DataDENT

Data for Decisions to Expand Nutrition Transformation

Global Nutrition Data Visualization Tools - User Research

September 2020

Overview and Approach

What are data visualizations and why are they helpful?

① What are data visualizations tools?

- Data visualization tools are defined as outputs that help people understand the **significance of data** by placing it in **a visual context** (e.g. scorecards, dashboards etc.) that can be easily **interpreted** and are **persuasive** in conveying key messages.

② Why are data visualization tools (DVTs) helpful?

- Human brains more **rapidly process visuals** compared to text

- **Indicator choices and visuals** in DVTs can ensure focus on **key priorities** and **facilitate data interpretation** to better support decisions

- Effective DVTs are essential for a fully developed data value chain - strengthening **visualization** and **interpretation** and **use for decision-making**

In 2019, DataDENT conducted a landscaping study of nutrition DVTs at the global level to capture best practices and lessons learned from producers of DVTs

GLOBAL HUNGER INDEX

Global targets tracking tool

HANCI

NLiS NutritionLandscape InformationSystem

Nutrition for Growth Accountability Tool

Vitamin A supplementation interactive dashboard

GLOBAL FOOD SECURITY INDEX 2017

Scaling Up NUTRITION
ENGAGE · INSPIRE · INVEST

SUN Movement Monitoring, Evaluation, Accountability, Learning (MEAL)

Investing in Nutrition

FAO Country Indicators

Countdown Country Dashboards

Global Scorecard of Iodine Nutrition

MEASURING PROGRESS TOWARDS ENDING MALNUTRITION

The State of Acute Malnutrition

Global Fortification Data Exchange

THE WORLD BANK
Nutrition Country Profiles

ACCESS TO NUTRITION INDEX™

GLOBAL BREASTFEEDING SCORECARD, 2017

National Anemia Profile

UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates

GLOBAL NUTRITION REPORT NUTRITION COUNTRY PROFILE

State of the World's Children Report Dashboard

To complement the landscaping analysis, this user research focuses on global nutrition DVT use by stakeholders at global and regional levels

- There isn't a lot of information on **how users interact or engage with data visualization** in public health and nutrition *(Aung et al. 2019)*
- Need to solicit user feedback on a) experience with **using** the tools and b) **whether and how different DVTs are effective in meeting user needs**

Objectives of the user research

1. Unpack the **context of use** of existing global nutrition DVTs.

2. Assess the **strengths, opportunities**, and **challenges** of existing global nutrition DVTs.

3. Understand how **broader issues along the nutrition data value chain** impact the design and use of DVTs.

Overview: user research design & limitations

Sample description

1. **Purposive sampling** was used to identify respondents at 35 organizations who work on nutrition issues and with nutrition data across multiple countries.

2. In some cases, more than one individual per organization self-selected to join the interview. Interviews were conducted with **31 individuals from 22 organizations**.

Data collection

1. **One-hour virtual semi-structured interviews** were conducted with respondents.

2. Key interview themes:
   1. **Experience** with specific global nutrition DVTs
   2. **Aspects liked** and **disliked** in existing global nutrition DVTs
   3. **Specific contexts** in which organizations used global nutrition DVTs
   4. **Challenges** with and **recommendations for the** broader nutrition data value chain

Data analysis

1. **Microsoft Excel** was used to organize the data and Responses were collated for respondents by **organization.**

2. Data were independently coded by two analysts using a mix of a **pre-set coding scheme** and **codes derived** from the data

3. A third analyst was brought in for areas of disagreement to ensure **consistency and quality of analysis.**

Limitation: The responses of this study are not representative of the entire organization; study participants were purposively selected based on perceived likelihood of using global nutrition DVTs and were asked to invite others in the organization to participate per their discretion.

Participants were drawn from 22 organizations - a mix of CSOs, donor organizations, regional bodies, academia, and UN agencies

Organization	Description	Number of Organizations
CSO/INGO	Civil society organization/international non-governmental organizations - a wide array of non-profit, citizen-based organizations that function independently of government	8
Donor organization	A bilateral or multilateral organization whose primary function is investing in and financing nutrition programs, while having the voice to engage and influence policy dialogue	5
Regional body	An international organization composed of member countries in a specific region who coordinate action on nutrition	3
Academia	An organization whose primary function is to conduct research on nutrition issues or evaluate nutrition programs	3
UN agency	International organizations that are linked to the United Nations	3
		22

Staff from the following organizations were consulted for this research

CSOs/ INGOs

alive&thrive · bread for the world · HELEN KELLER INTL · Scaling Up NUTRITION · GLOBAL NUTRITION REPORT · gain Global Alliance for Improved Nutrition · Civil Society Network · 1,000 DAYS

