

3. Feasibility assessment of sanitation businesses

Miriam Otoo

International Water Management Institute, Sri Lanka

In cooperation with:



RESEARCH
PROGRAM ON
Water, Land and
Ecosystems



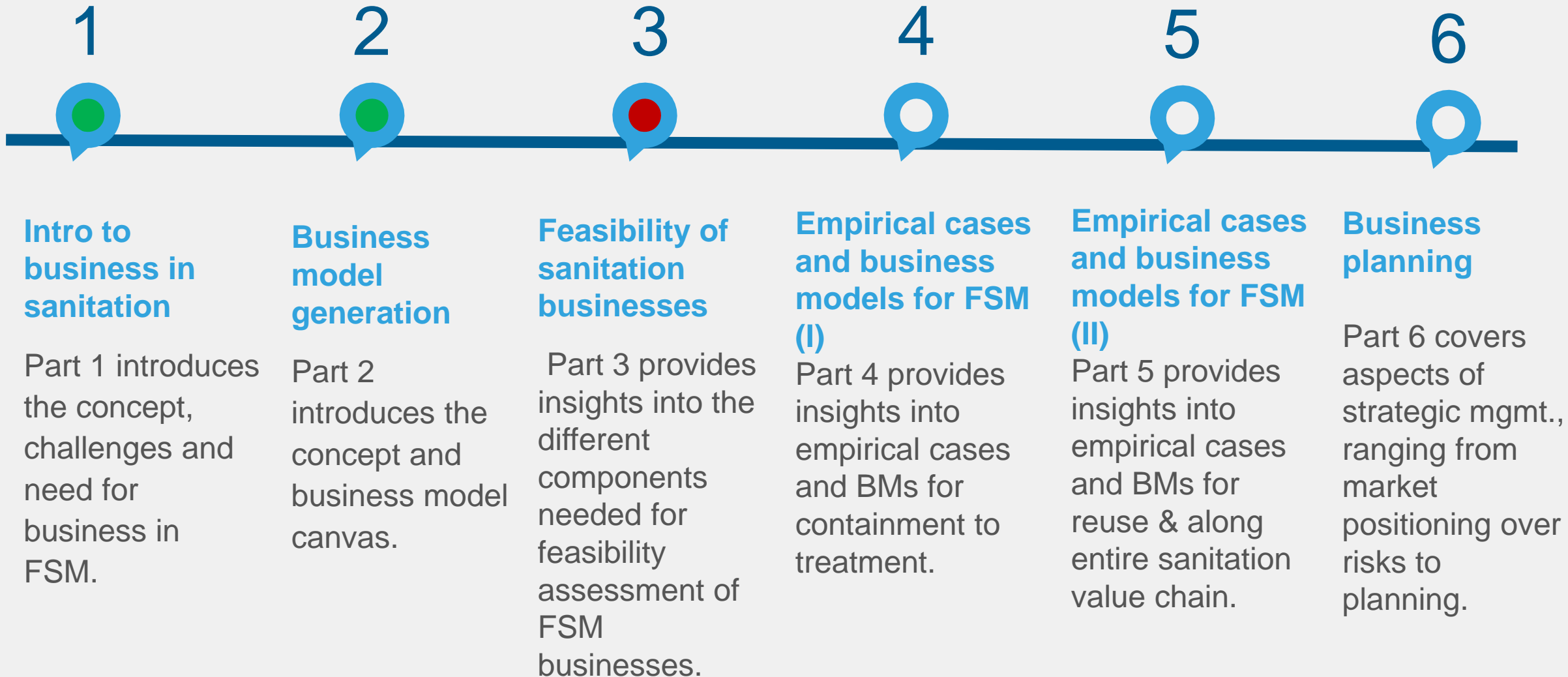


Learning Objectives

This component will allow you to:

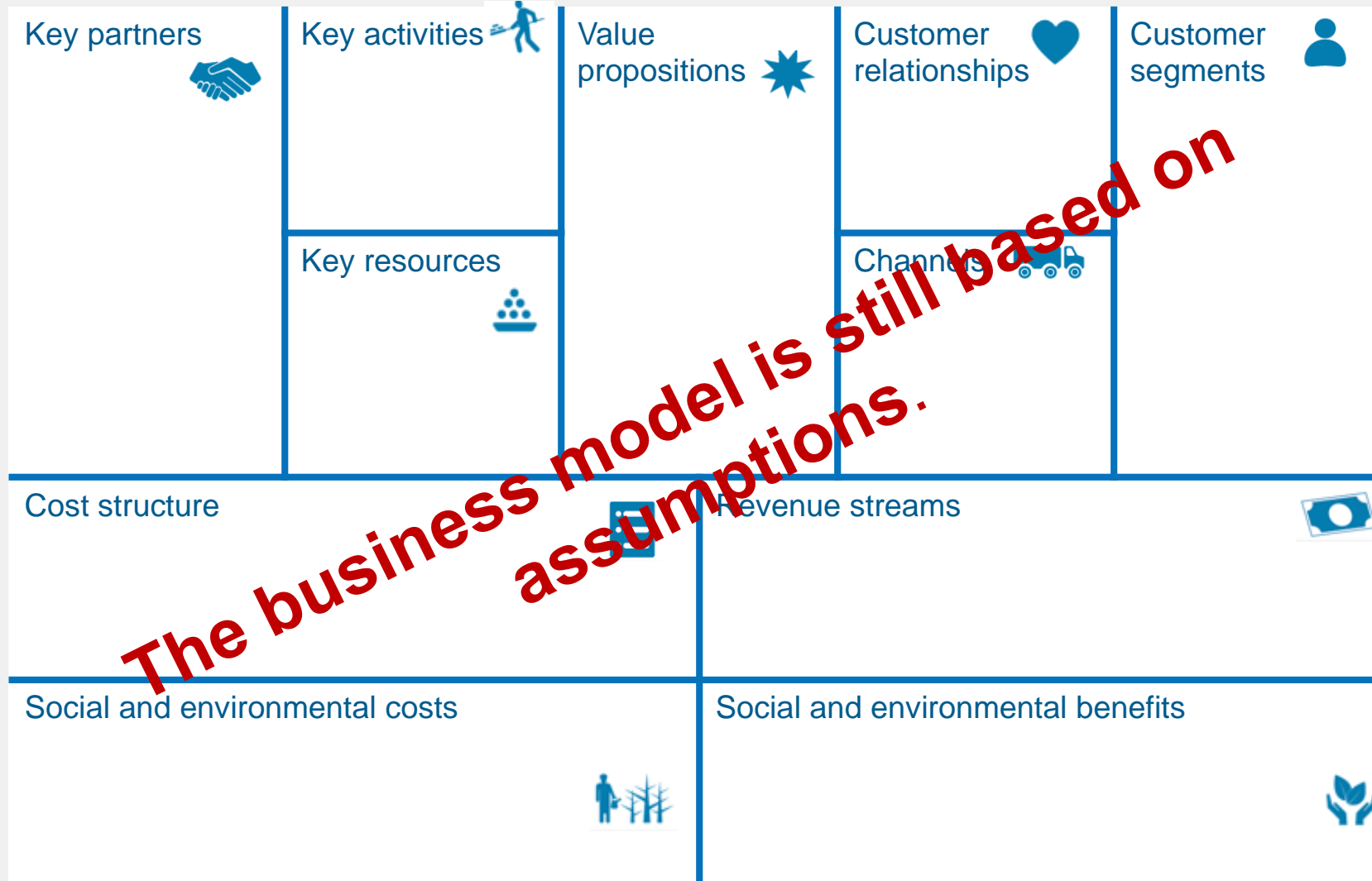
- ♻️ Understand the importance of testing the feasibility of your FSM business model
- ♻️ Be conversant with assessment methods
- ♻️ Explore the assessment criteria of a feasibility study
- ♻️ Know the main components of a business plan

Session structure






■ Feasibility of FSM Business Models

How feasible and sustainable is the business model?



■ Feasibility assessment

A full-fledged feasibility study:

-  Requires considerable time and expertise (technical, economic, environmental, institutional)
-  Partnering with research institutes can be an option to deal with these constraints
-  Multi-Criteria Assessment approach provides a detailed framework for carrying out a feasibility study.

■ Feasibility assessment

How to carry out a feasibility study?



Phase 1: Pre-feasibility

Zoom into a smaller set of business models with high probability of success

- ♻️ Understand the local **institutional landscape**
- ♻️ Establish **priority areas** (location and focus for in-depth feasibility study)
- ♻️ Select the **type** and **number** of business models
- ♻️ Establish an **impact** benchmark

Resource Supply

Is the required resource actually produced (and sufficiently available) in the location?

Demand


Is there any indication of demand for the FSM service or waste-derived resource?


Regulations


Are there any legislations/ regulations which could prevent the business?

Phase 2: Feasibility

Provide information on viability and sustainability of FSM business models to base investment decisions on.

 Analyse **returns on investment**, as well as the strengths, weaknesses, opportunities and threats (**SWOT**)

 Analyse **sustainability** in terms of finances, environmental and social impacts as well as health risks

 Indicate **scaling** and **replicability** potential

Seven criteria

1. Resource supply and availability
2. Institutions, regulations and investment climate
3. Market assessment
4. Technical and logistical assessment
5. Financial analysis
6. Health and environmental risk and impact assessment
7. Socio-economic impact assessment

1. Resource Supply and Availability

Quantity and quality

- differ spatially and temporally within a city, like faecal sludge from households versus public toilets (seasonality, mixed with other waste, undesired substances)

Accessibility

- important to control transport costs (amount, spread of origination points and distance to processing points)

Different waste streams

- 'owned' by different private or public sector entities with contractual arrangements for the collection and management of the waste

Market prices of inputs

- depend on competing uses as well as costs associated with the procurement



2. Institutions, Regulations and Investment Climate

Which institutional factors influence FSM businesses?

- There are a broad range of institutional factors that influence FSM businesses.

