

ASIA-PACIFIC TRAINING CURRICULUM ON  
GENDER STATISTICS

# Communicating gender data

Workshop on Gender Statistics and Analysis  
Providenciales, Turks and Caicos Islands

16-19 February 2026



# 1

## Learning Objectives

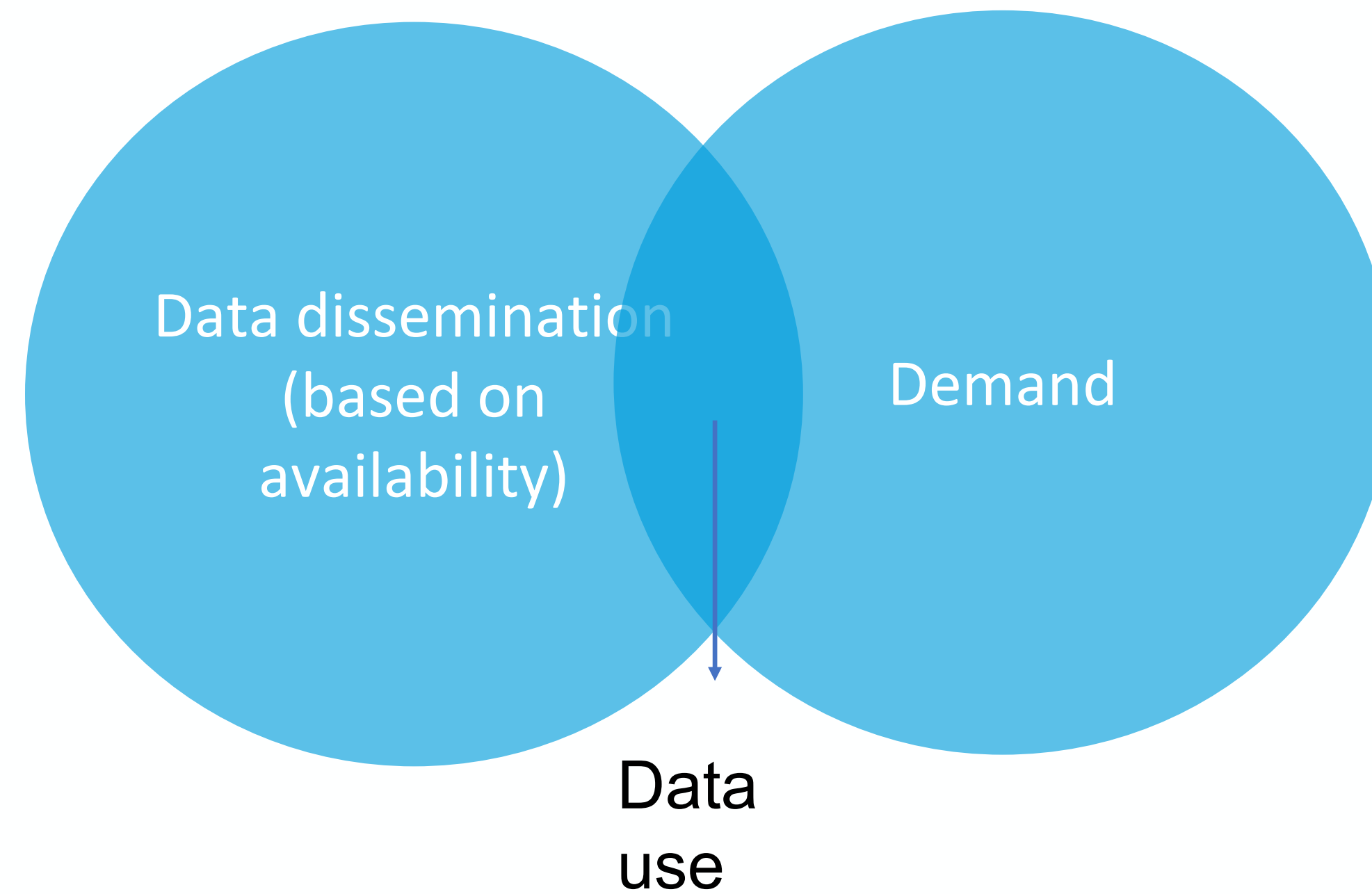
- Understand gender data communication strategies and different channels for communicating gender data
- Gain basic knowledge for visualizing gender data using graphs, maps and other visual elements
- Learn how to customize gender data stories and visuals for different channels of communication and types of audience

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## Communicating gender data

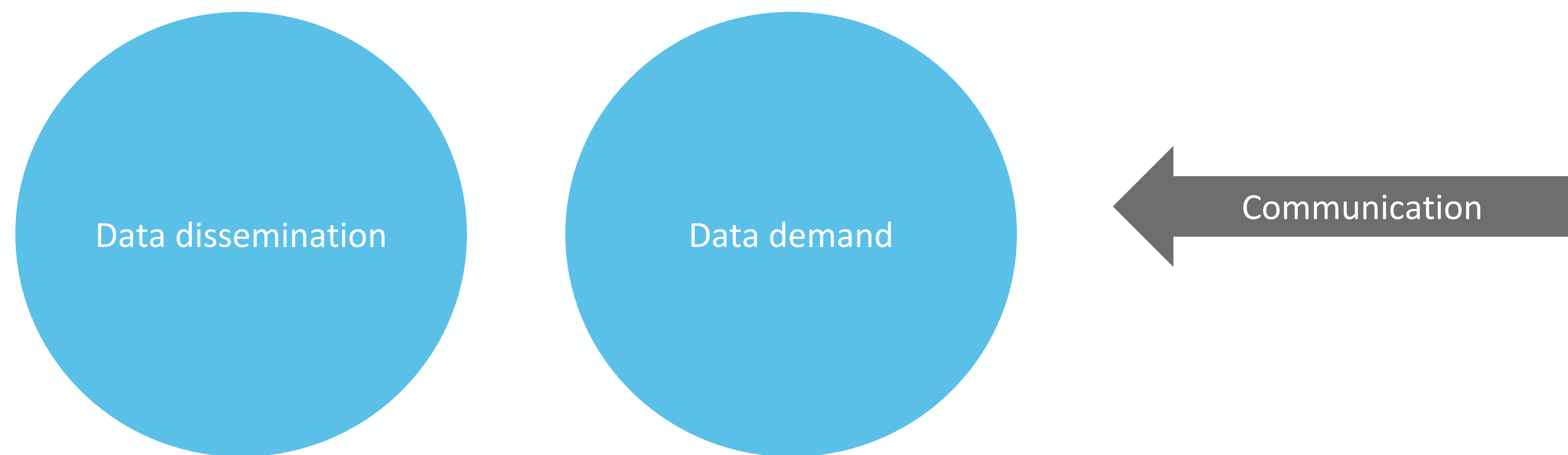
## Communicating gender data

- Data dissemination is different from data communication
- Without data communication, there is little data use and large amounts of data waste

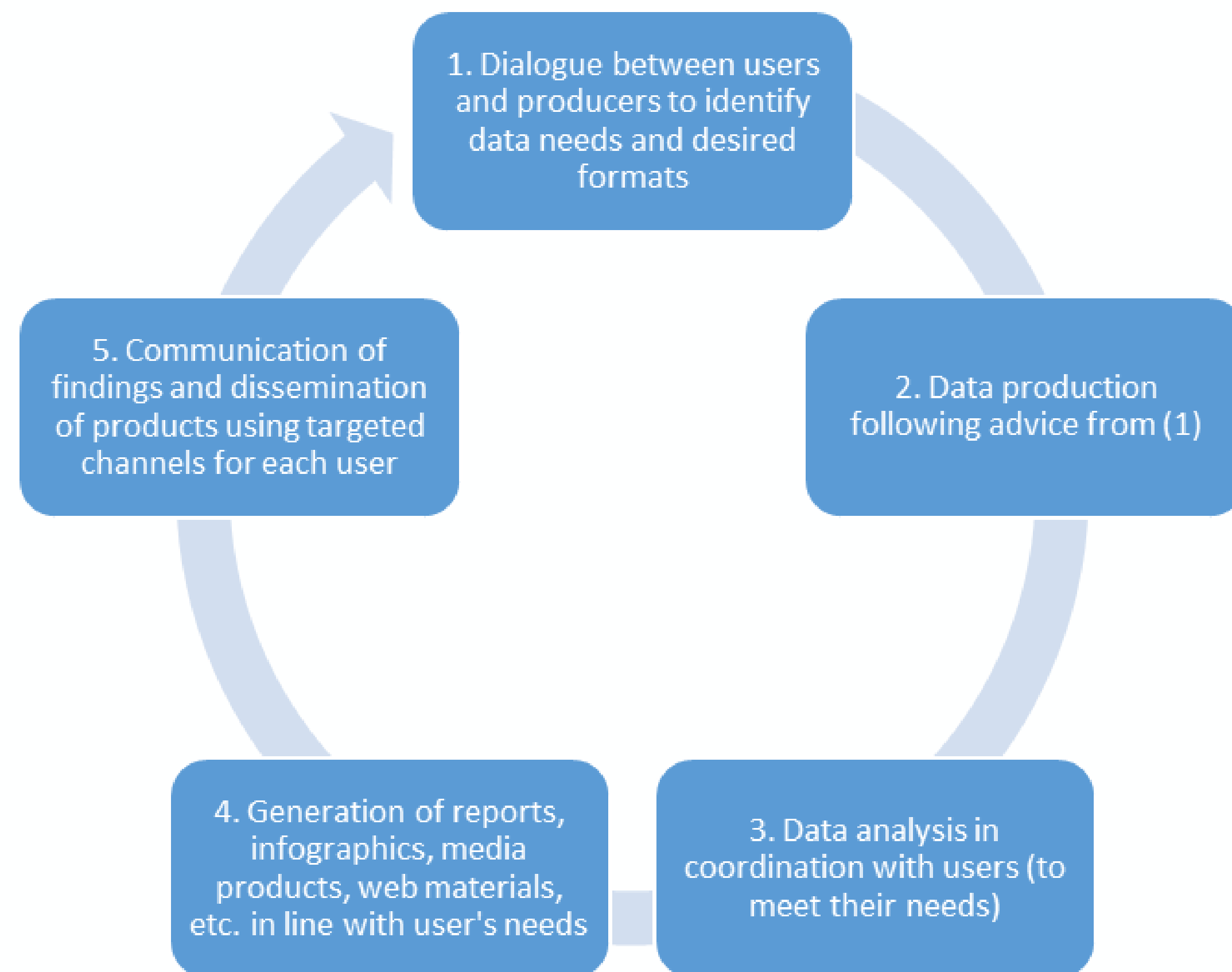


## Communicating gender data

Communication strategies help align data production with data needs/use, and thus reduce data waste



## The communication cycle can better align data needs and availability



## Communicating gender data: Building a communication strategy for gender data

Communication between data users and producers in two stages:

### Stage 1: Pre-data production

- Exchange of thoughts and ideas
- Discuss data needs and availability
- Data users should express their data needs and level of skills
- Discuss preferred data formats and communication channels
- Data producers should share data-producing capacity and constraints
- Data producers should communicate the data
- Data should be communicated considering users' level of expertise
- Share information about sources of data, how to access, interpret and use them

### Stage 2: Post-data production

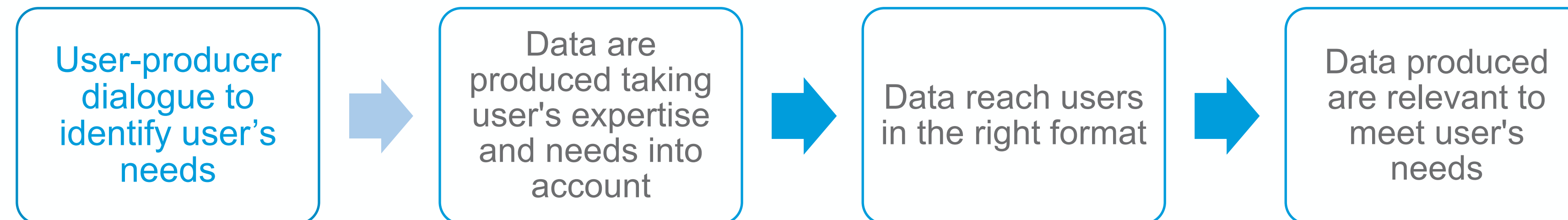
# Communicating gender data: Building a communication strategy for gender data

Communication between data users and producers in two stages

## Stage 1: Pre-data production

- Exchange of thought and ideas
- Discuss data needs and availability
- Data users should express their data needs and level of skills
- Discuss preferred data formats and communication channels
- Data producers should share data-producing capacity and constraints

*Users should be at the centre of the data production and communication process*

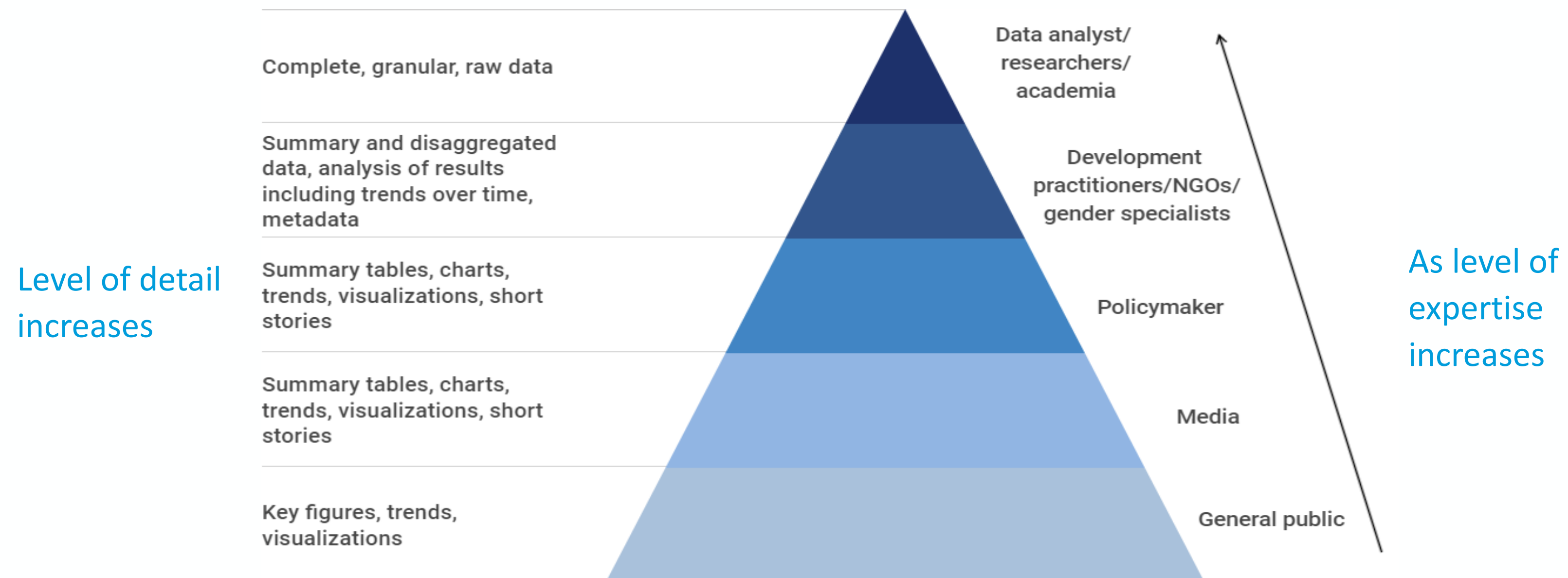


# Communicating gender data: How can data producers communicate gender data?

Communication between data users and producers in two stages

## Stage 2: Post-data production

- Data producers should communicate the data
- Data should be communicated considering users' level of expertise
- Share information about sources of data, how to access it, interpret it and use it



**3**

## **Common channels for communicating gender data**

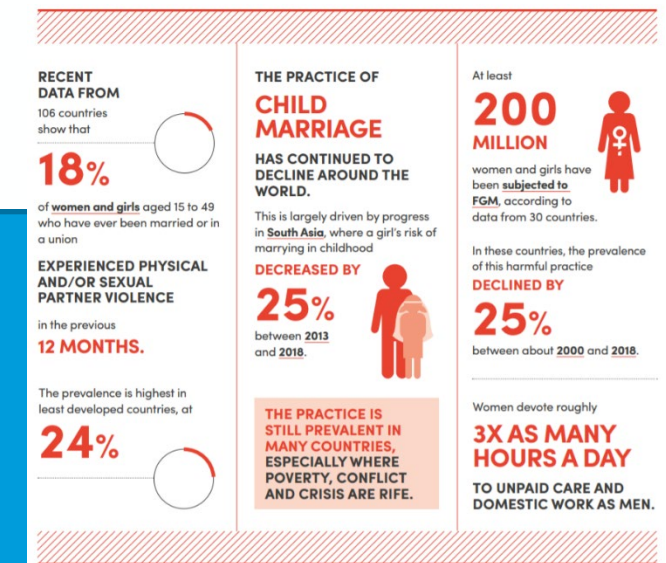
# Common channels for communicating gender data



Databases and repositories



Reports



Factsheets

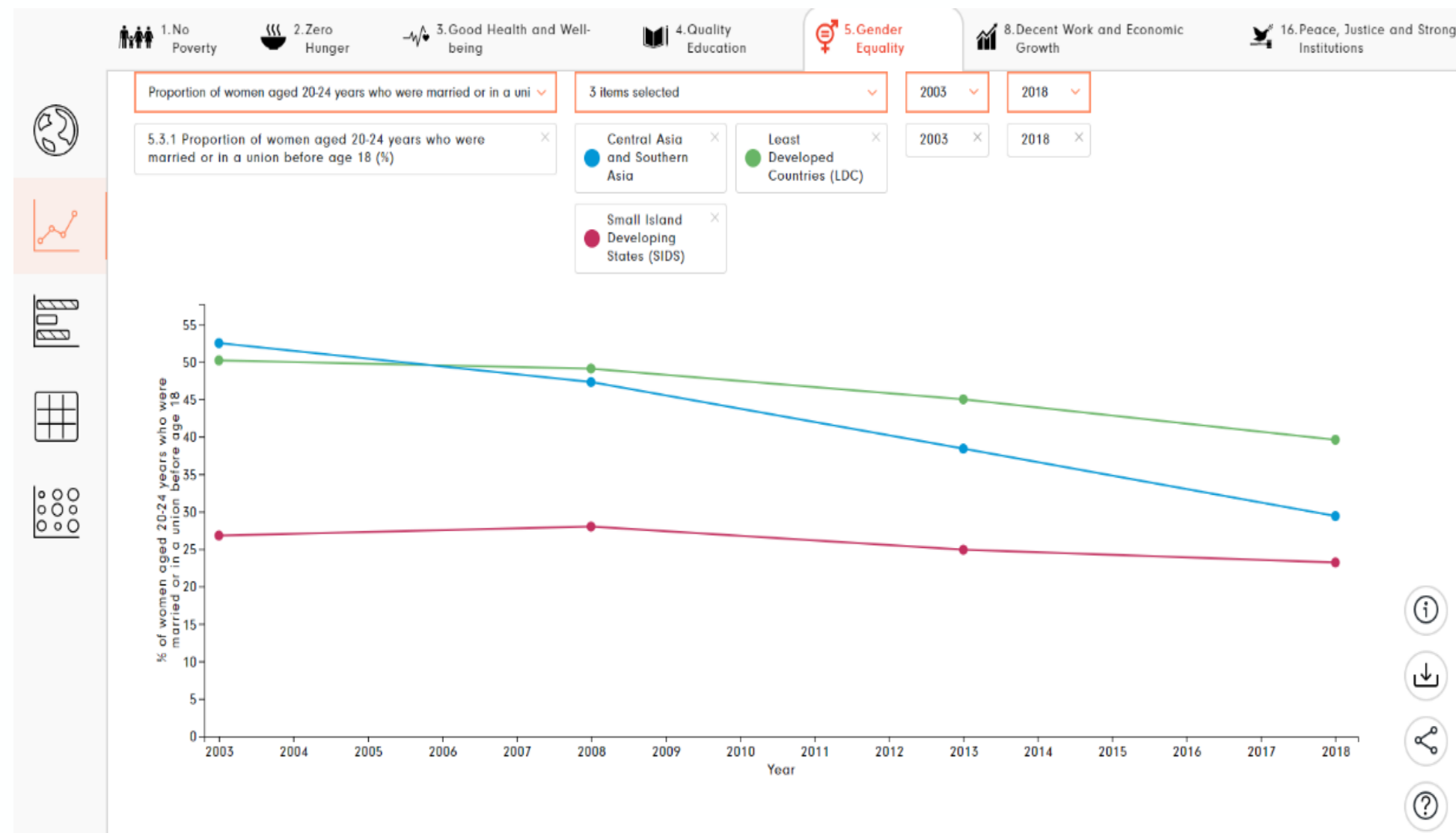


Media

# Database, repositories and compilations of data

A database is:

- An organized collection of data
- Contains interrelated information
- Information is managed and stored as a unit



Some examples of databases:

- National SDG database
  - National estimates for SDG monitoring
  - <http://sdg.1212.mn/EN/Home/Goals>
- Global SDG database
  - Internationally comparable estimates for SDG monitoring
  - <https://unstats.un.org/sdgs/indicators/database/>
- Interactive database
  - Allows data manipulation and is more user-friendly
  - <https://data.unwomen.org/>
- Pre-processed micro-database
  - Basic pre-calculations allow for flexible queries of microdata
  - <https://www.statcompiler.com/en/>
- Microdata repositories
  - To access survey or census data
  - <https://mics.unicef.org/surveys>

# Report

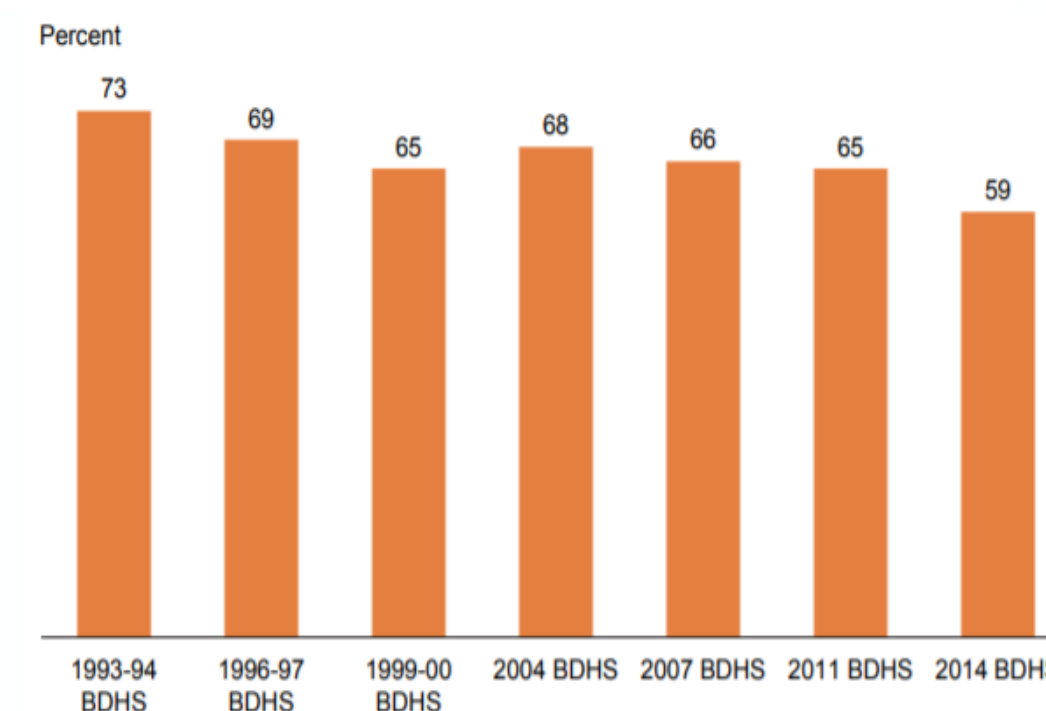
- Organized synthesis of data
- Consists of text, visuals, tables
- Can vary in level of detail, focus, visual elements

- Example: Bangladesh MICS report, 2012–13



MICS Bangladesh 2012-2013

Maternal and newborn health			Bangladesh MICS
MICS Indicator	Indicator	Description	Value
5.8	Institutional deliveries	Percentage of women age 15-49 years with a live birth in the last 2 years whose most recent live birth was delivered in a health facility	21.1
	National		31.0
	Division		
	Barisal		17.1
	Chittagong		27.1
	Dhaka		34.9
	Khulna		45.6
	Rajshahi		38.1
	Rangpur		23.0
	Sylhet		20.8
5.9	Caesarean section	Percentage of women age 15-49 years whose most recent live birth in the last 2 years was delivered by caesarean section	19.1
	National		19.1
	Division		
	Barisal		10.5
	Chittagong		14.5
	Dhaka		24.4
	Khulna		30.5
	Rajshahi		22.4
	Rangpur		11.7
	Sylhet		10.8



## Snapshot of gender equality across the Sustainable Development Goals

**1 NO POVERTY**

More women than men live in poverty, especially during their peak childbearing years. Women and girls around the world are **4% MORE LIKELY** than men and boys to live in extreme poverty, and the risk rises to **25%** for women aged 25 to 34.

