



Findings from Digital Tool Mapping for COVID-19 Webinar



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Agenda

1. Overview of USAID's Vision for Action in Digital Health
2. Map and Match Project Overview
3. Findings from Map and Match Data
4. Q&A



USAID's Digital Health Strategy



USAID's Vision for Action in Digital Health

The Vision presents a roadmap for how USAID can support its partner countries as they strengthen the digital transformation of their health sectors.

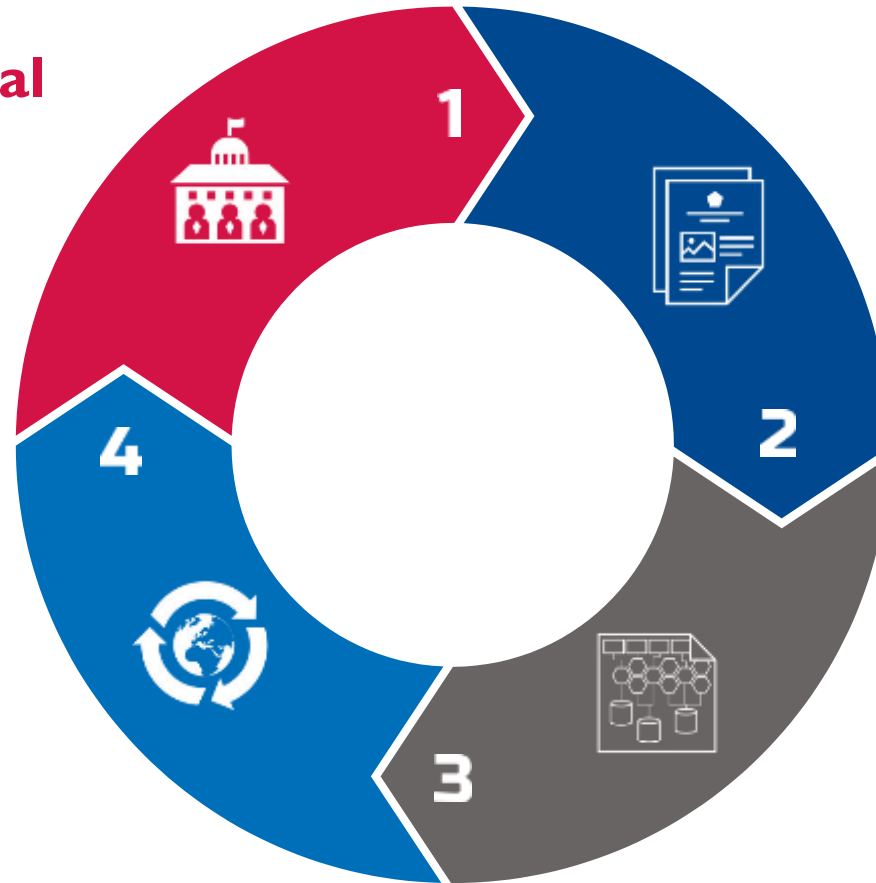
Available online here:
<https://www.usaid.gov/digital-health-vision>



Vision for Action in Digital Health: Four Priority Areas

Building Country Digital Health Capacity

Advancing National Digital Health Strategies



Leveraging Global Goods

Strengthening National Digital Health Architectures

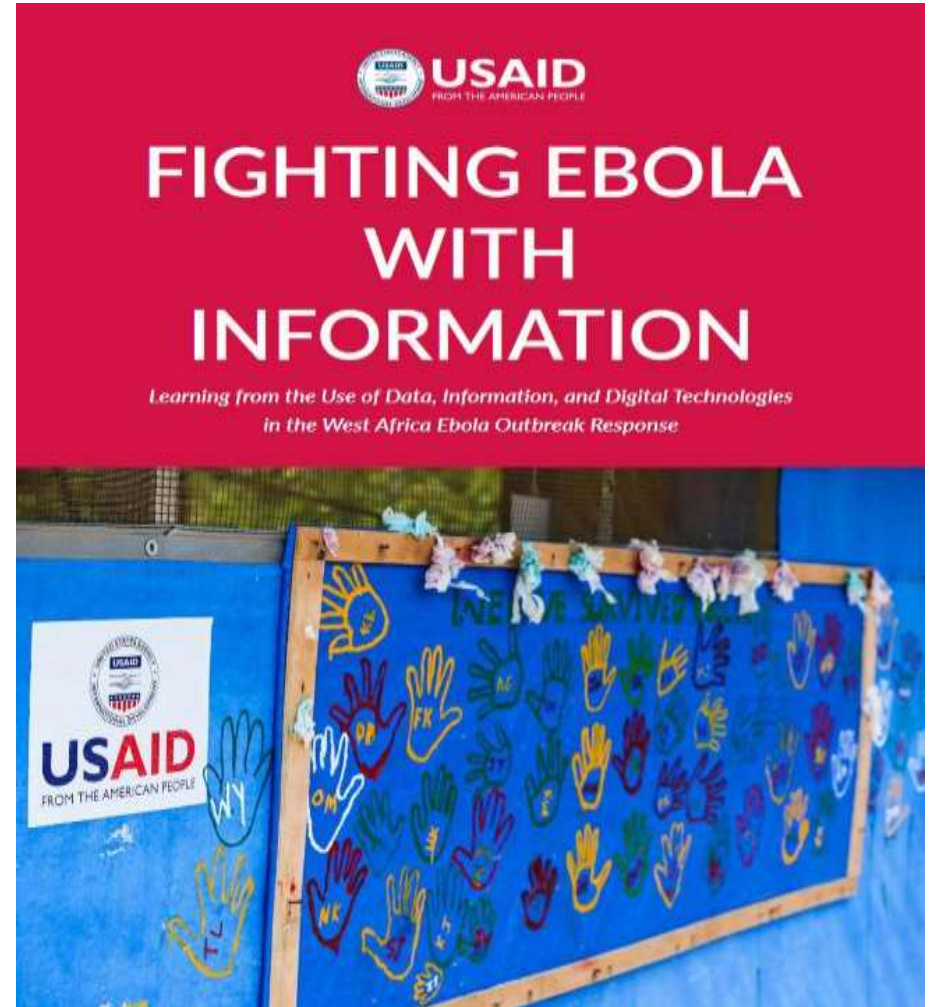


Why Map & Match?