1

Institutional landscape

- Institutional mandates for service provision, etc.
- Organizational and institutional arrangements

2

Regulatory and administrative context

- Policies (e.g. regarding environmental conservation, health, climate change, etc.)
- Regulations and laws
- Effectiveness of administration (e.g. procedures that affect FSM businesses)

3

Investment climate

- Status of capital markets
- Financing from banks and other investors
- Public (community) acceptance of FSM businesses

3. Market Assessment

❖ Value proposition

- based on product/ service of need/ value to customer base

❖ Customer segmentation

❖ Market size

- based on willingness of different customer segments to pay for FSM services and products

❖ Market structure

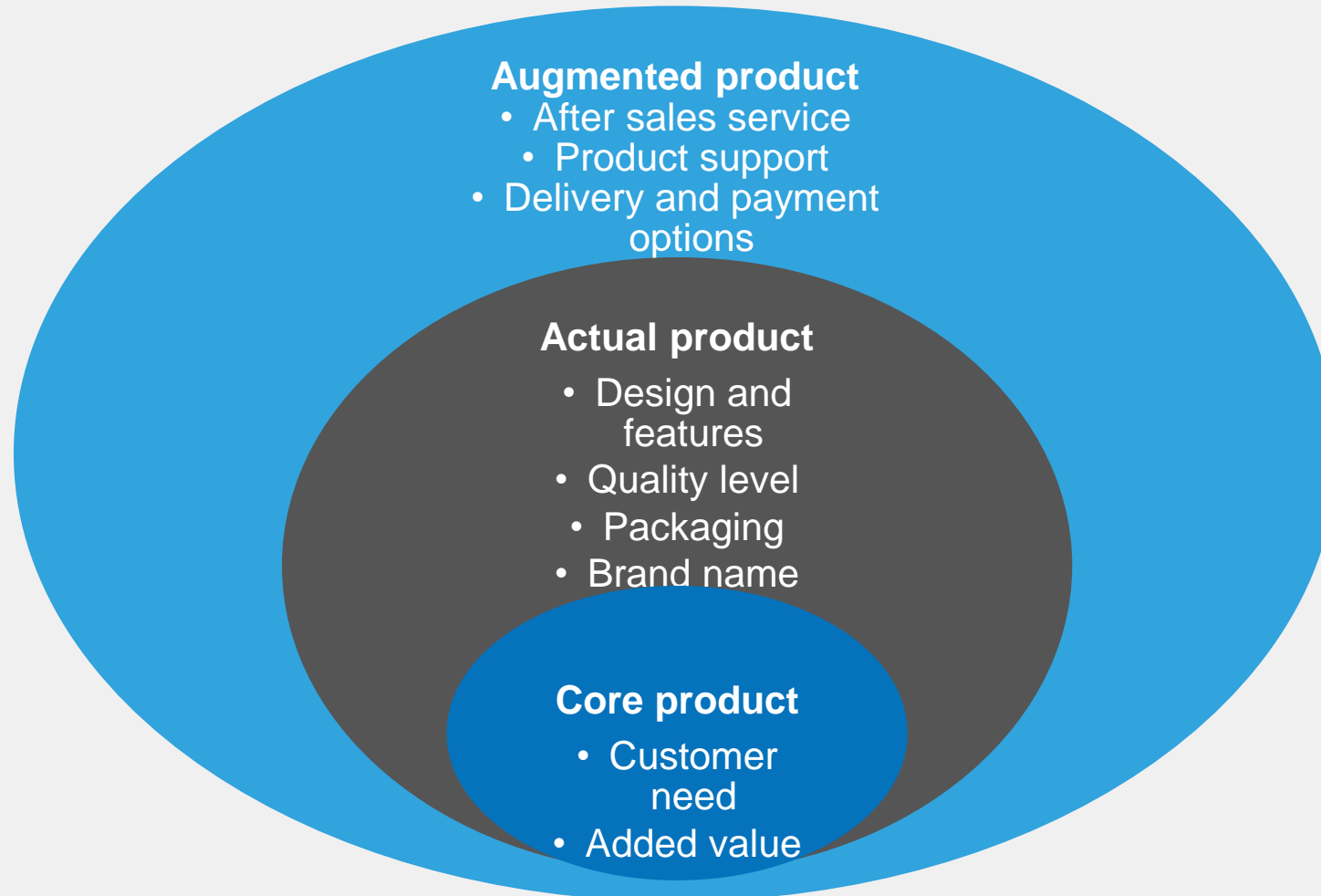
- direct competitors, indirect competitors selling substitute services and products
- barriers to market entry (e.g. high capital investments, monopolistic players in market)

❖ Market outlook

- based on trend and demand forecasts, market penetration of FSM services and products, emergence of substitute products etc.