Regional Organizations

African Union · Banque Africaine de Développement / African Development Bank · ADB ASIAN DEVELOPMENT BANK

UN Agencies

unicef · WFP World Food Programme · World Health Organization

Donors

THE POWER OF nutrition · Department for International Development · BILL & MELINDA GATES foundation · USAID FROM THE AMERICAN PEOPLE · ELEANOR CROOK FOUNDATION
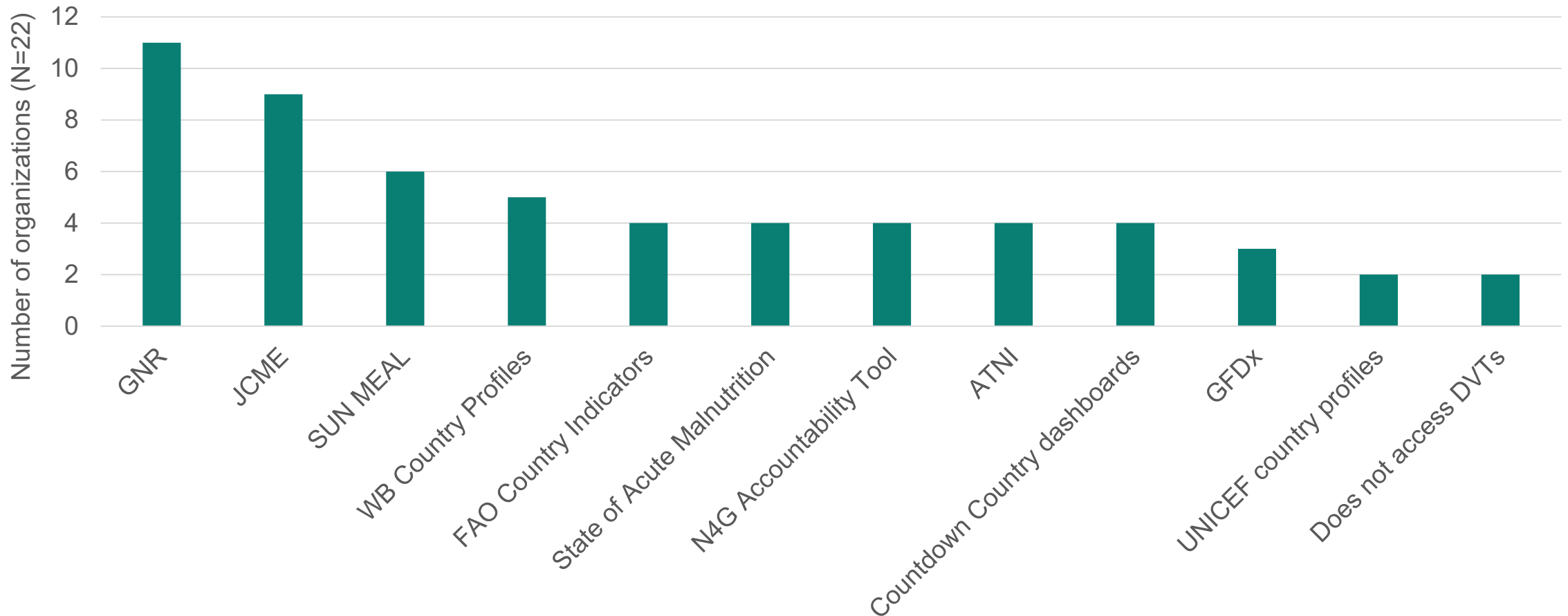
Academia

EMORY UNIVERSITY · UCDAVIS · UNIVERSITY of WASHINGTON

The following DVTs were reported as being accessed in the past 12 months, by respondents at more than one organization

Number of organizations (N=22)

DVT	Count
GNR	11
JCME	9
SUN MEAL	6
WB Country Profiles	5
FAO Country Indicators	4
State of Acute Malnutrition	4
N4G Accountability Tool	4
ATNI	4
Countdown Country dashboards	4
GFDx	3
UNICEF country profiles	2
Does not access DVTs	2

Note: Responses were collated for all respondents from the same organization – if multiple respondents from an organization cited the same DVT, it was only counted once for that organization.

Three key findings emerged from the user research

Respondents consult global nutrition DVTs for a variety of purposes – the most common include to support efforts around advocacy and communication, research, and monitoring & evaluation.