Key Lesson from Ebola:

Adapting existing digital tools rather than deploying new ones helped:

- Speed of deployment
- Save money
- Reduce duplicative investments
- Lead to sustainable tools
- Increase government leadership
- Enable exchange of data



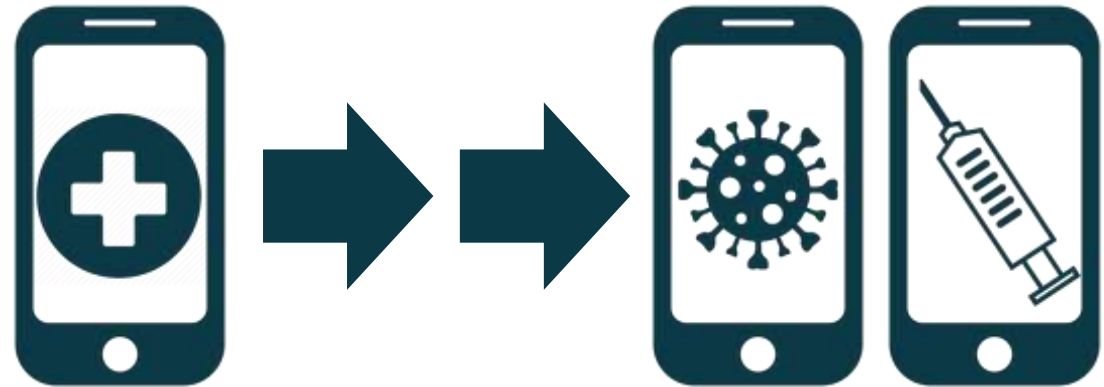
Map & Match Goals

Map **existing** digital health tools deployed **at scale** in country.

Identify digital health tools **already deployed** for COVID-19 response and vaccine distribution



Identify digital health tools that **can be adapted** for COVID-19 response and vaccine distribution



Map & Match



Map & Match Overview



Tools Collected

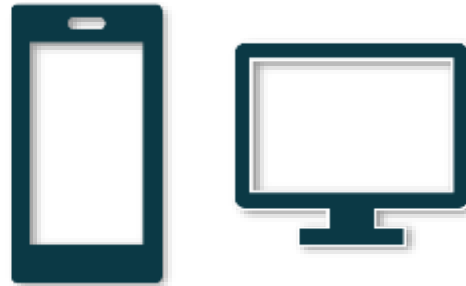
Phase I: July 20 – October 2020

749



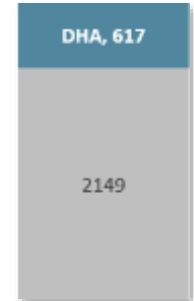
Documents, websites, reports, and landscapes submitted and reviewed.

2,792



digital tool deployments identified

76%



% of digital deployments NOT identified in the Digital Health Atlas



Structuring information: use cases

A 'use case' refers to a specific type of information collected, stored, tracked, analyzed, or visualized as it relates to the functional response to an epidemiological event, specifically COVID-19. One digital health tool can be deployed for multiple 'use cases'.

- Case management
- Contact tracing
- Data science assets
- Event-based surveillance
- Health facility & provider administration
- Infection prevention control
- Laboratory systems
- Learning & training

- One Health
- Points of entry
- Risk communication & community engagement
- Routine surveillance
- Supply chain
- Vaccine planning, monitoring and delivery*

* Added for COVAX



About this data

- *This data is meant to provide a quick assessment of existing tools related to the COVID-19 pandemic.*
- *Our data do not capture 100% accurate information as tools and adaptations are changing. Additionally, the digital health tool information was collected via landscapes and self-reported information via surveys and interviews.*
- *Only data for the 22 focus countries was validated.*
- *A best effort was made in terms of collecting data and not all tools operating in country were captured and not all tool information is complete.*
- *Data collection ended in March 2021 and contains limited information on vaccines.*
- *Financial information is not included in this data.*



Additional Map & Match Outputs

- Executive summary/overview of the project.
- Annex information about digital tools which support vaccine deployment.
- Map & Match survey tools (data model).
- Final data set of Phase I and Phase II data.
- Global Goods COVID-19 adaptations.
- Digital Applications and Tools Across an Epidemiological Curve (DATEC).
- Scale framework.



Investor and Partner Coordination

Coordination and alignment has been a key tenant throughout the Map and Match project.




Findings from Map & Match Data



Why is this analysis needed?

- The Map & Match project resulted in one of the largest known datasets of digital health tool deployments globally and allows for **broad assessment of the digital health field**.
- Donors, including USAID, often cannot identify and track their digital health investments and as a result it can be difficult to make evidence-based programmatic decisions about digital health. The Map & Match data provides a learning opportunity and baseline for future **tracking of digital health investments**.
- Using Map & Match as a case study helps identify improvements for data collection and sharing for future **digital tool repositories** such as the Digital Health Atlas.

Research Objectives

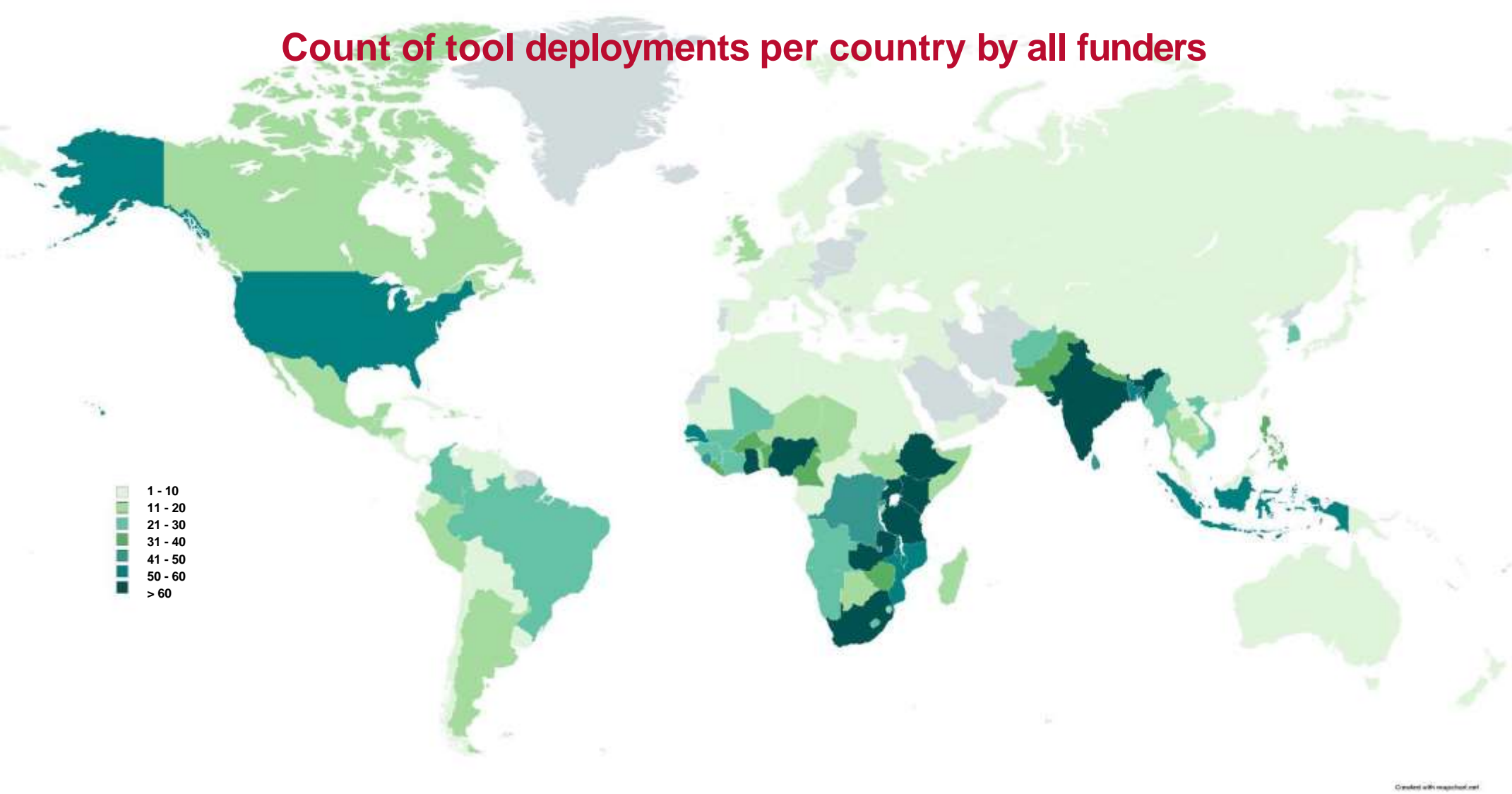
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1. **Identify patterns** within (a) health system challenges addressed by digital health interventions and (b) which tools or systems are used in those interventions.
 2. Identify activities and digital tools used in USAID partner countries to **inform potential future USAID-Washington and Mission-based collaboration**, including through harmonized investments in those countries.
 3. **Assess USAID investments in digital health tools** within the global portfolio of digital health investments (in response to the COVID-19 pandemic and/or more broadly).
 4. Identify solutions to **improve the comprehensiveness, accessibility, and usability** of Map & Match data.