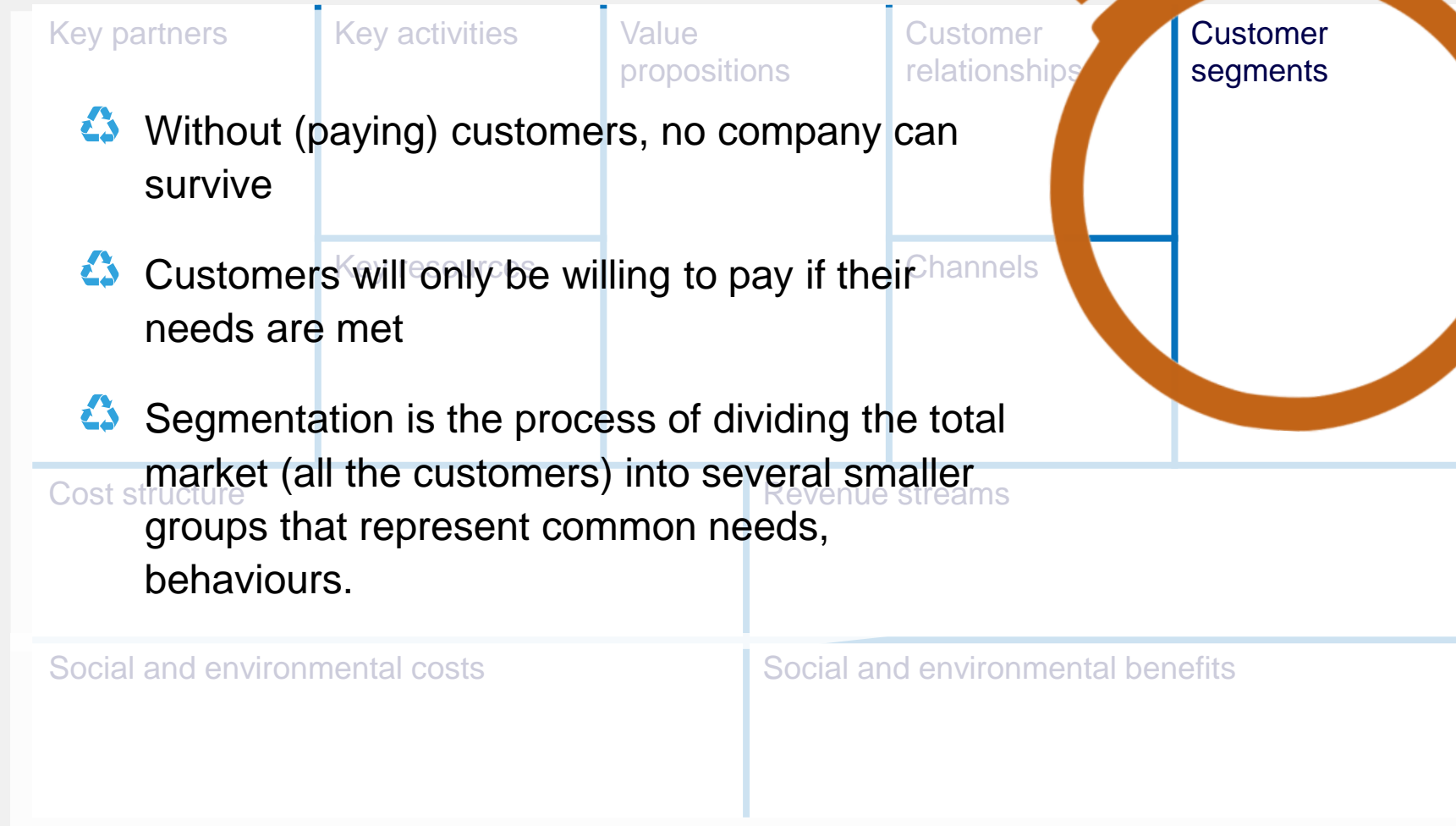
❖ Value proposition: FSM Products and Services

What is a product/ service?



❖ Customer segmentation

What is a customer segment?



❖ Customer segmentation

Why segmentation is important?

<p>Key partners</p> <p>Key activities</p> <p>Key partners</p> <p>Key activities</p>	<p>Value propositions</p> <ul style="list-style-type: none"> - Waste collection service - Environment friendly briquettes that are cheaper than charcoal and wood (price leadership) - Organic fertilizer (compost) - Purposely built briquette stoves 	<p>Customer relationships</p> <ul style="list-style-type: none"> - Direct with households for collection of waste - Short and long-term contract for sale of briquettes with Institutional customers 	<p>Customer segments</p> <ul style="list-style-type: none"> - Community - Households - Kigali City Council - Prisons, schools, brick factories, households
<p>Key channels</p> <p>Key resources</p> <p>Key channels</p> <p>Key resources</p>		<p>Channels</p> <ul style="list-style-type: none"> - Direct personal help at point of source of MSW with households - Selling of briquettes to Households directly, supply of briquettes to institutional customers directly 	
<p>Cost structure</p> <p>Cost structure</p>		<p>Revenue streams</p> <ul style="list-style-type: none"> - Waste collection fee (major RV) - Sale of briquettes (major RV), Compost sales (minor RV), stove sales (minor RV) 	