**3 GOOD HEALTH AND WELL-BEING**

Access to skilled birth attendance is strongly associated with wealth and urban residence. In 2017, nearly **300,000 WOMEN DIED** from complications related to pregnancy and childbirth. In least developed countries, only **61% OF BIRTHS** were attended by skilled health personnel in 2018.

**5 GENDER EQUALITY**

**18% OF WOMEN AND GIRLS** aged 15 to 49 have experienced physical and/or sexual violence by an intimate partner in the past 12 months. In the 30 countries where female genital mutilation (FGM) is concentrated, **1 in 3 GIRLS** aged 15 to 19 had been subjected to this harmful practice in 2017. Women spend **3x** as many hours as men each day in unpaid care and domestic work. Based on 2018 data from 69 countries, only **19% OF COUNTRIES** have a comprehensive system to track budget allocations for gender equality. Women comprised **39% OF THE WORKFORCE** in

**2 ZERO HUNGER**

Unequal power relations in households render women more vulnerable to food insecurity. Globally, women had a **10% HIGHER RISK** of experiencing food insecurity than men in 2018.

**4 QUALITY EDUCATION**

An estimated **15 million GIRLS** and **10 million BOYS** of primary-school age are out of school.

**6 CLEAN WATER AND SANITATION**

In collecting drinking water, women and girls carry the heaviest burden. Women and girls are responsible for water collection in **80% OF HOUSEHOLDS** without access to water on premises, according to data from 61 developing countries.

**2018, but held only 27% OF MANAGERIAL POSITIONS.** Worldwide, only **1 in 4** parliamentary seats are held by women. According to data from 51 countries, only **57% OF WOMEN** aged 15 to 49 who are married or in a union make their own decisions about sexual relations and the use of contraceptives and reproductive health services.

# Data visualization for statistical reports

Some general recommendations:

- Replace some text with visuals to break the monotony
- Use two different typographies or colours to make it more engaging, but be consistent in the use of these elements.

Text in a box

Text in red to start main section

**TARGET 5.2**

**Eliminate all forms of violence against all women and girls**

Violence against women and girls is one of the most pervasive human rights abuses in the world today and takes place in all countries. It occurs in both public and private spaces, and in the majority of cases is perpetrated by someone the victim knows, most often an intimate partner. It can take many forms, including physical, sexual, psychological and economic. Other types of violence such as trafficking—and new manifestations such as cyber-shaming and bullying—are also prevalent across countries. The results are long-term physical, mental and emotional problems and even, in many cases, death. This violence also affects women’s communities and families, including their children, and prevents women from fully participating in society. Social acceptability and widespread impunity for perpetrators are among the main factors contributing to its persistence.

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**Spotlight on intimate partner violence**

*1 in 5 women and girls aged 15–49 reported experiencing physical and/or sexual violence by an intimate partner in the previous 12 months*

Available comparable data from 87 countries show that 19 per cent of women and girls aged 15–49 have experienced physical and/or sexual violence by an intimate partner in the past 12 months. Oceania (excluding Australia and New Zealand) is the region with the highest 12-month prevalence

Add dividers to change section

Change in typography

Bar chart makes it engaging

**FIGURE 3.8**

**PROPORTION OF EVER-PARTNERED WOMEN AND GIRLS AGED 15-49 SUBJECTED TO PHYSICAL OR SEXUAL VIOLENCE BY A CURRENT OR FORMER INTIMATE PARTNER IN THE PREVIOUS 12 MONTHS, BY REGION, 2005-2016**

Region	Percentage
Europe and Northern America	6.1
Eastern and South-eastern Asia	7.8
Northern Africa and Western Asia	12.4
World	19.0
Latin America and the Caribbean	21.0
Sub-Saharan Africa	22.3
Central and Southern Asia	23.1
Oceania (excluding Australia and New Zealand)	39.6

# Data visualization for statistical reports

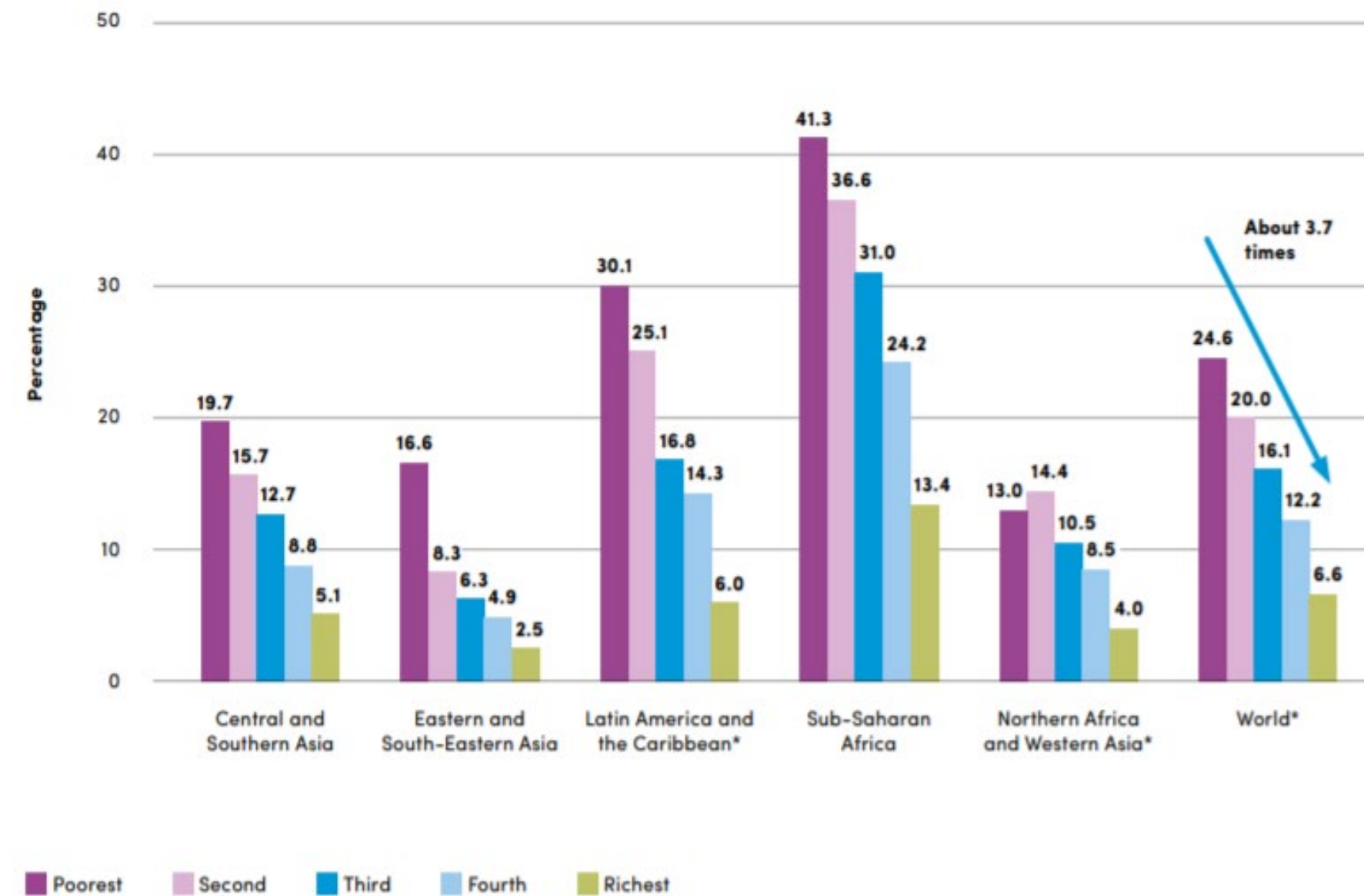
Some general recommendations:

- Add complimentary elements to visuals (such as footnotes or any additional information needed to avoid misinterpretation)
- Follow print size limits

Bar chart

Complimentary text to complete the message

**FIGURE 2.9** PROPORTION OF WOMEN AGED 20-24 WHO GAVE BIRTH BEFORE AGE 18 BY REGION AND WEALTH QUINTILE, LATEST AVAILABLE YEAR

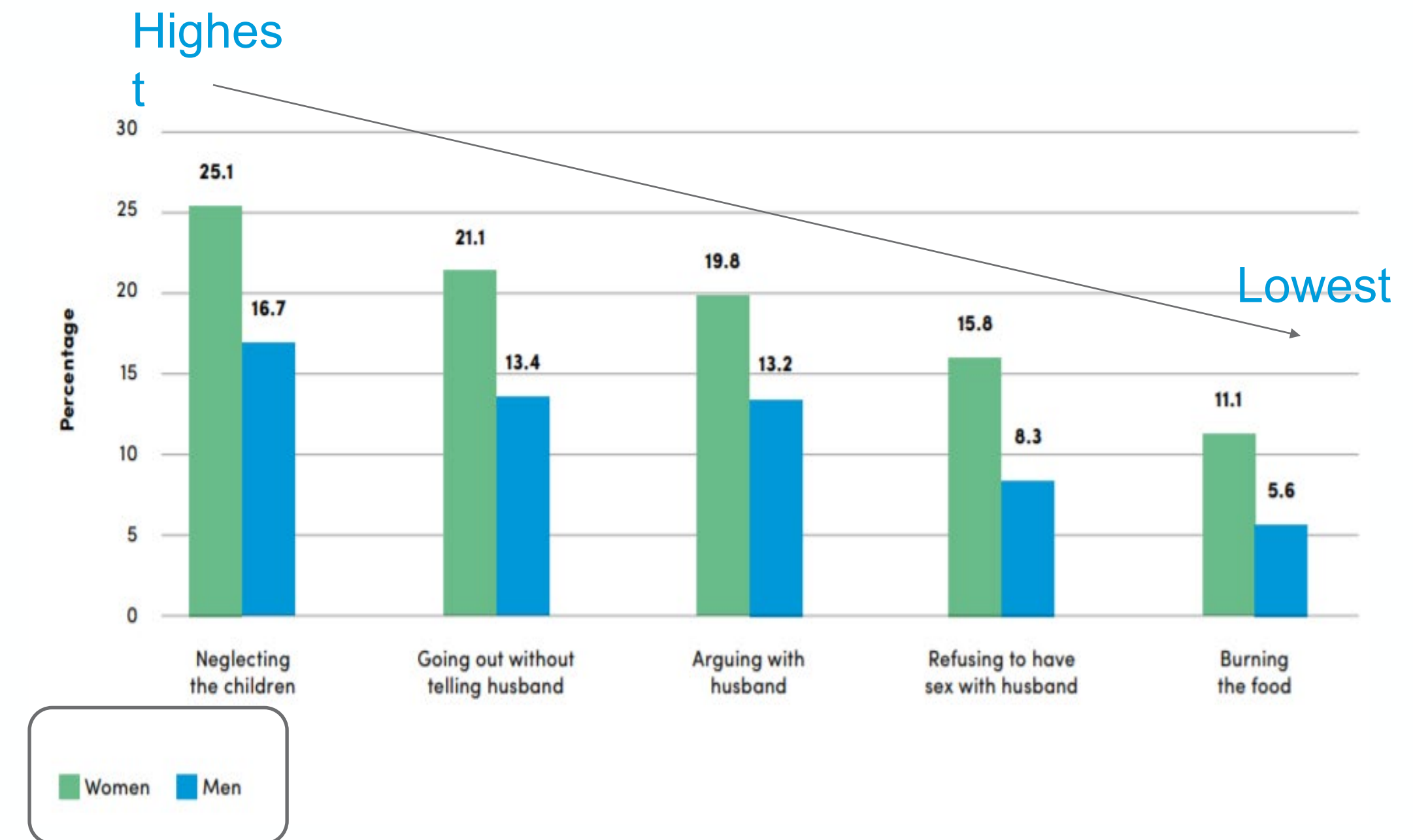


Source: UN Women calculations from ICF International 2007-2017, Demographic and Health Surveys and UNICEF (various years), Multiple Indicator Cluster Surveys. Notes: A woman is considered to have given birth by age 18 if her first live birth was before age 18. The exact indicator is calculated using the methodology provided in Rutstein and Rojas 2006. The same methodology was replicated for MICS surveys. In case of countries where both DHS and MICS were available, the latest available survey was used.

Estimates were weighted using the population of women aged 20-24 using UN DESA 2017m. The analysis covers 92 countries, comprising 58.9 per cent of the world's female population aged 20-24. For Latin America and the Caribbean, the data covers 53.5 per cent of the region's population, and in Northern Africa and Western Asia the data cover 57.4 per cent of the region's population. Regional and global estimates marked with an asterisk (\*) are based on less than two thirds of their respective population and should be treated with caution. In all other regions, aggregates are based on data covering two thirds or more of the population. Population coverage was insufficient to calculate regional aggregates for Australia and New Zealand, Europe and Northern America and Oceania (excluding Australia and New Zealand).

## Using reports to communicate gender data effectively

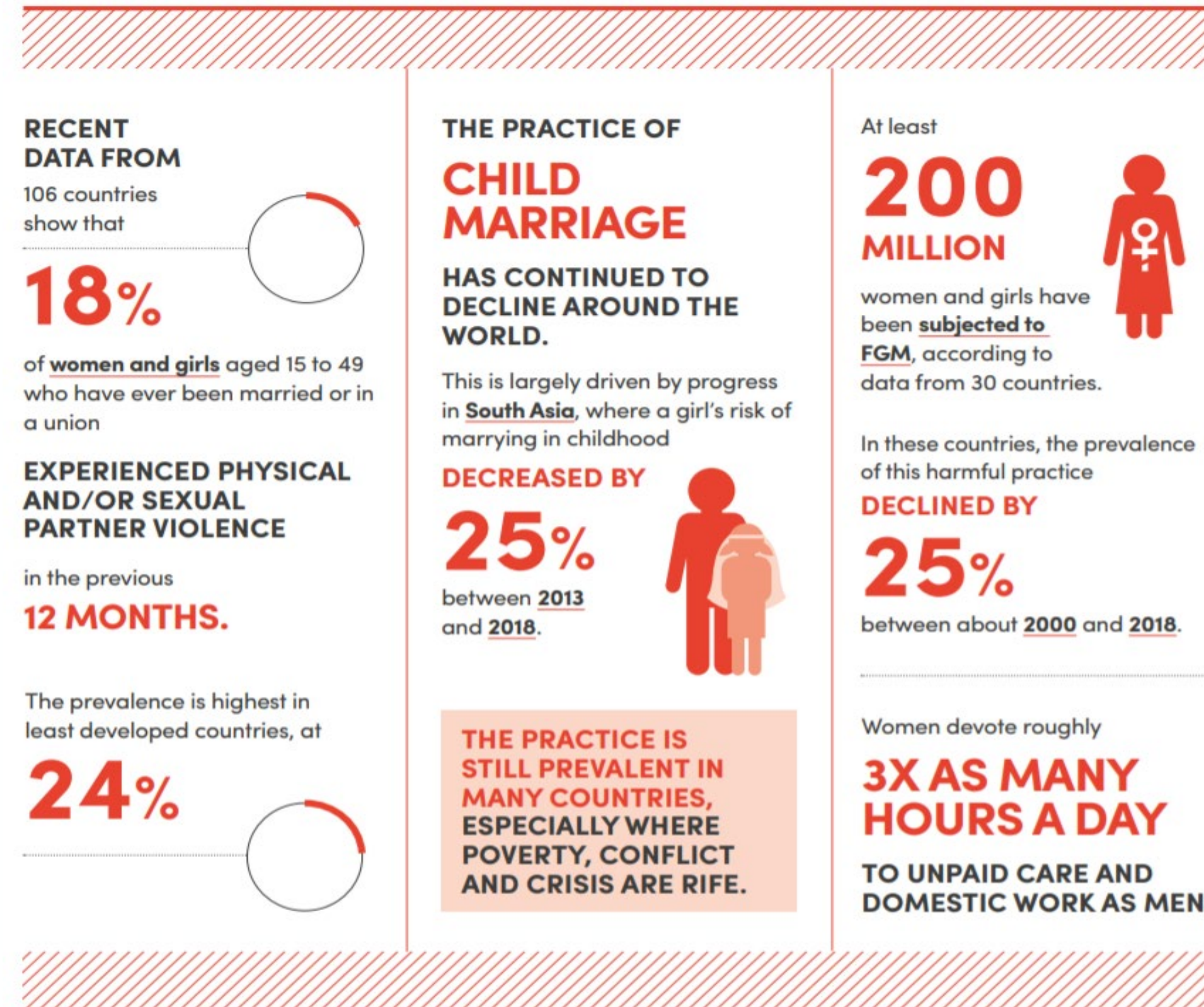
- Tailor the complexity of messages according to your audience
- Focus on topics that are a priority for the target audience
- Utilize gender statistics for non-statistical reports as well
- Always include insights into the gender data used and discuss the caveats of the data
- Always keep a balance between information showcased through graphs and text
- Present women and men side-by-side
- Rank your data



# Factsheet

- Stand-alone informational document
- Usually has information on one topic or multiple topics with a common thread (e.g. same country)
- Presents key findings or quick facts
- Concise, visually appealing presentation

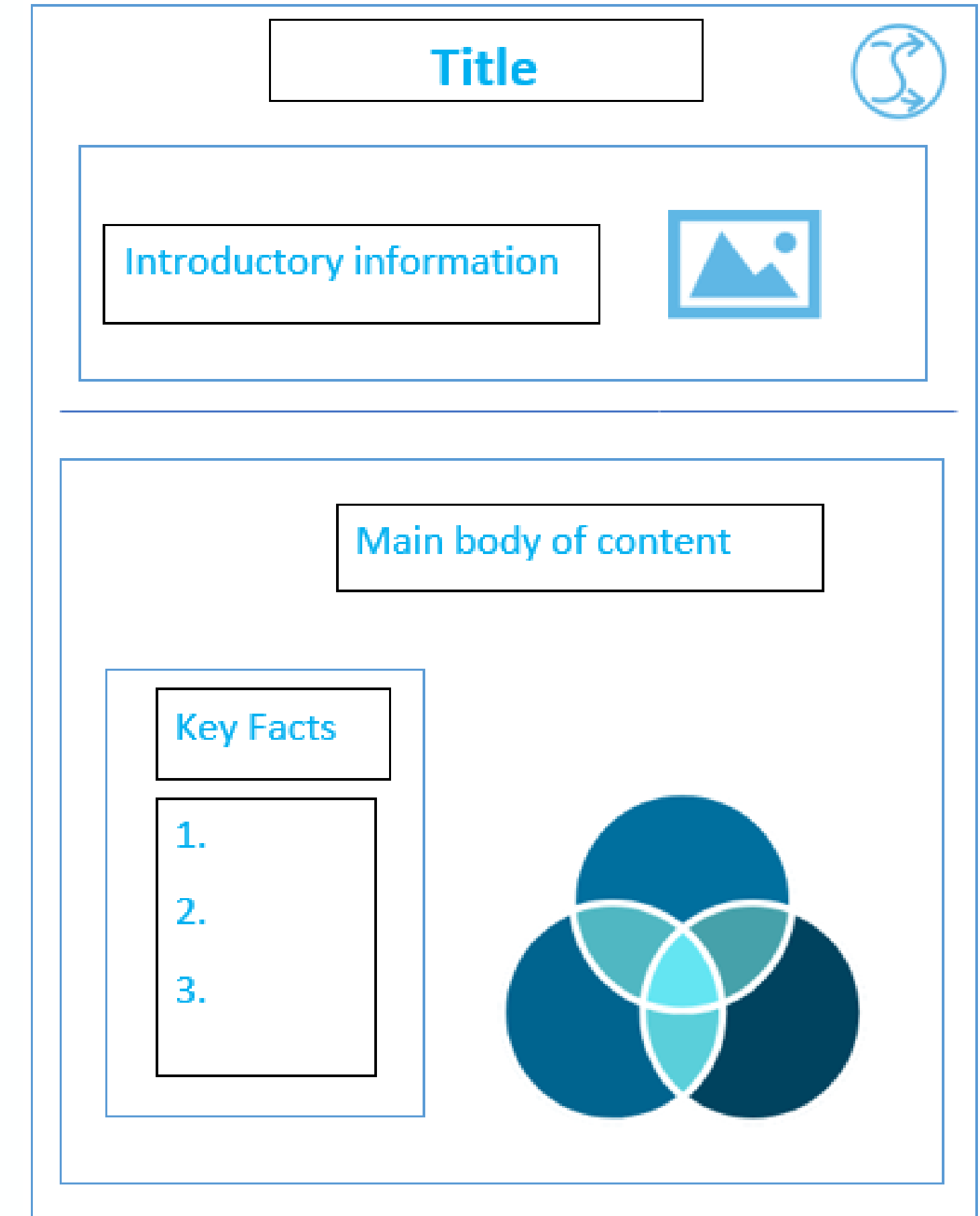
Goal 5 factsheet, UN Women 2019



## Data visualization for factsheets

All elements of a factsheet (including text) should be treated as visual elements – regarding placement and style.

- Give a clear title. Font size should be larger and either the colour or the font can be different to make it stand out.
- Give brief background to set the context. This information should follow immediately after the title.
- You could add a gender-sensitive image to catch the reader's attention, but be careful not to be sensationalist.
- The main text should convey 3-5 key points only. Be concise.
- Replace long text with data visuals. These should be simple.
- Maintain a coherent colour scheme.



