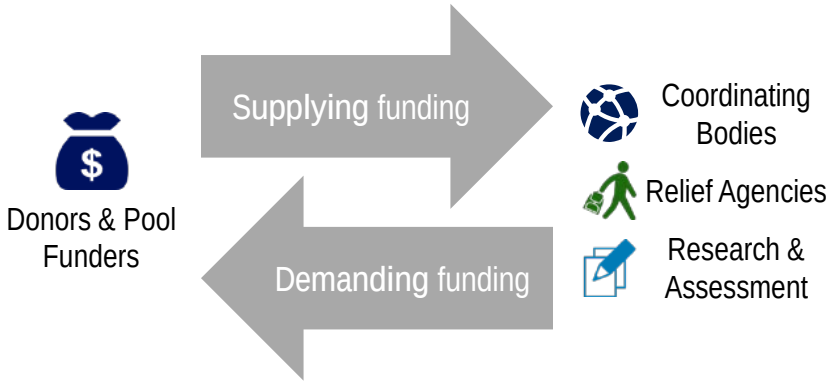
Two broad types of incentives – funding and reputation – shape actors' behaviors toward innovation

B Incentives

Funding

- As a sector not driven by profit, actors **rely on funding from donors to enable their core operations**
- As such, donors have **significant influence to shape the behaviors** and priorities of actors to align them with their strategic priorities

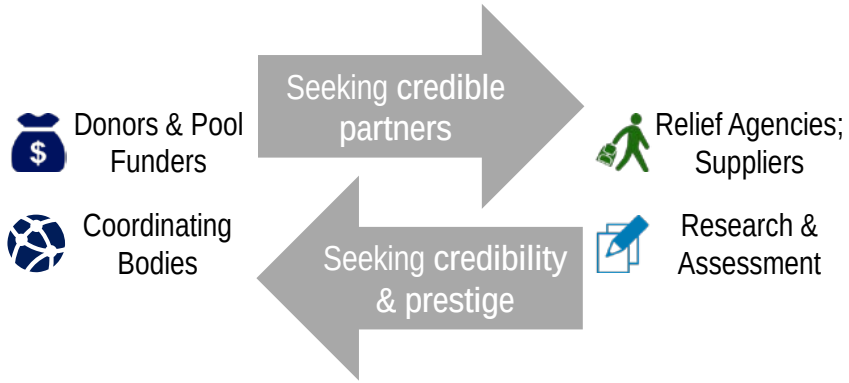
Key Actors – Push-pull mechanisms



Reputation

- Prestige in the humanitarian sector is gained from achieving **credibility and legitimacy**, which leads to more attention, focus, and ultimately funding
  - **Credibility** is attained by **highlighting key organizational successes, demonstrating impact**, being quick to act, and meeting immediate needs
  - **Legitimacy** is shaped by relationships with other actors and **recognition as an authority** in a given space

Key Actors – Push-pull mechanisms



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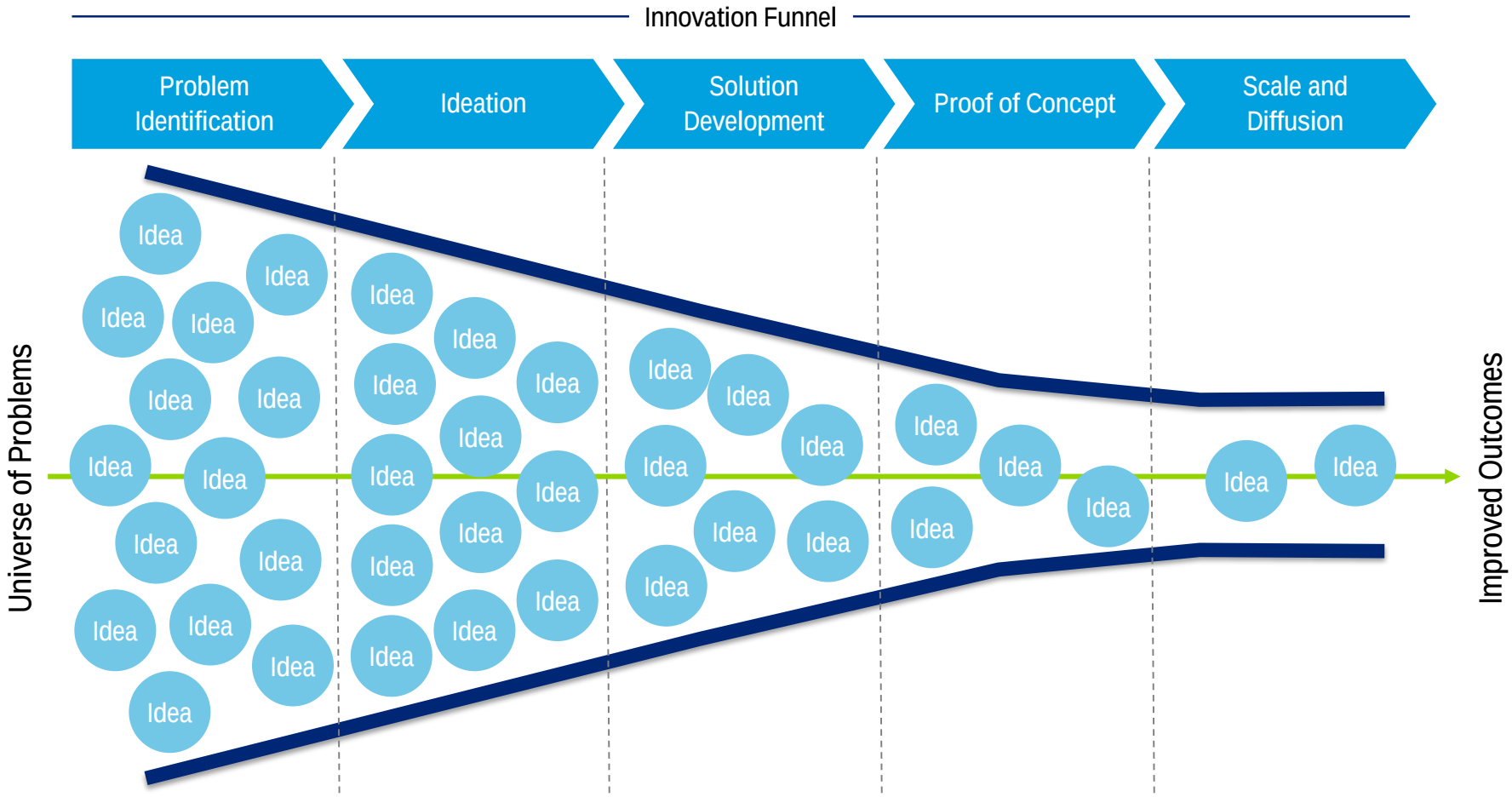
Current State Analysis through the Innovation Funnel

To understand the current state, the innovation process can be expressed as a funnel and used to identify critical pain points and challenges in taking ideas from problem identification through to scaling and diffusion



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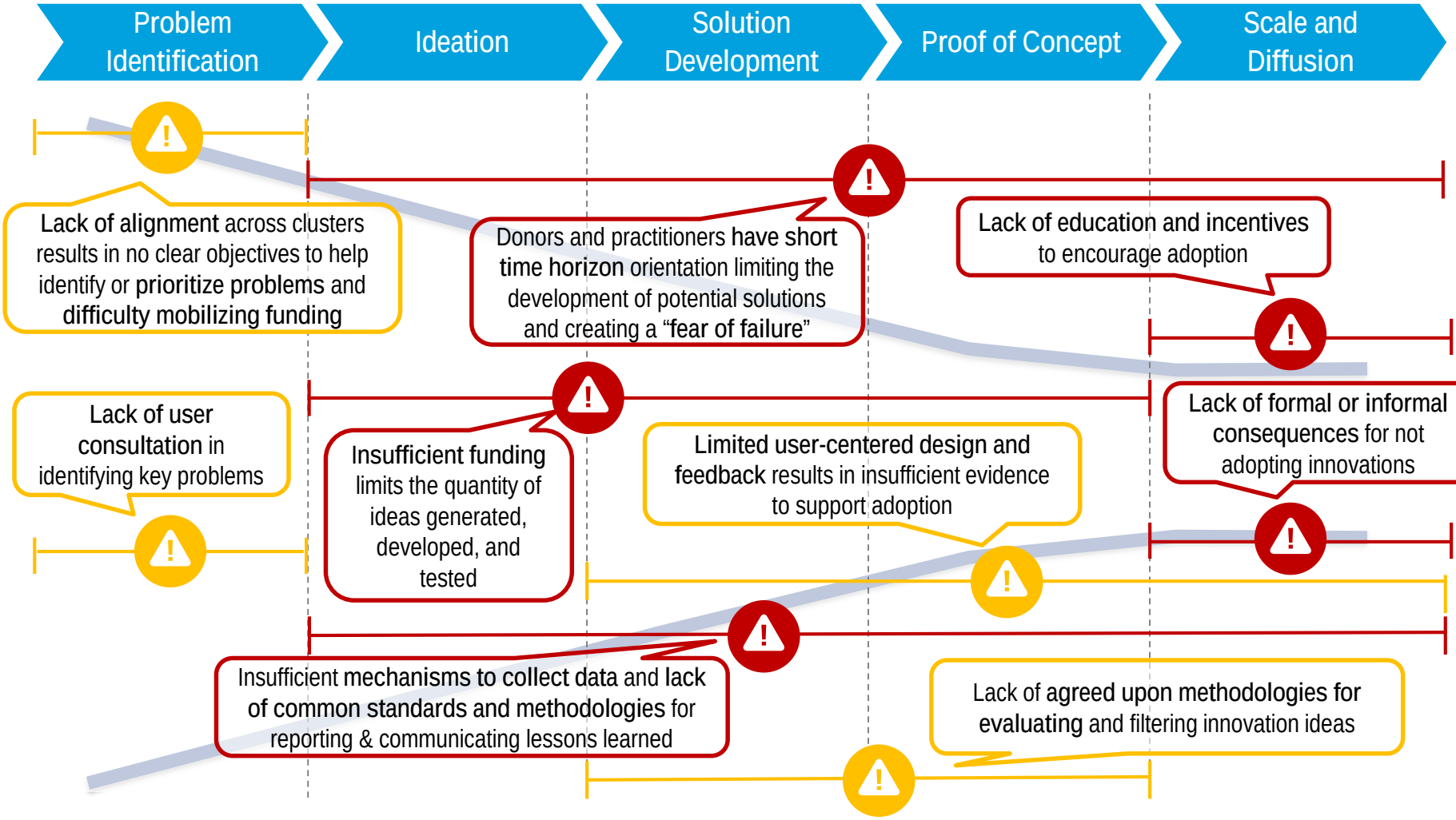
Identifying Key Issues in the Innovation Process

