

Life Cycle Network

Imperial College
London



Social LCA of products for better-informed decision- making at policy and business level

20 June, 2021

Prof. Dr. Sonia Valdivia

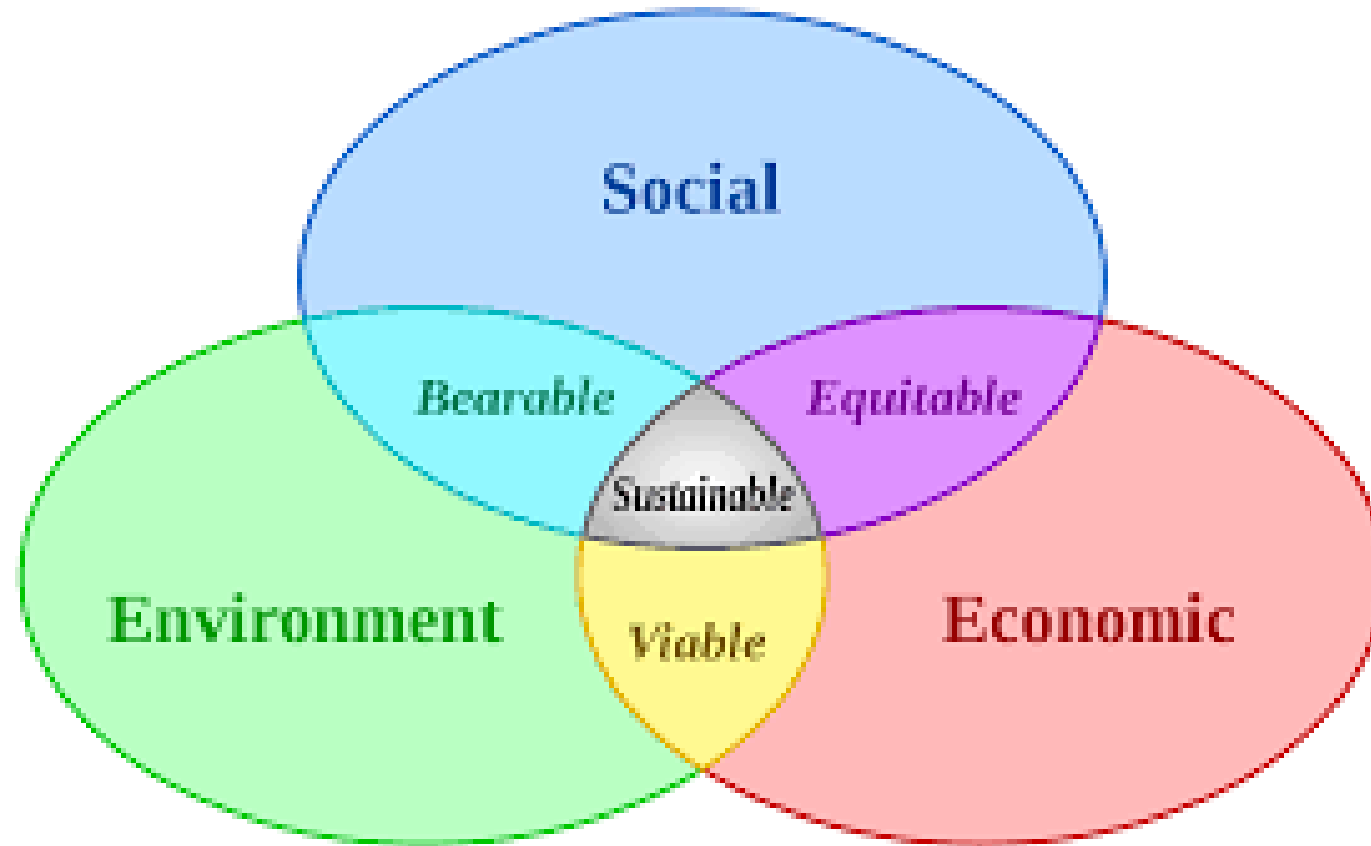
Guidelines for
SOCIAL LIFE CYCLE ASSESSMENT OF
PRODUCTS AND ORGANIZATIONS 2020



LEUPHANA
UNIVERSITÄT LÜNEBURG

The International Journal of
**Life Cycle
Assessment**

GROWING CONCERNS FOR SUSTAINABILITY ASPECTS



COMPANIES SHOULD FOCUS ON ESG* & NEW BUSINESS MODELS FOR STRENGTHEN RESILIENCE

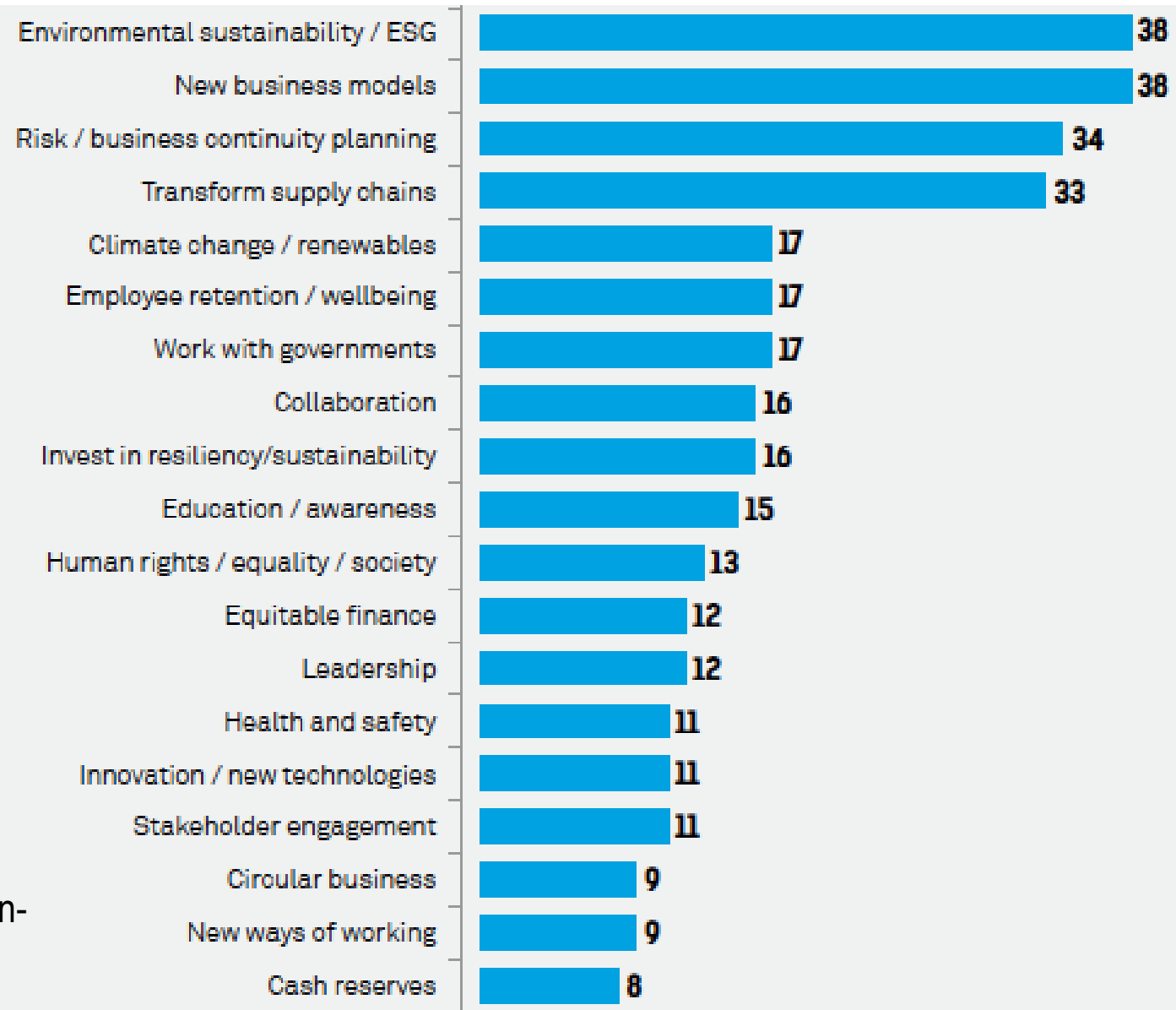
What are the most urgent actions the private sector should take to increase resilience & ability to withstand future systemic shocks? Enter up to three actions

Source: **The GlobeScan-Sustainability Survey**. The 2020 Sustainability Leaders

(>700 experts from 71 countries. May-July 2020)

<https://globescan.com/wp-content/uploads/2020/08/GlobeScan-SustainAbility-Leaders-Survey-2020-Report.pdf>

*Environmental, Social, and Corporate Governance



THE COMPANIES..

— “...don't want to be linked to 'child labor' or 'corruption' neither in their organisation, nor in their providers chain”



Own source

THE PUBLIC AUTHORITIES

— “...need to apply integrated product politics e.g. in public purchasing programs”



MORE CONSUMERS

— “...want to know if the goods and services they buy are produced sustainably”

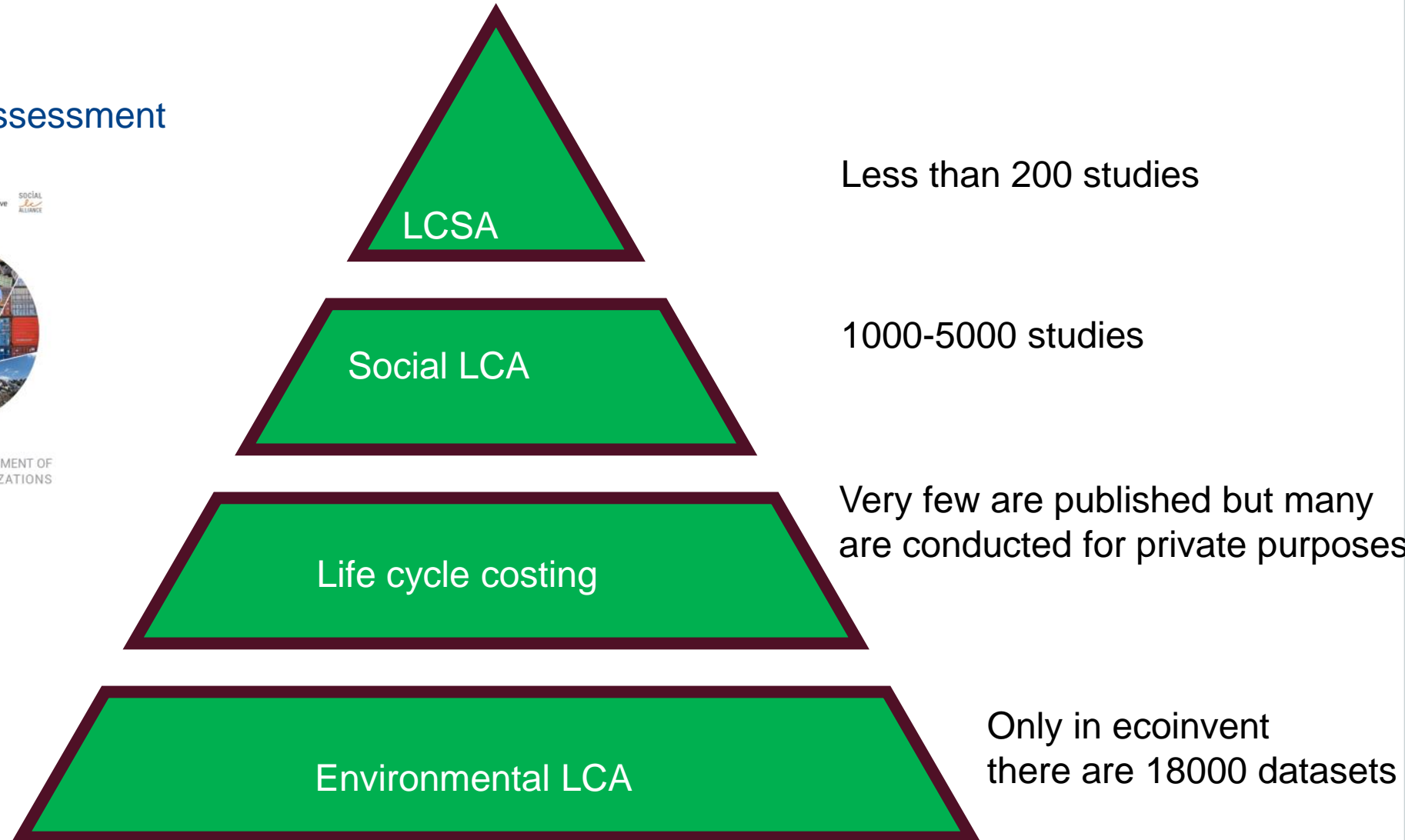


AGENDA 2030 – 17 SUSTAINABLE DEVELOPMENT GOALS (SDG)



LCA CONTRIBUTION TO THE SUSTAINABILITY ASSESSMENT

LCSA: Life Cycle sustainability assessment



THERE IS A CALL FOR LIFE CYCLE SUSTAINABILITY ASSESSMENT (LCSA)...

— “...Life cycle sustainability assessment (LCSA) refers to the evaluation of all environmental, social and economic negative impacts and benefits in decision-making processes towards more sustainable products throughout their life cycle.”