Three sets of factors commonly influence respondent's engagement with global nutrition DVTs: 1) design elements and ease of use, 2) the underlying data, and 3) the perceived credibility of and interaction with the DVT producer.

The usefulness of specific global nutrition DVTs is constrained by broader sector-wide issues with data availability and quality.

Unpacking the Key Findings

Key finding #1

Respondents consult global nutrition DVTs for a variety of purposes – the most common include to support efforts around advocacy and communication, research, and monitoring & evaluation.

Global nutrition DVTs are used for a range of purposes – or "use cases" - depending on the organization

Use Case Types	Description	Number of Orgs (N = 22)
Advocacy and Communication	Share information or raise awareness regarding an issue or set of issues (i.e. to put it on the agenda of intended audience).	18
Research	Identify and prioritize research questions (i.e. to generate new concepts and understandings), or to collect background information for proposals and reports.	16
M&E	Monitor progress of policy or program implementation.	12
Strategic Planning	Set vision, identify strategic priorities, and allocate non-financial resources or provide technical assistance to other stakeholders for similar activities.	10
Program Planning and Implementation	Coordinate and manage program logistics and implementation as well as management of program financial resources.	7
Financing	Guide investment decisions for a donor, government, or other institution.	7

Note: 1) Multiple use-case types could be selected by respondents. 2) Use-cases were coded based on the most immediate use case type identified by the respondent.

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Certain types of organizations were either more or less likely to access global nutrition DVTs for specific purposes or "use cases"

Points of interest:

Regional organizations tended to report not using global nutrition DVTs for any purpose. Only 1 of 3 surveyed used a global DVT in the last year. Reported use case was *for advocacy, communications and M&E.*

More than half of the **financing use-cases** of global nutrition DVTs for were by donor organizations.

Similarly, **strategic planning use-cases** were mainly by donor organizations and UN agencies.

The uses-cases of global nutrition DVTs vary by organization type, in some cases because organizations have different mandates

Use Case Types	CSO/INGO (N = 8)	Donor (N = 5)	Regional Body (N = 3)	Academia (N = 3)	UN Agency (N = 3)	Total (N = 22)
Advocacy and Communication	8	5	1	1	3	18
Research	6	4	0	3	3	16
M&E	3	4	1	1	3	12
Strategic Planning	2	4	0	1	3	10
Program Planning and Implementation	1	2	0	2	2	7
Financing	2	4	0	0	1	7

Note: Certain use-case types may be lower because not all organizations would have this use-case as part of their mandate.

Use-case scenario: Accessing global nutrition DVTs for advocacy and communication

User need: "I look for data messaged in a compelling way to make the case for nutrition to U.S. Members of Congress and Senators."

Sample User Story

Context: The Director of Advocacy and Outreach of a nutrition-focused CSO is **developing briefs for policymakers** in the United States. She needs country-specific data that makes the **case for increased investment in nutrition**.

Journey: The Director accesses several global nutrition DVTs, most frequently the **Hunger and Nutrition Commitment Index, the State of Acute Malnutrition, the Nutrition for Growth tool, and Investing in Nutrition tool.** She creates audience-focused briefs that report this data and pulls **infographics from DVTs** on **nutrition outcomes, coverage** and **financing to put** alongside a narrative that demonstrates the case for nutrition to U.S. policymakers.

Data from non-DVT sources used:

- Annual reports from specific data sources

Note: The sample user stories are actual examples of DVT use as described by the respondents

Use-case scenario: Accessing global nutrition DVTs for research

User need: "I need to research the nutrition situation in a country to get background information."

Sample User Story

Context: A nutrition advisor at a donor organization needs to **have situational awareness of the different countries** he is supporting. He needs to **stay up to date with information** from these countries.

Journey: The nutrition advisor accesses a set of global nutrition DVTs (in addition to other data sources), most frequently the **SUN country dashboards** and **USAID's Journey to Self-Reliance scorecards,** to find the **coverage indicators** and **nutritional status indicators** in countries of interest.

Data from non-DVT sources used:

- Reports from specific population-based surveys (e.g. DHS)

Use-case scenario: Accessing global nutrition DVTs for monitoring and evaluation

User need: "I need to help member countries monitor progress towards achieving the World Health Assembly targets."

Sample User Story

Context: An M&E officer at a multilateral development bank **is developing reports on nutrition for heads of states from several countries**. She needs updated statistics to **write a narrative on their progress towards nutrition targets**.

