VENTURE
ALLIANCES

Academics preparatory course - Part 1

January, 2023

Introduction to the Preparatory course

Purpose

- Learn about entrepreneurial skills, mind-set and how opportunities arise
- Learn about getting research findings into user-informed solutions
- Be able to devise organizational structures for collaboration with industry partners
- Get familiar with the Enterprise Residence Program

Structure

4 parts of each 2 hours in 2 weeks

- **Part 1: Ideas and opportunities**
- **Part 2: Resources**
- **Part 3: Into action**
- **Part 4: Final workshop with business innovators**

Introduction to the Preparatory course

Approach

- Interactive and open to questions and discussions

- Additional materials online

- Quizzes to check

Contents

- Discuss items relevant for starting a business

- Using an example case

- Reflect on your situation

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Introduction to a case study

In this lecture we meet Cristal.

Cristal is doing a PhD research on energy harvesting through ocean thermal differences. She has been working on the technology to use sensors and a smart heat exchanger to capture temperature differences between deep cold water and warm surface water. The technology is interesting for hotels and small communities in small islands. The technology is at level TRL3.

In the lab, the technology works, but it needs to be tested in an experiment to collect evidence and feedback in order to develop a first prototype which will be tested in the environment of the user.
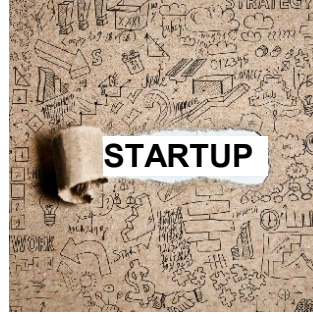
But here it comes to a number of important questions

Turbine Electricity

Evaporator

Warm Seawater
26°C

Condensor

Working fluid

Pump

1000m
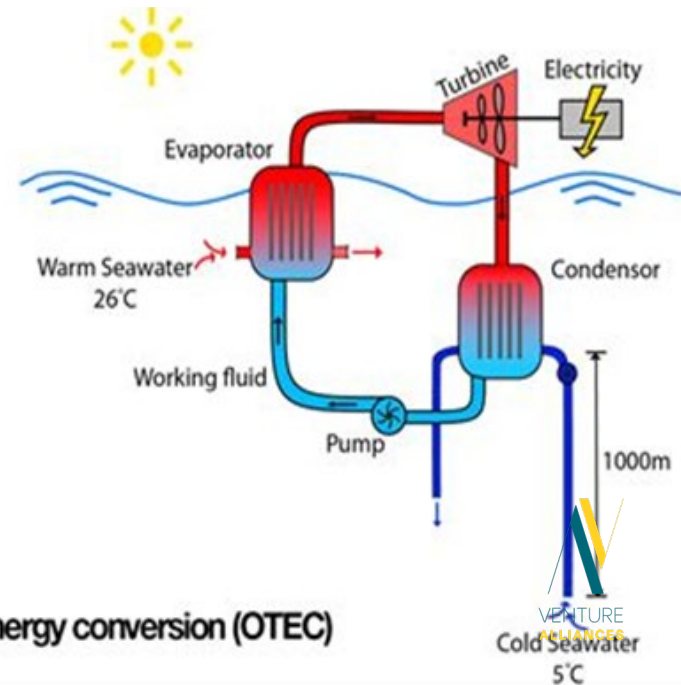
Ocean thermal energy conversion (OTEC)

Cold Seawater
5°C

Introduction to a case study

The questions that Cristal is asking herself are various

1. Does she wants to continue as a **researcher** within the academic context or use the technology and **build a startup** herself? Or anything in between?

2. But to answer that question, it is about the potential success of the startup
   a. Is the technology good enough
   b. Is there a market and is it attractive, large enough and what is competition like?
   c. Do I want to start a business myself?

3. And what role does the university play and who is involved?

What is entrepreneurship?

Cristal is thinking about the journey she intends to start.

Before she even starts, she is thinking what entrepreneurship actually is.