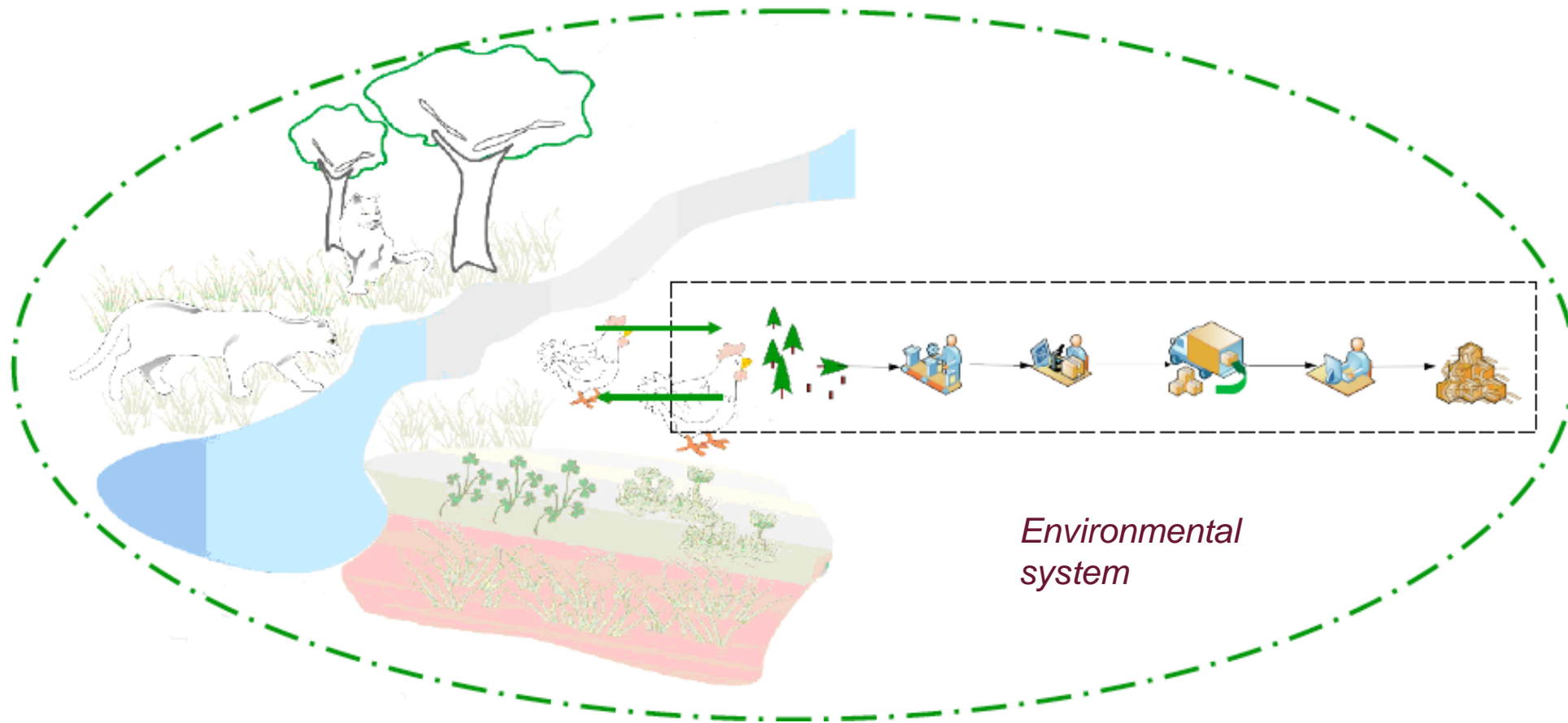


POLL:

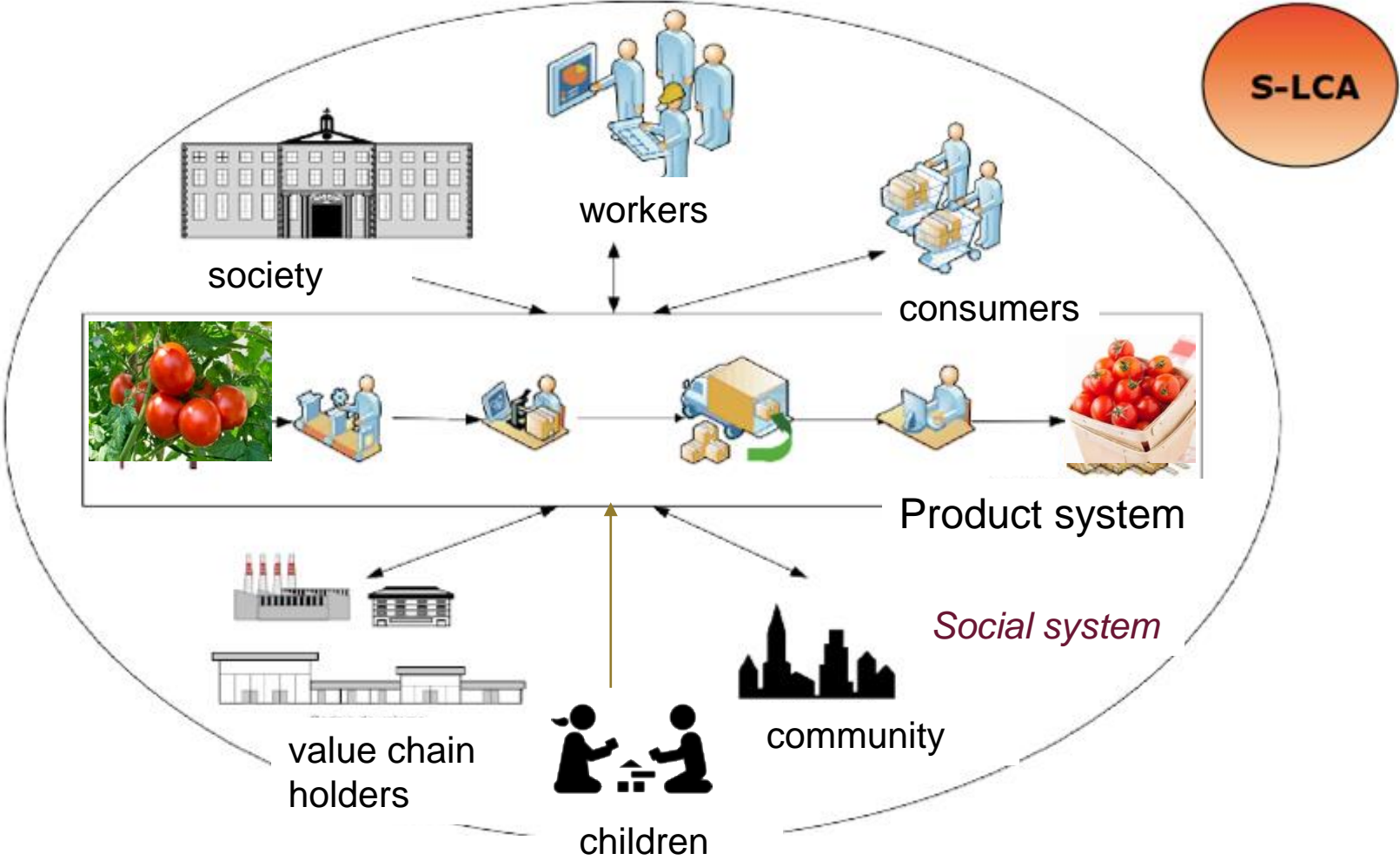
- Have you used S-LCA?
- Have you done a LCSA?



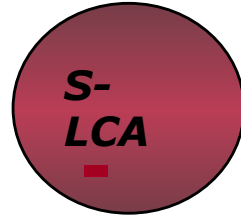
ENVIRONMENTAL LCA



SOCIAL LCA (S-LCA) - ROLE OF STAKEHOLDERS



WHAT IS SOCIAL LIFE CYCLE ASSESSMENT?



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S-LCA is a technique to evaluate **positive** and **negative** social impacts of a product or organization along the life cycle

+

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+

UNEP, 2009, 2020

+



- +

+

-



WHAT FOR? APPLICATIONS OF S-LCA IN SUSTAINABILITY ASSESSMENTS



Risk
identification



Improve social conditions
along the value chains



Communicate in
reports,
Declarations (DAP)
and labels /
Educate in RSC



Strengthen / open the dialogue
with the interested and affected
parties for communication

COMMUNICATION - EXAMPLES



Label focused on social standards (e.g. creating adequate Jobs with fair payment)



Image: GSMA Mobile Industry Impact Report, 2018

SDG INDICATORS – EXAMPLES OF LINKS WITH E-LCA & S-LCA (1 OF 2)

Target 8.7: Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms

Indicator 8.7.1: Proportion and number of children aged 5–17 years engaged in child labour, by sex and age

Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix

Indicator 7.2.1: Renewable energy share in the total final energy consumption

Target 14.4: By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

Indicator 14.4.1: Proportion of fish stocks within biologically sustainable levels



SDG INDICATORS – EXAMPLES OF LINKS WITH E-LCA & S-LCA (2 OF 2)

Target 8.8: Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

Indicator 8.8.1: Fatal and non-fatal occupational injuries per 100,000 workers, by sex and migrant status

Target 15.2: By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

Indicator 15.2.1: Progress towards sustainable forest management

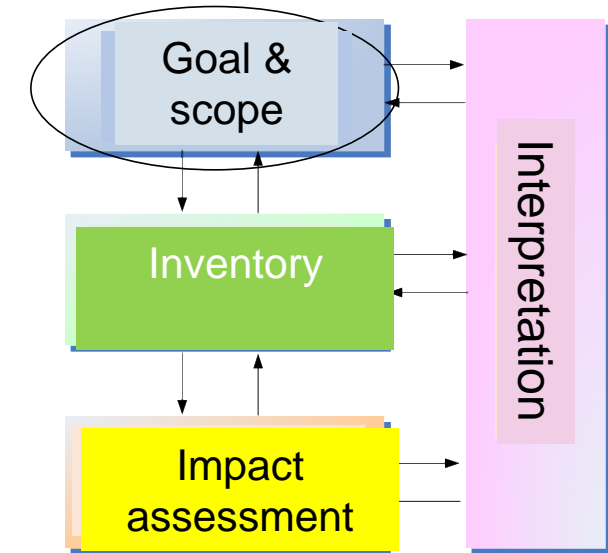


WHERE DO I START WITH SOCIAL LCA?

—Build on what we learned about environmental LCA based on the ISO 14040/14044

SIMILARITIES BETWEEN SOCIAL AND ENVIRONMENTAL LCA OF PRODUCTS

- They share the **ISO Frame 14040/44**
- They require large amounts of **data**
- **Inventories per functional unit** (e.g. 1000 t-shirts)
- They identify **critical points** (e.g. palm and oil farming)
- Powerful results **for decision taking** (e.g. LCA studies)
- **Third party** revision is recommended



DIFFERENCES BETWEEN THE SOCIAL AND ENVIRONMENTAL LCA (1/2)

In social LCA:

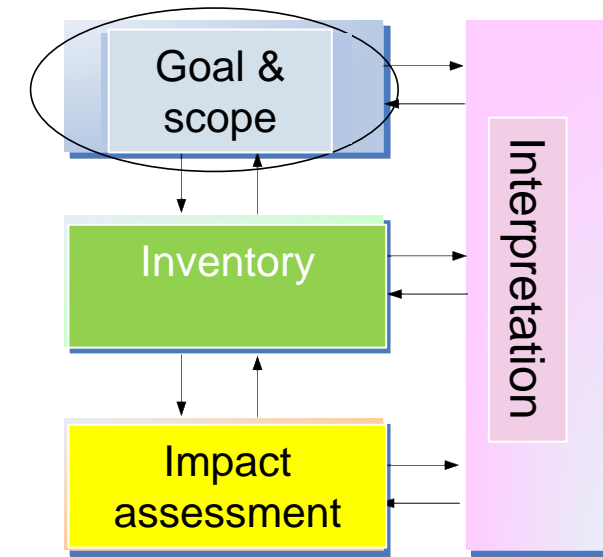
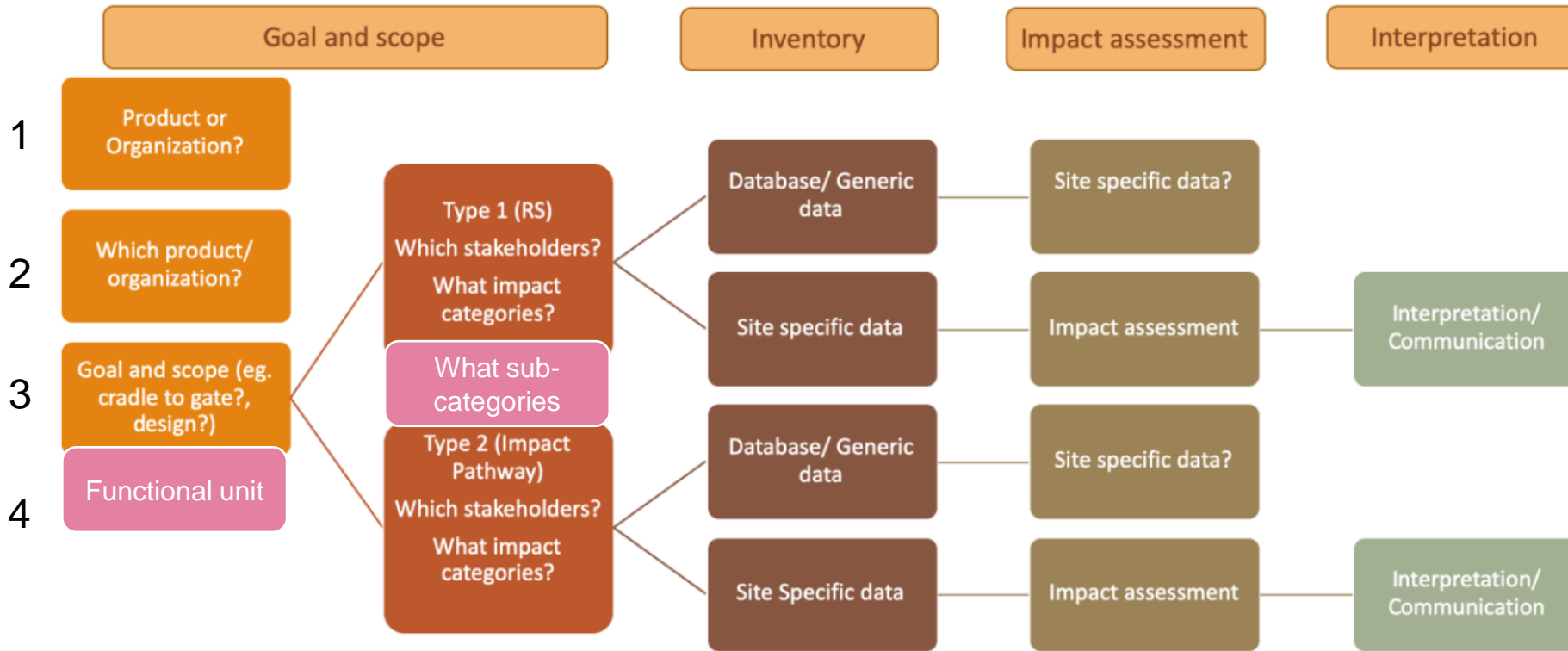
- ...the **definition of a product's utility** is required (e.g. a t-shirt's usefulness)
- ...the **stakeholders definition and consideration of their concerns** is essential (e.g. farmers, workers, suppliers)
- ...**quantitative and qualitative** data and indicators are used and related to the **interested third parties** (e.g. high risk of child labour; presence of transparency politics towards the consumer)
- ...**information about the place (in situ)** is more crucial