RESULTS

RQ4 How are tool deployments by all funders distributed across countries?

Count of tool deployments per country by all funders



RQ14 Which digital health tools, softwares, and use cases are most supported?
In which areas are there noticeable clusters?

Top 10 Softwares

Software	# of Tool Deployments
Unknown	695
DHIS 2	246
CommCare	152
RapidPro	115
OpenMRS	112
ODK	92
SMS	64
iHRIS	58
Xpert	47
Web	44
Microsoft Azure	42

RQ8 How many digital health tool deployments are funded by local (in-country) donors v. out-of-country donors?

116 / 4% funded locally

2789 / 96% funded by out-of-country donors

- Over-counting is likely due to attribution to a country MOH instead of the World Bank or another external funder.
- But under-counting is also likely due to bias in reporting, as out-of-country donors are more likely to request public-facing reports written about tool deployments.

Countries with the most tool deployments including at least one local funder

Country	# of Tool Deployments
United States	16
Kenya	13
Nigeria	9
Uganda	9
India	8
Tanzania	7
Malawi	6
Ghana	5
Senegal	5

RQ7 How are tool deployments distributed across sectors of donors?

Sectors of digital health donors

Sector	# of Donors
Unknown	1839
Government (national or international)	831
International multi-sector	314
Non-governmental organization	178
Private foundation	174
Corporation	54
Corporate foundation	34
Healthcare provider	15
Academic institution	7

- Depending on the data source, the perceived/reported donor was not necessarily the original funding source, e.g.:
 - country MoH listed as donor rather than World Bank
 - confusion between corporations and corporate foundations
- Countries with a significant number of unknown donors (some tools may have known and unknown donors): Nigeria (133), India (82), Kenya (73), Ethiopia (63), South Africa (42), United States (38), Uganda (35).

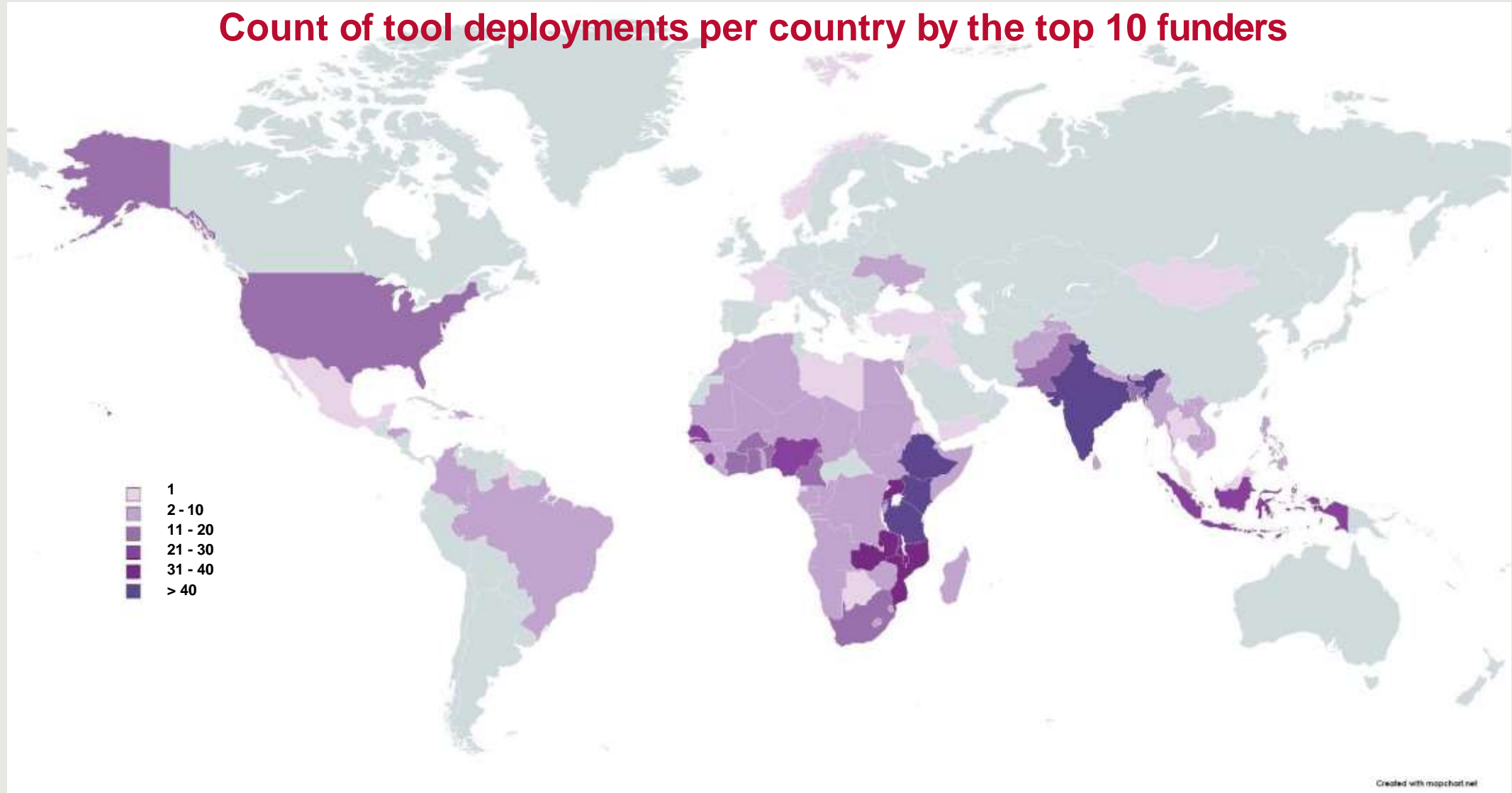
RQ3 Which donors are funding which tool deployments? (for all use cases)

Top 10 digital health donors

- The majority of tools are funded by donors based in the United States (705), International/non-specific (314), Norway (115), United Kingdom (113) and Canada (79).
- Donors based in LMICs were most often based in Malawi (27), Kenya (20), Nigeria (15) South Africa (13) and Senegal (12).

