

# Resilience Design Guide

## Design Resilient Business Models



Design exciting business opportunities that enhance resilience for you and your ecosystem.

Build future-proof companies that are more circular, innovative and life-friendly. Be inspired by the successful and sustainable strategies found in nature.

This guide accompanies the Resilience Design Toolkit.

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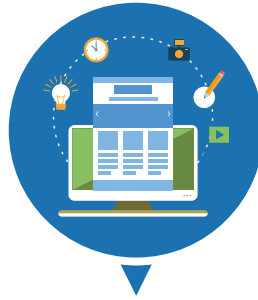
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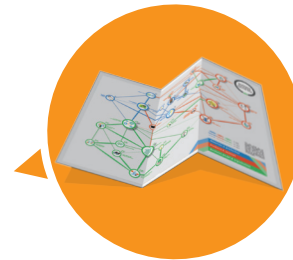
30  
cards



50

ingredients for  
sustainable  
business model  
innovation

1  
map




10  
cups of  
coffee



1  
motivated  
team



rethinking  
the future



« Rethinking the future: It is a profound challenge, at the end of an era of cheap oil and materials to rethink and redesign how we produce and consume; to reshape how we live and work, or even to imagine the jobs that will be needed for transition. »

Ellen McArthur

# The new normal - peak everything



## We need new ideas and we need new tools.

This practical guide helps you build **better business models, products or services.**

Better means more sustainable, social and profitable.

The Resilience Design Toolkit provides you with the tools to help you on your way.

We are a very young species.  
We are not the first who have to come up with inventive ways to live and thrive on a finite planet.  
Life has been around for 3.8 billion years and is relentlessly adapting to new conditions through innovations.



Sustainable business resilience is about the capacity of an organisation to anticipate, and adapt to changes in its environment and to learn in the process.

The 30 resilience design principles are based upon the successful design principles from nature that explain its extraordinary capacity to innovate to stay resilient.

By using your creativity they help you find novel ways to live successfully on a planet while creating conditions conducive to life.

## We need a better way to do business.

Although industrialisation and globalisation have improved the quality of life for many, it is clear that we need to radically rethink the way we do business. Peak everything; we face peak-consumption in water, food, fuel and natural resources. We are measuring peak accumulation of CO<sub>2</sub>, toxics and a destabilisation of global ecosystems on which we are reliant.



# For who?

## The Resilience Design Guide is a handbook for **change makers**.

A change maker knows there must be a better way.

A change maker wants to change the status quo and perceives the current way of doing business as too narrow.

A change maker is looking for fresh ideas for his/her organisation.



### Entrepreneur

You are looking for new ways to do business. You want to do well by doing good.



### Consultant

You are a business or sustainability consultant; you search for effective ways to help your clients perform better on both the short and long term.



### Intrapreneur

You are a member of the green team or work at business development. You search for fresh ways of doing things... well... just better.

# For what?

## Do you think business and sustainability should be mutually reinforcing?

Design business models and innovations that deliver positive impacts for your customers, your employees, business partners, society and the planet. Design more functional, local, renewable, innovative, efficient, circular and life-friendly business models.



# Innovation inspired by nature

## Biomimicry

## From biology to business



Life on earth has been around for 3.8 billion years. We are a very young species. Humans have been here for about 0,007 % of that timespan.

We are frantically looking for successful ways to live sustainably on this planet. We can learn a great deal by looking closely at the sustainable world that is already out there. Together with other animals, plants, bacteria and fungi we face the very same planetary limits and boundaries and share a common goal: to survive.

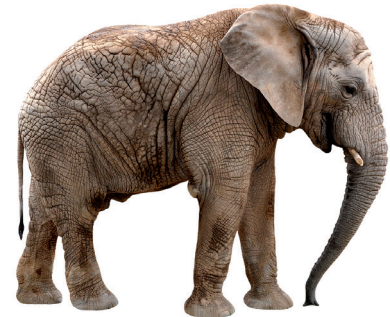
Imitating the way nature works to find sustainable solutions to human challenges is called biomimicry; **bios** = life and **mimesis** = imitation.

Nature provides a vast yet largely unexplored library of efficient designs, materials, processes and strategies that have been time-tested through natural selection.

We learnt how to design aerodynamic high-speed trains by studying the odd shaped beak of the Kingfisher bird. We learnt how to create powerful waterproof glues by closely looking at blue mussels attached to underwater rocks. Or we learnt how to create efficient transportation networks by studying foraging leaf-cutter ants or travelling slime moulds.

All plants, animals, bacteria and fungi have evolved by a set of simple yet effective design principles to continuously adapt to changing environments. We can see that all life makes use of locally available and renewable resources and energy, relentlessly recycles all materials and builds resilient long-term ecosystems on which life is ultimately reliant. Life creates conditions conducive to life.

The Resilience Design Cards are based on these successful design principles found in nature. They suggest ways to be more sustainable, successful and how to innovate continually to find your fittest solution.





3.800.000.000 years ago: first life on earth  
195.000 years ago: first homo sapiens sapiens  
180 years ago: industrial revolution

11

« The architect of the future will build imitating nature, for it is the most rational, long-lasting and economical of all methods. »

Antonio Gaudi

« After 3.8 billion years of evolution, nature has learned what works, what is appropriate, and what lasts here on earth. »

Janine Benyus

« Life is a property of planets rather than of individual organisms. »

Harold Morowitz

## Curious to see examples of biomimicry in action?

Have a look at the back of the Resilience Design Cards or check out the online repository for inspiring cases.

# Resilience thinking

Resilience is about the capacity to adapt and thrive under changing conditions.

Planet Earth has some pretty strict quality standards; more than 99% of species that have ever lived are now extinct. The fittest living systems do not only make the most optimal use of energy and materials but are also best equipped to adapt to change.

Living organisms and systems are masters at adaptation. A healthy human body has an impressive arsenal of immune cells that protect us from a wide variety of viral and bacterial attacks. In the very same way, a mature forest has built-in failsafe mechanisms that keeps the ecosystem healthy during seasonal fluctuations or forest fires. In fact both the human body and a forest often grow stronger and more resilient due to these disturbances.

**Resilience thinking is systems thinking**

To design for resilience is to design the conditions for an organisation to adapt and change when needed. We can learn a great deal by looking at successful strategies found in nature.

In nature, resilience is built upon the interdependence between living organisms in local ecosystems. If my health depends on yours, then I will go to great lengths to look after your wellbeing. Resilience is also built on diversity and redundancy as each unpredictable disturbance requires a different response. When one solution fails or performs poorly, others can step in to compensate. An ecosystem with a rich biodiversity is often a resilient system.

## Business resilience

Our world is becoming increasingly more turbulent. Transparency and agility have become important in a world connected by ever-faster technology. On a planet with 7 billion people, pressure on natural resources is rising and human activity is changing weather patterns. Consumer preferences are shifting as we are better informed, grow older and are concerned about our health.

Resilience is not about responding to incidental changes, it's about continuously anticipating and adapting to changes that are happening ever faster. Resilience is about adapting before circumstances force you to.

Sustainable business resilience is about the capacity to anticipate, adapt and learn. The ability to operate more efficiently and circular without using fossil fuels will define winners and losers in business.

« Life is interdependence.  
There is no such thing  
as living separate. That  
is what we inherit, that's  
what all species inherit. »

Peter Senge





## Anticipate, adapt and learn.

An organisation responsive to change uses disturbances to develop and grow. It understands the business ecosystem in which it operates and works together with stakeholders to build long-lasting conditions that create win-win conditions for all.