Can you give describe what entrepreneurship is?

Answer :

*The **search** to identify an **opportunity** that is **valuable to users** and can be delivered by a **business model** that is **scalable** and **repeatable**.*

STARTUP

=

EXPERIMENT

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What is a startup?

1. Leap-of-faith assumptions

2. Minimum Viable Product

3. Validated learning

4. Build-measure-learn feedback loop

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1. Opportunity recognition

Cristal think that if she wants to identify an opportunity she needs to discover a market need.

To think more deeper about the opportunity, what is Cristal offering.

Is she delivering some new technology to the market? Something that could not be done before, for a market that is not really existing or is she answering to an existing and clear need that customers have?
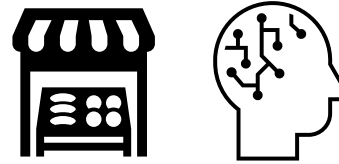
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1. Opportunity recognition

Cristal think that if she wants to identify an opportunity, she needs to discover a market need.

Technology push
Schumpeter (1965) defined "**entrepreneurs** as individuals who exploit market opportunity through **technical** and/or organizational innovation".

Market pull
Kirzner's (1973) defined entrepreneurs are "able to perceive opportunities for entrepreneurial profits; that is, they **are able to see** where a good can be sold at a price higher than that for which it can be bought".
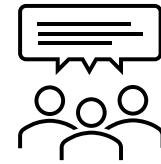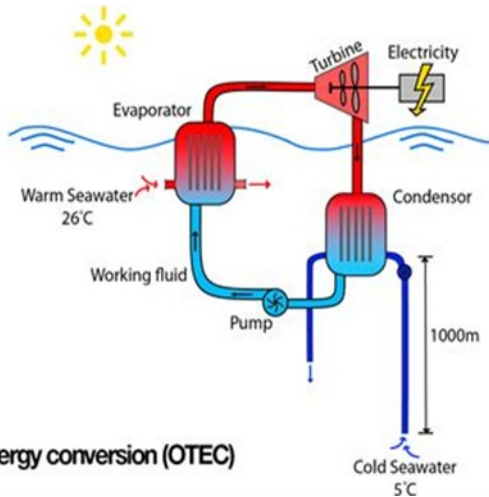
Joint interest

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1. Opportunity recognition

Cristal needs to see if there is an opportunity

What is Cristal offering? A component of a system, a total solution of a new system?
Where should she start?

Ocean thermal energy conversion (OTEC)

What kind of questions do you think are relevant at this early moment?

Market questions

Technology questions

Personal questions

1. Opportunity recognition

Cristal needs to see if there is an opportunity

Market questions

Where is the market?

How big is the market?

What are current solutions and competitors?

Technology questions

Is the technology ready?

Can I use the IP of the technology?

Full product or a component?

Personal questions

Is this something for me?

Do I offer technology or

Do I start a company?

Organizational questions

What is the role of the Univ.

Other stakeholders

Existing agreements?

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1. Opportunity recognition – Market questions

What are relevant questions for Cristal and what should she do?

What is the technology doing in the eyes of the user?

She is talking with friends about the idea, and they tell her to take some online lectures and talk to a mentor within the technology transfer office who is involved in supporting startup ideas.

They raise a couple of important questions that are important to consider it an opportunity:

What questions do you think are relevant here?

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1. Opportunity recognition – Market questions

Considering the market,

Cristal is talking to friends and some other people who have started a question.

She receives clear indicators that she needs to focus on the users in the market.

What is the technology doing in the eyes of the user?

Who has the problem, how urgent is the problem that users have

Why are current solutions not good enough according to users?

How big is that market?

…Let's try structure it a bit

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1. Opportunity recognition

Who has the problem, how urgent is the problem that users have

Why are current solutions not good enough according to users?

What should Cristal do here?

