



EPSRC Centre
for Innovative
Manufacturing in
**INDUSTRIAL
SUSTAINABILITY**

Sustainable Business Model Innovation Workshop

UNIVERSITY OF CAMBRIDGE, IMPERIAL COLLEGE LONDON
FA. FAIR FOCUS

PRESENTED TO
Circle Economy

PRESENTED BY
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15 November 2012

Sustainable business model innovation Quick intro



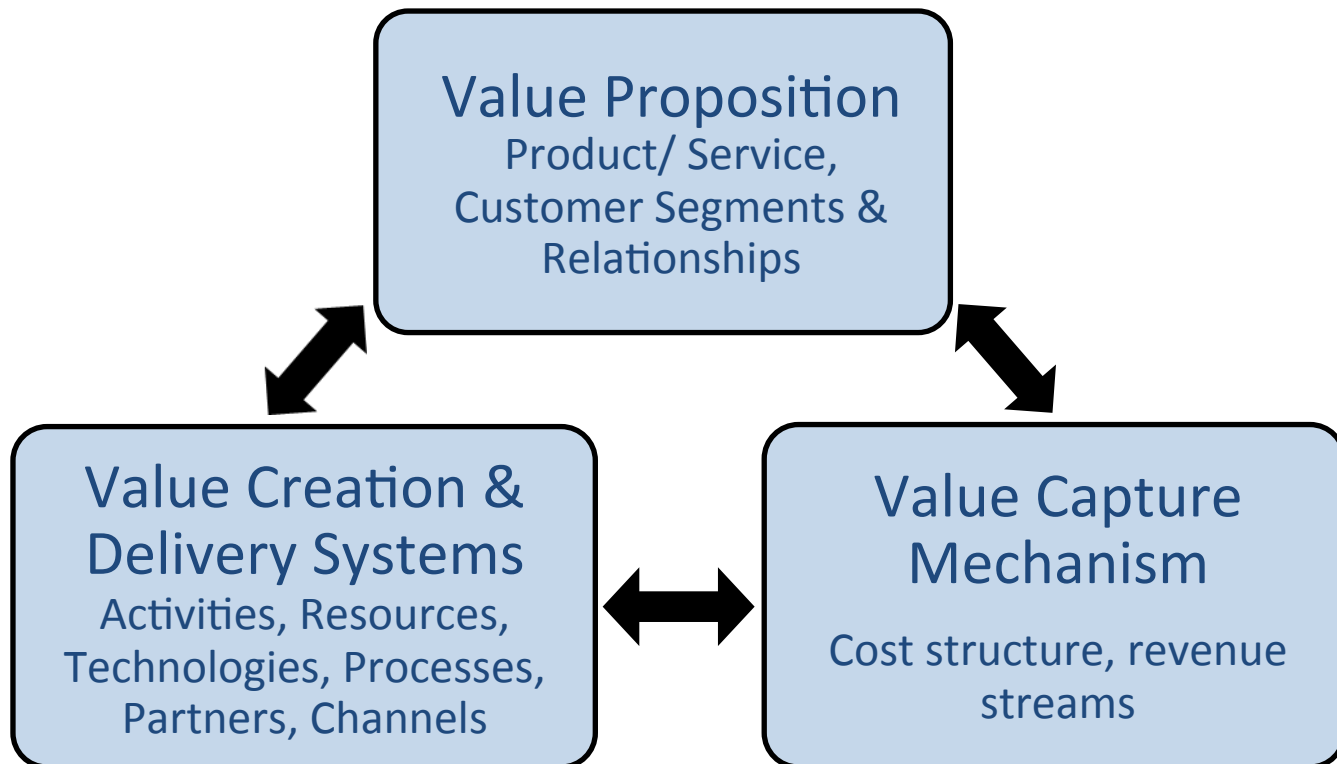
Need for a systems level approach to Sustainability

- Current approaches to industrial sustainability are a good start, but are not enough
 - Consuming 1.5 planets (WWF Living Planet Report 2012)
 - Expanding global population
 - Rising standard of living and consumption
 - ‘Rebound’ effects
- Need for system-level innovation
 - Integrate sustainability into the core purpose of the firm through business model innovation

What is a Business Model?

- Conceptual representation of *'how a firm does business'*

Core elements of the business model



Business Models for Sustainability

- Business models for sustainability use:
 - Both a systems and firm-level perspective
 - Build on the triple bottom line approach to define the firm's purpose and measure performance
 - Include a wider range of stakeholders
 - Specifically consider the environment and society as stakeholders
(Stubbs and Cocklin, 2008)
- Create competitive advantage through superior customer value and contribute to a sustainable development of the company and society
(Lüdeke-freund, 2010)
- Such business models 'preserve the environment, while continuing to improve the quality of human life' (Garetti & Taisch, 2012)

Why focus on business model innovation?

