

Unlocking the Power of Clean Energy Innovation with Living Labs

Part 3

Commercialization Essentials for Clean Energy Innovators



Agenda

INTRODUCTION

- Why should RDI projects think about commercialization?

MARKET ANALYSIS

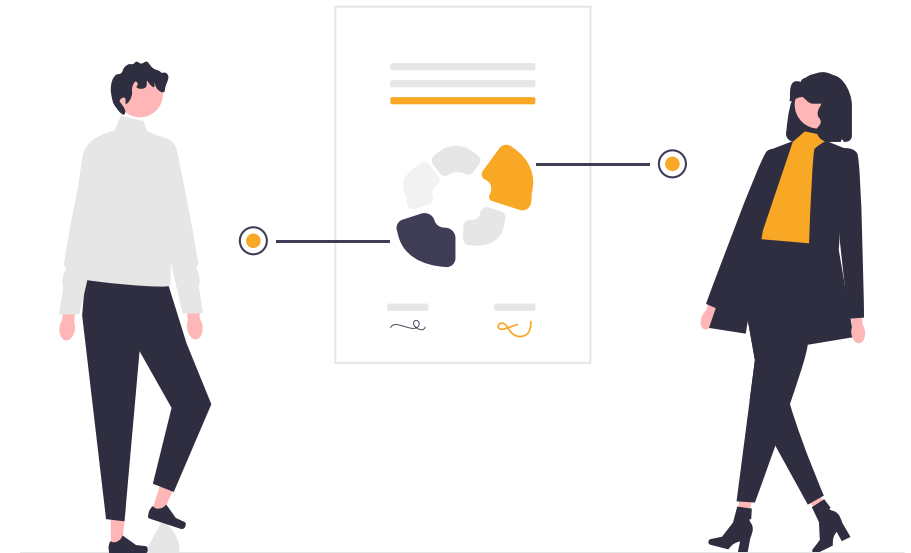
- TRL / SRL / MCRL
- Understand end-customer
- Analyse the context

BUSINESS PLAN

- Value proposition
- What is a Business Model
- From Business Model to Business Plan
- Business derisking strategies
 - Team & Skills needed to turn the innovation into profitable business
 - Partners & How to find them

DEMONSTRATION & UPSCALING

INTERACTIVE ACTIVITY



INTRODUCTION

**Why should RDI projects
think about
commercialization ?**

Making a real impact

Objectives

- Ensuring innovation breakthroughs reach the market
- Broad adoption is essential for societal transformation

Strategies

- Embedding societal, market, and commercial readiness from the start
- Understanding barriers for transition and driving demand



Image from [Energylivinglab.com](https://energylivinglab.com)

Integrating Readiness Levels for sustainable innovation

Technological Readiness Level

**Ensures high standards
of functionality and
reliability.**

Societal Readiness Level

**Considers ethical
implications, user
adoption, and societal
impacts**

Market & Commercial Readiness Level

**Ensures strategic market
positioning and faster
development. Attracts
commercialization
partners**

MARKET ANALYSIS

Readiness Levels

3 measurements to assess readiness

Technological Readiness Level

Evaluates the maturity of technology, ranging from basic research to commercialization.

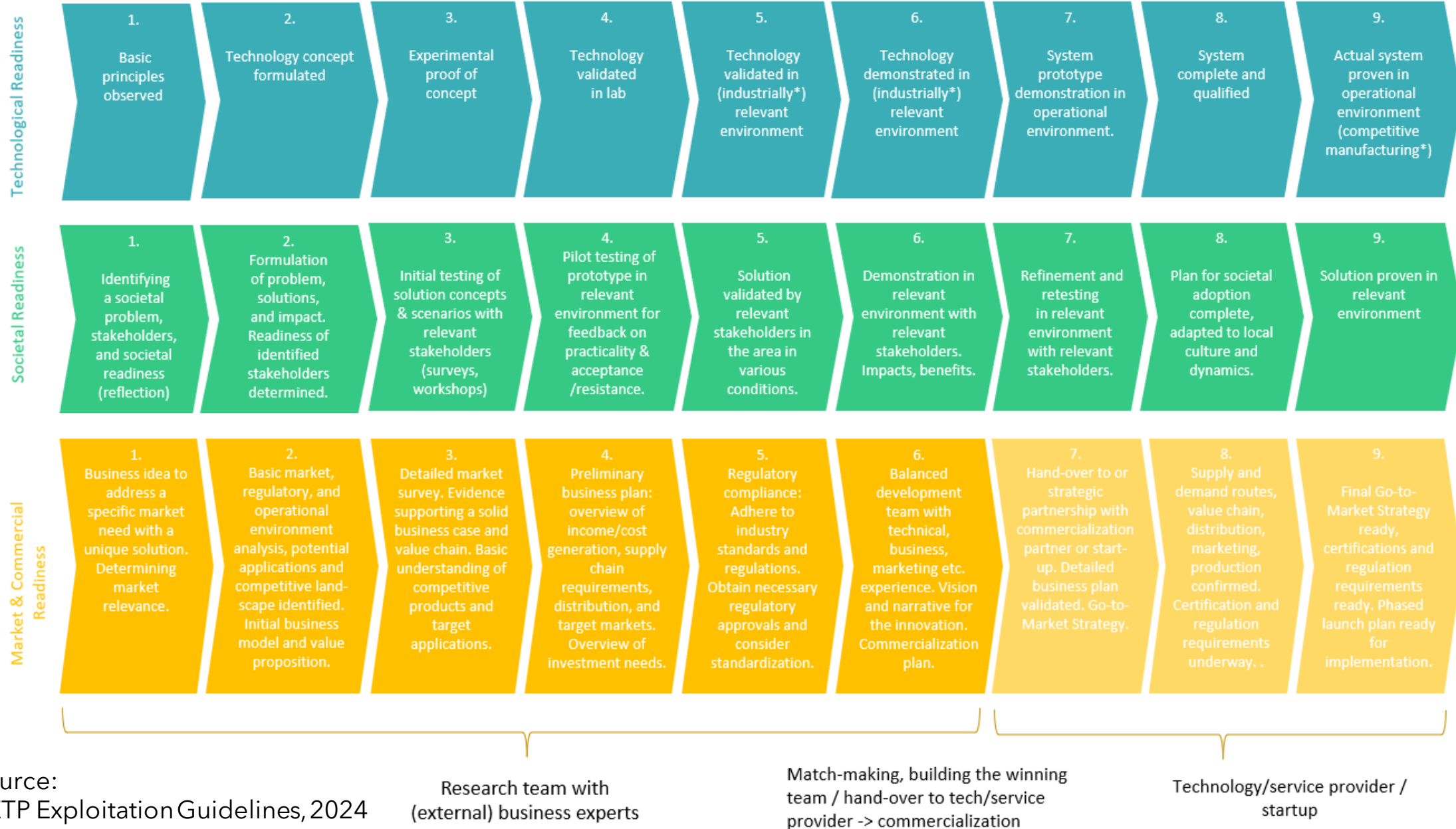
Societal Readiness Level

Assesses the level of societal adaptation of an innovation, product, service, etc.

Market & Commercial Readiness Level

Determines the readiness of the product or service for market launch.

3 measurements to assess readiness



Balancing TRL / SRL / MCRL

- **Ideal scenario:**
 - High TRL (validated technology) + high SRL (ready for social acceptance) + high MCRL (ready for market)
- Differentiation between **technology push** (high TRL, low MCRL) and **market pull** (high MCRL, low TRL) approaches
- The '**sweet spot**' is achieved when there is a balance between TRL, SRL and MCRL, indicating readiness for commercialization

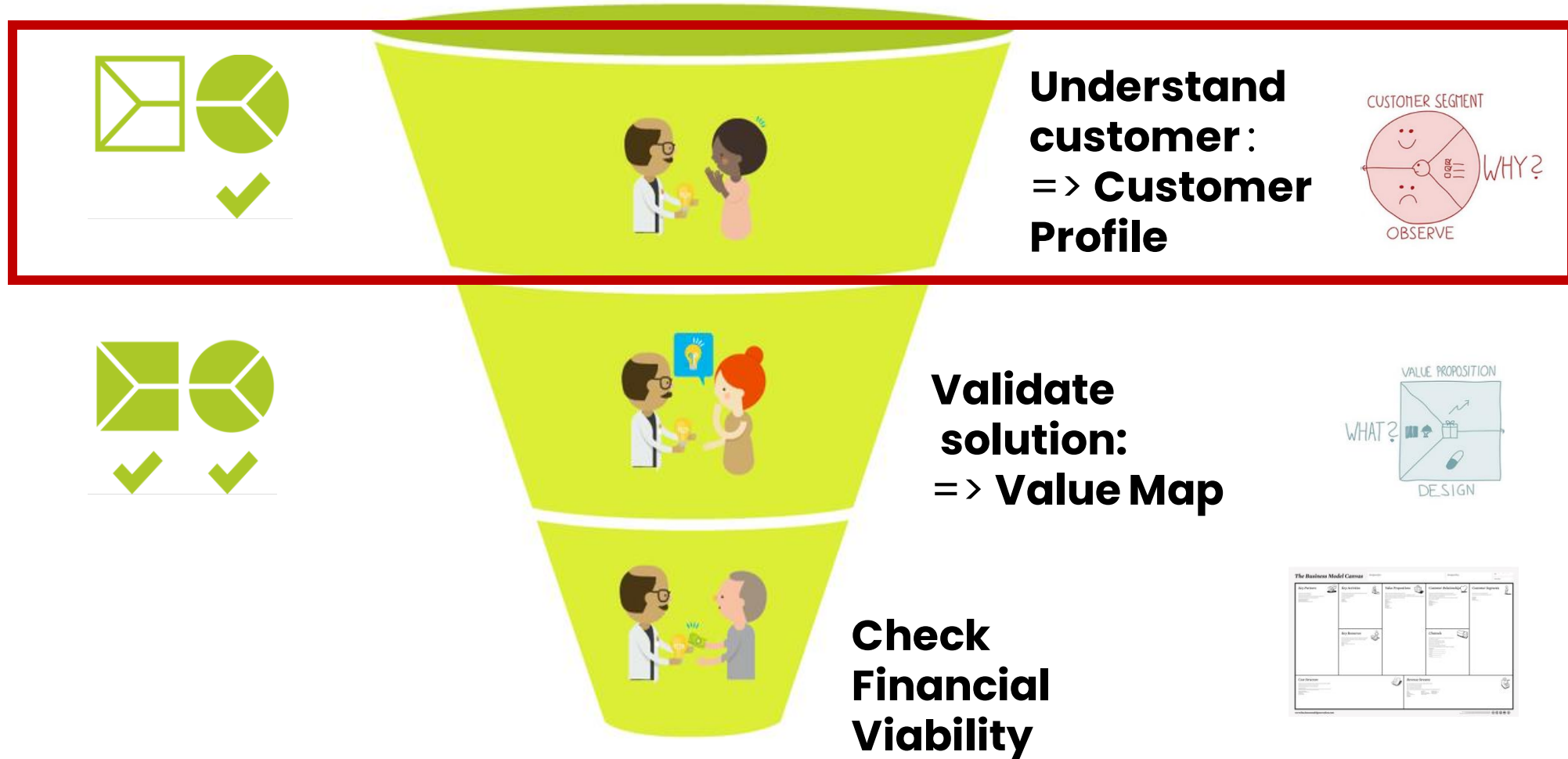
MARKET ANALYSIS

Understand the end-users

Market & Commercial
Readiness



Roadmap of innovation



Understanding End-users

Understanding

**Needs
Problems**



Photo by [mauro mora](#) on [Unsplash](#)