DIFFERENCES BETWEEN THE SOCIAL AND ENVIRONMENTAL LCA (2/2)

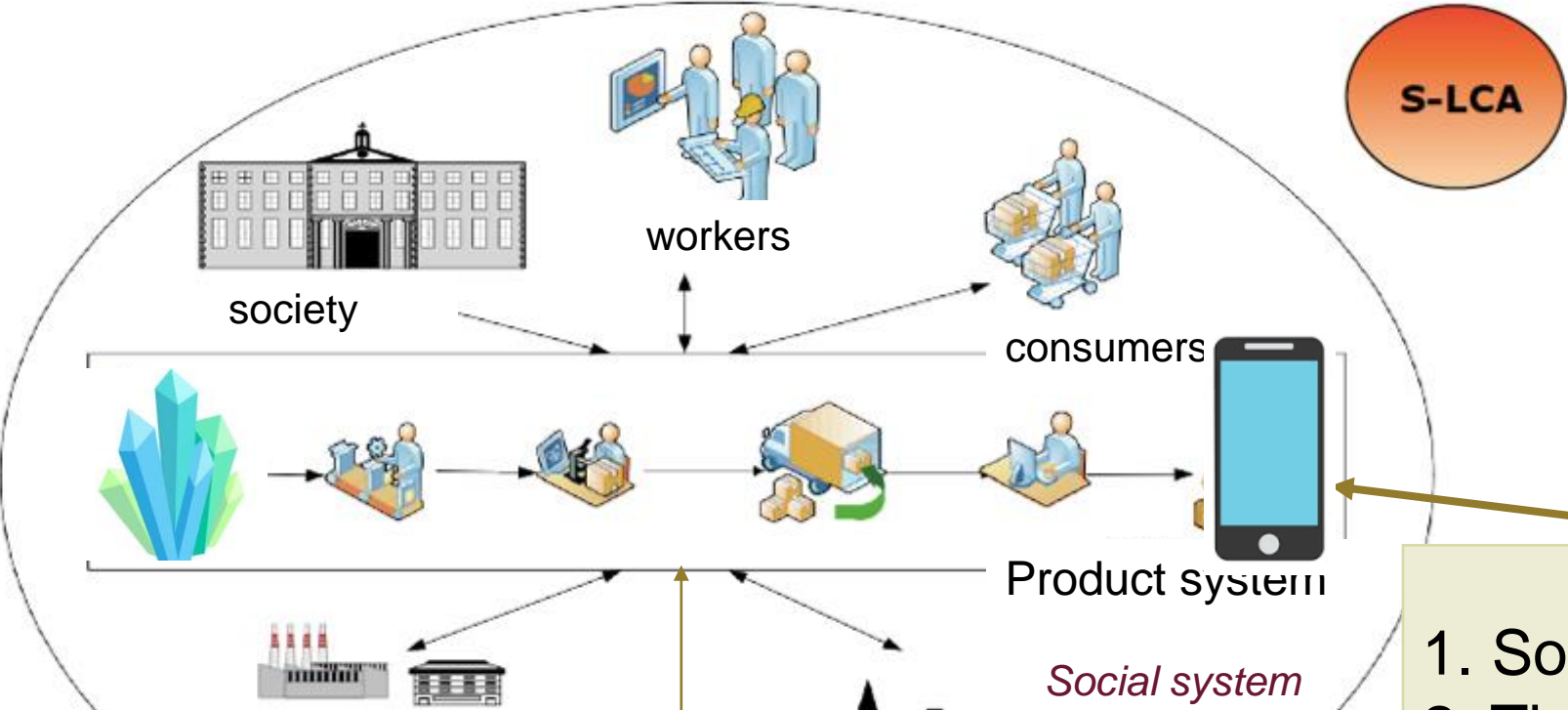
In social LCA:

- ...**organisational** aspects are also evaluated (such as the performance of the administrative part)
- ...**positive** impacts (handprints) (e.g. creation of jobs) in addition to **negative** ones (gender pay gap) (footprints)
- ...the social LCA promotes an **iterative process** to validate results

SOCIAL LCA STEP BY STEP



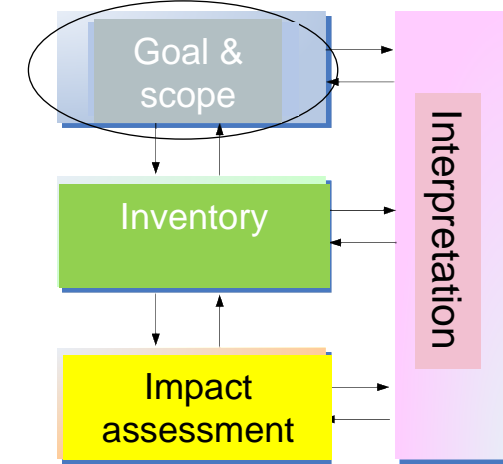
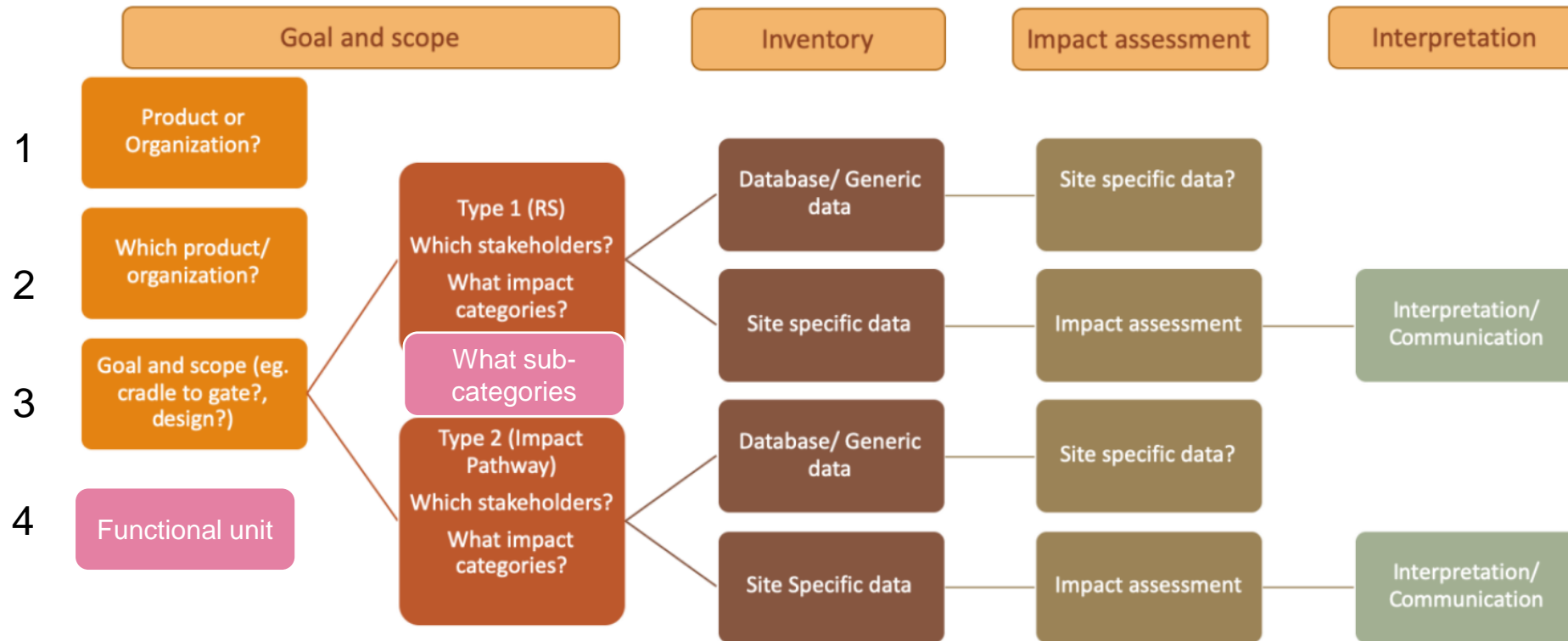
SOCIAL LCA (S-LCA) - ROLE OF STAKEHOLDERS



3. Goal: Understand what the critical social impacts from 100 mobiles, manage them properly and report results in the anual CSR report

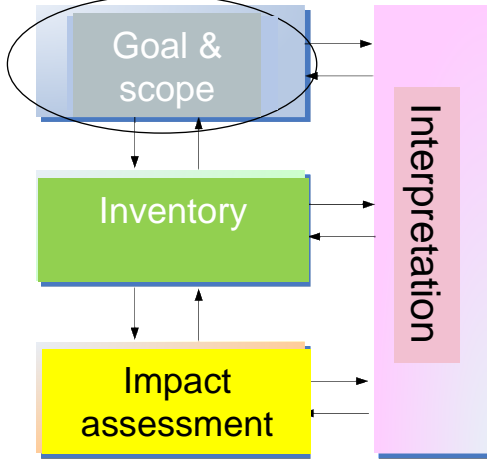
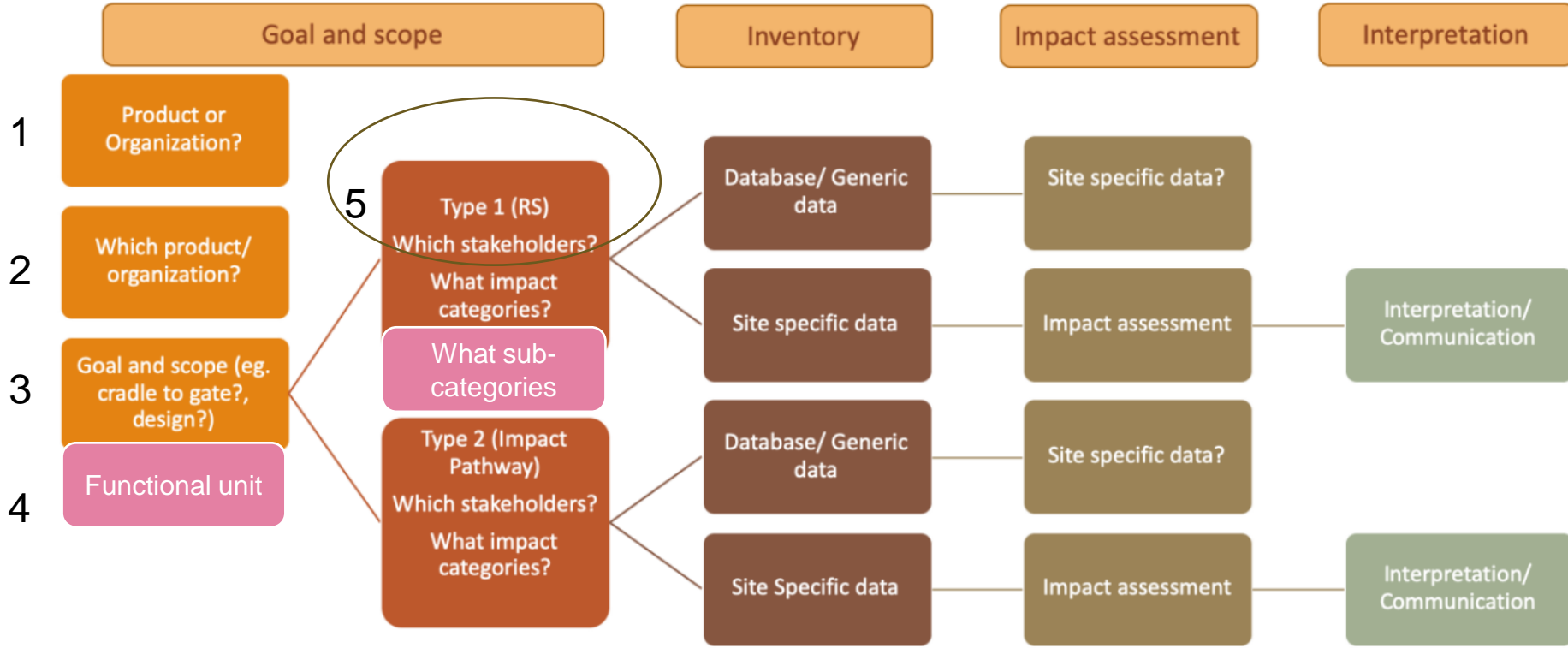
- 1. Social LCA of a product
- 2. The product is: 1 mobile