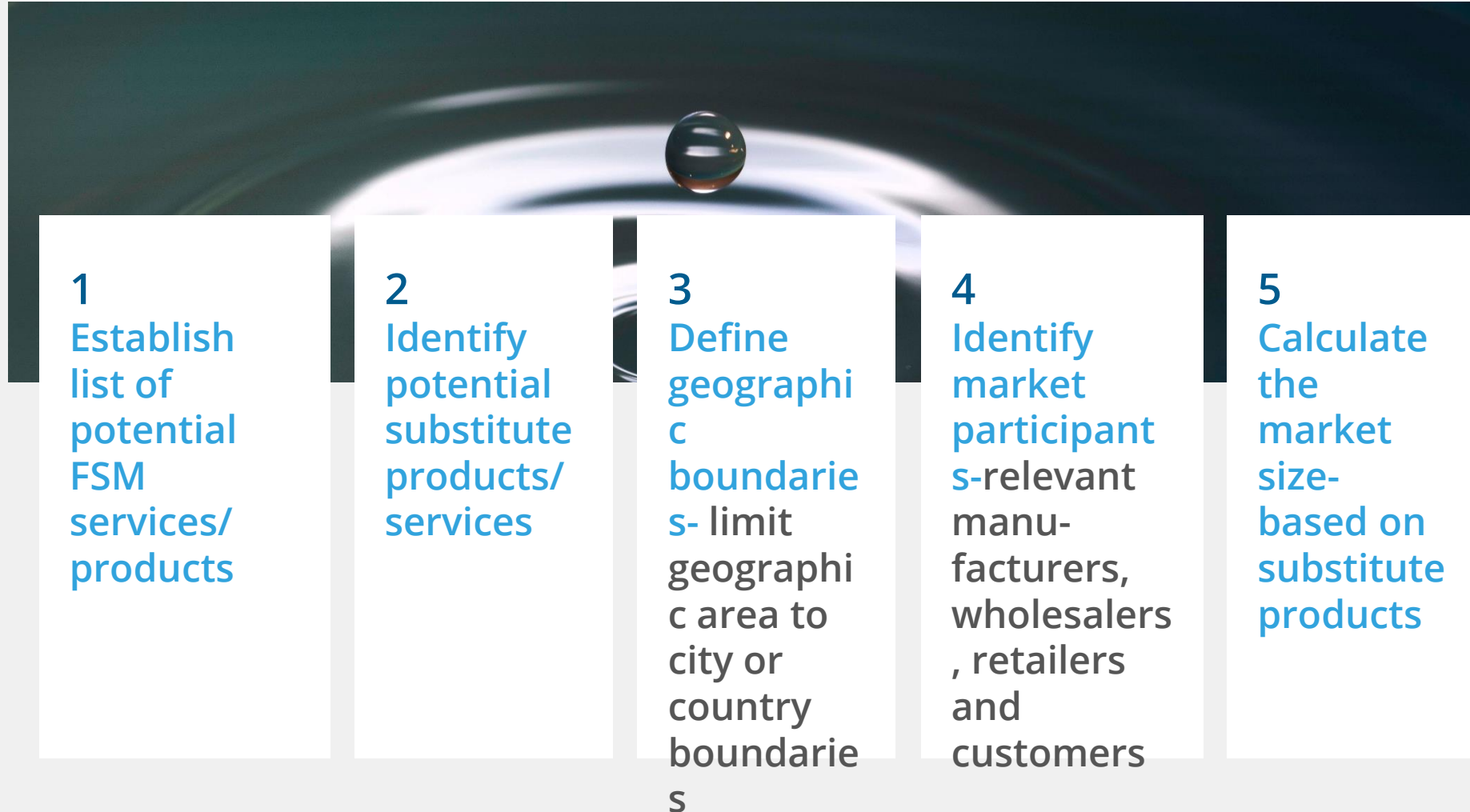
What is a market?

FSM markets and relevance

- ♻️ A market is defined as **the sum total of all the buyers and sellers** in the area or region under consideration.
- ♻️ The market for a particular service/ product is made up of **existing and potential customers** who need it and have the ability and willingness to pay for it.
- ♻️ An FSM Business Model seeks to **generate revenues** that (at least partly) cover costs or even profits.