# Data visualization for factsheets

Example: Factsheet showing key gender-environment related information in a snapshot, UN Women 2019



Only one gender-specific indicator is available for addressing the gender-environment nexus

Women and men have different relationships to the environment, such as their access to land and natural resources and their engagement in environmental management. They also tend to differ in their vulnerability to environmental challenges.

Maintain a coherent colour scheme

Climate-related and geophysical disasters claimed an estimated **1.3 million** lives between 1998 and 2017.

**INCREASING TEMPERATURES, RISING SEA LEVELS, MELTING GLACIERS AND THE LOSS OF BIODIVERSITY**

contributed to some of these disasters and triggered environmental stress.

The effects on the livelihoods and security of people around the world have been devastating, particularly for **women and girls in developing countries**.

Deforestation increases the time women spend collecting fuelwood. In **Zambia**, women spend an average of **800 HOURS** a year on that task, and in the **United Republic of Tanzania**, **300 HOURS** a year.

The sustainable management of oceans, seas and marine resources supports the livelihoods of nearly

**1 billion people.**



**WOMEN ARE NOT TYPICALLY INCLUDED IN DECISIONS ON THE MANAGEMENT OF COASTAL AND MARINE RESOURCES, LIMITING THEIR ACCESS**

(Lack of data and analysis hampers deeper understanding of this relationship).

In fact, **none of the targets for SDG 14 address gender equality** or how marine resources relate to the livelihoods of women and men, including the role such resources can play in food security, employment and poverty reduction.

**20%** of the Earth's land area was degraded **between 2000 and 2015**, impacting the lives of **1 BILLION PEOPLE**.

Women with little access to productive assets have been disproportionately affected.

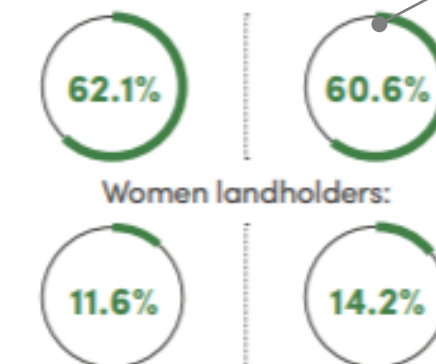
Globally, while more **employed women than men are working in agriculture, forestry and fisheries**, only

**13.8%** of landholders are women.

The gaps widen in regions where agriculture is a key sector:

**Central and Southern Asia**      **Sub-Saharan Africa**

Women working in agricultural and related activities:



Start with a title

Introductory information to set the context

Use dividers to demarcate sections

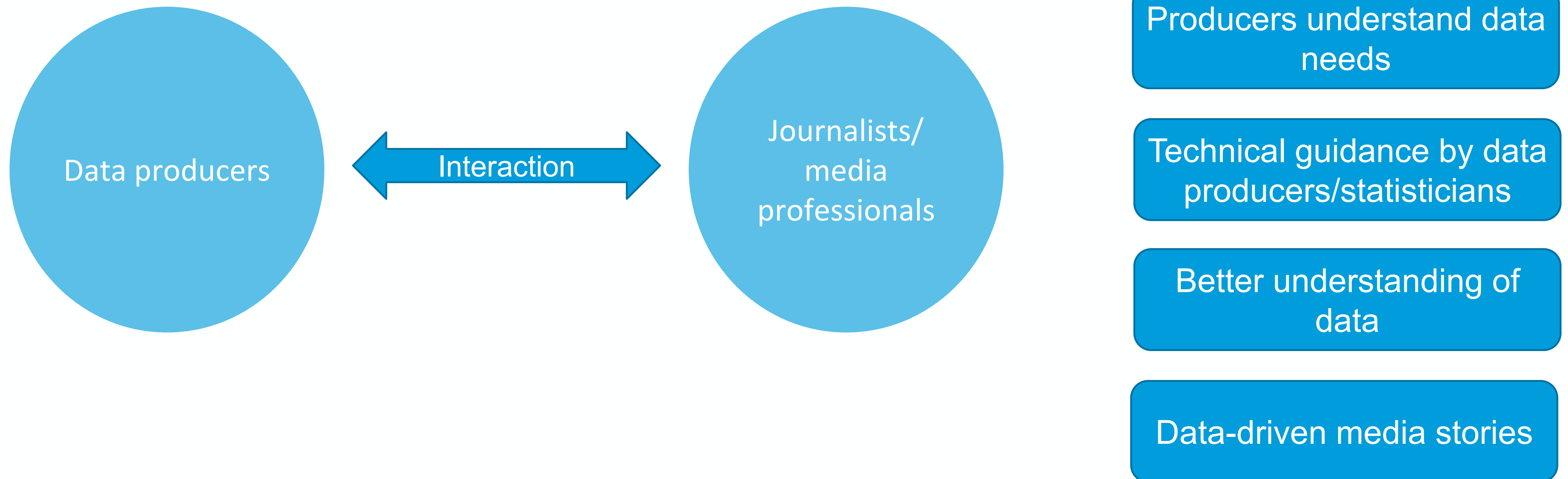
Use iconography to replace text

Change typography to highlight key information

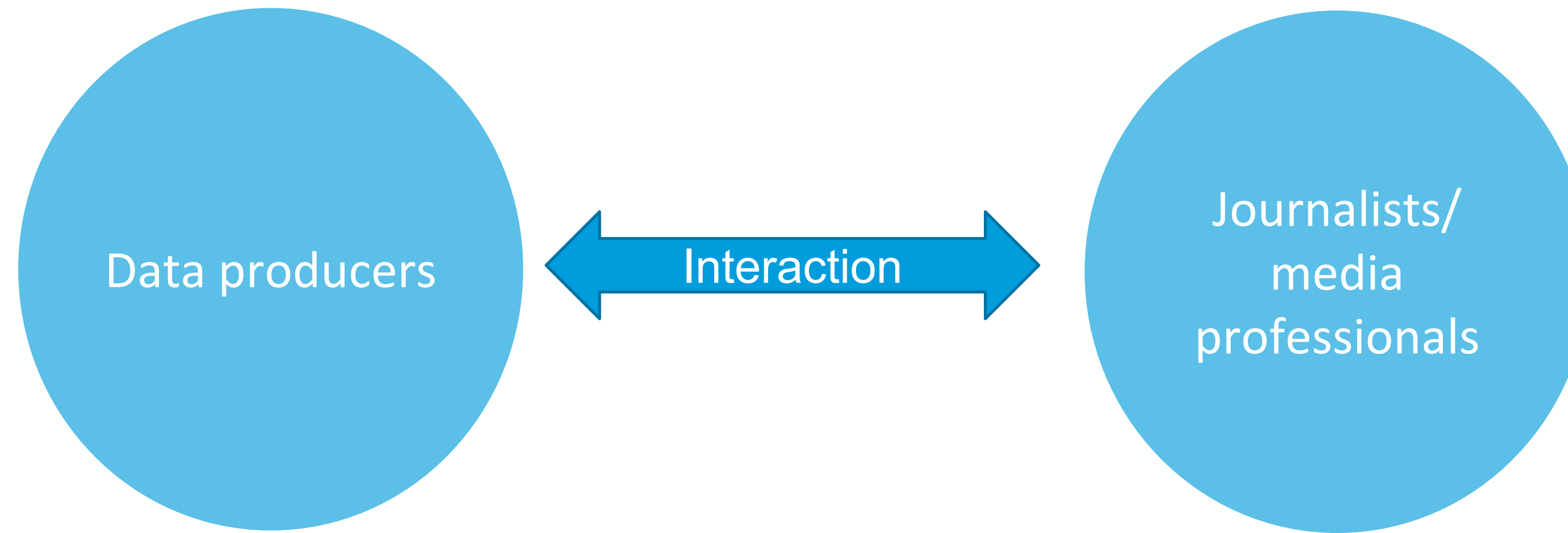
Use simple data visualization elements

## Media: dialogue

- Media are a powerful tool for communicating gender data
- Media include traditional forms (e.g. newspapers, TV news stories) and other forms (e.g. social media)
- Dialogue between data producers and journalists/media personnel is necessary to align supply of and demand for data. It should precede any use of gender data in media products.



## Media : Recommendations for dialogue between data producers and journalists



- Come prepared with a few key messages.
- Be helpful to reporters.
- Build long-lasting relationships.
- Bring supporting materials to help reporters.
- Convey messages in a simple and less scientific way.
- Never say “no comment”.
- Train journalists to build data literacy.

- Prioritize official statistics for your data needs.
- Always read metadata beforehand and come ready to ask specific questions about the data, not the issues.
- If you cannot find the data you are looking for, don't assume it doesn't exist, reach out to the NSO.
- If the data is not available in the desired format, ask the NSO to help you.
- If there is truly a data gap, use your media product to highlight it.

# Media: Written articles

## The declining sex ratio will affect us socially, economically and politically

According to a report brought out by the ministry of statistics and programme implementation, the sex ratio is declining steadily. From 959 women to 1,000 men in 2011 it will fall to 898 by 2031. This could have serious repercussions.

All things being equal, women would outnumber men, the girl child is more likely to survive in infancy than the boy. But in India, according to a Youth in India report brought out by the ministry of statistics and programme implementation, the sex ratio is declining steadily. From 959 women to 1,000 men in 2011 it is projected to fall to 898 by 2031. This should set off alarm bells in the government, civil society groups and the law. This ratio is man-made through selective sex determination with the aim of getting rid of the girl child, early death due to neglect and infanticide. But there is no reason why things cannot be set right.

The consequences of a falling sex ratio are already evident and none of it is good news. The shortage of women has led to a sharp rise in violence against them. This has led to a situation where, apart from the ingrained son preference, people don't want girls all the more as they feel that it is difficult to keep them safe. In a study done by the Centre for Social Research in Haryana, fear of violence is a cause for female foeticide. Also the women who produce daughters face much more domestic violence which makes them complicit in getting rid of the girl child. The ugly social practice of polygamy has made a comeback in certain areas as well as forcible marriages of widows and purchasing of brides from poor areas. With the advances in technology, sex determination has become easier very early on in pregnancy with fatal consequences for the girl child.

The economic consequences are grave for this means that a huge proportion of the productive population is missing and also the lack of women impairs the ability of men to work. The declining sex ratio calls for much greater political will and the willingness to take the help of powerful organised entities like the clergy and of course civil society groups. The Sikh clergy took the lead earlier when it said that anyone found guilty of female foeticide would be ex-communicated. This worked in favour of the girl child. The government has a master communicator in the form of the prime minister who has taken up the cause of girls in his Beti Padhao, Beti Bachao programme. But, a stronger message would be in order – let the girl child be born and let her live up to her full potential.

Headline

Introductory paragraph

Main body

Closing paragraph

- Headlines must be factually correct
- Convey the message and capture the essence of the story with key words
- Don't mislead the reader
- Use active, short, action verbs
- Think about the reader and make sure it captures their attention
- Keep it short and jargon-free

- 
- Summarize key findings
  - Provide more detail than the headline
  - Build on data and statistics gradually

- 
- Start with a newsworthy message
  - Find official data associated with your story idea
  - Check your facts, be objective and offer balance
  - Utilize data from reliable sources, and always indicate the sources
  - Don't censor yourself
  - Go beyond basic news reporting
  - Go beyond headline data, and provide additional data points to add detail
  - Encourage readers to question data systems and understand the quality of the data points
  - Find a compelling narrative and complement your article with engaging graphics or quotes

- 
- Reinforce the key message of the article
  - Succinctly summarize what has already been talked about
  - Highlight the contextual implications of data findings

# Media: Written media articles

## Despite progress in childbirth safety, one woman or baby dies every 11 seconds

Easy-to-understand graphics related to the content of the article



19 September 2019 | Health

Simple and easy-to-understand headline

Childbirth survival rates are now a “staggering success” compared with the year 2000, but one pregnant woman - or her child - still dies every 11 seconds from largely preventable causes, UN health experts said on Thursday.

Gradually builds on key data (age disaggregation)

In a joint appeal for all nations to do more to provide better medical care for all, the World Health Organization (WHO) and the UN Children’s Fund (UNICEF) outlined several ways to help protect the 2.8 million pregnant women and newborns who die every year.

## News Article on Maternal Mortality: Advanced audience

### India registers 26.9 per cent decline in Maternal Mortality Rate since 2013: SRS Bulletin

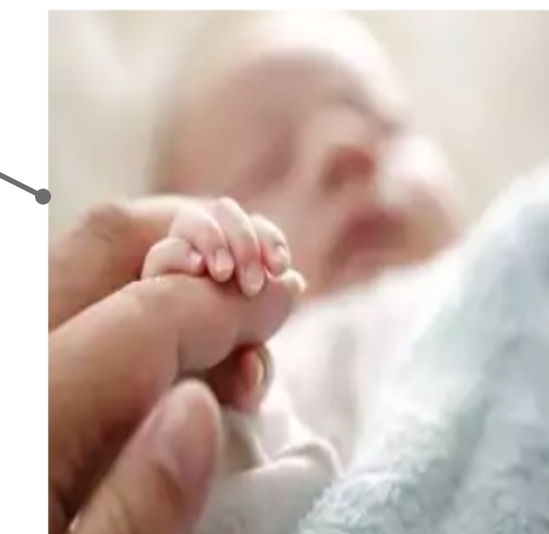
The ratio has declined from 167 in 2011-2013 to 130 in 2014-2016 and to 122 in 2015-17, registering a 6.15 per cent reduction since the last survey figures of 2014-2016, according to the special bulletin of the Office of the Registrar General.

PTI | Nov 07, 2019, 07:00 PM IST



Headline suited for an expert or knowledgeable audience

Emotionally appealing imagery can act as a hook and engage



NEW DELHI: India has registered a 26.9 per cent reduction in Maternal Mortality Ratio (MMR) since 2013, according to the Sample Registration System Bulletin-2016 released on Thursday. The decline in MMR has been from 77 to 72 per 100,000 live births among southern states and in the other states, from 93 to 90, it stated.

Explain and elaborate on data

The ratio has declined from 167 in 2011-2013 to 130 in 2014-2016 and to 122 in 2015-17, registering a 6.15 per cent reduction since the last survey figures of 2014-2016, according to the special bulletin of the Office of the Registrar General.

# Data visualization for written media articles

Example: "Women Work For Free While Billionaires Accumulate Wealth", published in *Deutsche Welle*, 2020

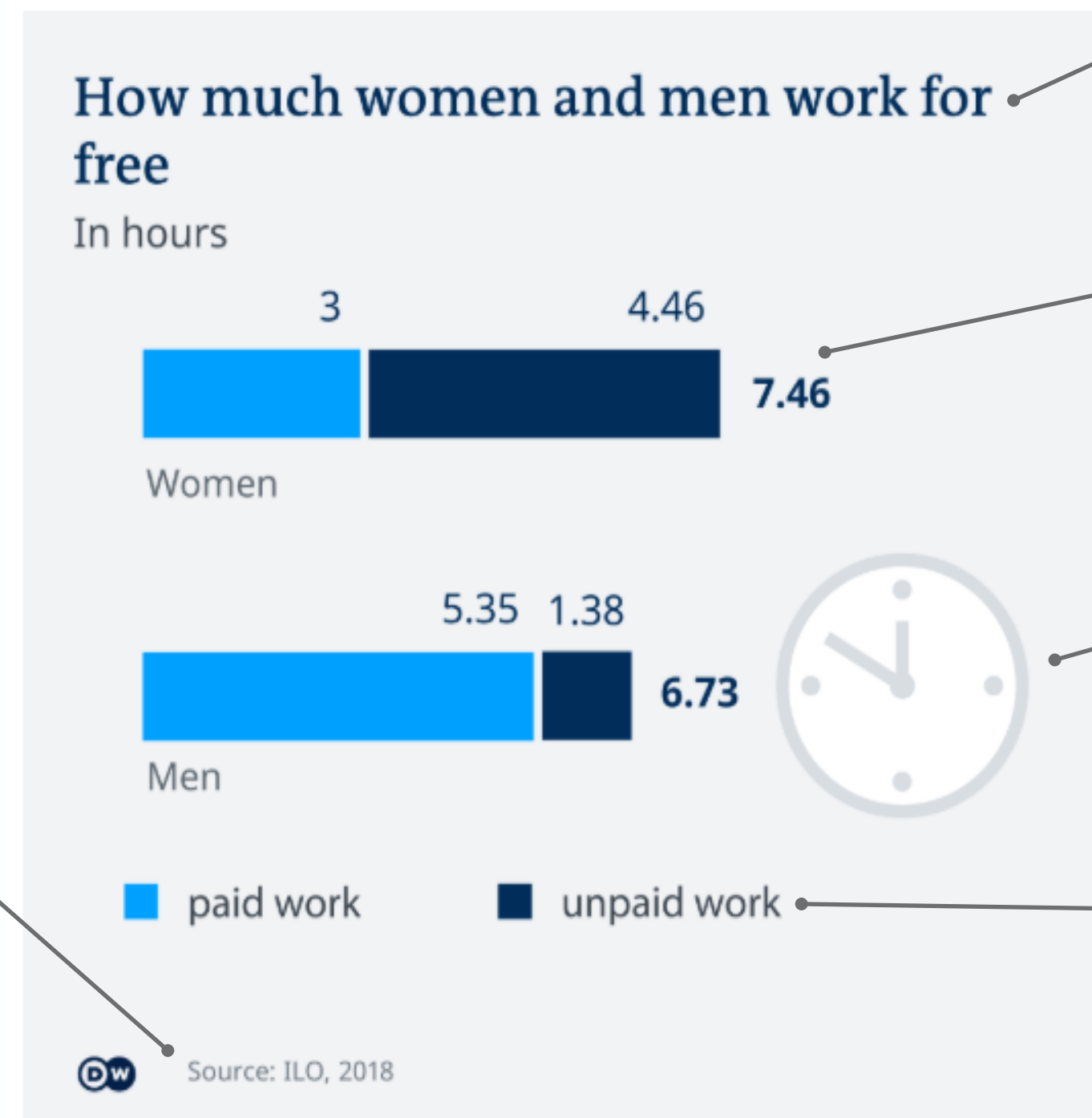
## Unpaid care work: The foundation of global inequality

Economic inequality in the world is disproportionate. The poor half of the world population owns less than 1% of the world's wealth. At the same time 45% of wealth is concentrated in the hands of less than 1% of population: 2,153 **billionaires**. But what is the connection between this drastic inequality and unpaid care work done by women?

The world economic system is sexist, say the authors of the report. Hours spent by women and girls around the globe for care work limit their access to education and the labor market. They earn less or no money and have fewer chances to become economically independent and accumulate wealth.

Supporting text describing the key message in data visual

Images make information relatable



Data visual presented in a separate section

Simple column chart with two types of information stacked

Simple iconography to reinforce the message of 'time'

Appropriate data labels and legends

Mention source of data



# Media: Multimedia

Multimedia comprises a wide variety of products, from TV news broadcasts and documentaries to podcasts and video explainers for online distribution.

Multimedia includes one or more of these key elements:

- Audio aid
- Visual aid
- Interactive aid

Example of audiovisual story entitled “What people miss about the gender wage gap”, Vox, 2016

Starts with simple message

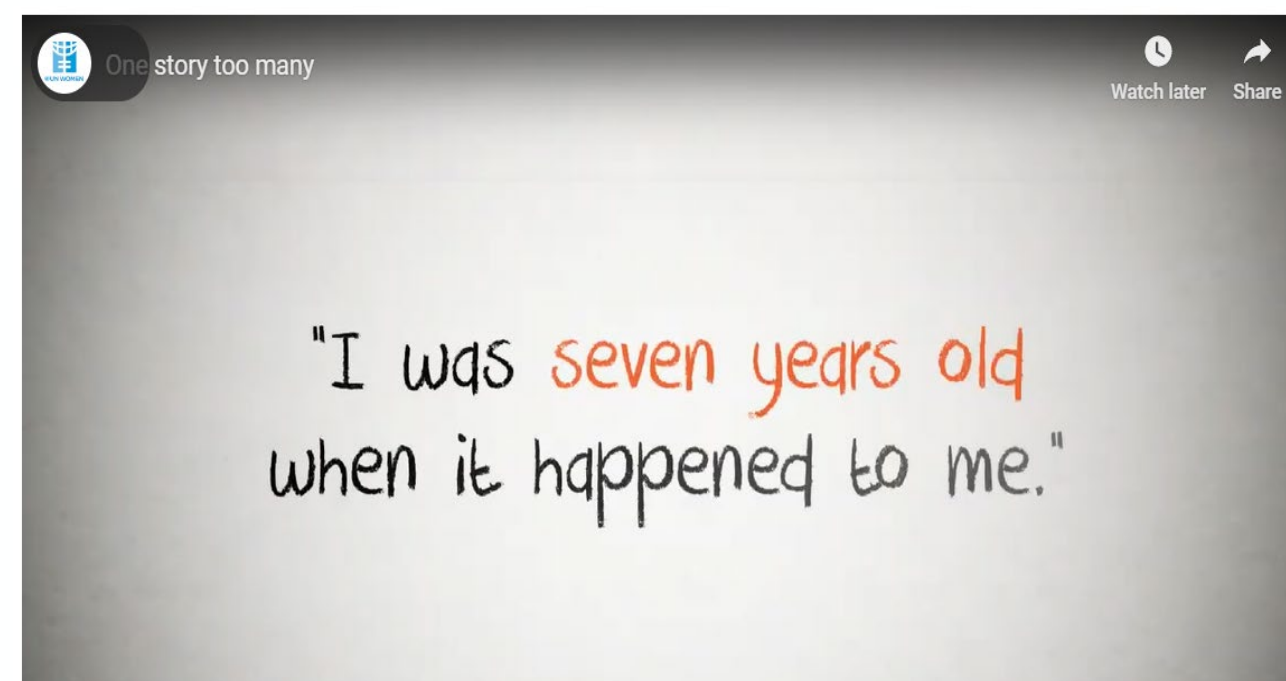
Simple data visualization to support the message

Showcasing images from real contexts

Iconography

## Multimedia tips

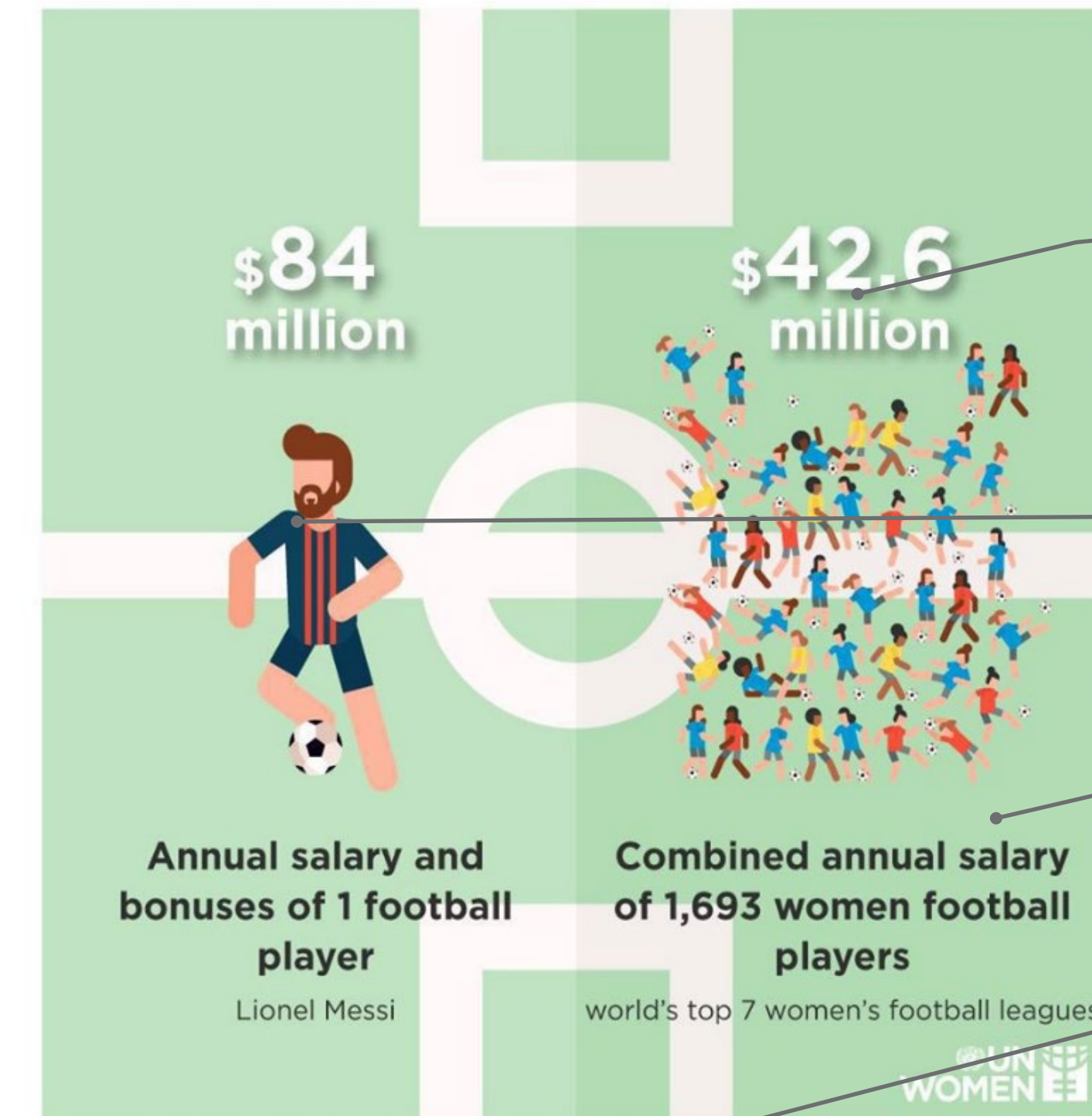
- Start with a goal or purpose
- Choose an appropriate format for your audience
- Tell a human story or answer a question
- Invite reliable experts to discuss
- Add illustrations to support statements
- Condense and simplify statistical material
- Data stories should not perpetuate gender stereotypes
- Data stories should portray women in empowered roles
- Get consent from any individual filmed



# Social media

- Social media
  - Useful tool to share information widely
  - Generates user engagement
- To create effective data-driven social media stories:
  - Create relevant (e.g. connected to current affairs) and shareable materials.
  - Craft your message to suit the target audience's interests and skills.
  - Make sure gender data takes centre stage. Unlike other forms of stories, in social media there is no space for large amounts of information. Thus, gender data be at the centre of the information product.
  - Ensure your story is accurate.
  - Ensure your story is culturally sensitive.

