

Designing more sustainable business models, services and products:

How design foresight outcomes can guide organizational sustainability of SME manufacturers

Alexandre Joyce, Concordia University, Montreal, Canada
alexandre.joyce@gmail.com

Figure 1. The five stages towards sustainability
Reproduced from Nidumolu, Pralahad and Rangaswami (2009)

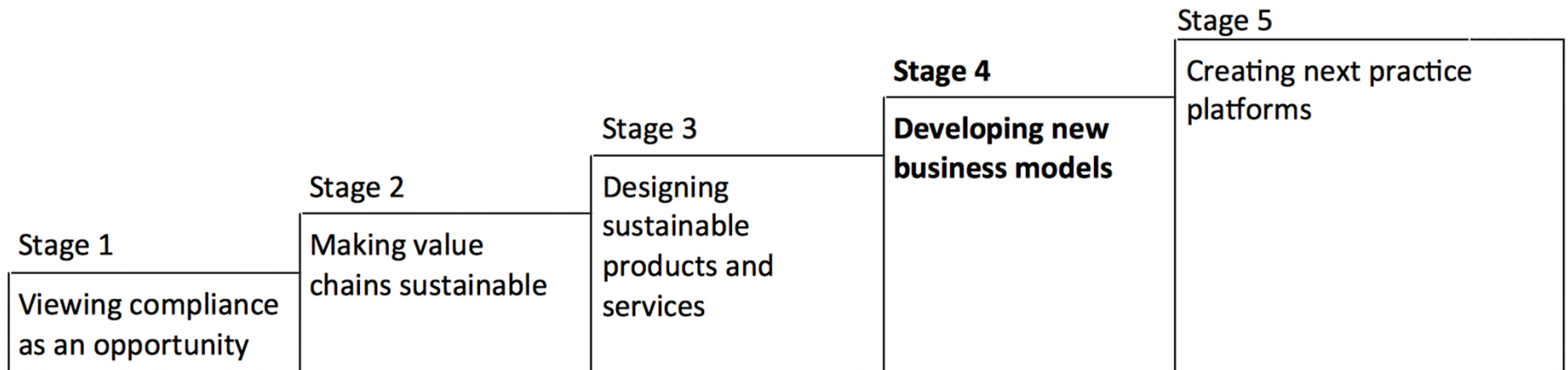


Table 1. Principles of a sustainable business model (SBM)
(reproduced from Stubbs and Cocklin 2008)

1.	A SBM draws on economic, environmental and social aspects of sustainability in defining an organization's purpose.
2.	A SBM uses a Triple Bottom Line approach in measuring performance.
3.	A SBM considers the needs of all stakeholders rather than giving priority to shareholders' expectations
4.	A SBM treats nature as a stakeholder and promotes environmental stewardship.
5.	Sustainability leaders drive the cultural and structural changes necessary to implement sustainability.
6.	An SBM encompasses the systems perspective as well as the firm-level perspective.