Firm of the past	Firm of the future
Independent	Synergistic
Competitive	Collaborative
Controlled	Conductive
Closed-source	Open-source
Stable	Dynamic
Maximizes/Minimizes	Optimizes
Resists change	Leverages diversity
Linear	Networked
Short-term	Long-term
Function fits form	Form fits function
Proactive, planned	Responsive, emergent
Self-focused	System-focused
Exploitation	Mutualism
Avoids disturbance	Leverages disturbance
Manages risks	Fosters resilience
Protects	Adapts
Forces	Fits

Source: Gilles Hutchins, The Nature of Business

## How the Resilience Design Toolkit was made

The Resilience Design Cards reflect the best available techniques found in nature, translated from biology to business language. The cards start with very practical principles (design out waste, minimise energy use), to more strategic and organisational principles (use diversity, co-create with partners). They help you build resilient companies that are more sustainably and responsive to change.

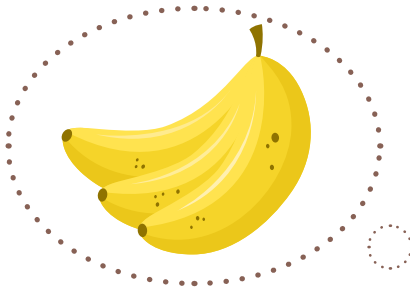
« New problems demand new principles. Put bluntly, there's simply no way to build tomorrow's essential organizational capabilities—resilience, innovation and employee engagement—atop the scaffolding of 20th century management principles. »

Gary Hamel

« We can't solve problems by using the same kind of thinking we used when creating them. »

Einstein

« With survival of the fittest, Darwin meant "better adapted to the local environment" rather than "best physical shape" much like a puzzle piece rather than an athlete. »



Anyone  
who believes  
exponential growth  
can go on forever in a  
finite world is either  
a madman or an  
economist.\*

\* Kenneth Boulding,  
Economist, philosopher and systems theorist



« It's going to take all of us.  
It's going to take forever.  
And that is the point. »

William McDonough

# what is in the toolkit?

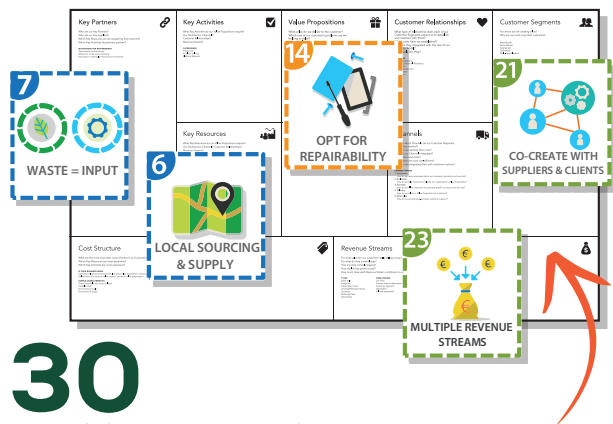
**The Resilience Design Toolkit  
contains various elements  
to help you design  
resilient business models**

Not included:  
1.000.000 Post-its  
A motivated and diverse team  
10 liters of coffee or tea

# 1

## Business Model Canvas

The Business Model Canvas is an open source tool for sketching business models.



# 30

## Resilience Design Magnets

The post-it size magnets help you map your ideas on the Business Model Canvas.

# 1

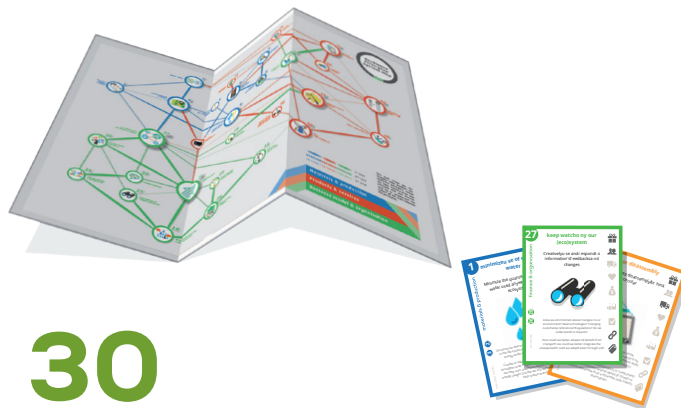
## Online repository of inspiring business examples

Go to [short.resilientweb.eu/repository](http://short.resilientweb.eu/repository)

# 1

## Resilience Principles Map

All the resilience principles and their connections in one single map.



# 30

## Resilience Design Cards

Each card features a Resilience Design Principle. Go to page 20 for more details.

# A closer look at ...

Each card features probing questions, suggestions, links and examples.

**1** There are **3 types of cards** Products & Services, Materials & Processes and Finance & Organisation.

**2** **Links to other cards** that are worthwhile considering

**15**

## multi-functionality

Meet multiple needs and fulfil different functions with your product or service



**16**

Can our product help solve multiple problems? Could we better fit the form of our product or service for different functions? Could our partners fulfil different functions for us?

**19**

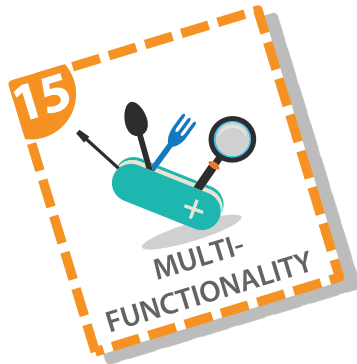
Could our distribution channels serve different purposes? Could our products serve different functions during its lifetime?

see also cards

**3** Suggestions to blocks of the **Business Model Canvas** where you could apply the principle

**4** **Probing questions** for your business. Are we...? Could we maybe...?

# a Resilience Design Card



**5** A business example that illustrates the resilience principle



**6** Possible benefits for your business

**7** Scan the QR code and visit the online repository with more inspiring business cases and helpful tools.



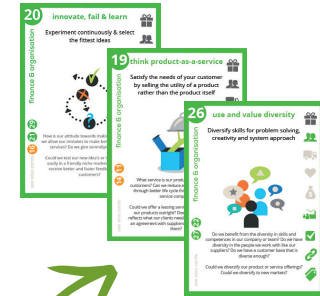
# 3 types 3 colours

The Resilience Design Cards come in three colours; each colour refers to specific aspects of your company.



## Products & services

Consider the way you design your products and services. Think modular, transparency and functionality.



## Finance & organisation

Consider how you organise your company and how you collaborate with others. Think multiple revenue streams, co-creation and use diversity.

## Materials & production

Consider the energy, water and materials you are using in your processes and products. Think local, renewable and circular.



# The Resilience Principles Map

## The 30 Resilience Design Cards in 1 single map

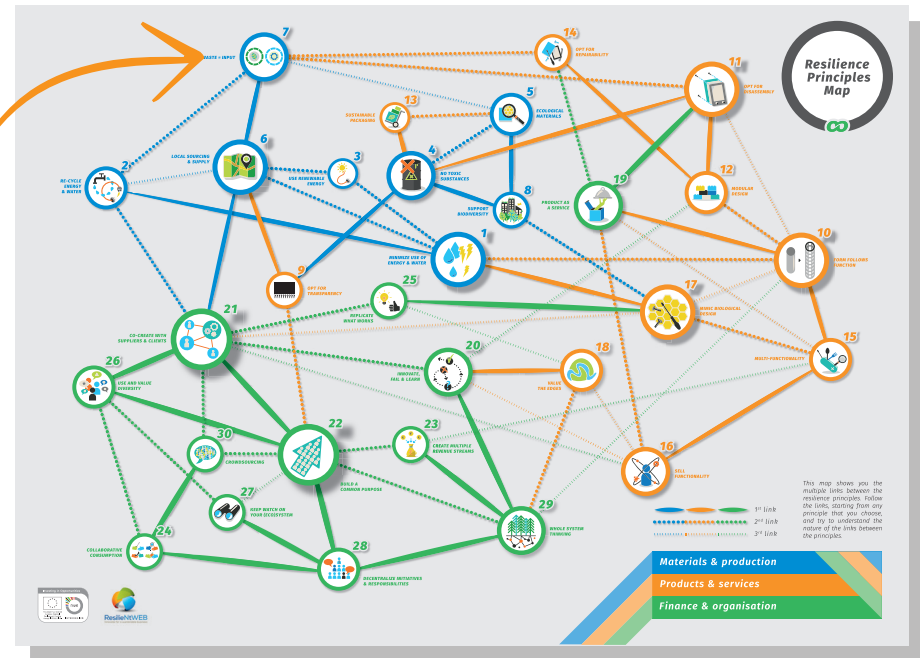
When, for example, you want to design out waste and see 'waste = input' than you might also want to have a look at card 11 'opt for disassembly' or card 6 'local sourcing and supply'.

