1 Understanding how data matters

Table of Contents of the Module

Understanding how data matters

Many projects at IFRC have a data component as data has become a part of everyone's job at IFRC. This module is for anyone who wants to use data but isn't sure where to start. It is also for anyone who wants to help others understand how data matters in their work.

Questions this module explores

- ► How to explain to teams and organisations the importance of data.
- ► What are some of the discussions and best practices to highlight the importance of data in humanitarian action.

Learning Objectives

- ► Differentiate between data and information
- ► Explain why data matters in humanitarian action
- ► Explain how data matters in humanitarian action

Topics

- ► What is meant by data
- ► Importance on the availability of data and the role it plays in humanitarian action
- ► Impact of data in humanitarian action

Recipes

A suggested step-by-step process to achieve learning objectives

1. Start with **What Data is in a Piece of Fruit (1 - 1)** to get people thinking about data and context.
2. Guide participants to build an understanding of **What is Data? (1 - 2)**.
3. Run the **What is Data? (1 - 2)** to refine the difference between data and information.
4. Proceed with **Personify Data (1 - 5)** to elaborate on why data matters within humanitarian projects.
5. To provide additional context for data use within IFRC use **Personify Data (1 - 5)**.
6. Finish with **No Data Situation (1 - 6)** where participants will be able to discuss how data is important in their work.

Ingredients

Pick and choose ingredients to create your own recipe. Do you have an ingredient we're missing? Send an email to data.literacy@ifrc.org

Exercises

Short, discrete social learning experiences

- ► What is in a piece of fruit
- ► Personifying Data
- ► No Data Situation

Session Plans

Longer social learning experiences

n/a

Slide Decks

Presentations to be used and/or adapted:

- ► What is Data
- ► Data and Information Question and Answer
- ► Why does Data Matter

Checklists/Handouts/Materials

For documentation of essential elements of the learning experience

n/a

Next Steps

Relevant modules in the Data Playbook

Are you working with a team or organisation on building their ability to use data in humanitarian work? You should start working with **Nurturing a Data Culture (2)** and continue to work consecutively through the playbook.

Credit

Dirk Slater, Melissa El Hamoush, IFRC V1 Sprint and Data Playbook Beta contributors

1 - 1 What Data is in a Piece of Fruit

This exercise will help participants understand how data can be found everywhere and also how when context changes, so does the data.

► **People:** 2 to 16 people
► **Time:** 20 Minutes
► **Difficulty:** Easy
► **Materials:** A piece of fruit for each participant (or one per pairs) e.g., an apple or an orange. Something that people can hold without it being messy. Get another kind of fruit if you want to run the extra credit exercise. Flip-chart paper and markers (face-to-face) collaborative online document (online session)
► **Virtual Materials:** Virtual meeting platform, shared document/writing space.

Preparation

If the meeting is virtual, ask participants to bring a 'piece of fruit' for the exercise.

Exercise

Part 1: Explore

Collecting the right data is integral if we are to use data to make the right decisions. When we collect data from human subjects, there are countless data points that we could choose to collect. In this exercise, we will think about the many data points that could be collected.

Pass out a piece of fruit to each participant (apples work great). Get participants to break into pairs and make a list of all the different data they think the apple contains or represent. Likely they will come up with answers around nutrition (calories, vitamins, sugar) and prices, place grown, etc.

After they have had five minutes, ask them to think about what data would come from a bag of the fruit.

Part 2: Discuss

Then in a large group discussion, get them to share their answers. Point out how the data they find will often depend on what they are going to do with the fruit, for example: different consumers will be interested in different data and what is useful to one data consumer may not be useful for the other. Get the group to practice understanding what

data is needed by different data consumers and what should be excluded. Get the group to write down different data that would be of interest to different data consumers:

Question: Person buying fruit; If I'm going to buy the fruit, I want to know the variety, price, the date it was picked, and where it was picked.

Question: Person eating fruit; If I'm going to eat the fruit, I may want to know about nutritional values, ie. vitamins contained, calories.

Question: Person selling fruit; If I have a bag of fruit, I may want to know how much they are going for at the market.

Question: Person picking fruit; If I'm a fruit picker, I may want to know how much I can get paid for a bag of fruit and how long it will take me to pick a bag.

Question: Who else?

Ask participants to think about any other scenarios they can think of that would lead them to different data about the fruit.

Extra Credit

Pass out another kind of fruit and ask, what data will this fruit have that is the same as the other piece of fruit. (To raise issues of standardisation). Also see **Getting the Data We Need (4)** option to present the group with a consumer to compare with the original list of variables and discuss data collection aspect:

"I am a manager of a market and I need to place an order for oranges from a farm or produce distributor". We need to ensure we are collecting the right data from the managers to make a decision, not too much data and not too little data:

- ► What data is useful for this manager?
- ► What data is no longer useful?
- ► Can any of the data be collected from secondary sources?
- ► What is left for us to collect?

Credit

Adapted from A Data Strategy Workshop Curriculum, Dirk Slater, FabRiders

1 - 2 What is Data?

Rachel Yales & Heather Leson

Data can be defined as:

Discrete pieces of **facts**, such as amounts, prices, measurements, dates, names of places and people, or addresses.

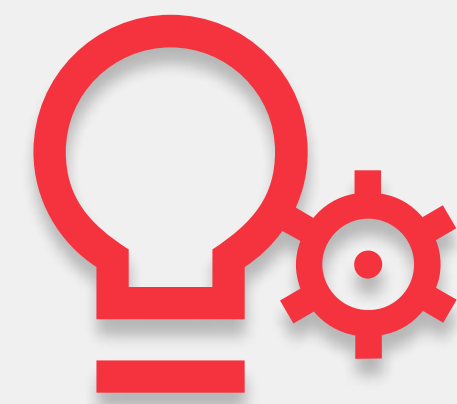**Facts and statistics** collected together for reference or analysis.