➔ **Primary market research**

  ➔ Ask the right questions

  ➔ Ask **about the job**, the task people do, the context in which they work and may need the solution
  ➔ *Do not present your technology, or your product, unless it is clear what the job is.*

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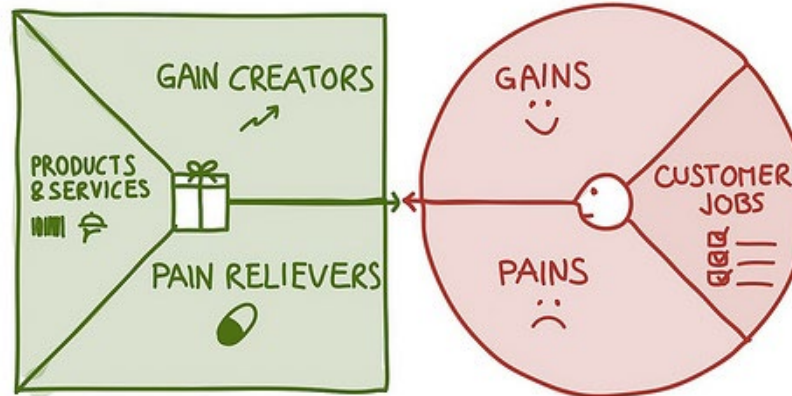
1. Opportunity recognition

What can the technology do better than current alternatives?
Who has the problem, and how urgent is their problem?

Introduction to the value proposition canvas

We can consider two options:

1) starting with the technology   **2) starting with the user**

1. Opportunity recognition

1) starting with the technology

Value Innovation

GAIN CREATORS

PRODUCTS & SERVICES

PAIN RELIEVERS

- What are specific characteristics of the technology, that are new, not included in current solutions

- How can these characteristics eliminate existing problems of users

- Who has such problems and can we reduce the problems and increase the value for users?

- Which elements of your solution are better then competitors?

- Conclude on the new factors that you can create

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1. Opportunity recognition

1) starting with the technology

Value Innovation

- What are specific characteristics of the technology, that are new, not included in current solutions

Cristal is thinking about her technology.

And she finishes the sentence: *I know how to….*

I know how to produce electricity based on ocean temperature differences

But then, under what conditions will the technology work well ?

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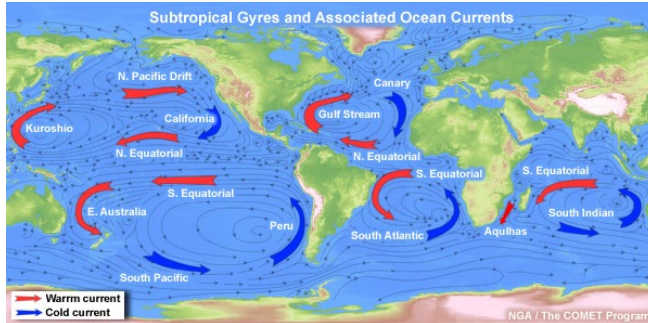
1. Opportunity recognition

1) starting with the technology

Value Innovation

Which conditions are important for the technology to work well ?
➔ *near oceans with large temp differences*

What problems can be eliminated for users?
➔ *remote/ off grid applications,*
➔ *problems of pollution*
➔ *stability in supply of energy*

I need users who value clean air and stable energy supply who are located near oceans with large temperature differences

Cristal thinks about specific user groups:
- *Electricity producers*
- *Local communities/ villages*
- *Hotel resorts*

1. Opportunity recognition

1) starting with the technology

Value Innovation

- Who has such problems and can we reduce the problems and increase the value for users?

- Which elements of your solution are better then competitors?

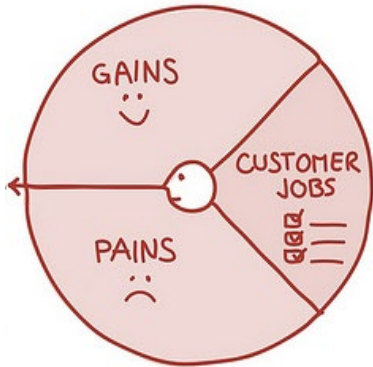- Conclude on the new factors that you can create

Cristal thinks about the hotel resorts

They are remote, in warm water locations, and need sustainable energy solutions. They like to be environmentally friendly/ no pollution

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1. Opportunity recognition

2) starting with the user

*People hire products/
services to do a job for them*

Opportunity identification

Starting with the job of the user. What does the user want to achieve?