- What is a sustainable business model?
 - Value logic that encompasses economic, environmental and social goals
 - Includes society and environment as stakeholders
- Why is business model innovation for sustainability required?
 - Current focus is on generating economic value. Need to encompass environmental and social value into the business purpose
 - Re-thinking the value proposition
 - The objective of sustainable business is alignment of stakeholders interests to ensure broader positive value creation, rather than trade-offs and compromises where stakeholder groups benefit at the expense of others

Sustainable Business Modelling

1. Over-arching objective (WHY we exist)

Purpose, Values and Beliefs

2. Recipients of value (Key stakeholders)

Industrial Network

Environment

Society

Customers

3. Value propositions

Captured

Missed/
Destroyed

Opportunity

Captured

Missed/
Destroyed

Opportunity

Captured

Missed/
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Opportunity

Captured

Missed/
Destroyed

Opportunity

4. Business model elements

Key Partners/
Suppliers

Key Resources

Key Activities

Delivery Channels

(Customer) Relationships

5. Business model element archetypes

Adopt a stewardship role

Ethical trade

Biodiversity Resources

Consumer care

Choice editing

Develop scale-up solutions

Licensing

Franchising

Open innovation

Crowd sourcing

Integrate business in community

Alternative ownership structures: cooperative, partnerships

Localisation

Home based work

Maximise resource efficiency

Lean Low carbon

De-materialise

Bio-mimicry
Slow manufacturing

Purpose for society/
environment

Not for profit
Hybrid businesses
Social enterprise

Social regeneration
Base of pyramid

Pursue disruptive innovation

Technology & network reconfiguration

Step-change

Value network change

Create value from waste

Circular economy, closed loop

Cradle2Cradle Industrial symbiosis

Reuse, recycle, re-manufacture

Deliver function, not ownership

Maintenance, extended warranty
Rental, lease

Pay per use

Private Finance Initiative (PFI), DBFO

Encourage sufficiency

Consumer education

Demand mgt.