The context and resulting incentive structures in the sector are key drivers of several issues arising at each stage of the innovation process



Moderate Barrier *Severe Barrier*

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Core Barriers to Innovation for the Humanitarian Sector

We validated these core challenges through 30 interviews with leaders in the humanitarian sector and innovation management and distilled them into a set of five core innovation barriers that inform our tailored models

Barrier	Drivers	Implication for Innovation	Illustrative Interview Finding
Short-Term Impact Orientation	• Budgets are short-term (project or annual) and organizations evaluate and incentivize their people on similar timelines	• Donors fund specific projects rather than taking a portfolio approach to innovation • Fear of failure and a reluctance to rapidly develop and test ideas	*"A key barrier preventing effective knowledge sharing in the sector is the lack of investment in its infrastructure—you need to have a space to convene and broker ideas and connections."*
Lack of Innovation Resources	• Donors are driven to fund quick, visible wins or projects in the direct provision of aid • Bias from funders towards funding large agencies	• Lack of funding for organizational innovation capacity • Lack of talent and organizational support for innovation processes	*"The system is focused on delivery and getting things to people – there's not a huge amount of space for innovation. The way it's financed doesn't help – donors want things that are visible, that make them look good."*
High Burden of Proof for Adoption	• Weak mechanisms to share best practices and belief that issues are context-dependent • Reluctance to try unproven methods because lives are at risk	• Evidence for new practices has to be robust and communicated well to be adopted • Perverse incentives push actors away from collaboration and partnerships	*"In the humanitarian context, competition leads to inefficiency because actors don't want to lend credibility to competitors by adopting their process or methodology or innovation"*
Lack of Standards & Metrics	• High-degree of fragmentation and diverse stakeholders • No governing authority to define standards	• No standards for data collection or impact measurement • Difficult to identify/communicate challenges and compare solutions to determine what works	*"In terms of innovation – how do you define what's in vs. what's out? Its not just about what works for each innovation, its about what becomes the new minimum standard."*
No Alignment on Issues	• No agreement on the "right" set of issues to address • Diverse sub-sectors involved	• Lack of resources for later stages of the innovation process • No prioritization of systemic issues across clusters	*The knowledge base underpinning the sector is very broad – water engineers, nutritionists, logisticians, etc. The clusters all feel that their problems are unique and the most important."*

Source: Interview Findings (January-February 2015); Rush, et al. "The Eight Rs: components of the humanitarian innovation ecosystem" (June 2014)

Current Efforts to Address Innovation Barriers (1/2)

Many actors within the sector recognize these issues and are currently working to address some of them in order to facilitate the sharing and/or adoption of innovative ideas and practices

Major Barriers Faced	Selected Actors Currently Addressing Barriers									
	Harvard Humanitarian Initiative / Humanitarian Futures	ALNAP	HDX Beta	HAP / People In Aid / The Sphere Project	elrha	humanitarian innovation fund	START Network	USAID DIV	UNDP	UNHCR innovation / unicef
Short-term Impact Orientation						✓	✓	✓		
Lack of Funding Resources for Innovation						✓	✓	✓		✓
High Burden of Proof for Adoption	✓	✓		✓					✓	✓
Lack of Standards & Metrics		✓	✓	✓						
Lack of Alignment on Major Issues		✓	✓	✓	✓					

While some actors have individually moved to address some of the core innovation barriers, opportunity exists to pursue efforts in a more **holistic and coordinated manner**

Source: Actor websites; Expert interviews; Deloitte Analysis

Current Efforts to Address Innovation Barriers (2/2)

Actors in the space have made some attempts to address the core barriers, but current efforts do not effectively address the core barriers in a holistic manner to enable knowledge sharing, innovation, and adoption

Core Barrier	Example of Actors Addressing Barrier		Effectiveness to Date
Short-Term Impact Orientation	USAID FROM THE AMERICAN PEOPLE DIV	USAID's DIV program invests comparatively small amounts in a portfolio of relatively unproven concepts and continues to support only those that prove they work through a stage-gated funding process	Highly attractive model for sourcing & scaling innovations; however, the venture fund's focus is significantly broader than just the humanitarian field
Lack of Funding Resources for Innovation	HIF humanitarian innovation fund	Humanitarian Innovation Fund (HIF) offers grants for problem identification, development, and scaling of innovative solutions	Widely considered a leader in the field, but the fund is relatively small and lacks the scale to be transformative
High Burden of Proof for Adoption	UNHCR innovation unicef innovation	UNHCR and UNICEF have developed innovation labs and initiatives that are actively experimenting and piloting with new ideas on the ground	Able to test and develop innovations applicable specifically to refugees/children, but limited ability to stimulate broader adoption by other actors
Lack of Standards & Metrics	ALNAP HAP PEOPLE IN AID The Sphere Project	Multiple organizations have made efforts to issue certifications for individual practitioners and devised a set of benchmarks for quality and accountability	Highly respected in the sector; however, organizations have overlapping mandates and competing standards
Lack of Alignment on Major Issues	Harvard Humanitarian Initiative HUMANITARIAN FUTURES PROGRAMME planning from the future	Academic programs such as the Harvard Humanitarian Initiative and the Humanitarian Futures Programme (King's College) use evidence and data to determine issues to solve in the sector	Able to identify key problems within a specific situation or context, but unable to holistically identify problems across the entire sector. Some programs are highly specialized and focus on specific niches (e.g., women in conflict)

Implications for Alternate Models

Despite these efforts to spur innovative practices, key gaps persist, and point to several specific considerations when designing alternate models for innovation knowledge sharing and adoption

IKB Component	*Current State*	*Implications for Model Design*
Repositories of Knowledge	• Robust repositories generally do not span across organizational boundaries due to the competitive nature of the sector; however, some efforts are constructed at the cluster/community of practice level (e.g., WASH)	Repositories should **link actors and expertise from across organizational, cluster, and sectorial boundaries** to spur innovative thinking & collaboration
Processes & Methodologies	• Currently there are competing standards and metrics for evaluating what works and no universally adopted methodology for "stage-gating" innovations • The humanitarian sector leverages limited number of mechanisms to capture and incorporate user-feedback into innovations across all stages of the innovation funnel	There is need for a **set of metrics, standards, and processes shared by the entire sector** **User-centered design principles** can be leveraged to identify key problems and inform solution development
Incentives	• Funding incentives, as they stand today, do not always encourage innovative behavior and practices from practitioners in the humanitarian space. Funding structures are primarily short-term in nature and often tied to restrictions on usage for direct aid • Given the competitive realities of the humanitarian sector, reputational incentives lead to a lack of collaboration despite the common goals of many actors	**Financial incentives to circumvent the sector's bias towards short-termism** coupled **with incentives to boost both individual and organizational reputations** would help address some impediments to innovation and collaboration
Governance	• No clear body currently "governs" the humanitarian sector, and no single actor maintains the legitimate authority to enforce the adoption of proven innovations	It is necessary for an IKB to secure **legitimacy and credibility in the eyes of the broader humanitarian sector** in order to catalyze behavior change

Source: Expert interviews; Deloitte Analysis

Case Study Overviews

Methodology

We selected and prioritized sectors based on their relevance to humanitarian relief, effectiveness of IKBs, and the prevalence of innovation

Primary Factors

1 Relevance to Humanitarian Relief

Does the sector share similar core characteristics with the humanitarian sector and/or does it face similar constraints and challenges?

Guiding Questions:

- Is the sector highly reactive and/or event-driven?
- Is it composed of diverse disciplines and actors from the public, private, and social sectors?
- Is the sector influenced by traditional market-based incentives and dynamics?

2 Strength of Innovations

Is the sector regarded as highly innovative and adaptive?

Guiding Questions:

- Is the sector known for being innovative or status quo oriented in general?
- Are there examples of frequent or successful innovation adoption?
- Is innovation or R&D a core component of the sector?