How can it be improved (a gain) or can the user do the job in a way it could not be done before (solve a pain)?

Ensure that
- Is the problem real? How urgent is the problem?

- Does your solution create value for your users?

- Is your advantage superior and sustainable?

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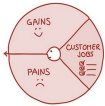ALLIANCES

1. Opportunity recognition

2) starting with the user
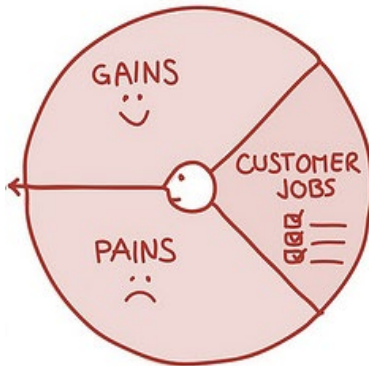
Opportunity identification

- Is the problem real? How urgent is the problem?

- How does it work from the user perspective, who is the user

- Hotel owner, hotel manager, technology operator, tourists

- Each receives certain value from the innovation

1. Opportunity recognition

2) starting with the user

Opportunity identification

- What is the job of a hotel

- What is important for a beach resort hotel?

- How can Ocean Thermal Energy Conversion help hotels do their jobs?

- Gains…

- Pains …

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Creative Vision: Competition and alternatives

Creativity & vision

The value of the idea in the eyes of the user

Initial estimation of the increased value for the user

Compare current situation against the potential situation

Electricity generators

Solar panels

Wind electricity

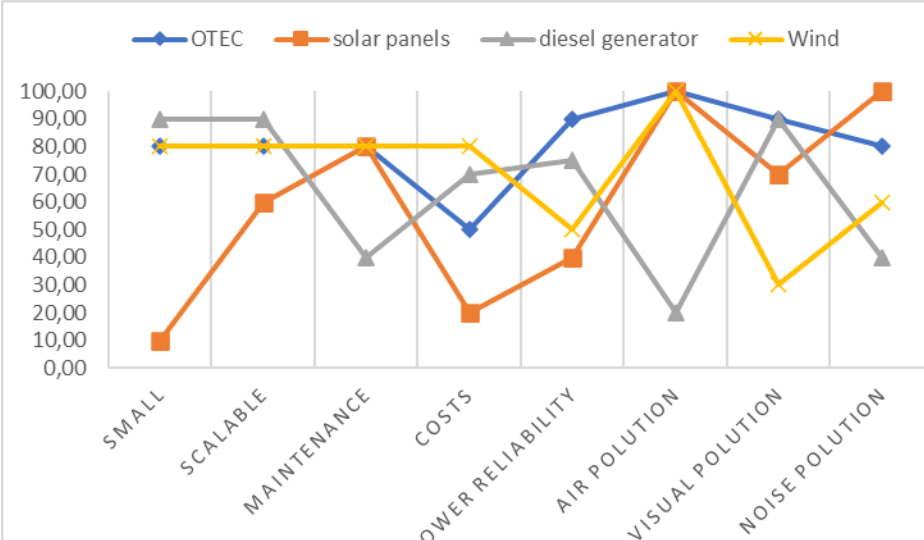# Creativity & Vision: Competition and alternatives

The "value curve"

Value curves use a diagram to compare products or services on a range of factors by rating each factor on a scale from low to high

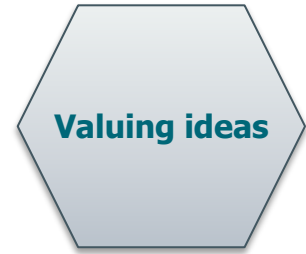### Eliminate, Reduce, Raise, Create Value Curve

Example items:

– Features

– Benefits

– Pricing

– Any other factors of importance to the user

Sizing the market
Market size and entry to the market

- What are the possible potential markets?
- What is the total size of the market?
- How do you segment the market for an innovation?
- What are requirements for good segments?