Understanding End-users

Problems



Photo by [Naja Bertolt Jensen](#) on [Unsplash](#)

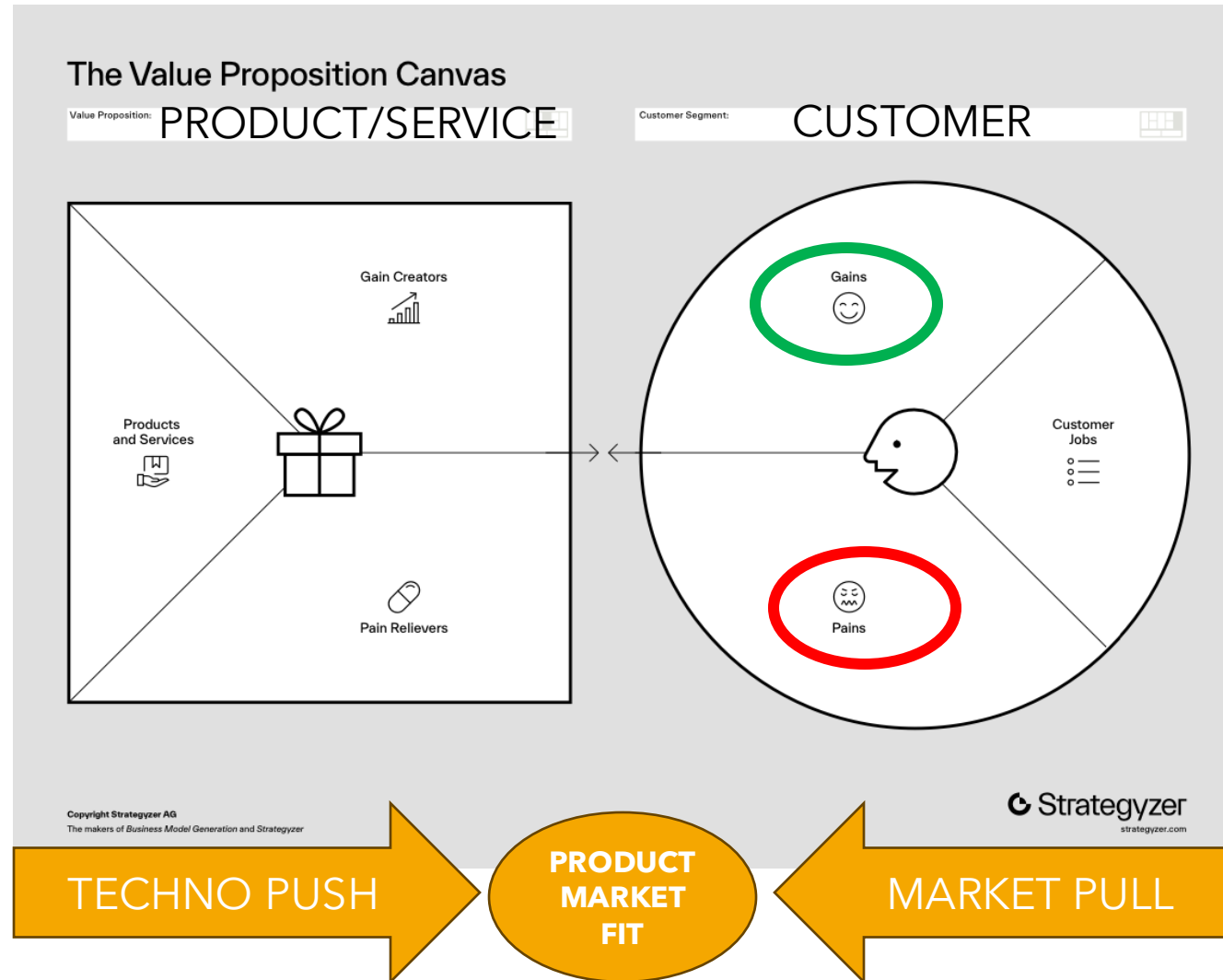
Why analysing end users?

We empathize **to understand our user behavior** and **to define social practices to change**.

To achieve this, we need **their trust**.

We gain trust by engaging with them or **observing them** “in situ” (meaning on-site), in **real-life settings**, in their environment, where they feel comfortable.

How to create value with users?



Persona



"A quotation that captures this user's personality"

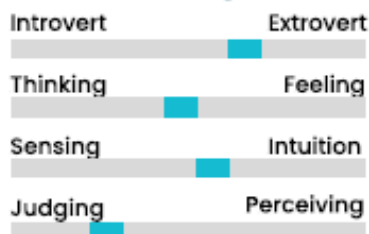
Age: 1-100

Work: Job title

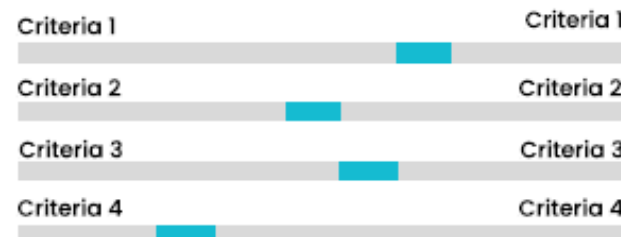
Family: Married, kids, etc.

Location: City

Personality



Environment



Motivations & Goals

- The motivations that guide the user
- Interests and personal preferences
- Values and activities that motivate the persona
- A task that needs to be completed
- A life goal to be reached
- An experience to be felt

Frustrations

- The challenges this user would like to avoid
- An obstacle that prevents this user from achieving their goals
- Problems with the available solutions

Bio

The bio should be a short paragraph to describe the user journey. It should include some of their story leading up to a current use case. It may be helpful to incorporate information listed across the template and add pertinent details that may have been left out.

Why this persona?

- What decisions do we need to make ?
- How will this persona help?
- How does this persona change our process?

Research

- What research or data informs our decisions and persona?

Success criteria

- How will we know our user or personas are serving their purpose?

MARKET ANALYSIS

Analyse the context

Market & Commercial
Readiness



Market Readiness Analysis

>Questions to ask yourself

- **Product/Solution Fit**

Is the product or service solving a real need?

And is it the right time to bring the solution to the market?

- **Vision/Team Fit**

Are you best equipped to provide a solution?

What are your strengths? Maybe it is your innovative technology or an experienced team?

- **Product/Market Fit**

Is there a willingness from consumers to pay to solve the problem or need?

How are your target customers currently solving the problem?

Will they be willing to switch to your product or service?

- **Market/Business Model Fit**

Is the market opportunity big enough to make this business model sustainable?

Will you be able to achieve a substantial market share?

Market Readiness Analysis

>KPIs to assess

- Key performance indicators (KPIs) for calculating MCRL:
 - **Market size**
 - **Customer lifetime value**
 - **Leads generated**
 - **Customer usage**
- **Plotting MCRL, SRL and TRL** on a chart helps visualizing progress towards commercialization.