3 Strength of Innovation Ecosystem

Does the sector have effective approaches and/or recognizable methods for incorporating and disseminating innovative practices?

Guiding Questions:

- Are structures in place to promote the dissemination of innovation?
- Are critical components of an IKB in place, including knowledge repositories, processes and methodologies, incentives, and governance?

Additional Considerations

- Stakeholder Diversity: Is the set of case studies balanced in terms of representation from the private, social, and public sectors?
- Data Availability: Is it feasible to glean insights from the sector based on open source data and expert interviews?
- Ability to Measure Outcomes: Is it feasible to effectively assess the impact of innovation or R&D in this sector?

Case Studies to Inform Innovation Knowledge Base Models

To get a sense of the range of IKB options from which the humanitarian sector might draw, we conducted research on five analogous sectors

Sector	Sector Definition	Relevance to Humanitarian	Strength of Innovations	Strength of Innovation Ecosystem
Military and Defense 	Those charged with defending states and their citizens and supporting the prosecution of war. This includes armed forces, civilian oversight agencies, and companies/research institutions developing and delivering military solutions and technology.	High	High	Medium
Construction 	The organizations and individuals involved in the planning and development of new buildings and other types of infrastructure. For our purposes, this includes architects, engineers, contractors, construction companies, and suppliers.	High	Low	Low
Healthcare 	The stakeholders involved in the delivery of medical services and the development and regulation of new medical procedures and solutions (other than pharmaceuticals). Key players include health care providers, medical schools, regulatory agencies, and professional associations.	High	High	High
Academia – Engineering 	The stakeholders involved in academic research and teaching of engineering sciences, including universities and their staff and students, government bodies and funders, and industry end users.	Low	High	Medium
Technology – Software 	The organizations and individuals involved in the technology sector focused on Internet-based and software solutions including games and mobile applications—narrowed to organizations that offer technology as a service rather than using technology to enable other functions.	Low	High	High

Sector Snapshots

Each of the analogous sectors examined takes a slightly different approach to an IKB based on its specific challenges and contextual characteristics

Military and Defense

The military IKB is characterized by its **focus on collecting and integrating lessons and experience from practitioners**.

- Relies on a strong centralized governing bodies process to source and disseminate innovations
- Utilizes rigorous training institutions, systems, and doctrine to disseminate innovations and new practices

Construction

The construction IKB is characterized by a **fragmented network** of small players who **individually collect and disseminate new insights** within their own organizations.

- Demonstrates success in spreading standards across the industry via the ISO's construction guidelines
- Professional associations yield mixed results

Healthcare

The healthcare IKB **prioritizes research and evidence-based decision making**.

- A strong central coordinating body – the World Health Organization – convenes national and subnational actors to align around common goals, fund high-priority challenges, and share knowledge
- Benefits from strong publicity and high levels of funding for R&D and innovation

Academia – Engineering

The engineering academia IKB is **oriented around researchers** and publications to share innovations and knowledge.

- Government funding and academic-industry partnerships play a key role in driving innovation and research
- Peer-review and publication processes help promote sharing of knowledge throughout the sector

Technology – Software

The Internet and software-based technology sector is characterized by its **lack of a formal IKB** and **focus on scaling specific solutions**.

- Near-instant market feedback loops help drive innovation in the sector
- Angel investors and venture capital (VC) firms provide funding and advice throughout the innovation lifecycle

Military and Defense Snapshot: IKB Overview and Key Players (1/3)

IKB Overview

The military's IKB is characterized by its focus on **collecting and integrating "Lessons Learned."** After every mission there is a debrief (After Action Review) on what worked well and what could have been improved. The findings from these discussions are written up and aggregated by staff. **Fully dedicated staff are also embedded in operational units to facilitate additional collection of lessons and insights.** Collectively and independently discovered findings are **codified in new doctrine that is disseminated through training to new recruits and those in the field**. The knowledge is stored across a variety of online repositories, but practically speaking it is disseminated through **formal training**, as well as ongoing education programs for officers. Promotion is **not tied to success at finding and disseminating knowledge and innovations**, but soldiers must spend a fair amount of time thinking and discussing these topics, and they all have **strong personal incentives to learn and adopt lessons.**

Key Players

- Governing **bodies control the flow of resources dedicated to innovation** activities and establish all **organizational doctrines**
- Contributors of innovation knowledge help set the innovation agenda **by injecting new ideas** into the leadership of governing bodies
- **End users of innovation knowledge often have limited interaction with formal contributors of innovation knowledge**

Representative Examples – Not Exhaustive

Governing Bodies

Contributors of Innovation Knowledge

End Users of Innovation Knowledge

Knowledge Managers

Sources: "Balanced Innovation Management", Acquisition Review Journal, February 2007; An Army Organizational Culture of Innovation: A Strategic Imperative for Transformation, US Army War College, 2006

Note: This case focuses on the US military for two reasons: 1) more data was publicly available on US military innovation practices and 2) many regard the US as a leading example and have used it as a model for their own militaries.

Military and Defense Snapshot: Sector Context (2/3)

Military and defense stakeholders operate in a unique environment that is strongly influenced by several contextual factors that impact the sector's IKB

Key Contextual Factors

- The sector operates in an intensely **high-pressure environment** where **lives are consistently at stake**
- The sector brings together experts from **a diversity of disciplines** who must **quickly mobilize** and work together on an **operation by operation basis**
- The sector often experiences **intense swings in resource availability, capability, and urgency** between **wartime and peacetime**
- The sector is characterized by its **conformist culture** and practices that encourage **uniformity and strict standards**
- Individuals in the sector are **highly trained professionals** who have undergone **rigorous preparation** for a variety of assignments and deployments
- There are often **intense organizational and bureaucratic stovepipes** in the sector that **inhibit collaboration**

Military and Defense Snapshot: IKB Components (3/3)

The IKB is characterized by various knowledge repositories, institutionalized processes, incentives that emphasize training but deemphasize risk-taking, and strong centralized governance mechanisms

Repositories of Knowledge

- The defense sector has **many "centralized" digital platforms** for knowledge sharing rather than a single knowledge repository, and these platforms are often **restricted to individual services or smaller sub-groups**, such as Army Knowledge Online, Defense Acquisition Portal, Defense Technical Information Center, etc.
- Several **Communities of Practice established online presences**/wikis to share knowledge (i.e. CompanyCommand, PlatoonLeader); these networks are now part of **Battle Command Knowledge System**, which provides a range of forums

Methodologies & Processes

- The **"Lessons Learned" culture** has led to a network of structures dedicated to collecting and disseminating insights to and from the battlefield. For example, 200 analysts at **the Center for Army Lessons Learned** focus exclusively on this
- These insights are incorporated into the field through training and exercises via the military's formal Professional Military Education system, which includes an extensive network of war colleges and institutions

Incentives

- In wartime, **the desire to protect lives is a strong incentive** for rapid knowledge sharing and innovation but this level of **urgency and associated resource investments can dissipate in peacetime**
- The military places a **premium on continuous education** and provides significant **training and incentives** (i.e. **educational benefits**) to soldiers to encourage organizational learning. However, the performance evaluation and promotion system used in the US military disincentivizes innovation and risk-taking. **The Officer Evaluation System favors short-term success**, and the promotion system **prioritizes time-in-service over merit and performance**

Governance

- Formal, **codified doctrine governs organizational, unit, and individual behavior** and decision-making and is **updated regularly** to reflect changes in the operating environment and organizational learning
- Military governing bodies **set standards** for other actors in the community (i.e. develop requirements for defense contractors and research laboratories) and clearly define acceptance criteria (i.e. "military-grade")
- **Proactive efforts to capture learning** across the organization (i.e. After Action Reviews) provide a structure for contributing and disseminating knowledge

Sources: An Army Organizational Culture of Innovation: A Strategic Imperative for Transformation, US Army War College, 2006, Company Command: Unleashing the Power of the Army Profession, 2005

Construction Snapshot: IKB Overview and Key Players (1/3)

IKB Overview

The construction sector IKB is characterized *not* by centralized processes, platforms, or organizations that facilitate knowledge sharing but rather a **fragmented network of small players who individually collect and disseminate new insights within their own organizations**. Generally speaking, the culture in the sector favors **hoarding of information over sharing**, due to **concerns about intellectual property and fierce competition**. The sector has **a number of professional associations** that help overcome challenges related to information sharing and innovation, but their influence is limited. **Coordinating bodies such as the International Standardization Organization help define standards** for construction firms to aspire to and adopt, but they **lack enforcement authority** and depend on endorsement by member organizations.