Data can lead to:

Data   →   Information   →   Learning   →   Decision

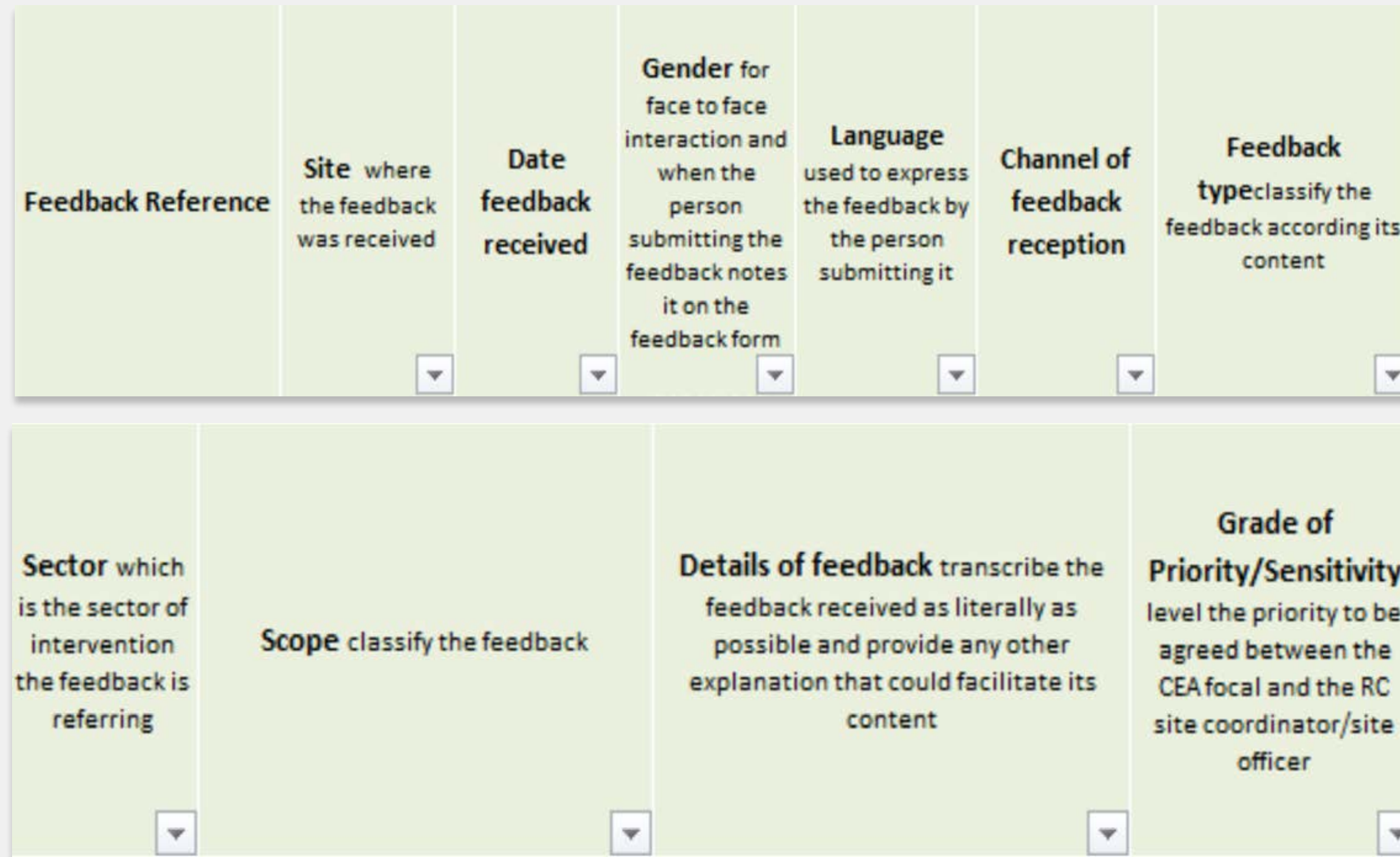(i) Helen Welch, MEAL Director American Red Cross, the Digital Transformation Strategy digital.ifrc.org

From Data to Information:

1   Data is **everywhere**.

2   Data is **naturally messy** and **lacks sense**.

3   Data can often be **structured**, **semi-structured**, **unstructured** and **processed**.

4   **Information** is data that **makes sense**.

From Data to Information:

Data must be interpreted, processed, analysed, or presented to become **Informative**.

From Chaotic Data

...to processing and organizing the data...

Feedback Reference	Site where the feedback was received	Date feedback received	Gender for face to face interaction and when the person submitting the feedback notes it on the feedback form	Language used to express the feedback by the person submitting it	Channel of feedback reception	Feedback type classify the feedback according its content

Sector which is the sector of intervention the feedback is referring	Scope classify the feedback	Details of feedback transcribe the feedback received as literally as possible and provide any other explanation that could facilitate its content	Grade of Priority/Sensitivity level the priority to be agreed between the CEA focal and the RC site coordinator/site officer

… to turning it into 'information'…

Grade of Priority/Sensitivity level 1 Urgent/Red Cross related services			
Priority	**Column Labels**		
Sector	**Ritsona** ▾	**Skaramagas**	**Grand Total**
Asylum process and legal advice		1	1
BHC	20	24	44
Others	4		4
Protection		1	1
PSS	1		1
Relief	9	4	13
RFL		1	1
Shelter	1	1	2
WASH	6	18	24
Grand Total	**41**	**50**	**91**

Data Types

Community/Citizen

- SMS Mobile Data
- Email
- Surveys
- Social Media (Whatsapp, Facebook, Twitter, Instagram)
- Multimedia (Photos, Video, VR)

Government

- Census/Population
- Statistics
- Infrastructure
- Finance/Budgets/Spending
- Companies/Land Ownership
- Pollution Index/Water Quality