Tools for market analysis

PESTEL

BENCHMARKING

MARKET SURVEY

=> SWOT

=> TWOS

BUSINESS MODEL

BUSINESS PLAN



Sources:
InnovateUK

<https://www.innovateukedge.ukri.org/blog/understanding-market-readiness-level#>

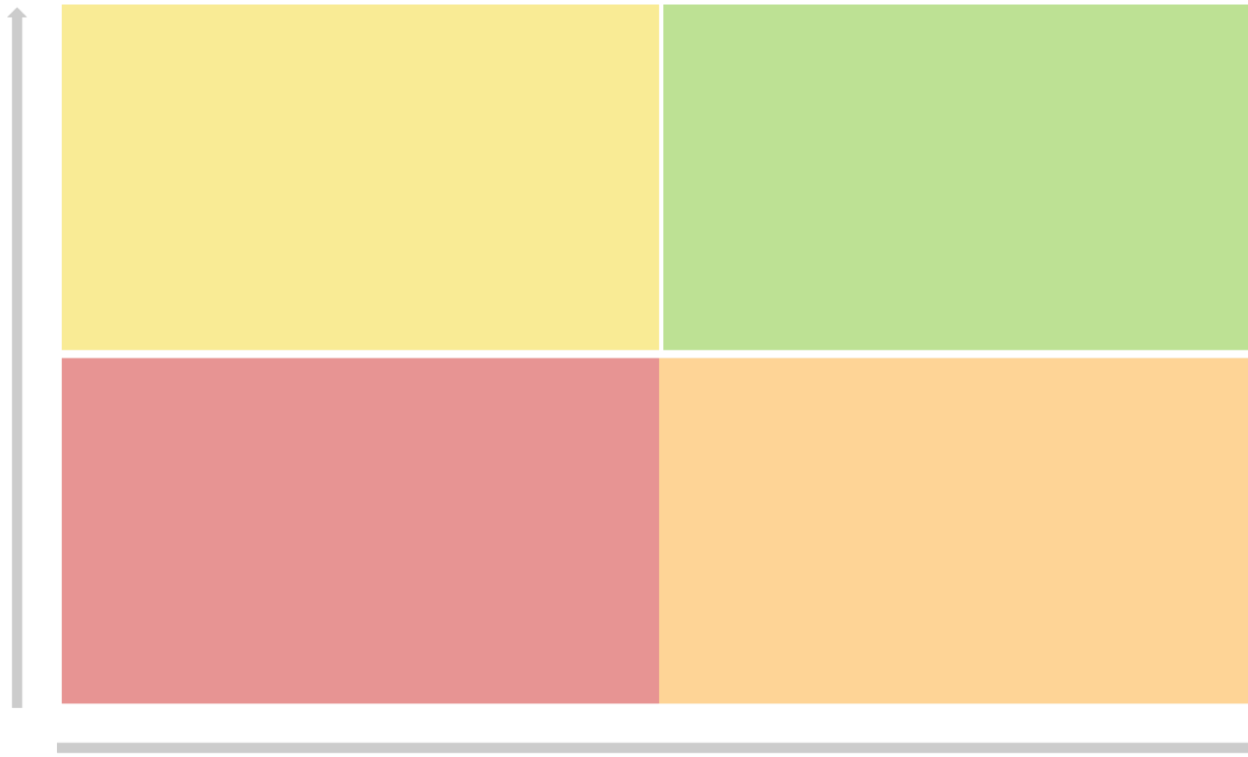
Know your context

> PESTEL

P	E	S	T	E	L
political	economic	social	technological	environmental	legal
<ul style="list-style-type: none"> ▪ Policy Goals ▪ Specified national targets ▪ Political stability and remuneration framework ▪ Incentives/Financial Measures ▪ EU directives focused on 2050 ▪ Governance structures ▪ ... 	<ul style="list-style-type: none"> ▪ Energy prices/expenses ▪ Energy taxation ▪ Economic growth/decline ▪ Economic development patterns ▪ Inflation ▪ Interest rates ▪ Availability of lending funds ▪ Cost of living ▪ Prevailing economic sectors ▪ ... 	<ul style="list-style-type: none"> ▪ Energy consumption & production patterns ▪ Local coalitions and initiatives ▪ Role of prosumers ▪ Social capacity ▪ Lifestyle factors ▪ Career attitudes ▪ Work-life balance ▪ Population ▪ Demographics ▪ ... 	<ul style="list-style-type: none"> ▪ Automation ▪ Innovation ▪ Disruptive technologies ▪ Artificial Intelligence ▪ Smart city platforms ▪ Renewables technologies ▪ Degree of digitalization of the energy sector ▪ Smart meters deployment ▪ ... 	<ul style="list-style-type: none"> ▪ Environmental restrictions imposed by in-country governments ▪ Sustainable energy resources ▪ Circular economy ▪ Waste management ▪ Adaptation policies ▪ Corporate social responsibility ▪ ... 	<ul style="list-style-type: none"> ▪ Employment law ▪ Common law ▪ Local labour law ▪ Legislative and regulatory framework ▪ Health and safety regulations ▪ Permissions for renewables installations ▪ Energy communities law ▪ ...

Know your competitors

> Benchmark analysis



How do you
differentiate yourself
from the competitors?

Know your context

> SWOT

Based on internal factors

S

strengths

W

weaknesses

Based on external factors

O

opportunities

T

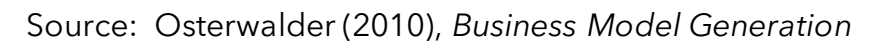
threats

BUSINESS PLAN

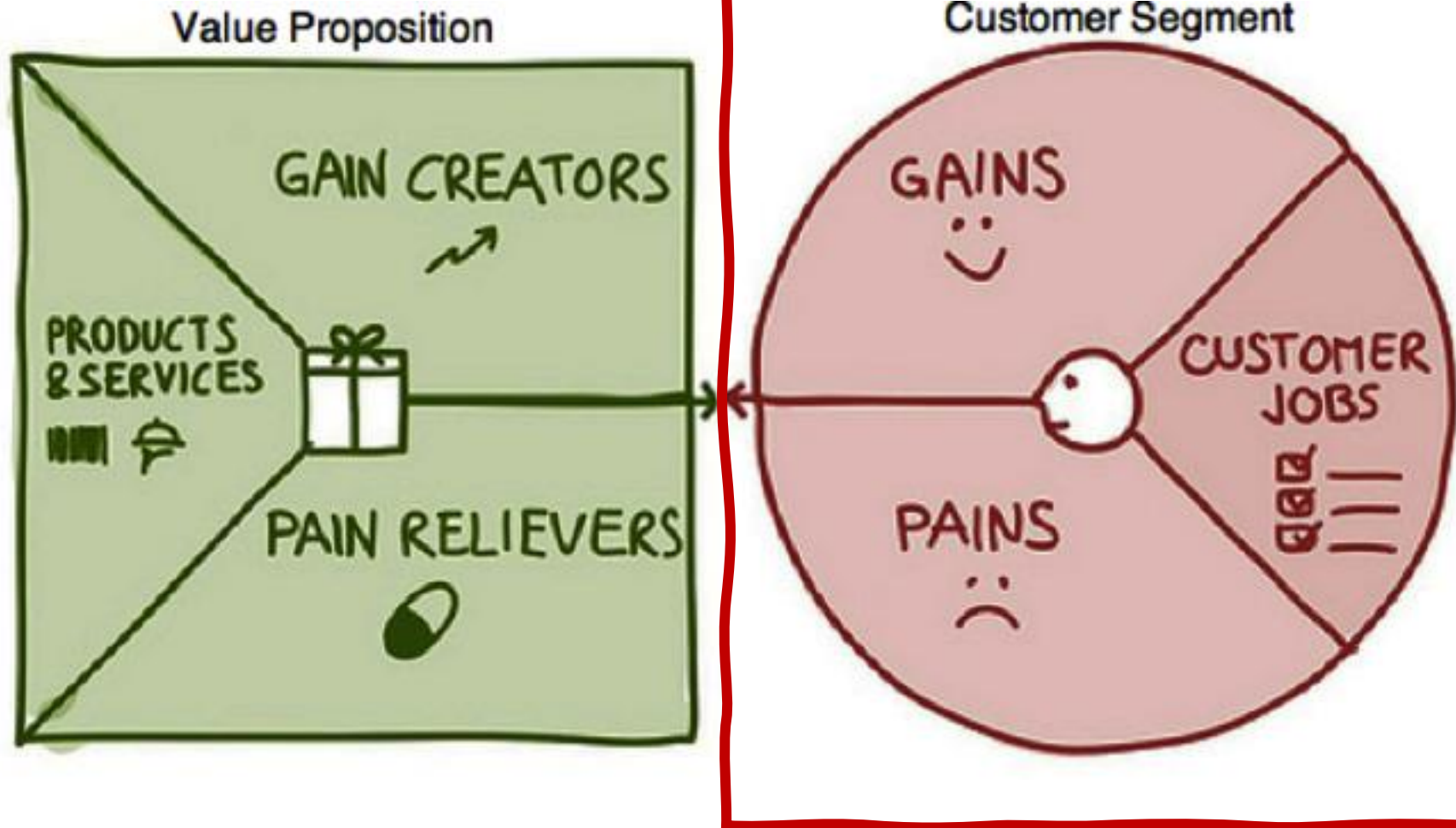
Value Proposition

Market & Commercial
Readiness

2.
Basic market,
regulatory, and
operational
environment
analysis, potential
applications and
competitive land-
scape identified.
Initial business
model and value
proposition.



Customer profile



Customer profile



1

Select customer segment.



2

Identify customer jobs.



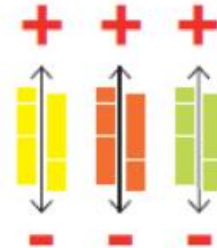
3

Identify customer pains.



4

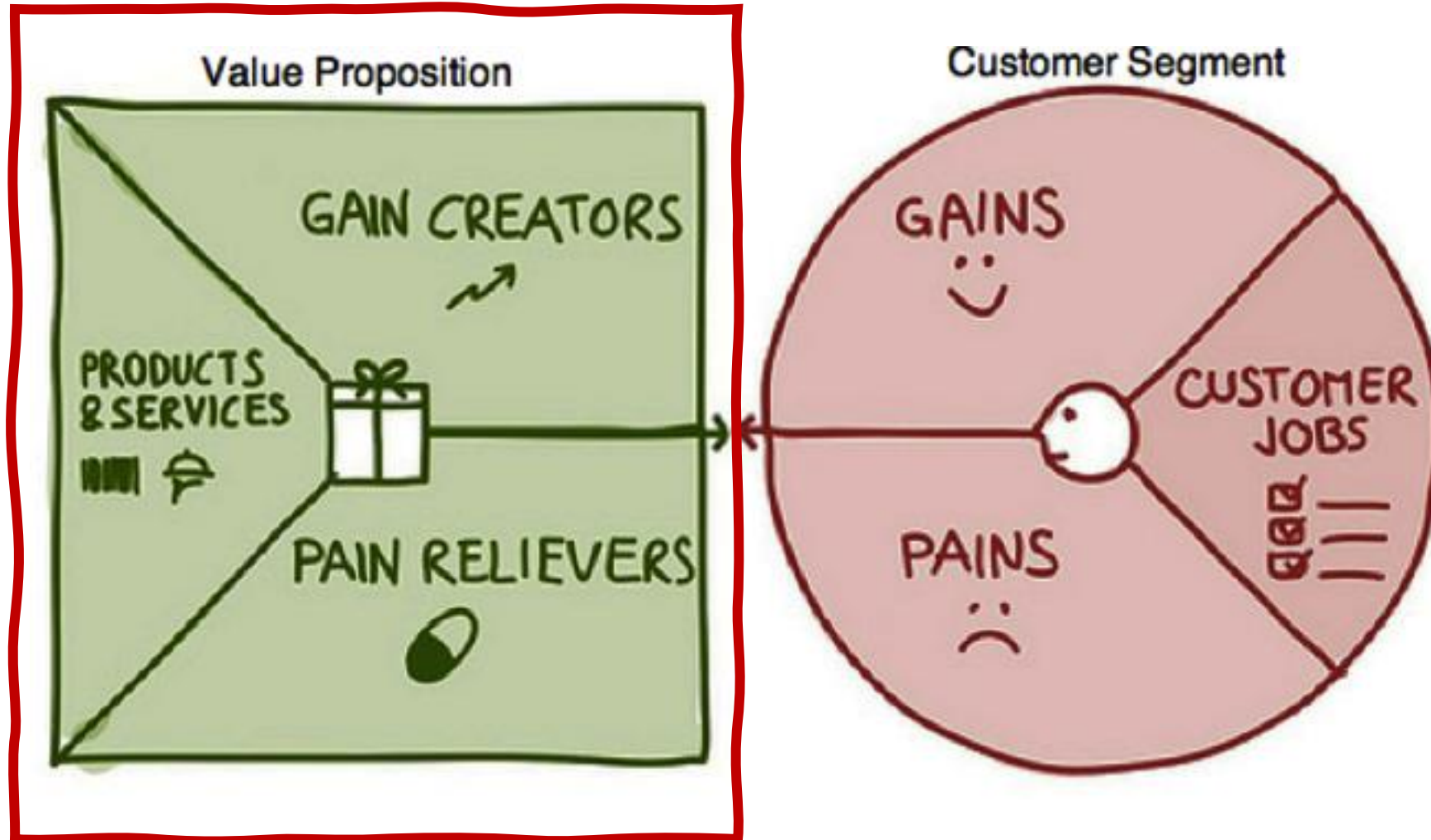
Identify customer gains.