Key Players

- The sector is characterized by a **vast number of fragmented players**, especially the SMEs that make up the majority of innovation end users
- The ISO sets out **guidelines for international construction standards**, and there are a number of national organizations that perform similar functions, like the US Green Building Council, but these organizations **use a certification approach (i.e. LEED certified) to incentivize compliance rather than strict enforcement of standards for** end users of innovation and contributors of innovation knowledge
- The sector has a **number of strong professional associations and advocacy groups** but efforts by these groups to instill innovation in the sector overall have yielded **mixed results as many end users do not partake in innovation activities**

Representative Examples – Not Exhaustive

Governing Bodies

Construction Industry Council

U.S. Green Building Council LEED USGBC

ISO International Organization for Standardization

BBA Approval Inspection Testing Certification – Technical Approvals for Construction

Contributors of Innovation Knowledge

Global Construction Perspectives

Oxford Economics

Turner Prize 2013

CIOB The Chartered Institute of Building

Construction Innovation Forum

End Users of Innovation Knowledge

Bechtel

ACS

CSCEC China State Construction Engineering Corporation

Fluor

Thousands of SMEs

Knowledge Managers

Construction Innovation Forum

CII Construction Industry Institute®

Constructing Excellence in the built environment

Sources: Knowledge Management in Construction, Edited by Chimay J. Anumba, Charles O. Egbu, and Patricia M. Carrillo, 2005; Construction Industry Institute 2013 Annual Report; www.cic.org/uk; The World's Biggest Construction Companies, The Economist, October 2012

Construction Snapshot: Sector Context (2/3)

The construction sector is under intense pressure to expand, collaborate, and do more with less but has made limited investments in innovation-specific activities

Key Contextual Factors

Experiencing **rapid increase in global demand**, fueled by urbanization, demographic changes, massive public investments in infrastructure, and economic development – the global construction market is expected to increase in size by 4.3% **annually between now and 2025**, shooting from $8.66 trillion in 2012 to $15.03 trillion by 2025

Brings together experts from a **diversity of disciplines** who are forced to collaborate on an **ad hoc, project by project basis and then quickly disband**

Highly fragmented – the largest global players in architecture, for example, earn **less than 1% of total revenues**

Characterized by **increasing competition** (especially on price) **and pressure to lower costs and achieve efficiency gains**, which discourages risk-taking and spending on innovation

Under pressure to develop more **sustainable, "green" eco-friendly buildings and infrastructure solutions** and to adopt similarly sustainable construction approaches and methods

Generally low levels of interest and investment in R&D and other innovation-specific activities

Source: IBIS World Industry Report, Global Architectural Services, January 2015

Construction Snapshot: IKB Components (3/3)

The IKB is characterized by diverse knowledge repositories and networks, a lack of standard processes, anti-collaborative incentive structures and cultures, and loose coordinating bodies that do not have clear enforcement mechanisms

Repositories of Knowledge

- The sector has **multiple professional associations** that house **repositories of best practices** and industry information, such as the Chartered Institute of Building and the Construction Industry Institute
- **Communities of Practice**, such as the Construction Best Practice Programme and the Construction Productivity Network are also a commonly employed information exchange platform

Methodologies & Processes

- The sector **does not have defined or centralized processes** or approaches to information sharing and collaboration activities
- These are often created on an ad hoc basis by the players involved in particular projects

Incentives

- The **individual incentives to share knowledge are weak** in the construction industry, due to **non-collaborative organizational cultures and concerns about intellectual property and proprietary information**
- Moreover, the **procurement and contracting mechanisms** most commonly employed by the fragmented industry **favor short-term collaboration** at the expense of longer-term learning – often a single large project (~$30 million) will have **upwards of 50 sub-contractors working on it**

Governance

- There are **standards and requirements governing who may enter the sector**, although the barriers to entry differ based on profession (engineers vs. architects vs. contractors, for example)
- Often **clients end up driving acceptance standards** by selecting firms with the requisite qualifications/experience
- There are also **coordinating bodies who set global construction standards** (i.e. International Organization for Standardization, Green Building Council) but **these are guidelines and are not mandatory**

Sources: Department for Business Innovation and Skills, UK Construction: An Economic Analysis of the Sector, July 2013; Knowledge Management in Construction, Edited by Chimay Anumba, Charles Egbu, and Patricia Carrillo, 2005

Healthcare Snapshot: IKB Overview and Key Players (1/3)

IKB Overview

The healthcare IKB is characterized by a **strong central coordinating body** – the World Health Organization – that can convene national and subnational actors to **align around common goals, dedicate funding to high-priority challenges, and share knowledge**. Organizations like the Global Fund and Uniting to Combat Neglected Tropical Diseases (NTDs) are examples of other coordinating bodies driving innovation and knowledge sharing around specific issues and challenges. The sector benefits from **a generally collaborative culture** due to its **altruistic purpose and the profit and prestige motivations** associated with developing successful cures and medical practices. At the practitioner level, **professional certifications help drive adoption of innovations** and best practices by **required trainings and compliance with established guidelines**. Due to the prescriptive nature of many treatments, centralized databases, such as the US National Guidelines Clearinghouse, are able to **store and share knowledge effectively throughout the field**, leading to practices such as evidence based medicine.

Key Players

- International and national governing bodies **share best practices and innovative solutions to fight global health crises**
- Governing bodies **partner with private sector** providers to increase adoption of innovative health measures in developing world contexts (via organizations such as the Global Alliance for Vaccines and Immunizations (GAVI)
- New practices are **peer reviewed and verified by governing bodies** before they are considered valid, resulting in robust knowledge creation and enabling curation by knowledge managers

Representative Examples – Not Exhaustive

Governing Bodies

World Health Organization

CDC

ihp+

The Global Fund

Contributors of Innovation Knowledge

Medecins Sans Frontieres / Doctors Without Borders

National Institutes of Health

AMA

The World Bank

End Users of Innovation Knowledge

Gavi The Vaccine Alliance

Mayo Clinic

Bill & Melinda Gates Foundation

WebMD

Knowledge Managers

AHRQ Advancing Excellence in Health Care

NHS Institute for Innovation and Improvement

CDC

Sources: World Health Organization website , Pharma.org, U.S. Department of Health and Human Services website, World Bank website , 2015 Annual Gates Letter, Innovation Countdown 2030 website

Healthcare Snapshot: Sector Context (2/3)

The healthcare sector faces critical life-and-death challenges and has significant resources available, while strong governing bodies help direct these resources to high-profile challenges

Key Contextual Factors

- **A highly professional field** with dedicated schools, standards, and regulators that govern practitioner behavior
- **Healthcare is universally applicable** – health risks and impacts are not limited to developing country contexts, which help fundraising and awareness
- **Massive levels of public spending** – all national governments have dedicated budgets for healthcare and health-related issues
- **High costs for research, innovation, and knowledge sharing** that cannot feasibly be covered by end recipients alone
- **An innately research-oriented field** that has been built on experimentation and innovation since its inception – the earliest doctors were researchers by training
- **The sector is heavily regulated** – governing bodies play a strong role and sometimes have enforcement authority and are responsible for licensing practitioners and validating and certifying innovations

Source: Council on Foreign Relations: Backgrounders—the World Health Organization , NIH Office of Technology Transfer –Videx Case Study, U.S. Department of Health and Human Services website,

Healthcare Snapshot: IKB Components (3/3)

The healthcare IKB is highly formalized, with centralized knowledge repositories, long-standing methodologies for validating and disseminating best practices and innovations, and strong national and international governing and coordinating bodies

Repositories of Knowledge

- Numerous **official knowledge repositories** exist to transmit innovative treatments and processes including WHO databases, the **National Guideline Clearinghouse**, specialty manuals such as the DSMV V, etc.
- Knowledge management organizations are often **well-funded and staffed** and can be both independent or within either governing or research institutions (e.g. Center for Disease Control, National Institutes of Health)
- Conferences and professional associations are **flexible and user-centric ways to share knowledge**

Methodologies & Processes

- The IKB encourages knowledge sharing by **requiring public clinical trials** and **practitioner certifications**
- **Professional associations** help ensure that practitioners are using the most up-to-date best practices by offering and requiring training
- **Pooled funding** bodies such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria coordinate among large public and private donors to address critical challenges
- **High-profile, authoritative** central bodies like the WHO release guidelines and strategies for tackling common challenges that help coordinate the sector's diverse set of funders and implementers

Incentives

- The IKB has the ability to shape the culture of knowledge sharing both by **pull mechanisms** (Gates Foundation, Global Fund, prizes), **push mechanisms** (public and private funding for R&D), and **enforcement mechanisms** (compliance regulations, licensing requirements, national policy)
- **Reputation** plays a large role, giving governing bodies the required credibility and authority and providing incentives to create, share, and adopt innovative knowledge and practices
- **Financial/profit motives** as well as altruistic concerns for patient well-being drive implementers to abide by new standards and best practices

Governance

- **Single predominant governing body in the World Health Organization** – it has UN authority to draft binding agreements to which signatories must abide in theory, however it has no enforcement mechanisms
- International and national **governing bodies collaborate to set standards** and coordinate responses to threats
- **National priorities vary** leading to some challenges to be neglected; coordinating bodies such as Uniting to Combat NTDs for in response to ensure innovation funding is available

Source: World Health Organization Constitution (Article 2), Council on Foreign Relations: Backgrounders—the World Health Organization , Uniting to Combat Neglected Tropical Diseases website

Academia – Engineering Snapshot: IKB Overview and Key Players (1/3)

IKB Overview

The engineering academia IKB is characterized by a **large number of independent players pursuing diverse agendas** with **government funding playing a key role in driving innovation**. Knowledge sharing is embedded in the scientific process where **innovations are peer reviewed** and in the **academic tenure system** where publishing is a critical requirement. **Grant funding** – by government organizations such as the US National Science Foundation (NSF) – incentivizes knowledge creation and sharing and is driven by strategic concerns such as national economic competitiveness. **Academic-industry partnerships also play a key role** , helping inject market forces into the research process and accelerating the movement of ideas through the innovation funnel. **Structured partnerships such as those in NSF Engineering Research Centers**, create space for cross-sector interactions that help increase the quantity and quality of new engineering innovations. **Patents, scientific journals, and academic conferences** are the primary mechanisms to transmit knowledge from innovators back to the broader sector.