SOCIAL LCA STEP BY STEP



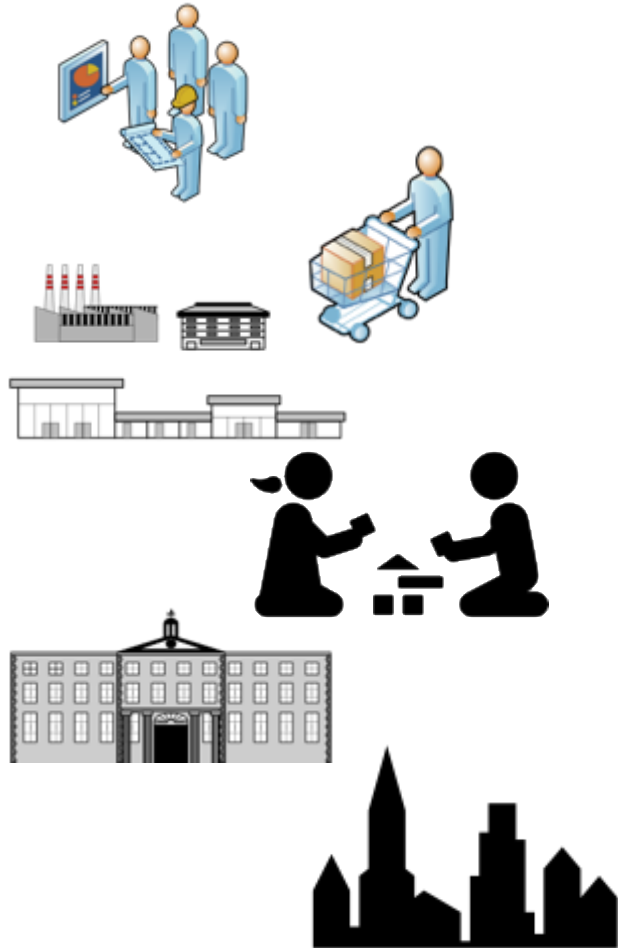
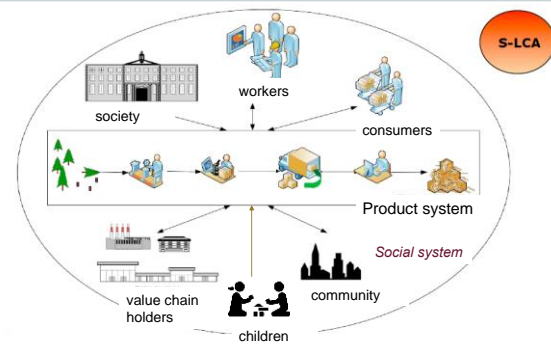
4. Functional Unit. **1 mobile**, which meets the communication, saving capacity and camera/video needs of an individual lasting for 4 years, at least, affordable and with refurbishing possibilities.

SOCIAL LCA STEP BY STEP



RS: Reference scale (e.g. distance to target)

SOCIAL LCA: INTERESTED PARTIES PER IMPACT CATEGORIES



Workers

Consumers

Actors in the value chain

Children

Society

Community

Human Rights

Governability

Cultural heritage

Working conditions

Health and safety

Socio-economical impacts

P1: QUESTION

- Identify one social sub-category of impact per stakeholder group in the value chain of mobiles produced:

Workers

Consumers

Actors in the value chain

Children

Society

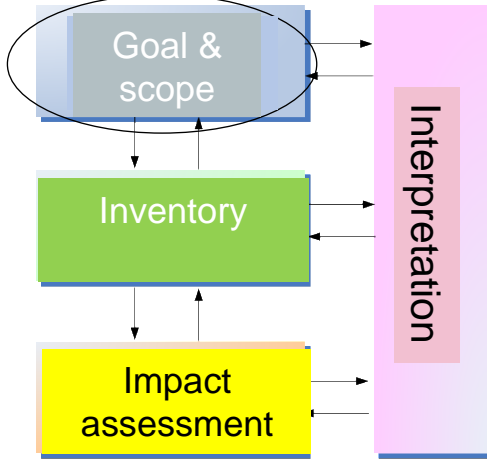
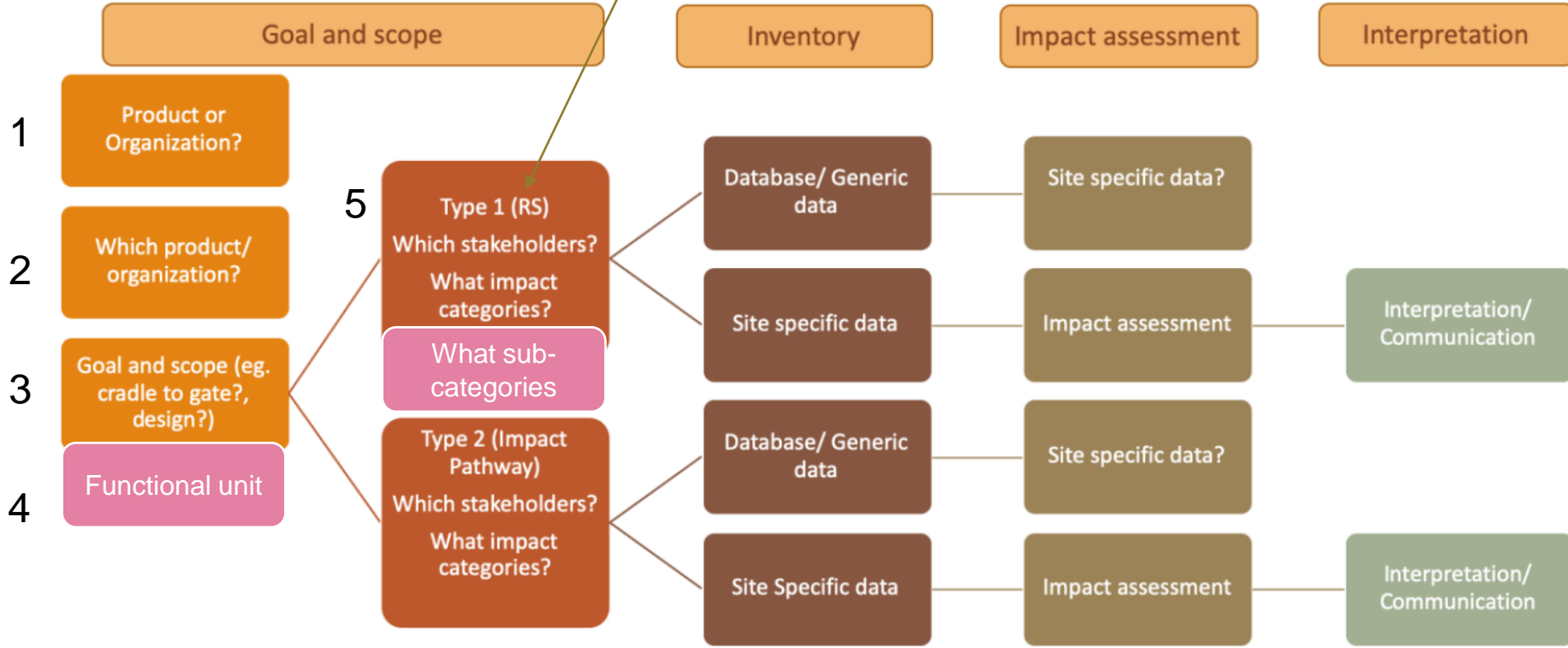
Community

SUBCATEGORIES OF IMPACTS PER STAKEHOLDER GROUP

Categories of interested parties	Worker	Local community	Actors in the value chain	Consumers	Society	Children
Subcategories	<ol style="list-style-type: none"> 1. Freedom of collective association and negotiation 2. Child labor 3. Fair salary 4. Worked hours 5. Forced labor 6. Equal opportunities / zero discrimination 7. Health and safety 8. Social benefits and social security 9. Contractual relationships 10. Sexual harrasment 	<ol style="list-style-type: none"> 1. Access to material resources 2. Access to non-matearial resources 3. Delocalization and migration 4. Cultural patrimony 5. Health and safety for living conditions 6. Respecting indigenus people's rights 7. Community participation 8. Local employment 9. Safe living conditions 	<ol style="list-style-type: none"> 1. Fair competition 2. Promoting the social commitment 3. Relations with providers 4. Respecting the intellectual property rights 	<ol style="list-style-type: none"> 1. Health and Safety 2. Feedback mechanism 3. Consumer privacy 4. Transparency 5. Responsibility of End of Life 	<ol style="list-style-type: none"> 1. Public commitment to sustainability topics 2. Contributing to the economic development 3. Prevention and mitigation of armed conflicts 4. Technological development 5. Corruption 6. Wealth distribution 7. Ethical animal treatment 	<ol style="list-style-type: none"> 1. Education in proportion to the local community 2. Children health safety as consumers 3. Children gender problems as consumers

SOCIAL LCA STEP BY STEP

RS: Reference scale (e.g. distance to target)



Which assessment type: 1 or 2?

SOCIAL LCA STEP BY STEP: ASSESSMENT METHODS

TYPE 1 VS TYPE 2

Most broadly used approach

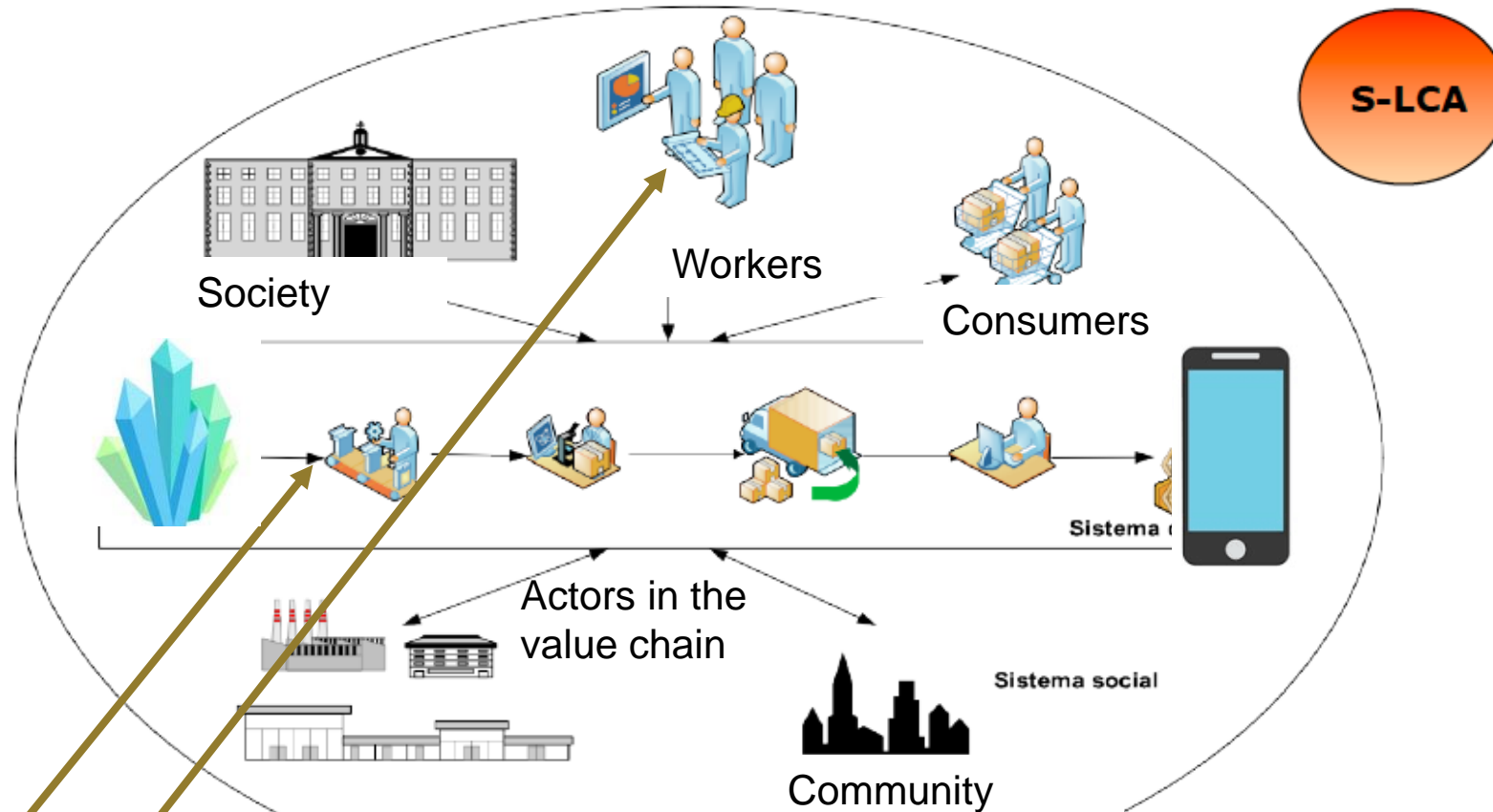
TYPE 1

If a practitioner aims to describe a product system with focus on its **social performance**, he/she will use the **reference scale approach**

TYPE 2

If a practitioner aims to **predict the consequences of a product system** with an emphasis on assessing longer—term potential social impacts, he/she will use the **Impact Pathway Approach**