5

Prioritize jobs, pains, and gains.

Value map



Value map



1

List products and services.



2

Outline pain relievers.



3

Outline gain creators.



4

Rank by order of importance.

Value proposition



VP describes the benefits customers can expect from your products and services.

Products & Services



A list of Products & Services you propose.

Physical/tangible

Goods, such as manufactured products.

Intangible

Products such as copyrights or services such as after-sales assistance.

Digital

Products such as music downloads or services such as online recommendations.

Financial

Products such as investment funds and insurances or services such as the financing of a purchase.

Pain relievers



Some questions to ask yourself:

Could your products and services

- produce **savings**?
- make your customers **feel better**?
- **fix** underperforming solutions?
- put an end to some **difficulties and challenges**?
- **eliminate risks** your customers fear?
- **limit common mistakes** customers make?
- **eliminate barriers** that are keeping your customer from adopting new products or services?

Gain creators



Some questions to ask yourself:

Could your products and services...

- **create savings** for your customers?
- **produce outcomes** your customers expect or that exceed their expectations?
- **outperform current value propositions** and delight your customers?
- make your customers' **work or life easier**?
- create positive **social consequences**?
- do **something specific** that customers are looking for?
- help make **adoption easier**?

3 elements of the Value Proposition

The concept of value proposition could be simplified into three following parts:

valuable, differentiated, and substantiated.

Each component helps to create a product or service which **not only meets end users' needs but also enhance the perceived value.**

Value proposition – Possible structure

Our (product/service category)
helps (target customers)
to (statement of need or opportunity)
by (product/service features/benefits).

Value Propositions Examples

CACTOS

Energy, but better

Cactus is the most **cost-effective** and **hassle free** electricity storage system on the market. It works automatically in the background, providing benefits to the client whilst stabilizing the national electricity grid at the same time. **Watch the video to see how Cactus works in practice.**



HOME ABOUT US SOLAR SOLUTIONS JOBS
RESOURCES CONTACT US

Our Value Proposition

We help organizations, government agencies and businesses transition to clean solar energy by removing the financial and technical constraints that can make this transition challenging.