UN Women, Twitter 2019



Relevant timing-released around Women's World Cup 2019

Data-driven

Simple iconography

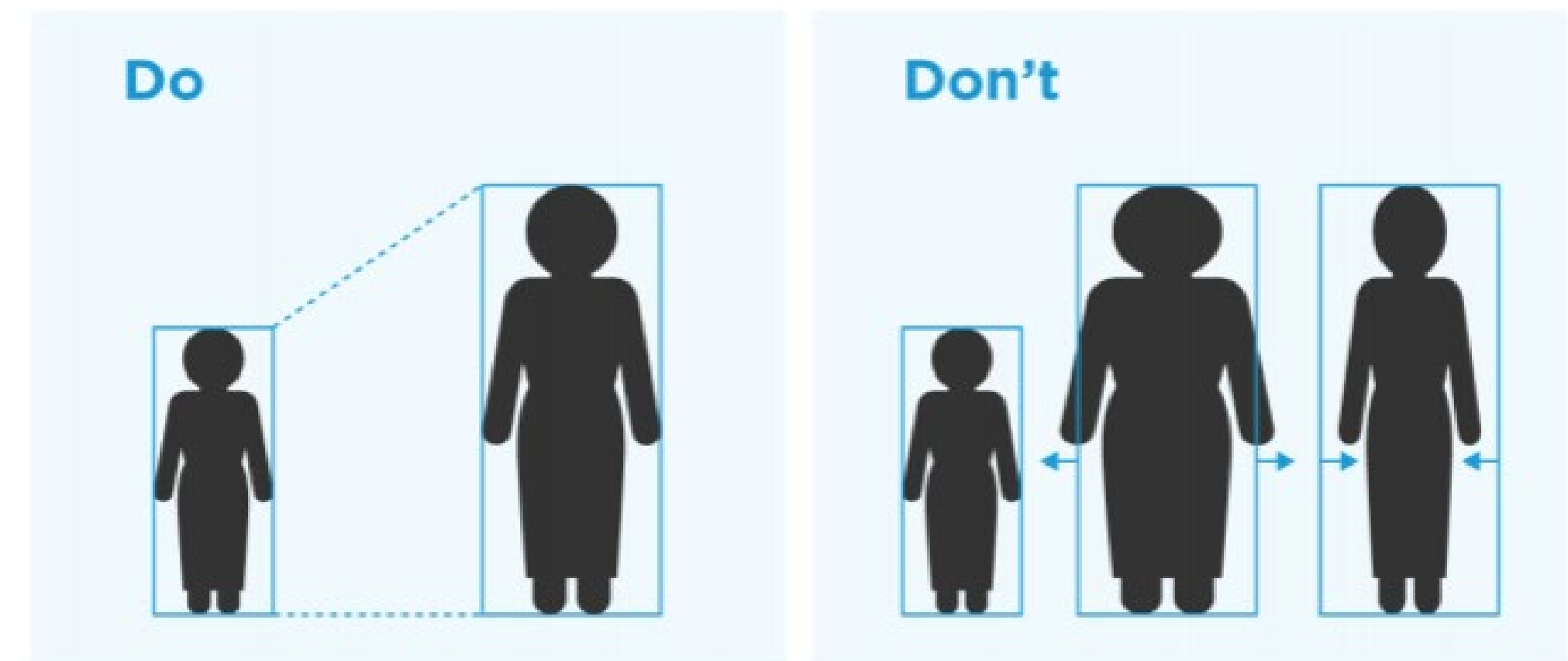
Concise and simple message

Source of data

Source | Forbes 2018, Global Sports Salaries Survey 2017

## Data visualization for social media

- Format design size
  - Instagram: 1080x1080 px
  - Facebook: 1200x630 px
  - Twitter: 1024x512 px
- Should be shareable with every device: phone, laptop, desktop, tablets
  - Text should be legible across screen sizes
  - Minimum font size= 18 points
  - Graphic element should not pack in too many details
- Videos need closed captioning
- Size icons proportionately



# Data Journalism

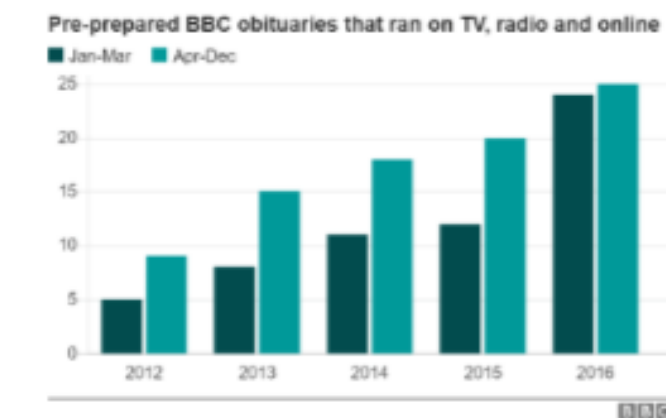
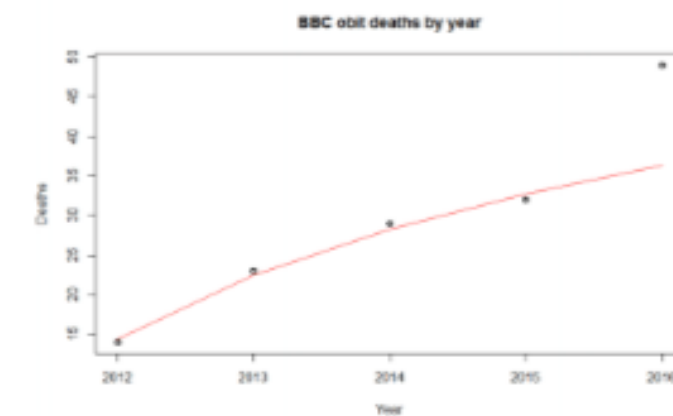
- Data journalism is the process of:
  - Creating data-driven stories (e.g. stories start from a data set, not from a story idea)
  - Extracting useful information from data and crafting stories around the findings
  - Write stories about:
    - Patterns or anomalies found as a result of data analysis.
    - Interpolating history
    - Making predictions
- Using available data points to complement media stories is not data journalism. The difference is that in data journalism the data themselves are telling the story.

Example of data journalism story, *Medium*, 2017

More celebrity deaths are reported in BBC in 2016

- **Pattern:** there are more deaths with the increase of year
- **Anomaly:** 2016 does not lie on the regression line (trend line)
- **Pattern:** Jan-Mar see around 30%-40% fewer deaths in the past years
- **Anomaly:** Jan-Mar 2016 sees significantly more deaths relatively, compared with former years

<https://medium.com/@jasoncrease/was-2016-especially-dangerous-for-celebrities-79d79b9fae02>



<https://medium.com/@jasoncrease/was-2016-especially-dangerous-for-celebrities-79d79b9fae02>

## Data journalism: How to craft stories?

- The starting point should be data findings, not a story idea. Build the narrative around that.
- Microdata and Big Data can provide more depth to data journalism stories, as they allow for more sophisticated analysis.
- Draw data from existing reputable sources (e.g. surveys or Big Data records) or create your own data set based on observations.
- From the data, try to identify patterns or anomalies. Alternatively, identify trends or do forecasting through modelling.
- Use the findings of your analysis to craft your data story.
- Data journalism stories are not technical papers. They should explain the findings of analysis, and can mention the overall analytical process, but they should do this in a way that is understandable by non-expert audiences.
- Formulas and specific details about data modelling are not well-suited for inclusion in data journalism stories.
- Keep a clear narrative and key message and walk the audience through the logical argument being made.

4

# Visual communication of data

## Visual communication of data: Key principles

### Clarity and simplicity

- The data visual must be simple to understand and convey the message clearly
- Focus on maximizing the impact and minimizing the noise
- If an element does not add any value to the visual, get rid of it

### Narrative

- Data without a story are incomplete and may even be meaningless
- Weave a story around the data so they look relevant and relatable to the audience

### Design and function

- Striking a balance between the visual design and practical utility of the visual element is key
- It is ideal if your visual is well-designed and also functional

# Visual communication of data: Building blocks



## Graphs

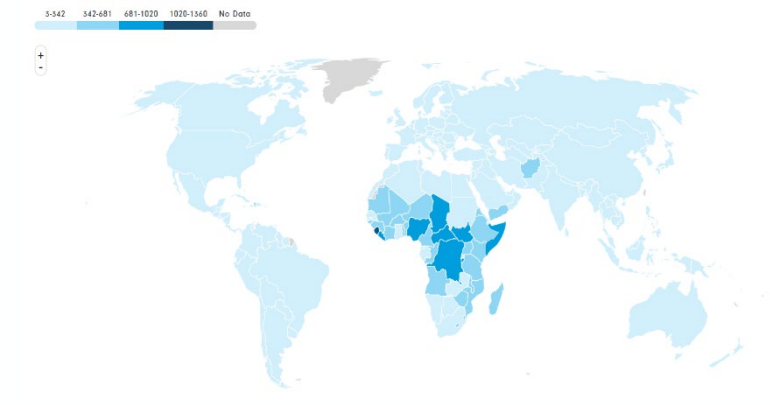
- Bar graphs
- Line graphs
- Scatter plots
- Radar charts
- Box and whisker

Common data visual elements

## Maps

- Tree maps
- Heat maps
- Dot maps
- Choropleths

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Average Monthly Temperatures at Central Park, New York													
2	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
3	2009													
4	2010													
5	2011													
6	2012													
7	2013													
8	2014													
9	2015													
10	2016													
11	2017													
12														



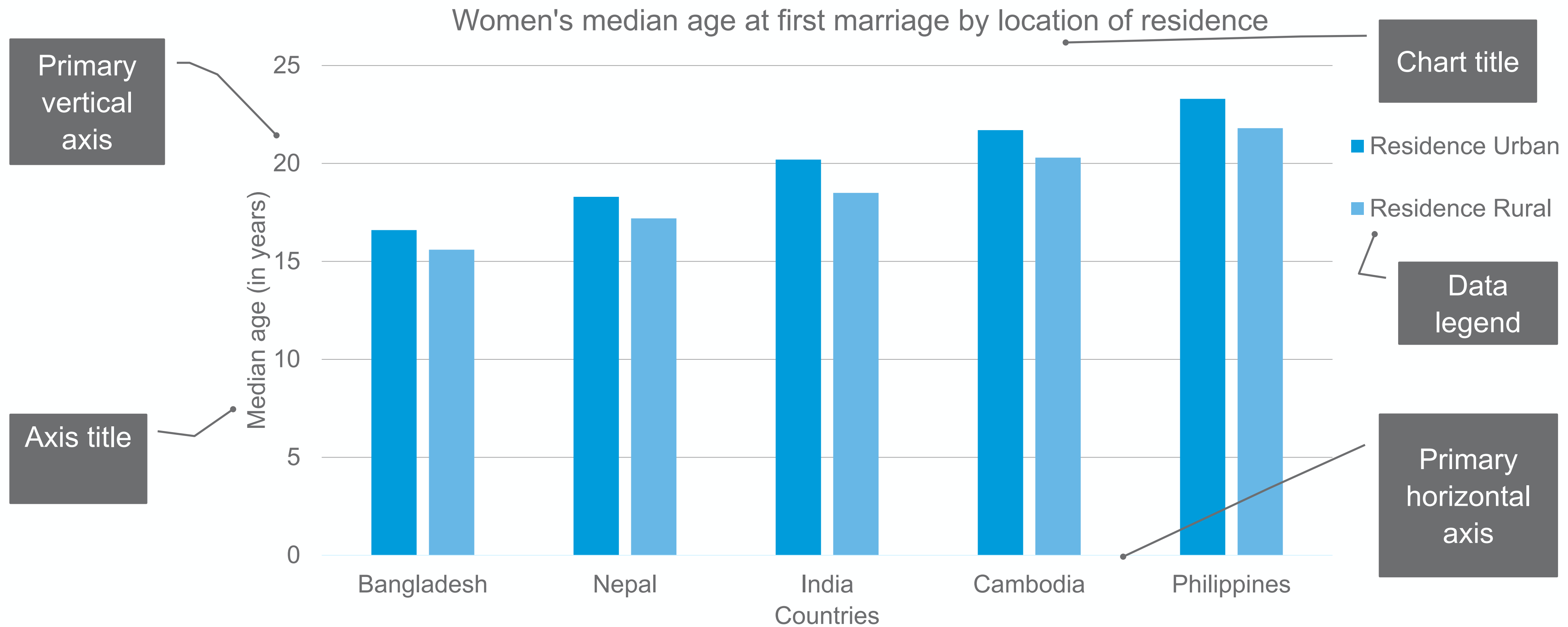
## Icons



## Typography

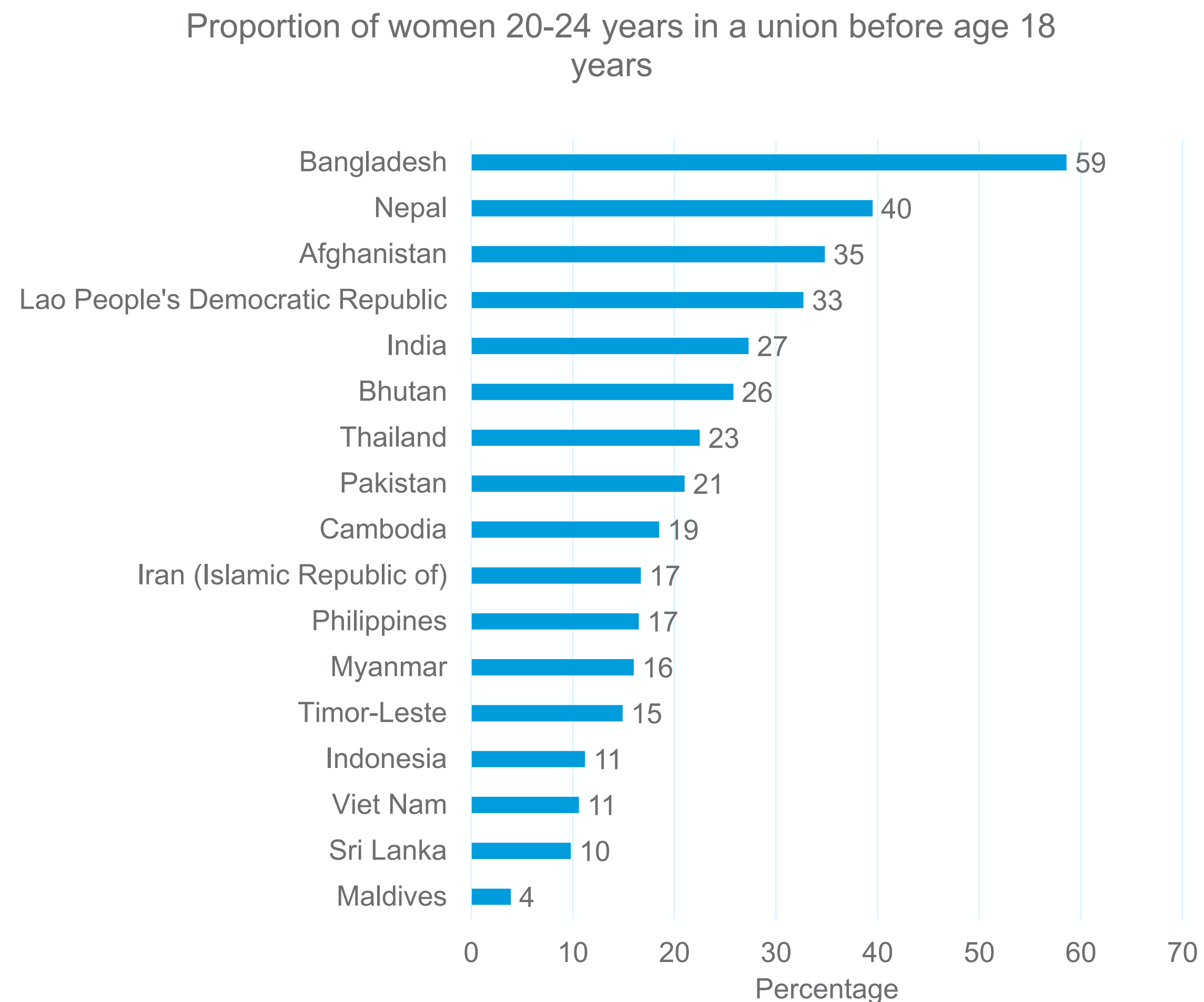


# Building blocks of data visualization: Graphs



## Building blocks of data visualization: Bar graph

- Bar graph
  - Best-suited to present categorical data
  - Organize bars in order: smallest to largest or largest to smallest
  - If showcasing information for women/girls and men/boys, place the women/girls' bars right next to the men/boys' bars
  - Do not truncate the axis from the bottom



## Building blocks of data visualization: Bar graph

Exercise: Build a bar chart in MS Excel using the data below

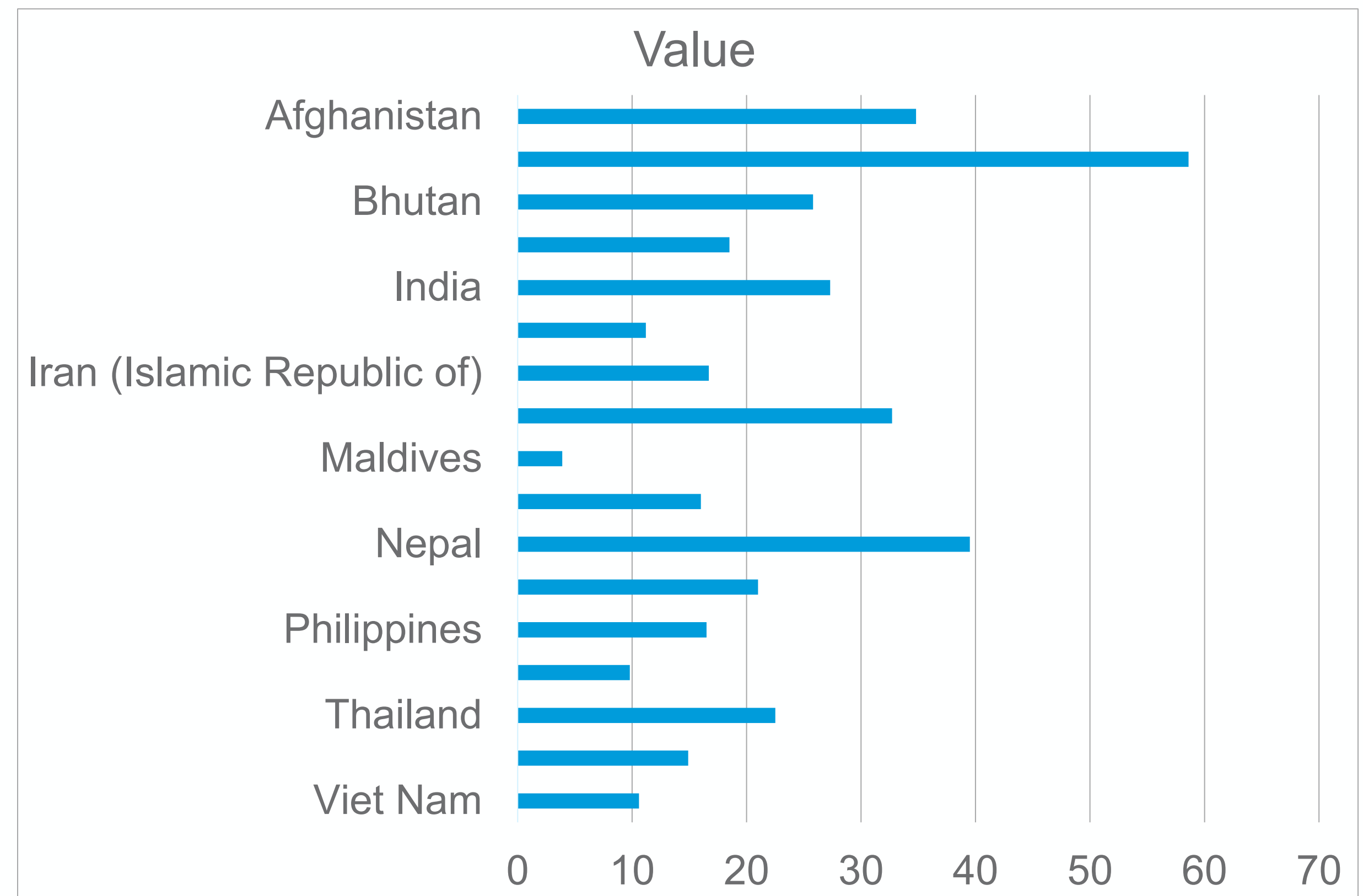
Proportion of women aged 20–24 years who were married or in a union before age 18 (%)  
(Child marriage)

Country	Value (in percentage)
Afghanistan	34.8
Bangladesh	58.6
Bhutan	25.8
Myanmar	16
Cambodia	18.5
Sri Lanka	9.8
India	27.3
Indonesia	11.2
Iran (Islamic Republic of)	16.7
Lao People's Democratic Republic	32.7
Maldives	3.9
Nepal	39.5
Pakistan	21
Philippines	16.5
Timor-Leste	14.9
Viet Nam	10.6
Thailand	22.5

## Building blocks of data visualization: Bar graph

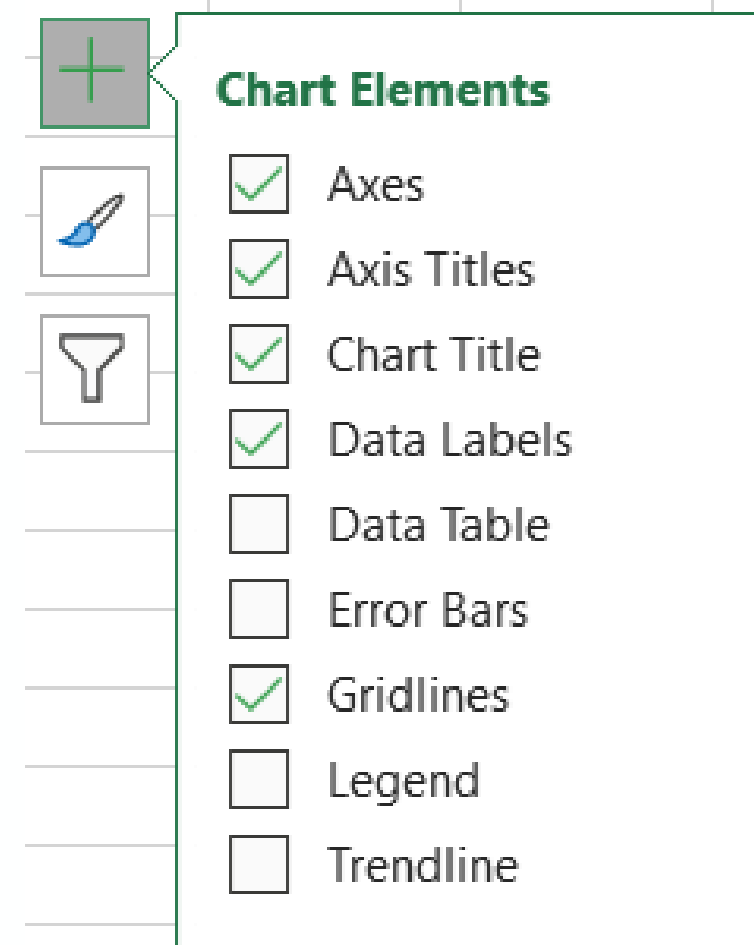
- Steps to build a bar graph
  - Go to Excel and open Worksheet 1
  - Select the data with your mouse
  - Select Insert from the menu bar
  - Select Chart
  - Select Bar chart

How can this bar graph be improved?