Cap & trade

Slow fashion, longevity

Frugality

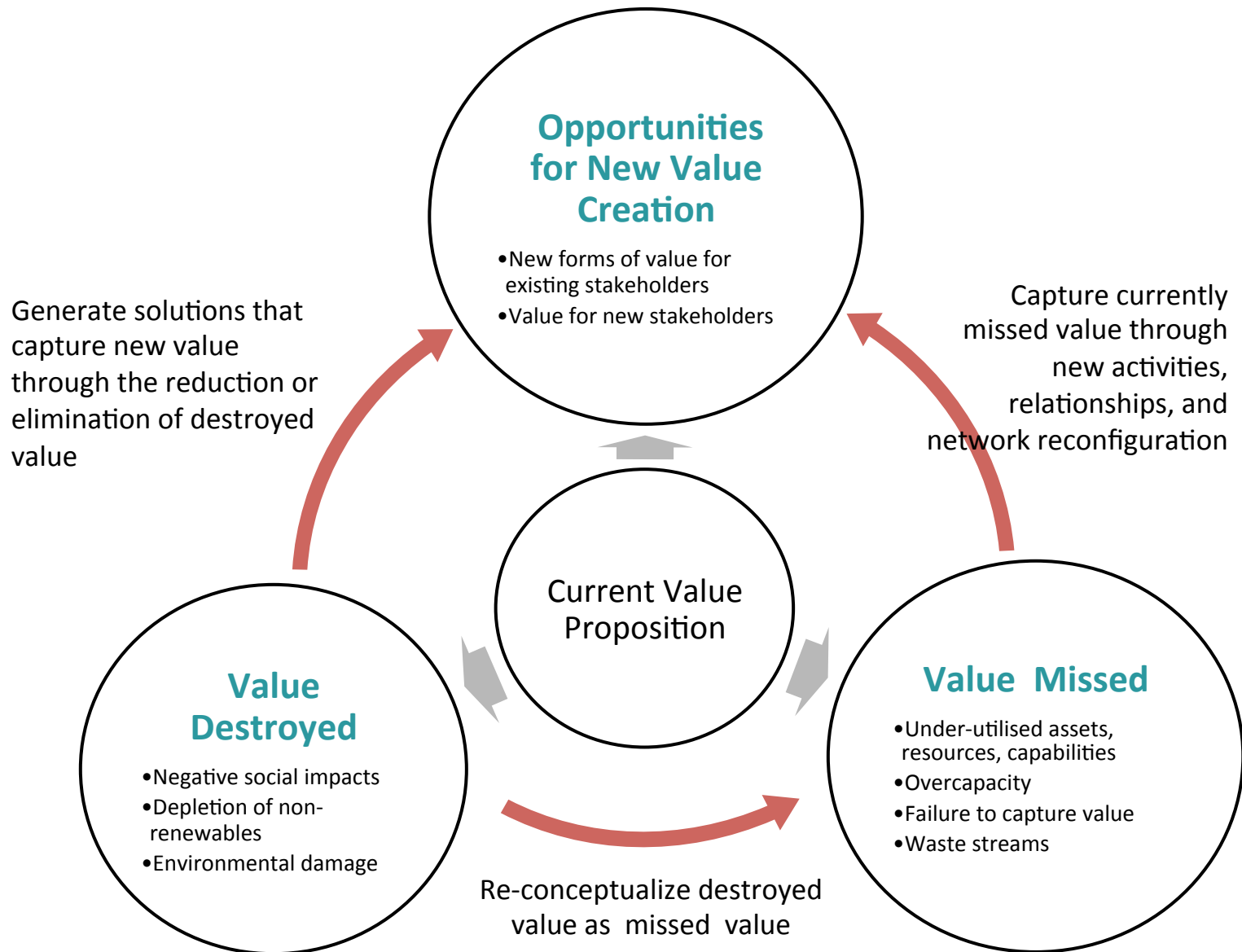
Responsible promotion

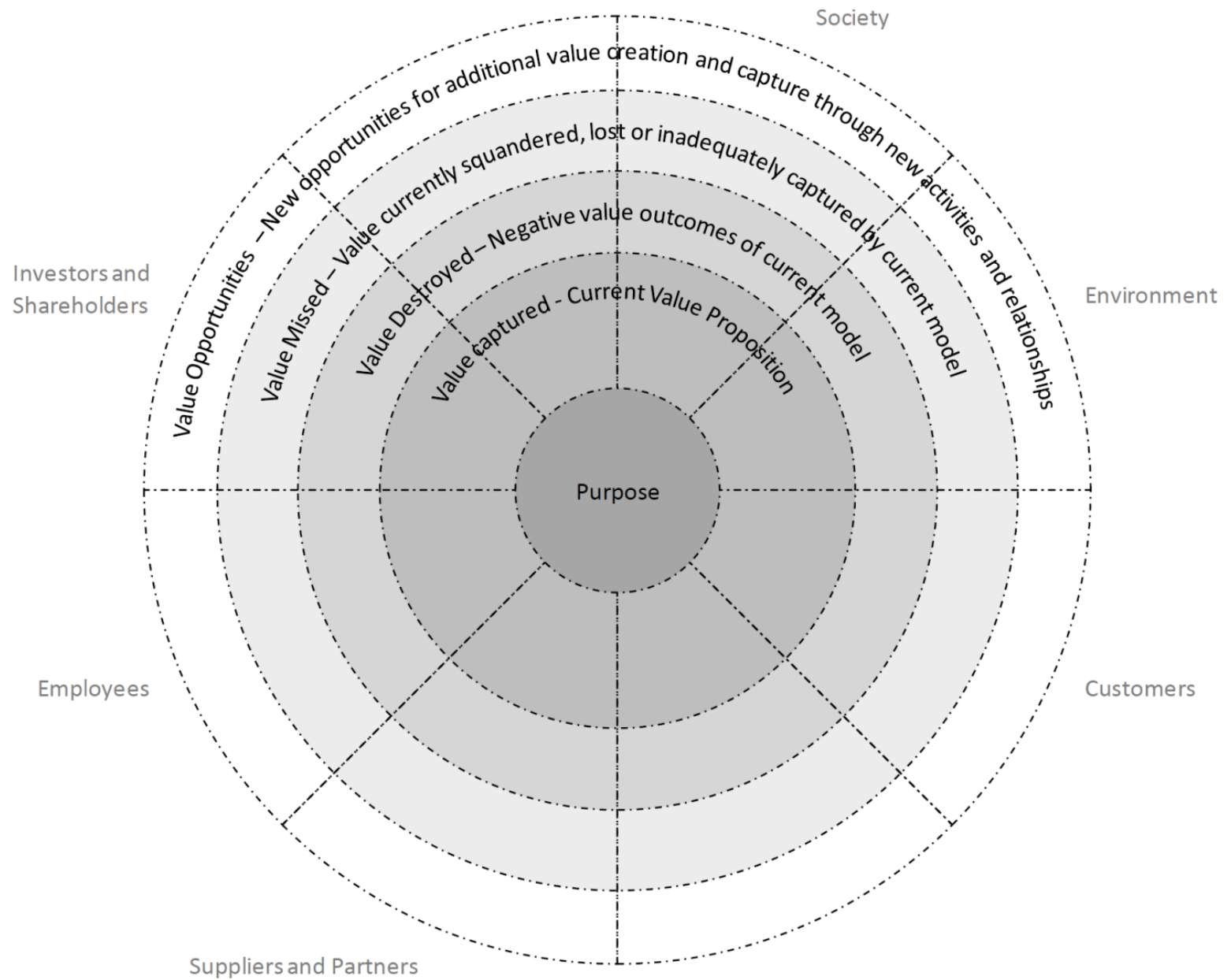
6. Business Case - Triple Bottom Line

Cost Structure: Economic, Environmental, Social

Revenue Model: Economic, Environmental, Social

Extending the analysis of a firm's value proposition