WE PROVIDE TECHNICAL
GUIDANCE TO HELP YOU FIND
THE RIGHT SOLAR SOLUTION



WE INVEST IN ENERGY
INFRASTRUCTURE SO YOU CAN
ADOPT SOLAR WITHOUT
UPFRONT CAPITAL



WE STREAMLINE OPERATIONS
SO YOU CAN FOCUS ON WHAT
THEY DO BEST

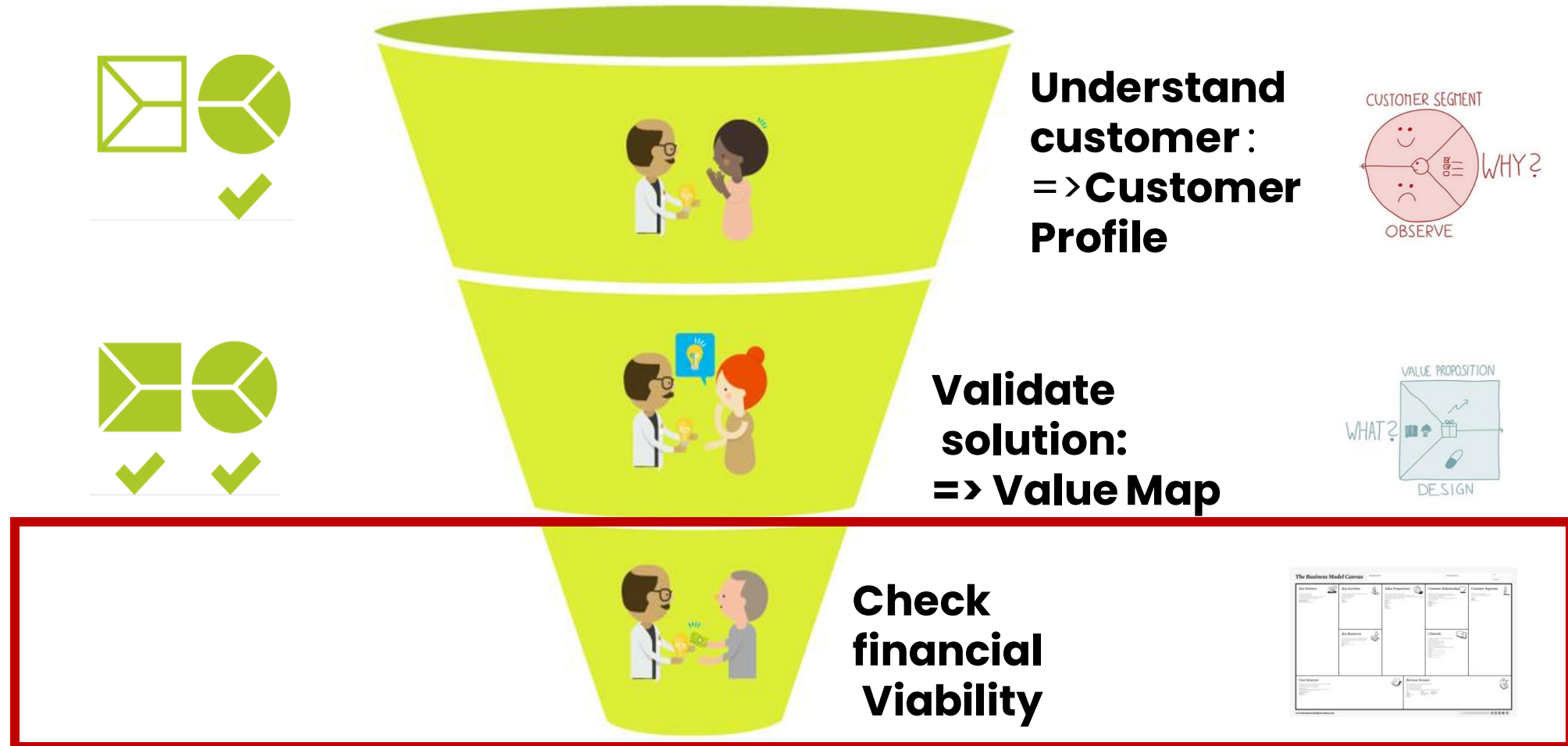
BUSINESS PLAN

Business Model

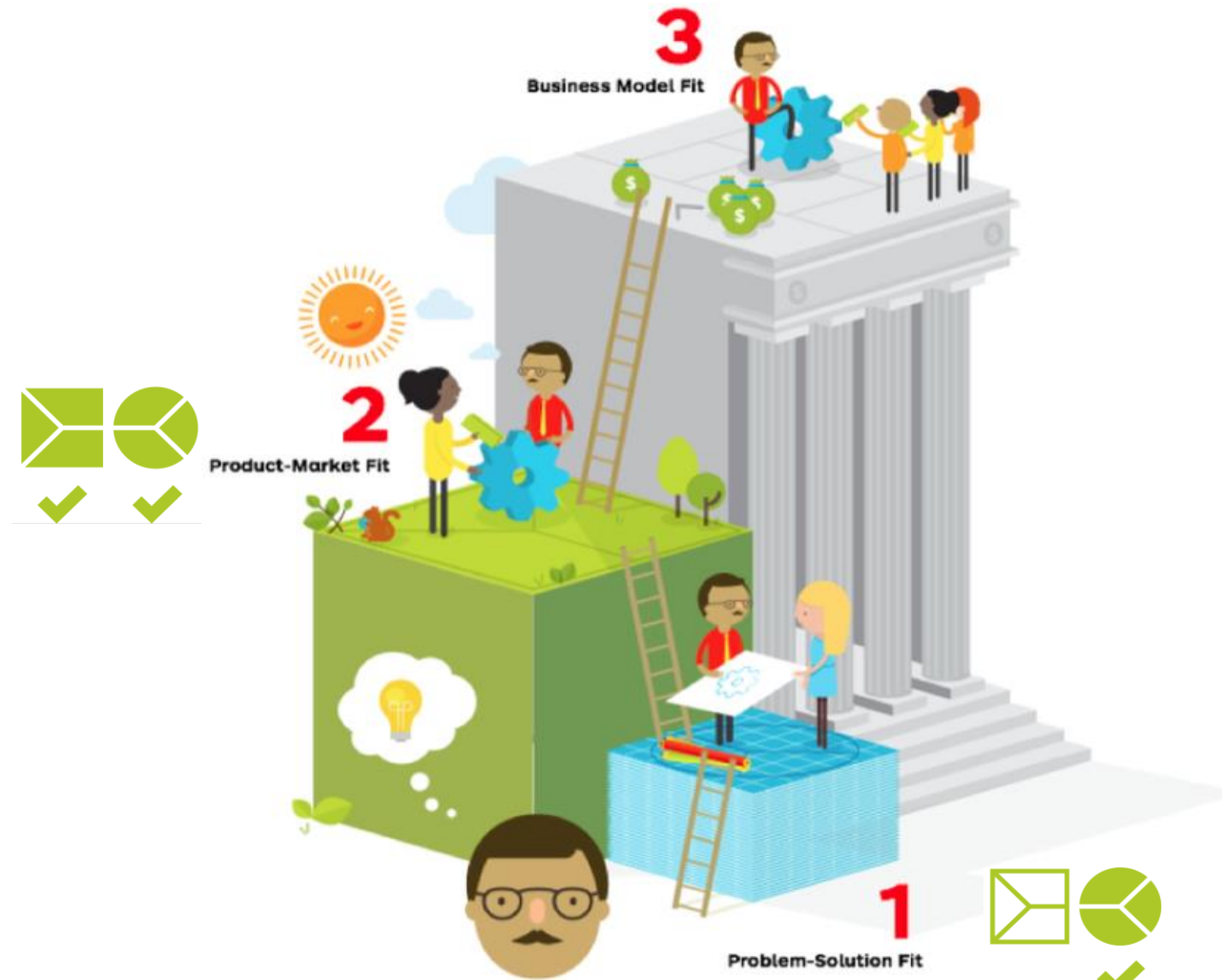
Market & Commercial
Readiness

4.
**Preliminary
business plan:
overview of
income/cost
generation,
supply chain
requirements,
distribution, and
target markets.
Overview of
investment
needs.**

Roadmap of innovation



Business Model fit



Source: Osterwalder (2010), *Business Model Generation*

What is a Business Model?

A vertical orange bar is positioned to the left of the definition text.

**A business model describes
the rationale of how an organization
creates, delivers, and captures value.**

Österwalder, A. & Pigneur Y.,
Business Model Generation, 2010.

Business Models Examples



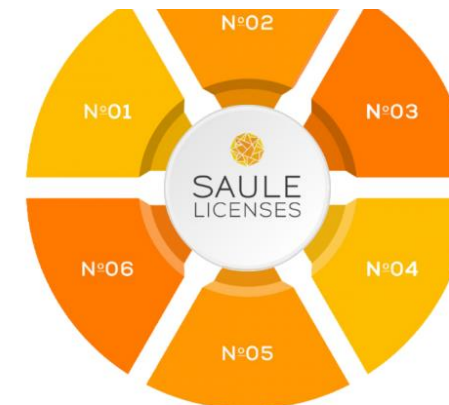
The new generation of fully printed solar cells



Product Licences

Get access to exclusivity in perovskite-based solutions.

Saule Technologies is the first company to develop, produce and commercialize flexible perovskite solar cells. But we go one step further. With our engineers, we create products and application areas available for licensing.



Business Models Examples

stem

SOLUTIONS

Energy Storage

Generate More Revenue and Decrease Energy Costs

The company offers customers (1) on-site installation of batteries integrated with (2) cloud-based predictive software that constantly monitors energy use and costs, making real-time cost-based decisions for the customer on when to draw power from the grid versus batteries [3].

Stem offers financing for business customers that do not want to pay upfront for the battery and software system but prefer to pay for the benefits over a three-year financing term. Effectively, the monthly cost to finance the system installation is less than half of the energy cost savings created by the Stem system.

Business Model building blocks

01

Customer Segments (CS)

02

Value Proposition (VP)

03

Channels (CH)

04

Customer Relationships (CR)

05

Revenue Streams (RS)

06

Key Ressources (KR)

07

Key Activities (KA)

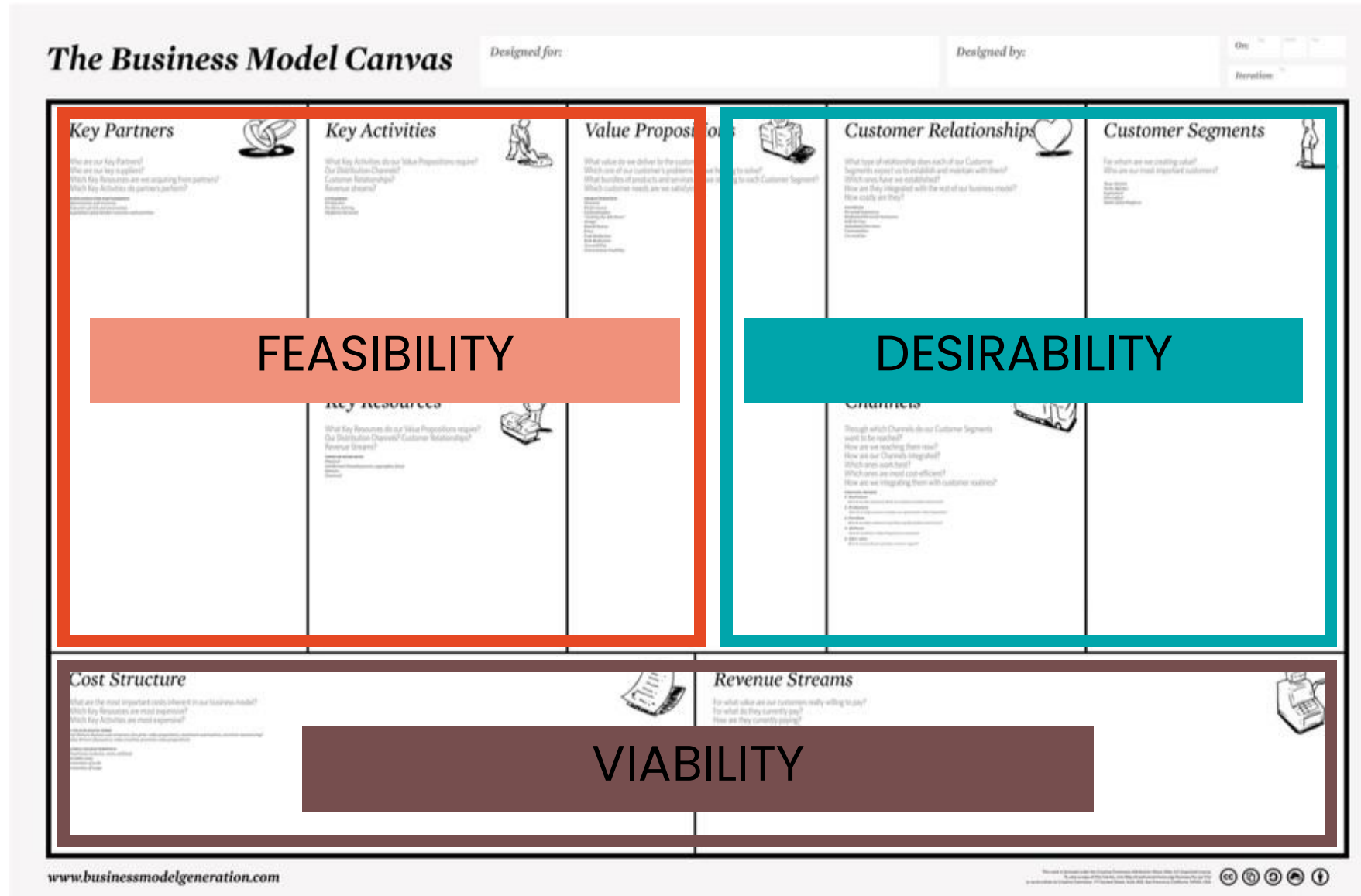
08

Key Partners (KP)

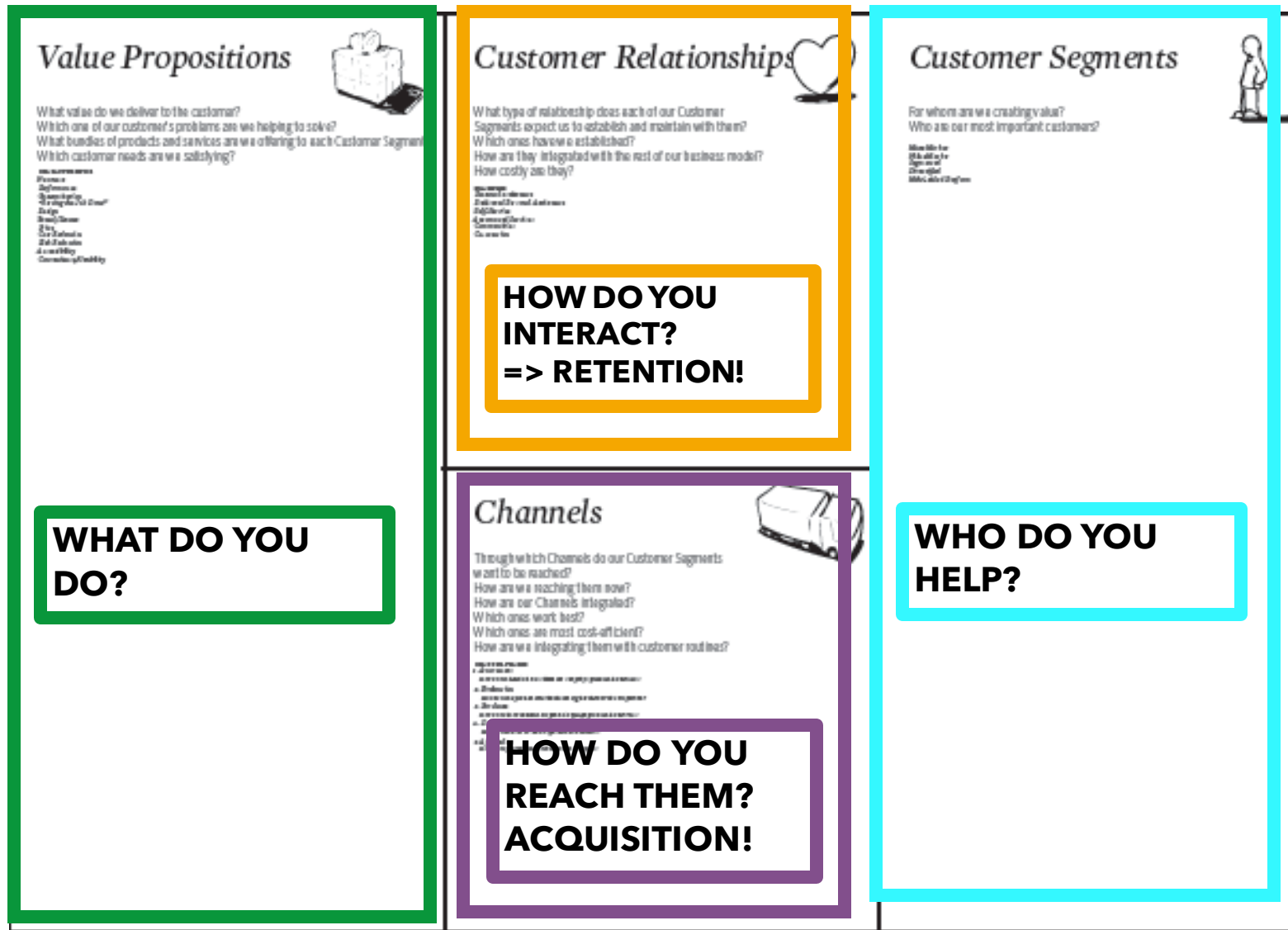
09

Cost Structure (CS)

