THE CLIMATE DEVIL'S ADVOCATE

A cards game

Co-design market-ready climate services

Instructions

Some preliminary remarks

The transition towards a zero-carbon economy is reshaping the business-as-usual. Climate services are risk management tools: they offer data products and tailored information and they allow the user to take climate-smart decisions. Thanks to the unprecedentedly fast scientific progress, practitioners, researcher and even companies can now offer bespoke indicators and metrics to signal where climate can be hostile to productive activities. This approach puts the future risks into present considerations, preventing losses and increasing the profit margin.
And works for every sector around the globe.
Despite the growing interest around climate risk management tools and the flourishing development of a niche market at global level, the uptake of climate services is still low. There may be different concurring reasons to explain the "usability gap". One of them is the inadequacy of the business model used (Brasseur and Gallardo 2016).
Business models are simplified representations of the logic behind the actions of each company and organization. They help interpreting the value of the service and how it is created, detained and delivered. They are narratives able to signal market advantages. They are also unifying frameworks that capture the process behind the value creation.
The Climate Devil's Advocate is a game that guides the development teams along the business model creation process. It works in steps and uses tools and insights from different disciplines ranging from international management to sociology.
The game triggers a virtuous loop that transforms "useful into usable science".
By doing so, the Climate Devil's Advocate unleashes the potential of the climate service and supports the marketability and the sustainability of each innovation.
The Climate Devil's Advocate includes three main components:

1. The revised Business Model Canvas, to sketch the business model of each climate service

2. The Cards Game, to detect barriers and opportunities behind each value proposition

3. The Three Horizons Framework, to imagine and plan the future wisely
The materials are the result the two-year work carried on in the CLARA (Climate forecast enabled knowledge services) project, funded under the Horizon2020 framework of the European Commission.

This manual guides the users of the game and offers some technical and scientific insights for the most interested of you.

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[1] William D. Eggers and Anna Muoio, Wicked Opportunities, Deloitte University Press, April 16, 2015

The
Climate Devil's
Advocate
is based on
co-creation
to solve
complex and
multistakeholder
challenge

How to play

The Climate Devil's Advocate is designed as a team game. Tools can be used by the individual practitioner. However, brainstorming and ideas exchange make the most of the potential behind each component. In fact, **the Climate Devil's Advocate is based on co-creation** to solve complex and multistakeholder challenge: intertwined and often contradictory interests (the so-called *wicked problem[1]*) are the core of climate services. There is no unique solution. **Co-creation is the process through which multiple stakeholders get involved, develop alternative pathways to solutions and find the most effective way to unlock the potential behind the climate service.**

Workshops and focus groups are the best venues to test The Climate Devil's Advocate. By using subsequentially all the three components, the team will develop its own climate service-specific business model to satisfy the needs of the providers, the users' requirements and the market characteristics. The more diverse the set of actors involved in the group, the better. By making critical points explicit, participants can interact and collectively find a novel way to approach the development and marketability of the climate service.

Inside the process: a stepwise approach

The Climate Devil's Advocate includes three main steps that use related tools:
　　　　1. **Sketch** – Business Model Canvas revised
　　　　2. **Solve** – the cards + board
　　　　3. **Imagine** – the Three Horizons Framework

These steps are imagined in sequence, but the process can stop anytime depending on the needs of the group.

Sketch refers to the initial phases of the business model creation. It allows the team to set the milestones by using a visual way to describe nine eleven blocks around which each climate service operates.

Solve looks at bottlenecks and barriers that different services face. Our empirical research proved business models for climate services mainly work using three pattern groups[2]: Service&Perfomance, Access Provision and Supply Chain (you will find details in Section 2). These groups face product, process, market, organizational and input barriers that limit the marketability of climate services. Each barrier type has an impact on the success of the innovation[3]. That is why barriers type have a specific color code (more in Section 2).

Image is a window into the future: it allows the groups to project the climate service and its reference market into the future. The Three Horizons Framework – adapted to this specific industry – forces the teams to look into the medium term (5 years) and to design the optimal conditions to move into the transition from the status quo. This process makes sustainability visible in the present.