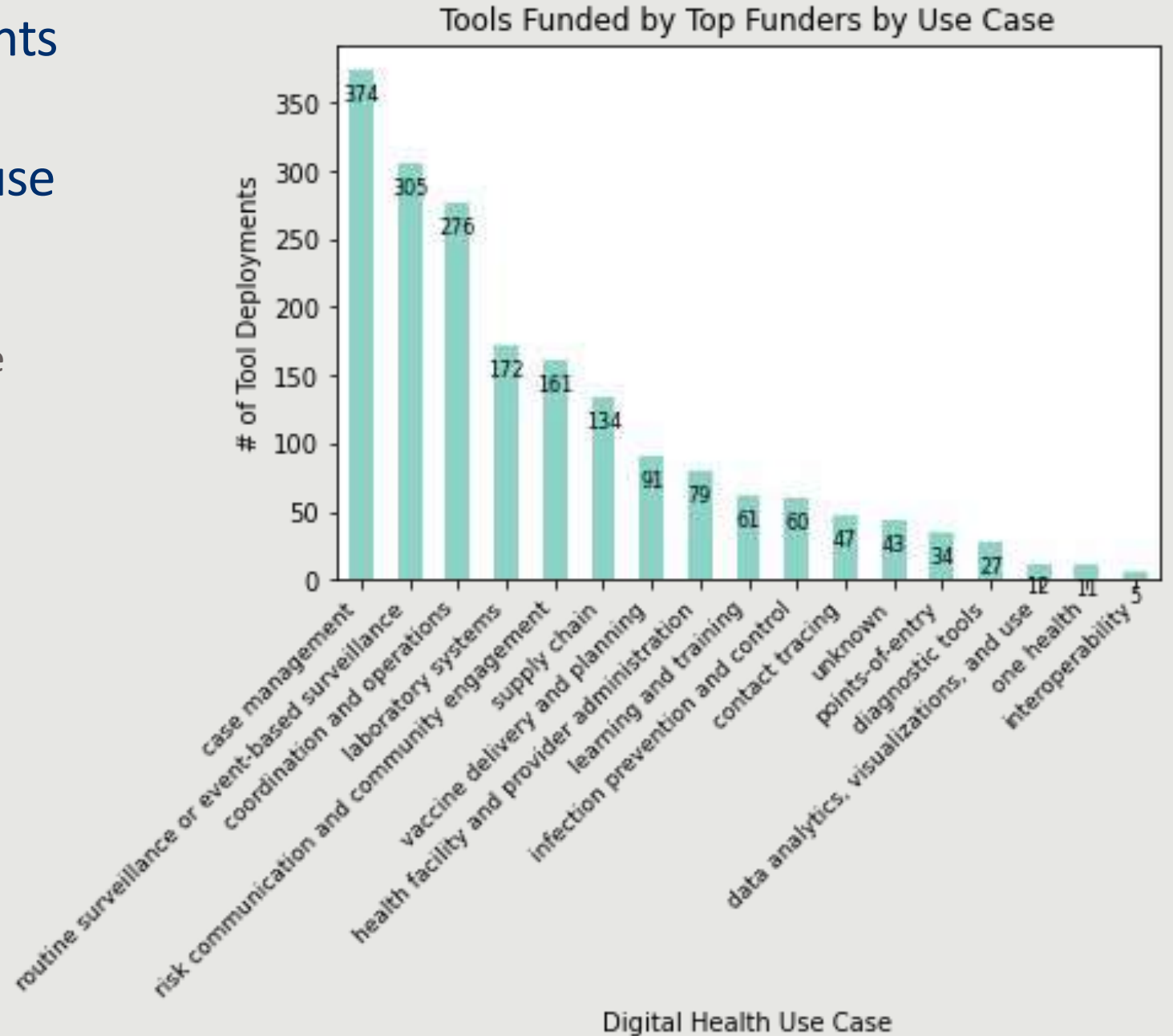
Donor	# of Deployments Funded
Unknown	1830
US Agency for International Development	363
Gates Foundation (BMGF)	186
US Center for Disease Control and Prevention	102
University of Oslo	99
United Nations International Children's Fund (UNICEF)	90
Foreign Commonwealth & Development Office (FCDO)	68
World Health Organization (WHO)	64
Grand Challenges Canada	60
US Dept of State/PEPFAR	60
Gavi	54

RQ4 How are tool deployments funded by the top funders distributed across countries?