Key Players

- The sector is characterized by a **large number of independent players**, including thousands of research universities and numerous knowledge repositories, as well as thousands of industrial firms
- **Government institutions** play key roles in this sector by **providing funding** for general categories of research through grants and sponsoring programs to bring industry and academic research together (i.e. National Science Foundation Engineering Research Centers)
- **Accreditation agencies** ensure that research universities follow agreed-upon standards but individual researchers are largely independent
- **Patent offices** record and validate innovations, **incentivizing** R&D, and connecting industry and research organizations

Representative Examples – Not Exhaustive

Governing Bodies

National Science Foundation
GEDC
ICSU
European Network for Accreditation of Engineering Education

Contributors of Innovation Knowledge

EPSRC
MRSEC
Johns Hopkins University
Massachusetts Institute of Technology

End Users of Innovation Knowledge

National Academy of Engineering
German Center for Research & Innovation New York
DARPA
Boston Dynamics
Thousands of Industrial Firms

Knowledge Managers

ELSEVIER
WIPO World Intellectual Property Organization
European Patent Office
ScienceDirect

Sources: US National Science Foundation, Forbes, Eslevier, European Commission, Financial Times, UC Berkley, European Network for Accreditation of Engineering Education

Academia – Engineering Snapshot: Sector Context (2/3)

The academic engineering IKB is unique in that it is dedicated almost exclusively to innovation, and thus has strong cultural components that support the creation and sharing of knowledge, including dedicated research professionals and R&D funding, and professional incentives to innovate

Key Contextual Factors

- **Dedicated research professionals** – many professionals are strictly researchers and not professional engineers, which allows for a high degree of specialization
- **Stable financial environment** due to high levels of government funding – the US government provided 60% of academic R&D funding in 2012 ($40 billon)
- **Increasing focus** on R&D by universities – the top 100 US universities increased R&D spending from $45 billion to $62 billion between 2005 and 2012
- Focus on **early-stage R&D** – academia is the largest contributor to basic research and expends less effort (and funds) on later stage research
- Secure employment – **the tenure track** aligns long term personal career goals with a single university and allows researchers to dedicate sufficient time to projects
- **Low time pressure** environment – innovation research can take years and suffer many failures with few consequences

Sources: US National Science Foundation—Science and Engineering Indicators 2014

Academia – Engineering Snapshot: IKB Components (3/3)

The academic engineering IKB relies on the scientific method embraced by the community as a whole to validate research, and peer review processes are a critical part of innovation and knowledge sharing within the academic community

Repositories of Knowledge

- The sector relies on the **scientific method and peer review** processes and has **numerous academic journals** to publish studies
- Many **formal and informal networks** (such as conferences and associations) connect researchers and facilitate the transfer of knowledge
- New **crowdsourced** platforms, such as Curio, are being developed to incorporate additional participants into the R&D process

Methodologies & Processes

- **Peer review** validation encourages a climate of knowledge capture and sharing
- Researchers must **compete for grant funding**, incentivizing publication and knowledge sharing as grant results are often published
- Partnerships such as **corporate sponsorships** provide funding sources as well as opportunities to incorporate market forces and outside expertise into the R&D process
- **Intellectual Property rights**—allow producers of innovation (including industry, academic institutions, and researchers themselves) to capture the financial benefits

Incentives

- **Prestige is** a strong motivator because tenure and salary are tied to perceived expertise and publication record
- The **tenure system** requires that researchers pursue innovative ideas and publish papers—closely tying innovation to personal career ambitions
- **Profit incentives** motivate industry to partner with academia to pursue R&D, and likewise motivate universities to focus on generating intellectual property from research

Governance

- **Diffused governance** – universities are largely independent from each other and define and pursue their own research agendas
- The individual researchers themselves also generally have a large amount of **autonomy**
- **Accreditation bodies** set baseline standards, but they are not strictly enforced – the loss of accreditation is rare
- Other key centralized bodies include government funding providers (i.e. National Science Foundation) but they do **not aim to control research agendas**

Sources: Eslevier, US National Science Foundation, International Council for Science, European Commission CREST, Harvard School of Engineering—Crowdsourcing Science

Technology – Software Snapshot: IKB Overview and Key Players (1/3)

IKB Overview

The Internet and software-based technology sector is characterized by its **lack of a formal IKB**. Nearly instant market feedback loops help drive innovation in the sector with **angel investors and venture capital** (VC) **firms** providing funding throughout the innovation lifecycle. **Profit incentives are the main drivers** in this sector with private firms competing to provide, and to shape, what the market demands. **Large central purchasers**, such as national governments or militaries, **provide pull mechanisms** for innovation that often later lead to commercial applications. **Partnerships** across firms, between firms and academia, and with VC funders also help accelerate the innovation lifecycle. Knowledge sharing is done through **marketing and industry tech magazines and websites**. Conferences such as South by Southwest provide venues to pilot innovations and receive feedback in preparation for wide scale adoption.

Key Players

- Independent companies creating innovations and releasing them directly to the marketplace benefit from **instant feedback loops** via sales information and customer interactions that help refine innovations
- **Government** plays a key role in sourcing innovation by **acting as an initial funder**, taking on risk for innovations that later have broader commercial applications
- **Venture capital firms** use personal networks as well as **technology conferences** to source deals, providing funding and expertise to innovators and encouraging fast failures/"failing forward" by dropping unsuccessful companies from their portfolios

Representative Examples – Not Exhaustive

Governing Bodies

HTML
ALLSEEN ALLIANCE
open source initiative
GSM

Contributors of Innovation Knowledge

Microsoft Open Technologies
THE LINUX FOUNDATION
STANFORD TECHNOLOGY VENTURES PROGRAM

End Users of Innovation Knowledge

DEPARTMENT OF DEFENSE
NATIONAL VENTURE CAPITAL ASSOCIATION
Millions of Consumers

Knowledge Managers

SXSW
AllJoyn
VB
International CES

Deloitte.

Technology – Software Snapshot: Sector Context (2/3)

The sector is driven by profit incentives and intense competition – rapid customer feedback, strong private investment, and a lack of governing bodies distinguish technology from other sectors examined

Key Contextual Factors

Rapid innovation timelines – disruptive changes to the technology sector are the norm, not the exception; dismantling of larger dominant players forces constant change

Commercial/profit focus –while initially funded and directed by government, the sector is now almost entirely market-driven, leading to a large amount of disruption from new entrants and start ups

High levels of private investment (including ~60% of all VC funding) helps provide resources for innovation

The sector has a large number of big and small players that both compete and collaborate – **coopetition** is commonplace

Limited number of standard platforms (such as Windows and Mac operating systems and application marketplaces) allows for a multitude of individual innovations

Low pressure environment in terms of life-or-death outcomes but high pressure and competitive nature fosters innovation

Technology – Software Snapshot: IKB Components (3/3)

Technology represents a highly diffused IKB, relying on market forces and expert investors to identify innovations and help bring them to market

Repositories of Knowledge

- The Internet itself serves as a **main knowledge repository**, particularly around issues such as interoperability and standards, while numerous tech trade journals keep on top of new innovations
- **Conferences** (such as South x Southwest, Consumer Electronics Show) are a key launching platform for new innovations and deliver signals about what is popular/what works back to innovators
- Innovation is often based on trade secrets, so **news about failures is limited** unless it concerns high-profile failures and/or product launch flops

Methodologies & Processes

- The sector lacks **standardized and enforceable** methodologies for collecting and sharing data
- **The market validates what works** – if an innovation does not work, it will not sell and achieve scale
- Investors such as **venture capital firms** are both a key source of funding and a driving force to help identify and escort early-stage ideas through the innovation funnel
- **Entrepreneurs In Residence** help venture capital funders source and evaluate innovations for investment

Incentives

- **Profit** is the primary incentive for innovation in the technology sector; it is often connected to end users (as in the case of direct software sales) but also disintermediated (as in the case of Facebook or other platforms profiting from sales enabled, but not created, by their systems)
- **Government funding** for basic R&D as well as government-specific products (around defense, e.g.) provide building blocks for **commercial adoption of innovations**
- **Altruism and core principles** such as dedication to openness are also incentives in this sector – open source platforms like Linux have enabled numerous innovations and lowered the barriers to entry for new players

Governance

- **Highly informal and diffused governance** – there are some bodies that focus on standards (i.e. the European Telecommunications Standards Institute developing the Global System for Mobile Communications), but **the industry is largely self-governing**, with the market driving standards (elevating the most popular platforms to become the standard)
- **Interoperability** is a key principle that guides the sector and promotes innovation
- **Government and academic funding** and R&D still help steer demand for innovations – cybersecurity software, for example, has national security and commercial applications

Sources: South by Southwest, CES, GSM, European Telecommunications Standards Institute, GSMhistory.com

Micro-Case Studies

Micro-Case Study Summary by Model

The tailored IKB models drew from several examples from the analogous sector "micro-case studies", detailed in the following slides, that provided evidence and support from other contexts

	Models	Micro-Case Studies	Relevant Reference
1	Research Navigator	Healthcare – *World Health Organization (WHO)*	Sets norms and standards, monitors implementation and needs, and uses this evidence to shape the broader sector agenda.
		Construction – *International Organization for Standardization (ISO)*	Sets standards across the sector, which are used compare actors and create a market signal to distinguish qualified providers.
2	Solution Mobilizer	Healthcare – *Global Fund to Fight AIDS, Tuberculosis and Malaria*	An independent body funded by public & private donors that leverages a performance-based funding model tying continued funding to health outcomes of solutions.
		Technology – *Venture Capital*	Venture capital firms use a rigorous stage-gated process to determine continued support and often leverage "Entrepreneurs in Residence" to assist the core team in critical funding decisions
		Healthcare – *World Health Organization (WHO)*	Operates a Global Health Observatory which uses collected data to publish reports highlighting key health trends and indicators.
3	Experience-Driven Validator	Military and Defense – *Center for Army Lessons Learned (CALL)*	Embed knowledge officers in combat units to collect, curate, and disseminate battlefield insights about "what works."
		Military and Defense – *Rapid Equipping Force (REF)*	Embed scientists and researchers in combat units to help identify challenges.
		Military and Defense – *"NeedipeDIA"*	Leverages external partners to adapt, develop, and spur innovations.
		Academia – *NSF Engineering Research Centers*	Interdisciplinary organizations that partner academic and industry researchers to develop and commercialize innovations.