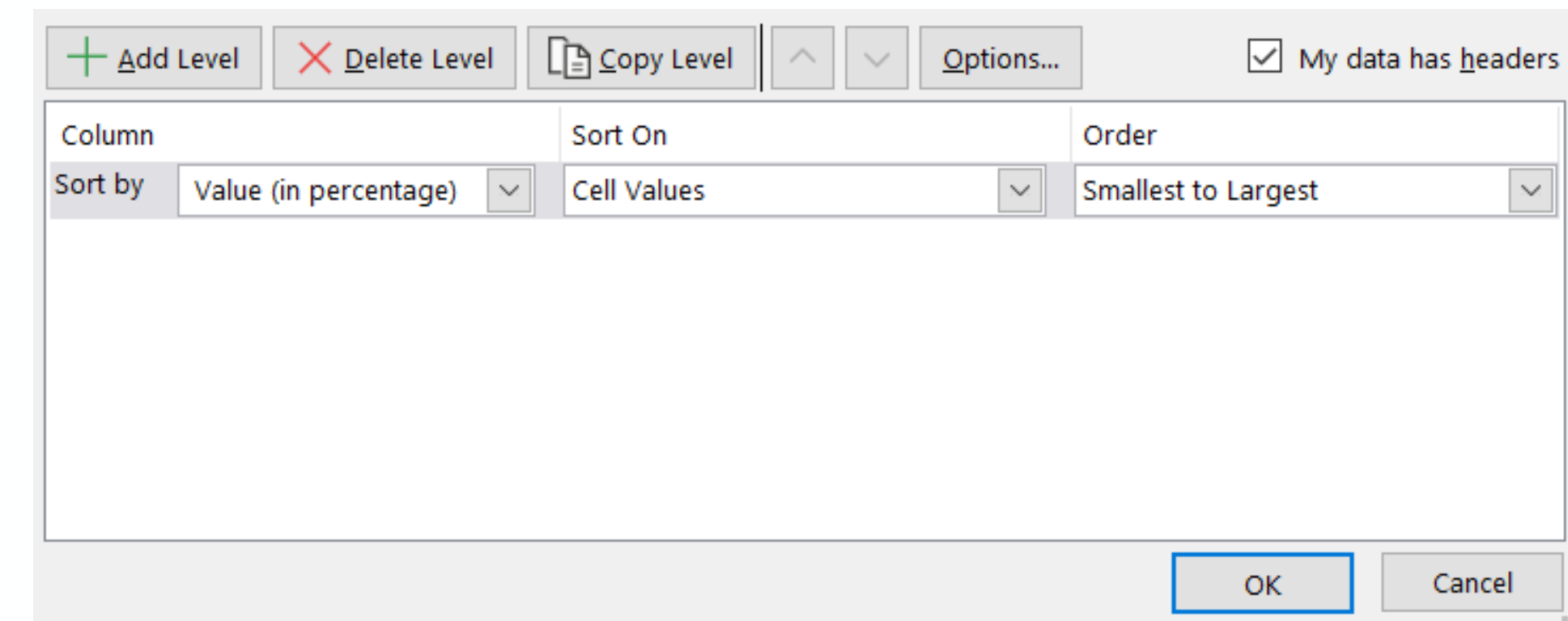


# Building blocks of data visualization: Bar Graph

- Steps to improve a bar graph
  - Decide what the purpose of this graph is
  - Is your intention to highlight which country has the highest and lowest proportions? If so, rank the countries by percentage of child marriage by:
    - Selecting the full range of data in Excel
    - Selecting “Data” from the upper menu bar
    - Selecting ”Sort”
  - Add all appropriate chart elements

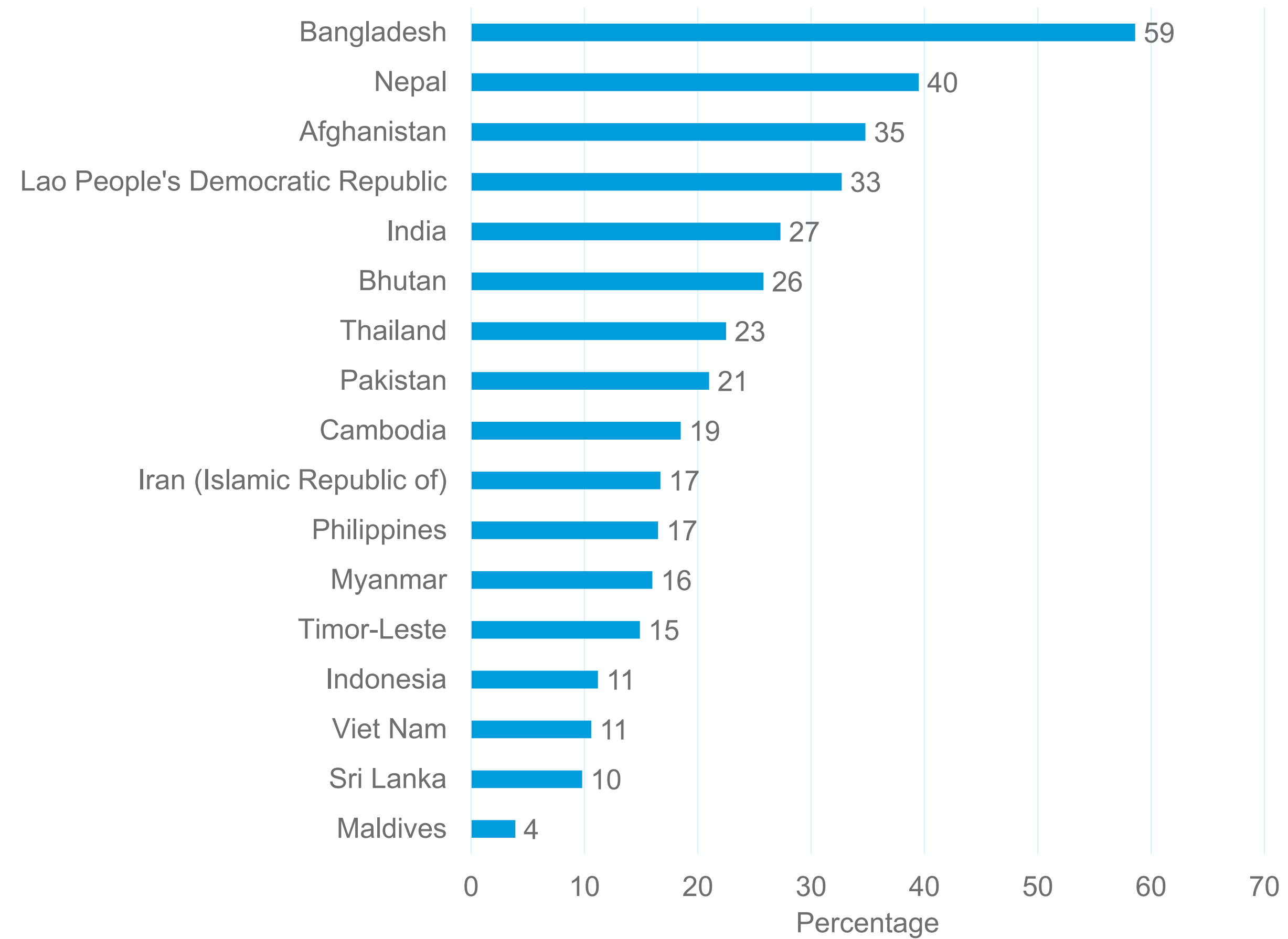


Dialogue box for data ranking



# Building blocks of data visualization: Bar Graph

Proportion of women aged 20–24 years who were married or in a union before age 18 (%)



## Building blocks of data visualization: Line chart

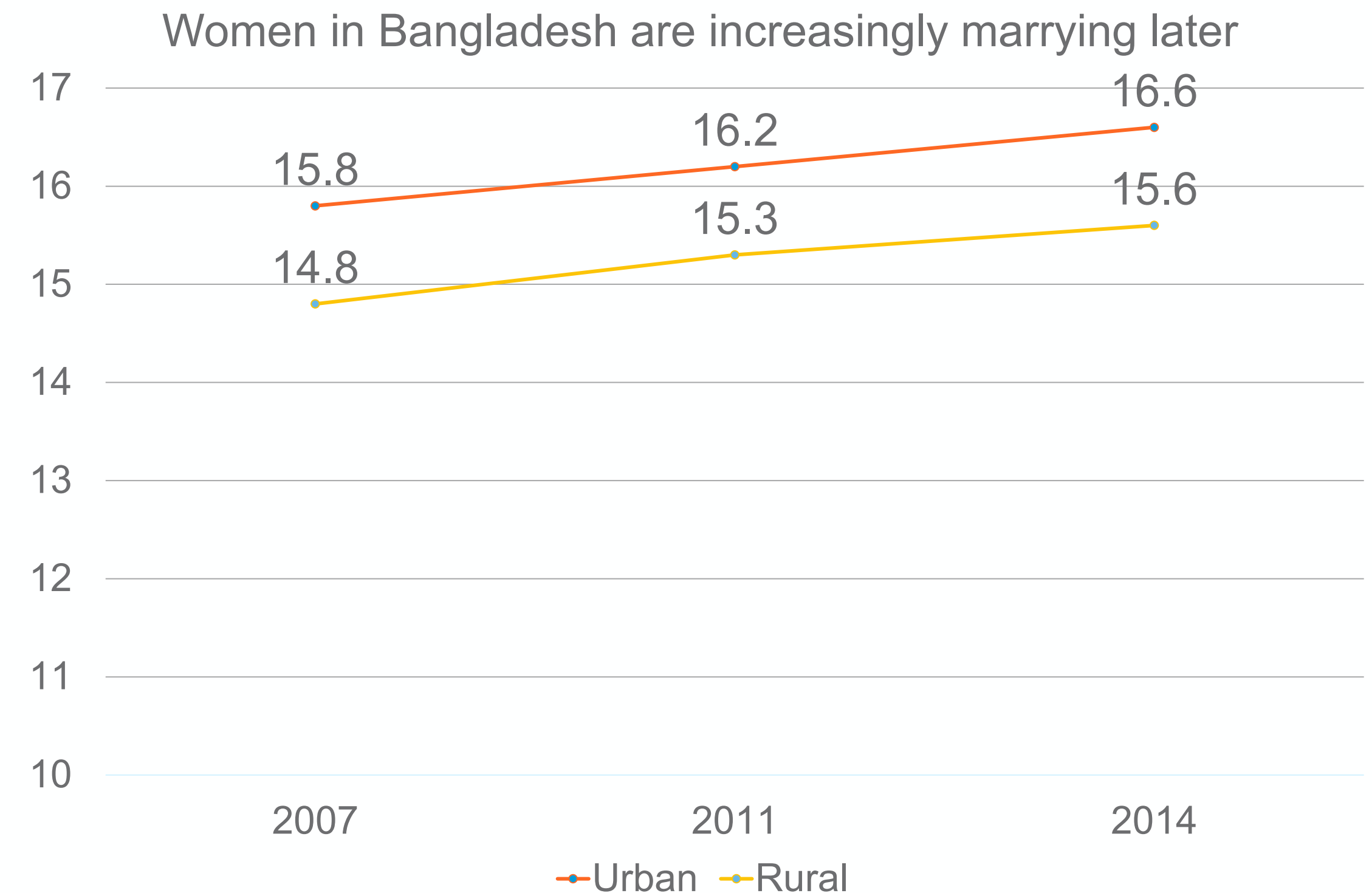
### - Line chart

- Best-suited to present continuous variable
- Time series data or trend analysis

Year	Residence	
	Urban	Rural
2007	15.8	14.8
2011	16.2	15.3
2014	16.6	15.6

### - Steps to build a Line chart in Excel

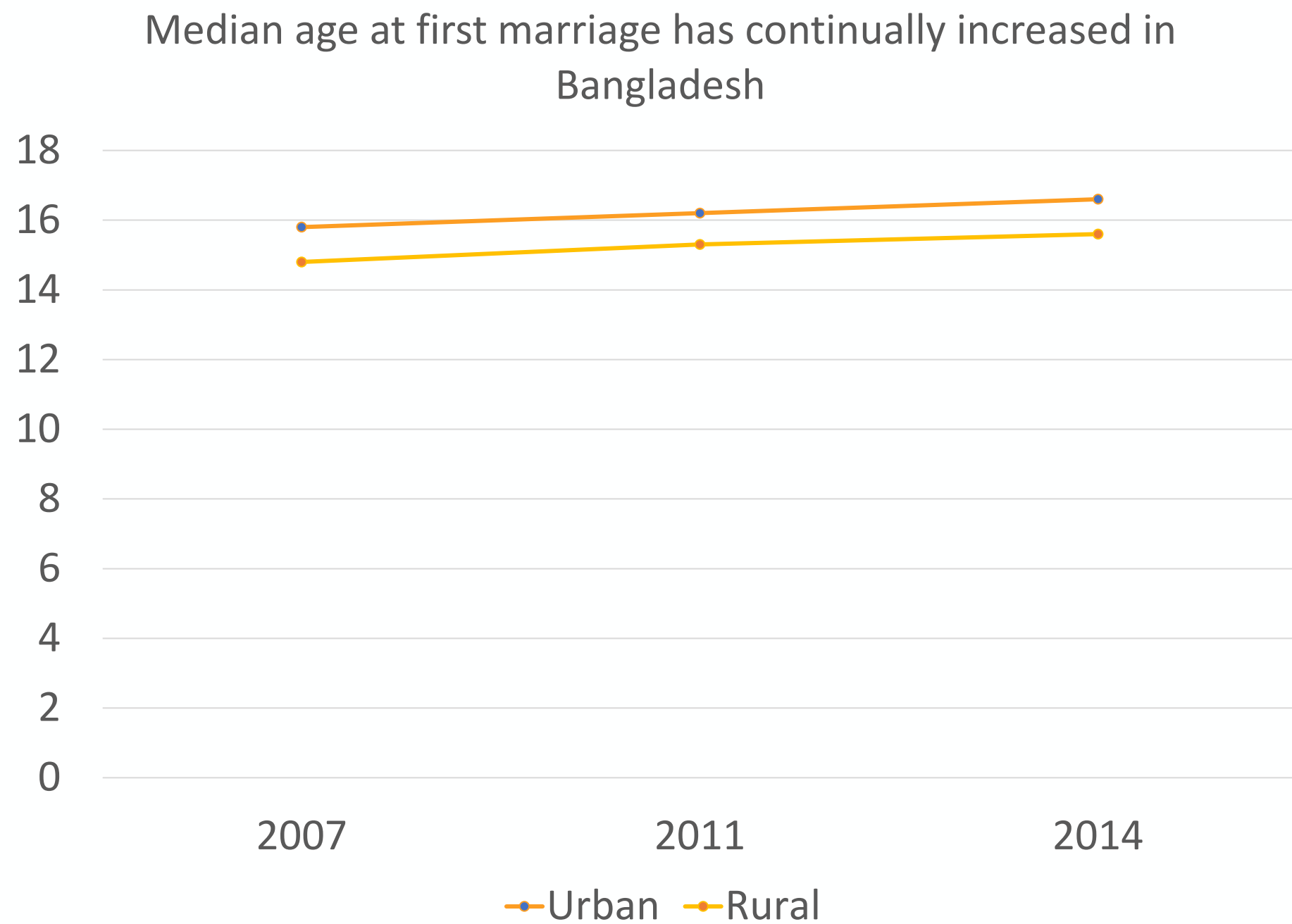
- Select the data with your mouse
- Go to Insert>Chart>Line chart
- Format the data adding all relevant elements (chart title, axis labels, data labels, etc)
- You should obtain a graph as follows:



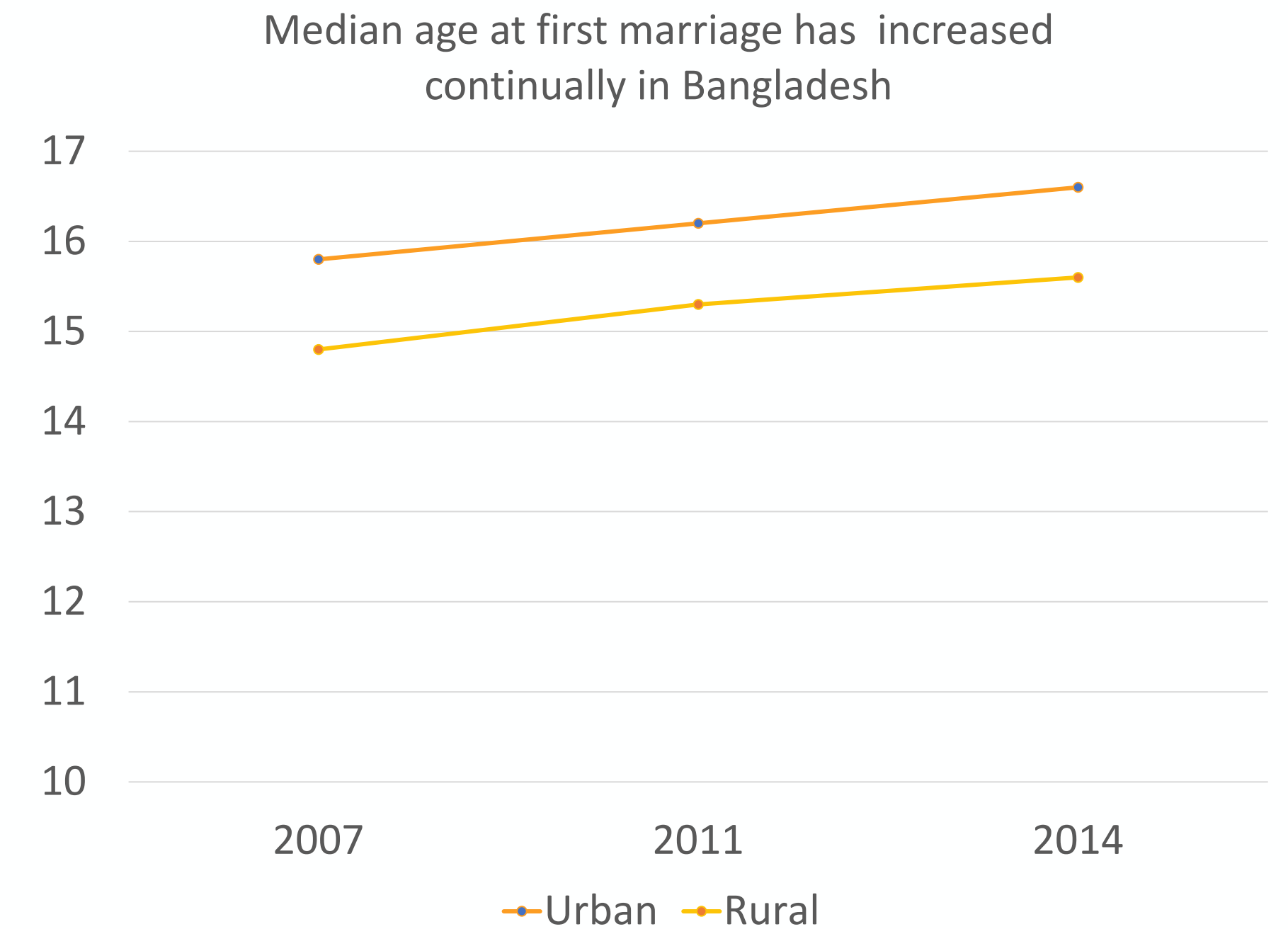
# Building blocks of data visualization: Line chart

Spot the difference between A and B

A



B



# Building blocks of data visualization: Pie chart

- Commonly used to showcase parts of a total
- All slices of a pie chart should add up to 100%
- Dataset: SDG Global Database, Pakistan

Does it add up to 100?

