



Remanufacturing business model cases for a Circular Economy

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Remanufacturing business model cases for a Circular Economy

Nowadays, there is a considerable search for creating business models for circularity and sustainability. Remanufacturing is an industrial process whereby used products are restored to “as new” functional state. It was already considered “the ultimate form of recycling” and also, an essential strategy for implementing Circular Economy concepts. In this context, this study

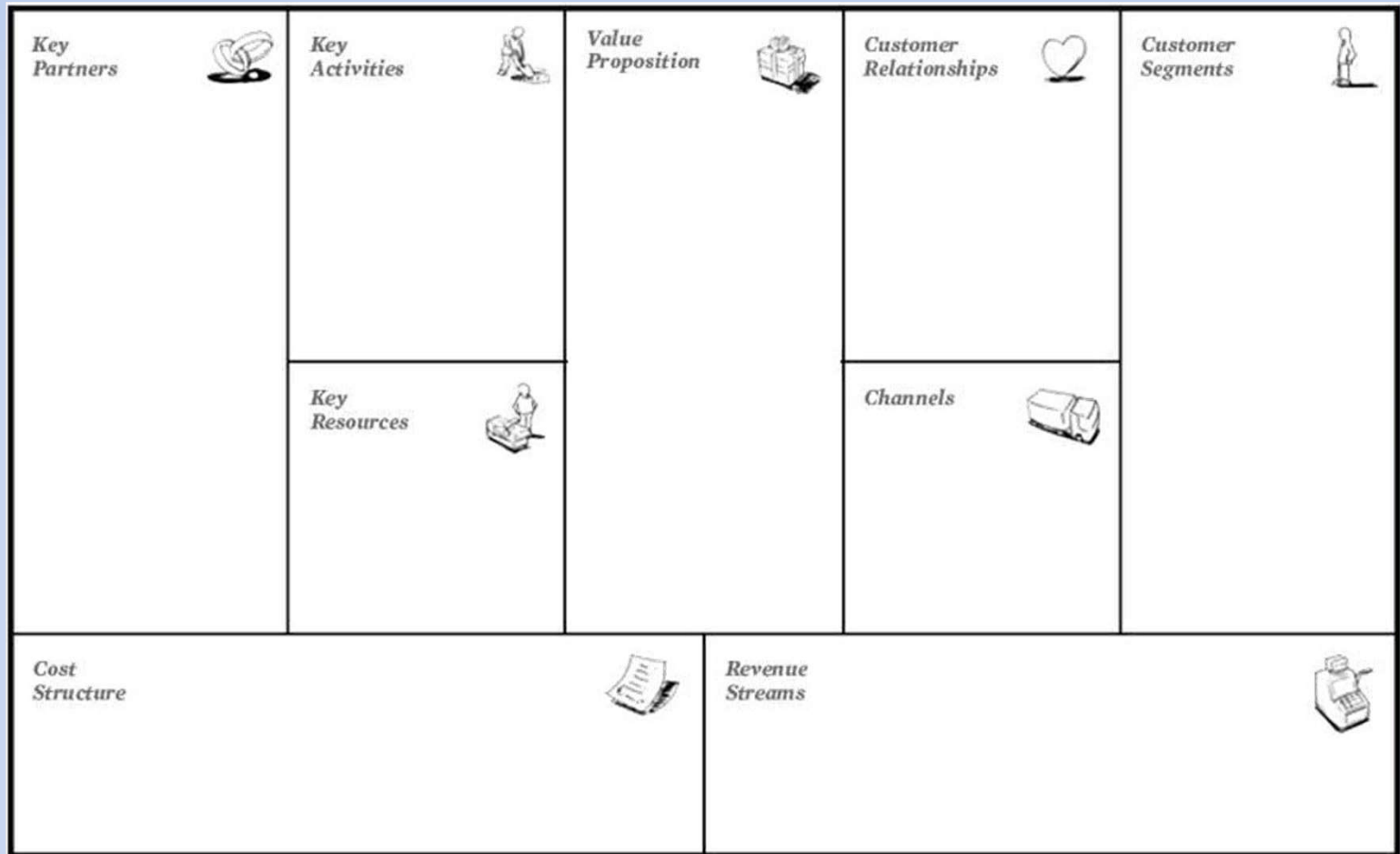
analyses seven Brazilian remanufacturing business cases according the nine elements for Business Model Generation from Osterwalder and Pigneur. Also, the cases are analyzed and classified according the **business model archetypes from Bocken et al. (2014)**. With these examples, one can observe how the same technological possibility – remanufacture products can take benefit or require different combinations for creating, delivering and capturing value.