SOCIAL LCA: HOTSPOTS AND SUB-CATEGORIES

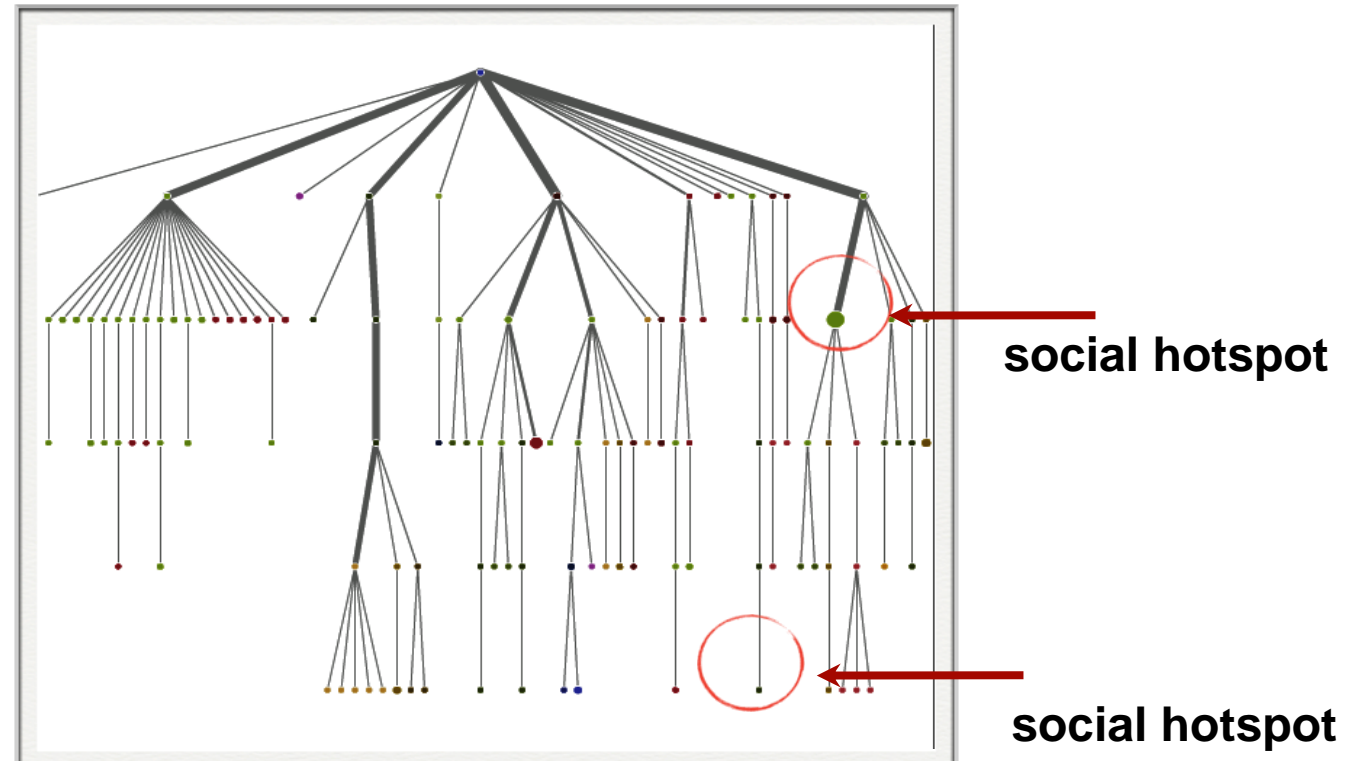


Identification of potential/actual hotspots (along the life cycle stages)

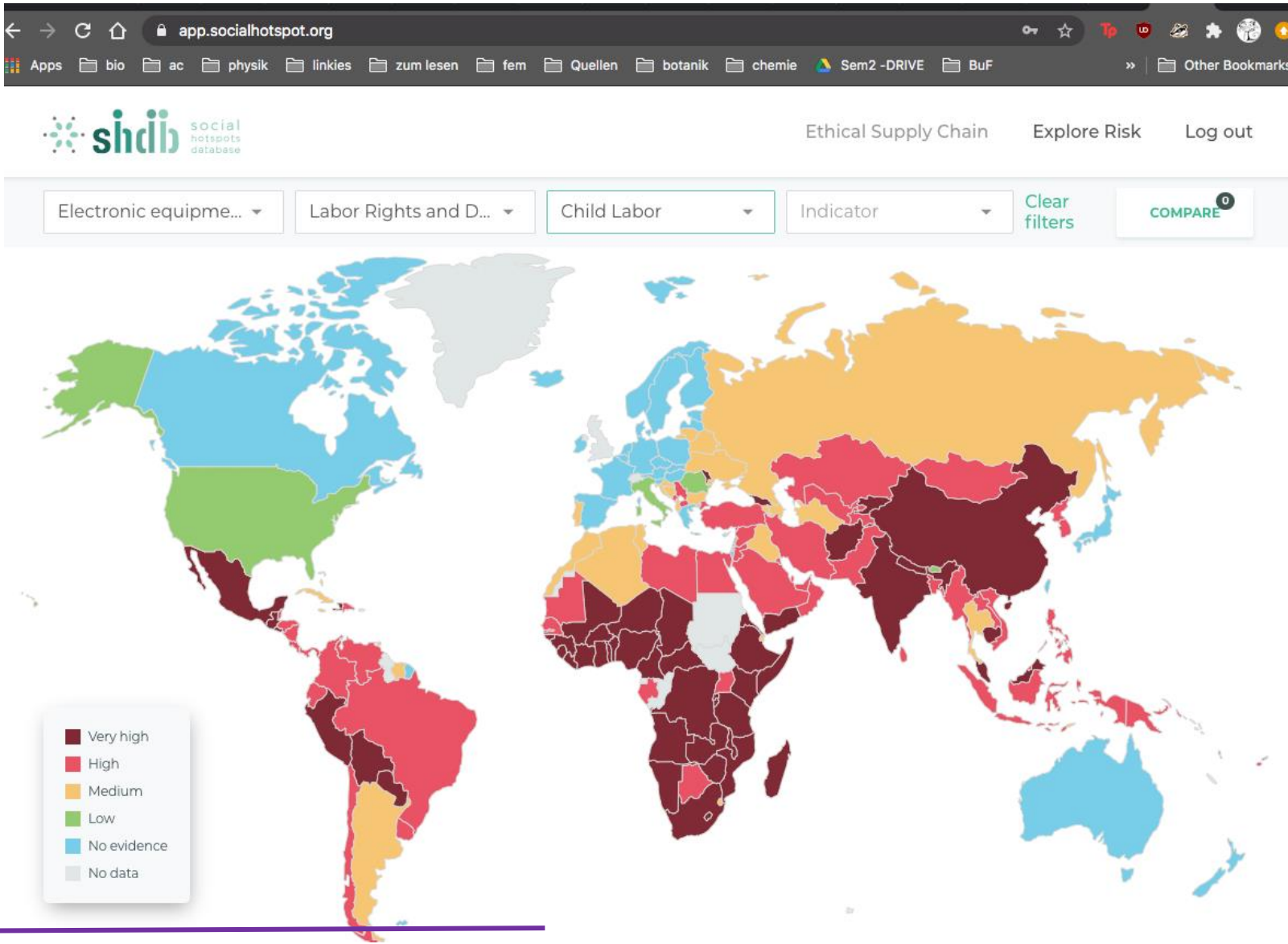
Identification of impact sub-categories per stakeholder

SOCIAL CRITICAL POINT: WHAT IS IT AND HOW DO WE IDENTIFY IT?

- A **social hotspot** is a location and/or activity in the life cycle **where a social issue** (as an impact) **and/or social risk is likely to occur**.
- Contributes significantly to the impact (overall, by impact category or subcategory).
- Take into account if it is a **global or local value chain**



SOCIAL CRITICAL POINT IN A LOCAL VALUE CHAIN-EXAMPLE



PSILCA.NET DATABASE



The image is a YouTube livestream thumbnail. At the top left, the PSILCA logo is displayed, with 'PSILCA' in a multi-colored font (P in orange, S in blue, I in purple, L in black, C in black, A in black) and a square icon with concentric lines to its right. Below the logo is a photograph of a street scene in India with orange flags and a red banner. The banner contains the text: 'PSILCA v3 Introduction YouTube Livestream' and 'Wednesday, May 20th, 2020 - 3pm CEST'. In the top right corner, there is a small video inset showing a man and a woman. On the right side of the thumbnail, there are social media links: a website icon for 'https://psilca.net/', a LinkedIn icon for 'linkedin.com/showcase/openlca', and a Twitter icon for 'twitter.com/openlca'. Below these links, it says 'The links are available in the stream description'.

PSILCA 

PSILCA v3 Introduction
YouTube Livestream

Wednesday, May 20th, 2020 - 3pm CEST

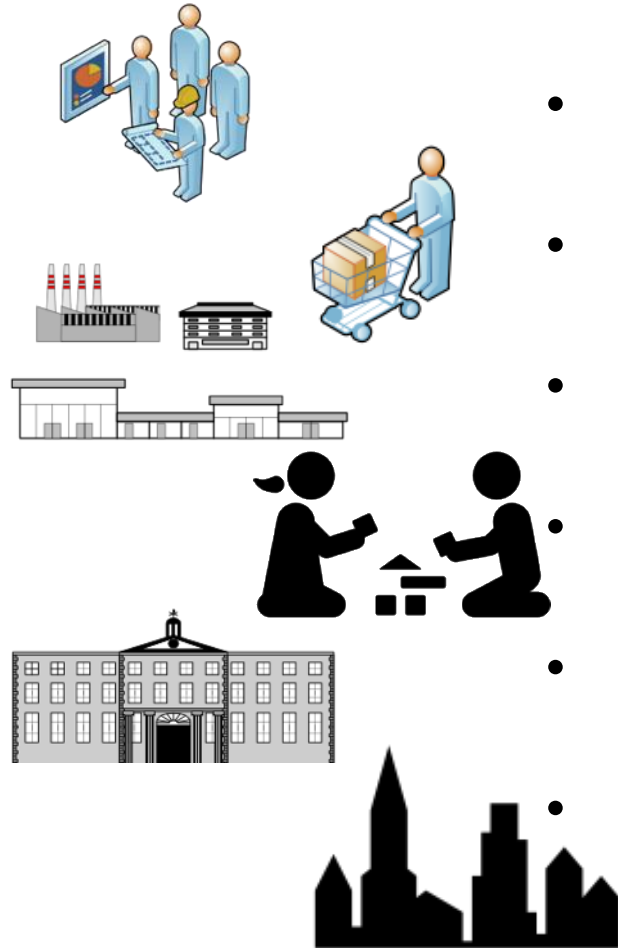
<https://psilca.net/>

[linkedin.com/showcase/openlca](https://www.linkedin.com/showcase/openlca)

twitter.com/openlca

The links are available in the stream description

Stakeholders per impact categories



- Workers
- Consumers
- Actors in the value chain
- Children
- Society
- Community

Human Rights

Governability

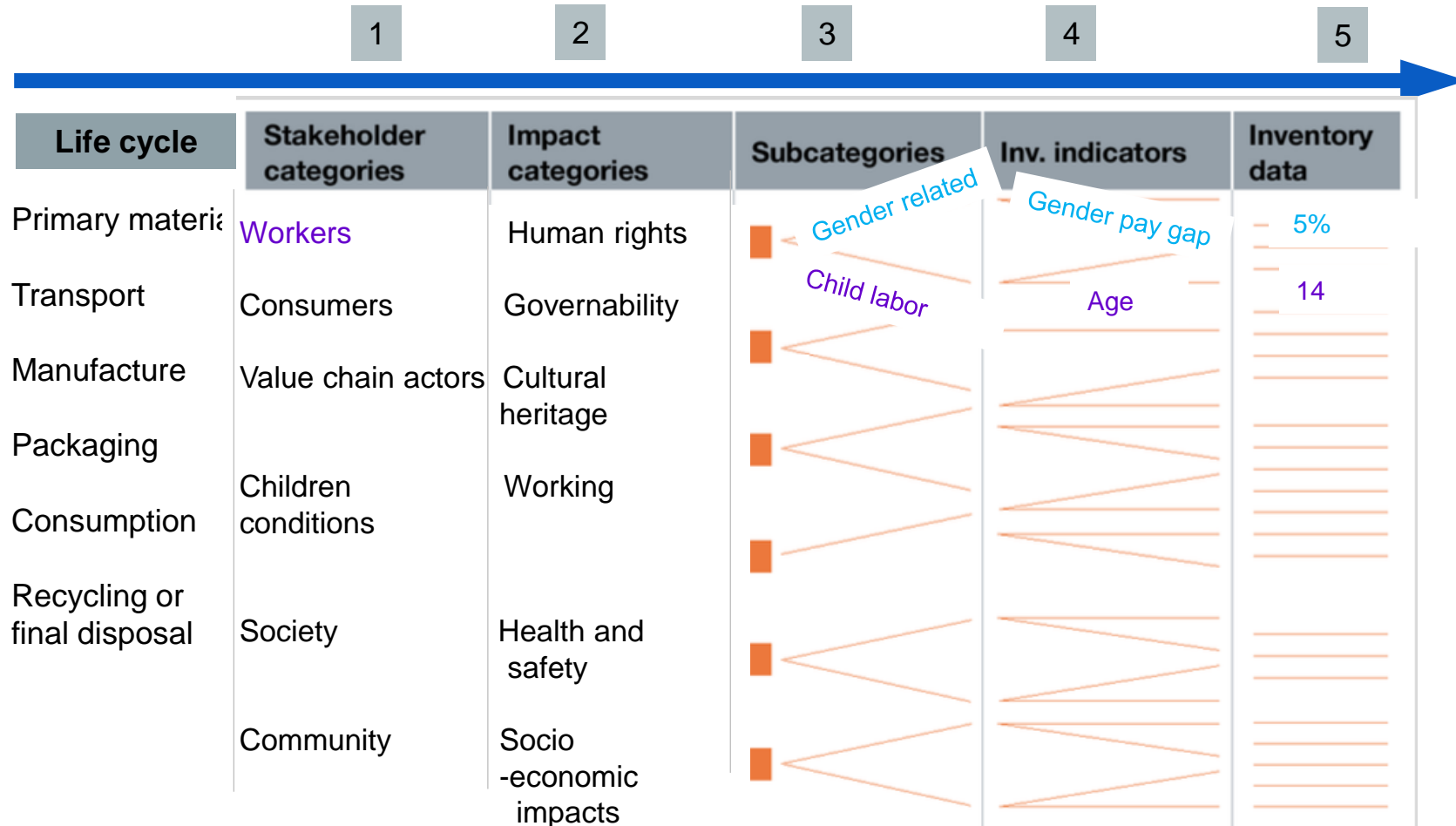
Cultural heritage

Working conditions

Health and safety

Socio-economical impacts

S-LCA WORKFRAME



EXAMPLE: ASSESSING THE GENDER PAY GAP (1/3)

