

Bio-inspired Business Model Canvas: Introducing nature's principles in business model generation

Article as a result of attending the Nature, Art & Habitat Workshop, 1-5 June 2016, Val Taleggio, Italy

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Introduction

More than 4 million years the earth is struggling with the challenges of changing circumstances. All flora and fauna, which we now refer to as 'nature'¹, anticipated to these changes by adapting form and/or function. This is what made them sustainable and resilient to change and what makes the world go round. Until not so long ago (compared to earth's age), nature and humanity acted as one big ecosystem. But in contrast with flora and fauna, technological inventions and developments disrupted this ecosystem and separated humans from flora and fauna, now resulting in the struggle with climate change. The principles applied in nature might be an inspiration if we want to learn how to cope with or even repair these changes. The most striking differences can be characterised in the applied business model and survival strategy (Poelman, 2015).

Business model

A business model can be referred to as "nothing else than a representation of how an organization makes -or intends to make- money"². In businesses, moneymaking decisions are aimed at profit maximisation in €'s, \$'s, etc. based on the cost benefit ratio. If we can earn more money than spend, we will, whatever the purpose. This is why we have blue M&M's....

The 'business model' within nature is based on the cost benefit ratio in energy aimed at a right balance for survival. Ever seen a lion catch more than onegnu because they are 'at his disposal'?

Survival strategy

A similar thing is happening with survival strategy. Although in both (eco-) systems to survive means growth, nature is aimed at preservation of the species, where humanity considers growth as an end in itself. This is why the solutions for sustainability and resiliency differ between nature and humanity. So we can learn from nature's propagation and defend mechanisms to be really sustainable and resilient.

Approach

The limitation of a five day programme is that time does not allow for thorough examination of concepts. Therefore it was chosen to come up with 'one amazement a day'. Together with the statement that business model and survival strategy of nature are inspiring for business solutions, provided for the idea to construct a bio-inspired business model.

First the amazements will be illustrated and then a brief description of the business model canvas is presented. Finally these are combined into a proposal for a bio-inspired business model canvas.

¹ We, humans, don't consider ourselves as part of nature anymore, but as top of the 'foodchain' (represented by a pyramid). This proved to be the most striking amazement and difficult to break presumptions during the NAHW.

² http://nonlinearthinking.typepad.com/nonlinear_thinking/2008/07/the-business-model-canvas.html

Amazements

Shift of scale

The art of craftsmanship was visible in the making of Taleggio and Strachitunt, two of the local produced cheeses in Val Taleggio. It also showed the puzzle of being commercial viable and true to crafts versus the temptation of global interest. This 'reverse glocalization'³ introduces a shift of scale, where a local production facility suddenly has to face global –environmental- issues due to long distance transport etc. So, a shift of scale also results a shift in context, consequently with different (environmental) conditions.



Photo 1 Traditional production of Strachitunt



Photo 2 Storage at CasArrigone

Management

Sole walnut trees remind us of the planting of non-native trees near farms for the provision of food and nuts. And even today, under the guise of environmental management, man commits interventions in self-regulating and circular systems, like nature. Because we intervene constantly and thereby thinking in chains, the self-regulating character of nature is also disturbed. Moreover, nature operates in cycles based on changing seasons, including periods of relaxation, where death and decomposition are essential for renewal. In this way, systems are able to recover and re-establish their purpose⁴. Humanity operates at constant speed, never allowing for relaxation and complete renewal. This justifies the question whether it is actually allowed to call humans 'manager' of the environment.

³ Glocalization (a portmanteau of globalization and localization) is the adaptation of international products around the particularities of a local culture in which they are sold (<https://en.wikipedia.org/wiki/Glocalization>).

⁴ This is also the message in Simon Sinek's book 'Start with Why': we do know what we do and how we do it, but seldom is known why we do it.



Photo 3 Dragonfly after leaving its exoskeleton



Photo 4 Sole walnut tree

Utility, ingenuity and need

All the survival and defend techniques are full of ingenuity. The larva of the maybug can live up to seven years under the ground and before popping up as maybug. It then lives only for 15 days just to propagate. After the eggs are laid, the maybug dies. Or consider larva that surrounds itself with spittle for protection against predators, or the meadow sage with mechanical stamens transferring pollen whenever a bee enters the flower cup seeking nectar.