Design and Management Fields of research

Context

Sustainability
for organizations

Problem

Sustainable
business models

ends

Design and Management Fields of research

Context

Sustainability
for organizations

Problem



Sustainable
business models

ends

Design and Management Fields of research

Context

Sustainability
for organizations

Problem



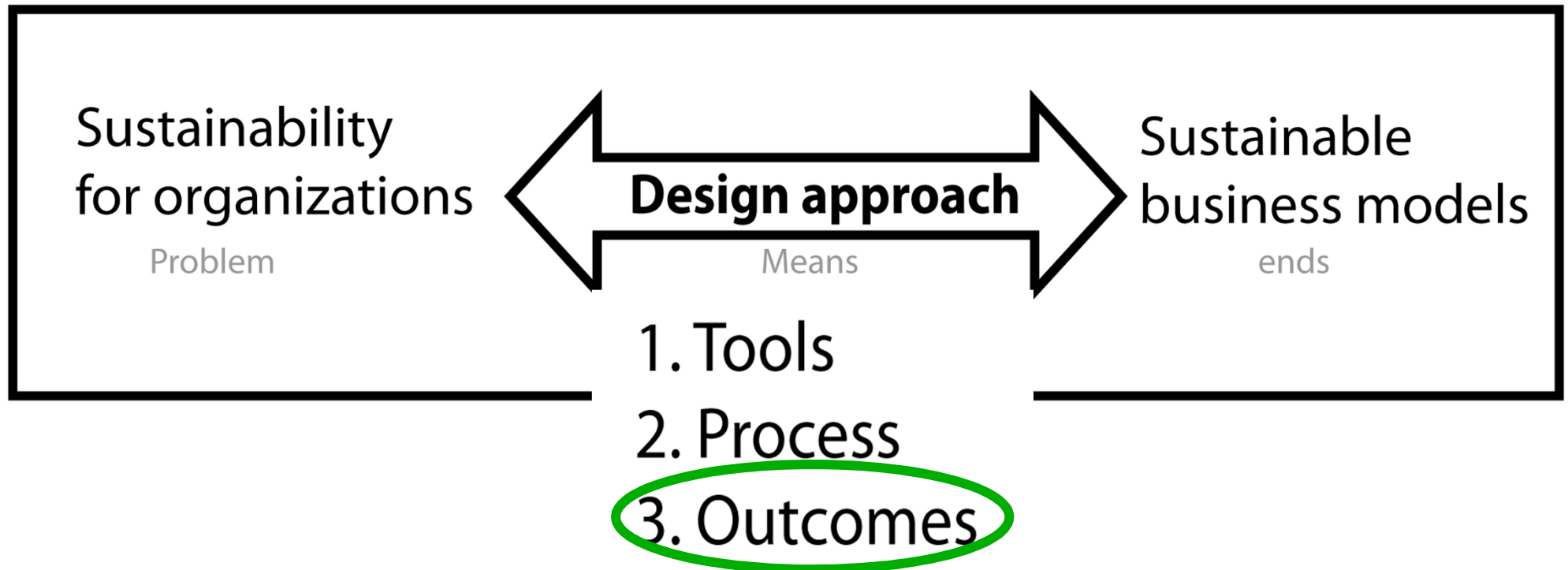
Sustainable
business models

ends

1. Tools
2. Process
3. Outcomes

Design and Management Fields of research

Context



Its the journey,

not the destination.

Definitions

Foresight:

“A process of developing a range of views of possible ways in which the future could develop, and understanding these sufficiently well to be able to decide what decisions could be taken today to create the best possible tomorrow”

Horton (1999)

Definitions (2)

Vision:

“heurisitic device to map a 'possibility space', [...] that can orient and structure actions and behaviours [...] and inspire societal actors to investigate and test alternatives from technology to behavior to culture and institutions”

Vergragt and Brown (2007)

Definitions (3)

Design outcomes:

“qualitative aspects of the resulting design concepts produced by the designers”

Kruger and Cross (2006)

Examples



Orders of design

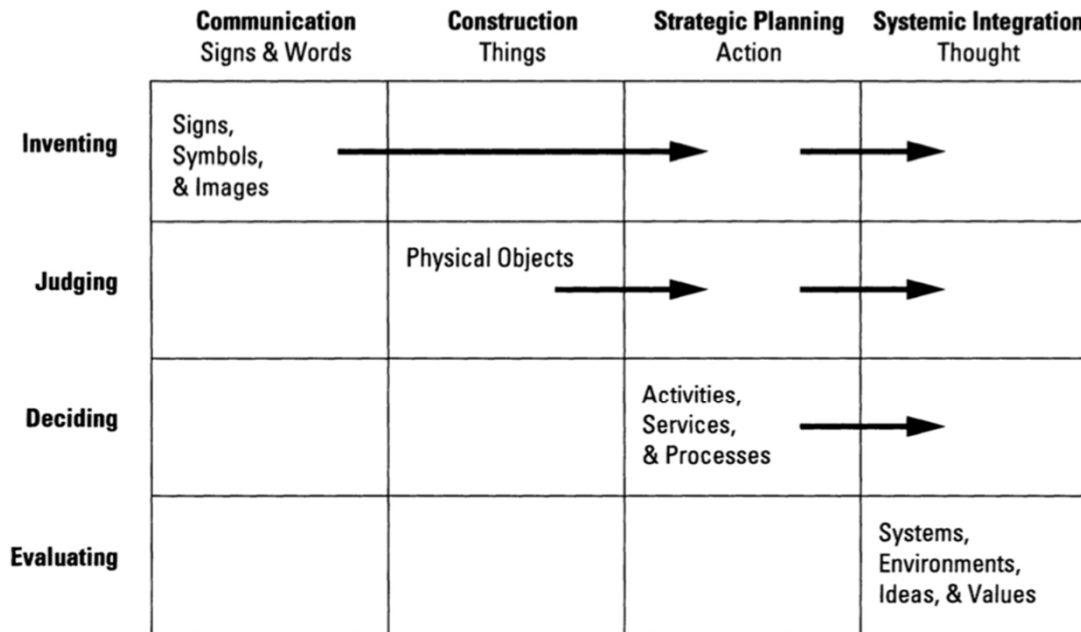


Figure 1. Reproduced from Buchanan (1998)