Profit for a company is like oxygen for a person. If you don't have enough of it, you're out of the game. But if you think your life is about breathing, you're really missing something.

Peter Drucker

The Resilience Principles Map shows you how the principles are connected in one single poster.

A larger Resilience Principle has more links with other cards. You are more likely to come across these cards.



# The Business Model Canvas

## The 9 building blocks of the Business Model Canvas

**The Business Model Canvas (BMC)** is a practical tool to describe, design and challenge your business model. This open source tool has been built by Alex Osterwalder and Yves Pigneur.

Visit  
[www.businessmodelgeneration.com](http://www.businessmodelgeneration.com)  
for more info.

## WHAT?

### Value Proposition

It seeks to solve customer problems and satisfy needs with value propositions. Something useful for the customer that the organization can deliver.

## HOW?

### Key Partners

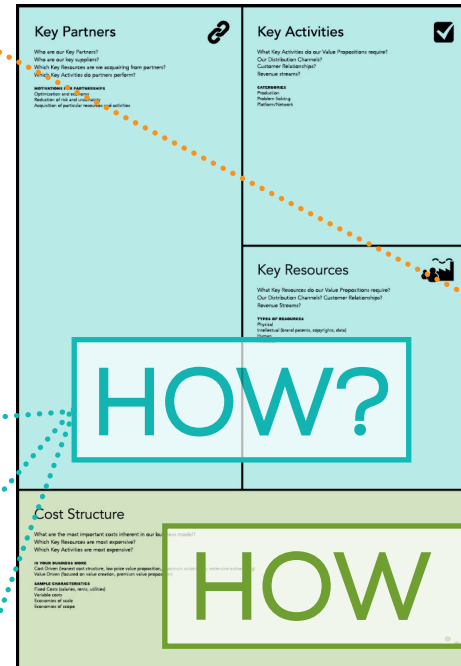
Key partners make up the network that surround the business and make its activities possible.

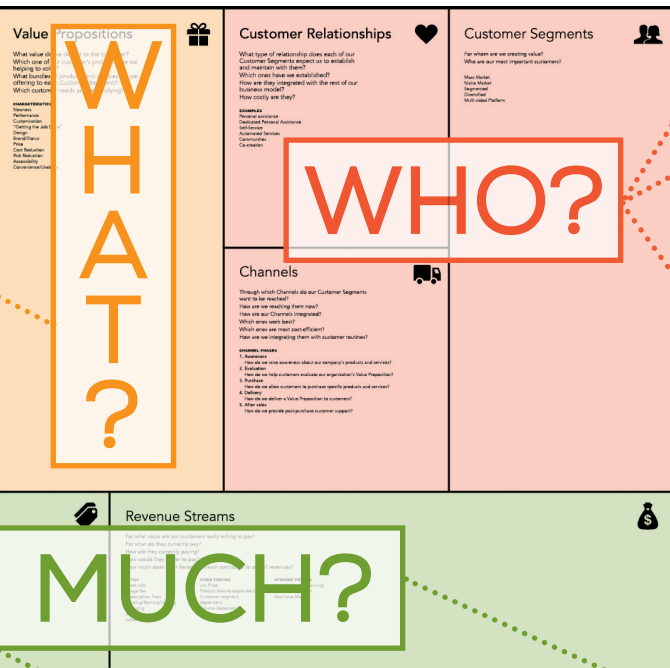
### Key Activities

The acts the company must take for its business model to work.

### Key Resources

The assets that are essential for producing the value proposition.





# WHO?

## Customer Relationships

The type of customer relationship will deeply influence the customer experience.

## Customer Segments

An organization serves one or several Customer Segments. Grouped by needs, relationship, interests, profit and distribution channel.

## Channels

Value propositions are delivered through communication, distribution and sales Channels. How the organization's value proposition reaches the customer.

## Cost Structure

Account for all costs inherent to the business model.

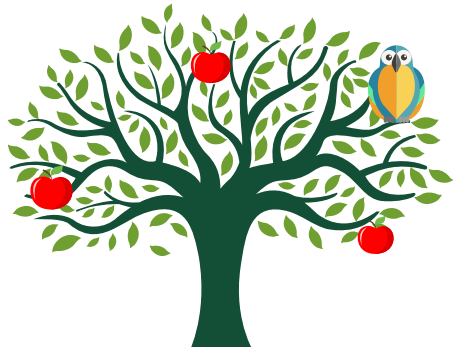
## Revenue Streams

The customer section generates cash for the business.

# The Business Model of a TREE

IF a tree would have a business model than it would look like this.

Over millions of years of evolution a tree has developed a remarkable value proposition and build successful symbiotic partnerships.



# The Value Proposition

of a tree is multi-functional. A tree provides fresh oxygen, food, shelter, soil stability and health, clean water, shade and beauty.

## The Key Activities

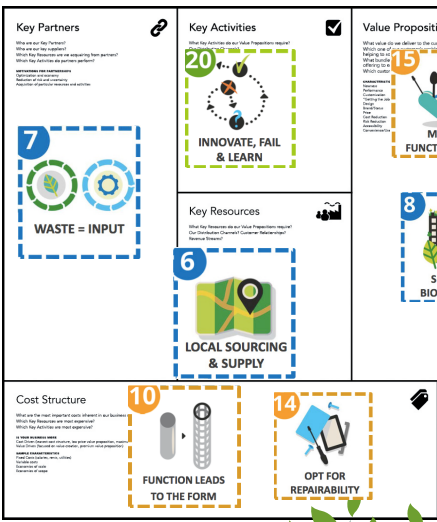
of a tree are growth, repair, reshuffle information (DNA) and reproduce. It ensures that all resources are recycled in the most optimal manner...

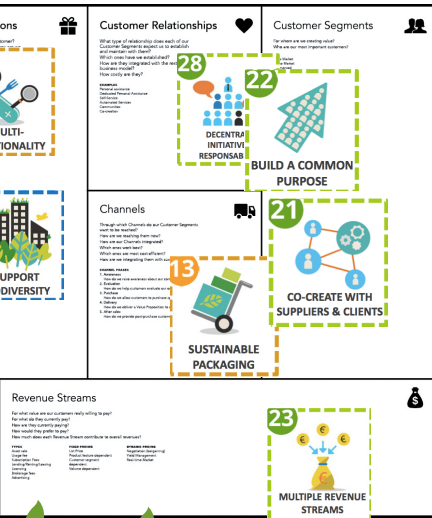
## Key Resources

are very very local  
CO2, sunlight, water, nutrients

## Key local Partners

includes pretty much all of its customer like other trees and plants, insects, fungi and animals but also natural elements like wind, fire and rain.





## Customer Segments & Relationships

A tree co-creates ideal living conditions for itself and its **customers** that come to live or feed like birds, insects, humans or other mammals, fungi and plants.



## Channels

The tree attracts its customers via flowers, fruits and smell. All packaging is biodegradable.



## Cost Structure

A tree needs to grow, repair and reproduce - for that it needs building materials and energy.