All these examples show that nature is full of utility and ingenuity but only when needed. Even silence and sound has a purpose.



Photo 5 Bug protected by spittle



Photo 6 Meadow sage mechanical stamens

Interconnected multi functionality

Mycelium sleeps underground until it is the right moment to grow mushrooms, either to kill (parasite), clean (saprophyte) or exchange (symbiosis). And when a parasite killed its host, it turns into a saprophyte to clean the remains. Meanwhile mycelium functions as a glass fibre network for communication between trees in case of attacks or other misfortune (Lanting, 2016).

A tree with a mycelium network grows 50 times as fast as trees without.

In nature everything is multidisciplinary and interconnected.



Photo 7



Photo 8

Bio-inspired Business Model Canvas

Business model generation

A business model 'describes the rationale of how an organization creates, delivers and captures value', and business is defined as 'the activity of providing goods and services involving financial, commercial and industrial aspects' (Osterwalder, Pigneur, & Tucci, 2005, p. 2).

According to Osterwalder, Pigneur, & Tucci (2005), generation of a business model consists of nine building blocks based on four pillars, showing the logic of how a company intends to make money (see appendix for a detailed description of the pillars and building blocks). This was later summarized and translated in a method and template, the Business Model Canvas (Osterwalder & Pigneur, 2010)⁵.

Bio-inspired business model canvas

As said earlier, the principles of nature are inspiring for business models, by the different approach in business model and survival strategy. The main differences between nature and are outlined below (table 1).

⁵ Preview downloaded at http://www.businessmodelgeneration.com/downloads/businessmodelgeneration_preview.pdf

Table 1 Main differences in business approach

Humanity	Nature
Chains	Cycles
Profit maximisation	Survival (resources & energy efficiency)
Growth	Preservation
Needs & problems	Needs & gaps
Revenue	Benefit
Resources	Conditions (resources & context)
Process (partners/ relations)	Network (actors/ position)

Although we cannot just copy nature's concepts, we can apply some of the principles. Compared to humanity, nature

- does not think in endproducts or services but in cycles,
- adapts to its context, whereas humanity build its context (there is no 'glocalization' in nature!)
- acts as a multidisciplinary network within his context, aimed at mutual gains,
- aims at resource and energy efficiency in stead of profit maximization and
- focuses on the preservation of species instead of (exponential) growth.

If these principles are applied to the nine building blocks of business model generation, the business model canvas is adapted into a bio-inspired business model canvas, see resp. figures 1 and 2.

The two models show that in de bio-inspired model, the cost and benefit ratio is broadened as a result of the approach as cycle and network. It is constructed of two domains instead of flows: conditions & context versus benefit & value instead of cost versus revenue. The differences stem from the fact that in nature everything operates in respect to the context surrounding the 'business'.

Conclusion

In this article the canvas for business model generation was adapted into a bio-inspired version. It proves we can learn from nature's principles. The main issue is the cost benefit ratio we base our decisions on. If we are able to think in cycles, not chains and aim for balanced survival instead of profit maximisation, more sustainable en resilient businesses are a fact.

However, this is mainly based on the highly unlikely presumption that human businesses want to add value and not just make vulnerable, volatile and often even useless products. On top of that, the main difference between nature and humanity is the time it takes to try out strategies. This is the main reason a business model according to nature's principles is virtually impossible. Although nature's principles are very applicable in human business operation, the experiment in this article must be considered a thought experiment.

Recommendations

The duration of the workshop was too limited for in depth research of business models and the resulting business model canvas. However, it proved to be a promised route for the realization of more sustainable and resilient businesses. Further research is therefor recommended.

At the same time nature has proven propagation and defend mechanisms. These are worthwhile investigating and translating into models for sustainable growth.