Generic Foresight Process Framework

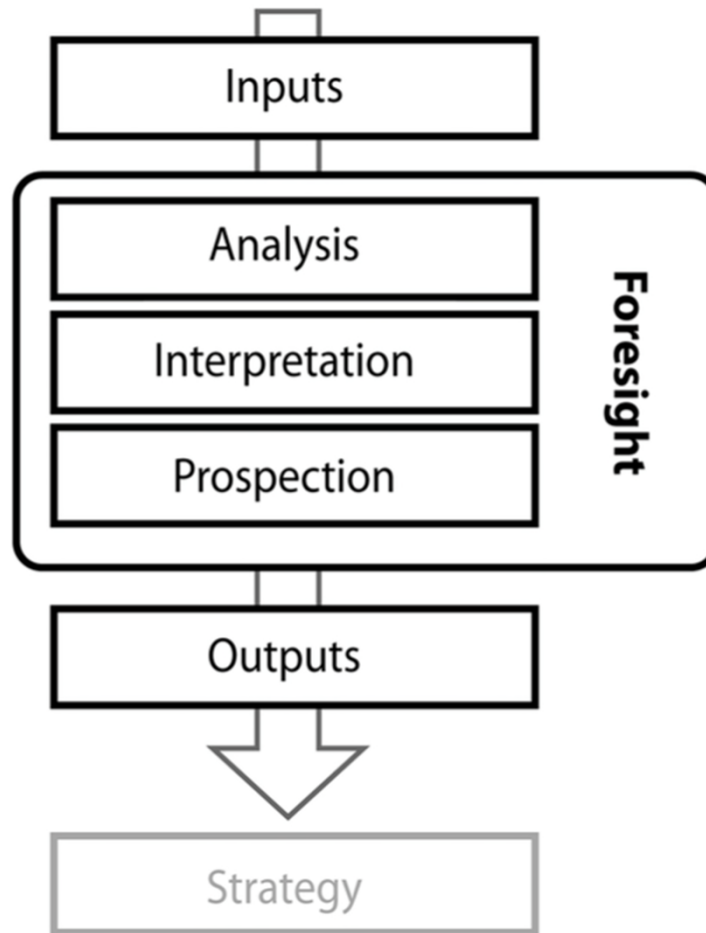


Figure 2. Reproduced from Voros (2003)



Pay for success

Product financing

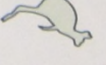
Razors and blades

Provide on demand

Franchising

Hidden revenue

How could you...
reimburse them?



Franchising
When franchising, the franchisor offers a business package that includes a consistent, tested, proven system to other owners. Ex: Subway, Unilever



How could you...
reimburse them?
Ex: Chick-fil-A

How could you...
reimburse them?
Ex: Google

How could you...
reimburse them?
Ex: Google

Product financing
Offer products on credit to customers. Customers pay for the product over time. Ex: Dell

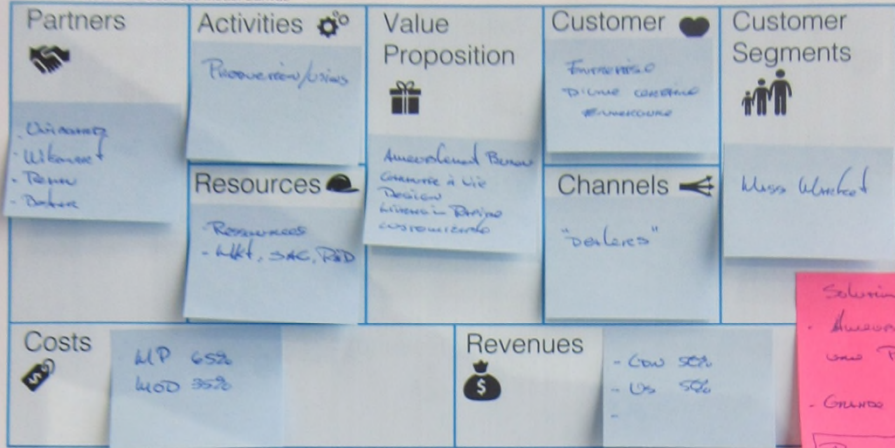
Razors and blades
Sell a low-cost product that requires a high-cost consumable. Ex: Gillette

Provide on demand
Offer a service on demand, rather than a physical product. Ex: Uber

Franchising
When franchising, the franchisor offers a business package that includes a consistent, tested, proven system to other owners. Ex: Subway, Unilever

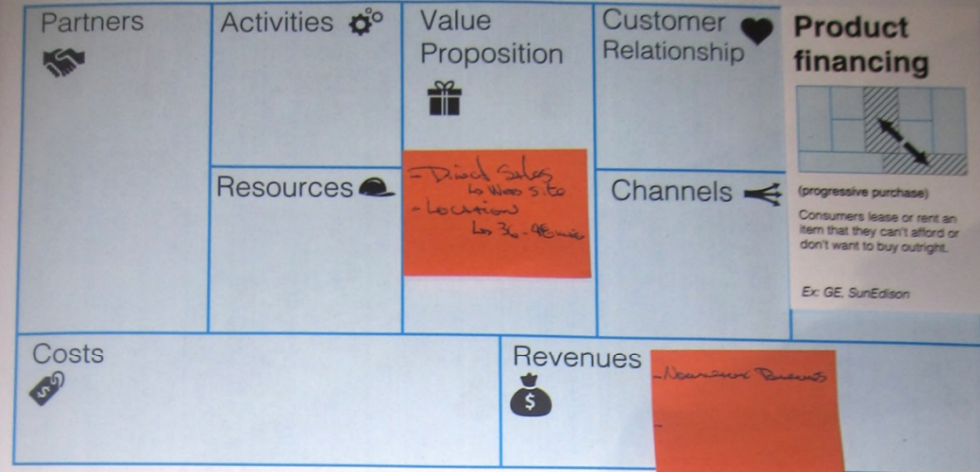
Hidden revenue
Offer a service that is not explicitly priced, but is essential for the customer to use the product. Ex: Chick-fil-A

Economic Business model Canvas

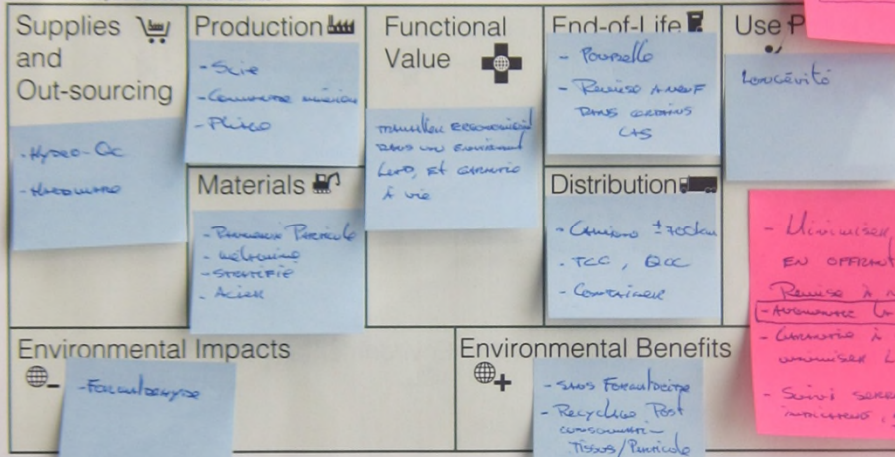


Solution complète
- Associer avec
une personnalité,
- Créer une petite boutique
Personnalisation