[2] Lüdeke-Freund, F.; Carroux, S.; Joyce, A.; Massa, L. & Breuer, H. (2018): The Sustainable Business Model Pattern Taxonomy – 45 Patterns to Support Sustainability-Oriented Business Model Innovation, Sustainable Production and Consumption, Vol. 15, pp. 145-162.

[3] Schumpeter, J. A. (1989) Essays : on entrepreneurs, innovations, business cycles, and the evolution of capitalism. Transaction Publishers.

A stepwise process to understand the present and imagine the future

The business model canvas (section 1)

Understanding business models

Business models for climate services are (BM4CS) entail the evolving logic of an organisation to co-create value with its users so as to promote innovation and support decision-making through the transformation of climate data into bespoke knowledge services. They are narratives and ways to describe how value is created, captured and shared. Business models are not just frameworks to lead the entrepreneur to success, but also the devices to bring concepts and ideas to life. Business models and strategy are often confused, but they are not equivalent: business models are the tools to reflect the strategic choices of an organisation and they enable the understanding of casual links that each strategy can trigger.

Business models are – generically speaking – structured around two central elements: the value proposition and the operating model. The value proposition responds to the "what" question, while the operating model reflects considerations around the "how". The value proposition indicates the choices on what is offered. The operating model describes the process that links customers' demand to service developer's supply (Figure 1)
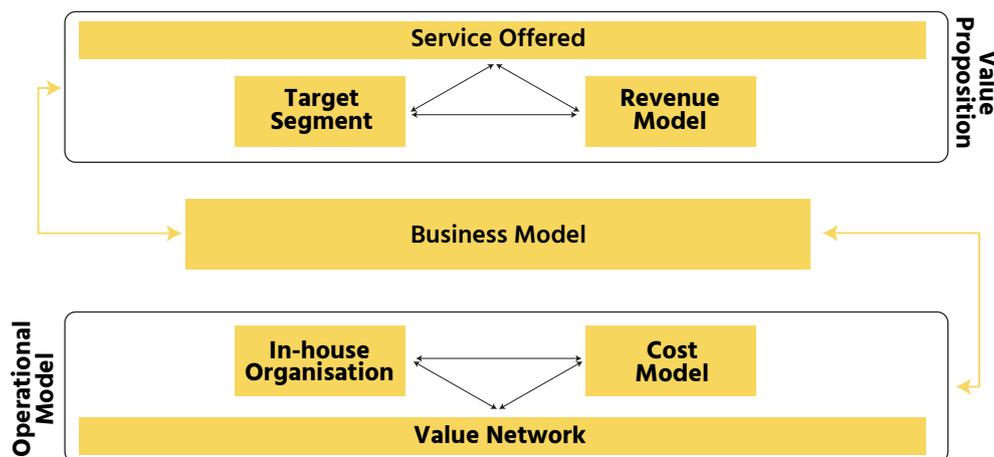
The business model canvas

The Business Model Canvas (BMC) is the complexity-reducing visual tool that allows the development teams to sketch the core pillars of their climate service. The BMC included in this game is the first step of the whole process and represents a revised version of the traditional and original canvas.

The BMC is described by nine building blocks, which describe the objectives and functioning of the climate service. **The value proposition** represents a promise for the future and it includes the value that business services intend to offer, deliver and communicate to targeted users. Despite their good ideas, most start-ups and companies fail in delivering the intended service because they place too much attention on the "concept" itself, without exploring the potential performances of the idea on the selected market. While brainstorming on the prototypes, one should shift from the "useful" to the "usable" paradigm, revolutionising their perspective and putting users' needs at center. To guide the collective brainstorming, the following set of questions can be used:

- What do I offer to my user?
- What are the goals of the climate service?
- Is the service new? Why?
- What are the key strengths and novelty factors that make
  my climate service useful and attractive to the user?