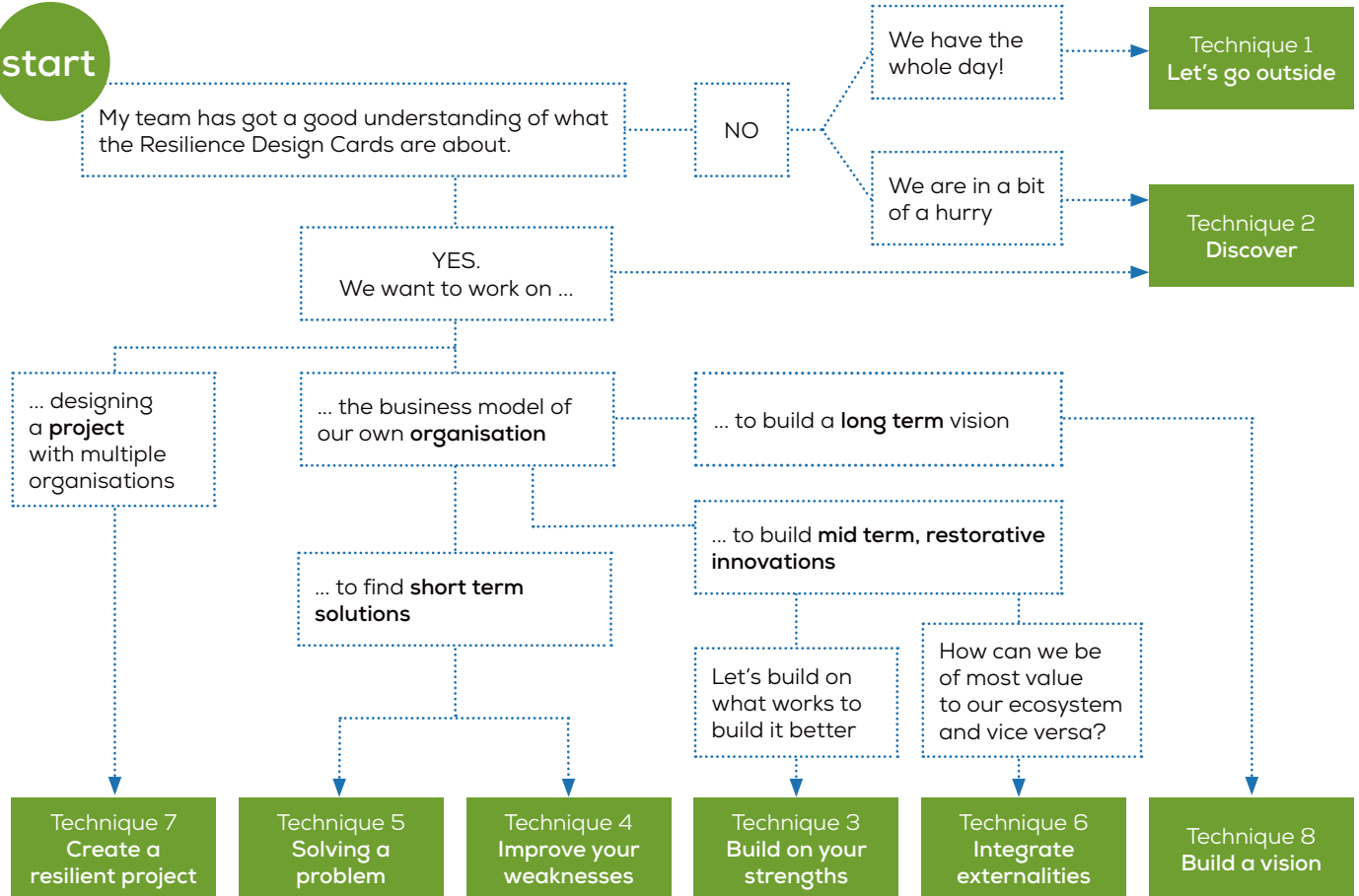
## Revenues Stream

A tree is engaged in various transactions with its key partners and customers. It offers shelter and food for animals, in return they disperse the seeds. A tree exchanges water for nutrients with a powerful underground fungi network.



# techniques

start



# Workshop techniques

Most of the techniques proposed in the following pages are to be used in small teams with people of various background and experience.

We propose here some simple exercises to help you help them start working together.





## 1. Warming - up

### Once upon a time...

To get the participants in the mood for thinking out of the box let them explain something "serious" aloud to you as if you were a 4 year-old. What is their job? Why is the purpose of the day important to them?

### Mutual Listening

- or icebreaker

Good (active) listening is essential. To open the ears and loosen the tongues let the participants, in groups of 2, explain one to another who they are and what they expect from the day. Then let everyone in the group introduce his/her partner to the whole group in 30 seconds.

### Dancing stick

Acknowledge working together is difficult. Get everyone together in the group to stand and support, a long, horizontal but light (bamboo) stick with a single index finger. The purpose of exercise for the group is to work together to lay the stick slowly on the ground without it falling off their fingers first.

## 2. Prioritize

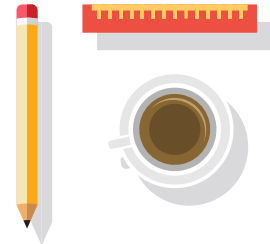
Making choices together is not always easy. Beyond the typical majority vote or looking for (weakest) consensus there are other options.

### Systemic Consensus

Draw a table of options for X persons, and let everyone rank each option on a scale from 0 (avoid at all cost) to 10 (delighted by this option). Total the sum point of each option and discuss the outliers, preferably with no 0.

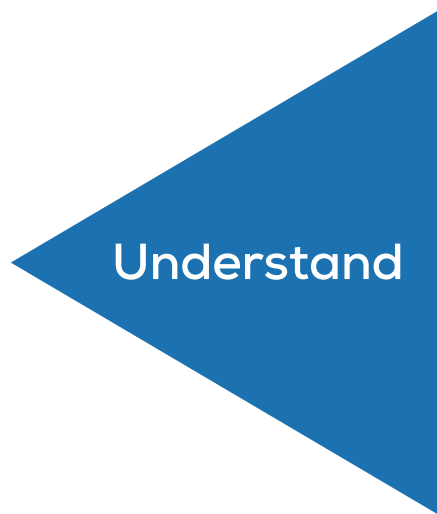
### Dot Voting

Give everyone 3 post-its of different colours and ask them to vote for his/her favourite option taking into account different rationales: feasibility, financial potential, personal liking. Discuss the 3 options that get the most votes in each category.



# Workflow

The 8 techniques in this guidebook all have different objectives as well as starting points. They all respect, however, a few simple workflow steps that can help you develop your best solutions in a systematic manner. The workflow is based upon the Design Thinking method.

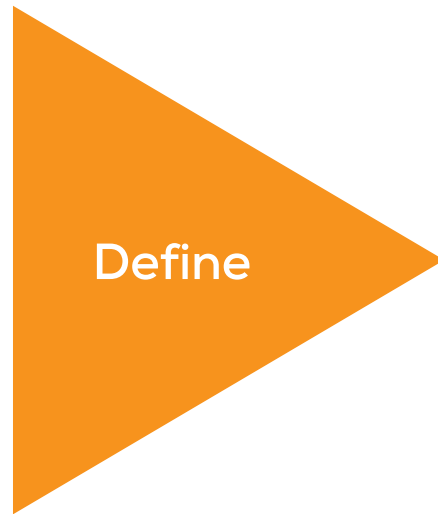


## 1. Understand your challenge/opportunity

What is your challenge or opportunity? What are your observations? Do you need more information? How can you get it?