Journey: The M&E officer accesses several nutrition DVTs for this purpose. Most data come from a regional DVT - the **Continental Nutrition Accountability Scorecard,** but she occasionally refers to global nutrition DVTs including the **Joint Child Malnutrition Estimates, Global Nutrition Report, SUN MEAL Dashboard, and the Nutrition Landscape Information System.**

Data from non-DVT sources used:

- *none mentioned*

Other types of use-cases were also mentioned, although by fewer respondents

Financing

*"[We access data from DVTs on nutrition outcomes] to **identify countries eligible to invest in**" – Donor organization*

Strategic Planning

*"For our **5-year strategic plan update we did a more comprehensive scan** of these DVTs, but [again] not in an ongoing way" – Donor organization*

Program Planning & Implementation

*"[We use them for] **program planning when we do technical assistance** to countries." – Academia*

Key finding #2

Three sets of factors commonly influence respondent's engagement with global nutrition DVTs: 1) design elements and ease of use, 2) the underlying data, and 3) the perceived credibility of and interaction with the DVT producer.

Sub-findings:

2.1: Within the domain of user experience, respondents reported **liking specific DVTs that they considered easy to use** and identified lack of simplicity or usability as a major challenge across the current global nutrition DVT landscape.

2.2 Users appreciated DVTs that contained **specific indicators relevant to their needs**, and often cited challenges with **timeliness of updates to the DVT and limited accessible metadata.**

2.3 Respondents frequently cited **perceived credibility of the tool** and the **engagement with producers around use of the tool** as factors they liked in global nutrition DVTs.
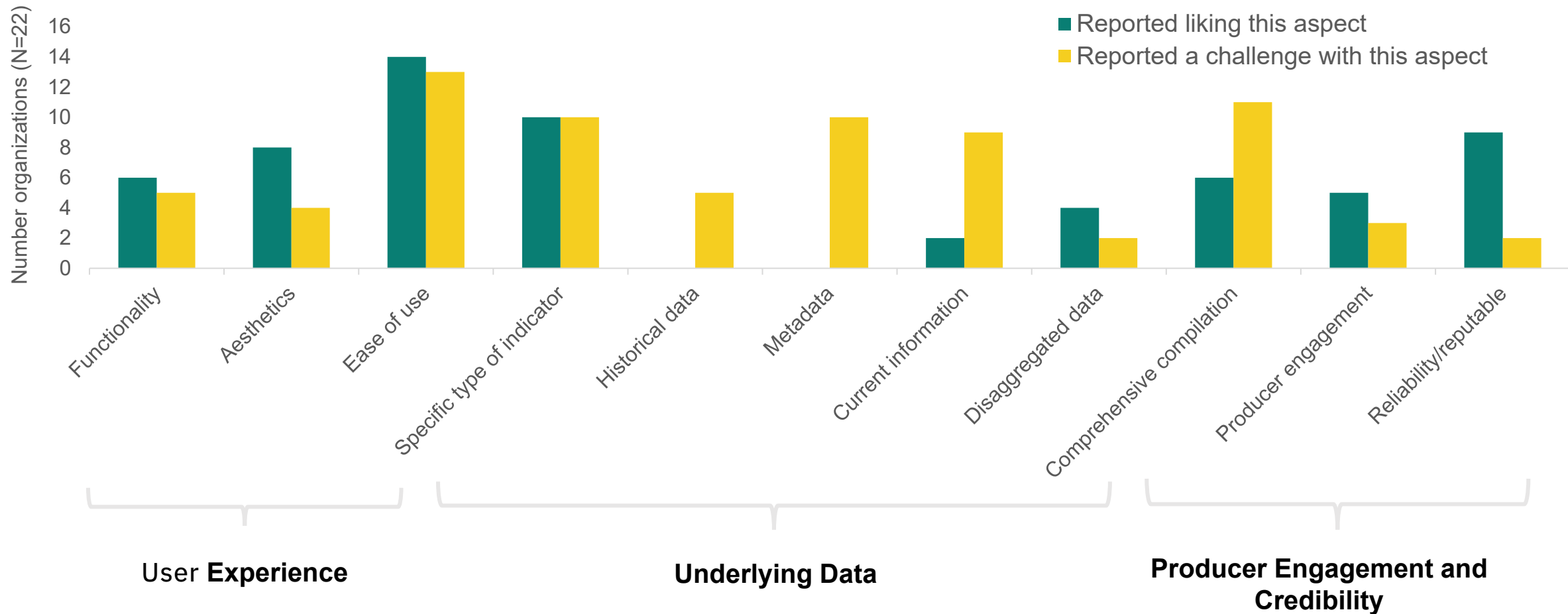
2.4 To overcome common challenges related to DVT use, respondents suggested including **guidance** on navigating and interpreting the DVT along with **adequate information on the methodology, context and underlying raw data**