Economic Business model Canvas

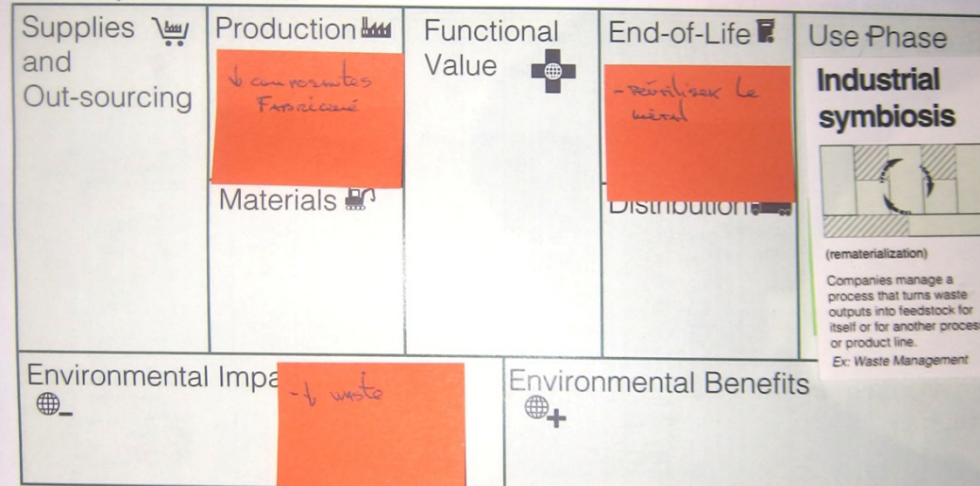


Life Cycle Business model Canvas

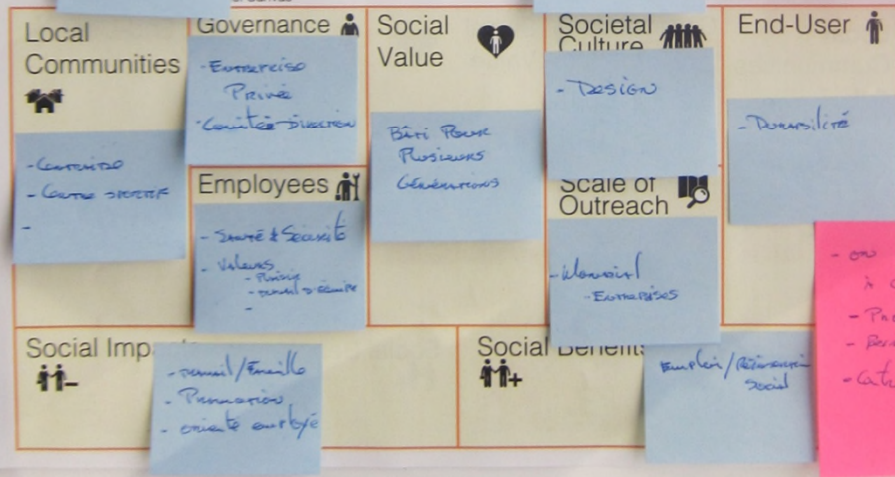


- Utiliser l'énergie
en offrant la
Réponse à nos
- Améliorer la durée de
- Améliorer à vie pour
améliorer l'impact
- Suivi serré des
matériaux, énergie, etc.
produits.

Life Cycle Business model Canvas



el Canvas



- on a les yeux
à cœur,
- Promotion à l'échelle
- Réponse à social
- Autre stratégie