### Understand the Resilience Design Principles

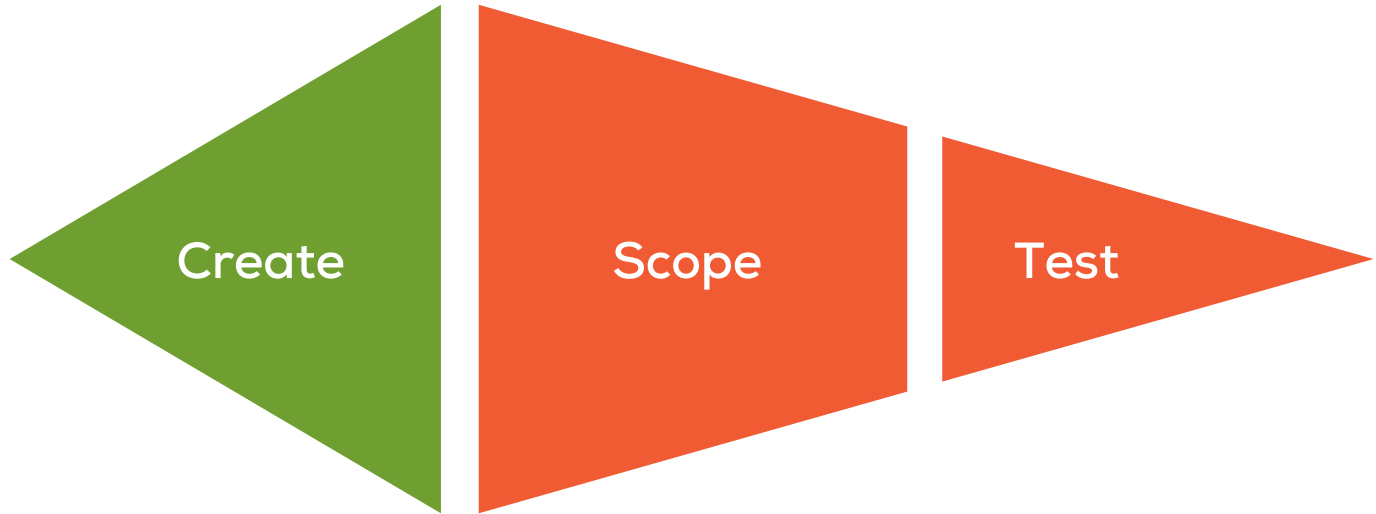
What do they mean? Where do they come from? How are they linked to each other?



## 2. Define your challenge/opportunity and select your cards

Did you change the details of the challenge or opportunity based on your insights? How do you define your challenge or opportunity now? Can you write it down in one sentence?

Based on your challenge/opportunity, which cards do you think are relevant for you? Can you make a selection?



### 3. Create ideas

Develop innovative solutions that could provide the answer to your challenge or opportunity using your selected cards.

### 4. Select the best ideas

Use your own selection criteria to scope down to the best ideas. Prioritize.

### 5. Test your ideas

Validate your assumptions & integrate lessons as you go along.

# Technique 1

## Let's go outside!

**The Resilience Design Cards are based on the successful design principles found in nature.**

They suggest ways to be more sustainable, successful and how to innovate continually to find your fittest solution.

To make good use of the toolkit, it is key to understand the origins of the principles by going outside to see and experience for yourself!

### 1. Get prepared



There are 30 cards in the toolkit. Divide the cards within the group so that each participant has about 5 to 10 cards assigned to him or her.

Ask the participants to prepare in advance of the session by carefully reading 'their' cards and to start gathering (Google!) examples from nature that illustrates the principle on the cards.

## 2. Take a walk



The mission of the group is to provide at least one example of each principle using an example from nature. This can be in the form of an object, picture or other.

For each example, the participants should answer two questions:

- Why nature has evolved this way?
- What are or could be human applications of this principle?

## 3. Illustrate and explain



Once you have collected natural examples for each of the 30 cards, present them to the group and discuss the findings of the participants.

Does everyone understand the cards and examples presented?  
Are there more examples that can be noted?  
Can we think of other applications of the cards in business?

## 4. Make a fit



Make a fit with your own organisation.

Each participant takes 3 cards that he or she is particularly attracted to and explain to the group how he or she thinks these principles are relevant for the organisation and how they might be applied.

Go to Technique 2.

# Technique 2

## Discover!

One team of 3 to 6,  
Time: 15 minutes.

Material needed:

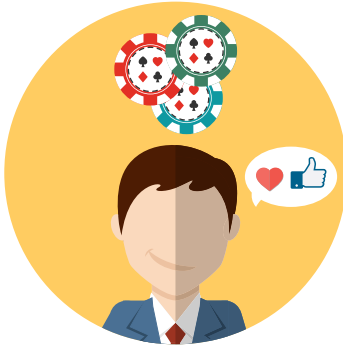
- 1 card deck
- a clock or sand-timer
- 5 poker chips per participant (coins, post-its or toothpicks will do too).

### 1. Random pick



Everyone has 3 minutes to pick 3 cards at random, select one that he/she is personally more attracted to, discard the others and think of a few arguments to foster this principle in the organisation.

## 2. Explain



In turns of 3 minutes each, explain to the others why you like that principle and what great impact it could have on your organisation.

After all pitches, everyone gets to invest his/her 5 poker chips in developing any principle (their own or one of the others).

## 3. Prioritize



Put the principle that gets more cash at the centre of the group and find together

a) one potential quick win to show the relevance of the principle to your colleagues in the next 2 weeks

b) one long term opportunity that would favour your business by implementing the principle.

## 4. Execute



Repeat exercises a) and talk b) explain on the following day after a good night's sleep and a chat about that idea with your 6-year-old child / wife / friendly neighbour.

# Technique 3

## Build on your strengths

Use the best of what is, to image what could be. Rather than fixing what is broken, use your strengths to build what can be better.

### 1. What do we do best?



Divide the cards in two piles: one pile with those cards that you are already putting in action, and one pile of cards that you are not.

**Select maximum 3 cards** from the first pile that you believe you do best; in which of these design principles are you really good?



## 2. Map your strengths

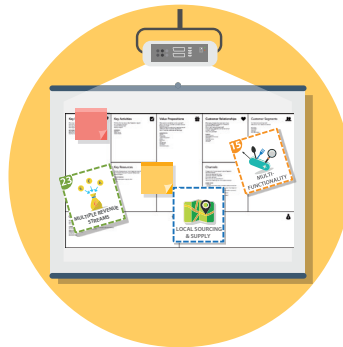


Take a magnet for one of the 3 cards you just picked.  
Take a step back and place the magnet within the BMC block that best applies to it.

Explain.

Place one or several post-its around the magnet and explain in a few words or with a simple drawing how and why you are applying this design principle within your organisation with success.

## 3. Build!



Now take another magnet of the same card and see how you could apply the same principle elsewhere on the BMC.

Brainstorm and note again your ideas.

Repeat the same process for the other two cards that you picked.

Have a look at the Resilience Principles Map, can you find other cards that could help you?

## 4. Focus your effort



Take a step back and select the 5 best ideas that you believe merit further attention.

Ask yourself whether you have the right competences and resources available in your company. What are you missing? Who can help us?

Make a plan: discuss for each idea how you could easily test it; in a cheap and quick way. Create a simple action plan for the next three weeks.

# Technique 4

## Improve your weaknesses

Build better what can be better. Identify the aspects on which you are underperforming.

Generate the best ideas, improve and move forward!

### 1. What are we poor at?



Divide the cards in two piles: one pile with those cards that you are already putting in action, and one pile of cards that you are not.

**Select maximum 3 cards** from the second pile that you believe you do worst; which of these principles are you really not performing well?

## 2. Map your weaknesses



Take a magnet for one of the 3 cards you have picked. Take a step back and place the magnet within the BMC block that best applies to it.

Explain. Place one or several post-its around the magnet and explain in a few words or with a small drawing how you are falling short in applying these principles in your company BMC

## 3. Brainstorm



Once you have mapped out your weaknesses, take a step back. Put the 3 cards on the table, now brainstorm for maximum 10 minutes to come up with solutions. Do this together, note quickly your ideas on post-its. No idea is too crazy!

Repeat the same process for the other two cards that you picked.

Maybe the Resilience Principles Map can help you.

## 4. Focus your efforts



Take a step back and select the 3 best ideas that you believe merit further attention. Ask yourself whether you have the right competences and resources available in your company. What are you missing? Who can help you?