Respondents reported either liking or having challenges with DVT elements that can be broadly grouped under three dimensions

Dimension	Aspect
User Experience	▪ **Functionality**: the degree to which a DVT that can be customized by the user ▪ **Aesthetics**: the overall appearance of a DVT, including aesthetically pleasing visualization aspects, such as color schemes and types of visualizations ▪ **Ease of use**: the degree to which a DVT is easy to understand or use, including navigability and clarity of visualizations
Underlying Data	▪ **Specific types of indicator**: if a DVT includes specific indicators of interest to the user including indicators of enabling environment, coverage, and financing ▪ **Historical data**: if a DVT includes historical data allowing comparison over time ▪ **Metadata**: if a DVT includes adequate information about data (i.e. details about methodology, explanation and context of data, date of data collection) and/or underlying raw data ▪ **Current information**: if a DVT displays the most updated data available ▪ **Comprehensive compilation**: the degree to which a DVT compiles many indicators and types of data in one location
Producer Engagement and Credibility	▪ **Producer engagement:** the degree to which a DVT that has systems for engaging with the DVT producer through feedback or user support ▪ **Reliability**: the degree to which a DVT is perceived by users as being credible

Note: The above categories and definitions were generated using the respondent interviews and encompass the responses we received

Frequency of factors reported by respondents as "likes" or "challenges" across global nutrition DVTs

Note: Responses were collated for all respondents from the same organization – if multiple respondents from an organization cited the same aspect, it was only counted once for that organization.

The GNR, the most frequently-cited tool, was well-liked for its ease of use among its users

■ Reported liking this aspect

■ Reported a challenge with this aspect

Number of organizations that cited using the GNR (N=11)

Categories: Functionality, Aesthetics, Ease of Use, Specific Type of Indicator, Historical Data, Metadata, Current Information, Disaggregated Data, Comprehensive Compilation, Producer Engagement, Reliability/Reputability

Note: Responses were collated for all respondents from the same organization – if multiple respondents from an organization cited the same aspect, it was only counted once for that organization.

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The JCME, the second most frequently-cited tool, was liked for its ease of use and reliability among its users

■ Reported liking this aspect
■ Reported a challenge with this aspect

Number of organizations that cited using the JCME (N=9)

Note: Responses were collated for all respondents from the same organization – if multiple respondents from an organization cited the same aspect, it was only counted once for that organization.

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Several users of the GNR and the JCME cited multiple likeable characteristics in both nutrition DVTs

GLOBAL NUTRITION REPORT

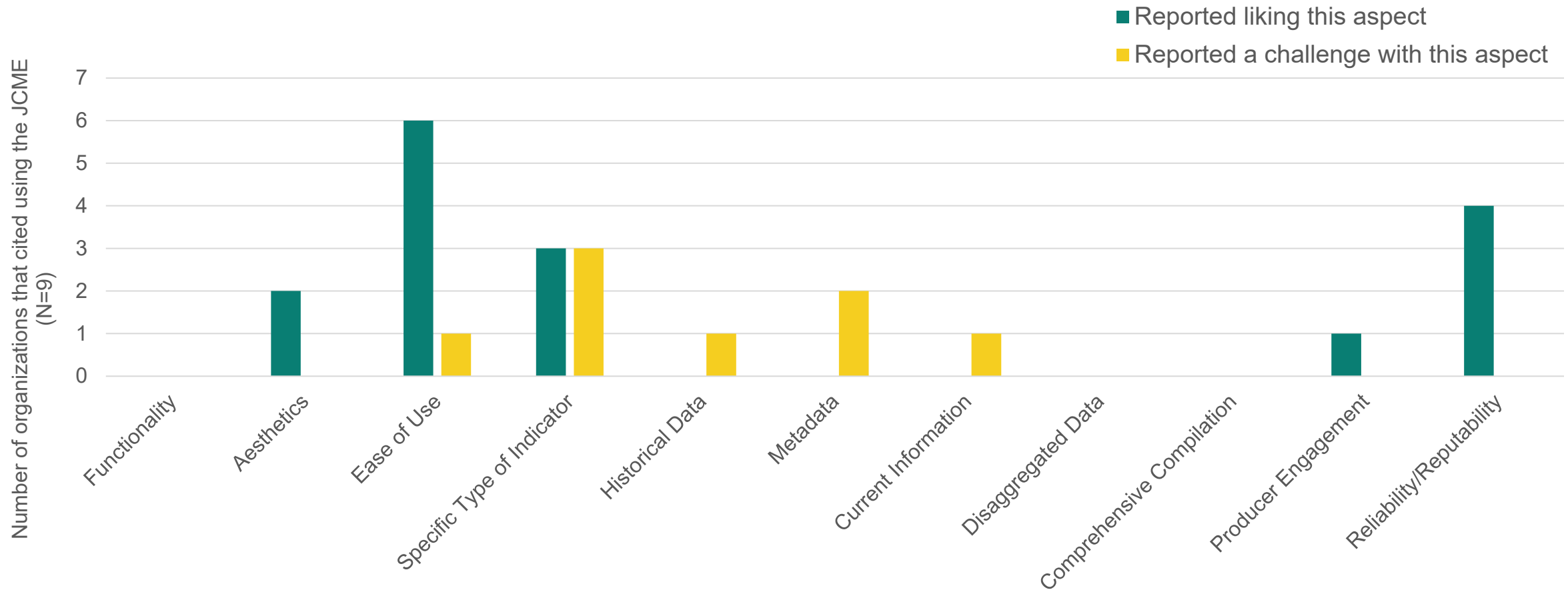*"I think [the GNR] is useful to bring together progress against targets and I think it's clearly presented. I'm looking at the new one now, and it has disaggregations by gender, rural vs. urban, income. That's quite helpful"*- Donor Organization