Physical

- Geographical
- Infrastructure

Aerial/Satellite

- Satellite
- Aerial/UAV
- Balloon Mapping

Sensor/New Tech and Emerging Technology

- Biometric
- Genetic (Crispr)
- Movement
- Meteorology
- Bitcoin
- Blockchain

(i) Also see the **Data Science and Emerging Technologies (10)**

Thank You

Melissa El Hamouch, Dirk Slater, and Rachel Yales

1 - 3 Data and Information Q&A

By Isaac Ndoricimpa, Burundi Red Cross Society

25 litres of water received by XY HH on 1st March
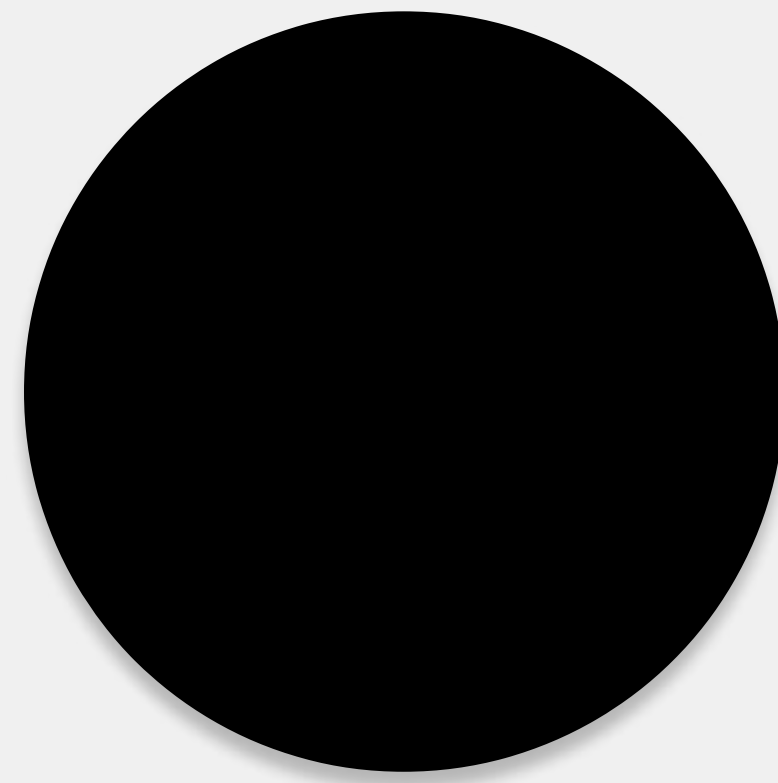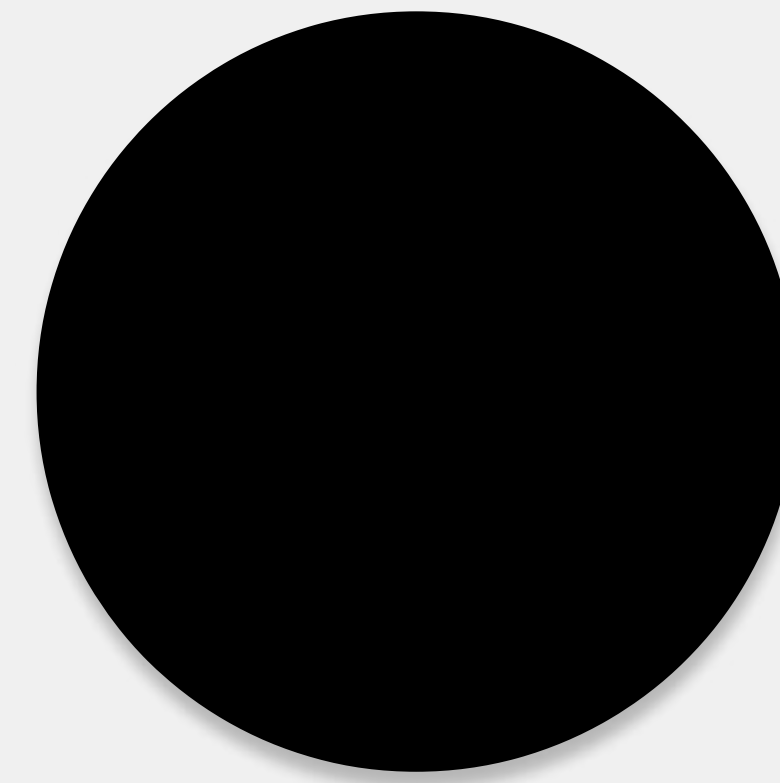
Data

Information

25 litres of water received by XY HH on 1st March
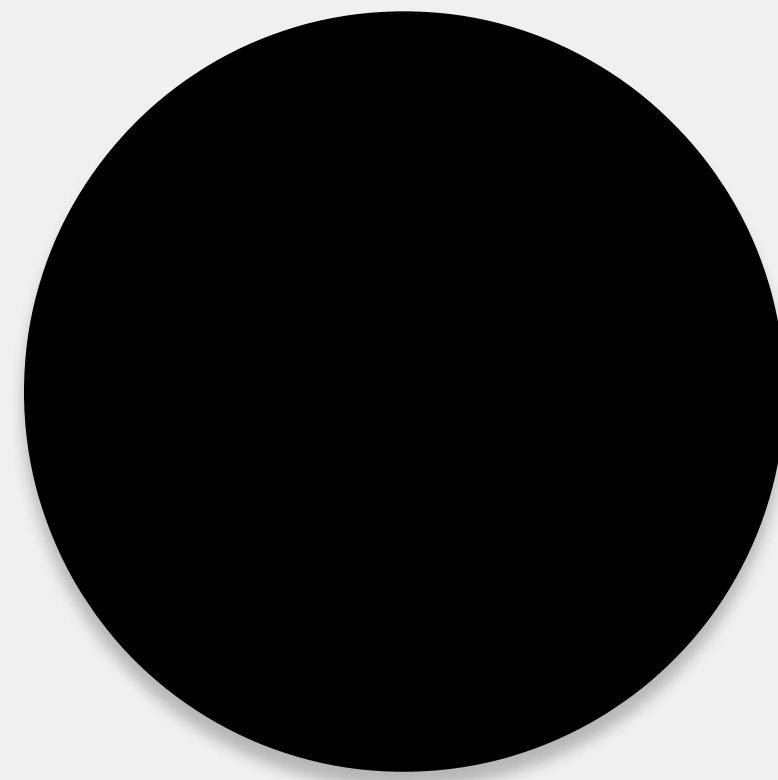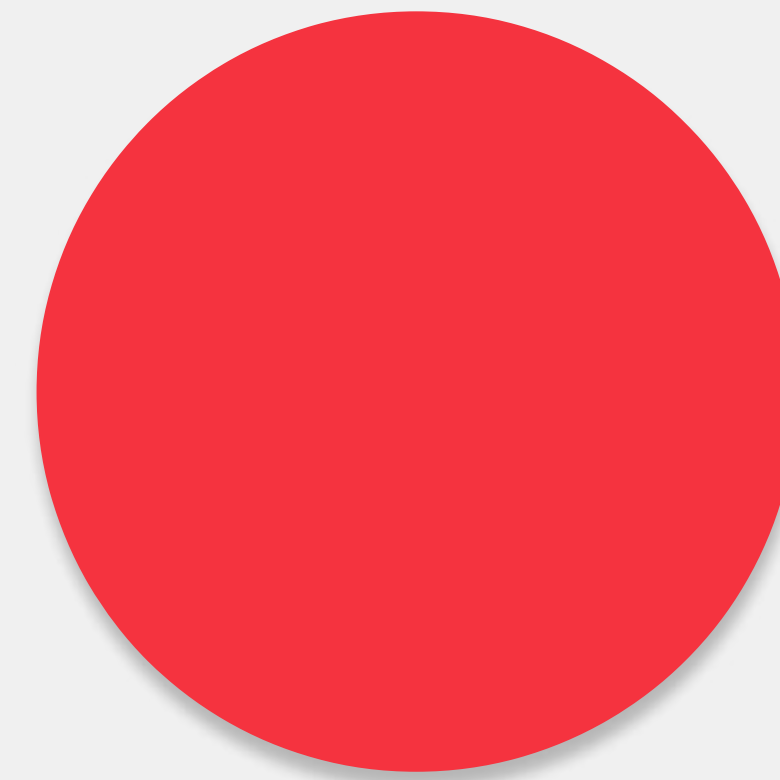
Data