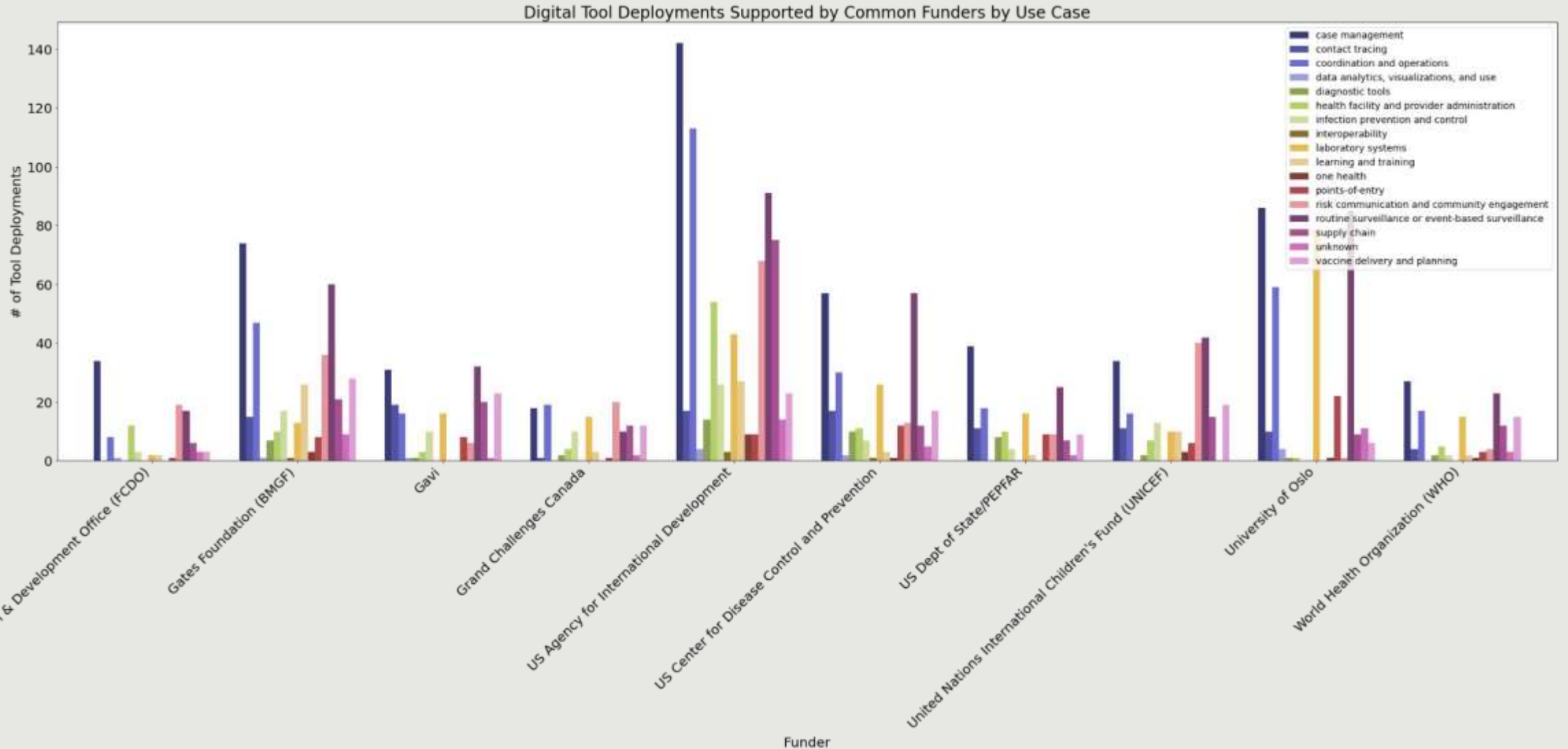
RQ6 How are tool deployments funded by the top donors distributed across digital health use cases?

- Many tools were listed with multiple use cases, which is why these numbers appear very high.
- The graphs on the following two slides can be better viewed in their original format, linked at the end of this slide deck.



RQ6

How are tool deployments funded by the top donors distributed across digital



RQ10

How are tool deployments implemented by the top implementing organizations distributed across countries?

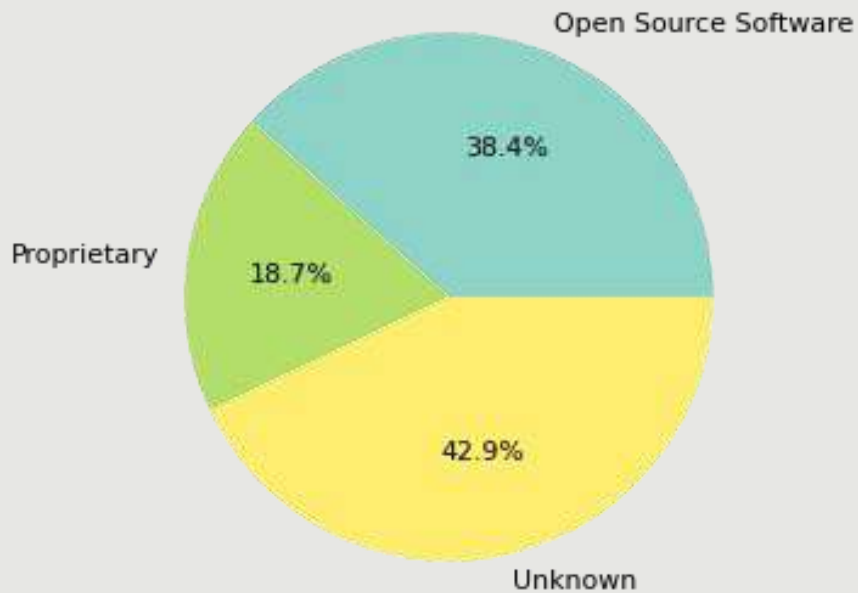
- Depending on the data source, the perceived/reported implementer was not always correct, e.g.:
 - USAID listed as an implementer (these were corrected)
 - Other funders listed as implementers (these were not corrected)

Top 11 Implementing Organizations of Digital Tools

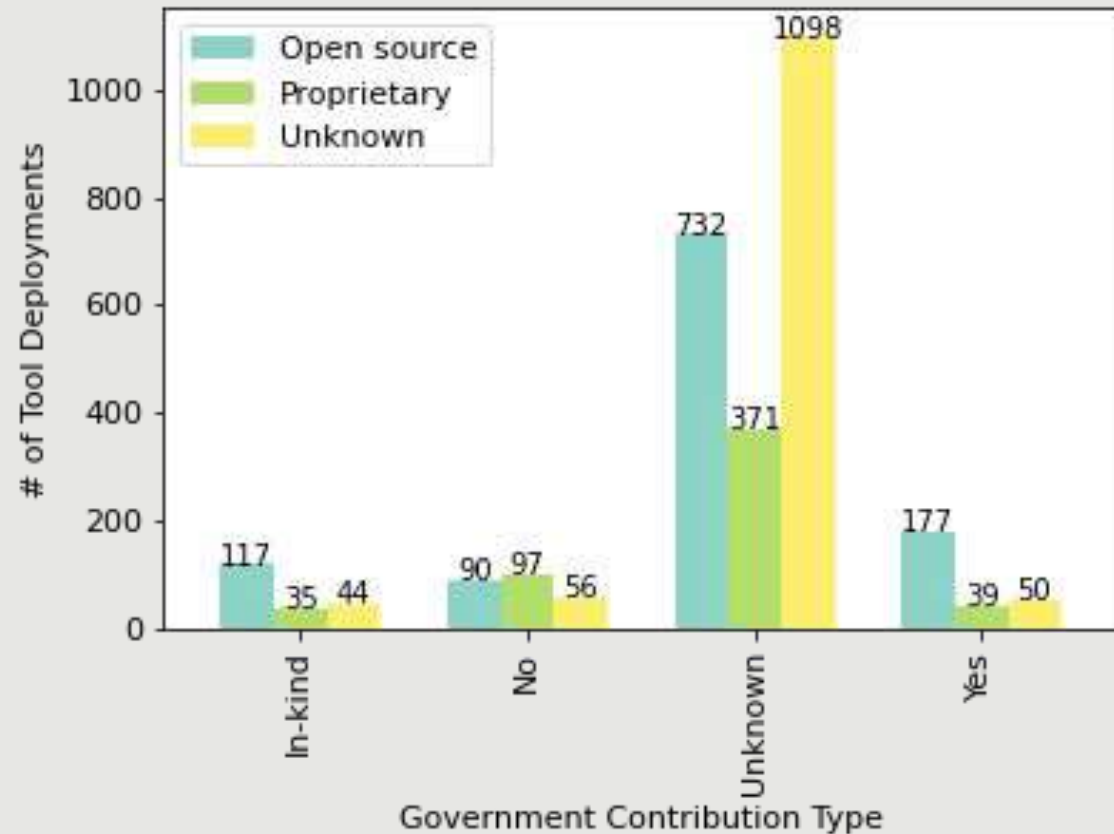
Implementer	# of Tool Deployments
UNICEF	129
Management Sciences for Health (MSH)	95
University of Oslo	85
World Health Organization (WHO)	73
John Snow Institute (JSI)	59
SystemOne	49
BroadReach	47
eHealth Africa	46
OpenMRS	45
Intrahealth	43
PATH	43

RQ12 How are digital tool deployments distributed by licensing structure, and this associated with government or non-government funding?