But what is the market and is the market attractive?

So what defines attractiveness of a market?

- **competition**
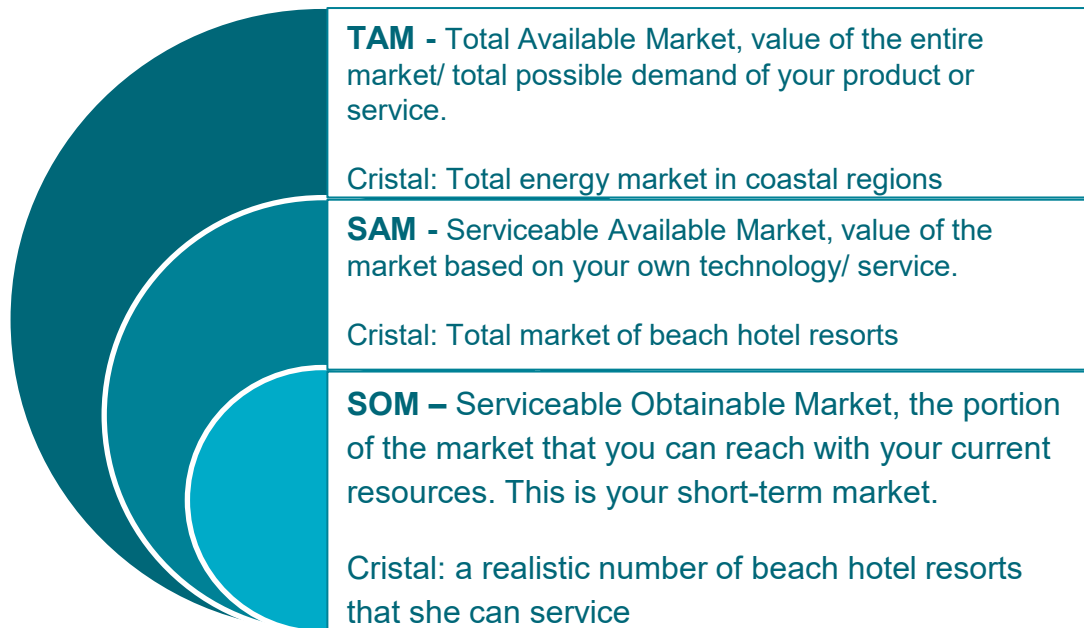- **size of the market**
- **government support**

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Sizing the market

Market Size

Why is market size important?

Gives the total market potential

Opportunity for growth, attractiveness

TAM - Total Available Market, value of the entire market/ total possible demand of your product or service.

Cristal: Total energy market in coastal regions

SAM - Serviceable Available Market, value of the market based on your own technology/ service.

Cristal: Total market of beach hotel resorts

SOM – Serviceable Obtainable Market, the portion of the market that you can reach with your current resources. This is your short-term market.

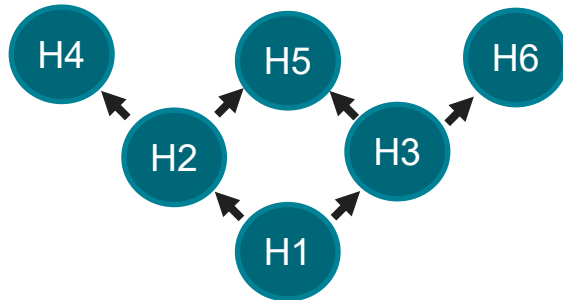Cristal: a realistic number of beach hotel resorts that she can service

The market research

SOM is clear and given the small resource that Cristal has, she thinks she needs to enter somewhere

Beachhead market

Based on the military, start in a small and relative protected area after which you can start addressing a larger area

Criteria to start

- Is the customer well-funded?