Information

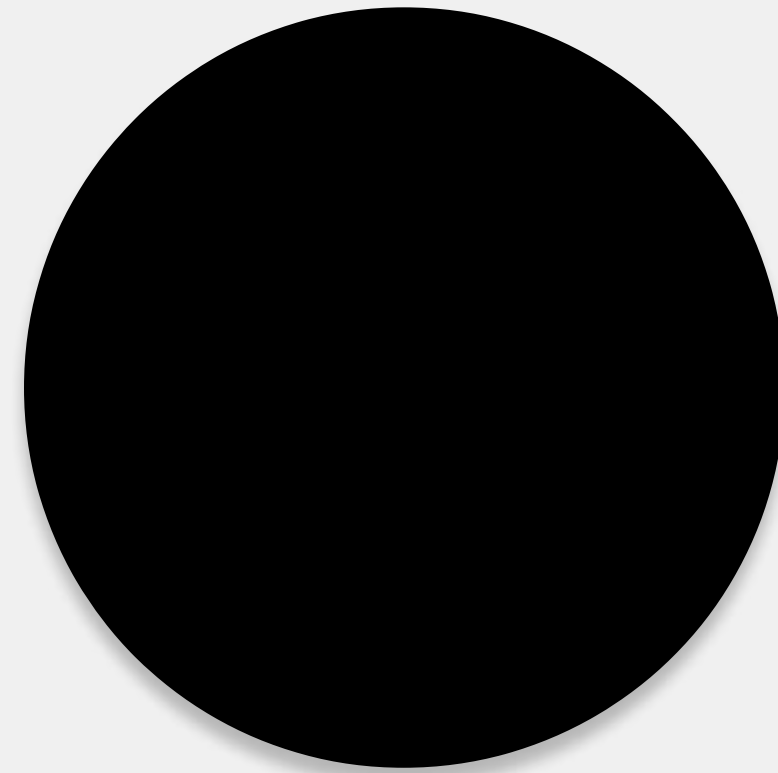# 25 cases of cholera cases declared in South Health District during February
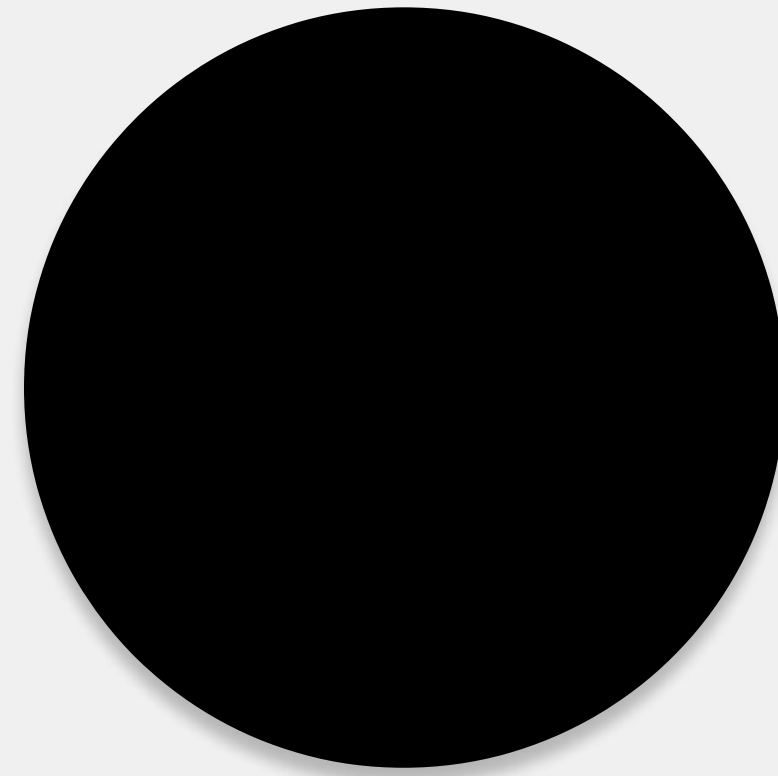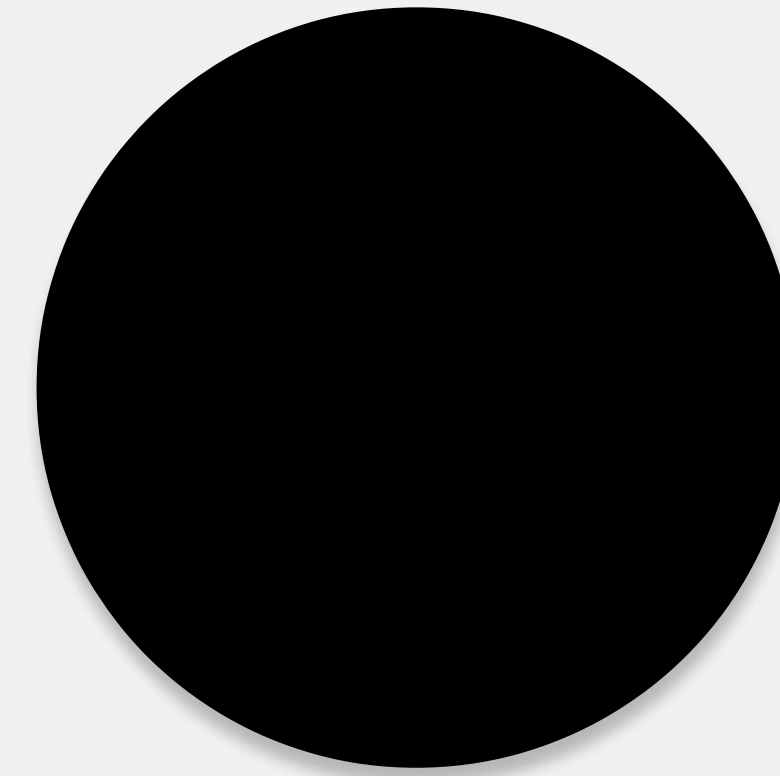
Data