NO

YES

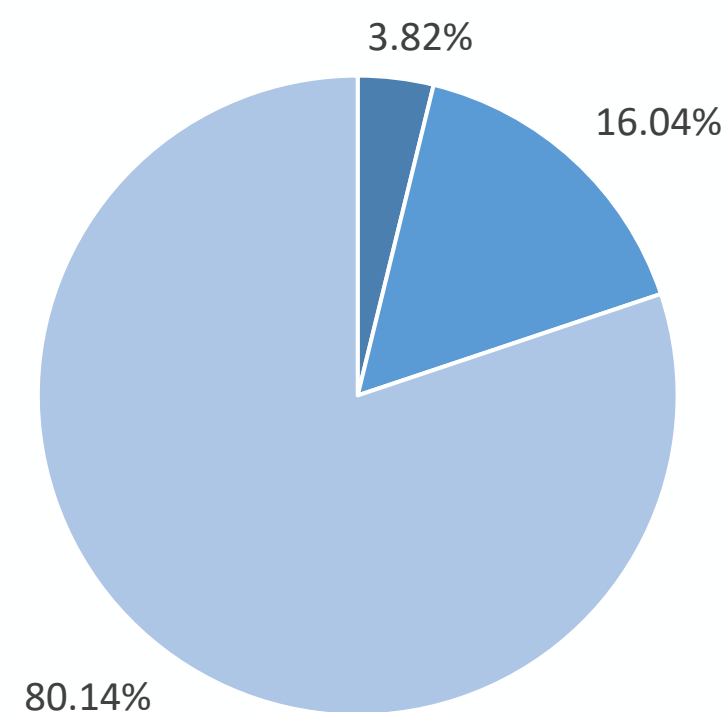
Activities	Average daily time spent (in hours)
Unpaid care work	0.91
Unpaid domestic work	4.57
Other activities	19.24

Activities	Average daily time spent (in hours)	Average daily time spent (in %)
Unpaid care work	0.91	3.82%
Unpaid domestic work	4.57	16.04%
Other activities	19.24	80.14%

Average daily time spent on different activities by women in Pakistan

## Steps to create pie chart with Excel

- Select your data with your mouse
- Select Insert>chart>2D Pie Chart



■ Unpaid care work ■ Unpaid domestic work ■ Other activities

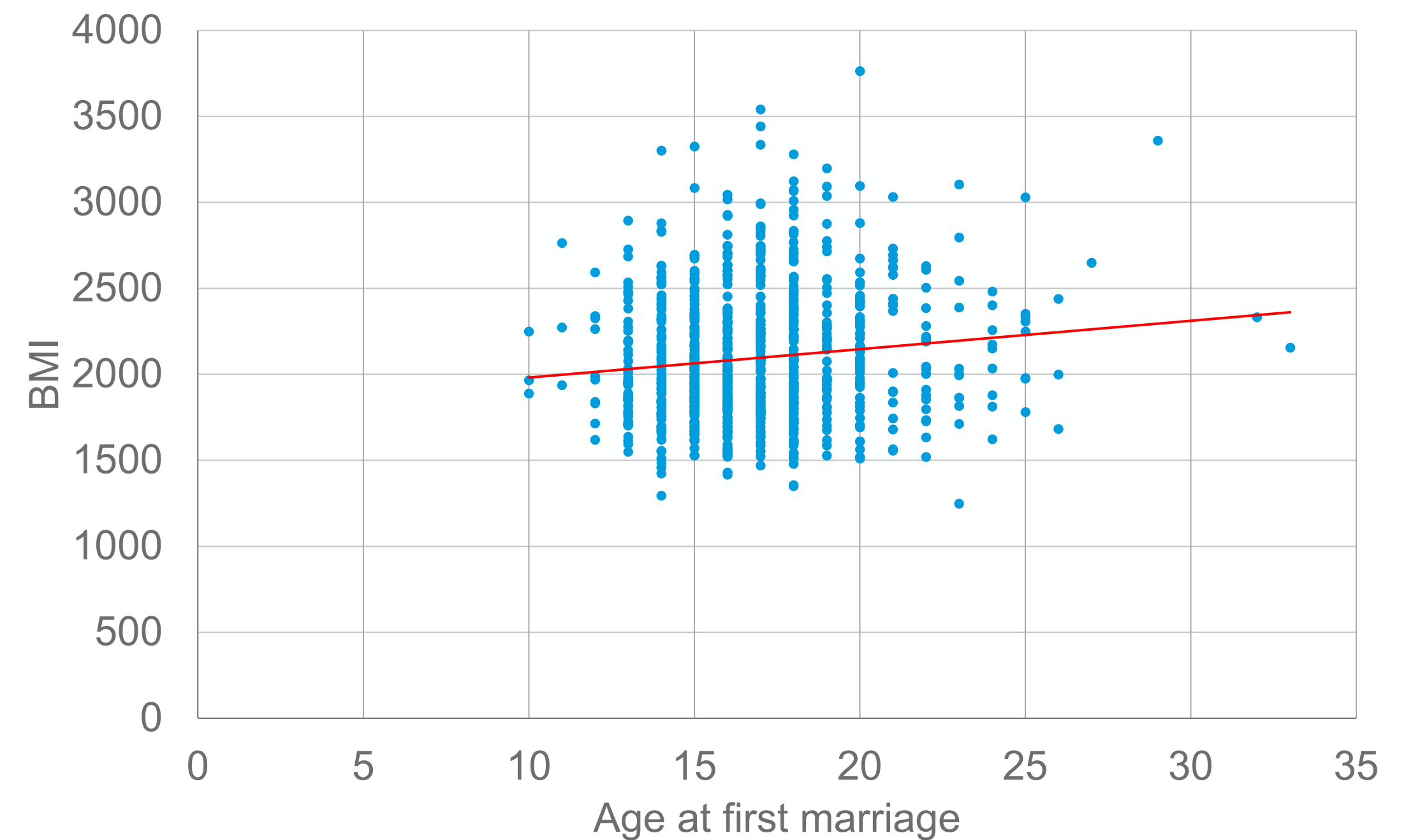
## Building blocks of data visualization: Scatterplot

- Commonly used to visualize associations between variables
- When two variables are plotted in a scatterplot, a cloud of dots represents each of the data points
- Clustering of dots around the line means a higher association between variables

- Steps to build scatterplots with Excel

- Open the Excel worksheet
- Select the Insert>Chart>Scatterplot
- Add Axis titles, chart titles and other necessary elements
- Add trendline

*BMI increases as age at first marriage increases*



## Building blocks of data visualization: Box and Whisker

- Also called a box plot
- Displays a 5-number summary of each category of data
  - Minimum value
  - 1<sup>st</sup> quartile
  - Median
  - 3<sup>rd</sup> quartile
  - Maximum
- Steps to build Box and Whisker chart with Excel:
  - Open the Excel data file, sheet 5
  - Select the data with your mouse
  - Select Insert>chart>box and whisker from the menu bar
  - Add the appropriate Chart Elements to obtain a graph as follows:

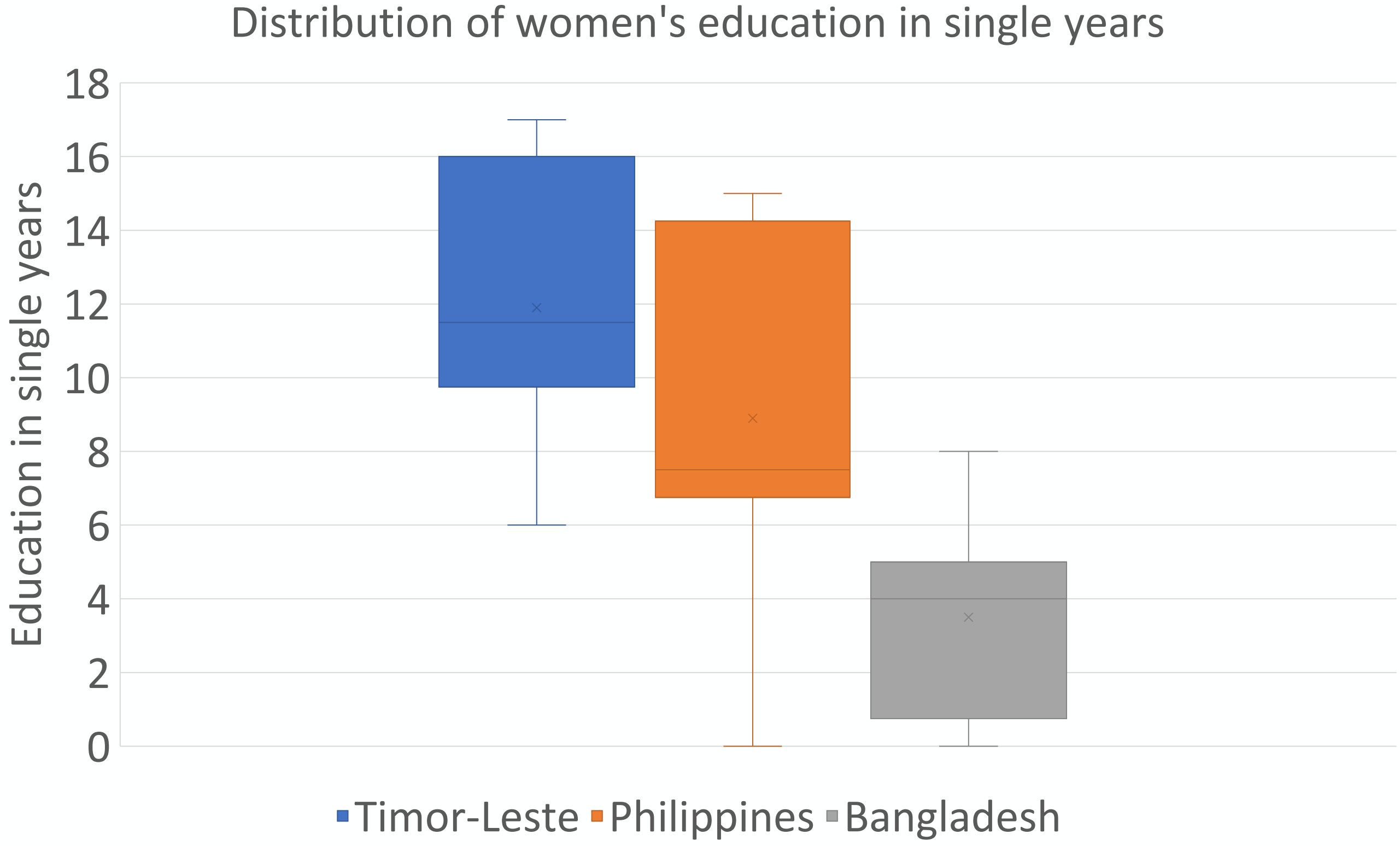


Respondent ID	Timor-Leste	Philippines	Bangladesh
1	6	14	5
2	11	0	1
3	17	15	3
4	10	7	8
5	16	8	0
6	16	10	0
7	12	15	4
8	10	6	5
9	12	7	5
10	9	7	4

Five number summary	Formula in Excel	Timor-Leste	Philippines	Bangladesh
1. Minimum	=Min (range of data)	6	0	0
2. 1st Quartile	=Quartile (range of data, 1)	11.5	7.5	4
3. Median	=Median (range of data)	11.5	7.5	4
4. 3rd Quartile	= Quartile (range of data, 3)	15	13	5
5. Maximum	=Max (range of data)	17	15	8

# Building blocks of data visualization: Box and Whisker

Distribution of women's education in Timor-Leste, Philippines and Bangladesh



## Building blocks of data visualization: Radar chart

- Commonly used to plot 3 or more indicators at once
- Easy way for reader to compare information across indicators and population groups

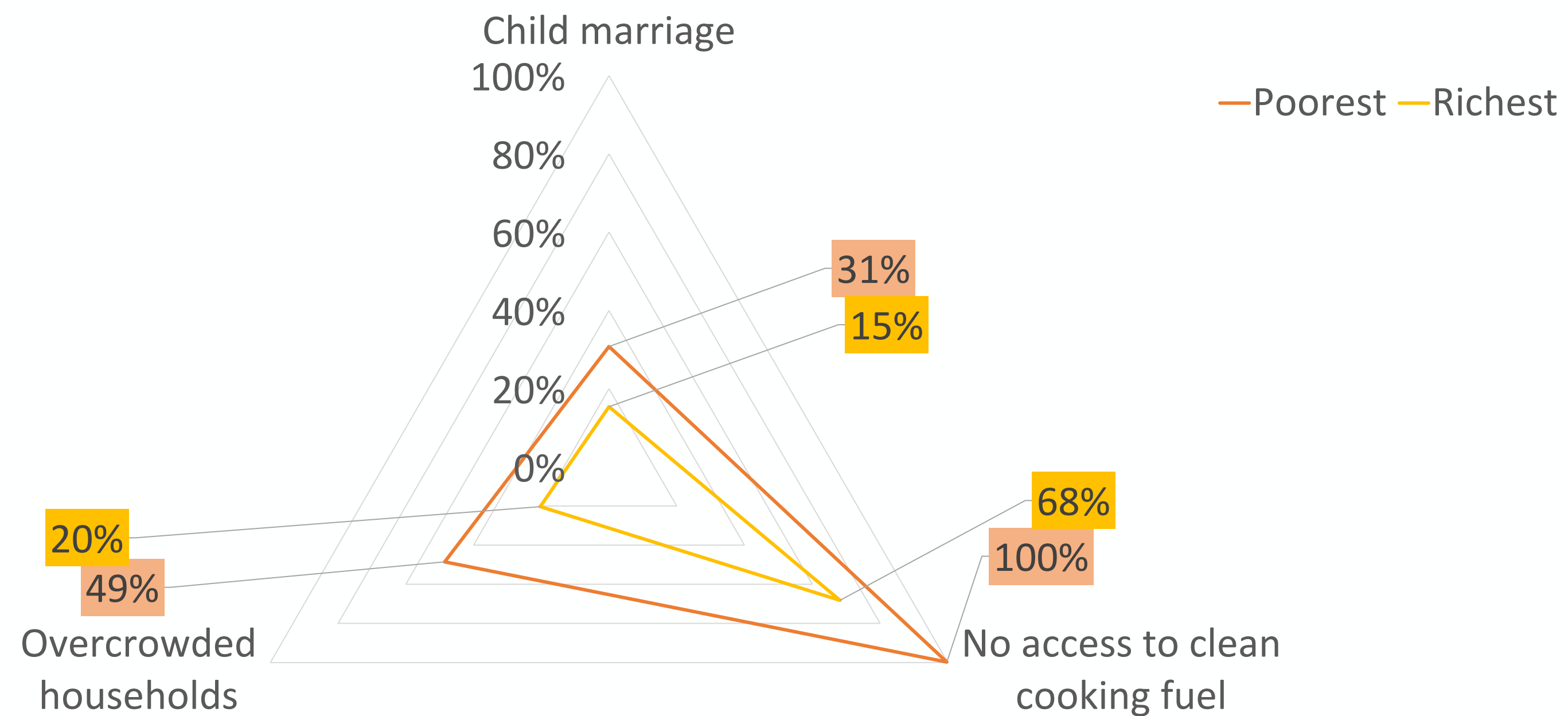
Indicators	Poorest	Richest
Child marriage	30.77	15.39
Unclean cooking fuel	99.73	68.19
Overcrowding	48.52	20.31

- Child marriage: The proportion of women (ages 18–49) who were married before the age of 18 years.
- Unclean cooking fuel: The proportion of women and girls (aged 15–49 years) who have primary reliance on unclean cooking fuel.
- Overcrowding: The proportion of women and girls (aged 15–49 years) who live in overcrowded households.

- Steps to build radar charts in Excel:
  - o Open the Excel data file, sheet 5
  - o Select the data with your mouse
  - o Select Insert>chart>radar from the menu bar
  - o Add the appropriate Chart Elements to obtain a graph as follows:

# Building blocks of data visualization: Radar chart

*Proportion of women facing deprivation*

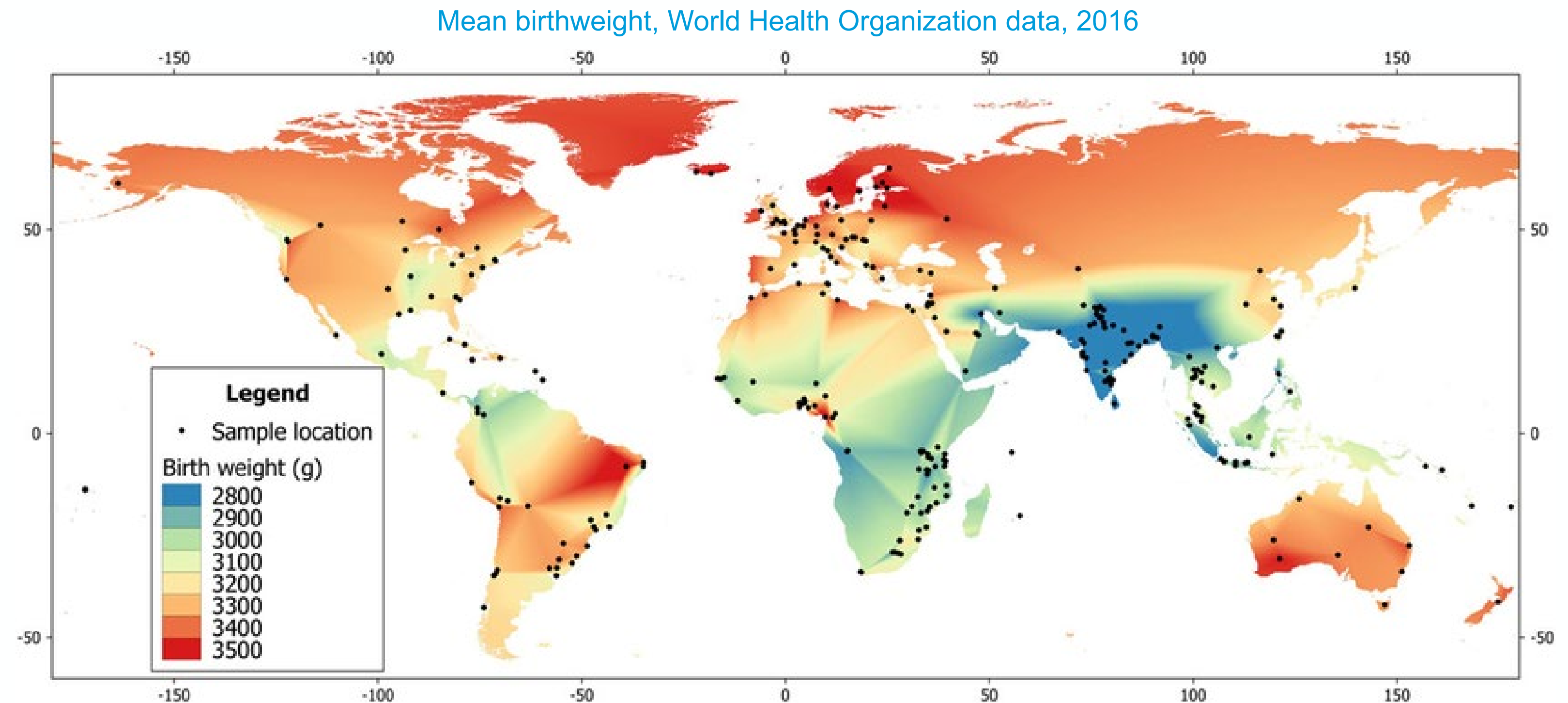


## Building blocks of data visualization: Maps

- Maps are visual representations of data
- Maps can be used to visualize geographic or hierarchical data

- Types of maps:

- Tree maps
- Heat maps
- Proportional symbol maps
- Dot intensity maps



[https://www.researchgate.net/figure/Global-heat-map-of-mean-birth-weight-based-on-data-from-the-World-Health-Organization\\_fig12\\_304982979](https://www.researchgate.net/figure/Global-heat-map-of-mean-birth-weight-based-on-data-from-the-World-Health-Organization_fig12_304982979)

# Building blocks of data visualization: Tree maps

- Tree maps:

- Display hierarchical data
- Categories are represented as rectangles

Data on the proportion of women who were attended by a doctor or traditional health professional

Doctor				Traditional attendant			
Location		Wealth		Location		Wealth	
Urban	Rural	Poorest	Richest	Urban	Rural	Poorest	Richest
72.8	49.5	32.4	80.7	5.9	12.9	21	2.4

- Steps to build tree maps using Excel:

- Use Sheet 7 of the Excel data set that accompanies this Module
- Select Insert>Chart>Tree map from the menu bar

Assistance at delivery in India, by location and wealth

■ Doctor ■ Traditional attendant



# Building blocks of data visualization: Heat maps using conditional formatting

- Heat maps visualize data using colour scale

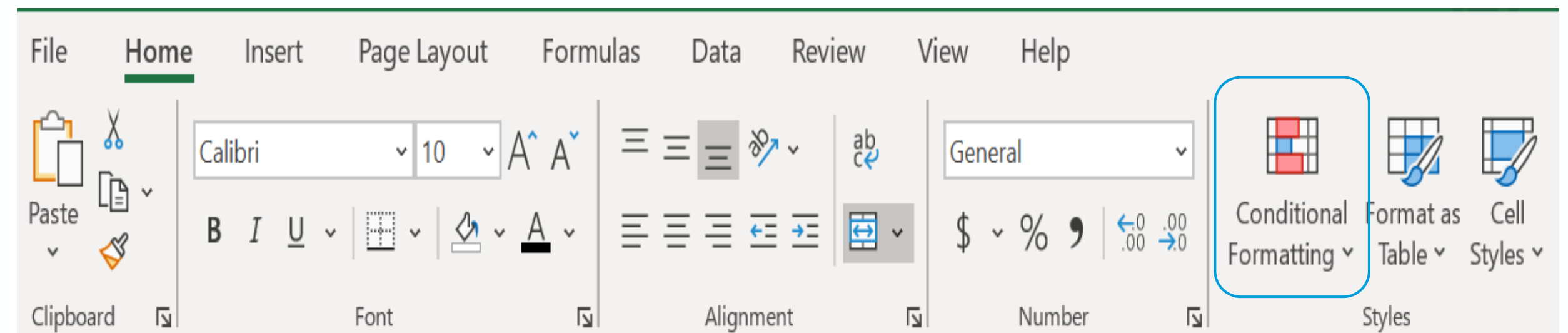
## Data on multiple SDG-related outcome areas

	Proportion of women deprived in these areas		
Indicator	Mongolia	Maldives	Bangladesh
Primary or less education	8.19	13.55	60.99
Child marriage	6.22	19.14	75.23
Inadequate drinking water	33.99	0.16	5.35
Inadequate sanitation	14.23	1.4	50.04
Currently not employed	38.76	54.99	65.85
Do not use clean cooking fuels	52.01	0.56	82.29
Overcrowding	46.91	33.36	39.44

- Select part of the table which contains numbers
- Right click
- Select the Format Cell option
- A new dialogue box will appear; select the “Custom” option
- Delete the word General (by clicking Backspace key on the keyboard)
- Type ;;; (3 semicolons)

- Steps to turn this data table into a Heat Map using Excel:

- Open this data set in Excel
- Select the range of the table
- Select Conditional Formatting on the menu bar and the Red-White colour scale will assign the darkest shade of red to the highest value and white to the lowest value.