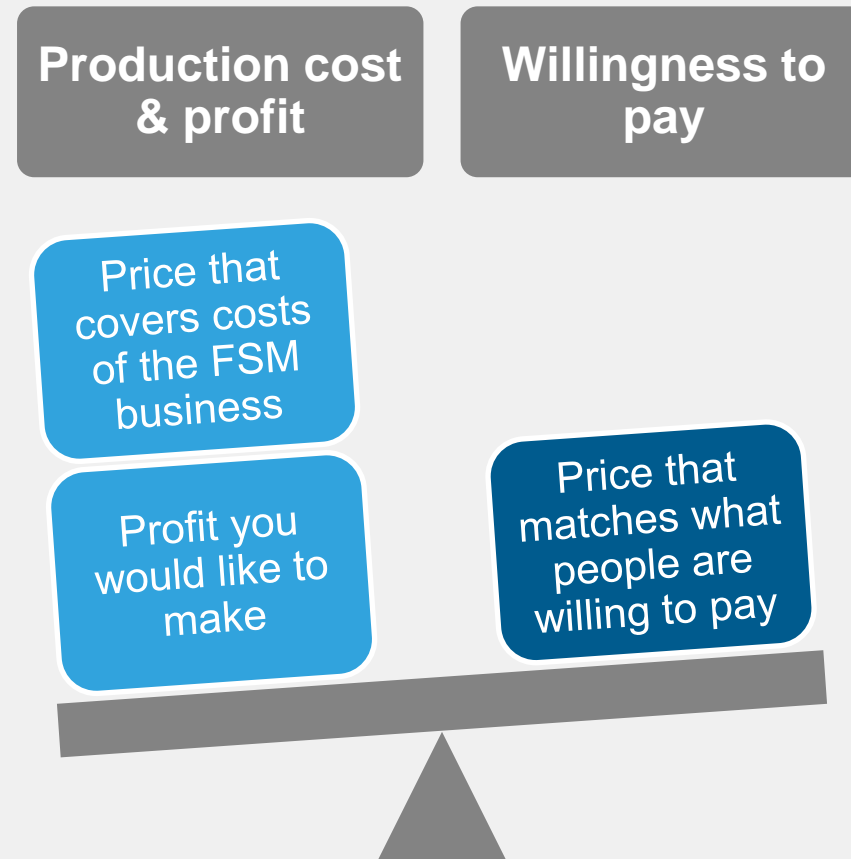
❖ Market Size

How to calculate market size?



- **Willingness to pay (WTP)**

The maximum price a consumer is willing to pay for a product or service



❖ Market Structure - Competition



Who are your competitors?

Companies or individuals that **solve the same problem for the customer** that you intend to solve with similar products and services.

Direct competitors

Monitor
closely!

Indirect competitors

Alliance?

Competing solutions such as disposing of the trash in a nearby river instead of paying for a waste collection fee is also an “indirect competitor” that has to be considered!

■ Competitors' analysis

Customer segment: Households in area xyz possessing a pit latrine

Key Success Factor	Importance for the customer/ market	Competitor A	Competitor B	My niche
Product	Customer see mechanical as cleaner	Manual emptying of pit latrine	Mechanical emptying of pit latrines	Mechanical emptying
Price	Customers are price sensitive	\$10	\$12	Start with 10 to gain clients
Reliability	Very impt, it seems people lose working days	According to their own schedule	Appointments (they don't keep)	Offer evenings/weekend services
Staff	They tend to trust a professional service	Dirty, un-professional	More professional, best option but expensive	Well trained, polite, uniformed and tidy staff.
Payment Method	Customers usually lack liquidity	Usage Fee	Usage Fee	Offer alternative payment methods

❖ Market growth

Assessing market dynamics

- ♻️ Need to estimate the potential for increasing demand of FSM products and services
- ♻️ Analyse the industry growth rates of substitute products
- ♻️ Use the process to determine the market size to also generate data on market growth



Some market dynamics may not be predictable—successful entrepreneurs sometimes had to rely on their instincts

4. Technical and Logistical Assessment

Optimal technology

- based on scale of operation and performance and efficiency of technology

Availability of the technology and spare parts

- energy requirements, capital and operational costs, repair sensitivity, local supply chain, and level of expertise for operating & maintaining the technology

Positive track record of the technology in the country



5. Financial Analysis

Production cost

- e.g. investment requirements at start-up, O&M costs as a percentage of total production costs

Operation cost

- e.g. operating self-sufficiency, financial self-sufficiency

Payback period, financial benefit-cost ratio (BCR)

- Economies of scale and financial sustainability across core business partners

Firm performance

- percentage of cost recovery, profitability ratio, inventory turnover ratio, market growth rate, NPV and IRR
- performance under risk (probability analysis)



6. Health and Environmental Risks

♻️ Potential hazards

- work accidents, exposure to pathogens/toxic substances

♻️ Exposure pathways

- direct contact, insects, air, food, water and soil etc.

♻️ Groups potentially at risk

- workers, farmers, end users, neighbouring communities.


♻️ Mitigation strategies

- to comply with international and national health and environmental standards .



Do you see any health or environmental risks?


What main types of FSM-RRR work-related hazards do you know?

 Physical

Heat (e.g. carbonisation process, ...), **Noise** (e.g. briquette machine, pumps, ...), **Vibration** (e.g. grinder, ...)

 Chemical

Inhalation (being the main route of entry), **ingestion**, **skin absorption** of Metals, Gases (e.g. methane, smoke, ...), Fuels

 Biological

Bacteria (Typhoid, Dysentery, Tetanus), **Virus** (Hepatitis, HIV/AIDS), **Protozoal & Parasitic** (Malaria), **Worms** (round worms, tape worms)

 Mechanical

Injuries (falls, cuts, abrasions), **Ergonomic/Muscular-skeletal disorders** (MSDs) e.g. back pain, muscle pain, ...