Information

25 cases of cholera cases declared in South Health District during February
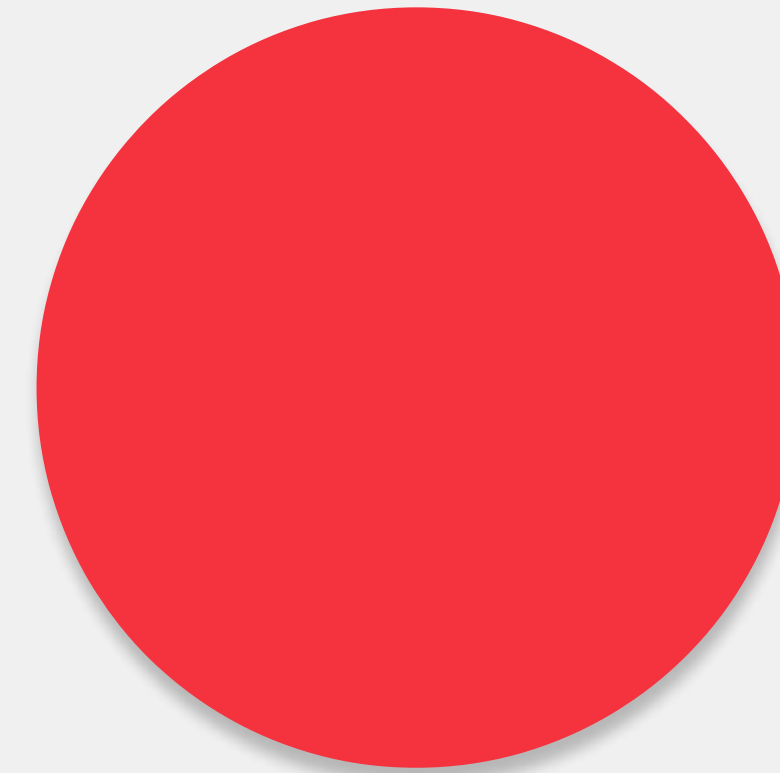
Data

Information

Mobile data collection

Data

Information

Method of Data Collection

Tool of Data Collection

Mobile data collection

Data

Information

Method of Data Collection

Tool of Data Collection

60 litres of fuel consumed by Red Cross trucker on 2nd February

Data

Information

Method of Data Collection

Tool of Data Collection

solferino
academy
IFRC

60 litres of fuel consumed by Red Cross trucker on 2nd February

Data

Information

Method of Data Collection

Tool of Data Collection

265 volunteers trained on shelter during Q4/2017

Data

Information

Method of Data Collection

Tool of Data Collection

265 volunteers trained on shelter during Q4/2017

Data

Information

Method of Data Collection

Tool of Data Collection

Data vs Information

Data is an element which has not yet been interpreted and put into context.

Examples:

► Fuel consumed by Red Cross trucker on 2nd February: 60 litres

► Distance traveled by trucker on 3rd February: 85km

► Information: An interpreted data

► E.g. Number of cholera cases during February month

► Putting data into context creates added value to constitute information

Thank you

By Isaac Ndoricimpa, Burundi Red Cross Society

1 - 4 # Why Data Matters

The Data Revolution is **here**

Are we Data Ready?
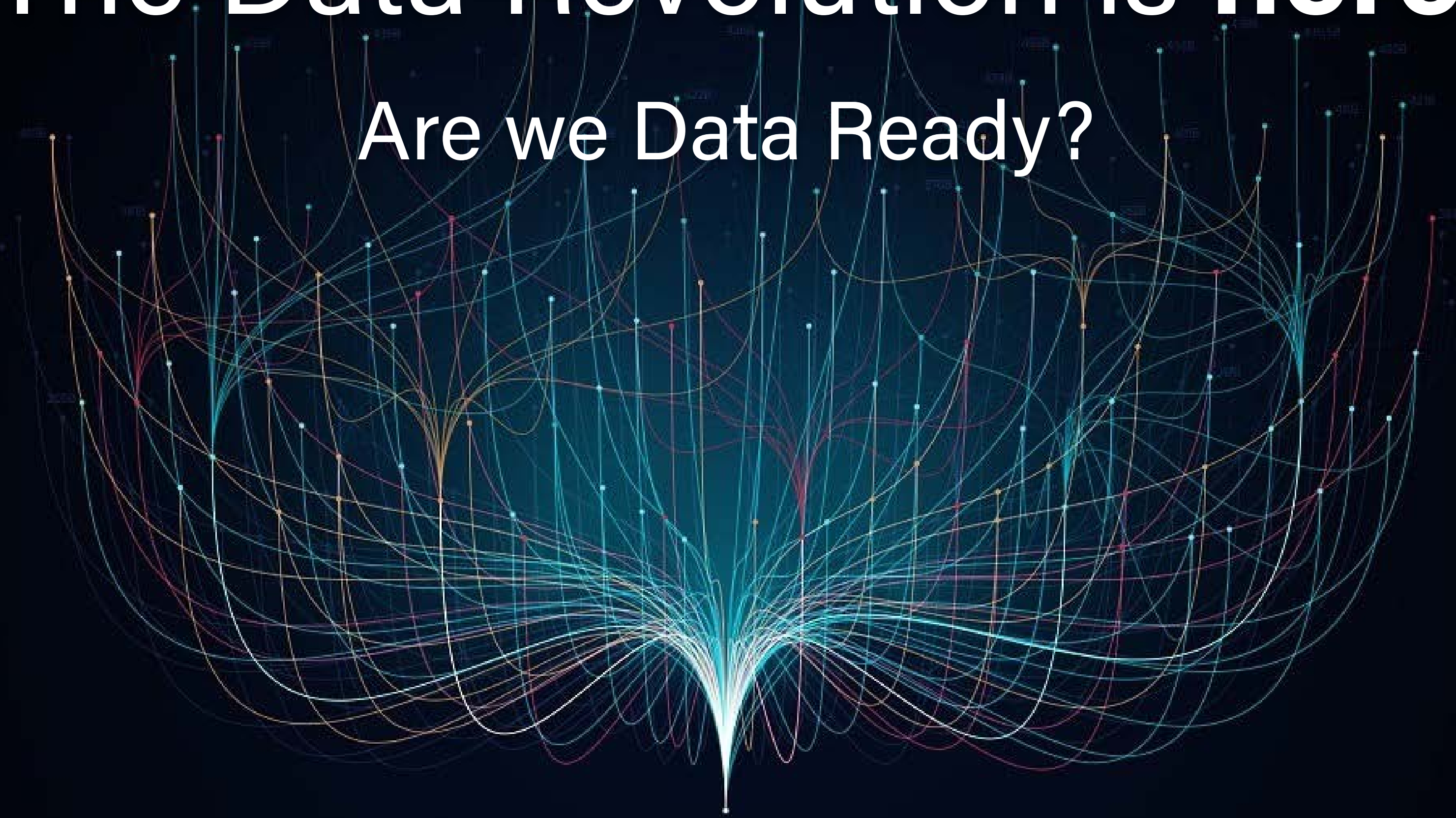
BIG DATA

Data can lead to:

Data → Information → Learning → Decision

(i) Helen Welch, MEAL Director American Red Cross, the Digital Transformation Strategy digital.ifrc.org