Stakeholder Business model Canvas

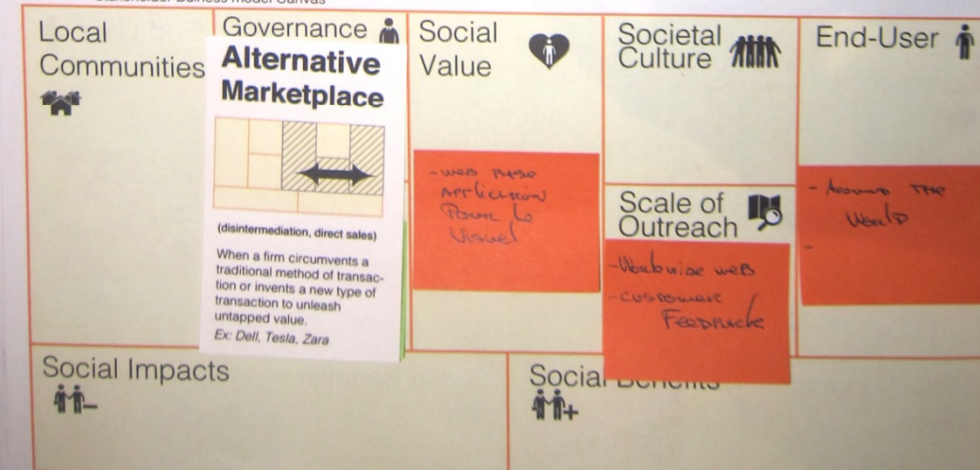
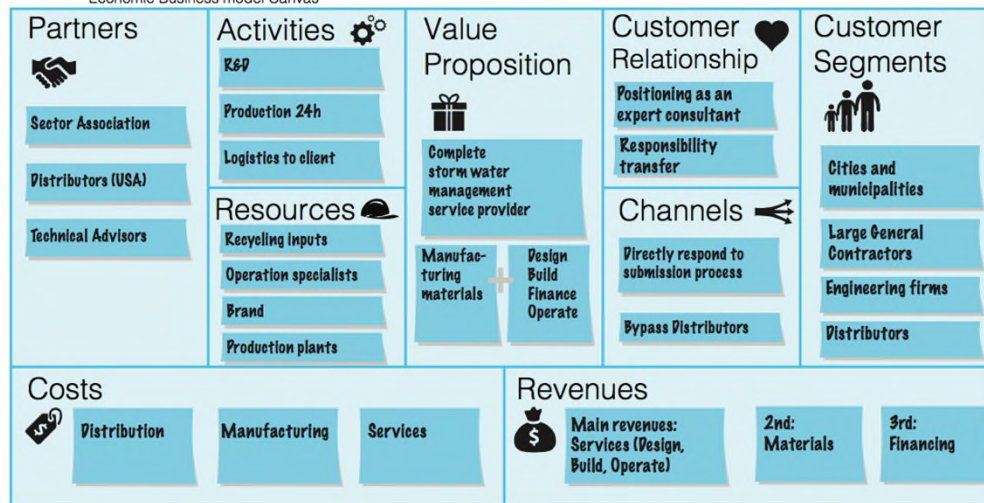
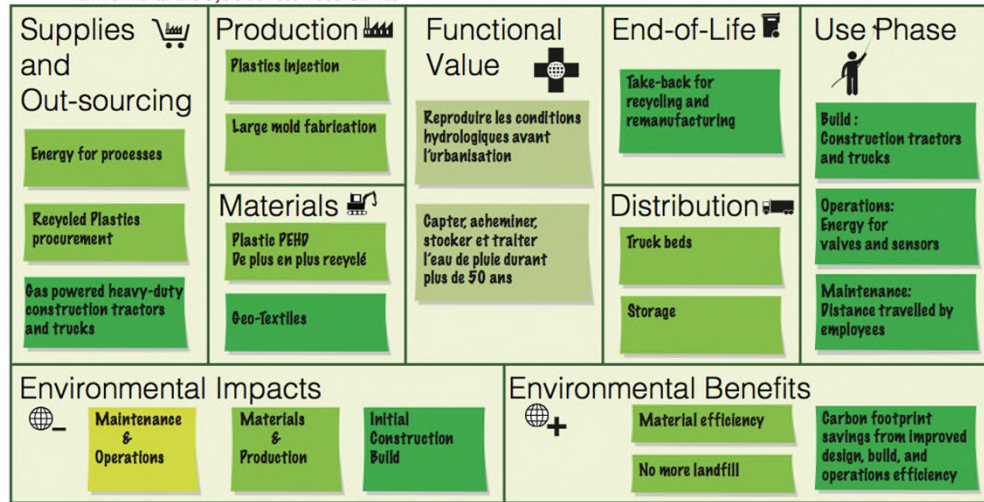


Table 1. The concepts of more sustainable business models, services, and products for 5 manufacturing organizations.

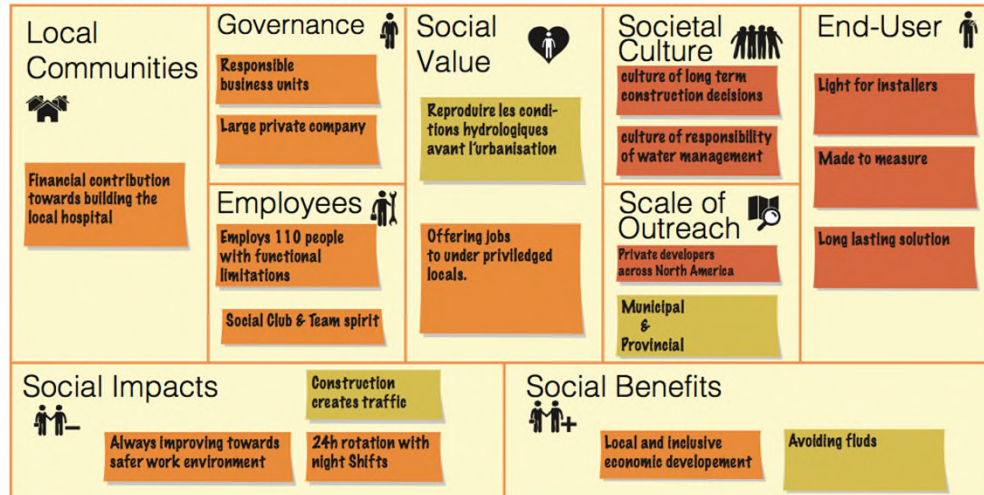
	Foresight inputs		Design outcomes		
	Profile	Current business model	Business model concept	Service scenario	Product concept
Rainpipe 1978 170 empl. B2B	Rainpipe is an innovative but smaller player in the Rainwater management industry selling plastic pipes. Their sustainability practices are underdevelopment	Answering public work tenders with a variety of products that answer all storm water management needs such as collecting, conveying, treating and storing.	Selling energy produced locally within rain water management contracts.	The service is built with the city client in a face to face service provider experience.	Taking advantage of floods to generate energy from water flow with micro-turbines integrated in pipes