Evidence from the Healthcare Sector: World Health Organization (WHO) (1/2)

Context

- The UN founded the WHO in 1948 – it has now grown to 194 **member countries**
- The WHO's primary goal is to "**act as the directing and coordinating authority on international health work**"
- The WHO passed its first set of binding regulations in the form of the **International Health Regulations** of 2005, setting standards for **responses to the global spread of diseases**; however, member states still have significant discretion with respect to how to implement these regulations at the national level

How Does It Work?

- The WHO provides "leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends"
- By **leveraging its status as the global health authority**, it is able to focus attention of independent authorities to align on key issues and convince health officials and doctors to adopt new standards and best practices
- The WHO **publishes guidelines** for combating diseases and coordinates campaigns among member countries, often using its own staff, to combat disease outbreaks and longstanding health issues
- The WHO also **provides funding for research and treatments** of healthcare issues and raises funds from member countries and other private sources such as philanthropic organizations

WHO Success Stories

Tuberculosis

- In 1995, the WHO **published a strategy** for controlling tuberculosis (TB) that relied on directly observed therapy, short course (DOTS), developed first by the International Union Against TB & Lung Disease
- The strategy changed how TB was addressed, focusing on **standardizing treatment regimens** and rigorous treatment and monitoring
- The successful adoption of DOTS has helped cure **41 million TB cases and prevent 6 million deaths**

Neglected Tropical Diseases

- The WHO has a long history of fighting tropical diseases—the TDR (Research and Training in Tropical Diseases) was established in 1974 and funded research that led to **12 new drugs** for tropical diseases
- As the diseases remained endemic, the WHO changed its approach, releasing the **"London Declaration"** to fight "Neglected Tropical Diseases"
- Grouping NTDs together greatly increased their visibility, **attracting funding from new and existing donors** and greatly reducing mortality

Sources: WHO Constitution (Article 2), *U.S. Center for Disease Control, World Health Organization, The Successes and Failures of Global Health Organizations*

Evidence from the Healthcare Sector: World Health Organization (WHO) (2/2)

Key Success Factors

- ✓ Ability to **convene donors** with large funding resources around critical challenges
- ✓ Staff of experts are able to draft health guidelines that must be approved by the **Guidelines Review Committee** to ensure rigor
- ✓ Grants fund both implementation **as well as** R&D
- ✓ Ability to conduct massive **marketing campaigns**
- ✓ **Field staff help** implement recommendations and hands on interventions ensure adoption of best practices

Limitations/Challenges

- — **Highly resource intensive organization**, with more than 7,000 employees in 150 offices
- — **Limited enforcement authority** as it must rely on members to adopt its recommendations voluntarily or to accept WHO staff in their countries to implement programs

Implications for the Humanitarian Sector

- A flagship organization to prioritize and **draw attention to critical challenges** helps bring resources (money, researchers, implementers) to tackle top-priority issues
- **Expert staff** help establish credibility among the broader sector, enhancing an organizations' ability to play a leadership role
- **Independent review committees** help ensure that recommendations are valid and meet high standards of rigor
- A high-profile agency, with **dedicated resources to market and promote innovations** can have great impact in global adoption (e.g. TB and DOTS treatment)
- A combination of dedicated funding for **implementation of known best practices** as well as **research for new innovations** can prove effective in tackling persistent challenges (such as the WHO's NTD approach)

Sources: Council on Foreign Relations, World Health Organization

Evidence from the Construction Sector: International Organization for Standardization (ISO) (1/2)

Context

- ISO is the world's largest developer of voluntary international standards designed to benefit business, government and society, with a **portfolio of more than 19,400 standards**
- The construction standards are developed by ISO Technical Committee 59, Buildings and Civil Engineering Works, which was founded in 1947 and has created 109 **International Standards**
- Topics range from geometric requirements for buildings to building elements and components to sustainability and accessibility

How Does It Work?

- ISO is a network **comprising the national standards institutes of 164 member countries**
- ISO standards result from **input from all stakeholders**: architects, designers, engineers, owners, product manufacturers, regulators, policy makers, and consumers

ISO International Organization for Standardization

Key Benefits of the ISO Construction Standards

Industry

Design and manufacturing specifications are of major importance to all industry stakeholders. ISO sets standards on construction, based on international consensus, providing comprehensive solutions that facilitate international trade and exchange

Regulators

ISO standards are systematically reviewed and improved. They provide technical foundations for legislation and serve as the basis for national regulations that do not create unnecessary technical barriers to trade. Regulators can apply International Standards to extend building codes

Consumers

ISO standards give consumers confidence in the construction industry. The same level of consumer protection is applicable whether a country's economy is mature or evolving

ISO – Standards Development Process

Sources: ISO and Construction: From Traditional Foundations to Innovative Technologies, ISO, 2012; "How Does ISO Develop Standards?" ISO Website, 2014

Evidence from the Construction Sector: International Organization for Standardization (ISO) (2/2)

Key Success Factors

- ✓ Broad participation and international endorsement from member states, which facilitated **rapid adoption and consensus building**
- ✓ Ability to create a "**signaling" mechanism to the market** to distinguish qualified providers

Limitations/Challenges

- — Standards **are not mandatory but voluntary**, limiting diffusion throughout the sector
- — Some believe it is **difficult for smaller players** to understand and develop sufficient capacity to adhere to standards

Implications for the Humanitarian Sector

- Standard setting organizations (without enforcement mechanisms) help certify certain providers or solutions to encourage and **validate their adoption by the broader sector**
- The humanitarian sector could consider developing standards for **certain approaches, interventions, or solutions, and then certify providers accordingly**
- One major challenge is that **these standards and the certification process may become quickly outdated or not give providers sufficient incentive to comply** (not a strong enough carrot or stick)

Sources: ISO and Construction: From Traditional Foundations to Innovative Technologies, ISO, 2012; "How Does ISO Develop Standards?" ISO Website, 2014

Evidence from the Healthcare Sector: Global Fund to Fight AIDS, Tuberculosis and Malaria (1/2)

Context

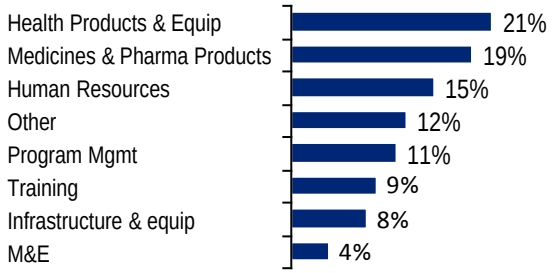
- In early 2000, three major diseases—AIDS, tuberculosis and malaria—were causing millions of deaths across the developing world, even though known treatments and preventions existed, and were commonplace elsewhere
- Kofi Annan, the UN Secretary General, **launched an appeal to create a "war chest" against these diseases** and founded the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM), creating an independent organization with initial funding of $600 M from 36 countries

How Does It Work?

- The **independent body** ("the Fund") **dedicated solely to these diseases** solicits funding from government donors as well as private individuals and philanthropic organizations in cyclical calls
- The Fund **makes independent funding decisions** and follows a process that **distributes money directly to countries** that in turn fund treatment programs that **align with their own national plans, increasing local ownership of projects**
- Funds can be used for both treatment (i.e. distributing drugs) as well as **systemic upgrades to health systems**
- A guiding principle for the Fund is **performance-based funding**, where progress is assessed against predetermined metrics in order to unlock installments of the total grant awarded

The Global Fund

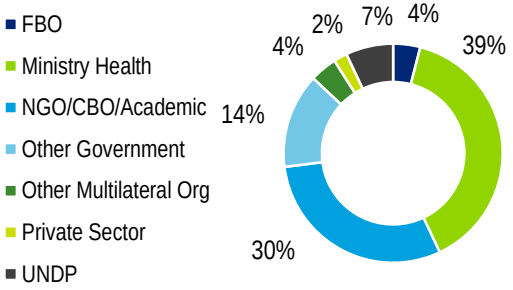
Cumulative Expenditure by Type



GFATM Project Funding Process

1. GFTAM receives unrestricted funding from donors
2. Country Coordinating Mechanism writes country-level funding requests
3. Independent Technical Review Panel reviews the funding request
4. Principal recipient receives first installment of funding
5. Progress reviews every 6 months are required for additional fund disbursements

Cumulative Expenditure by Implementer



Sources: Project Syndicate, The Global Fund

Deloitte.