(i) Source: go.ifrc.org

Data is part of our **Leadership**

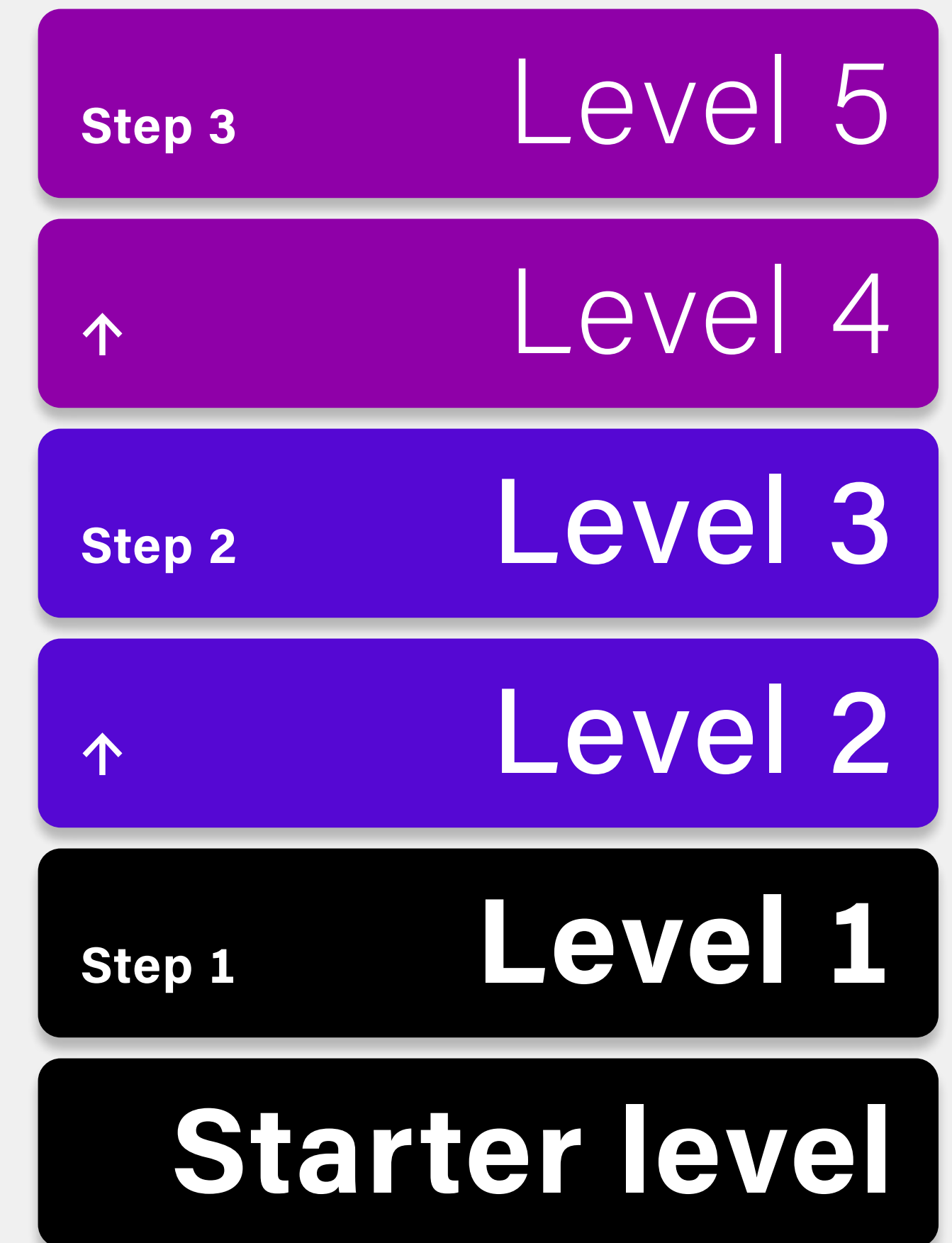**IFRC is the Secretariat, National Societies, and volunteers.**

We aim to be a data-driven organisation making evidence-based decisions. Digital Transformation enables our humanitarian efforts to meet our global challenges.

(See IFRC Strategy 2030)

IFRC Digital Maturity Model

Data literacy is part of the digital transformation journey. There are three main steps in the Digital Maturity model:

1   Fundamental IT in place and functional (Starter level -1)

2   Leadership driving digital services, increasing capability in systems (level 2-3)

3   Digital services at the heart of the culture, recognised expertise in the application of emerging technologies. (level 3-4)

Step 3	Level 5
↑	Level 4
Step 2	Level 3
↑	Level 2
Step 1	Level 1
	Starter level

Digital as an enabler of transformations

CLIMATE & ENVIRONMENTAL CRISIS	Mobilise volunteers and the RCRC movement. Provide early warning alerts to support community resilience. Get more quality local data, assess impact, inform strategies
EVOLVING CRISES & DISASTERS	Provide life saving info to communities Provide data and digital information for decision-makers Tap into the quality data produced by the network and partners to inform disaster preparedness, response and recovery.
GROWING GAPS IN HEALTH & WELLBEING	Analyse migration trends and patterns and migrants needs Connect migrants and communities with their relatives Deliver service to the communities. Mitigate digital risks for migrants
MIGRATION & IDENTITY	Analyse migration trends and patterns and migrants needs Connect migrants and communities with their relatives Deliver service to the communities. Mitigate digital risks for migrants
VALUES, POWER & INCLUSION	Work across functions and organisations and foster a common culture Communicate and share concerns, ideas, knowledge and skills Work hand in hand with IT

↑ Enabled by **digital transformation** ↑

Data-literate is not the same as data-skilled

"A data-literate organisation is one that shares a culture of data and a strong vision of the future. Most people invested in this vision will have no analytic interaction with data and may never need to.**"**

(i) Source: Open Data Institute

What is Data Literacy?

"Data Literacy includes the skills, knowledge, attitudes, and social structures required for different populations to use data."

(i) Source: School of Data

What does data literacy mean for me?

Role	Task
IM/Operations/PMER/Health	Deliver projects with information products/ More people served with less effort
Marketing	Excellent data/analysis, narrative for storytelling
Communications	Brand and fundraising
IT	Faster reaction time, assess and support data products/tools, provide infrastructure
Training	Provide e-learning, workshops and technical training
Manager	More accurate strategic planning, staff development, organisation development
Community served	More efficient targeting and programme delivery, get feedback

Potential benefits of focusing on Data literacy

► Teamwork/Collaboration

► Increased Accountability/Transparency

► Organisational Effectiveness (reuse, decrease of duplication)

► Financial improvements

► Improves digital inclusion

► Competencies/skills

► Supports your organisational digital transformation goals

How can we prove "Data Readiness?"

We measure many things at IFRC.