Environmental Life Cycle Business model Canvas



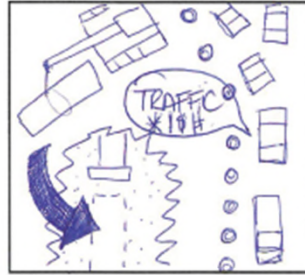
Social stakeholder Business model Canvas



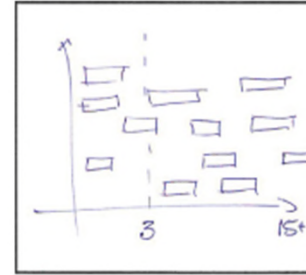
Service Scenario Rainpipe



Michelle has been working for the city as an engineer for the past 10 years. She's in charge of updating the city's entire rain water infrastructure.



Ideally, it could be done in 3 years to reduce the impacts on commercial avenues and on commuting traffic.



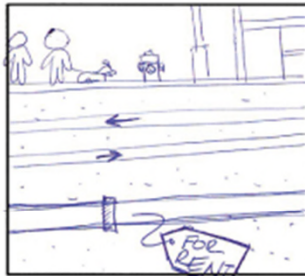
But her budget is so tight that she has to piece out the project over the next 15 years.



That's until she met with Jean who works for Rainpipe. They have been a one stop shop selling products to solve all rain water management needs since the 1990s.



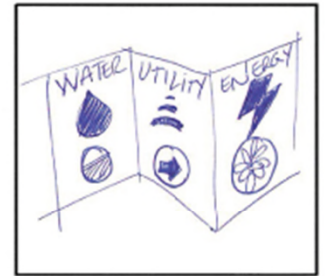
But today, Rainpipe does much more. In fact, Jean is proposing to Michelle a new way to finance her project.



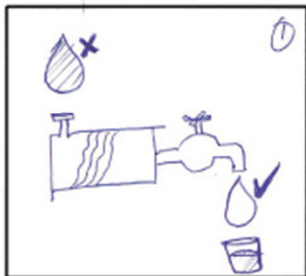
The city will actually make money by leasing out the space under some streets and sidewalks.



As always, Rainpipe is responsible for designing, building and operating the rain water collection system.



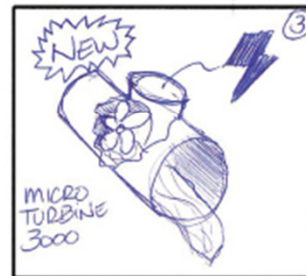
However, there are three new services from Rainpipe.



First, they can treat the collected rain water and sell it back to the city as potable water.



Second, Jean's R-D team has developed some pipes that can safely pass fiber optic wires or energy cables so that Rainpipe can sub-let some space to telecoms and energy utilities for a reoccurring revenue.



Better yet, Rainpipe has been working with partners on micro-turbines to produce energy from the water flowing in the system. Rainpipe then sells the energy to local utilities.