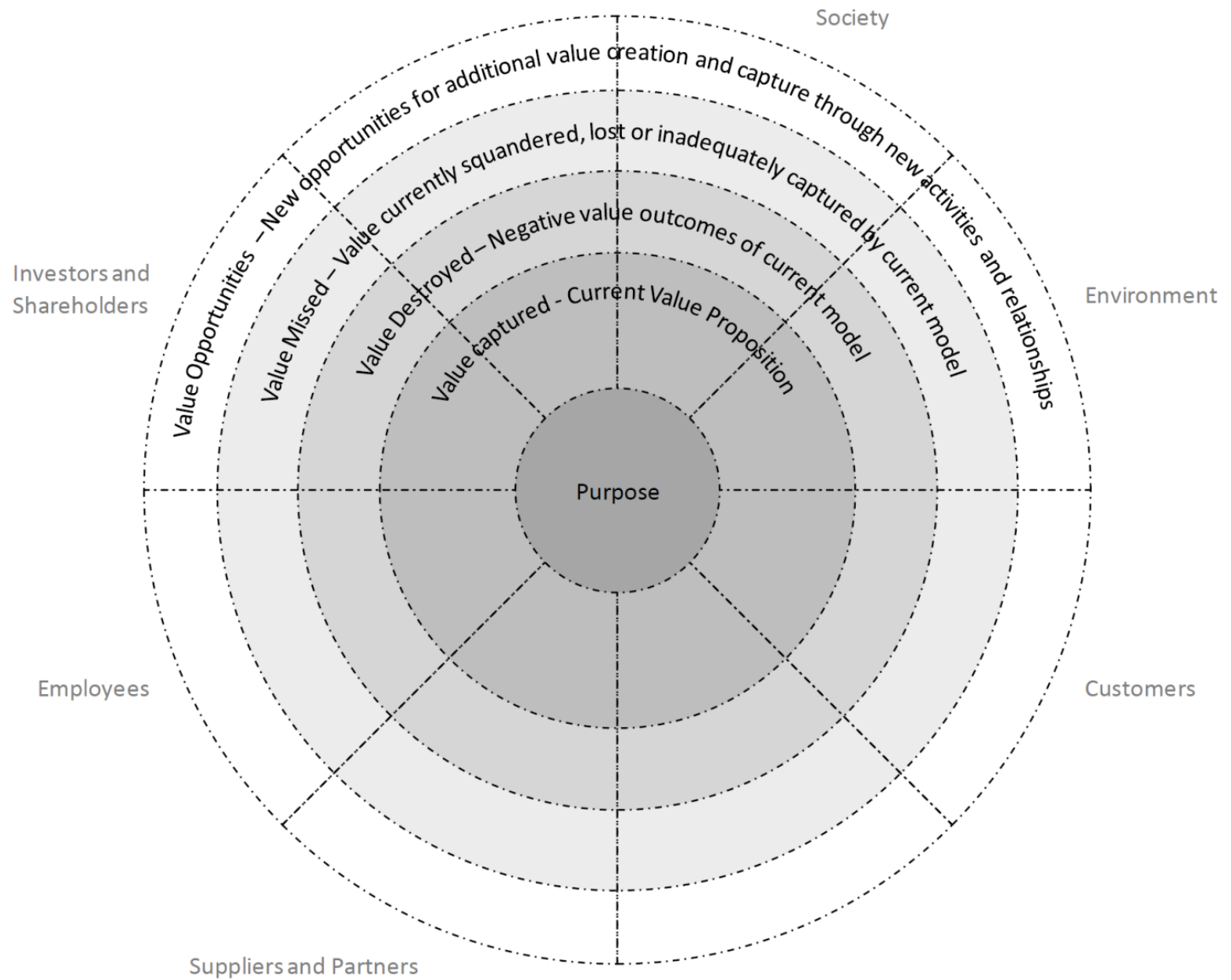
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Interested in generating ideas for Sustainable Business Model Innovation?

Join the business model innovation workshop!

Sustainable business
model innovation
Introducing archetypes





Why do we introduce business model archetypes?