- Can you reach the customer easily

- Has the customer a good reason to buy

- Is the customer open to test, experiment and co-fund it

- Can you leverage to other customers

- Can stay below the radar, block competition

Start of market entry

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The market research
Beachhead market

Criteria to start

- Is the customer well-funded?
- Can you reach the customer easily
- Has the customer a good reason to buy
- Is the customer open to test, experiment and co-fund it
- Can you leverage to other customers
- Can stay below the radar, block competition

➜ *Remote beach hotels, difficult or no access to stable grids, have high energy demand because of installations, AC-units, have the money to pay for running a pilot. If part of a chain or franchise, then successes can be leveraged to partner hotels*

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The value proposition

Our

State who are the customers. main client or user of your product

helps

State the focal end or goal for your customer, client or user

who want to

State the related mean for your customer, client or user

by

and

State the related undesired effects of the current practice that you would like to avoid

(unlike

)

For Cristal her value proposition is:

Our ocean thermal energy converter,

helps beach resort hotels

who want to offer good services and luxury to their tourists, such as ACs,
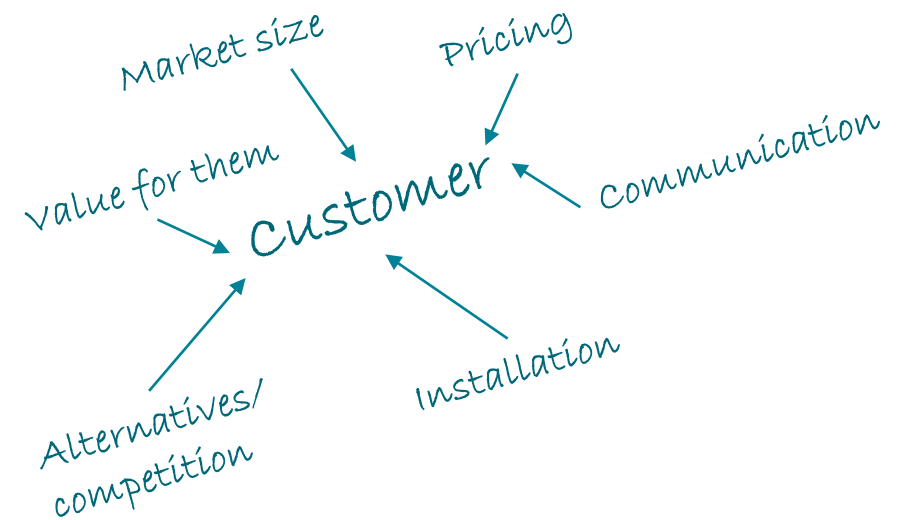
by having stable energy delivery

and low maintenance and low pollution

unlike being dependent on weather conditions

The value proposition

In the value proposition the focus is on the customer

Market size

Pricing

Value for them

Customer

Communication

Alternatives/ competition

Installation

But is only the customer getting value from it?

And do side effects exist?

What other values can exist and to whom?