Evidence from the Healthcare Sector: Global Fund to Fight AIDS, Tuberculosis and Malaria (2/2)

Key Success Factors

- ✓ **High-profile sponsorship** from the UN Secretary General and numerous heads of state
- ✓ Strong fundraising ability to **scale up treatments and existing solutions**
- ✓ Focus on funding **systemic improvements**, not just immediate crisis alleviation (~33% of its grants go to health care system strengthening and the "supportive environment" including policy, civil society, etc.)

Limitations/Challenges

- — The current Global Fund model is **not effective for soliciting new innovations** – its main focus is on adoption and scaling of existing treatments
- — Some argue that the Fund's increased focus on AIDS, malaria, and tuberculosis **has taken away attention and resources from other diseases**, creating the need for a whole new body to combat lower-profile problems such as "Neglected Tropical Diseases"

Implications for the Humanitarian Sector

- **High-profile sponsorship** was essential to creating the Global Fund; the humanitarian sector should rely on similar methods to create its own dedicated innovation-funding body (such as UN Secretary General support, or a declaration following the World Humanitarian Summit of the intent to create such an organization)
- **An independent funding authority** is critical to mitigate political requirements and agendas from large donors; an independent technical committee that is staffed by experts should review and approve grants
- A high-profile dedicated funding body that seeks new sources of capital from donors as well as individuals and philanthropic organizations can **increase the total level of funding available** to the humanitarian sector as well as the amount of resources dedicated to the body's primary agenda (i.e. innovation and partnerships)
- **The humanitarian sector can consider using performance-based funding** approaches to encourage appropriate use of funds and increase donors' comfort level with remaining outside of the funding decision process

Sources: GiveWell, The Global Fund , USAID, Center for Global Development

Evidence from the Technology Sector: Venture Capital (1/2)

Context

- Small companies looking for funding beyond the initial "angel investor" stage have difficulty sourcing loans from banks or other sources **used to lending larger amounts to established businesses**
- The vast majority of small companies and innovative start-ups fail, disincentivizing traditional lenders such as banks
- The Venture Capital (VC) industry was **created with government support** in the 1940s as a way to fund innovative small businesses in order to create technological breakthroughs, providing guarantees to initial investments
- The VC industry **became self sustaining in the 1970s** following large successes, and today provides funding to small and medium enterprises seeking to reach scale

How Does It Work?

- Venture Capital companies **provide capital** in a stage-gated process, with opportunities for additional capital, called investment "rounds," if the company succeeds, or opportunities to wind down investments that are failing
- Venture capital firms must **source a large number of deals** to find profitable investment opportunities – firms generally meet with 80 companies for every one that makes it through to investment
- Venture Capital firms take a "portfolio approach," recognizing that while many investments inevitably fail, the portfolio as a whole can be profitable from several large wins – **75% of VC investments fail** to return capital to investors
- **Entrepreneurs In Residence** (EIRs) are a means for VC firms to source new investments and help strengthen their current investment portfolio by bringing in outside expert entrepreneurs as advisors

Large upfront investment with strategic follow-on funding results in high returns

80
Companies interviewed for every investment made

$4.1
In follow on funding for every $1 of initial funding (2010)

22.6%
15-year Industry ROI

EIR's Primary Roles and Benefits to VC Firm

EIR Primary Role	VC Benefit
Working on own innovation	Firm can take stake in new innovation
Advising VC's current portfolio investees	Firm's current portfolio is strengthened
Vetting potential investments	Firm's pipeline is stronger
Identifying new investments from proprietary network	Firm's pipeline is expanded

Sources: National Venture Capital Association website, Forbes—What is an Entrepreneur-In-Residence?; SmartBizTrends.com—Venture Capital: No Longer a Business of Small Investments, 2011; Where are the deals?, David Teten and Chris Farmer, The Journal of Private Equity, Winter 2010

Evidence from the Technology Sector: Venture Capital (2/2)

Key Success Factors

- ✓ Venture Capital's **portfolio approach** to investment allows funds to succeed even with a high failure rate for individual investments
- ✓ **Investment funding "rounds"** are critical for scaling up successful companies and cutting losses on failing investments
- ✓ EIR's expert advice can **increase the success of innovations** by refining innovations along the way

Limitations/Challenges

- — A key driver of the industry, **profit incentives**, may be difficult to approximate in the humanitarian sector; successful innovations/start-ups cannot be "sold" via IPOs
- — Successful entrepreneurs for EIRs can be **expensive employees**, appropriate for the VC industry, but less so for the humanitarian sector

Implications for the Humanitarian Sector

- Dedicated organizations that focus on innovation—such as VC firms looking to fund start ups—are well suited to bring specialized resources like Entrepreneurs In Residence to bear; **the humanitarian sector should establish dedicated innovation-funding bodies**
- Innovation funding bodies should employ a stage-gated **investment round** approach, allowing funds to be put towards the most promising innovations while still allowing funding for many ideas at the outset
- Humanitarian actors interested in promoting and funding innovation activities should invite successful innovators from other fields to provide **interdisciplinary perspective** to humanitarian R&D

Evidence from the Military and Defense Sector: Center for Army Lessons Learned (CALL) (1/2)

Context

- The US military's approach to "lessons learned" is regarded as a leading example by other militaries – the After Action Review process initiated in the 1970s has given way to robust investments in organizational and human resources devoted to continuous learning
- The Army Lessons Learned Center was established in 1985 and now has more than 250 full time staff that interface regularly with combat units

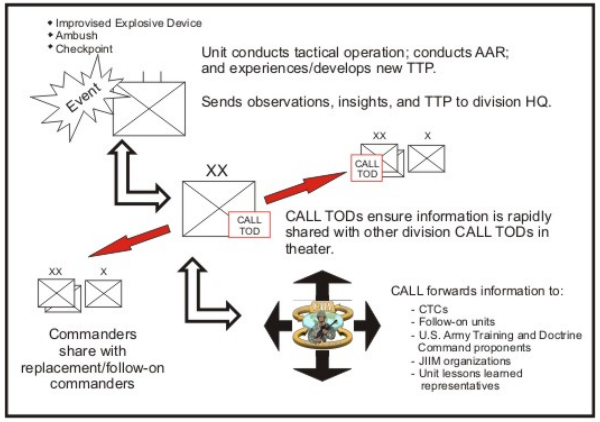
How Does It Work?

- The Center actually embeds "knowledge officers" in combat units to collect, curate, and disseminate real-time battlefield insights, creating a pull mechanism and relieving some of the burden on the units themselves to undertake knowledge documentation and sharing
- The "Lessons Learned Integrators" (L2INET) are analysts deployed within units and at schools, the National Training Center, and Training and Doctrine Command who are responsible for actively collecting what is learned in the field and disseminating the insights back to other units. The Theater Observation Detachment (TOD) program also takes reserve volunteers and deploys them for 6-12 month periods – the "eyes and ears" of CALL.
- CALL answers 1,000 formal requests for information each month and countless walk-in requests daily. In 2008 alone, more than 20,000 observations, insights, and lessons were collected

A Model for Other Militaries: Inspiring Learning in the IDF

Modeled after CALL, the Israeli Defense Forces launched a real-time Center for Lessons Learned during the Second Lebanon War in 2006. Every unit on its way to Lebanon received an update at the training base to fill any knowledge gaps, including a digest of lessons learned that was updated daily. Ground force commanders and knowledge officers were able to collect lessons and transmit them back to the Center for rapid dissemination. For example, a Paratrooper Brigade Chief Knowledge officer described tactical problems with supplies being parachuted to his battalions. The lessons were transmitted by phone to the air logistics base, which changed the procedures immediately.

Overview of the Theater Observation Detachment Program



CALL collects insights from a number of sources. These insights are validated with commanders and then pushed back out to other units via training, doctrine, and embedded knowledge officers.

Sources: A Model Lessons Learned System: The US Army, February 2011; Learning While Fighting: Operational Knowledge Management That Makes a Difference, Prism, 2011; Center for Army Lessons Learned: Collection Priorities, CALL Handbook, March 2009

Evidence from the Military and Defense Sector: Center for Army Lessons Learned (CALL) (2/2)

Key Success Factors

- ✓ Real-time collaboration of knowledge resources with operational staff and leadership
- ✓ Dedicated resources and staff supported by a robust infrastructure (online platforms for the knowledge officers, After Action Review, etc.)