- An approach to assist in transforming the value proposition
 - Integrate social and environmental value in addition to economic value
 - Help eliminate value destroyed or shift it into positive opportunities
 - Seek ways to capture missed value
 - Find new opportunities for value creation
- An approach to create value for the whole network

Practical examples of Business Model Innovations delivering Sustainability

- Closed-loop business models, creating value from waste
 - Products/ processes designed to minimise waste into the environment
- Deliver function, not ownership (product service system)
 - Rental, lease, pay per use, maintenance and extended warranties
- Encourage sufficiency
 - Actively seek to manage consumption and production
- Maximise resource efficiency
 - Reducing the physical materials used
- Stewardship
 - Combining business with social and environmental initiatives
 - E.g. Care for biodiversity, resource security, societal health, choice editing
- Purpose for society and environment
 - Social and environmental purpose organizations, base of pyramid

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Transformation of value – Stewardship role

- Supplier accreditation programme
- Drives more ethical or sustainable business practices at the grass-roots level (often in developing nations)
- Consumer pays a price premium to fund benefits in the supply chain
- Delivers environmental and social sustainability initiatives
 - Employee welfare and living wages
 - Community development - education, health, livelihoods
 - Environmental resource protection and regeneration

Stewardship role examples



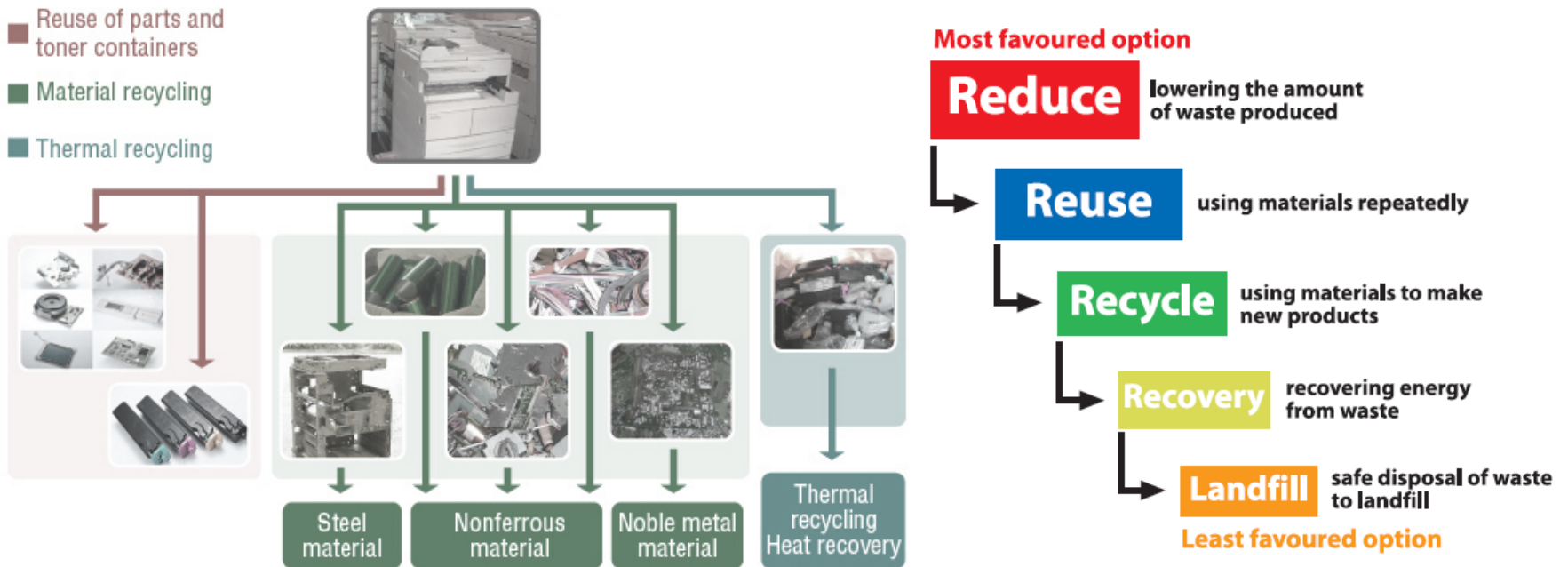
Transformation of value: Example - Stewardship

- **Value destroyed** – Resource depletion (fish, forests); Unequal distribution of income
- **Value missed** – genuine consumer engagement in these issues
- **Solution** – adopt a stewardship role
 - Taking responsibility for future resource security (capturing the value of resource availability)
 - Taking responsibility for economic equality (better livelihoods across the supply chain)