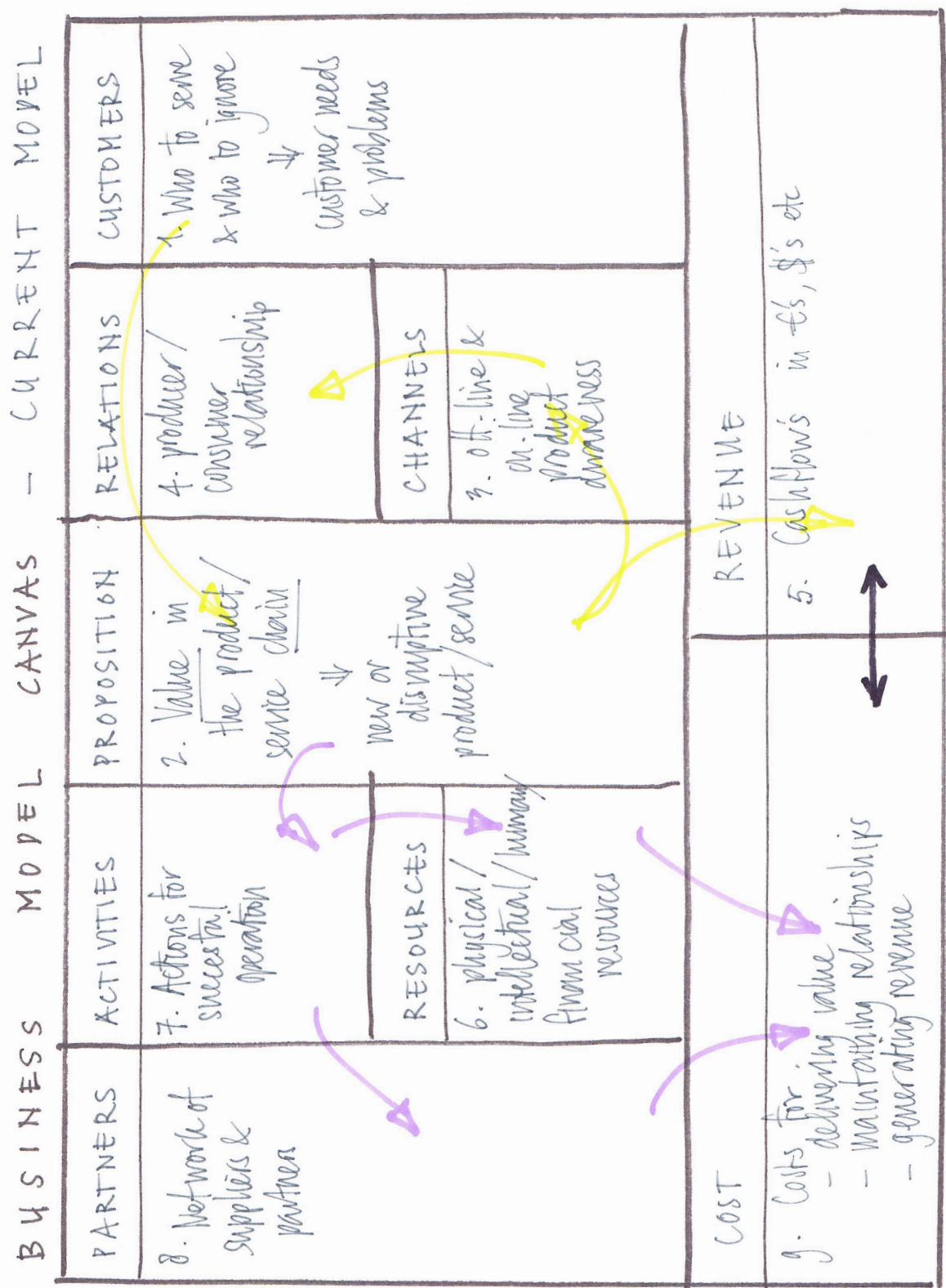


Figure 1 Business Model Canvas according to Osterwalder et al. (2010)