How Might Data Readiness measurements be incorporated into existing frameworks:

►   IFRC Digital Maturity model

►   PMER/MEAL

►   Surge/IM

►   OCAC/BOCA

►   Program Planning

►   Competencies

Data Pipeline

► When we talk about "data", people often focus on the skills, tools and the process steps for delivery of data products like a "dataset."

► The 'Data Pipeline'* is an example of data ready skills. We all have varying levels of know-how.

(i) Source: School of Data

Humanitarian Data Teams: Supporting Skills

Humanitarian Business

▶ Cluster coordination

▶ Assessments

▶ Operational planning

▶ Logistics/Roster Management

▶ Disaster Risk Reduction

▶ Response preparedness

▶ Disaster relief/Recovery

▶ Thematic Areas of Focus

▶ Health, Gender and Social Inclusion

Network

▶ Clients

▶ Humanitarian agencies

▶ Development agencies

▶ Access to skilled people, information managers, database managers, data analysts

▶ Businesses

▶ Investors, sponsors and donors

Business Skills

▶ Leadership

▶ Strategic business planning

▶ Marketing & Sales

▶ Customer relations

▶ People management & HR

▶ Administration

▶ Public speaking

▶ Problem resolution

▶ Finance and accounting skills

▶ Delegating tasks

▶ Motivating team

Soft Skills

▶ Strategic, proactive, creative, innovative and collaborative

▶ Curious about data

▶ Influence without authority

▶ Problem solver

▶ Hacker /Maker mindset

Humanitarian Data Teams: Technical Skills

Math and Statistics

► Machine learning

► Statistical modeling

► Supervised learning & Unsupervised learning

► Statistical computing (e.g. R)

► Relational algebra

Data Management

► Data modelling

► Data collection

► Data refinement and cleaning

► Database, SQL and NOSQL

► Parallel databases and parallel processing

► Open Data standards

► API's

Hadoop and Hive/Pig

► Information Management

► GIS & Mapping

► Survey methodology

► Data analysis

► Finding & using datasets

Programming

► Computer science fundamentals

► Scripting language (i.e. Python, javascript)

► Filtering scripts (i.e. D3.js)

► Web development

► Experience with xaaS like AWS

Communications and Visualisation

► Story telling skills

► Translate data-driven insights into decisions and actions

► Interactive dashboards

► Infographics

► Visual art design

► Knowledge of visualisation tools like Tableau, Adobe toolkit

Emergency types by region – Africa

26%   74%
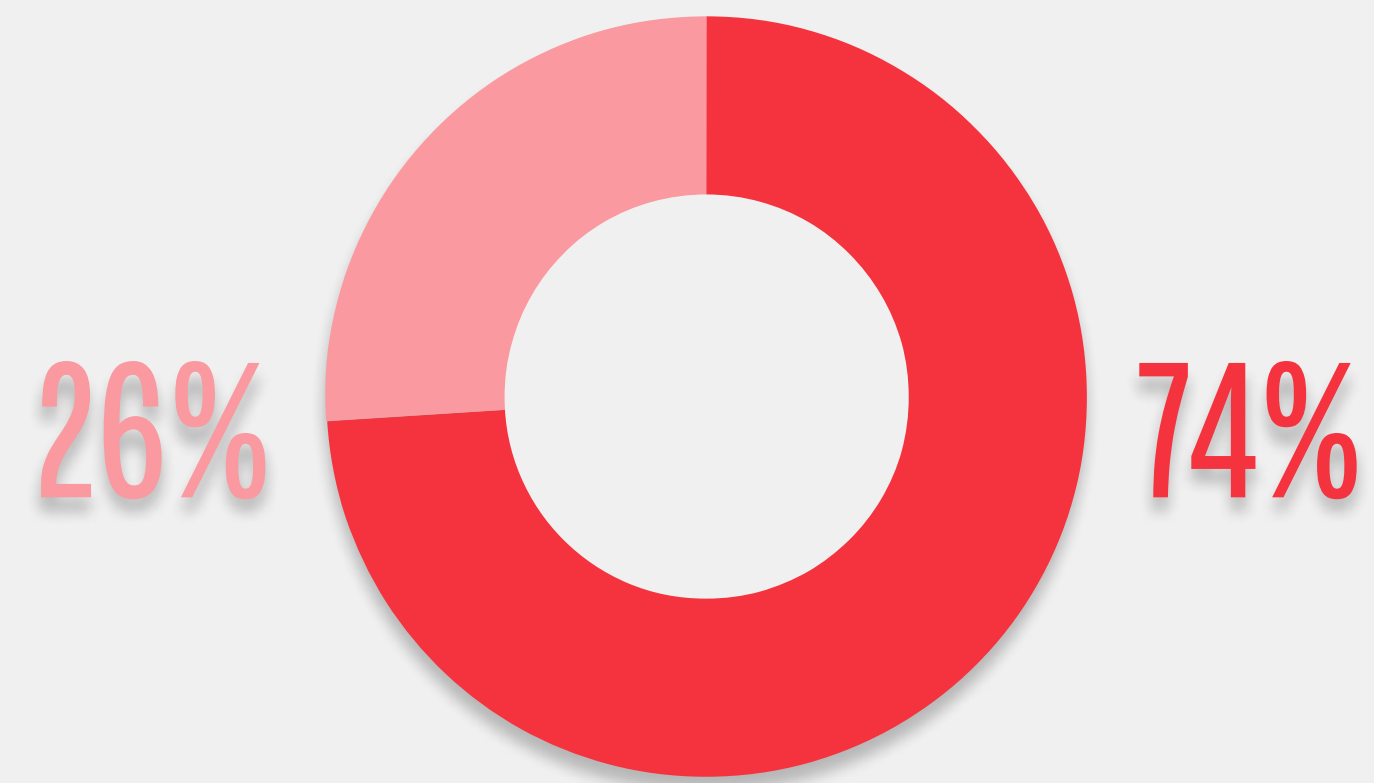
Type of Emergencies in Africa by
severity between 2007 and 2017