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Kyocera – Closed Loop



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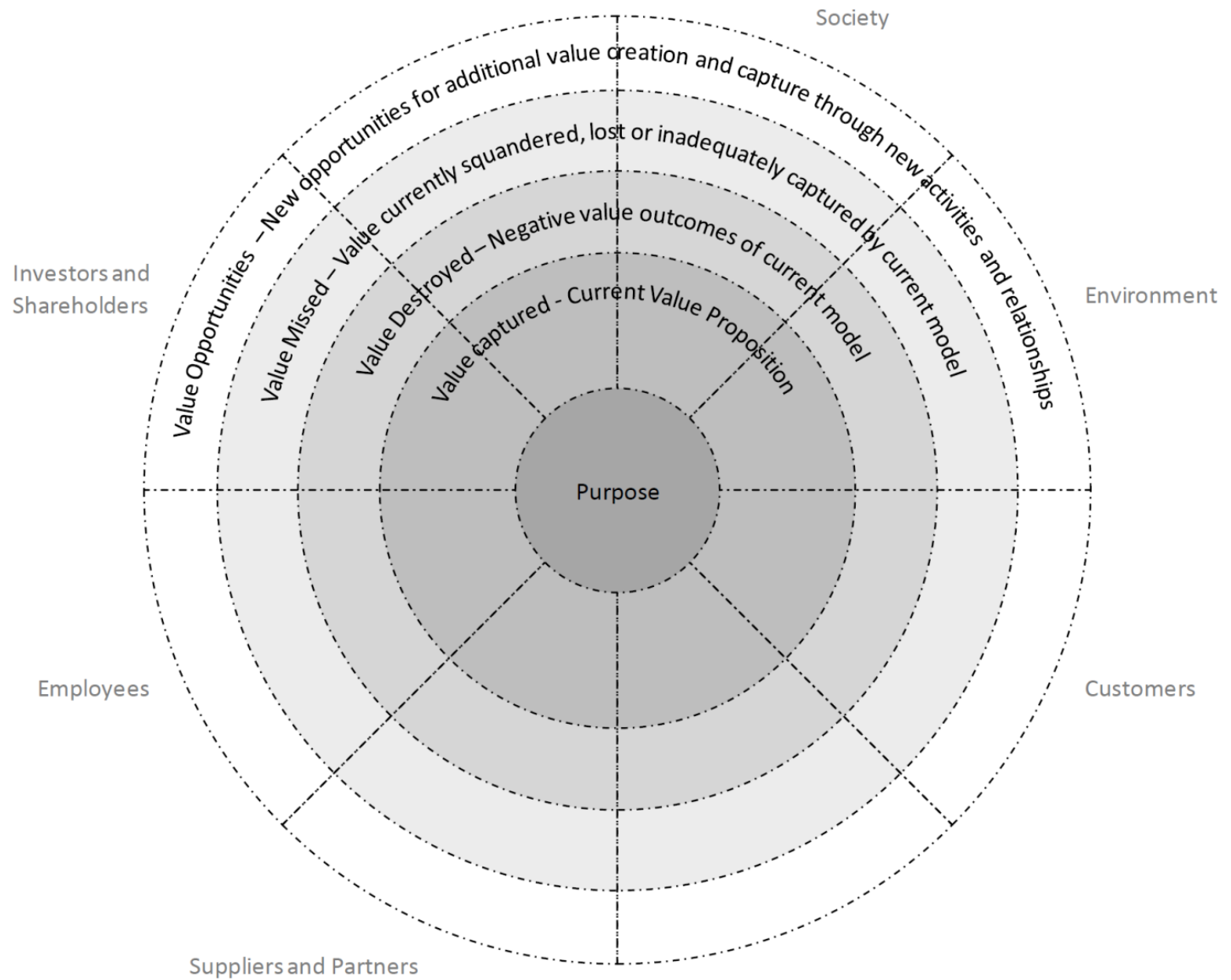
- Tools
 - Design for material efficiency (Toner system)
 - Modular product design
 - Ease of assembly / disassembly
 - Processes for re-manufacture / refurbishment
 - Integrated return logistics
 - Life cycle management
 - Distribution channels

Transformation of value: Example - Kyocera

- **Value destroyed** – wasted cartridges, wasted materials in perfect condition after one use
- **Value missed** – customer and employee engagement in reuse
- **Solution** – creating value from waste
 - Product now designed as intended for refill
 - Captures value missed by having growing numbers of people engaged in reuse

Brainstorm part 1
Value proposition
Value destroyed





Feeding back: what did you find?

- Interesting ideas generated?
- Low hanging fruits?
 - What could you do next week?
 - ... next month?
 - ... next year?
- Radical new ideas?
 - Changing your industry
 - Changing consumer markets
- Ideas for new ventures?
- Ideas for collaboration?
 - Who would you want to work with?
 - Who would want to work with you?