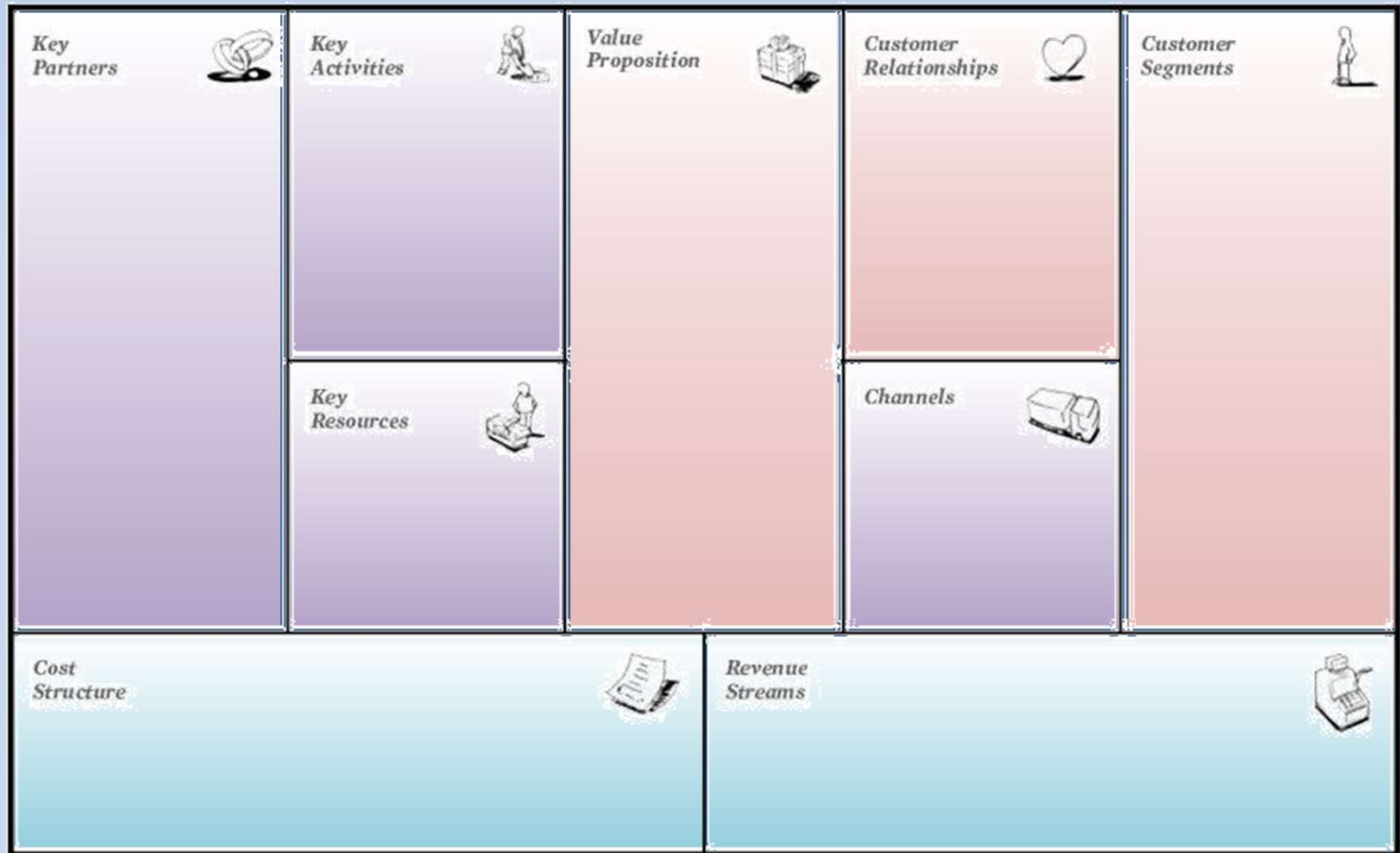


Remanufacturing

- An industrial process whereby used products are restored to “as new” functional state
- “The ultimate form of recycling”
- Essential strategy for implementing Circular Economy concepts







Seven cases:

- OEM or contract with OEM
- Same quality, warranty
- Metal-mechanical sector, safety is importante, large companies
- Semi-strutured interviews
- Visits *in loco*



Value Proposition

Value Proposition



Lower costs (Price)
40 a 85% new

OEM reliability
same warranty or lower

Availability (compared
to overhauling)

Upgrade

Lower environmental impacts

Trust (ESG)

Customer Relationships



Seller must know the
customer's fleet closely
(personal assistance)