Business Model Canvas



Some questions to ask



Steps to create your Business Model

Mobilize

Prepare for a
business model
design project

Understand

Analyse
elements
needed for the
business model
design

Co-design

Generate and
test business
model options,
select the best
ones

Implement

Implement the
business model
prototype in the
field


Manage

Adapt and
modify the
business model
in response to
current needs


















Source: Business Model Generation, 2010

Innovation Project Scorecard

Innovation Project Scorecard



strategyzer.com

Strategic Fit		Alignment				
	CORPORATE IDENTITY Our idea/project is aligned with our corporate identity (strategic direction, organizational culture, brand image).	None 0	Little 1	Limited 5	Strong 10	Very strong 10
	INNOVATION GUIDANCE Our idea/project is aligned with our company's innovation guidance.	0	1	5	10	10
	LEADERSHIP SUPPORT Our idea/project has support from at least one key sponsor who can help it become reality.	0	1	5	10	10
Opportunity		Value				
	We understand the financial potential of our idea.	0	1	5	10	10
Risk Reduction		Evidence & Confidence				
Desirability		Evidence & Confidence				
		There is no evidence at all	There is evidence from more than one experiment	There is very strong evidence from several experiments*		
	CUSTOMER SEGMENT Our critical customer segments have the jobs, pains, and gains relevant for selling our value proposition.	0	1	5	10	10
	VALUE PROPOSITION Our value proposition resonates with our critical customer segments.	0	1	5	10	10
	CHANNELS We have found the best channel(s) to reach and acquire our critical customer segments.	0	1	5	10	10
	CUSTOMER RELATIONSHIP We have developed the right relationships to retain customers and repeatedly earn from them.	0	1	5	10	10
Feasibility		Evidence & Confidence				
	KEY RESOURCES We have the right technologies and resources to create our value proposition.	0	1	5	10	10
	KEY ACTIVITIES We have the right capabilities to handle the most critical activities for creating our value proposition.	0	1	5	10	10
	KEY PARTNERS We have found the right key partners who are willing to work with us to create and deliver our value proposition.	0	1	5	10	10
Viability		Evidence & Confidence				
	REVENUES We know how much our customers are willing to pay us and how they will pay.	0	1	5	10	10
	COSTS We know our costs for creating and delivering the value proposition.	0	1	5	10	10
Adaptability		Evidence & Confidence				
	INDUSTRY FORCES Our idea/project is well positioned to succeed against established competitors and new emerging players.	0	1	5	10	10
	MARKET FORCES Our idea/project takes known and emerging market shifts into account.	0	1	5	10	10
	KEY TRENDS Our idea/project is well positioned to benefit from key technology, regulatory, cultural, and societal trends.	0	1	5	10	10
	MACROECONOMIC FORCES Our idea/project is adapted to known and emerging macroeconomic and infrastructure trends.	0	1	5	10	10

*At least one experiment of the several conducted must be a call-to-action test

https://global-uploads.webflow.com/64830736e7f43d491d70ef30/64c7bd8dbbe971000a2290b3_Innovation-Scorecard-2023.pdf

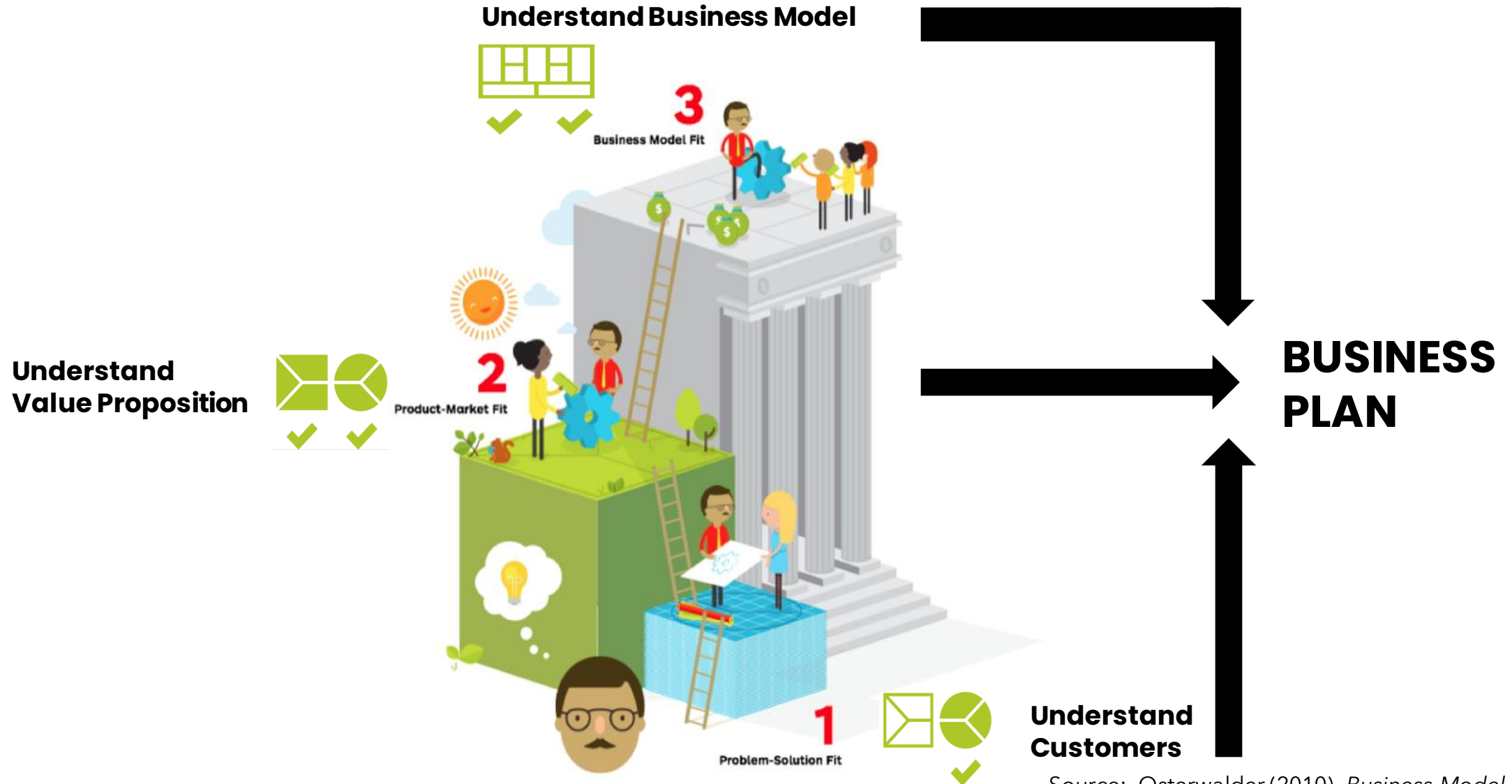
BUSINESS PLAN

From Business Model to Business Plan

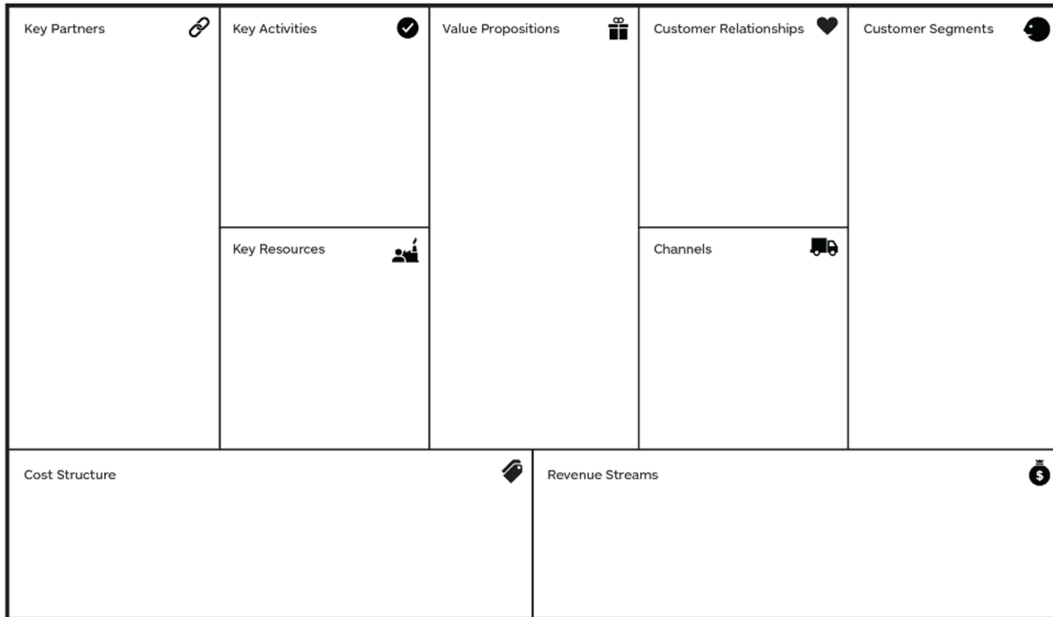
Market & Commercial
Readiness

4.
**Preliminary
business plan:
overview of
income/cost
generation,
supply chain
requirements,
distribution, and
target markets.
Overview of
investment
needs.**