"For GNR, similar to the SUN MEAL one, it has a lot of different data points in one place as a repository, so I didn't have to go to a lot of different sources to get it…it was labeled very clearly" – CSO/INGO

LEVELS AND TRENDS IN CHILD MALNUTRITION
UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates

"What works for the [JCME] is simplicity. I don't want to scroll through 20 pages to get one data point. They make key data points very accessible. They understand their audience and know that's what people are looking for" – UN Agency

"[The JCME] is definitely fit for purpose. It's very consumer friendly though and a great tool to share info with a more general audience" – Donor Organization

Note: Other characteristics that organizations reported liking in the GNR and JCME include the aesthetics of the DVT, the credibility of the producers, and the user engagement that accompanies the tools.

Users highlighted specific global nutrition DVTs as examples of tools that are simple to understand and to use

DVTs	Responses
Joint Child Malnutrition Estimates Dashboard	*"**The JCME is quite clear**. It's easy to navigate."* – CSO/INGO
Global Nutrition Report	*"I think the **GNR is more user friendly** for the comms sections, and that's where they [the communications team] go."* – Donor organization
World Bank Country Profiles	*"What I like about the WB country profiles is that rather than having to search in the MEAL, it **gives it to me in an efficient way**. And when you look at it country to country, you know where to find things."* – CSO/INGO
State of Acute Malnutrition	*"[I like] just the **fundamental interface and how easy to use** they are"* – Donor Organization
Access to Nutrition Initiative	*"With ATNI….I like really clear data points that **show a message** in a very obvious way."* – CSO/INGO

Users also liked specific tools that they considered visually pleasing and interactive

THE WORLD BANK
IBRD • IDA

"[The WB country profile] visualization is quite good because…**it allows you to modify it a little bit** and do quick comparisons.

-UN Agency

UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates

"For the JCME, they have these **amazing infographics** that break it down by geographic region"

-Academia

ACCESS TO **NUTRITION** INITIATIVE

"I like the aesthetics of it [ATNI]…It also needs to look pretty and **I think the aesthetic makes a difference**. Clear and simple are my biggest criteria"

-CSO/INGO

Countdown to 2030

"It [Countdown Country dashboard] is better than other tools **because it is very interactive.** I like the way it is presented and the interactivity."

-CSO/INGO

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Some respondents mentioned liking DVTs that included specific indicators while others mentioned liking DVTs that were comprehensive

Example: Specific Indicators

Example: Comprehensive Compilation

*"They [WB country profiles] **show coverage, which is great**, they show Vitamin A coverage, they show the economic impact to the country. Those are very compelling." –* CSO/INGO

"It's helpful to go to ATNI and say 'okay this it what [this company] promised to do' and they've been scored quite highly so there's scope to put pressure on and say 'why is this happening if you're committed to nutrition improvement.'" – CSO/INGO

*"I think I like it [SUN MEAL] **because it provides a good context and provides a wide range** of information. It has information about nutrition status but also around a country's commitments to nutrition" –* Donor Organization

*"[The GFDx] is nice because **it summarizes all the information for that country in one place**…there are visualizations that have different types of information, like legislation and monitoring…you get a summary" –* Academia