Digital tool deployments by license type



Licensing Structures of Tools Deployed by Government Contribution Type



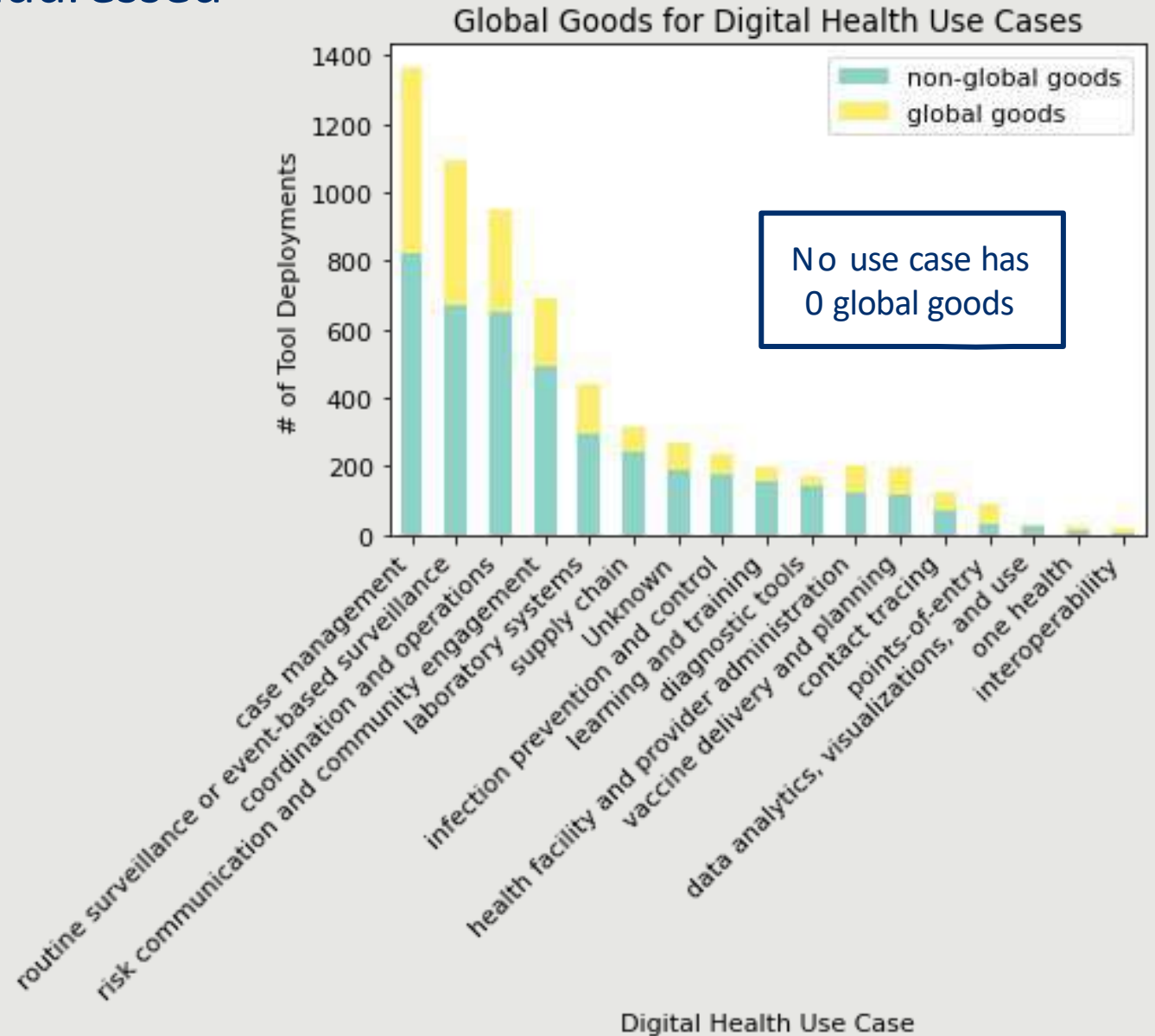
Licensing type was applied to tool, although tools may consist of multiple softwares. To be listed as open source, all softwares included in a tool must be open source.

RQ11 Which use cases are not addressed by any global goods?

Global goods are digital health tools that are adaptable to different countries and contexts.

Softwares that meet this definition are **free and open source** and used to manage, analyze, or transmit health-related data, with **proven utility in several settings**.

A global good is defined by its inclusion in [Digital Square's Global Goods Guidebook](#) (+ Rapidpro)