Ethical and Sustainable thinking
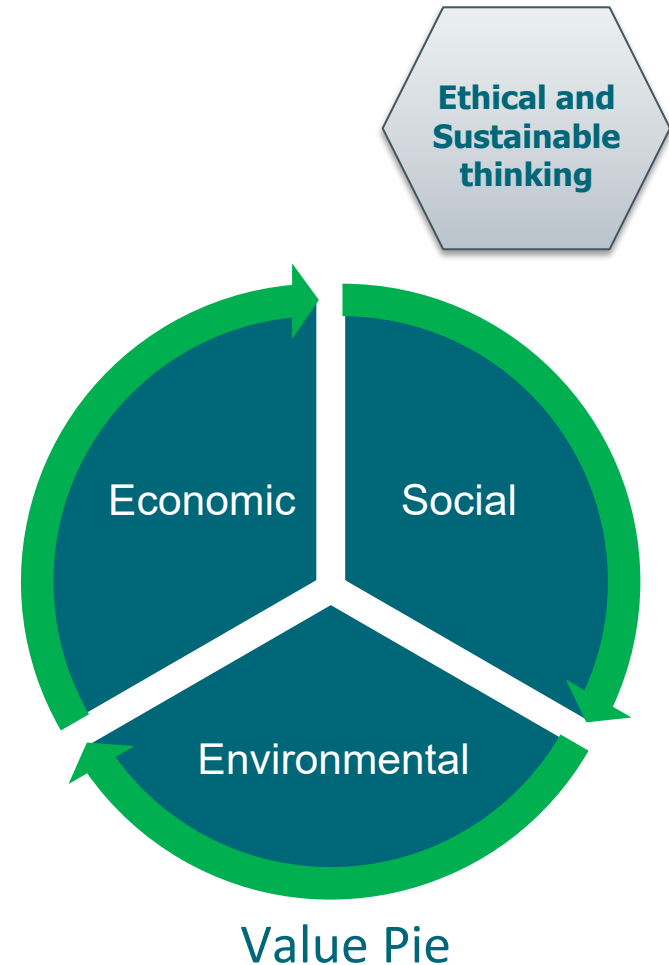
The sustainable value proposition

Ethical and Sustainable thinking

In order to have a ***sustainable business models***, a company should also have a sustainable value proposition.

The customer may gain more than economic value

And also Users/ citizens may receive value from it or encounter problems

Economic

Social

Environmental

Value Pie

The value proposition

One approach to reach to sustainable value proposition, is value mapping as you consider different values for different stakeholder.

For Cristal, the values created/ destroyed of her product over diesel generator for:

Stakeholder	Economic	Social	Environmental
Hotel management	Similar costs	Electricity security	Less pollution
Operators/ technicians	Lower maintenance	Less dirty work	None
Tourists	none	More stability	Fresher air
Residents	none	New jobs	Less pollution
Marine biologists	none	none	Less pollution but Affects marine life?
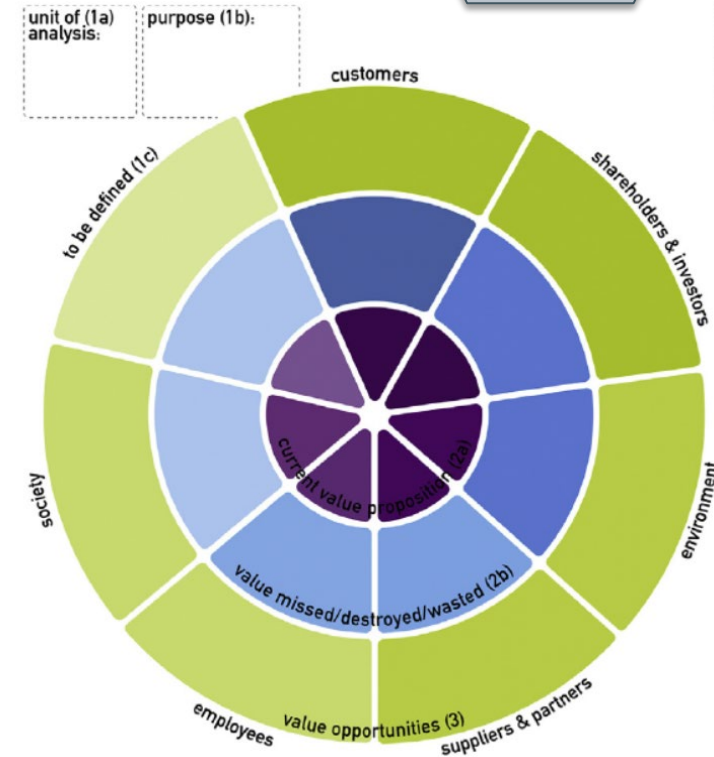
Building the opportunity

Ideas and opportunities