Make a plan: discuss for each idea how you could most easily test it; in a cheap and quick way. Create a simple action plan for the next three weeks.

# Technique 5

## Solving a problem

### 1. What is the pain?



Write down **one particular problem** your organisation is facing on a board.

## 2. Where does it hurt?



To which colour of card this problem relates most?

Choose in 5 minutes the 3 elements of your business model that you believe are more impacted by this problem.

**Together find 1 card that has a good match with these category and BMC elements.**

## 3. Map solutions



Read the title and subtitle out aloud and brainstorm 4 minutes how that principle would help solving the problem.

Write every single suggestion down.  
Take one step back by reading the first set of questions again and discuss together: do you readily do any of these?  
Is any directly related to your problem?  
If yes how so?

## 4. Select



From all the ideas discussed select via voting 3 ideas: the one that seems most profitable, the one that seems most feasible and the one which you like the most.

For each elected idea, discuss how could you could try it out and test it, quickly & cheaply.

**Design one test for each idea and carry it out during the next 10 days.**

# Technique 6

## Integrate your externalities

Externalities are the consequences of your activities, products or services that (intently or un-intently) have a positive or negative impact on your ecosystem, your human and non-human stakeholders.

### 1. Map your externalities!



Map your 3 biggest positive and 3 biggest negative externalities.

How?

Each workshop participant notes down on 6 post-its the 3 positive and 3 negative externalities that he/she thinks are most impactful.

### 2. Select your biggest externalities



Each participant explains shortly to the group the 6 post-its that he/she has made.

Does each group member understand the reasoning behind them?

Discuss.

As a group, identify the most fundamental externalities; use another colour and put the new 6 post-its on the BMC.

### 3. Can we integrate the externalities?



Your mission is simple: you cannot leave the room without having integrated both your positive and negative externalities.

How could you grow your positive externalities?

How could you benefit more from them?

Which card could help you?

How could you reduce or off-set your negative externalities?

Pick a new card to help your discussion.

### 4. Rate your ideas



Encircle the best new ideas on the BMC.

Now put the new ideas up for vote to your colleagues.

One vote for the most impactful idea and one vote for the most feasible idea.

### 5. Plan



Create a short-term action plan for both ideas.

How could you most easily and quickly test the ideas?

# Technique 7

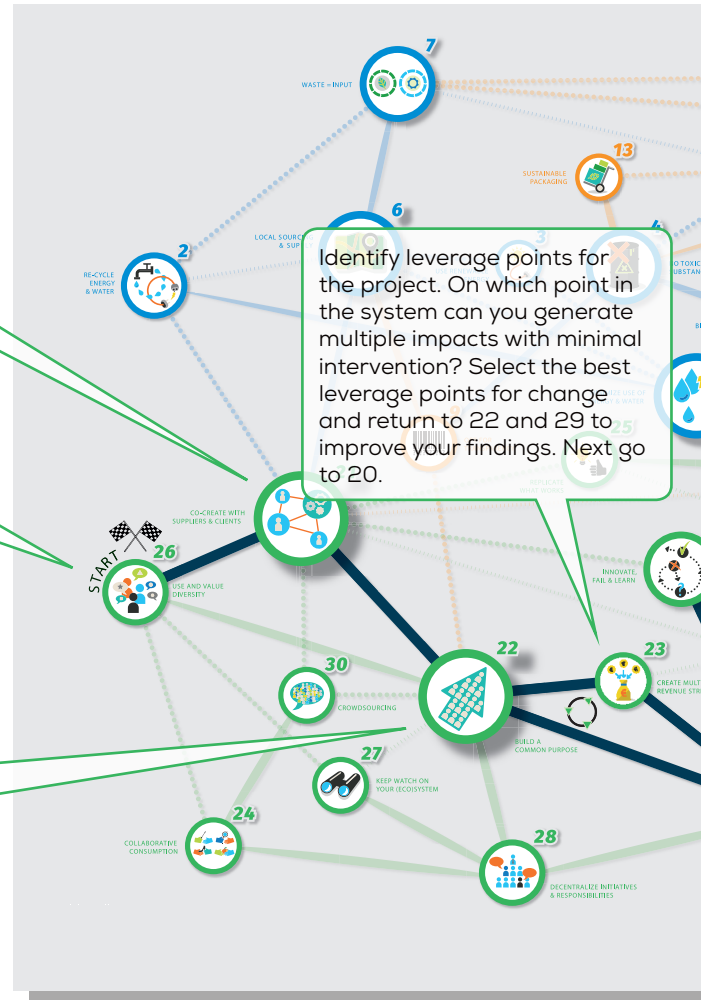
## Create resilient project

44

Gather ideas, requirements and advice on the project from your clients and suppliers.

A project involves various actors. Build a suitable project team, based on diversity of skills and competences.

Principles 22, 23 and 29 are cycled within an iterative process. Principle 22 is about building a common objective with the project team. What unites the partners within the project and what is success for you? Next go to 29.



Identify leverage points for the project. On which point in the system can you generate multiple impacts with minimal intervention? Select the best leverage points for change and return to 22 and 29 to improve your findings. Next go to 20.



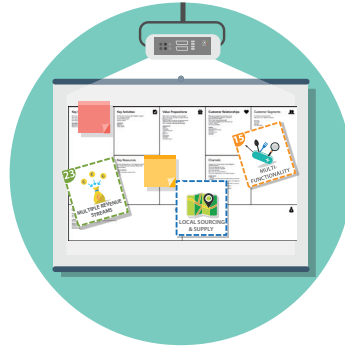


# Technique 8

## Build a vision for resilience and sustainability

Building a vision for resilience and sustainability is about co-creating a clear vision and corresponding goals for the future. A good vision is easy to explain, ambitious and realistic.

### 1. Map you externalities!



Use the cards to map out what you already do today. Map these onto your BMC, this is a snapshot of your company today and your starting point for step 2.

### 2. Understand the future



Get a better understanding of how the future might look like for you in 5 years.

Map the external changes in your environment around the BMC like technological changes or changes in market conditions.

Check out the Business Model Design Space Cards at [Strategyzer.com](https://www.strategyzer.com)

### 3. Create North Star Goals



Based on your current situation and that of projected possible futures, develop your own North Star Goals using the Resilience Design Cards.

Your North Star Goal answers the question: 'What kind of company do we want to be in 5 years time?' Write your goals for different aspects that are relevant for you, think about waste, water, energy, transparency, community involvement etc.

### 4. Develop ideas

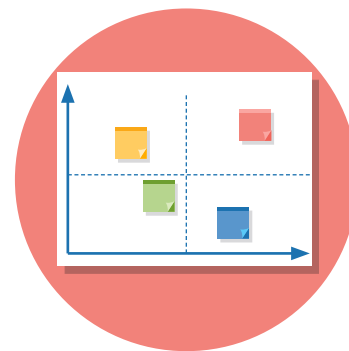


Once you've set your North Star Goals for the future, use the cards to develop ideas of how to get there.

Use the BMC from step 1 and complete existing actions with new ideas using the Resilience Design Cards, use post-its.

Look again at technique 3 and 6 to select your best cards.

### 5. Put your ideas in order and create a roadmap



Take the post-it's and place them, for example, on a decision matrix (feasibility versus impact).

Select your fittest ideas and place them along an implementation timeline, creating a general roadmap with milestones for the coming 5 years.