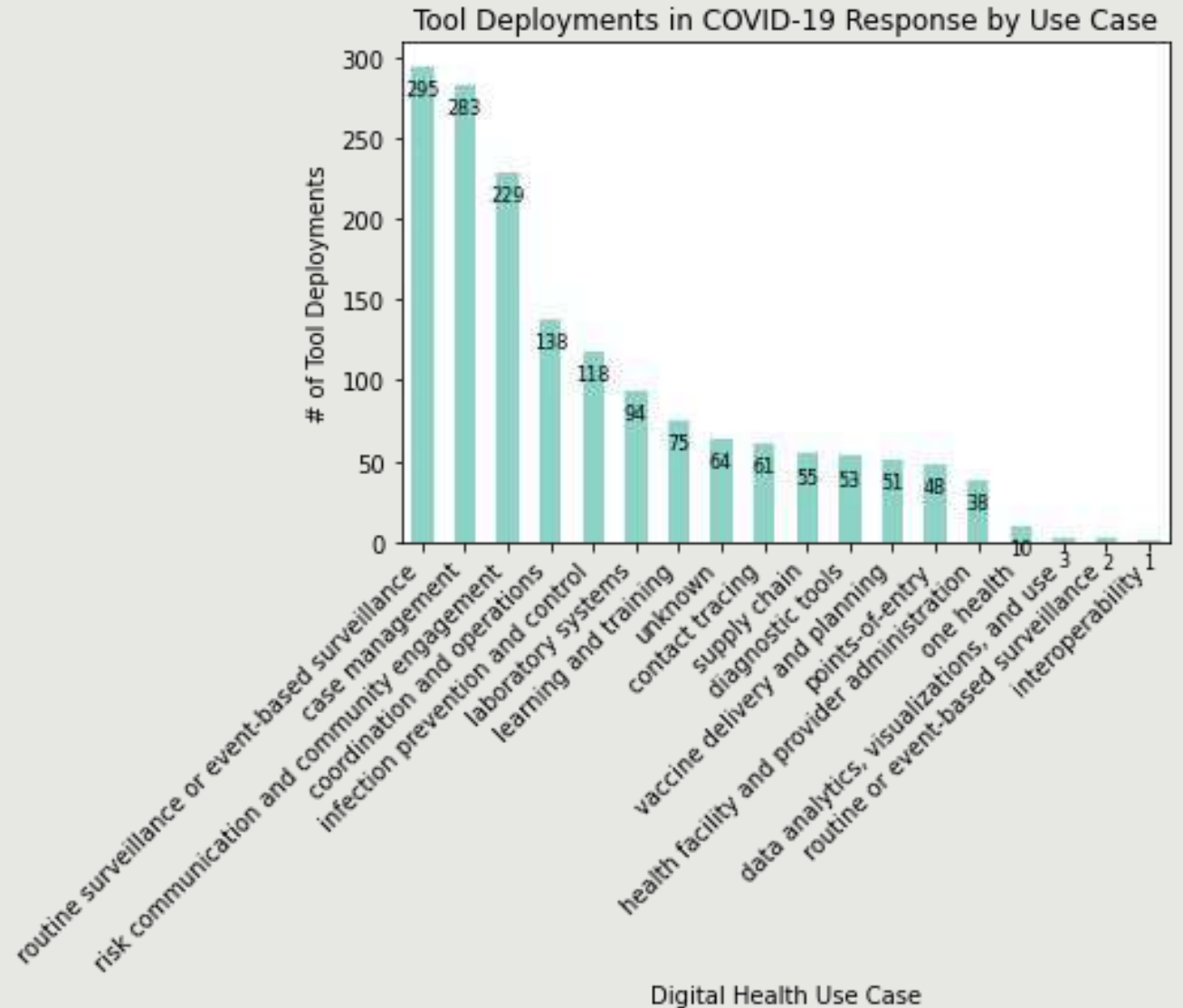


RQ1 Which digital health tools are most often used for use cases related to COVID-19?

803 tools (28%) were deployed for COVID-19

Top digital health softwares deployed for COVID-19 (all countries)

Software	# of Deployments
Unknown	252
DHIS2	70
Commcare	38
RapidPro	35
Viamo	32
CAD4COVID	31



RQ2 What tools have been deployed in support of vaccine-related use cases?

- Of the 162 tools deployed in support of vaccinations, 51 (32%) were also used in the COVID-19 response (not necessarily for COVID-19 vaccination).
- Note that data collection ended in March 2021, before many countries had access to COVID-19 vaccines or finalized NDVPs.
- As of December 2021, common tools for vaccination include new modules of DHIS 2 (used by 40+ countries for COVID-19 vaccination) and CommCare, SORMAS, and mSupply.

Top 10 digital health softwares deployed for vaccination-related use cases

Software	# of Deployments
Unknown	24
OpenSRP	17
DHIS 2	11
OpenMRS	10
Logistimo	10
ODK	9
OpenLMIS	9
ColdTrace	9
mSupply	6
eSURV (Electronic Surveillance)	6

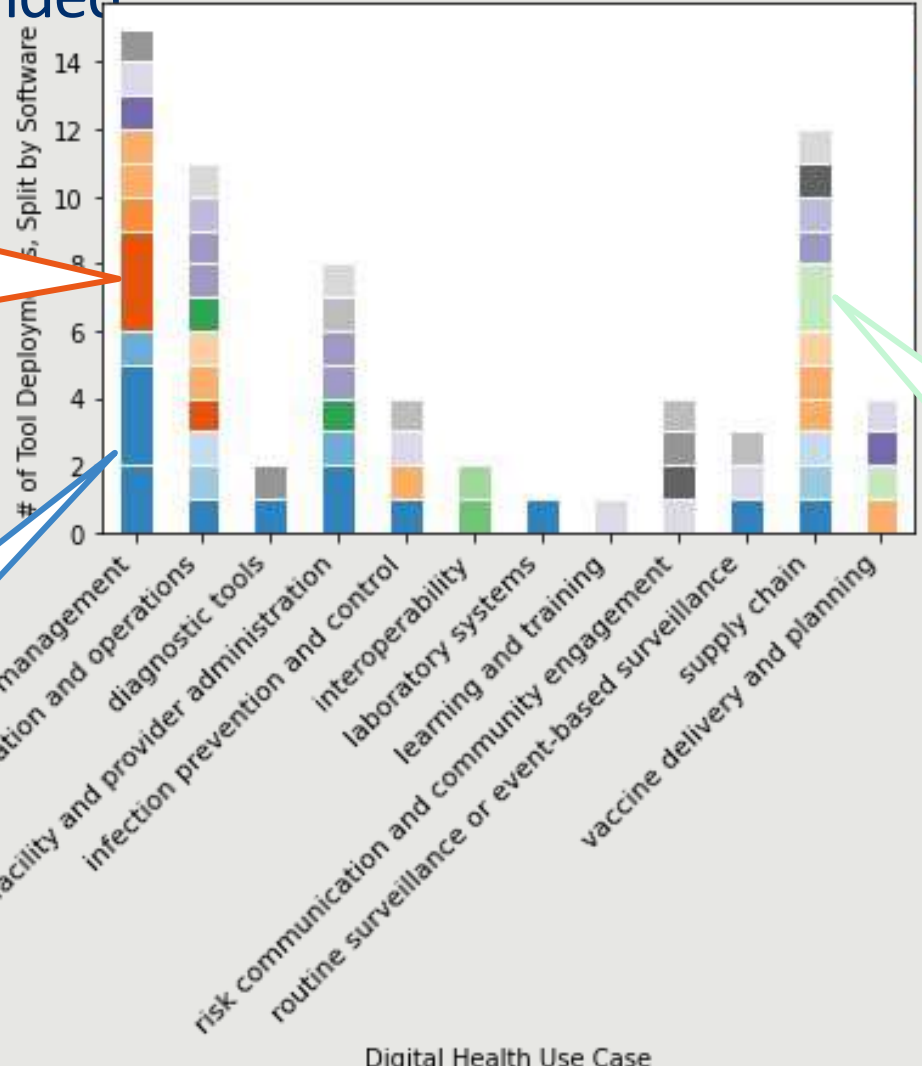
RQ19 To what extent are duplicative tool deployments funded by the same donor?

Digital health fragmentation is the result of a lack of connection and synchronization between different digital health interventions, but is also frequently used as a catch-all term to describe many of the problems you encounter when you don't use an enterprise planning approach.

- Based on available data in Map & Match, we tried to measure fragmentation using a combination of use case, tools, and softwares.
- Most tool deployments were listed with multiple softwares and multiple use cases, making it very challenging to identify duplication from these data.
- Some duplication of tools across use cases is expected, e.g. subnational deployments and certain use cases like risk communication and community engagement.
- This can be assessed by individual donor or individual country as a deep-dive, but shouldn't be examined without context.