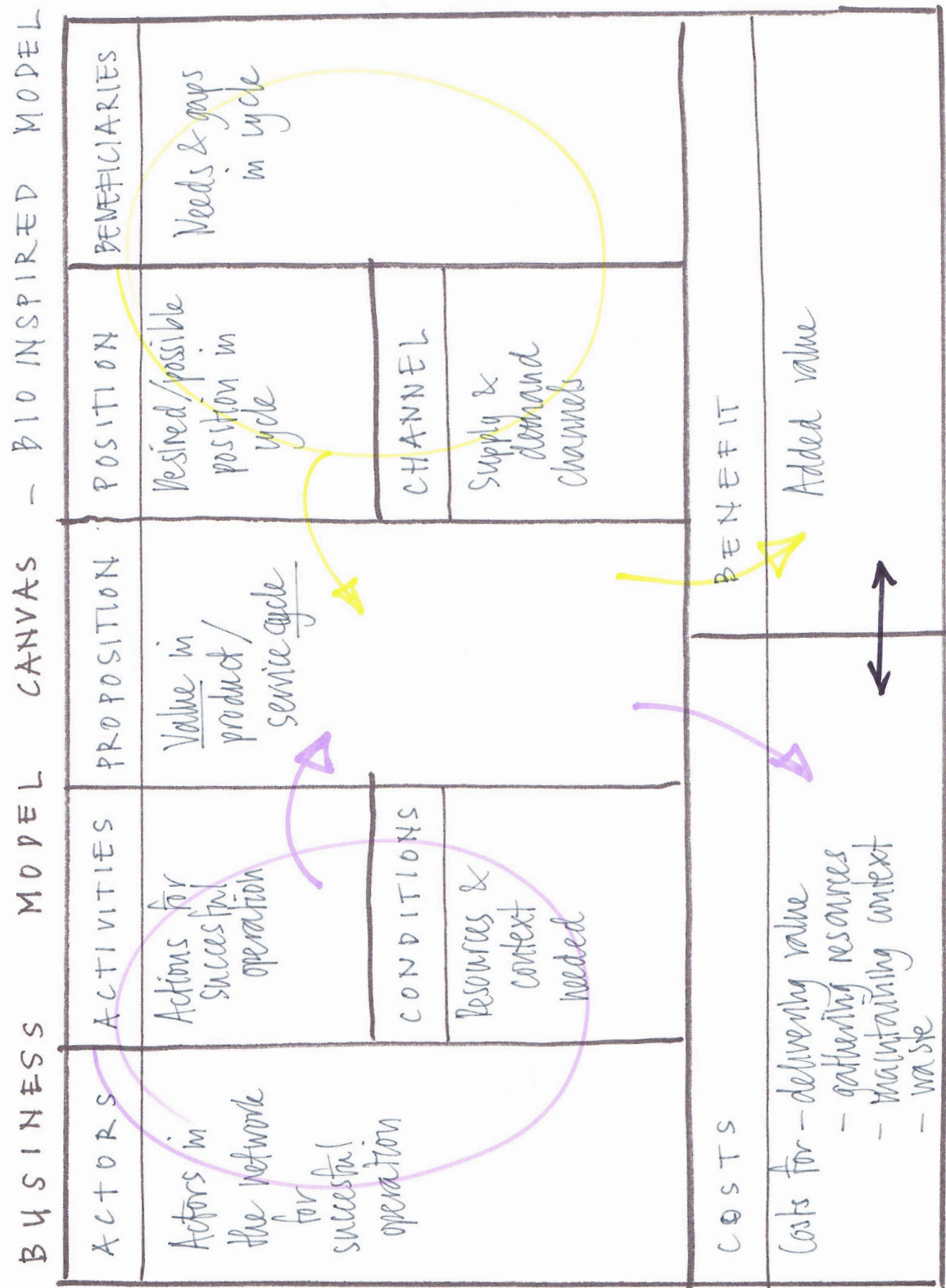


Figure 2 Bio-inspired Business Model Canvas

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Appendix

Table 2 Pillars and business model building blocks (Osterwalder, Pigneur, & Tucci, 2005)

Pillar	Business Model Building Block	Description
Product	Value proposition	Overall view of a company's bundle of products and services
Customer interface	Target customer	Describes the segments of customers a company wants to offer value to
	Distribution channel	Describes the various means of the company to get in touch with its customers
	Relationship	Explains the kind of links a company establishes between itself and its different customer segments
Infrastructure mgmt.	Value configuration	Describes the arrangement of activities and resources
	Core competency	Outlines the competencies necessary to execute
	Partner network	Portrays the network of cooperative agreements with other companies necessary to efficiently offer and commercialize value
Financial aspects	Cost structure	Sums up the monetary consequences of the means employed in the business model
	Revenue model	Describes the way a company makes money through a variety of revenue flows.