Brainstorm part 2

Value missed & new opportunities



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Industrial Symbiosis

- Turn waste streams, emissions, and discarded products into feed stocks for products and processes
- Introduce new product lines, new production processes and technologies, and establish new networks of firms to create co-product streams
- British Sugar example – Extending the core business to a broad range of new co-products. Business model continues to evolve with additional co-products bringing new competitive advantage and environmental benefits

British Sugar – Industrial Symbiosis



Process Efficiencies

Wissington site: See www.britishsugar.co.uk

British Sugar – Industrial Symbiosis

SUGAR

Bulk granulated	220kt
Bulk liquid	50kt
Liquid blends	10kt
Granulated bags	100kt
Caster bags	40kt

CO-PRODUCTS

Animal feed	140,000 tonnes
Betaine	6,000 tonnes
Bioethanol	55,000 tonnes
CO2	40,000 tonnes
Electricity	500,000 MWh
LimeX	120,000 tonnes
Tomatoes	15,000 tonnes
TOPSOIL	150,000 tonnes



*Everything is transformed into
sustainable products...
nothing is wasted*

Transformation of value: Example - British Sugar

- Value destroyed – carbon emissions
- Value missed – low grade heat from the process, wasted into the environment
- Solution – industrial symbiosis
 - Converts value destroyed into a positive – e.g. co-products generation (feedstock for tomato growing)
 - Captures value missed by using it for heating the greenhouse

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Vitsoe – Sufficiency based model

- Design aims:
 - Timeless robust products
 - Avoid fashion
 - Avoid obsolescence
- Encouraging customers to
 - Start with less
 - Add to it
 - Repair it
 - Take it with you when you move
- Re-use
 - Packaging
 - Ultimately – product
- Materials, manufacturing and energy choices



Vitsoe – How they sell

- Sales
 - Private customers + some B2B
 - No commission on volumes
 - Repeat custom is key
 - Demand management
- Service costs included in product price
 - Price up front is expensive
 - Represents lifetime and service cost
- Give customer the best service
 - High-quality shelving systems and furniture
 - Planning, purchase, manufacture, installation
 - Re-configurability
 - Long term investment



Transformation of value: Example - Vitsoe

Value destroyed – “throw away culture”

Value missed – creating a long-term relationship with company and attachment to product, customers as ambassadors