The customer segment includes three blocks: customer relationship, channels and customer segments. Here, the brainstorming allows reflecting on how we intend to reach the user. It also focuses on who the user is and how the reference market can be fragmented. A set of guiding – but not exhaustive - questions are proposed below:

Question	Section
For whom is the climate service designed?	Customer Segment
Who are the most important customer for the climate service to succeed?	Customer Segment
What type of relationships does each customer segment expect from us?	Customer Relationships
How often should we communicate with the user?	Customer Relationships
What channels is the climate services currently using to reach the target user?	Channels
Are we sure users want to be reached in this way? Do we know their preferences?	Channels
Are different channels activated to communicate with the user? Are these different channels integrated and established in the user routine?	Channels

The Partners block includes Key Partners, Key Activities and Key Resources. This crucial area comes as the customer/user segment has been defined. Given what we intend to deliver (our Value Proposition) and users' needs and requirements, we are brainstorming now on how we can move from theory to practice. We reflect upon the resources at our disposal and the partners and stakeholders supporting the development of our core activities. It is common here to make mistakes and con- fuse between key activities and value proposition. Key activities are tasks required to achieve the value creation process and fulfil the value proposition. If our climate service delivers flood risk assessment in the medium and long run (value proposi- tion), one Key Activity could be the development of spatially-explicit forecasts and the establishment of quality assurance procedures. Examples of guiding questions are provided below:

Question	Section
What Key activities does the Value proposition require, given the Customer Segment?	Key Activities
Who do we need to meet our target and reach the user?	Key partners
Who are the key suppliers and input providers?	Key partners
What kind of physical, technological, financial and human resources do we need to deliver?	Key Resources

The financial structure is apparently the simplest one. It includes costs and revenues associated to the climate service. In costs, the development teams should carefully consider both the fixed and the variable expenditures, taking into account the capital requirements in the startup phase. Within revenues, it is good practice to differentiate between the different tools offered on the market per user. User segments can pay differently for the same feature of the climate service. It is the case of those hybrid license-based services offering ad-hoc and on-demand consultancy services. These two streams of work generate different revenues and should be described in the "Revenue Streams" block of the BMC. At this stage, it is convenient to reflect upon the nature of the climate service: is it cost-driven or value-driven? Cost-driven businesses us the production costs as the cornerstones for pricing. In other words, the cost floor and ceiling are set taking into account the costs. These business models adjust the price depending on the market conditions. It is the case of those companies applying an extremely low price for the products they produce, or trying to lower the price floor by lowering their costs. Value-based climate businesses consider the value the service/product introduces, as opposed to the costs. To do this, economic evaluation becomes the core of the business model: by estimating the value generated for a specific user, the climate service can set its pricing strategy. Some of the questions that can guide the conversation to populate the section's canvas are:

- What are the most important costs to make the climate service operational and running?
- What key resources are more expensive?
- What key activities are more expensive?
- Is the climate service cost-driven or value-driven?
- For what users are willing to pay?
- For what users do currently pay?

The business model canvas

How to play

• **Elect a moderator**. She/he will guide the participants throughout this and the following steps. She/he has the responsibility to stimulate the brainstorming and to select the important points the brainstorming generates.
• **Print the revised BMC**. Use the A3 or A0 format.
• Brainstorm with your team about each block of the canvas.
• Use post-its or take notes directly on the printed BMC.
• **Proceed in the following order**:
Value proposition, Customer section (includes Customer Relationships, Channels and Customer Segments), Partners sections (includes Key Partners, Key Activities and Key Resources) and Financial Structure section (includes Cost Structure and Revenues Streams). Leave "Barriers" and "Opportunities" behind for the moment.
You will come to this BMC again at the end of Section 2.
How much time: 1 hour

Sketch

The revised business model canvas

The Business Model Canvas presented in the previous section can be challenging in the initial development phases of the climate service. To reduce the complexity of this step, we created a simplified version for you. This revised BMC entails five sections only and follows the same logic of the original one.
To fill this revised BMC, you will need to follow the numbers presented in the figure below.
The Value Proposition represents the core strategic pillar of the tool. It guides developers in the definition of the goals and the objectives of the climate service, by tackling two fundamental questions:

• What benefits does the CS introduce?

• What pains and bottlenecks does the CS try to solve?