# examples

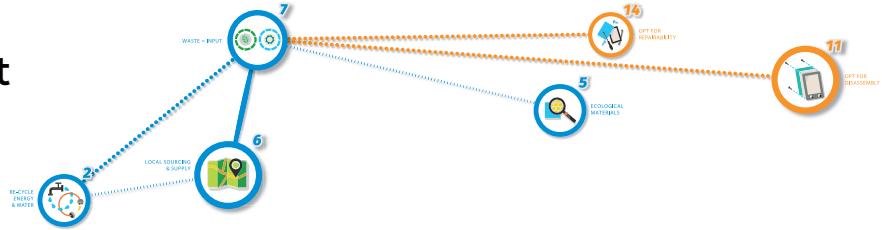
## Sell functionality

## Co-create with suppliers & clients



## Waste = input

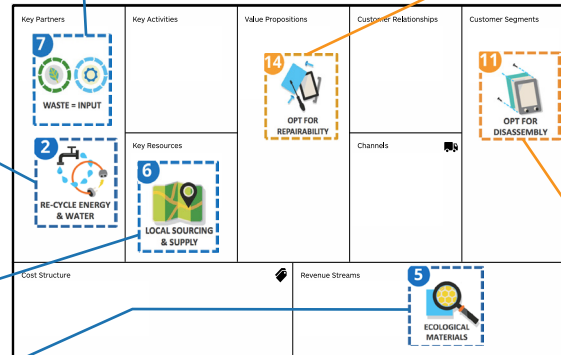
Rethink waste. By converting waste or would-be-waste into useful new products, the concept of waste ceases to exist.



The city of Kalundborg, Denmark, is a pioneer in "industrial-environmental symbiosis". Businesses use each other's water, energy and waste output as raw materials; a great example of circular economy.



Permafungi produces delicious mushrooms on coffee waste. They collect used coffee grounds from restaurants and bars to which they, in turn, deliver their fresh mushrooms. Permafungi.be



Patagonia. Rather than creating waste by throwing away used jackets, Patagonia offers their customers a repair service. Patagonia.com



Herman Miller designed it's well-known Mirra chair so that the 96% of the pieces can be easily disassembled and then reused or recycled. Hermanmiller.com

Flagbag produces bags and wallets from old flags. They source most of their raw materials locally during a large annual music festival nearby. Flagbag.be

Ecovative Design has developed a process which uses mushroom mycelium to bind agricultural waste products together, creating revenue out of waste. The material's shape can be molded into various packaging products. Ecovatedesign.com



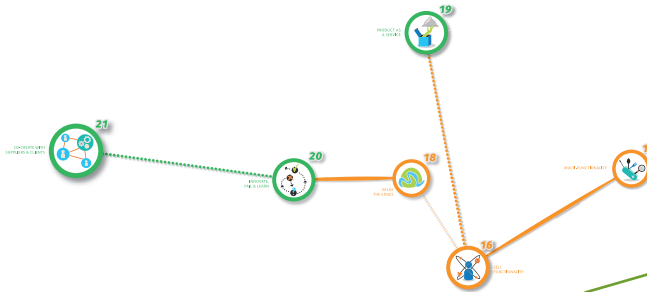
## Sell functionality

Functionality is about providing a service that answers to a users' need without them having to actually own the physical product. It's about access rather than ownership.

**Tapazz** is an online platform through which you can easily share your car with others, creating ecological and financial benefits. Tapazz is a cooperative in which all users can participate to build a transparent and flexible service.  
Tapazz.com



**Kartent** takes the hassle out of festival camping. Instead of having to drag along your own tent, Kartent supplies you with a customisable cardboard tent on the spot. Tents are often left behind after the festival, the cardboard tent is easily recyclable after use. Kartent.nl



**The Hangerpak** is a shipping box + clothes hanger in one; designed to be made out of recycled cardboard.  
Stevehaslip.com



Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
		19 PRODUCT AS A SERVICE		21 CO-CLIENTS WITH SUPPLIERS & CUSTOMERS
	Key Resources	16 SELL FUNCTIONALITY	15 MULTI-FUNCTIONALITY	18 VALUE THE EDGES
Cost Structure		Revenue Streams		

**Mud Jeans** is pioneering a lease model for organic cotton jeans. Customers can choose to lease their jeans for 5€ per month, free repairs included. After one year the customer can swap their jeans for a new one, ensuring maximum recovery and denim recycling. Mudjeans.eu



**Peerby** is an online platform which enables the exchange of goods between neighbours, for free. Need a power drill, bike or bbq? Peerby connects you with a neighbour, saving costs and the environment through collaborative consumption. Peerby.com



**Seats 2 Meet** is a co-working space that stimulates cross-pollination of ideas and skills. Through the online portal, users can see the profile, interests and skills of co-workers that are present at the same location. Seats2meet.com



## Mimic biological design

Biomimicry is about looking for efficient designs, processes and strategies in nature to develop innovative solutions that are not just simply better but also more sustainable.



The **Kranium** is a bicycle helmet inspired by the shock-resistant anatomy of a woodpecker skull. Made out of cardboard, it is one of the lightest, strongest and sustainable helmets on the market. [Kraniums.com](http://Kraniums.com)



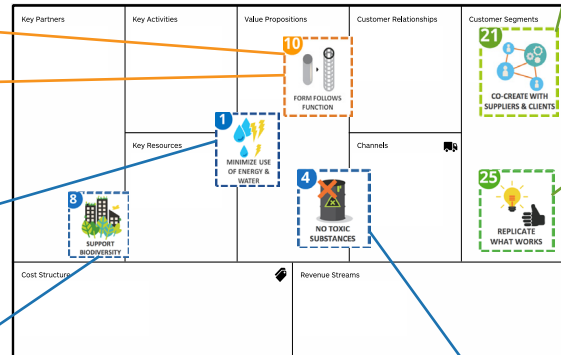
**Qualcomm** has developed a very efficient e-reader display that uses available ambient light to produce vivid colours using less toxics and energy. [Qualcomm.com](http://Qualcomm.com)



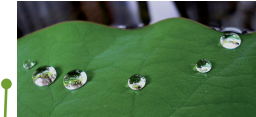
**Permaculture** is a very effective integral agricultural method that uses the patterns found in natural ecosystems. Working with, rather than against nature.



The Japanese **Shinkansen** bullet train has a remarkable nose inspired by the efficient design of the beak of a Kingfisher, giving it a smoother, faster and more efficient ride.



The **resilience design toolkit** itself has been created through co-creation between project partners and a pool of open-minded companies, creating win-win situations for all.



The **lotus leaf** is self-cleaning due to the micro-structure of its surface that uses rainwater to 'glide' across and take along attached dirt. This has been introduced in glass surfaces, paints but also in fabrics. [Greenshieldfinish.com](http://Greenshieldfinish.com)

**Columbia Forest Product's PureBond** plywood is a formaldehyde-free wood glue inspired from the blue mussel's adhesive substance. The blue mussel attaches to rocks with a super strong glue. The soy-based glue is used in furniture design. [Columbiaforestproducts.com](http://Columbiaforestproducts.com)







## Co-create with suppliers & clients

Co-creation is about sharing resources, knowledge, ownership and wealth creation. It's about working together with your customers and suppliers to create win-win solutions for all.



**Tesla Motors** produces electric cars; in 2014 the company released all of its patent holdings claiming that open-source innovation is more powerful than anything one company could do individually to promote electric mobility. [Teslamotors.com](http://Teslamotors.com)



**Threadless** is an online community through which everyone can submit their graphic designs up for online vote to be printed on T-shirts. This results in a large, very diverse portfolio that is well attuned to the market in which everybody wins. [Threadless.com](http://Threadless.com)



H&M is responding to increasing customers concerns about social and environmental conditions related to its clothing factories in low wage countries with their H&M conscious fashion campaign. [hm.com/sustainability](http://hm.com/sustainability)



**Viangro** delivers fresh meat products to industry clients. Together with local social restaurants they co-created a project to redistribute their unsold produce at cost-price. [Viangros.be](http://Viangros.be)



**Stop the water while using me** encourages customers to help them in their mission. The company uses part of their revenue for supporting water-saving projects in regions that suffer from shortages. [stop-the-water-while-using-me.com](http://stop-the-water-while-using-me.com)



**iFixit** is a website that provides tools and tutorials to help people repair their everyday devices. Doing so, people improve their devices' lifespan. The platform Duzuki allows users use each-others documentation manuals. [ifixit.com](http://ifixit.com)



## Build a common purpose

Co-creation is about sharing resources, knowledge, ownership and wealth creation. It's about working together with your customers and suppliers to create win-win solutions for all.