 Psychosocial

Psychological & behavioural changes (e.g. hostility, anxiety, depression, alcoholism, ...), **Drug addiction**, **Psychosomatic disorders** (e.g. headache, body-ache, asthma, diabetes)

Case example: Compost production for sustainable sanitation service

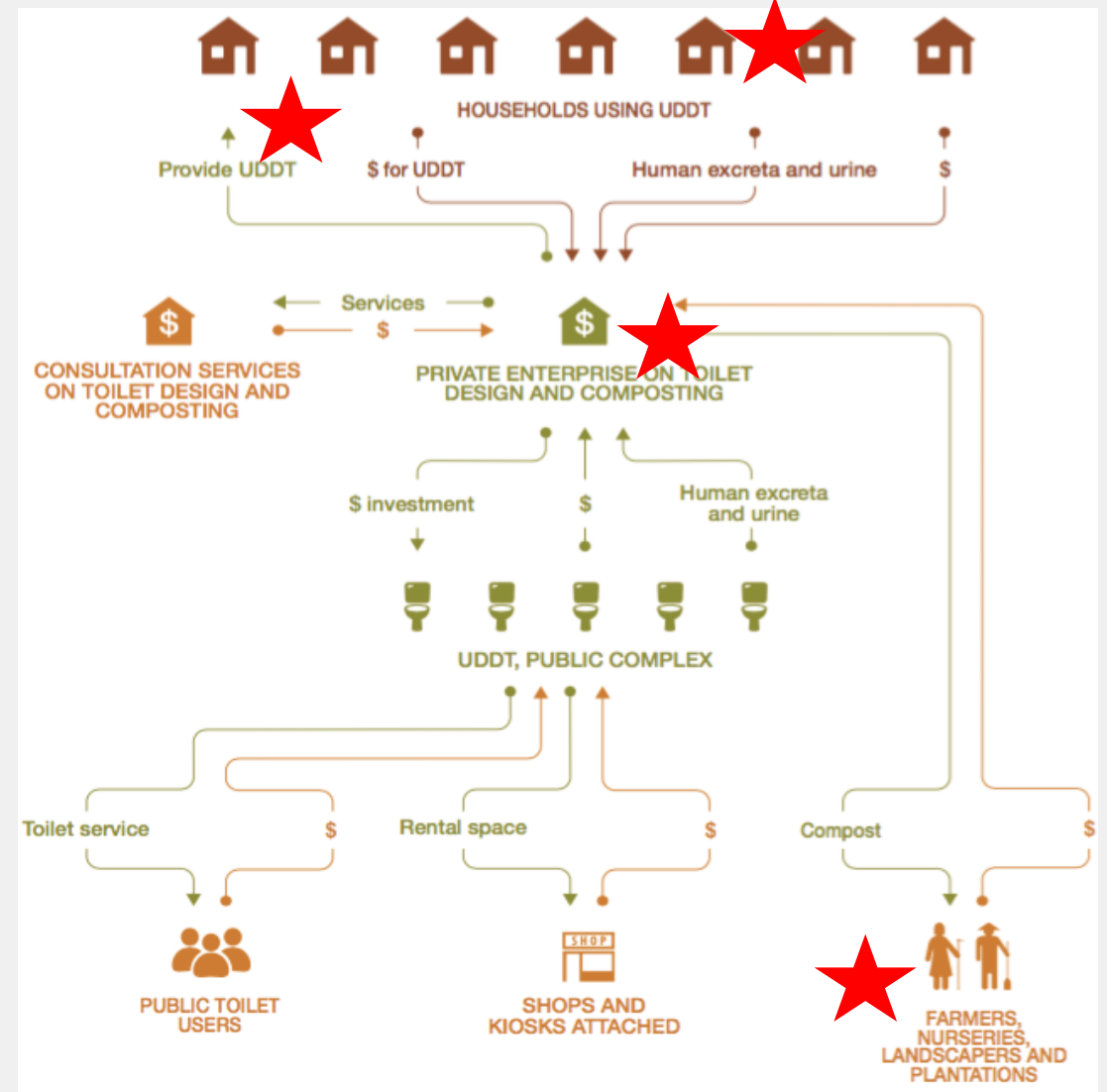
What are the risks involved?

Associated health risks:

- Workers: collecting and treating faecal sludge.
- Communities: exposed to collected excreta.
- Farmer/user: handling of waste-based fertilizing product.
- Consumer: handling and eating produced.

Associated environmental risks:

- Leachate from the composting site.



7. Socio-economic impacts

What is socio-economic impact assessment?