Defined the **Value Proposition**, it is essential to address the type of users and **channels** through which each segment is reached. The understanding of each user typology, characteristics and communication needs and style leads to the identification of the key activities and the scientific requirements that build the climate service. The bulk of the revised BMC lies in the **Value Network**. This section explores how stakeholders, partners and interested agents can support the development first and deployment then of the climate service. It aims at understanding the role of both internal and external forces capable of boosting the uptake of the service. The **financial requirements** mostly looks at costs, rather than digging into the revenue structure.
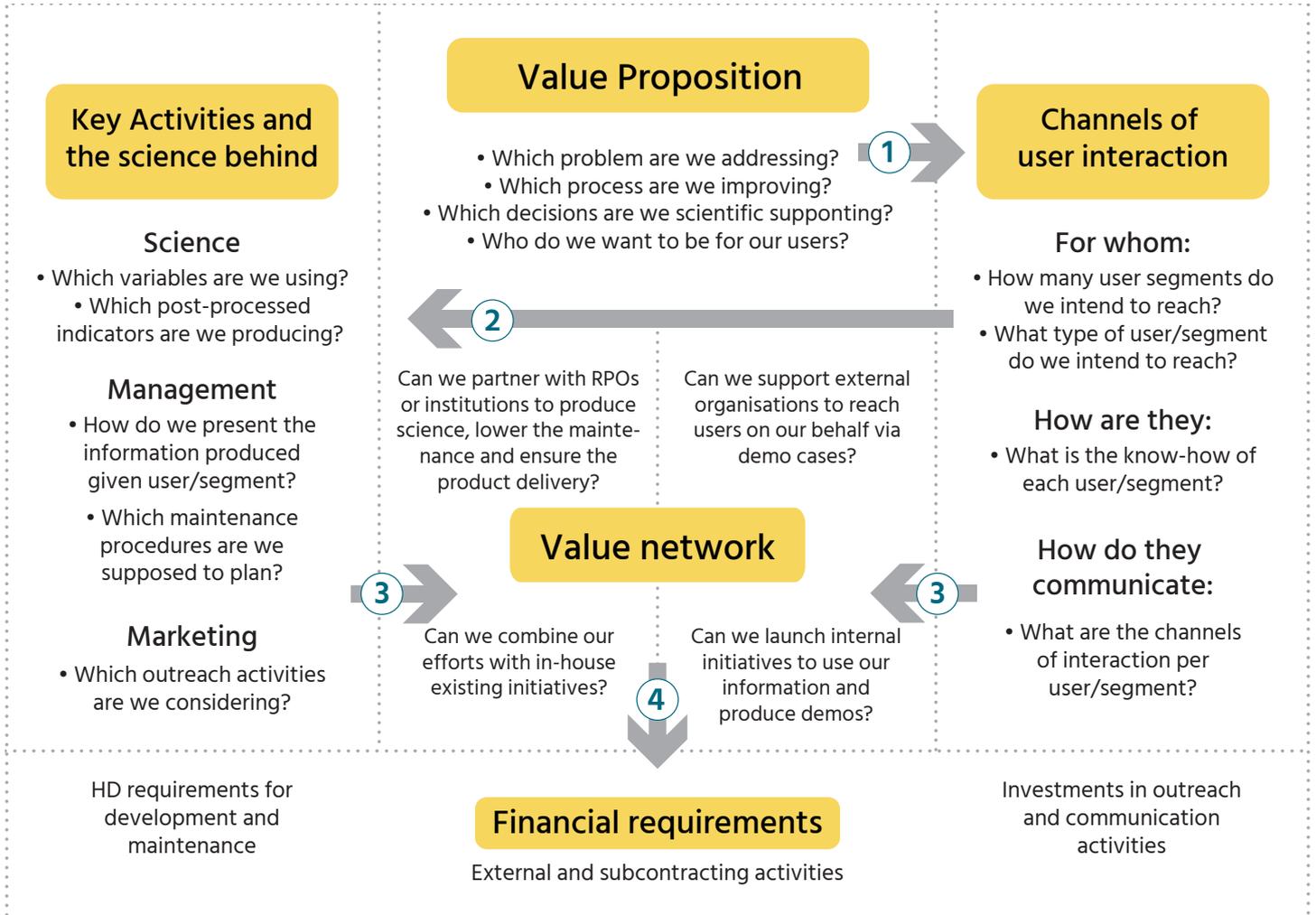This revised BMC allows a clearer zoom on the value network. We recommend this version especially when the developer of the service is a not-profit entity, or a public-private consortium.
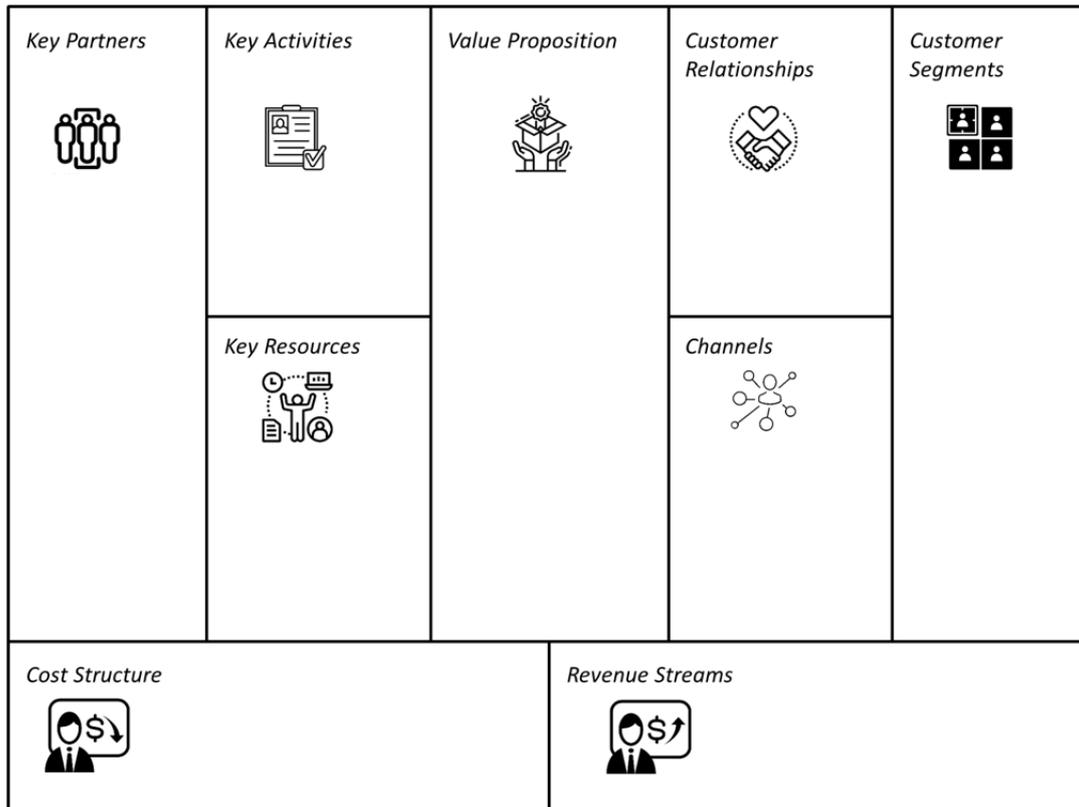
Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer Segments
	Key Resources		Channels	