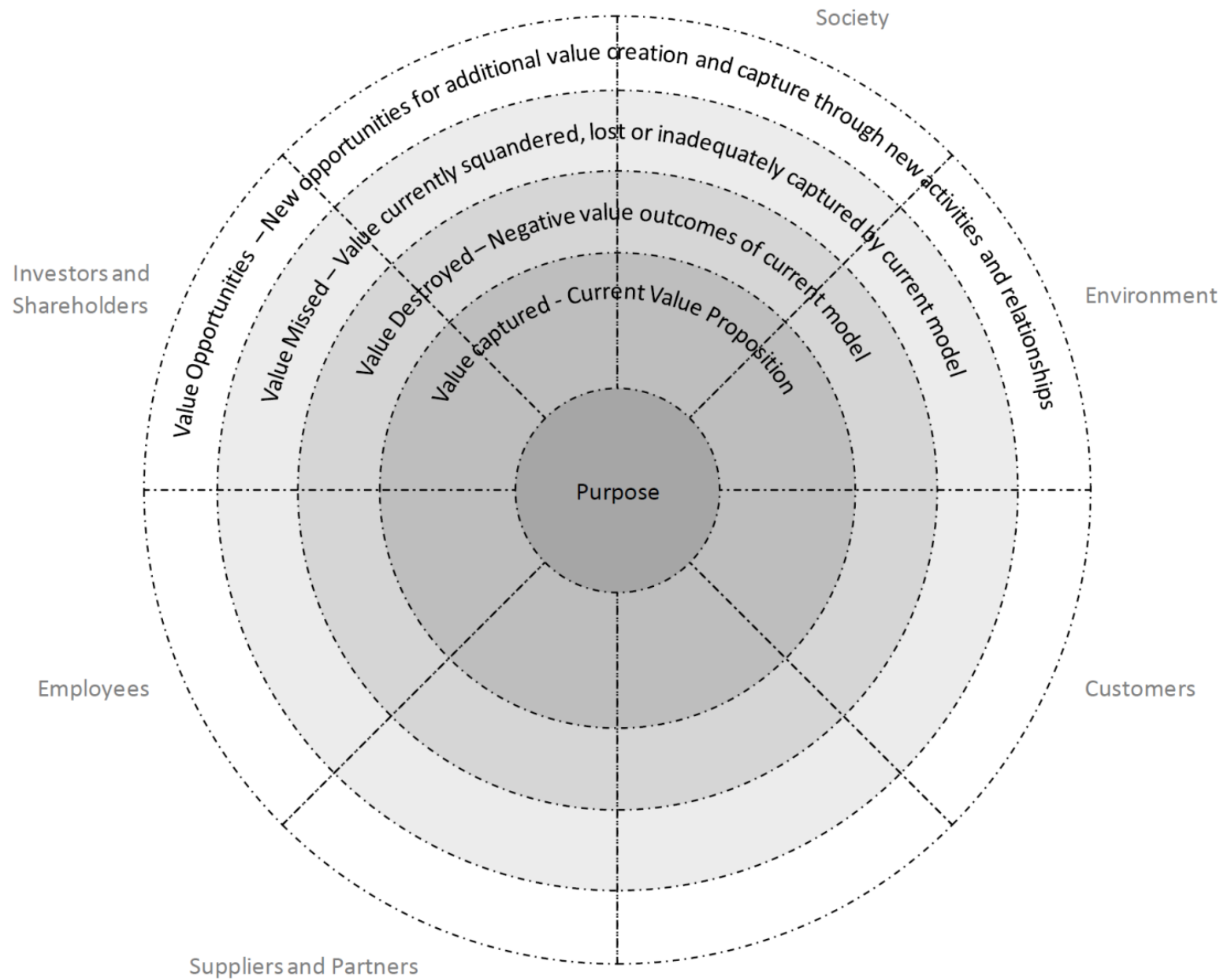
Solution – Sufficiency

- Only sell the smallest quantity sold for “the job”
- When customer moves house, refitting is done at a loss (a service to the customer)
- Customers value the product so much that they end up in people’s wills, broken shelves get sold on Ebay above original selling price etc.

Brainstorm part 2

Value missed & new opportunities





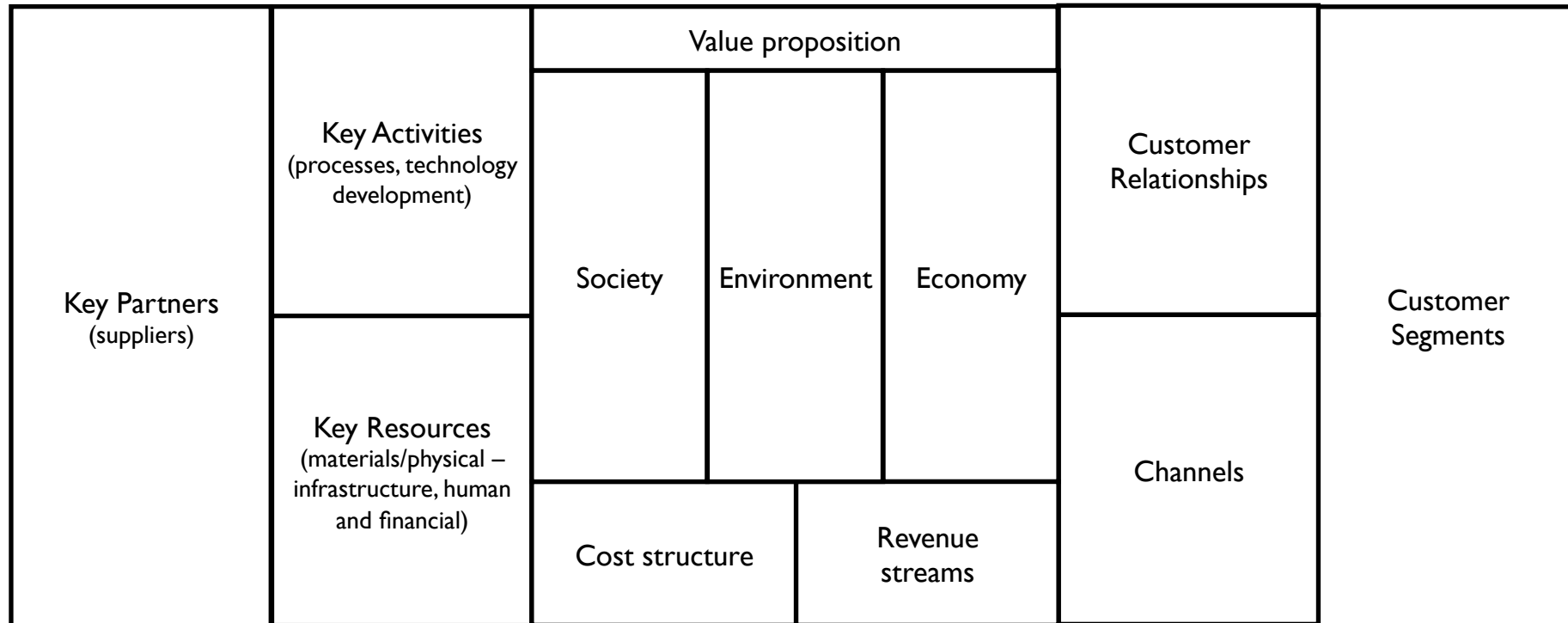
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Some final thoughts to
take home



How would your best ideas change your business model? A way to map next steps



Source: Business model canvas

www.businessmodelgeneration.com Alex Osterwalder and Yves Pigneur

Adapted by Bocken, N., Rana, P., Short, S. November 2012



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Questions?

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