RQ19 To what extent are duplicative tool deployments funded by the same donor?

USAID-Funded Digital Tool Deployments in Tanzania by Use Case



3 deployments of Logiak for case management:

- family planning for CHWs deployed (5 regions)
- dispatch center and ambulances for maternal health (2 regions)
- maternal healthcare for CHWs (1 region)

3 deployments of DHIS 2 for case management:

- family planning for CHWs (5 regions)
- national HMIS in district hospitals
- HIV services (12 regions)

2 deployments of OpenLMIS for supply chain:

- national eLMIS for medications
- national stock management for vaccines



DISCUSSION AND RECOMMENDATIONS

RQ18 What were facilitators and barriers to the collection and processing of this data?

FACILITATORS:

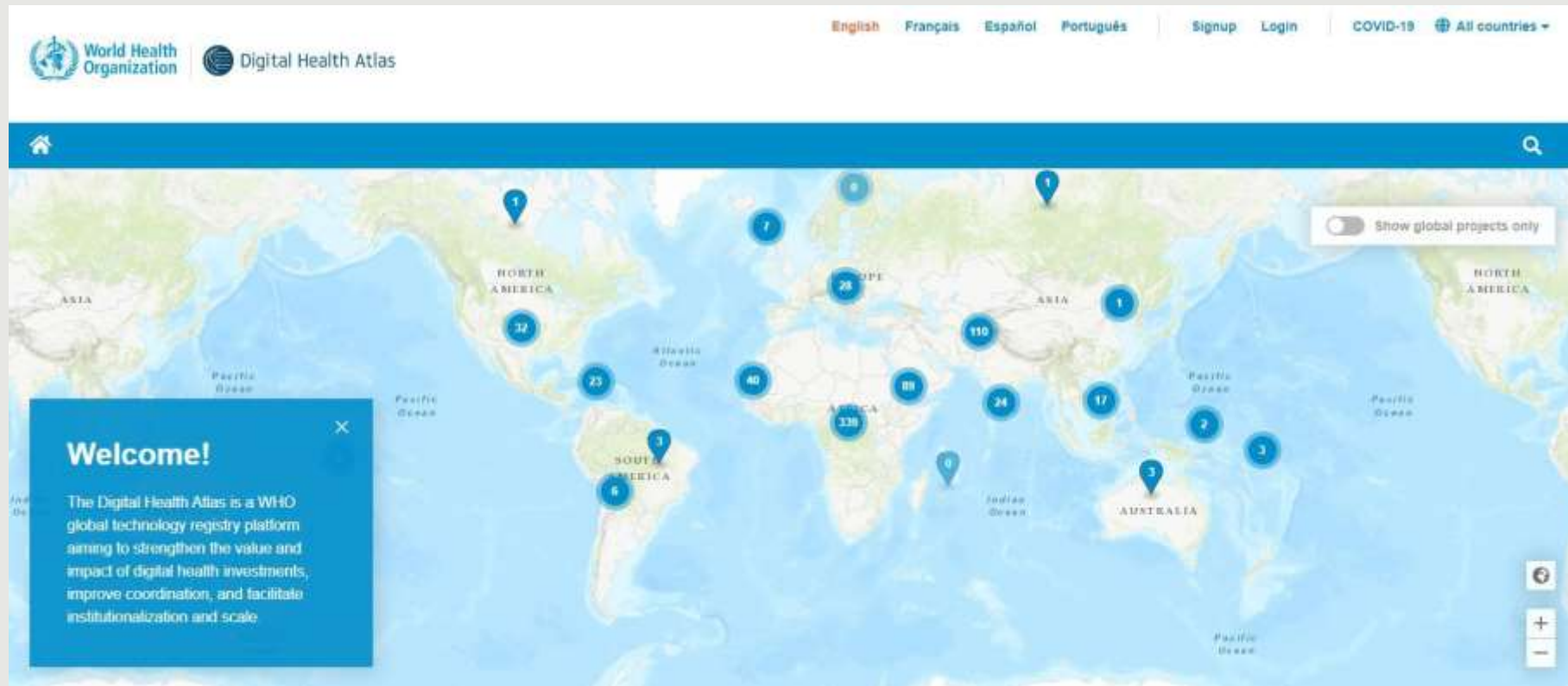
- Strong community and partners that shared resources for review.
- Innovators and implementers willing to be interviewed and share their knowledge about tools.
- Use of standardized lists for digital health interventions, digital health challenges, and health systems challenges.
- Well-designed list of mutually exclusive use cases.

BARRIERS:

- Lack of published material in English about many digital tool deployments.
- Lack of information about deployment dates and end dates of digital tools, which makes it hard to assess historical and current trends.
- Lack of inclusion criteria for what qualifies as a digital tool.
- Survey fatigue.
- Difficulty accessing sources and people outside of the digital health community.
- Inconsistency in the right person or group to validate the use of a tool (e.g. MOH, funder, implementing organization) - no single person typically had all the required information about a given tool.
- Additional barriers to processing are included on the Limitations slide.

Integration with the Digital Health Atlas

As the Map & Match project adds ~2200 digital projects to the DHA, we've identified some opportunities for optimization of the database. These have been shared with WHO colleagues.



Recommendations for digital health data collection and sharing

- The digital health community should **define inclusion criteria** for a digital tool, as the range of tools included now is too broad for meaningful comparison.
- The digital health community should agree upon **standardized definitions for basic data elements** such as donor, use case, implementer, and software, similar to how they have defined digital health challenges and interventions.
- Data about digital tool deployments is more effective when it's **collected at the point of implementation** and date-stamped, not retrospectively. Funders, implementers, and tool owners should outline expectations for collection, sharing, and maintenance of this information as part of **support for a country's digital architecture**, not just extractive data monitoring.
- Country governments, funders, and digital tool developers should align to **promote the Digital Health Atlas (DHA) as the primary source of information** about digital tool deployments globally, and create incentives for responsible parties to add and regularly update projects to the Atlas, with WHO playing an important role in maintenance and standardization.

Key messages

- The Map & Match dataset is imperfect, but can still serve as **a valuable resource to identify general trends in global digital health tool deployments** across countries, donors, implementing partners, use cases, and softwares, and set the stage for further research.
- There are clear market dominators in most stratifications of the data, and many of these are **global goods that align well with USAID's Digital Health Vision**. There are also many digital health tool deployments that should be assessed for their potential to scale to other countries or to other use cases.
- USAID's digital health investments align well (geographically, by use case, etc.) with those of the international donor community as a whole, which indicates opportunities to **drive prioritization and focus areas** in the future.
- As the landscape of COVID-19 has changed significantly since Map & Match data collection ended, **more data is needed to assess countries' current responses**, priorities, and facilitators and barriers to sustainable digital development.

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QUESTIONS AND COMMENTS

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