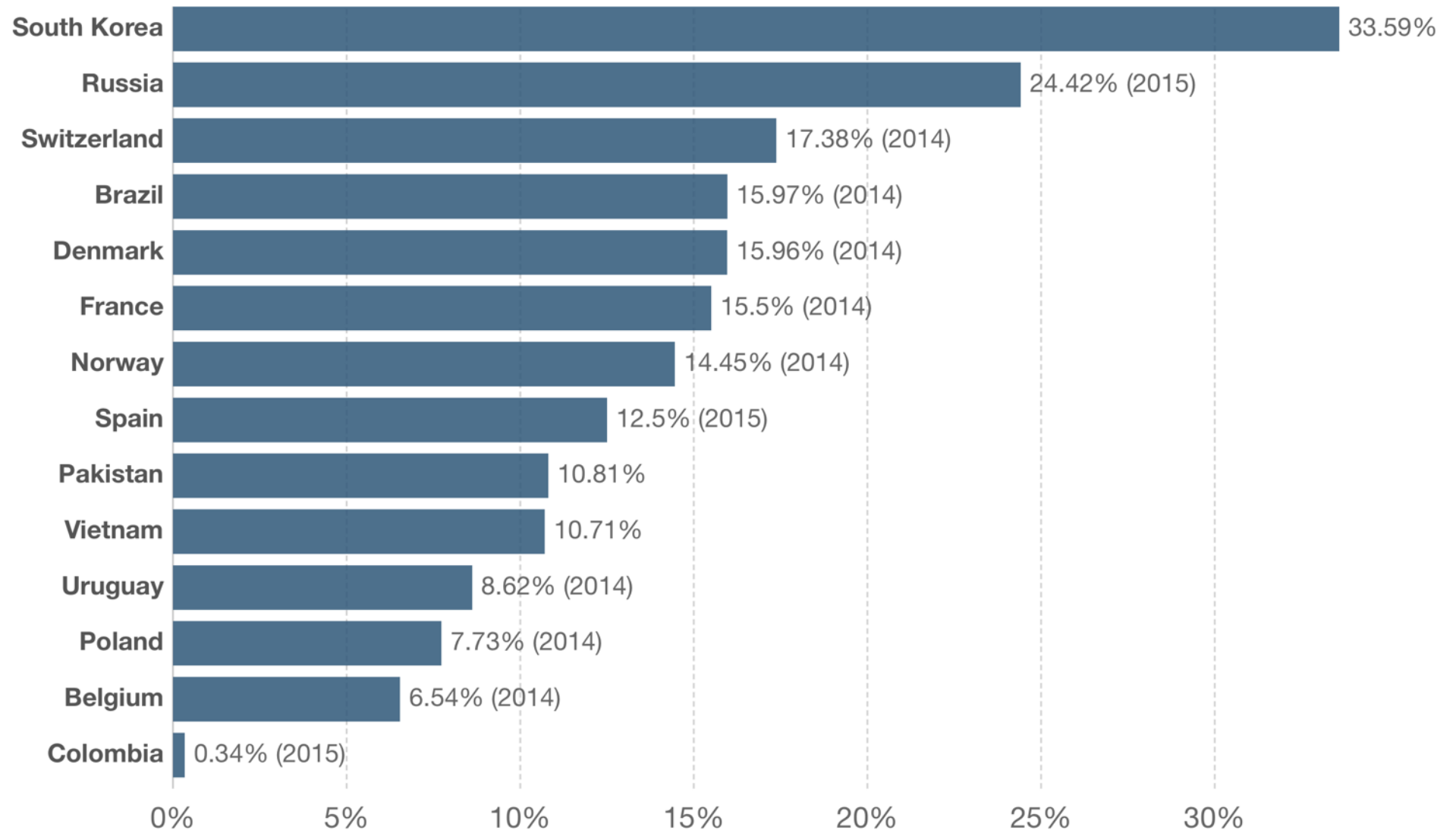
There is the unadjusted and adjusted gender pay gap.

The **unadjusted pay gap** is the overall difference in average pay for men and women.

The **adjusted pay gap** takes into consideration an employee's age, education level, years of work experience, occupation, industry, location, company and job title and the calendar year of the reported salary.

Unadjusted gender gap in average hourly wages, 1981 to 2016

Gender wage gap, unadjusted for worker characteristics. Estimates correspond to the difference between average earnings of men and women, expressed as a percentage of average earnings of men.



Source: ILOSTAT

Note: The data corresponds to gross hourly earnings and includes both full-time and part-time workers.

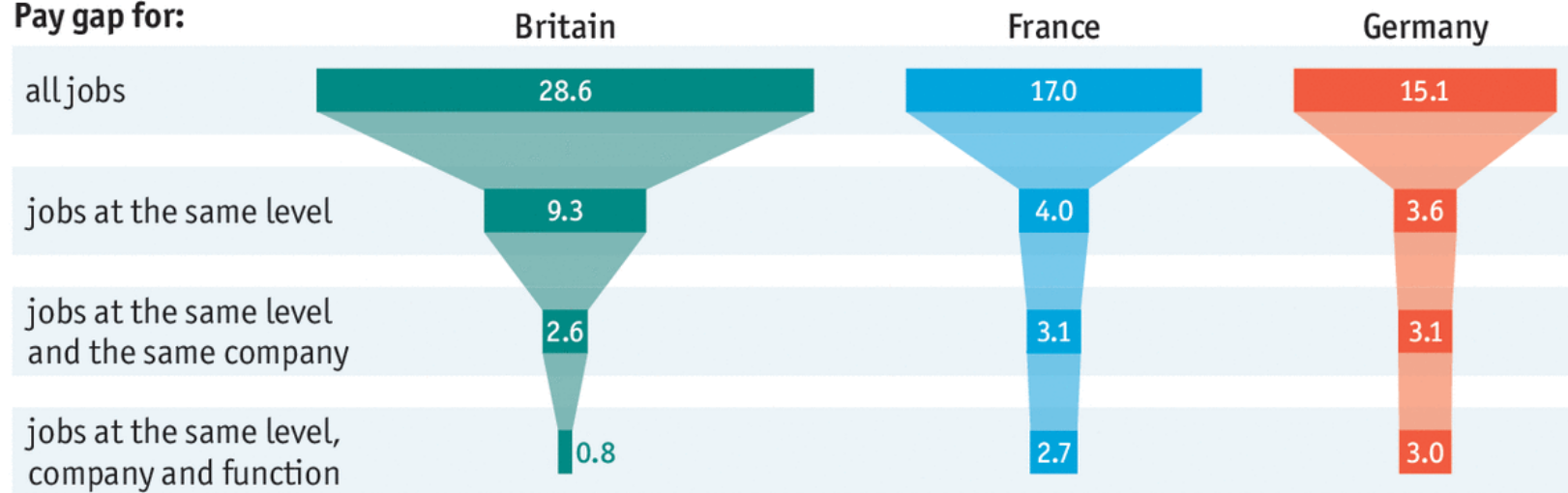
Are women paid less than men for the same work?

When all job differences are accounted for, the pay gap almost disappears

Like-for-like

Pay gap between women and men, 2016, % of men's wages*

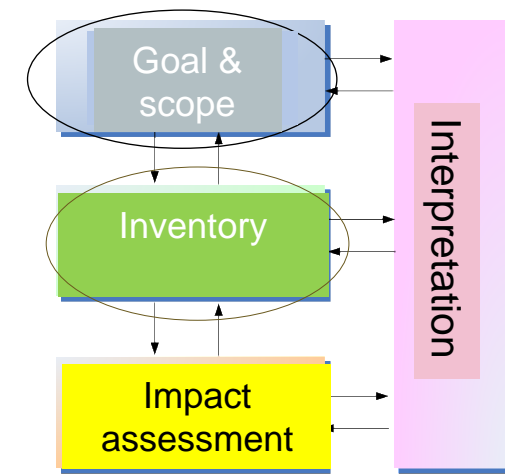
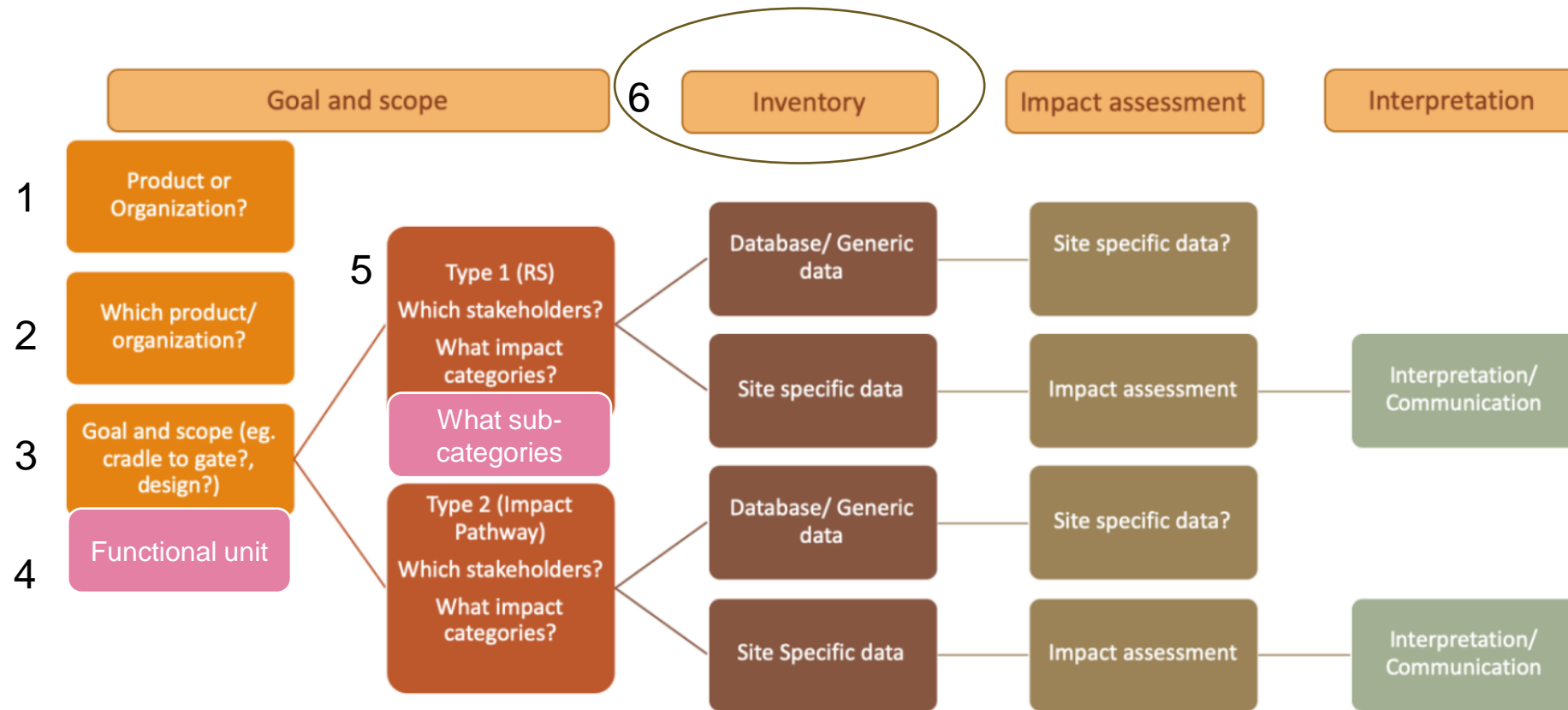
Pay gap for:



Source: Korn Ferry

*Full-time pay

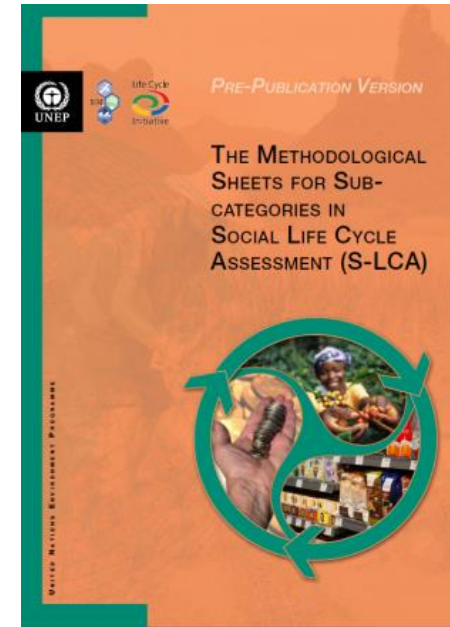
SOCIAL LCA STEP BY STEP



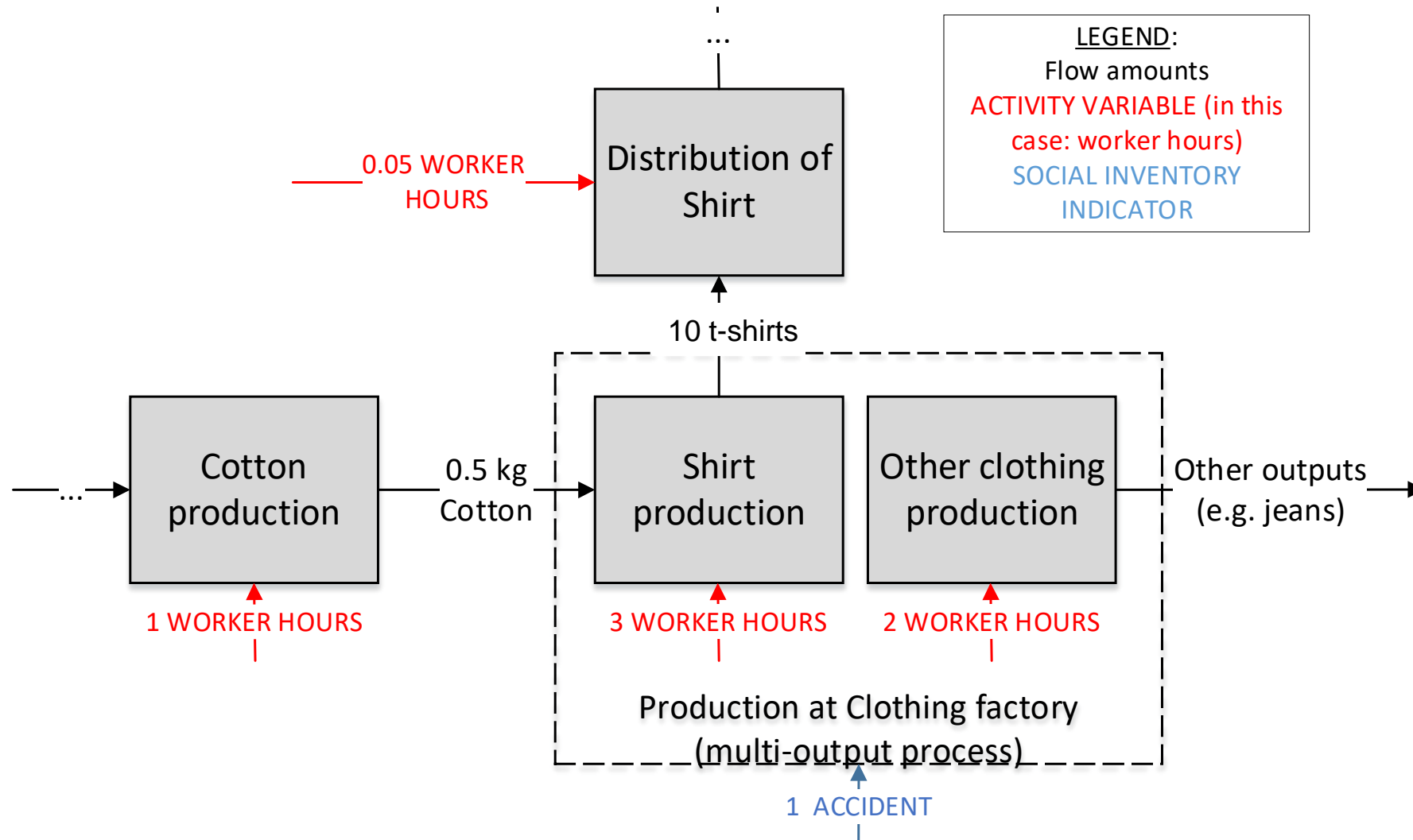
RS: Reference scale (e.g. distance to target)

LIFE CYCLE INVENTORY

- After identifying the main Stakeholder Categories and subcategories according to the Social Hotspot Analysis a selection of suggested indicators can be found in the revised Methodological Sheets.
- The Methodological Sheets draft will be sent to you asap.



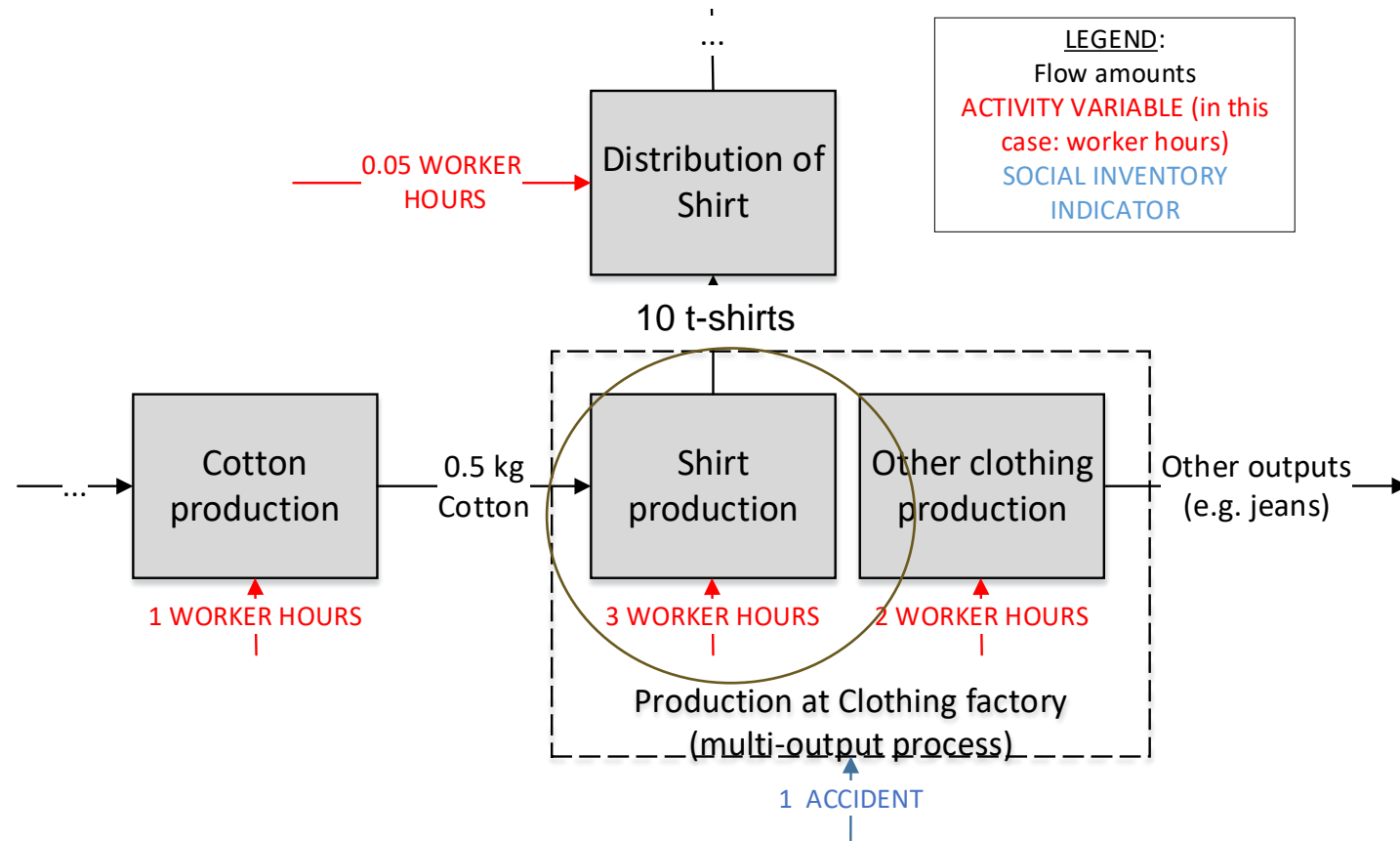
Life cycle inventory, functional unit (10 t-shirts) and **activity variables**



What's the ratio of accidents per t-shirt in the facility?

Life cycle inventory, functional unit (10 t-shirts) and activity variables

0.06 accidents per t-shirt in the fabric



How to quantify the number of accidents per Shirt?

(by using partitioning based on worker hours, an activity variable)

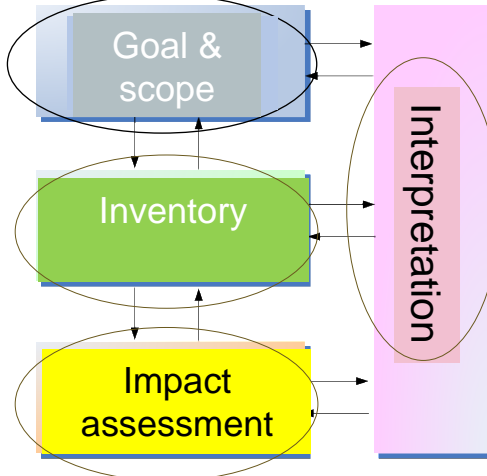
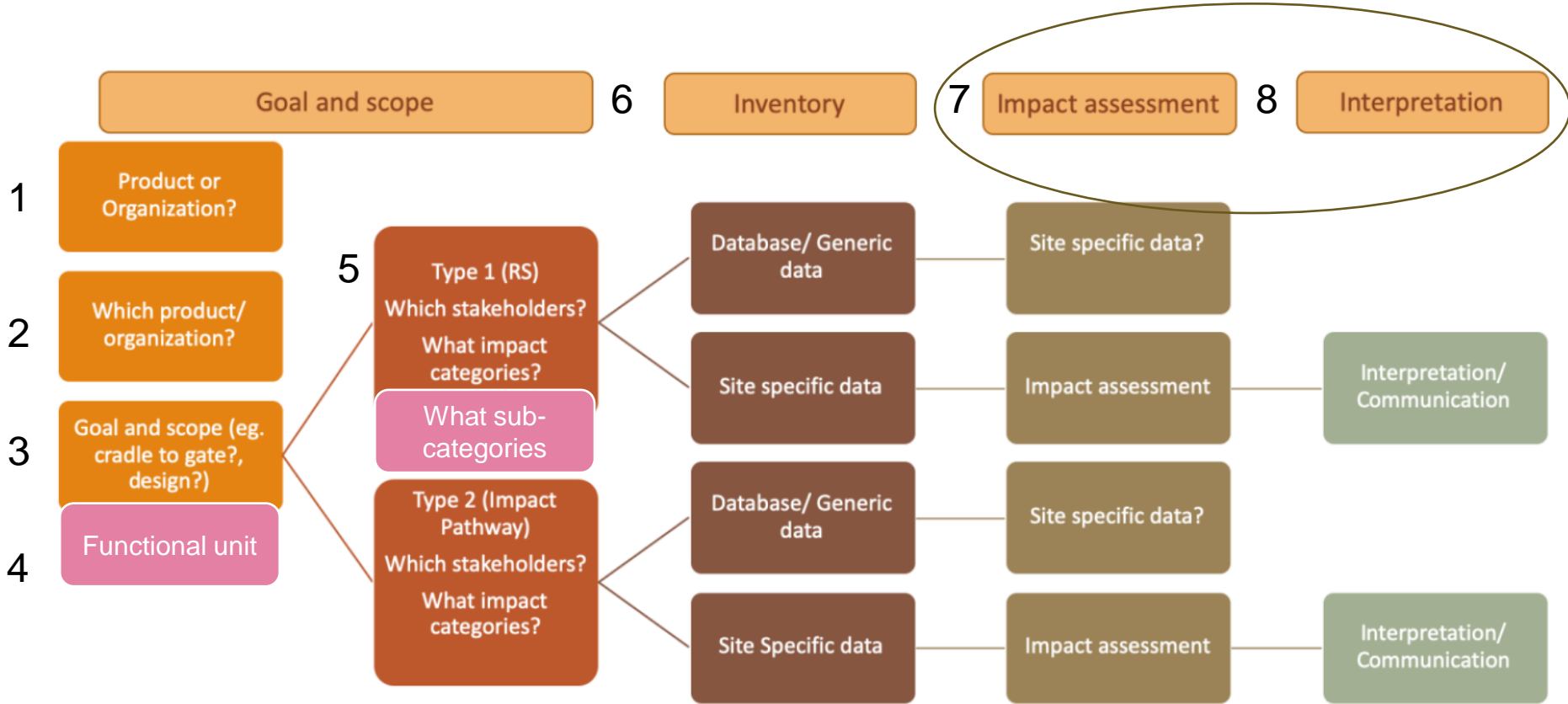
There is 1 accident per 5 (=3+2) worker hours at the Clothing factory, and there are 3 worker hours needed to produce 1 Shirt, thus 0.6 (=3/(3+2)) number of accidents per 10 t-shirts

Why working hours?