Customer Segments



B2B - fleet owner
(bus, truck, agri and
industrial vehicles)
(Niche Market)

Shareholders

Key Partners



Dealers
selling and core
collecting

Third part
manufactures

Key Activities



Core collection (logistics)
Operations

Sales:
Acquaintance of
installed base
Salesforce management

Key Resources



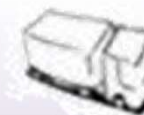
Core turnover

Total costs calculator
(acquisition + break time)

Workforce

Value creation
& delivery

Channels



Partner stores
(dealers)



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Value capture

Cost Structure

Cost-driven
(sale price limited by
virgin product price)

Core (discount
or acquisition)
Handling
Workforce

vs.

Virgin
material
Energy



Revenue Streams

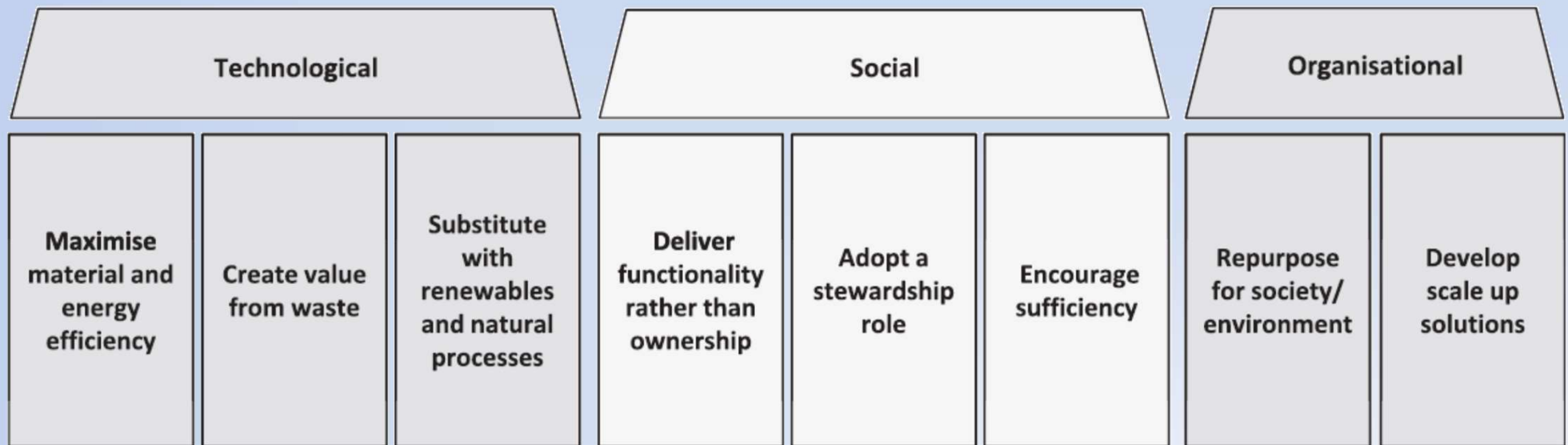
Asset sale

Pricing: fixed
(discounts for exchange based)




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Sustainable Business Models



8 archetypes (Bocken et al., 2014)





Create value from waste

Value proposition

The concept of 'waste' is eliminated by turning existing waste streams into useful and valuable input to other production.

Value creation & delivery

Activities and partnerships to eliminate life cycle waste, close material loops and make best use of under-utilised capacity.
Introduction of new partnerships (e.g. recycling firms), potentially across industries, to capture and transfer waste streams.

Value capture

Economic and environmental costs are reduced through reusing material, and turning waste into value. Positive contribution to society and environment through reduced footprint, reduced waste and reduced virgin materials use.

Maximise material and energy efficiency

Value proposition

Products or services that use fewer resources, generate less waste and emissions and create less pollution than products/ services that deliver similar functionality.

Value creation & delivery

Activities and partnerships aimed at using fewer resources and generating little waste, emissions and pollution. Focus is on product and manufacturing process innovation, but may extend to wider changes. New partnerships and value network reconfigurations to improve efficiencies and reduce supply chain emissions (e.g. transport).

Value capture

Costs are reduced through the optimised use of materials and reducing waste, and compliance leading to increased profits and competitive pricing advantage. Positive contribution to society and environment through a minimised environmental footprint.

Final considerations

- Very similar business models
- Many practices reported in literature were not observed
 - Ecological and social values proposition not intentional neither captured
 - Value creation & delivery (Design for Remanufacturing,...)
- Picture of a moment of reman in Brazil
- Possibilities for BM innovation



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Acknowledgment



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