- 🔴 Emergency
- 🔴 Minor Emergency
- ⚫ Movement Response
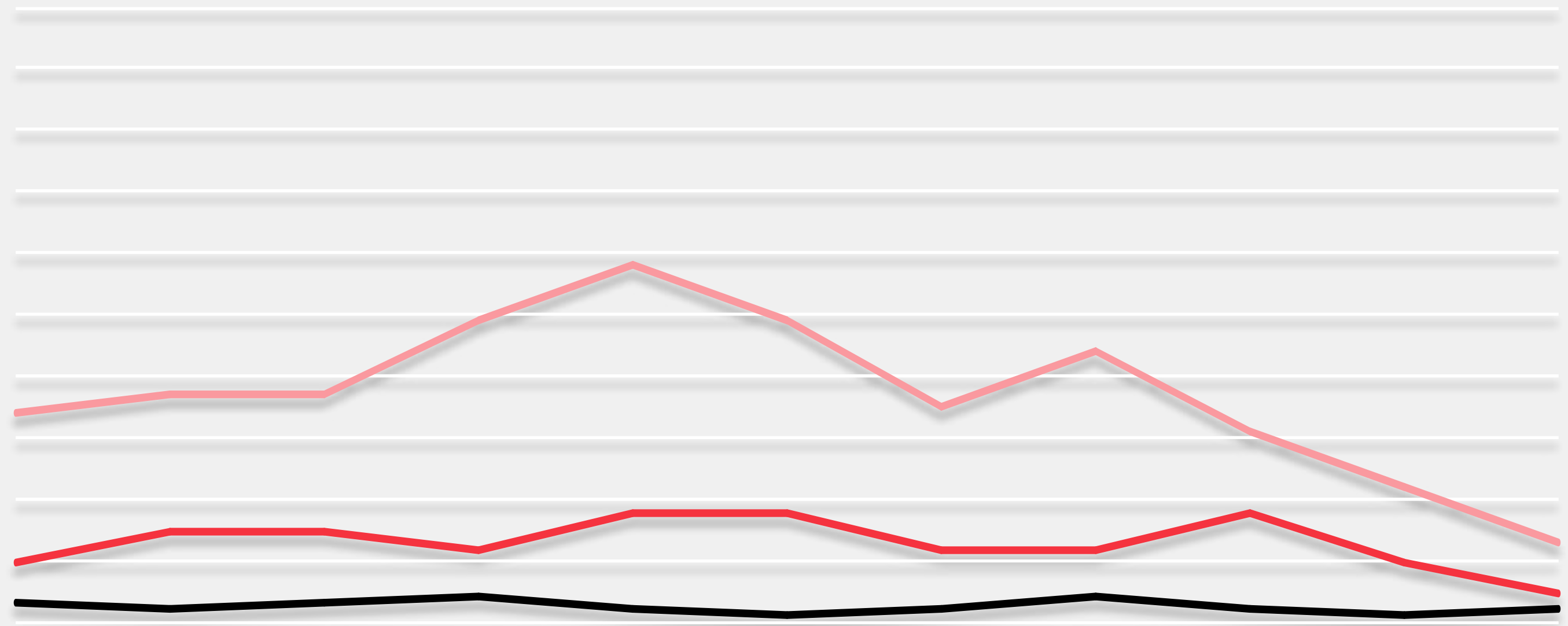
Trend in Emergencies in Africa by
severity between 2007 and 2017

- 🔴 Emergency
- 🔴 Minor Emergency
- ⚫ Movement Response

Thank you

Credit: Melissa El Hamouch, Heather Leson

1 - 5 Personify Data

In this exercise, we want groups to understand why data matters in a humanitarian response. One method of answering the why is personifying data (i.e. turning data into a human) and understanding what Data would want from you and what Data can do for you.

- ► **People:** 2 to 10 people
- ► **Time:** 40 Minutes
- ► **Difficulty:** Easy to Medium
- ► **Virtual Materials:** Virtual meeting platform, shared document/writing space
- ► **In Person materials:** Flipcharts/noteboards, sticky notes, markers

Exercise

Part 1: Explore (25 minutes)

The goal of the exercise is to help teams understand how and why data matters in a humanitarian response. In order for them to do so, the facilitator will introduce the concept of Data as a person rather than an arbitrary object. For this, you can divide your team into groups and for each group assign one person who will role play as Data. The rest of the group will try and befriend Data by asking a series of questions:

To help in role playing Data, here are some characteristics on what type of person is Data?

- ► Data wants to help you strengthen your humanitarian response.
- ► Data wants to be a resource that you can readily rely upon
- ► Data wants to solve your problems
- ► Data wants to support your ability to learn

Question: Who is Data?

Prompt questions and elaboration: Where does Data come from (e.g. location, name, language, primary source, secondary source, etc.)? What type of data is Data (e.g. number, written text, geographical coordinates, etc.)?

Question: What Data wants from the group?

Prompt questions and elaboration: The person role playing as Data should ask for clarifications on the questions they are getting. Ask the groups to elaborate on the

questions and why they need this information. Data can then guide the team with a list of components that would help in making sure they and the team are working towards the same goal.

Question: What can Data do for them?

Prompt questions and elaboration: Check what questions Data has answered for the team and where gaps remain. Have the team try and address these gaps with clear questions they can ask of Data.

Part 2: Discuss (15 minutes)

End the exercise with a discussion on how Data has impacted their project and if Data was able to solve any problems or issues that the team faced. This will allow teams to reassess if it would have been more beneficial to the project to ask different questions to reach a better objective.

Credit

This exercise was suggested by Anna Cooper and Hazel Carter and developed and edited by Melissa El Hamouch and Dirk Slater

DATA PLAY BOOK

1 - 6 No Data Situation

What would happen if a team was faced in a situation where they had no data - zero. In today's world, this scenario will likely never happen. However, introducing this very unlikely and hypothetical situation will get teams to dig deep and discuss how much data matters to their humanitarian response work.

DATA
PLAY
BOOK

► **People:** 2 to 8 people
► **Time:** 30 – 40 Minutes
► **Difficulty:** Easy
► **In person meeting:** Flipchart paper and markers (face-to-ace) collaborative online document (online session)
► **Virtual Materials:** virtual meeting platform, shared document/writing space.

Exercise

Part 1: Explore

Teams can work collectively on this exercise or be split into groups. It would be interesting for the facilitator to split the team into groups to discuss the differing approaches and conclusions each group will reach. For the scenario, the facilitator can do one of two things.

Option 1: Prepare a hypothetical project that is familiar to a situation the team might face (e.g. food distribution, earthquake response, etc.), but provide them with hurdles (i.e. the lack of available data).

Option 2: Present the team with a project that they have worked on and are familiar with. Then the facilitator will ask the team to reflect on how they would go about working on the project if there was no data available to them.

The team might struggle to find approaches to address the given scenario without having data. This is a good thing. Have them write down what they could do without having data and how difficult or easy it would be to achieve that.

Part 2: Discuss

Once the team has reflected on the difficulty level of working a project without data, have them compare the level of difficulty to the situation where they HAD data. The facilitator will then open the discussion by asking the team the following questions:

Question: How has having NO DATA impacted your project compared to HAVING DATA?

Question: How much does having data matter to the success or failure of a project?

Extra credit

Optional to ask further question: How much does data matter in making decisions?

Facilitators have the option to guide further the discussion by introducing **Show and Tell – Data Stories (2 - 8)**.

This exercise was suggested by Hazel Carter and developed and edited by Melissa El Hamouch and Dirk Slater