Business Model fit



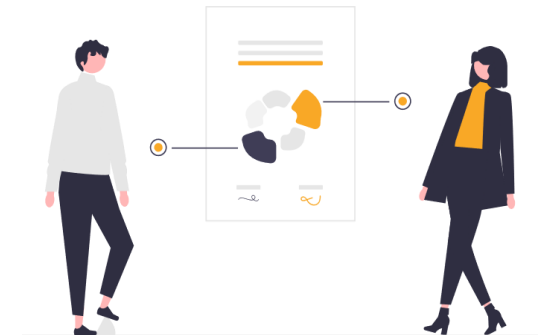
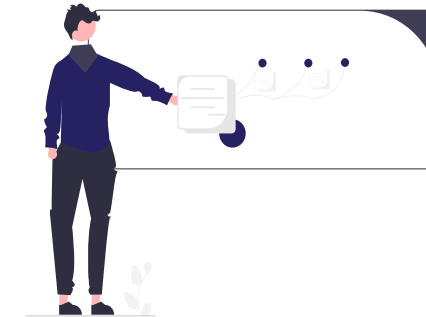
Business Model > Business Plan



The business model is the company's way of creating value, while **the business plan is a document** setting out the company's strategy and financial implications for the coming years. Thus, **the business model is a part of the business plan.**

Business Plan for RDI projects

- Scouting for commercialization partners
- Financial viability demonstration
- Attracting partners and investment



BUSINESS PLAN

Business derisking strategies
› Team and skills needed
to turn the innovation
into a profitable business

Key barriers in business derisking

Tackling problems that are interesting to solve rather than those that serve a market need was cited as the №2 reason for failure, noted in 35% of cases.

Source:

Max Zhiltsov, 2023. *35% of startups are failing due to missing the Product-Market fit. How to find one?*.

Medium

What are the key barriers in business derisking ?

Regulatory compliance

- Energy sector is highly regulated.
- Compliance often takes the longest time in commercialization.

Intellectual property management

- Complex negotiations between researchers, universities, and commercial entities.
- Critical for protecting innovation and ensuring fair agreements.

Business planning

- Drafting a compelling and feasible business plan.
- Essential for securing investment and stakeholder support.

Partnerships and stakeholder engagement

- Convincing partners to support and participate in demonstration projects.
- Building a network of stakeholders for support and investment.

Product-market fit

- Validating and demonstrating the product/solution with relevant societal stakeholders and end-users.
- Achieving evidence for a good product-market fit is crucial, 35% of start-ups fail due to the lack of a suitable customer base.

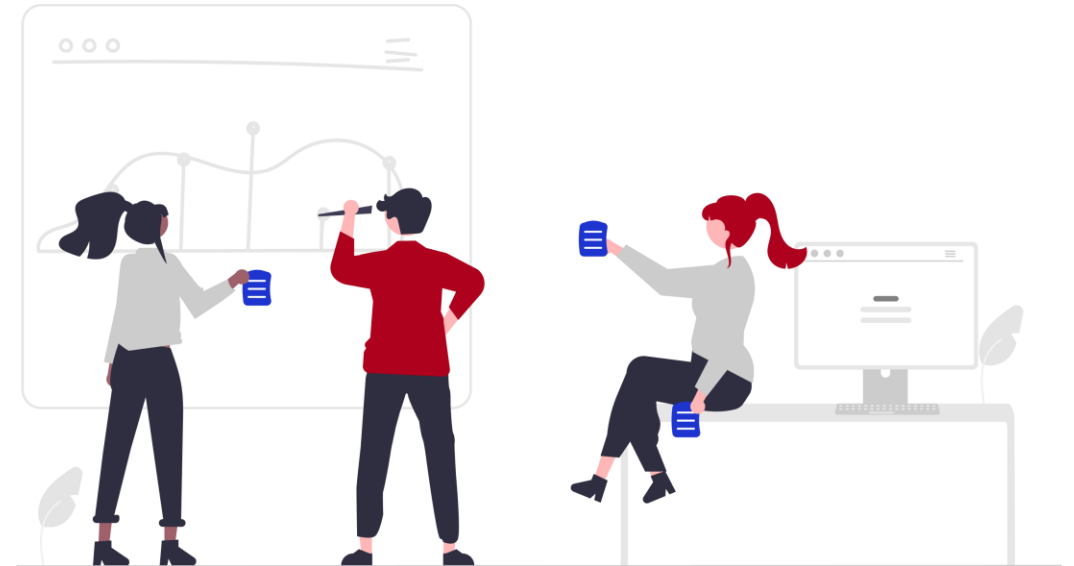


Why do we need to build a dedicated team?

**Investors never invest in projects, only
in products and teams.**

Options for researcher and team formulation in commercialization

1. **Assembling a diverse team** (Researcher, Technology Transfer Officer)
2. **Partnering with external entities**



Options for researcher' Involvement



Team skills needed to turn the innovation into a profitable business



Photo by [Vlad Hilitanu](#) on [Unsplash](#)

- **Experts in relevant fields**
- **Regulatory Experts**
- **IP Specialists**
- **Legal Advisors**
- **Business Developers**
- **Project Managers**
- **Stakeholders Relations Managers**
- **Technical Experts**
- **Market Analysts**
- **Technology Transfer Specialists**

BUSINESS PLAN

Business derisking strategies
› Partners & how to find them

Type of potential partners

- **Industry leaders** in energy technology and production
- **Research institutions and universities** specializing in energy studies
- **Government bodies** and regulatory agencies
- **Non-governmental organizations** (NGOs) focused on sustainability and energy
- **Venture capitalists and investors** interested in green energy



Strategies for finding partners

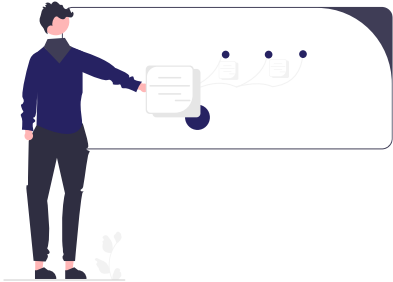
Networking

- Attend industry conferences, seminars, and workshops
- Join energy sector professional associations



Leveraging communication and dissemination

- Develop best practices use cases to show your experience (video, publications, etc.)
- Participate in online forums and virtual conferences



Engagement with Innovation Hubs :

- Collaborate with technology incubators and accelerators
- Engage with startup ecosystems focused on your topic



Evaluating potential partners

Alignment of goals

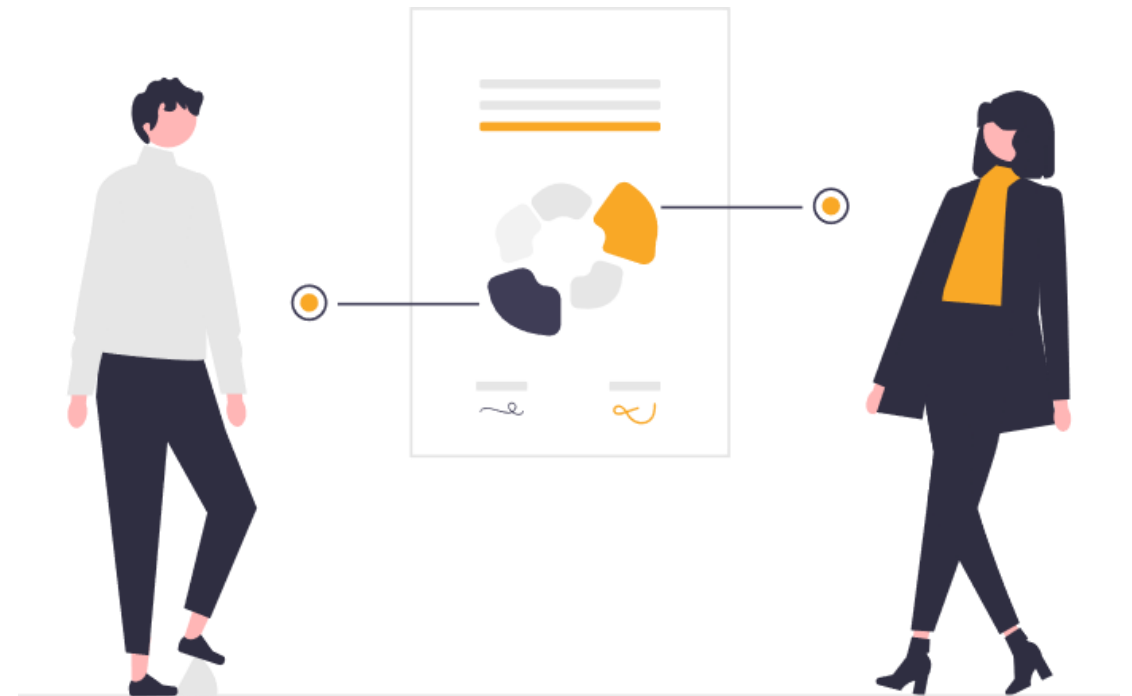
- Ensure alignment of strategic objectives and values