Cost Structure	Revenue Streams

How to play

• **Elect a moderator**. She/he will guide the participants throughout this and the following steps. She/he has the responsibility to stimulate the brainstorming and to select the important points the brainstorming generates.

• **Print or draw the BMC below**. Use the A3 or A0 format.

• Brainstorm with your team about each block of the canvas.

• Use post-its or take notes directly on the printed BMC.

• **Proceed in the following order**: Value proposition, Customer section (includes Customer Relationships, Channels and Customer Segments), Partners sections (includes Key Partners, Key Activities and Key Resources) and Financial Structure section (includes Cost Structure and Revenues Streams). Leave "Barriers" and "Opportunities" behind for the moment. You will come to this BMC again at the end of Section 2.

How much time: 1 hour

THE CLIMATE DEVIL'S ADVOCATE

Key Activities and the science behind

Science
- Which variables are we using?
- Which post-processed indicators are we producing?

Management
- How do we present the information produced given user/segment?
- Which maintenance procedures are we supposed to plan?

Marketing
- Which outreach activities are we considering?

Value Proposition

- Which problem are we addressing?
- Which process are we improving?
- Which decisions are we scientific supponting?
- Who do we want to be for our users?

1 →

← 2

Can we partner with RPOs or institutions to produce science, lower the maintenance and ensure the product delivery?

Can we support external organisations to reach users on our behalf via demo cases?

Channels of user interaction

For whom:
- How many user segments do we intend to reach?
- What type of user/segment do we intend to reach?

How are they:
- What is the know-how of each user/segment?

How do they communicate:
- What are the channels of interaction per user/segment?

3 →

Value network

Can we combine our efforts with in-house existing initiatives?

Can we launch internal initiatives to use our information and produce demos?

← 3

4 ↓

HD requirements for development and maintenance

Financial requirements

External and subcontracting activities

Investments in outreach and communication activities

Solve

The cards game

Participants are split in three groups, each reflecting a Business Model Pattern. The detailed description of BM patterns has already been published in D5.1 and is available at **http://www.clara-project.eu/reports/**

The first group "**Service & Performance**" includes climate services normally working as a web and GIS-based platform. They associate a service value to a product. They are value-driven, hence they depend on the users' feedback.

SERVICE & PERFORMANCE
BM PATTERN

RESULT-ORIENTED
Concerned with customers satisfaction; strong co-development; feedback loop

USE-ORIENTED
Subscription-based price model or temporal thresholds

PRODUCT-ORIENTED
Strong tehcnological bond: improved bespoke solutions + tailored training opportunities

| They associate a service value to a product | They are focused on outcomes | They push for input and organisational innovation |

The second group "**Access Provision**" modify the value proposition to offer a service for new actors or new geographical areas. They include otherwise neglected groups. They often work as restricted platform, where the user can plug-in her own data.

ACCESS PROVISION
BM PATTERN

MODIFIED VALUE PROPOSITION
Concerned with the way value is designed and created;
value-based revenue generating mechanism

CHANGE IN CHANNELS
New geographical areas covered;
new methods to communicate with old clients

REVISED REVENUE MODELS
Cost-efficient contracting forms;
multi-product revenue generation opportunities

They create markets for otherwise neglected target groups by:

Including new actors

Using new ways of reaching users

They strongly impact on the social-economic value creation

The third group "**Supply Chain**" includes business models for climate services that strongly rely on trust and co-generation. They typically work as consulting-like businesses and they focus on tailoring outputs to meet specific users' needs.

SUPPLY CHAIN
BM PATTERN

PRODUCE ON DEMAND
Avoiding overusing resources or misplacing efforts; working on demand

SHORTER SUPPLY CHAIN
Transparency is core and complexity of the information generated process is reduced

They reshape the upstream and/or downstream levels of the value network to deliver a compelling value proposition

They focus on making the service more inclusive to meet users' needs

Participants will interactively play with barriers associated with each group. Each barrier is a card. Colors indicate a different dimension:

- **Product barriers**: they involve a strong resistance to the innovation itself.
- **Process barriers**: these factors harm the implementation of a new or innovative way of doing things
- **Input barriers**: obstacles to changes in sources or input materials
- **Organisation barriers**: they entail the internal structure of the provider
- **Market barriers**: they involve the external factors and the forces such as competition and context