- Quantifiable variable that **is able to capture information throughout the supply chain** and to identify it according to activities, unitary processes and different localities
- Provides information about processable contact points



SOCIAL LCA STEP BY STEP



RS: Reference scale (e.g. distance to target)

SOCIAL LCA STEP BY STEP: ASSESSMENT METHODS

TYPE 1 VS TYPE 2

Most broadly used approach

TYPE 1

If a practitioner aims to describe a product system with focus on its **social performance**, he/she will use the **reference scale approach**

TYPE 2

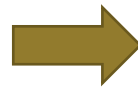
If a practitioner aims to **predict the consequences of a product system** with an emphasis on assessing longer—term potential social impacts, he/she will use the **Impact Pathway Approach**

REFERENCE SCALE APPROACH

- Reference scales correspond to performance reference points (PRPs)
- PRPs are thresholds, targets or objectives setting different levels of social risk/performance

Types of PRPs:

- ✓ Norms
- ✓ Best-practices
- ✓ Sector average
- ✓ Expert knowledge



Scale level	Description
+2	Ideal performance. Best in class
+1	Beyond compliance
0	Compliance with local and international laws and/or basic societal expectations
-1	Slightly below compliance level
-2	Starkly below compliance level



- Allows the assessment of potential social impacts of product systems

**very similar to the approach taken by the Roundtable of Product Social Metrics*

Positive impact = handprint

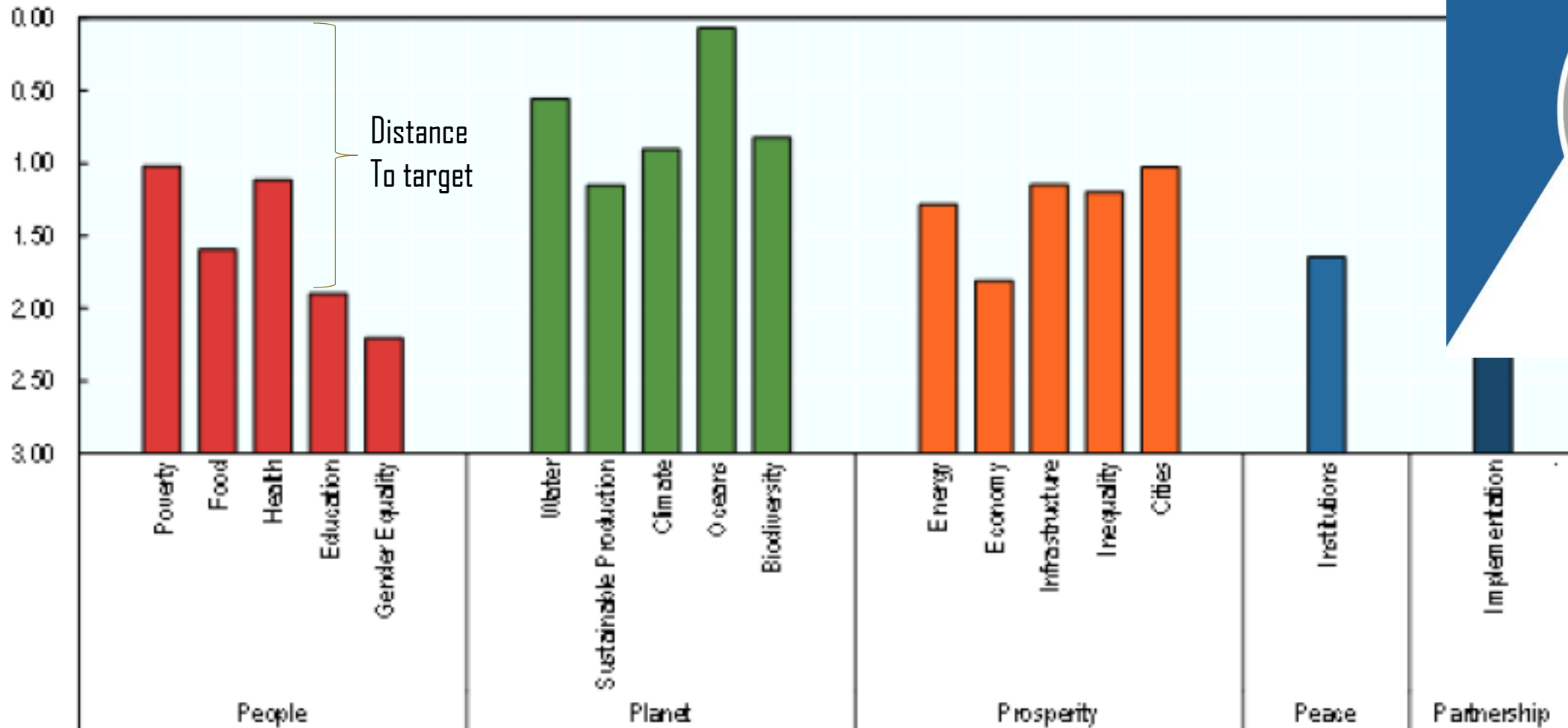
Type A – Positive social performance going farther than business as usual

Type B – Positive social impact due to the sole presence of the company or product

Type C – Positive social impact through the product's usefulness

EXAMPLE OF 'REFERENCES' AND DISTANCE-TO-TARGET MEASURING

Figure 5. OECD average results by Goal



MEASURING DISTANCE TO THE SDG TARGETS

An assessment of where OECD countries stand

June 2017



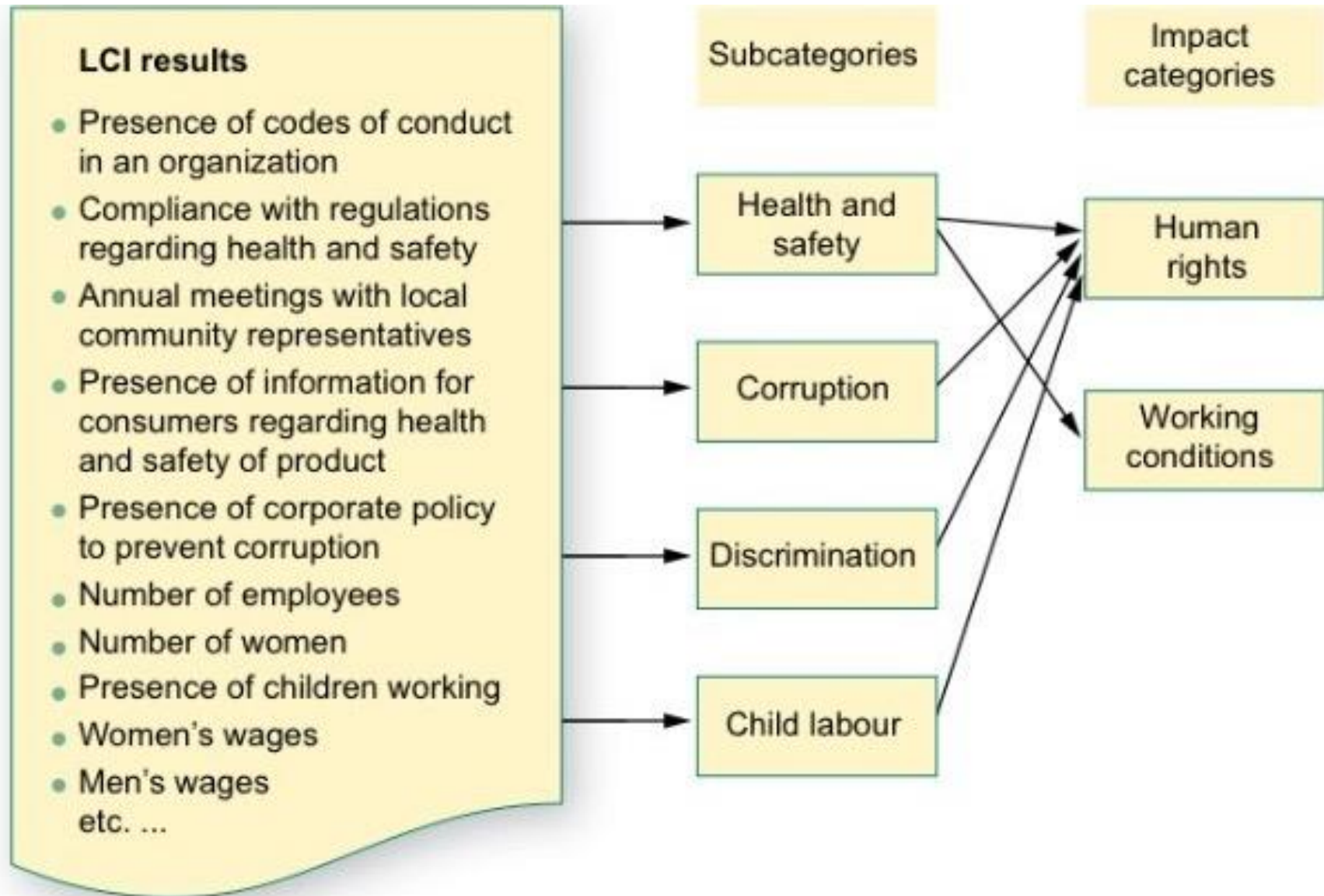
Life Cycle inventory and indication of the impact nature. Example

	Indicator	Unit	Inventory data.	Reference. scale	Impact nature
	Adjusted gender pay gap	%	5%	0%	slightly negative
Worker	Local Community	Consumers	Society	Children	Value Chain Actors

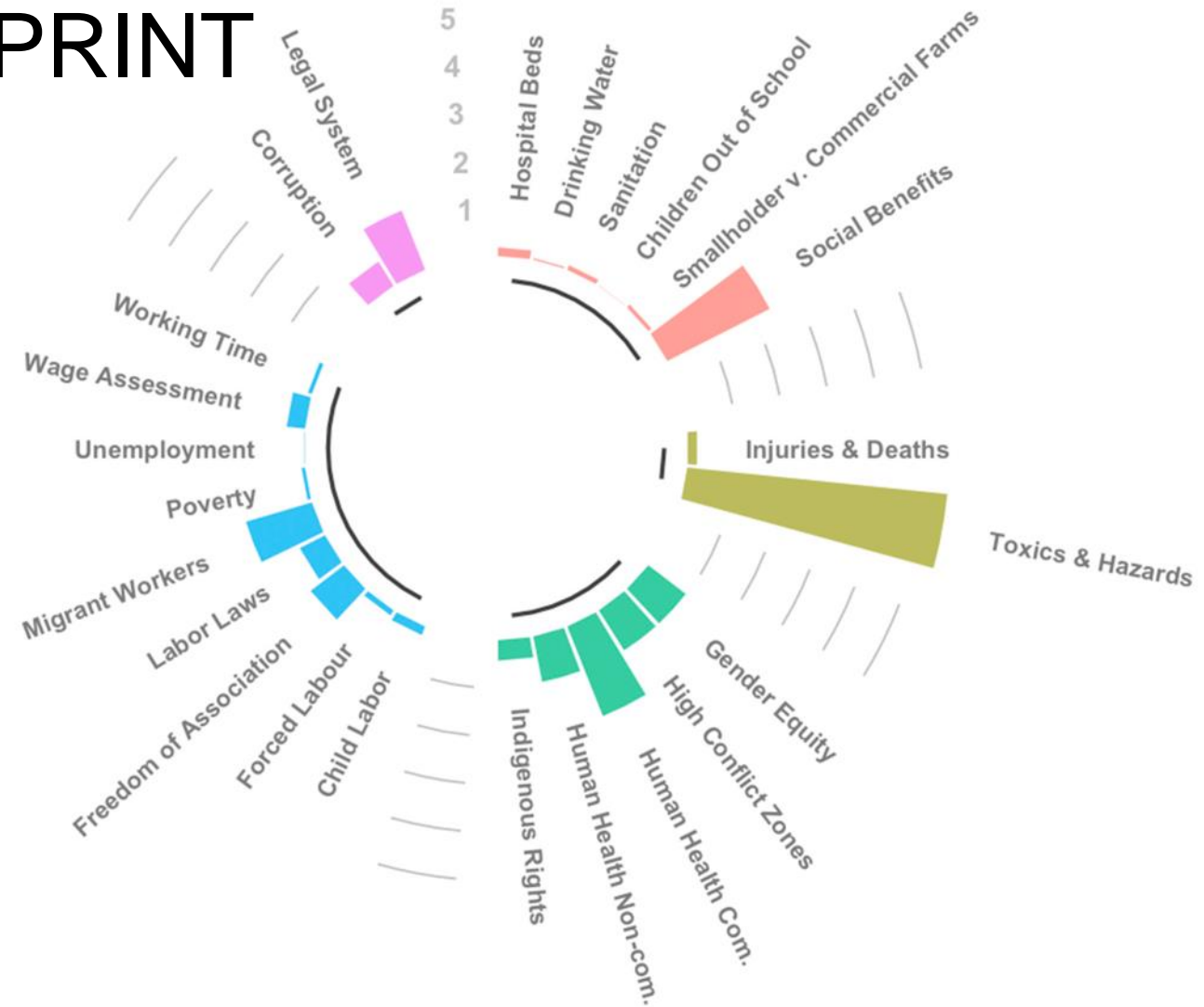
SUMMARY OF THE PROCEDURE TOWARDS THE IMPACTS EVALUATION FOR THE EXAMPLE CONDUCTED

- 1) Select the impact subcategory (e.g. Gender issues)
- 2) Identify the impact indicators (e.g. Gender pay gap)
- 3) Define the impact evaluation method (Type 1: reference scale)
- 4) Develop the inventory; For type 1: Establish reference scales (gap: 0%)
- 5) Evaluate the impact (distance-to-target) and determine the footprint's nature (gender pay gap: 5%, then this is a footprint)

EXAMPLE OF RESULTS STRUCTURE



EXAMPLE OF PRESENTATION RESULTS. NEGATIVE FOOTPRINT



(a) Biomass

© Takeda et al.
2019

Results communication - examples



Label focused on social standards (like creation of appropriate employment and fair salary)

IMPACT

SDGs most impacted by mobile:



SDG 9

Industry, Innovation and Infrastructure



SDG 4

Quality Education



SDG 13

Climate Action

PROGRESS

Most improved SDG impact scores since 2015:



SDG 13

Climate Action



SDG 11

Sustainable Cities and Communities



SDG 3

Good Health and Well-being

Image: [GSMA Mobile Industry Impact Report, 2018](#)

Now you can do a social LCA to complement your sustainability assessment!

- Highlight your handprints (+) and not only footprints (-)
- Avoid compensating negative with positive impacts
- Caution with producing a single score
- Contextualize and be transparent with presenting the results.
- First iteration will most probably be used for internal purposes



THANKS | CONTACT

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