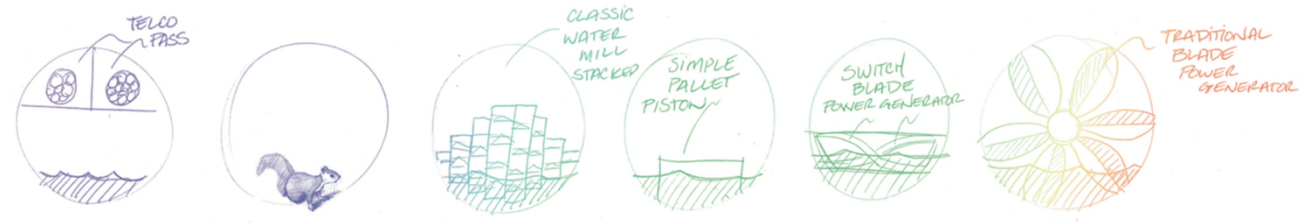
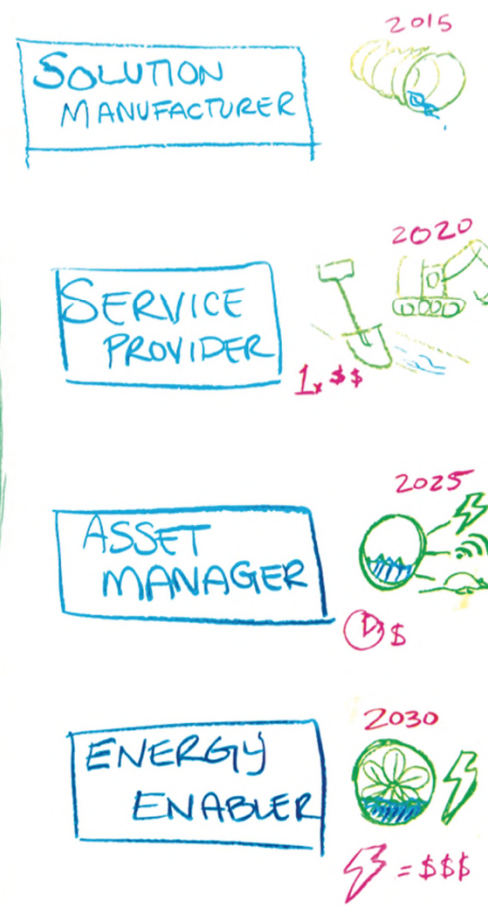
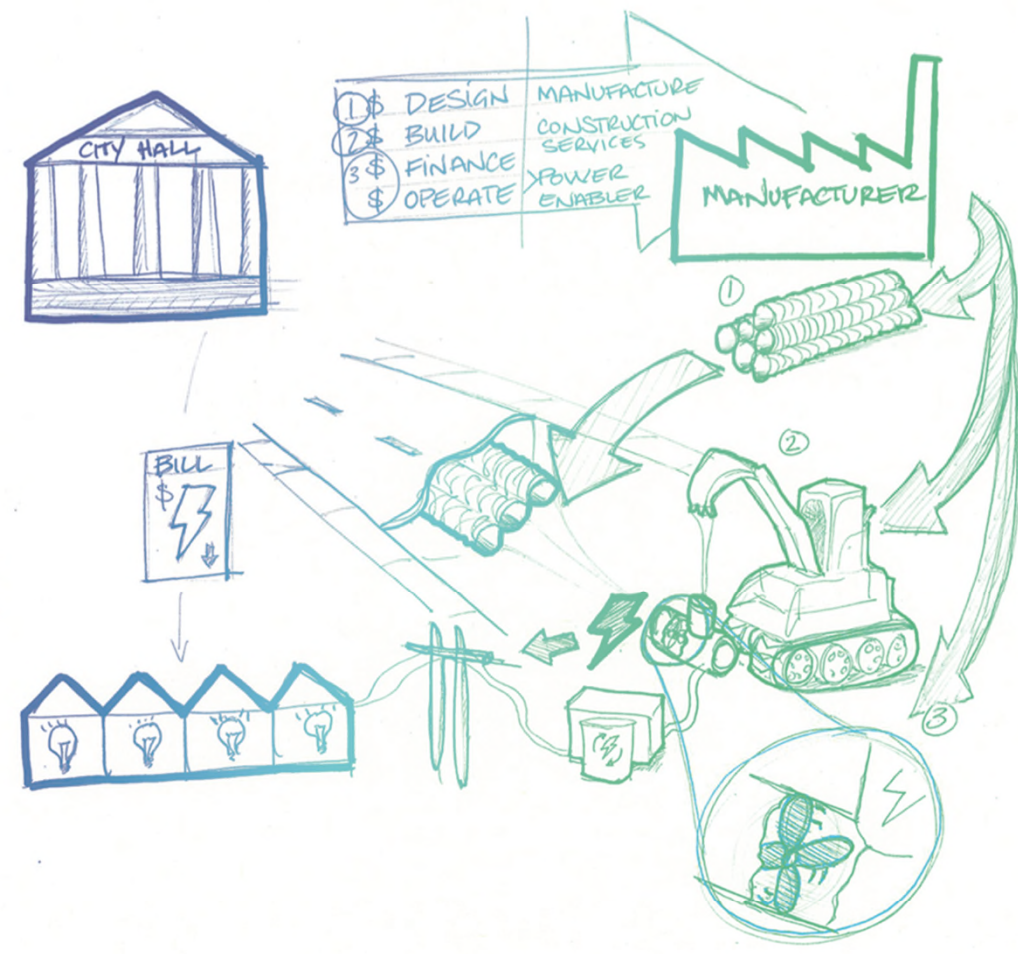
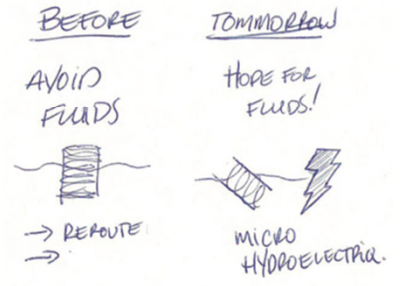
Thanks to Rainpipe's new business model, Michelle can help the city make money with its urban infrastructures and reduce cost answering social needs for clean water and renewable energy.