Solve: How to play

• **Print the cards** deck of your business model pattern.
• **Print or draw the board** (you will find the board at the end of the cards file)
• **Split in teams**: one for each business model pattern group.
Your goal as a team is to rank the barriers according the two dimensions described in the board: Probability and Impact. Probability stands for probability of occurrence. Impact reflects, instead, the damage a given barrier can create.
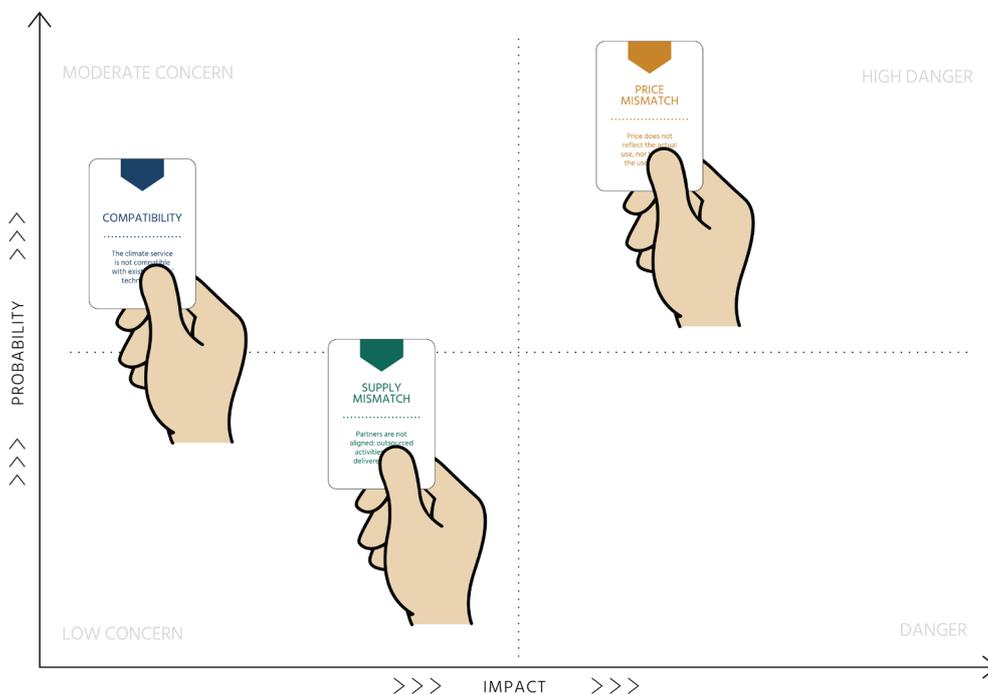• Once ranked, pick as team the top three barriers and discuss possible solutions to overcome.
How much time: 90 minutes

Image

The Three Horizons Framework

The Three Horizons Framework (3HF) is a pathways approach recently developed to reduce complexity of reality and to achieve transformational change.
The 3HF provides the opportunity to shift the core of the discussion from resilience to transformation: instead of looking at how to adapt to maintain the present functions of the systems, the 3HF focuses on the transformative process
The 3HF is represented by three lines (stages) of actions that each organization could use in its competence area. These stages change overtime describing how things are done in the present, in the future and in the transitory phase (X axis). Each stage exists and prevails for any given period of time in relative terms (Y axis). In this framework, three stages are dynamically linked: the first (S1) is the current status quo and domi-nates the field in the presence. As change approaches, its prevalence is lowered and leaves space to "the new normal", which is the emerging third state (S3) in the future. Transition is not sudden, but calls for gradual shifts: here is the reason behind the exi-stence of stage two (S2), which supports the change.

The 3HF should be used following five key steps:

• The focus is on the present concerns, to highlight how things are done now and why existing methods and ways are losing ground
• Investigate the future. Once concerns are addressed in the now, it is time to explore future aspirations to improve the status quo
• Detect inspirations in the present to meet the future: good practices are the bites of the future already realized in the present and guide the transformative process. Some of the inspirational practices happen locally, while others can be globally distributed
• Understand the shift: this step involves the second horizon where incremental in-novations and disruptive changes are promoted to sustain the transition towards the third horizon
•Revalue essential characteristics: some of the features of the business-as-usual in Horizon 1 are worth being retained

How to play

• Print or draw the 3HF. Use a A0 or A3 format.
• Work in team and brainstorm about the present, future and transition stages following the order explained above.
• Use post-its to take notes of your decisions and allocate them on the board.
How much time: 1 hour