Users cited a wide range of challenges related to the underlying data domain

Challenge:	Example:
Unknown Metadata	▪ *"**What is missing? That metadata is the first thing that I come back to**. The WHO has the indicator name, full definition, type of data, their own topic, and method of estimation and this is really useful and is not always clear from other sources" – CSO/INGO*
Lack of Current Information	▪ *"I think for a lot of these DVTs, **if you're going to use it, you want to be sure it is continually updated** and hosted by something like FAO, WHO, or the WB where you know there will be resources going to sustaining it" – Donor Organization*
Fragmentation across tools	▪ *"I think my one gripe with the visualizations is that you've listed 22 and **I'm sure there's probably more and they're very niche and specific.** And if you need data, you either have to manually receive it from the page or you can only download specific subsets. It's very difficult to make the different data points speak to each other." – UN Agency*

Note: Few respondents also cited lack of historical and disaggregated data as key challenges with underlying data.

Respondents liked global nutrition DVTs that they perceived as having credible producers and/or producers who engaged with the users

Producer Reputation

*"The GNR I always access whenever there is a launch and it is a reference document **because of its credibility**…we are always using it and everyone will say that because it is very credible combined source"* – CSO/INGO

*"[The JCME] has really rapidly become the annual update on the numbers and…is UNICEF's official number so **that official nature of it is important** because I can reference it while knowing that the vetting process behind it makes it reliable"* – UN Agency

Producer Engagement

*"[UNICEF country profiles] I like too because I know [a contact there] so **if I have a question I can send her a quick email**. I think there's that sense of 'I can use this because if I have a question on it, I know who to go to.'"* – CSO/INGO

*"The JCME did this **[presentation on key pieces of data] this year and it was really nice**. It responds to different needs from different users...It's nice to summarize key data and can explore more in detail if you want using the dashboards."* – CSO/INGO

Respondents recommended ways to address challenges with user experience and underlying data but not for producer credibility and engagement

Challenges

Potential solutions suggested by respondents for global DVT producers

User experience

- Include guidance and trainings on how to navigate and interpret the DVTs

Underlying data

- Include additional coverage and financing indicators as well as historical data
- Include metadata and allow access to underlying raw data
- Update tool regularly and specify when next update will occur