# Building blocks of data visualization: Heat maps using conditional formatting

Proportion of women deprived in these areas

SDG-related indicators	Mongolia	Maldives	Bangladesh
Primary or less education	Lightest shade	Light shade	Darkest shade
Child marriage	Lightest shade	Light shade	Darkest shade
Inadequate drinking water	Light shade	Lightest shade	Lightest shade
Inadequate sanitation	Light shade	Lightest shade	Light shade
Currently not employed	Light shade	Light shade	Light shade
No clean cooking fuel	Light shade	Lightest shade	Light shade
Overcrowding	Light shade	Light shade	Light shade

- Darkest shade of red is clustered around Bangladesh
- Overcrowding is an issue across all 3 countries
- Issue of inadequate drinking water is prevalent in Mongolia

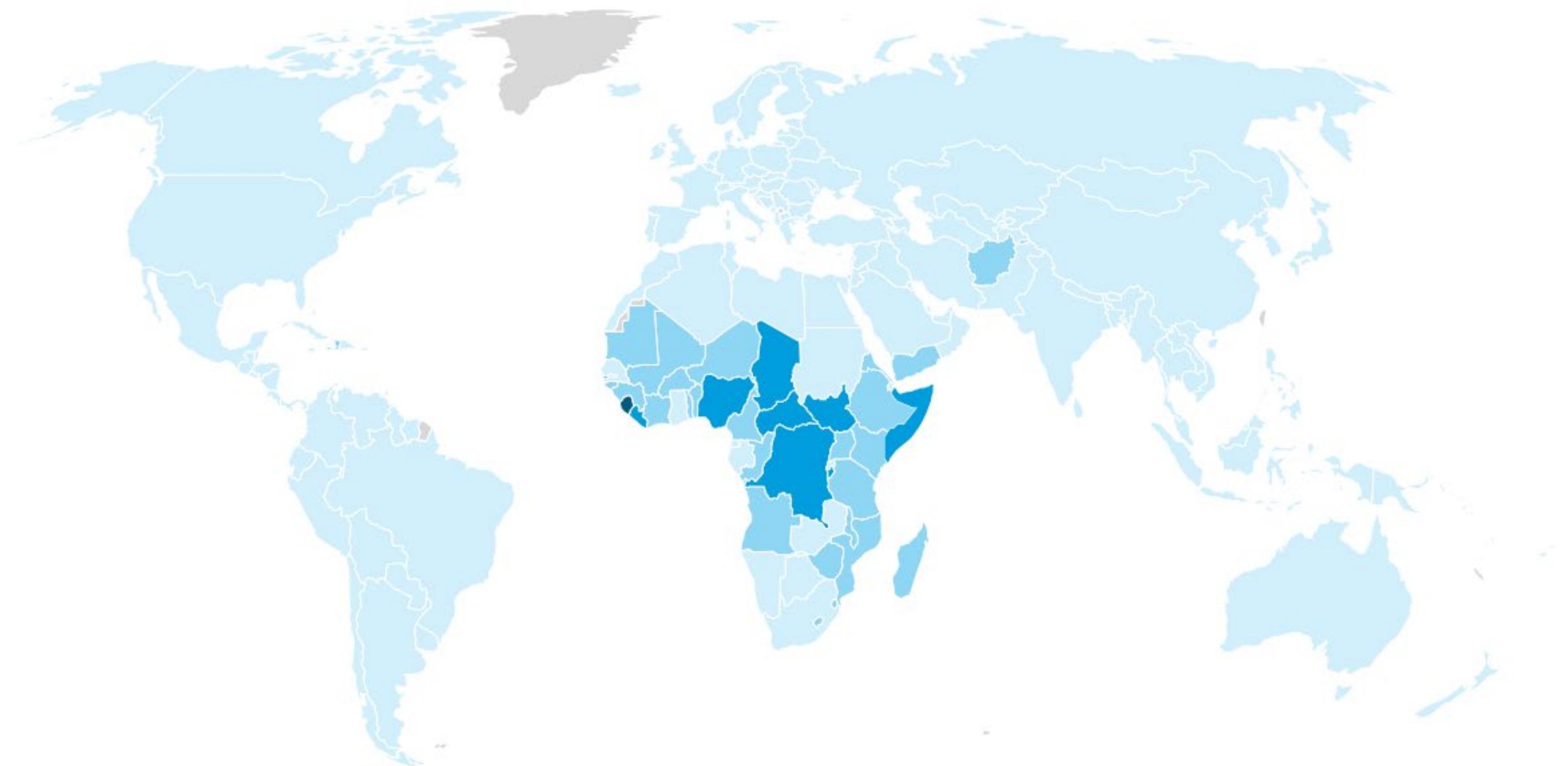


## Building blocks of data visualization: Geographical heat map

- Also called choropleths
- Visualize data on a geographical map
- Utilize only when geographical distribution matters

*Example heat map, UN Women Data Hub*

3-342   342-681   681-1020   1020-1360   No Data

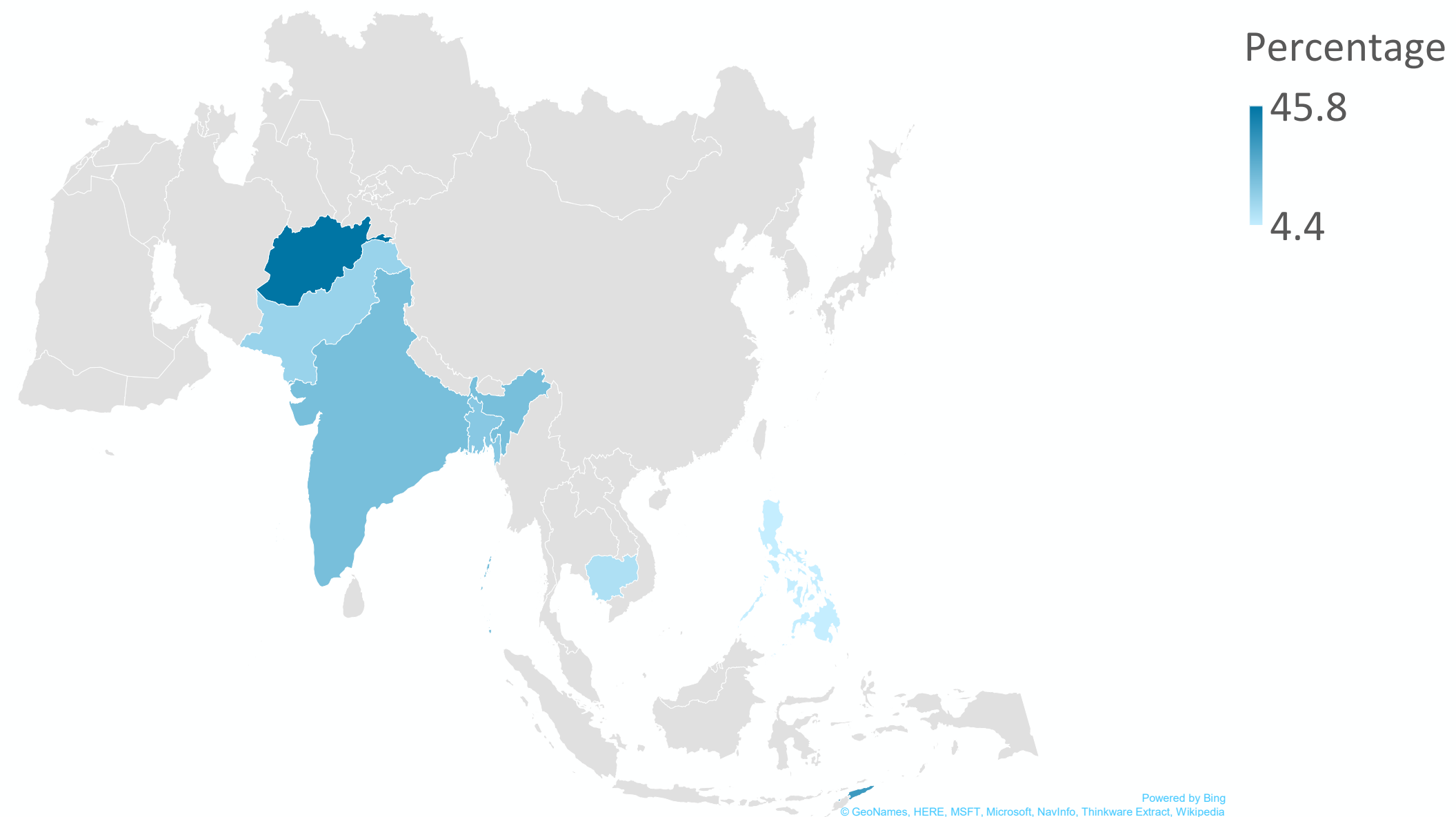


## Building blocks of data visualization: Heat map

- To build a choropleth using Excel:
  - Open this data set in Excel, utilize sheet 8
  - Select the range of the table with your mouse
  - Select the insert>chart>map
  - Add the chart title and other chart elements

Prevalence of intimate partner violence among women aged 15–49 years

Prevalence of intimate partner violence in the last 12 months



Country	Percentage of women 15–49 years who experienced intimate partner violence in the last 12 months (DHS data)
Afghanistan	45.8
Bangladesh	17.3
Cambodia	9.3
India	20.6
Pakistan	13.6
Philippines	4.4
Timor-Leste	33.1

# Building blocks of data visualization: Typography

## Typography

- Technique of arranging text in an appealing way
- Often used to showcase large or shocking figures
- Can be used to highlight any key data

Example of typography, UN Women, 2020



The infographic features a woman in a pink shirt and black skirt running towards the right, holding a large white '67%' sign. The background is a gradient from red to pink. The text 'of climate related decision-making roles are occupied by men.' is written in white below the percentage. A grey box labeled 'Visual hook' has a line pointing to the '67%' figure.

67%

of climate related  
decision-making roles  
are occupied by men.

Note: Under the UN Framework Convention on Climate Change (UNFCCC),  
the Kyoto Protocol and the Paris Agreement  
Source: Gender Equality: Women's Rights in Review 25 years after Beijing

UN WOMEN

Visual hook

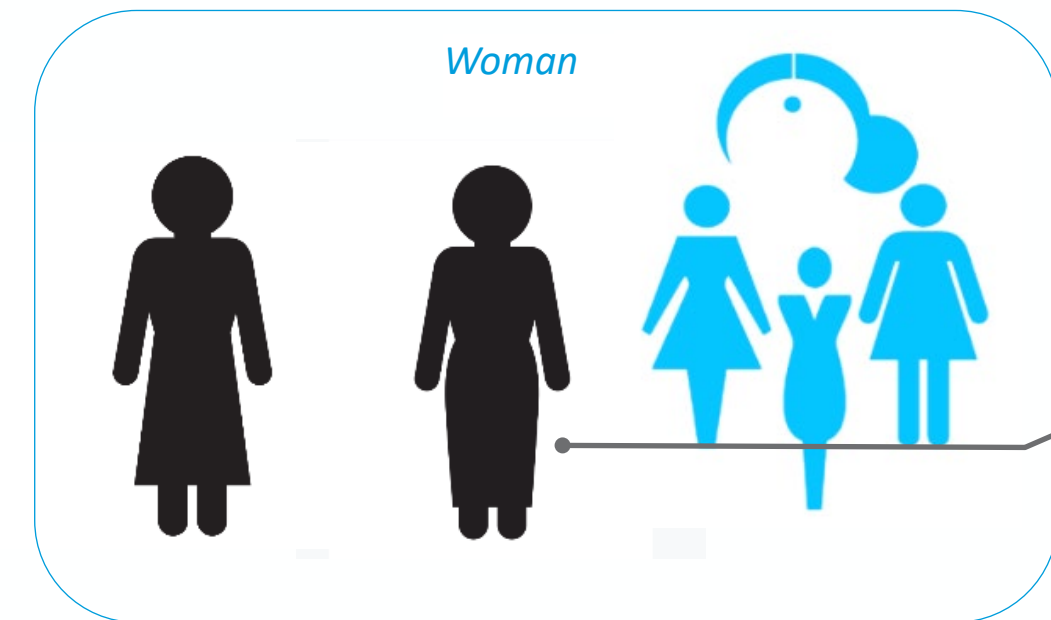
# Building blocks of data visualization: Pictograms

## - Pictograms:

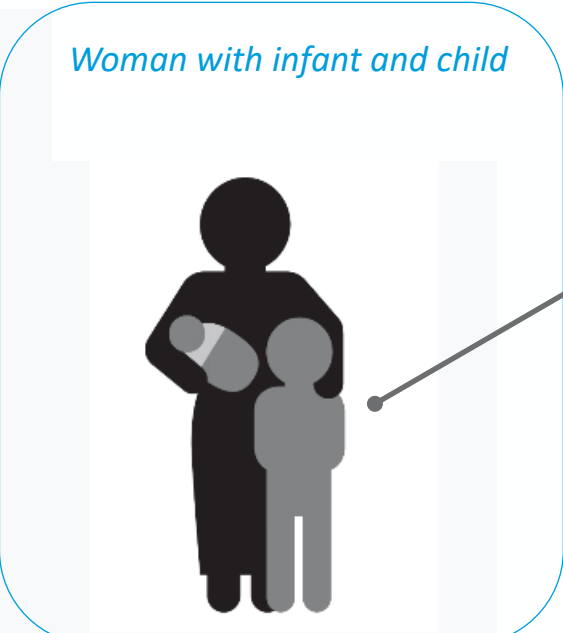
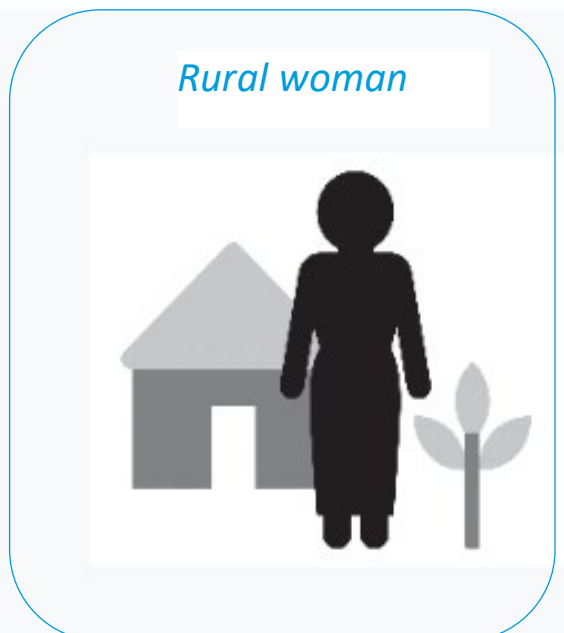
- Pictorial symbol for word or text
- Makes information exciting and engaging

## - Symbol or icon should exclusively stand for that word/text

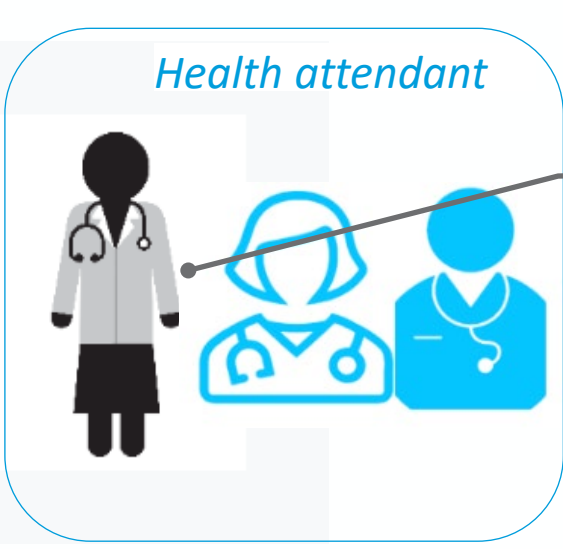
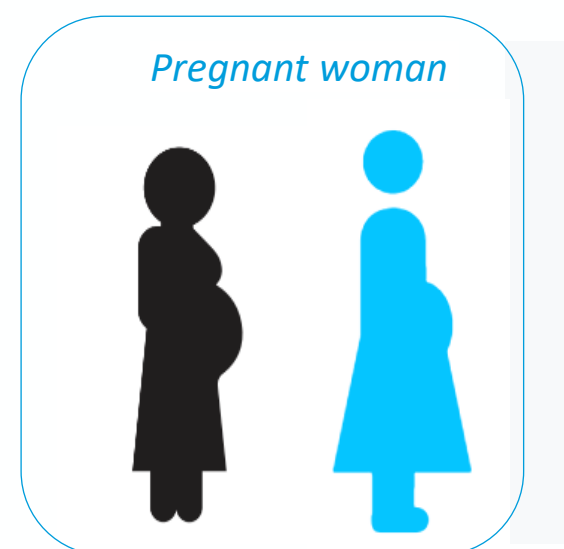
- Not reinforce cultural and gender bias
- Be culturally appropriate
- Keep adequate proportions



Portraying women in culturally appropriate ways  
e.g. woman wearing long skirt



Easy to understand and universal iconography  
e.g. mother with child and infant

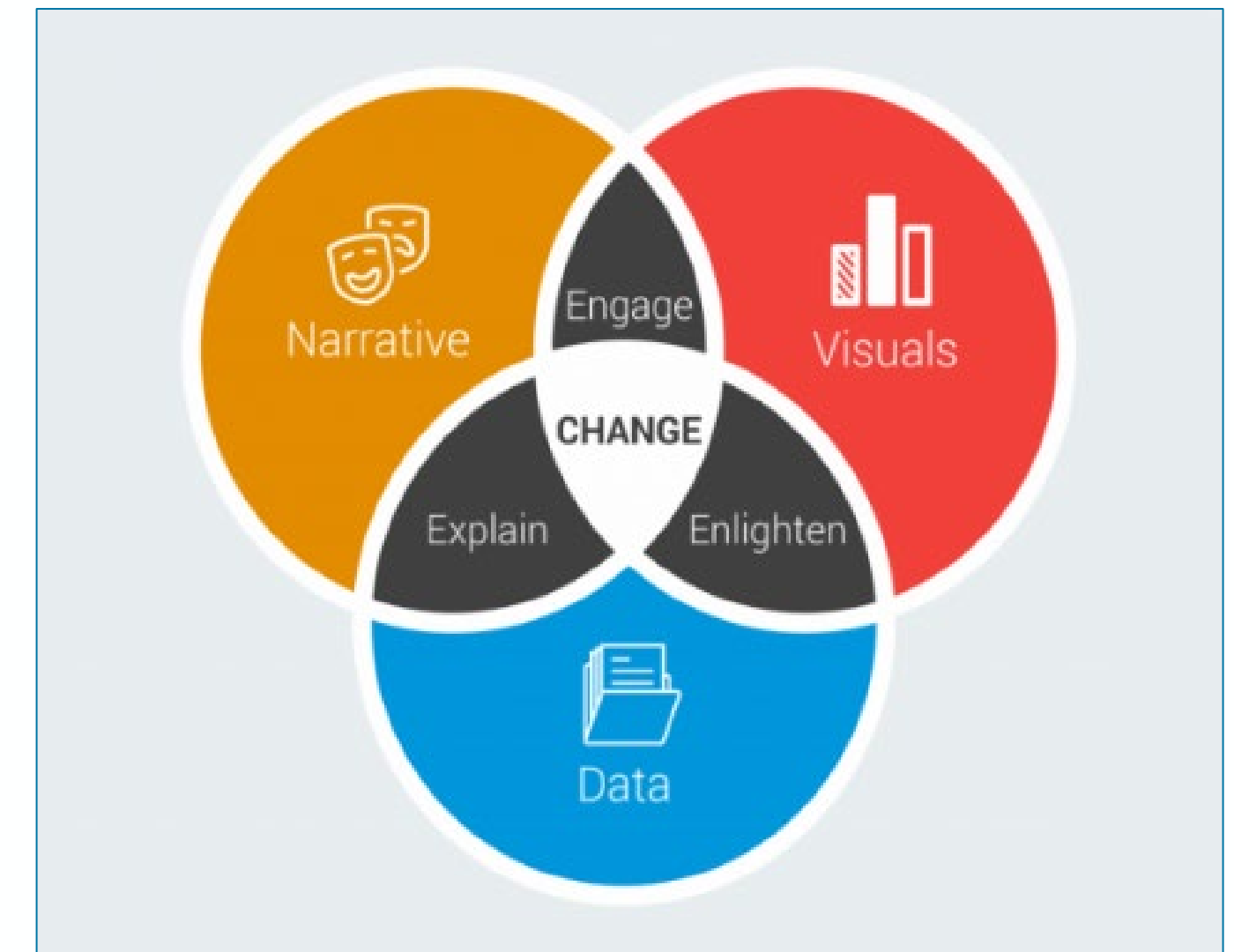


Women's representation in all types of occupations  
E.g. woman doctor

## Building blocks of data visualization: Infographics

- Infographics:
  - Visual representations of data or information
  - Intend to present information in an engaging way
  - Combine graphs, text and iconography
- Gender-related infographics should have:
  - Gender data: Use few data points (3 to 5)
  - Visuals: Should be central and convey key information. Don't add visuals that do not convey additional information.
  - Narrative: Use short titles, simple to understand (not scientific). Minimize the amount of text.