- ♻️ **Structured way of showing a business' advantages and disadvantages for society** as a whole and for various parties
- ♻️ **Weighs socio-economic cost against** the socio-economic benefit
- ♻️ Includes **consequences for all participants in society and all kinds of impacts:**
 - Social impacts (e.g. health)
 - Economic impacts (can include effects
 - Environmental impacts
- ♻️ The **impacts** should be **described in econ**

An environmental impact assessment (EIA) is mandatory in most countries when setting up an FSM/RRR business. Requirements highly vary. It is to be considered as one part of the socio-economic assessment

❖ Economic versus financial assessment



Financial assessment



- ♻️ Financial assessment compares benefits and costs of enterprise

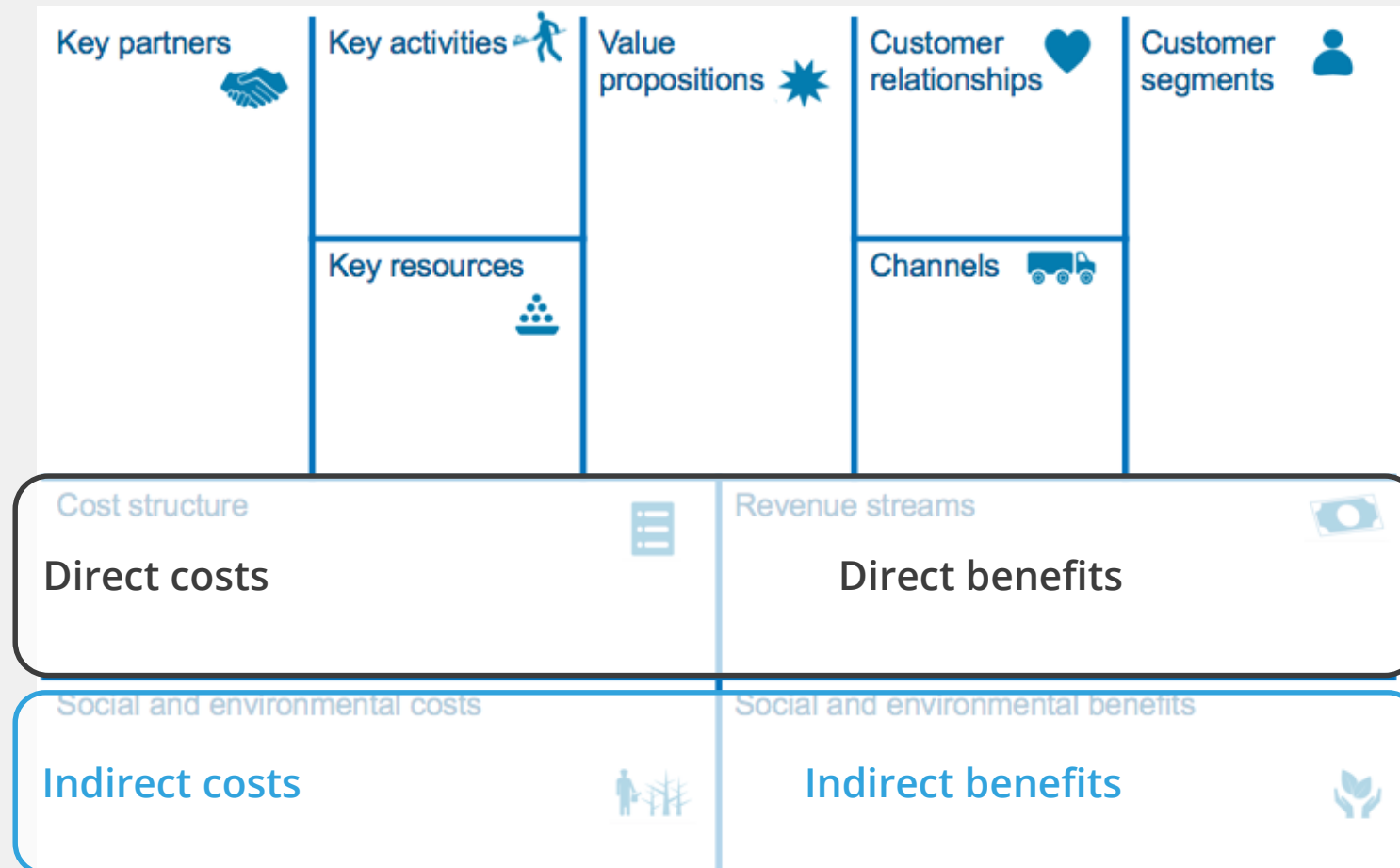


Economic assessment







- ♻️ Economic assessment is concerned with value a business holds for society
- ♻️ Economic assessment attempts to value externalities (effects of the business on parties outside of the business)

Direct versus indirect benefits and costs

-  **Direct benefits/costs:** affect solely the business entity
-  **Indirect benefit/cost:** impact parties outside of the business entity (e.g. households, governments and other businesses)







■ List of references

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Miriam Otoo

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These materials were developed and made available under the project *Research and capacity building for inter-sectorial private sector engagement for soil rehabilitation* (81194995) and funded by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the International Water Management Institute (IWMI) and the CGIAR Water, Land and Ecosystems (WLE) Research Program. The content is subject to free access and use, consistent with IWMI's commitment to ensure the open access to information and knowledge. Any adaptation (transforming, and building upon the material for any purpose) of the materials should follow IWMI's copyright guidelines.

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