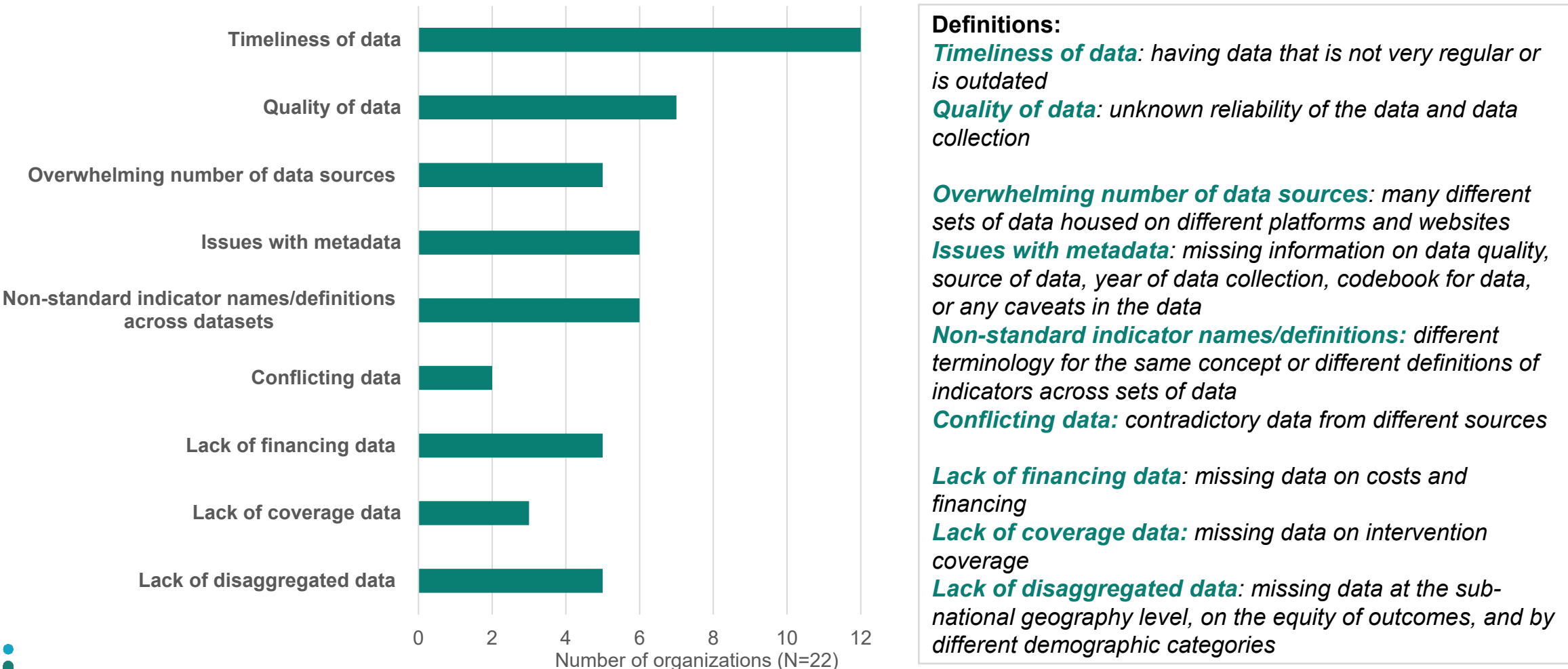**Producer Engagement and Credibility**

- *No recommendations suggested*

Key finding #3

The usefulness of specific global nutrition DVTs is constrained by broader sector-wide issues with data availability and quality

Respondents reported several broader challenges with accessing and understanding nutrition data not specific to the DVTs

Number of organizations (N=22)

Definitions:
Timeliness of data: having data that is not very regular or is outdated
Quality of data: unknown reliability of the data and data collection

Overwhelming number of data sources: many different sets of data housed on different platforms and websites
Issues with metadata: missing information on data quality, source of data, year of data collection, codebook for data, or any caveats in the data
Non-standard indicator names/definitions: different terminology for the same concept or different definitions of indicators across sets of data
Conflicting data: contradictory data from different sources

Lack of financing data: missing data on costs and financing
Lack of coverage data: missing data on intervention coverage
Lack of disaggregated data: missing data at the sub-national geography level, on the equity of outcomes, and by different demographic categories

Note: Responses were collated for all respondents from the same organization – if multiple respondents from an organization cited the same challenge, it was only counted once for that organization.

Several respondents gave examples of broader challenges with nutrition data that were experienced across all types of organizations

Timeliness of data	*"For example you look for DHS information for one country **and the latest information is from 8 years ago. Those kind of gaps make it not as current."** –Academia*
Quality of data	*"There are challenges with data quality, especially with routine monitoring systems when we are strengthening these systems and there are new indicators, **they may be unreliable**" – Donor*
Number of sources	*"But I think there's so many sources, **it can be overwhelming**…Especially if they are not trained in nutrition or public health, it can be quite off-putting for people." – CSO/INGO*
Conflicting data	*"Sometimes it can **get confusing to figure out what's the best source if something contradicts** something else." – CSO/INGO*
Lack of financing data	*"I think for finance data, **the financing data has a huge deficit there.** You have to piece things together and basically build correlations" – UN Agency*
Lack of coverage data	*"One thing we talk about a lot is **programmatic coverage data, which can be hard to get**…I wish we had a bit more of this" – Donor*
Lack of disaggregated data	*"[We are missing] **having data that's disaggregated at state** or district or province level. It's often just not there…I think that's a fairly common challenge." – CSO/INGO*

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Recommendations to address broader challenges with the nutrition data availability and quality

Fund and conduct timely and quality data collection of key indicators necessary for decision-making

Include indicators on coverage and financing, and geographically and demographically disaggregated data that are actionable

Standardize indicators names, definitions, and geography names to reduce differences in definitions and conflicting data

Strengthen capacity of users by conducting in-person trainings, engaging users, and creating a narrative for non-technical audiences

Create a data directory so users have a resource which could direct them to identify where they can find information (whether from specific DVTs or data more generally) by topic area

Recommendations for DVT producers

The recommendations below can help DVT producers facilitate better engagement with their users

Conduct user research to understand different needs of target DVT users and how different user profiles interact with their tool. It is important for producers to be guided by a clear theory of change around how the intended user will take action after accessing their DVT. Specific recommendations include:

- **Test different ways of visualizing data** and strengthen the design of the global nutrition DVTs by applying best practices to the specific user context.

- Ask priority user groups about **what specific indicators they need to have collated in order to spur action**; these likely include indicators **on coverage and financing**, as well as **disaggregated data.**

Be transparent on where the data has come from, any re-analysis of the data, and assumptions. **Quality of data** is of paramount importance to the **perceived credibility** of the visualization tool.

Train users to understand, interpret, and use the data correctly. The level of guidance and approach to training (e.g. help menu; online tutorial; in person workshops) will depend on the data literacy of the targeted users and should align with the DVT's theory of change.