### Key components of an infographic



# Building blocks of data visualization: Infographics

Infographic depicting child marriage in Central Africa, UN Women 2019, Published on Twitter

Visual: Icons allow differentiation between married and non-married girls

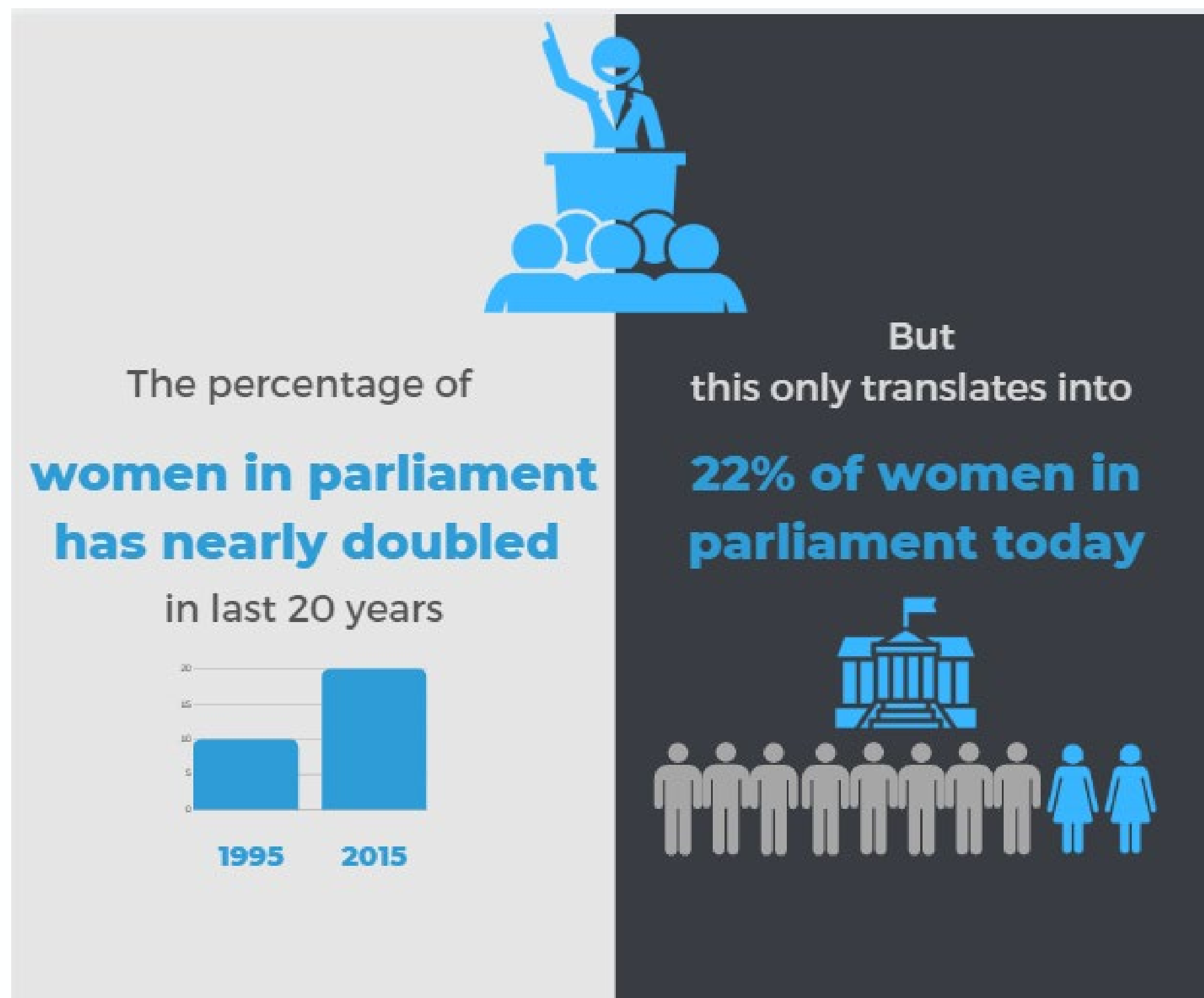
Narrative: Makes the information relatable



Data: Scaled down to 10 girls (4 out of 10; not 40%)

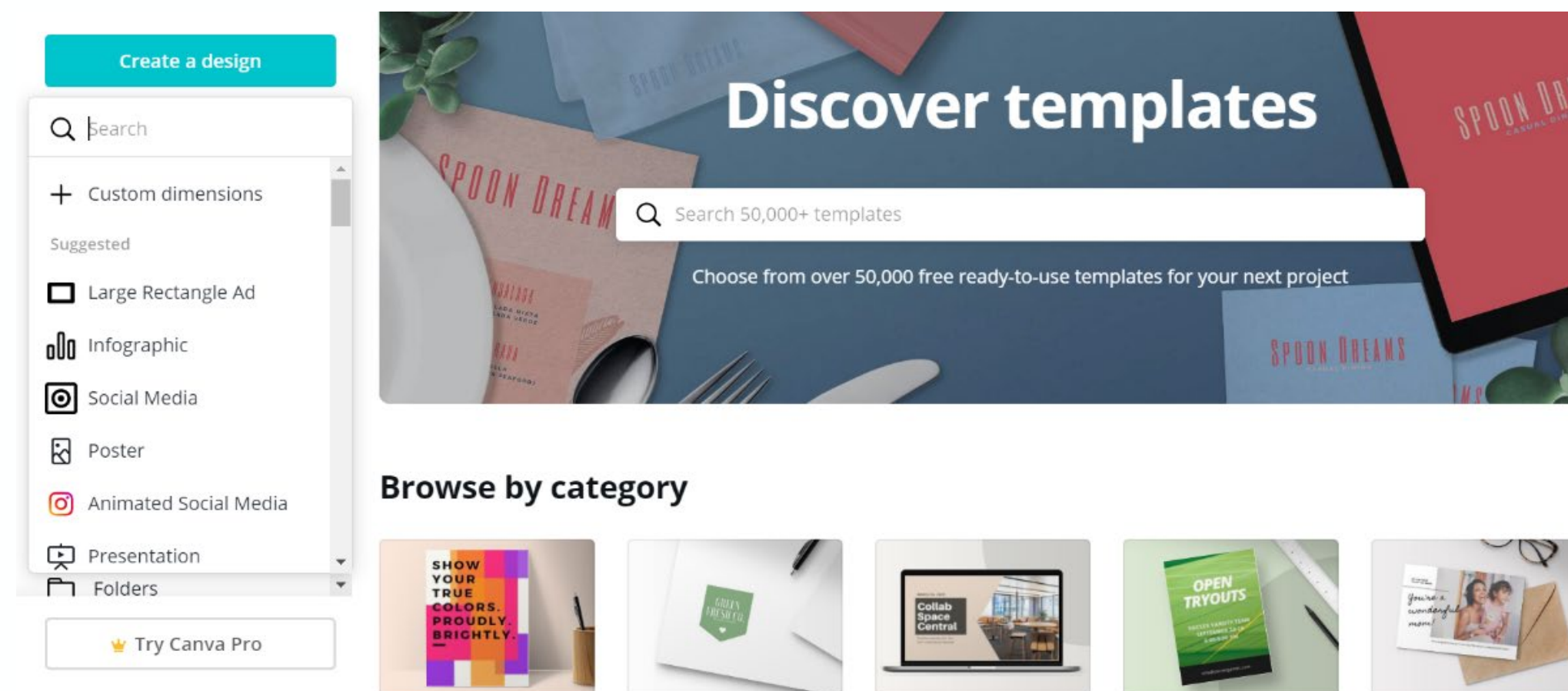
# Using design tools for data visualization

Exercise: Build the following Infographic using Canva



# Using design tools for data visualization

- Go to Canva at: <http://www.canva.com/>
- Log in using your email address (or create a new account)
  - o A new window will open as follows:

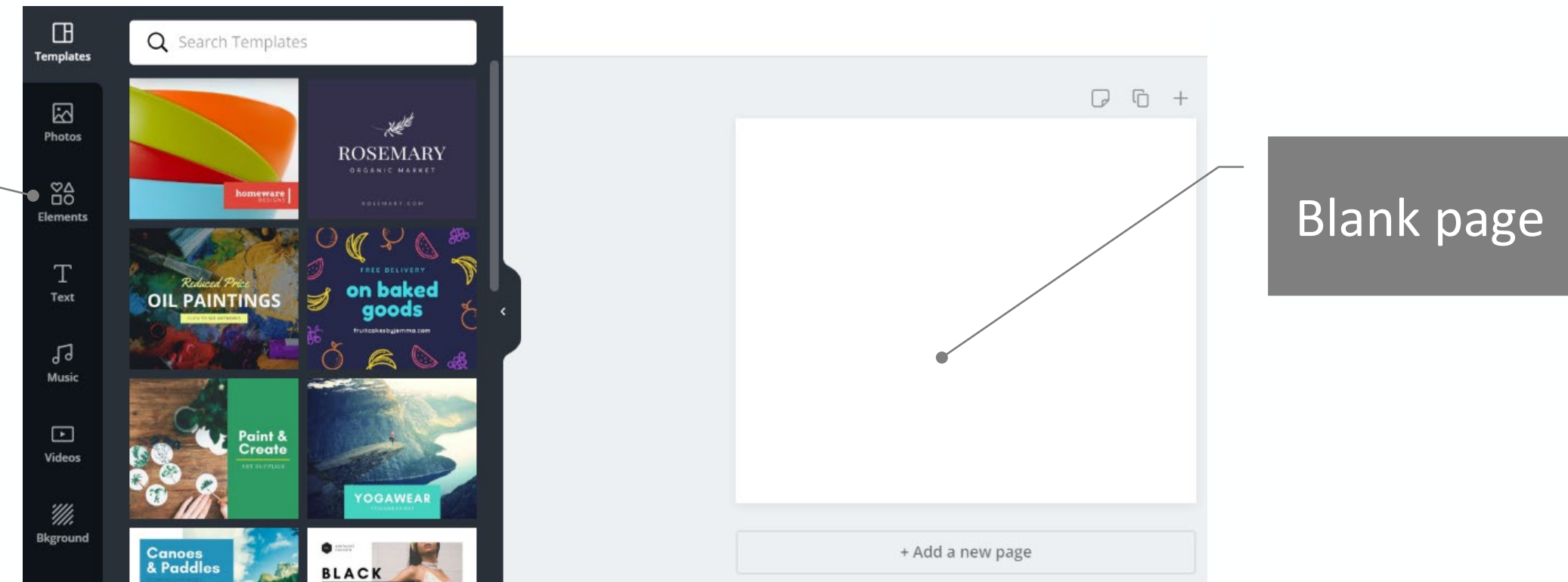


- Select “Large Rectangle Ad” from the Create design option

# Using design tools for data visualization

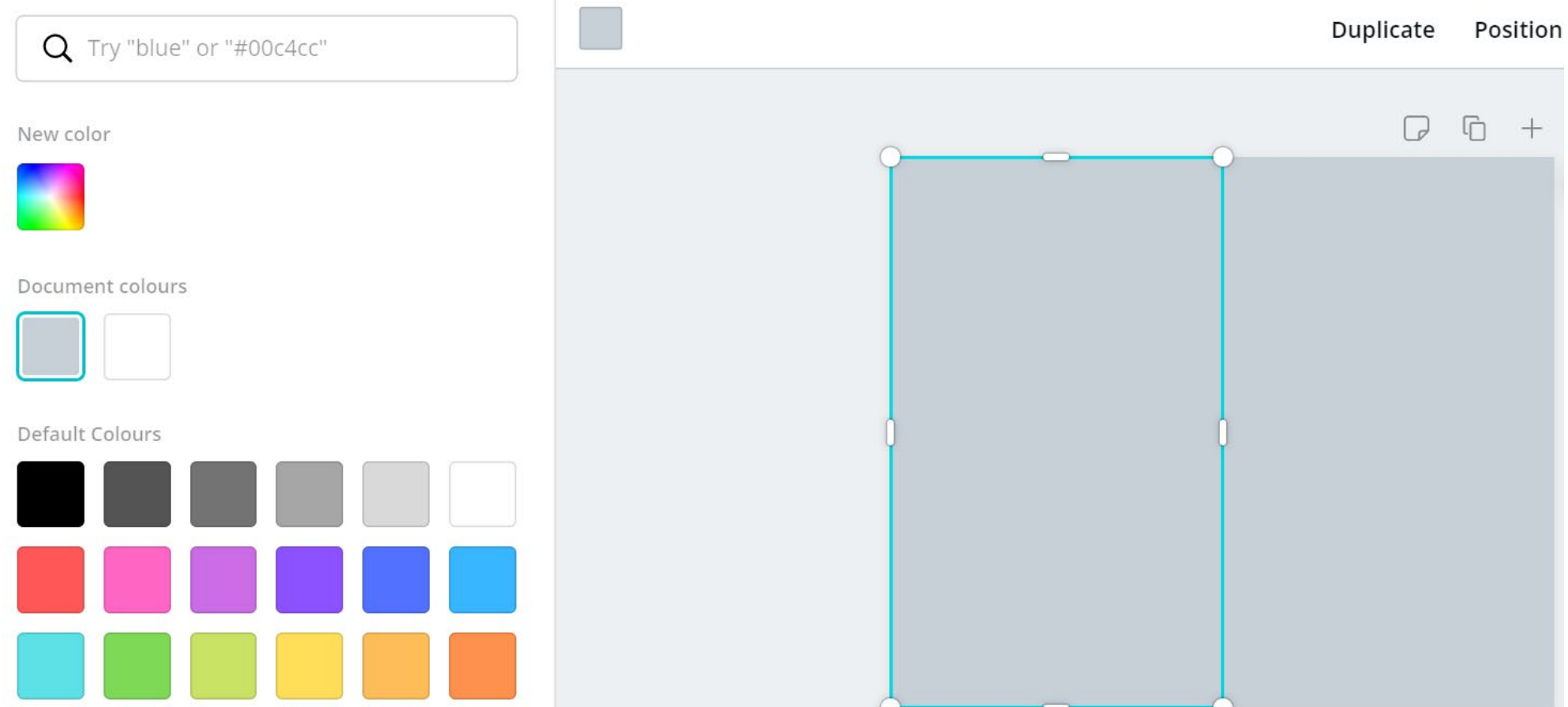
- A new blank canvas appears:

Formatting options



Blank page

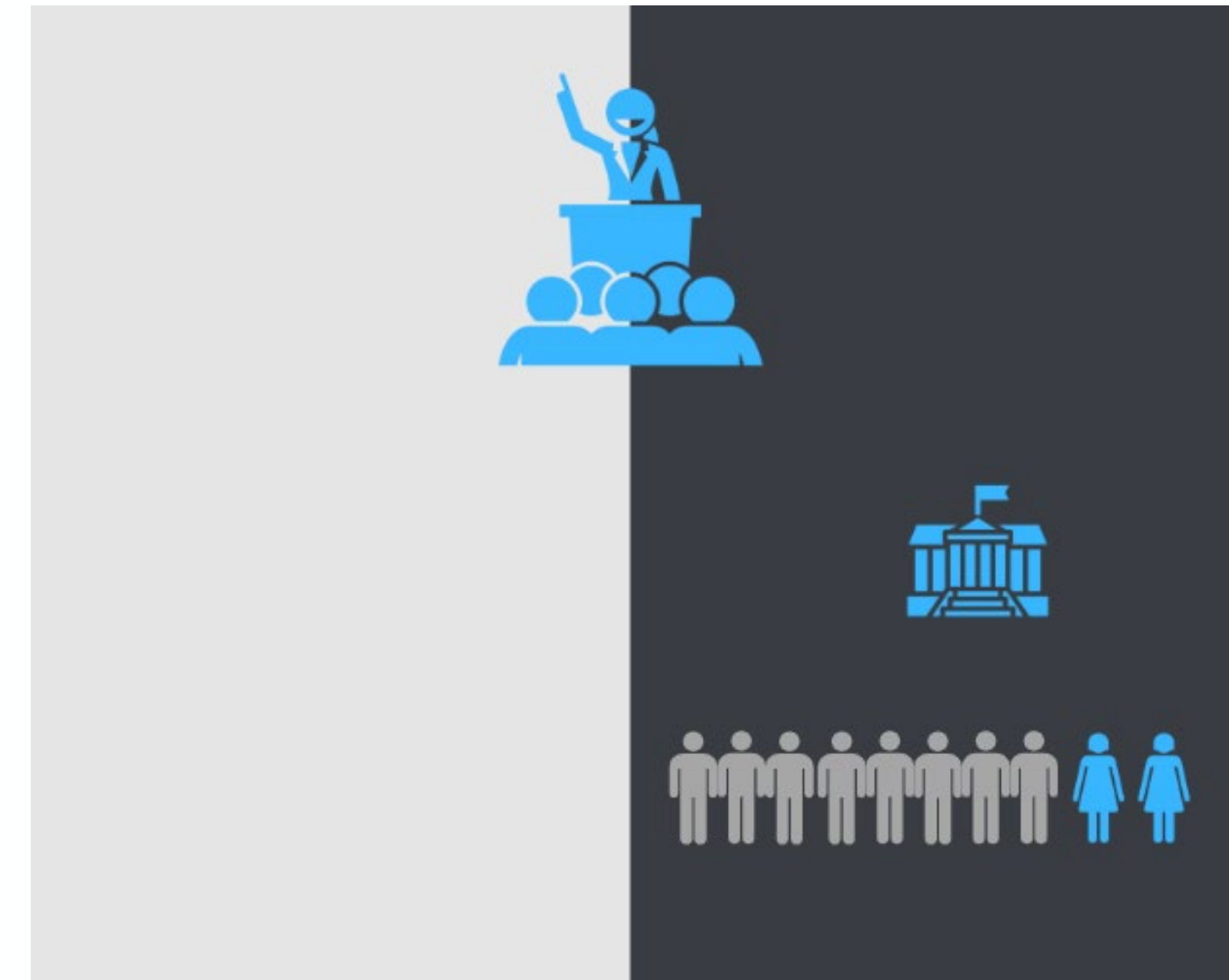
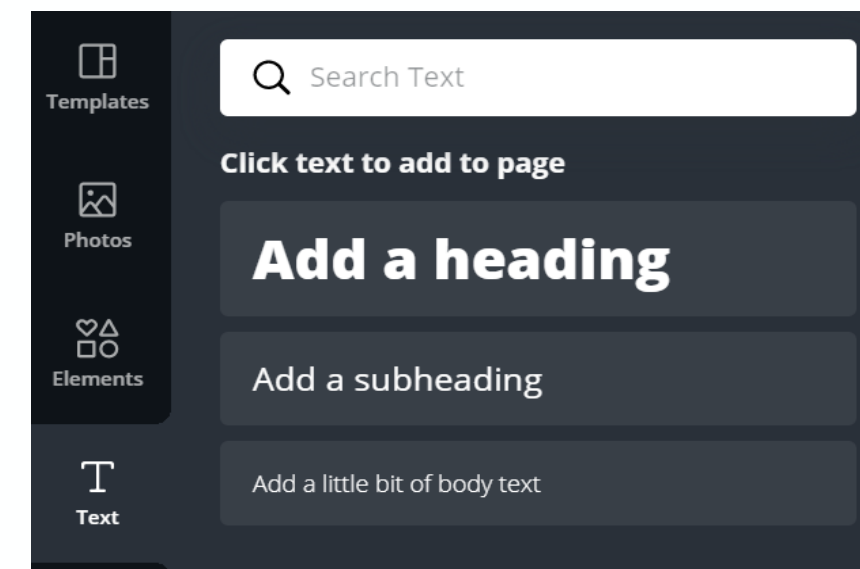
- Select Elements > Shapes > Rectangle > Duplicate Rectangle
- Fit the two rectangles to the screen
- Change the color of rectangles:
  - o Hexadecimal colour code for left rectangle: #d9d9d9
  - o Hexadecimal colour code for right rectangle: #393c42



# Using design tools for data visualization

- To add icons, Elements> Search bar> Type the following:
  - o Female leader talking
  - o Parliament
  - o Woman (2 “woman” icons)
  - o Man (8 “man” icons)
- Change the colour of the icons
- Add text to the canvas:
  - o Font style: **Montserrat Classic** for sub-heading and **Montserrat Extra Bold** for key text
  - o Font size: 8-point size for sub-heading text and 10.4 for key text
  - o Font colour: Colour code #545454 and #2d9cd7 for left section; #d9d9d9 and #2d9cd7 for the right section
- To add the data visual, go to Element> Bar graph

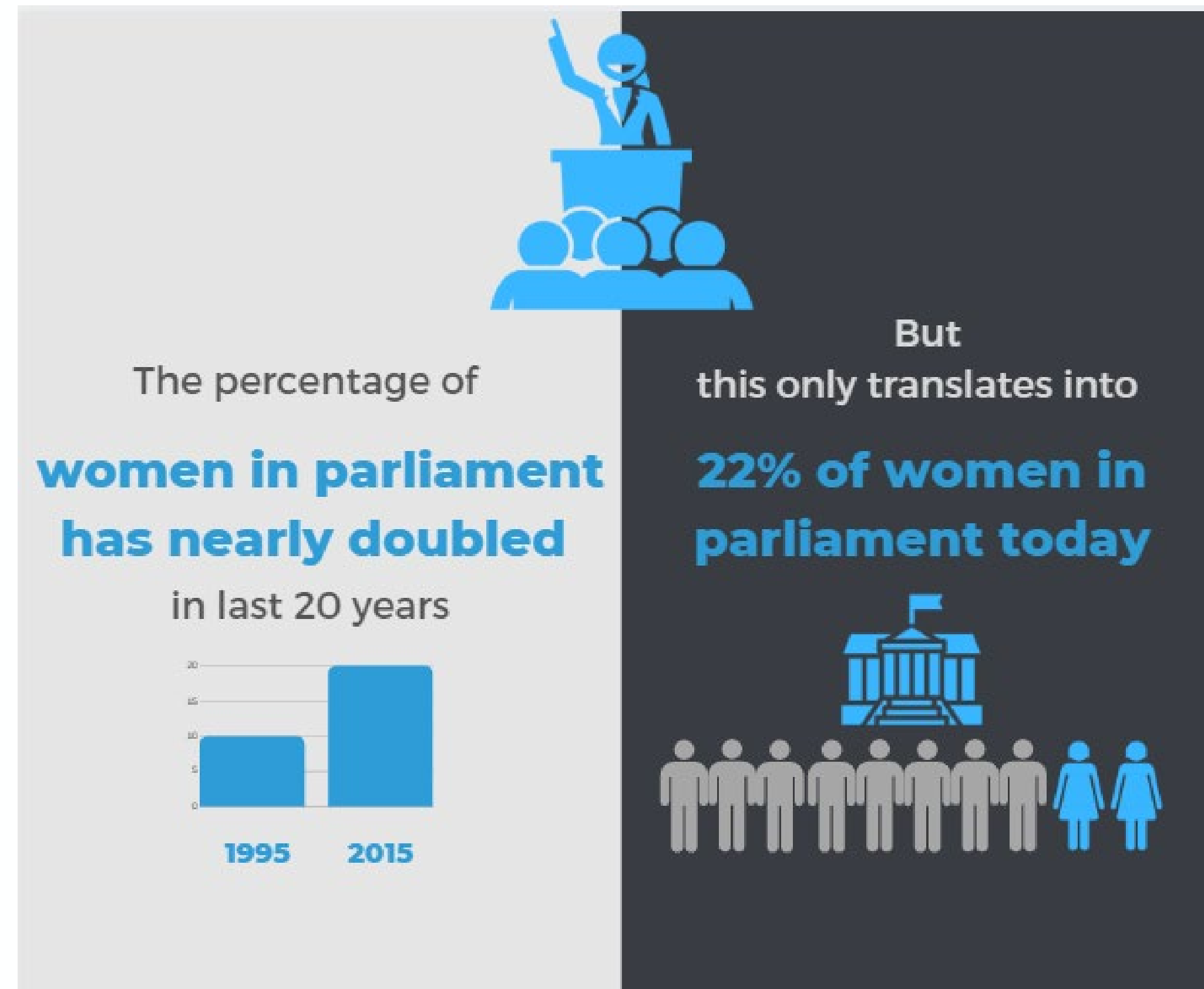
Scale  
down %  
into 10



Bar chart	
1995	10
2015	20

# Using design tools for data visualization

The final infographic:



# Data visualization: Tools of the trade

## Tools for beginners

- Data visualization (including maps)
  - Google charts (via Google Sheets)
  - Infogram
  - Tableau
- Infographics
  - Piktochart
  - Vennage
  - Canva

## Tools for advanced users

- Data visualization
  - Google charts
  - D3.js
  - MapBox
  - Google Maps
- Infographics
  - Adobe Illustrator
  - InDesign
  - After Effects, Premiere (motion graphics)

**6**

## **Key takeaways**

## Key takeaways

- *Communication between data users and producers enhances data use. It is needed both before and after data production.*
- *User's level of knowledge and awareness of the topic should guide the degree of technicality of the data communication product.*
- *Interactive data portals designed with non-experts in mind can help increase engagement and promote data use.*
- *Data visualizations in statistical reports should include comprehensive information about data sources, caveats, reference periods, and any other information to convey information accurately and without leaving room for interpretation.*
- *Factsheets are a concise means of communicating key findings. They should be thoughtfully organized, having the right balance between text, visuals and overall design. Factsheets must be concise.*
- *When producing gender data stories on social media, communicate in a clear and concise manner, convey empowering messages through powerful imagery and pair your data with a human-interest or current affairs angle.*
- *For statistical graphs, remember to add all the relevant chart elements to fully communicate the message. Remember that choosing a type of graph that doesn't suit your data will result in misleading messaging.*
- *Infographics are visual representations of data. A good infographic has the right balance between data, visual and narrative.*
- *Consider the aspect ratio when creating data products for social media as every platform has a different recommended size.*

Thank you