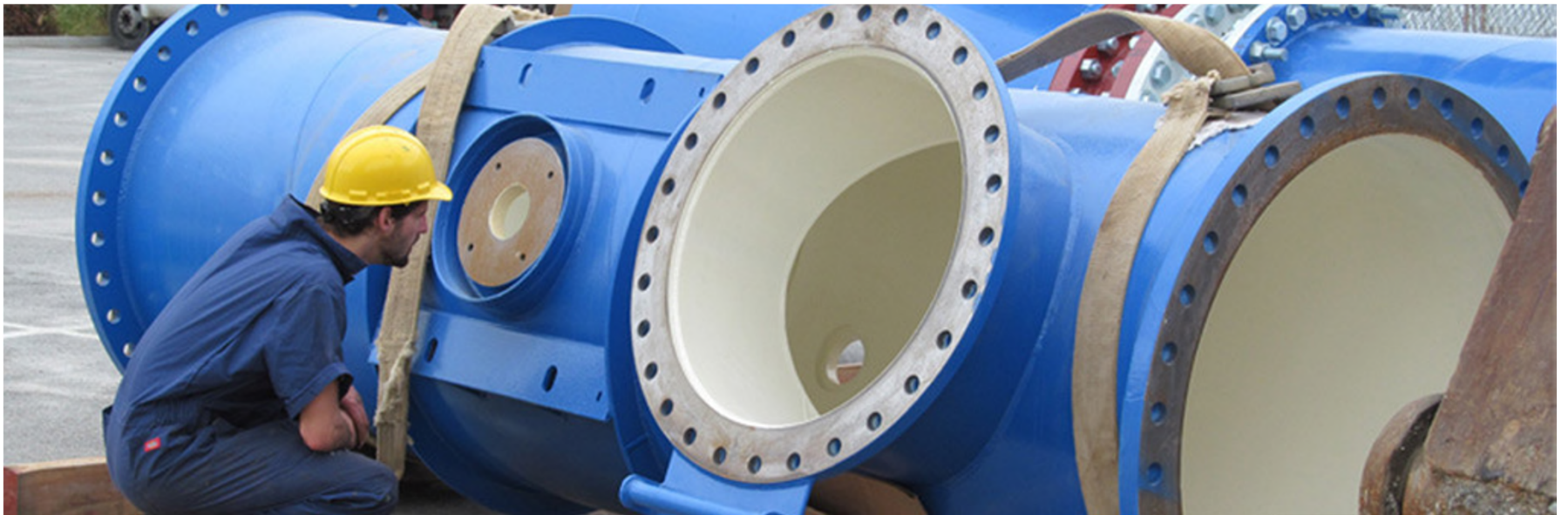
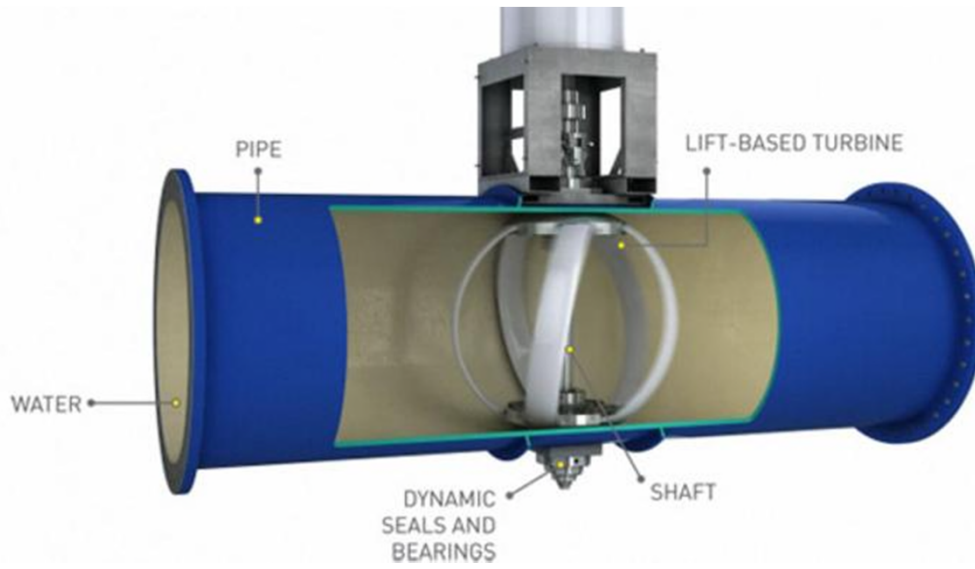
STORM WATER PRODUCTS

DISTRIBUTORS AT PLAY
 LENGTHY SALES PROCESS
 DIRECT TO CLIENT
 ↳ FINANCING ISSUES
 HIGH IN-HOUSE EXPERTISE

TOWARDS A SYSTEM SERVICE PROVIDER
 DESIGN
 BUILD
 FINANCE
 OPERATE

BIG VISION





**Table 2. Evaluation of design outcomes
with the 6 principles of sustainable business models (SBM) by Stubbs and Cocklin's (2008)**

	A SBM draws on economic, environmental and social aspects of sustainability in defining an organization's purpose	A SBM uses a Triple Bottom Line approach in measuring performance	A SBM considers the needs of all stakeholders rather than giving priority to shareholders' expectations.	A SBM treats nature as a stakeholder and promotes environmental stewardship	Sustainability leaders, or champions, drive the cultural and structural changes necessary to implement sustainability	An SBM encompasses the systems perspective as well as the firm-level perspective
<u>Rainpipe</u>	The purpose of the organization is to reproduce hydrological systems before urbanization by managing rain water for the next 50 years	Services rendered, Carbon footprint savings, Material efficiency, local economic development.	Offering jobs to locals and disabled people.	The end goal of water management is to avoid floods in urban areas.	The in-house engineers build relationship with the city workers to change the current model.	By moving from the sale of a product to enabling energy production while managing rainwater.

Summary of Findings

Design outcomes give direction away from today's thinking

There are multiple types of outcomes that, together, help create a more comprehensive vision

Part of the
sustainability journey,
is designing a
destination”

Designing more sustainable business models, services and products:

How design foresight outcomes can guide organizational sustainability of SME manufacturers

Alexandre Joyce, Concordia University, Montreal, Canada
alexandre.joyce@gmail.com