**Toms** makes stylish shoes and operates under the 'one for one' business model. For every pair of shoes sold by Toms, a new pair of shoes is given to an impoverished child. Toms.com



**Fairphone** develops smartphones with minimal negative impact to people and the planet, using only conflict free materials and addressing the whole life span. It uses open source software. Fairphone.com



**De Prael** in Amsterdam is a brewery with a social mission; it makes tasty beer while giving employment opportunities for people with psychiatric problems. Deprael.nl



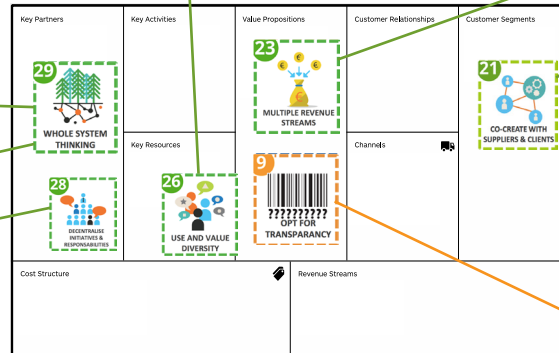
**The Plastic Bank** seeks to turn plastic waste into a source of income for people on the bottom of the pyramid while recycling the plastic for 3D printing filament. Plasticbank.org



**Recycle Bank** rewards people who recycle their waste by giving them points which can be spend online for sustainable household products. Recyclebank.com



**New B** is a new bank. A cooperative bank that is completely transparent and that invests in sustainable futures. Newb.coop



**Ecover Glocal** is an experiment in building a local circular economy on the island of Mallorca by working together with local stakeholders to develop cleaning products using only local waste and renewable energy. Glocal.ecover.com

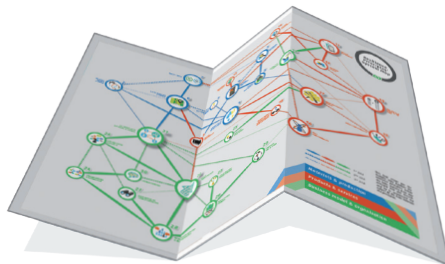
# The Resilience Design Game

## Wanne play?

Do you want to experience how to run a successful and sustainable business in an exciting and playful way?

Learn how to build resilience business ecosystems through the Resilience Design Business Game.

Do you have what it takes to develop new business solutions that will amaze and inspire other players? How will you adapt your strategy in face of challenging changes in your environment?



## SymbioVille



Work together as a team and learn how to build a strategy, invest wisely, gather the brightest ideas, work together with other businesses and grow a circular economy.

The Resilience Design Game is a business game for students, entrepreneurs en intrapreneurs that want to experience first-hand how it is to run a business in the economy of the future.

**The game can be played with 6 up to 12 players and takes about 2 hours.  
For more information, contact one of the project partners near you.**

# to go further

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Where does this book come from?

What we are reading...

# The ResilieNtWEB story

The Resilience Design Toolkit, Guide, Resilience Scan and Game have been developed by the ResilieNtWEB project, financed by the European Interreg IVB program.

ResilieNtWEB uses sustainability as a winning business strategy for small and medium sized companies. Through our business networks, we support enterprises to become more innovative and sustainable in the continuously changing environmental, economic and social context.

The program brings together the expertise of organisations from Belgium, Luxembourg, north of France and south of England.

The tools developed within this project are the result of the combined expertise, creativity and endurance of the project partners and more than 60 companies with which we worked together over the course of three exiting years.

The project has been piloted by Brussels Environment and Greenloop.



**ResilieNtWEB**  
Innovate for a sustainable business



**Greenloop**



LUXEMBOURG  
INSTITUTE  
OF SCIENCE  
AND TECHNOLOGY



# What we are reading...

**Further reading list.** Interested to learn more about biomimicry, resilience thinking, sustainability and new organisational models? Check out these books, articles, online resources and tools to help you on your way!

Biomimicry	Author(s)	ISBN-13
Biomimicry: Innovation inspired by Nature	Janine M. Benyus	978-0060533229
Biomimicry Resource Handbook: A Seed Bank of Best Practices	Dayna Baumeister	978-1505634648
The Nature of Business: Redesign for Resilience	Giles Hutchins	978-0865717374
Le vivant comme modèle	Gauthier Chapelle	978-2226320186
The Shark's Paintbrush: Biomimicry and How Nature Is Inspiring Innovation	Jay Harman	978-1940468211
Smart Swarm: Using Animal Behaviour to Organise Our World	Peter Miller	978-1583333907
Exploring The Way Life Works: The Science Of Biology	Mahlon Hoagland, Bert Dodson & Judy Hauck	978-0763716882
Blue Economy-10 Years, 100 Innovations, 100 Million Jobs	Gunter Pauli	978-0912111902
Biomimicry in Architecture	Michael Pawlyn	978-1859463758

Resilience and system thinking	Author(s)	ISBN-13
Thinking in Systems: A Primer	Donella H. Meadows	978-1603580557
The Systems Thinking Playbook: Exercises to Stretch and Build Learning and Systems Thinking Capabilities	Linda Booth Sweeney & Dennis Meadows	978-1603582582
The Fifth Discipline: The Art & Practice of The Learning Organization	Peter M. Senge	978-0385517256
What Matters Now: How to Win in a World of Relentless Change, Ferocious Competition, and Unstoppable Innovation	Gary Hamel	978-1118120828
The Systems View of Life: A Unifying Vision	Fritjof Capra & Pier Luigi Luisi	978-1107011366
Antifragile: Things That Gain from Disorder	Nassim Nicholas Taleb	978-0812979688

Business, sustainability and management	Author(s)	ISBN-13
The Ecology of Commerce: A Declaration of Sustainability	Paul Hawken	978-0061252792
Reinventing Fire: Bold Business Solutions for the New Energy Era	Amory Lovins & Rocky Mountain Institute	978-1603583718
Cradle to Cradle: Remaking the Way We Make Things	William McDonough & Michael Braungart	978-0865475878
Natural Capitalism: Creating the Next Industrial Revolution	P. Hawken, Amory Lovins & , L. Hunter Lovins	978-0316353007
Reinventing Organizations: A Guide to Creating Organizations Inspired by the Next Stage in Human Consciousness	Frederic Laloux	978-2960133516
Holacracy: The new management system for a rapidly changing world	Brian J. Robertson	978-1627794282
The Natural Step for Business: Wealth, Ecology & the Evolutionary Corporation	Brian Nattrass & Mary Altomare	978-0865713840
Strategy for Sustainability: A Business Manifesto	Adam Werbach	978-1422177709

Tools and methods	Author(s)	ISBN-13 / website
Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers	Alexander Osterwalder & Yves Pigneur	978-0470876411
Design Play Cards	Eco Innovators	<a href="http://www.designplaycards.com">www.designplaycards.com</a>
<a href="http://www.asknature.org">www.asknature.org</a>	The Biomimicry Institute	<a href="http://www.asknature.org">www.asknature.org</a>
Horizons	Forum for the Future, Innovate UK & Aviva Investors	<a href="http://www.horizons.innovateuk.org/cards">www.horizons.innovateuk.org/cards</a>
Business Model Blocks	Board of Innovation	<a href="http://www.boardofinnovation.com">www.boardofinnovation.com</a>
Pimento Map	Pimento Map	<a href="http://www.pimentomap.com/en">www.pimentomap.com/en</a>
Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation	Tim Brown	978-0061766084
The Power of Appreciative Inquiry: A Practical Guide to Positive Change	Diana Whitney, Amanda Trosten-Bloom, David Cooperrider	978-1605093284
The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses	Eric Ries	978-0307887894

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