Capability and resources

- Assess technical capabilities and resource availability

Previous collaborations

- Review past project successes and industry reputation



3. DEMONSTRATION & UPSCALING

Market & Commercial
Readiness



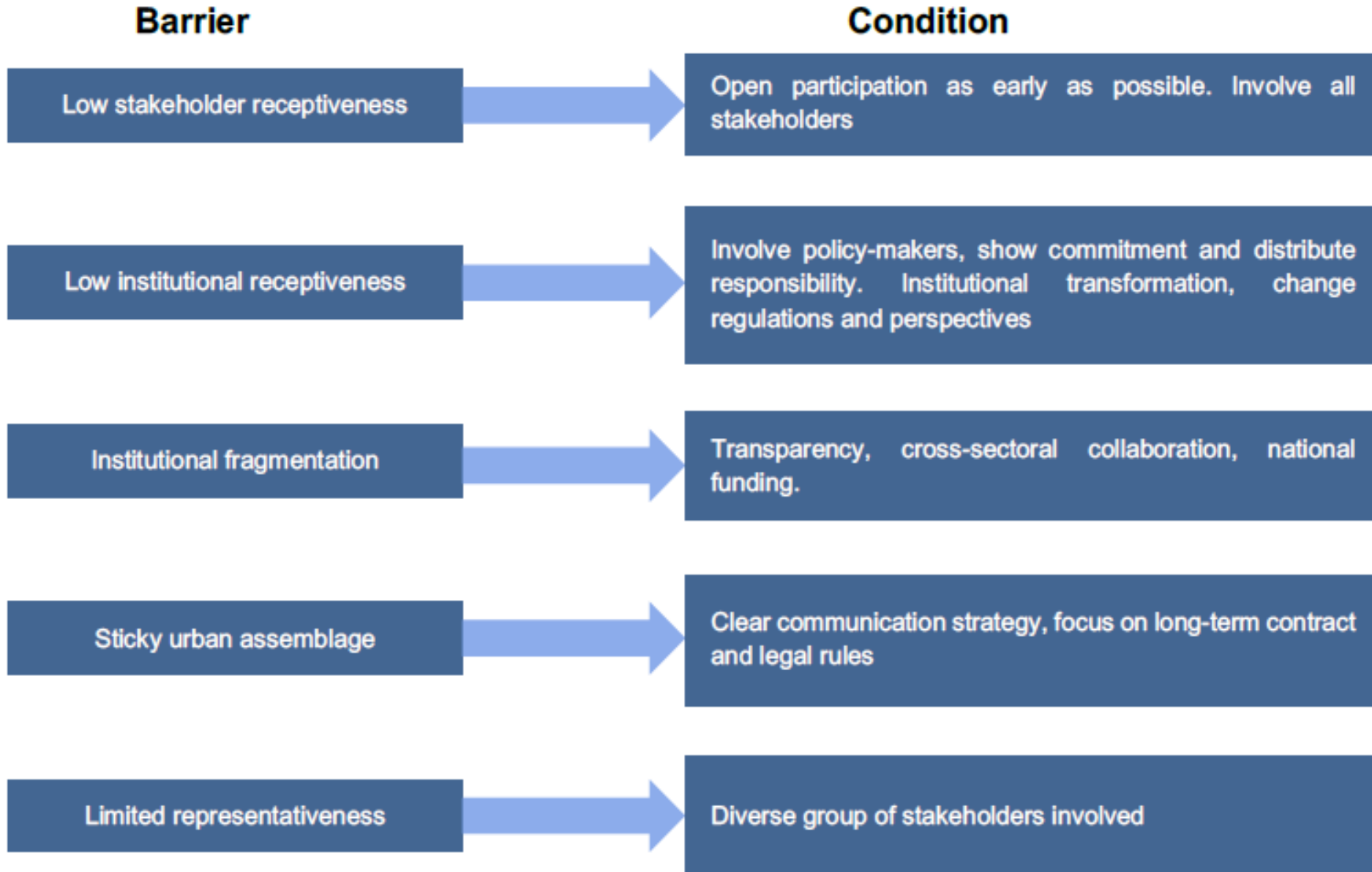
Why does demonstration matter ?

- Allows to have **support of industrial partners by showcasing solutions and demonstrating their commercial viability.**
- **Transforms concepts and prototypes into practical applications.**
- **Provides a testbed for refining innovation** based on actual use and feedback, leading to continuous improvement.



Example of the NEST infrastructure in Switzerland

Barriers & Conditions to enable upscaling



Adapted from van der Wal, J. (2021)

INTERACTIVE ACTIVITY

Q & A

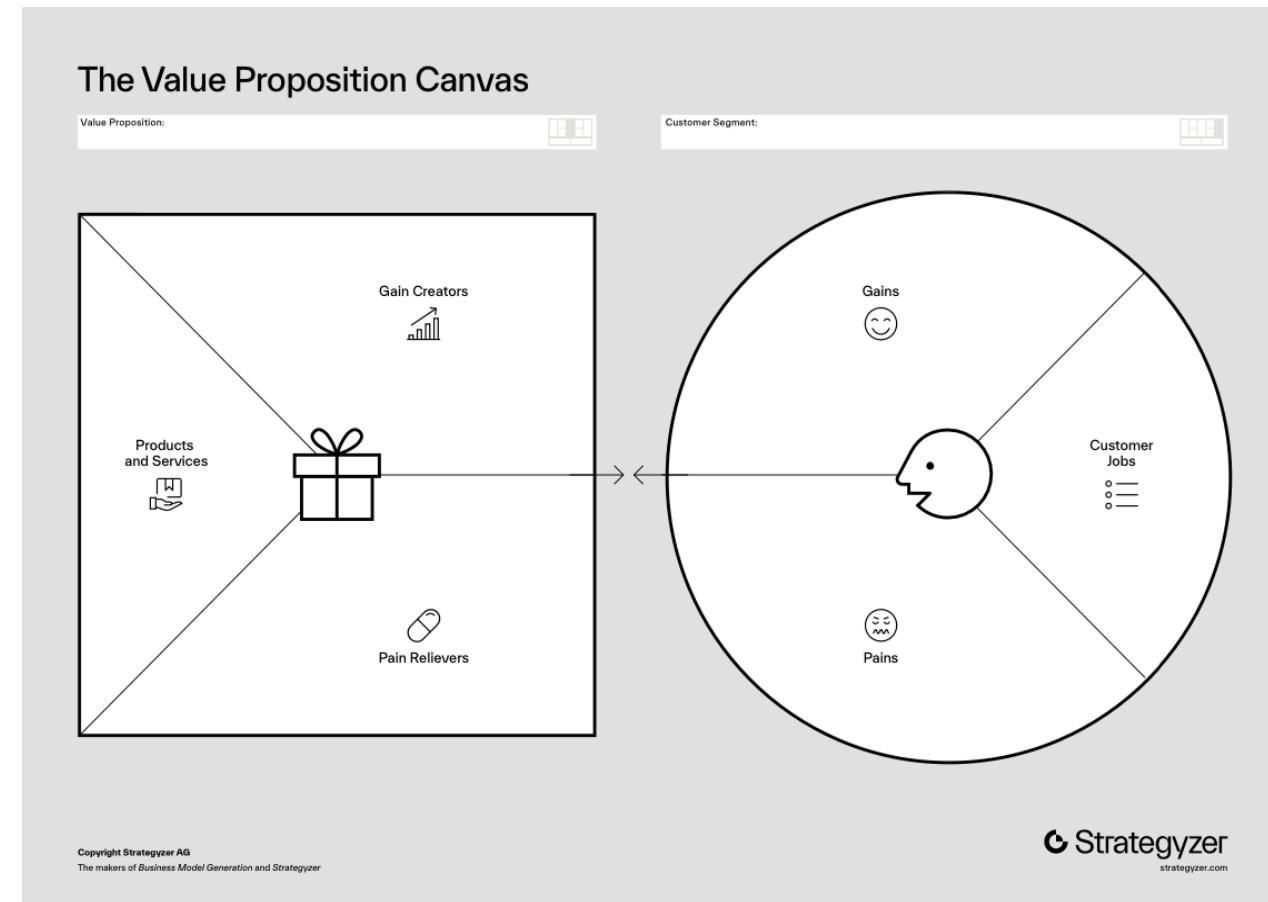


Photo de [Jon Tyson](#) sur [Unsplash](#)

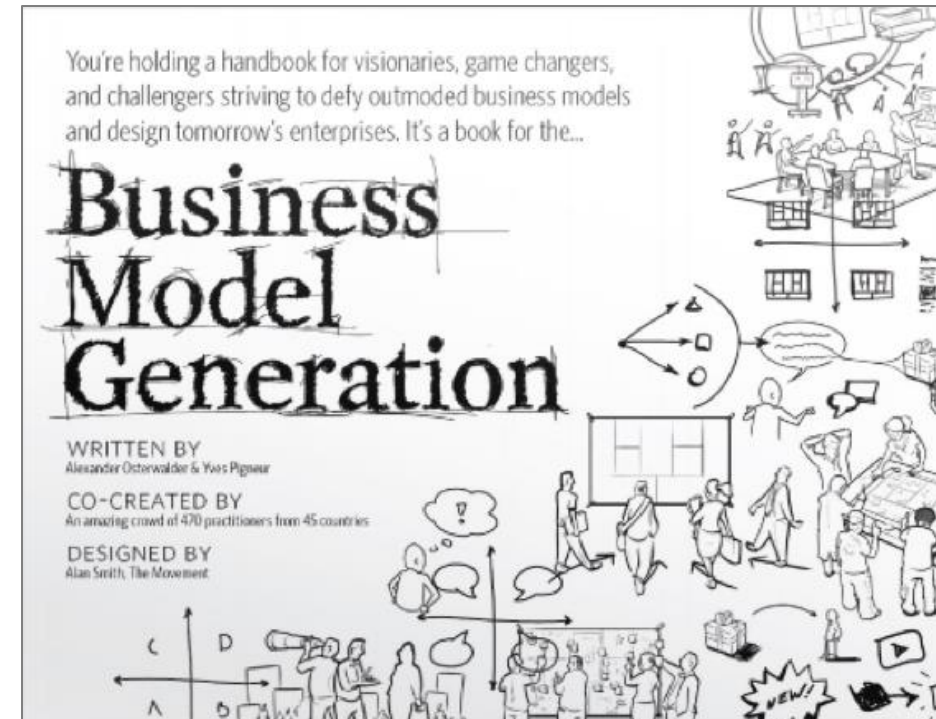
Interactive activity – Define your unique Value Proposition!

Connect to the Miroboard

<https://shorturl.at/BORU1>



Sources



Intellectual Property



This content (slides, texts, video, audio) is licensed under
Creative Commons Attribution-ShareAlike (CC BY-SA) 4.0 License.

[More info](#)

However, the license of the specific external resource(s) referred to in this presentation might differ from CC BY-SA 4.0 license and therefore needs to be checked before remixing, adaptation, or other kinds of reuse.

Contact us for methodological support for your project!

Energy Living Lab Association
Email : info@energylivinglab.com
Website: <https://energylivinglab.com/>