Limitations/Challenges

- — Requires significant resource (time, money, staff) investments
- — More effective if accompanied by a culture change that prioritizes continuous learning and improvement

Implications for the Humanitarian Sector

- Embedding "knowledge-focused" resources (especially personnel) in with "mission-focused" resources and empowering them with an organizational mandate to collect, curate, and share insights allows for effective knowledge capture and exchange
- This rapid knowledge capability may be more difficult to apply to the humanitarian sector's fragmented structure of many organizations rather than a centralized hierarchy – this could be mitigated if organizations properly incentivized knowledge sharing and documentation
- The humanitarian sector will have to manage the perception that dedicating full-time staff to "knowledge" activities does not take away from crisis response and operational activities

Sources: A Model Lessons Learned System: The US Army, February 2011; Learning While Fighting: Operational Knowledge Management That Makes a Difference, Prism, 2011

Evidence from the Military and Defense Sector: Rapid Equipping Force (REF) (1/2)

Context

- Small Army organization created in 2003 to provide **rapid response capability** to develop, prototype, acquire, and integrate off the shelf solutions to meet combat requirements in **less than 180 days**
- Embedded **scientists and researchers in combat units** to help identify challenges
- **Prioritized speed of delivery** over **perfect performance and optimal cost** and avoided cumbersome acquisition processes – the solution had to meet at least 51 percent of the performance requirements. Once the initial solution was being used, the army could learn about its usefulness and how to improve it

How Does It Work?

- The REF Director had the ability **to self-approve requirements for new solutions**, avoiding the complex and cumbersome requirements development process of traditional acquisitions. Rather than the long requirements process used traditionally, the REF used a "10 Liner" to quickly document needs
- The REF also had **dedicated funding for equipment and research**, which helped accelerate the process
- By the end of 2007, the REF had delivered more than 550 **types of equipment and more than 75,000 individual items to soldiers in the field. The average time from receiving a request from the field to delivering a solution to the soldiers was 111 days.**

"When you very quickly place something in somebody's hands, that's when you start having an honest conversation about what the problem is. So the faster you place that first, best, 60 percent solution in a soldier's hand, the faster you're really going to have an honest discussion about what the problem really was. And that's really what we were after. Having mobile laboratories, opening labs to soldiers on the bases, and deploying skilled engineers helped to quickly comprehend problems and get feedback on potential solutions." – Colonel Peter Newell, Director, Rapid Equipping Force

REF Vision – Guiding Principles

Be present: Maintain forward presence at the tactical edge of operations. Close the gap between the soldier and the scientist.
Be predictive: Find emerging problems. Provide Senior Army Leaders "peripheral vision."
Be intuitive: Organize to quickly gain an understanding of a problem and the environment it exists in.
Be inclusive: Form partnerships and look for multiple paths to solve problems. Help other army organizations and industry see, understand, and attack emerging gaps.
Be aggressive: Push the acquisition envelope, but operate within the law. Negotiate solutions with the users. At REF, the speed of delivery will be slightly more important than effectiveness and cost. Use iterative development to improve effectiveness and reduce cost.

Sources: The Rapid Equipping Force: Customer Focused Innovation in the US Army, Stanford School of Business, February 2014

Evidence from the Military and Defense Sector: Rapid Equipping Force (REF) (2/2)

Key Success Factors

- ✓ **Linkages to combat units in the field** via a network of labs and REF staff observers and scientists
- ✓ Willingness to **partner with non-traditional players and actors**
- ✓ Willingness to **"rapidly iterate" and provide imperfect solutions quickly** in order to improve upon them

Limitations/Challenges

- — As a small, temporary organization, the REF **faced challenges with consistent staffing and funding**
- — After the drawdown of the wars in Iraq and Afghanistan, the REF faced significant **budget cuts and had to battle for bureaucratic survival**

Implications for the Humanitarian Sector

- Efforts to bring innovation activities, including prototyping and field testing, **closer to actual users yield new insights and accelerate the development process**
- The humanitarian sector may benefit from approaches that enable **rapid iteration and provide imperfect solutions quickly** as opposed to perfect solutions that take more time
- The humanitarian sector should also consider **embedding scientists and/or researchers directly in humanitarian operations** to quickly identify and communicate needs

Sources: The Rapid Equipping Force: Customer Focused Innovation in the US Army, Stanford School of Business, February 2014

Evidence from the Military and Defense Sector: "NeedipeDIA" (1/2)

Context

- DIA's latest strategic plan emphasizes that **leveraging external partnerships is an essential step to achieving innovative outcomes.** DIA has made a commitment to partnering with non-traditional players to enable rapid evaluation, acquisition, and integration of promising capabilities
- To achieve this goal, DIA **established "NeedipeDIA" in June 2013 – a platform to create direct communication channels with potential innovators on mission critical needs**

How Does It Work?

- **DIA publishes a list of needs to a broad audience** via both an open, unclassified website and a restricted classified platform. Each need is **accompanied by an Open Broad Agency Announcement**, a procurement mechanism that provides an entry point into the government acquisition process
- On the unclassified site, there are nine broad need "categories" that providers must respond to with a **whitepaper no longer than two pages**. The organizations with the top whitepapers are then invited to submit more detailed financial and technical proposals

NeedipeDIA

DIA Core Need Categories (As of February 2015)

1. Prevent Strategic Surprise
2. New Analysis Technologies and Methods
3. Enhance Counterintelligence and Security
4. Intelligence Collections
5. Mission Enhancing Science and Technology
6. Improves Mission Support Capabilities
7. Increase Organizational Effectiveness
8. Empower Partnerships
9. Other Innovative Capabilities Not Listed Above

After 1 Year…

240	White Papers Received
133	Distinct Vendor Submissions
80%	Of submissions were from "non-traditional" partners
50	Submissions have proceeded to oral presentations and/or proposal submissions

"It turns out the biggest source of the best ideas is 'non-traditional performers', companies with no prior federal contracts. They really don't know much about the way that we do business and we don't know they exist." – Dan Doney, Chief Innovation Officer, DIA

Sources: 2014 DIA Innovation Strategic Plan; NeedipeDIA Year in Review Presentation, June 24, 2014; Breaking Defense, "Pentagon Struggles to Get Small Biz Tech, August 2014

Deloitte.

Evidence from the Military and Defense Sector: "NeedipeDIA" (2/2)

Key Success Factors

- ✓ Ability to **draw in new types of partners**
- ✓ **Leadership support** from the highest levels of DIA
- ✓ Ability to create **simple response mechanisms** for new industry partners to engage

Limitations/Challenges

- — Budget uncertainty and austerity has **limited pool of available resources** to fund ideas
- — Difficult (and lengthy) to **help new partners navigate the Pentagon acquisition processes** even once they have established the right connection and relationship

Implications for the Humanitarian Sector

- **Open platforms** with simple response mechanisms (i.e. a two-page white paper) may help **lower barriers to entry for non-traditional players** to explore potential partnerships
- Transparency about and **clear articulation of challenges and unmet needs** was critical in getting meaningful responses and in helping new entrants understand the operating environment, constraints, and context
- The humanitarian sector needs to consider **how** to engage new players and familiarize them with the appropriate acquisition/procurement processes (if applicable) or other collaboration channels. **Getting new players to the table is not enough – there must be frameworks and/or mechanisms in place for how to operationalize and sustain partnerships**

Sources: 2014 DIA Innovation Strategic Plan; NeedipeDIA Year in Review Presentation, June 24, 2014; Breaking Defense, "Pentagon Struggles to Get Small Biz Tech, August 2014

Evidence from the Academia Sector: NSF's Engineering Research Centers (1/2)

Context

- Governments seek to **drive national competitiveness by funding** R&D that may lead to economic growth
- Academia is a **sector dedicated to advancing knowledge**, but it often focuses on pure knowledge and basic research without clear practical or commercial applications
- In general, **academics focus on the early stages of innovation** while industry focuses on scaling proven concepts
- Partnerships clustering together industry and academia can **overcome the "valley of death"** where little attention is paid to the critical middle stage of proving concepts, testing, etc.

How Does It Work?

- The National Science Foundation's Engineering Research Centers (ERCs) are **interdisciplinary organizations** housed in universities in partnership with industries
- ERCs fund a wide range of R&D, from **unsolicited research proposals from academia** to small business proposals to commercialize new products or services
- ERCs provide a **physical space** (offices, laboratories) **to collaborate and incubate new ideas**, technical and management support, and reliable funding streams
- Industry partners pay a fee to participate in the ERC and follow structured rules of engagement to test new ideas and adopt innovations that result from these partnerships
- Industry partners can receive up to **$10 million in leveraged funding** per year, gain **early access to innovations** protected by IP, **and jointly patent innovations created with the Center's researchers**

Key Results of the ERC Program (1985-2009)

ENGINEERING RESEARCH CENTERS

624	1,701	142	2,097
Patents Awarded	Invention Disclosures	Firms Spun Off	Patent & Software Licenses

Sources: National Science Foundation, ERC Association, FREEDM Center, GreenTech Media

Evidence from the Academia Sector: NSF's Engineering Research Centers (1/2)

Key Success Factors

- ✓ Combination of industry and academia **injects market forces** into research to help validate innovation ideas
- ✓ Funding both specific research goals and **open grants** allows for new innovations
- ✓ IP frameworks help govern **partnership interactions**

Limitations/Challenges

- — Largely based on public grant funding, which will be **less applicable** to the humanitarian sector
- — Many commercial applications can take **a long time to materialize**
- — **Culture clashes** between academics and industry can be difficult to overcome

Implications for the Humanitarian Sector

- The humanitarian sector should focus on creating partnerships between end users (implementers) and researchers to help **overcome the "valley of death"** between idea generation and adoption of a proven innovation
- Innovation funders should **dedicate funding both to specific challenges as well as to unrestricted projects** within the sector to be sure to capture truly disruptive innovations which may not be on the radar of funders
- **Formally structured partnerships** are critical; clearly defining interactions can help reduce culture clashes and clarify requirements and expectations—particularly around IP and profiting from innovations

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