



The Dynamics of Business Models in the Mineral Exploration Sector

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Presentation outline

- The Context of Mineral Exploration Sector
- Why Business Models are Important?
- Circular Business Models and Potential
“Circularness” in the Mineral Exploration Sector
- The Way Forward



The Context of Mineral Exploration Sector

- **Mining and mineral exploration sectors** are relatively under-researched areas in the disciplines of management and organization studies generally (e.g. Caron et al., 2016; Haldar, 2018).
- Increasing visibility of **small and medium-sized enterprises** in this sector in recent years (e.g. Yakovleva, and Vazquez-Brust,2018), along with traditional large multinational firms and public sector research (exploration) organizations like GTK.
- Both public and private sector organizations operate in **parallel and collaborate** with each other in the mineral exploration sector (Ranangen, 2017) to develop viable business models (commercialization). MinExTarget is an example of this.



Why Business Models are Important?

- The business model (Ahokangas and Myllykoski 2014:8) is a representation of the logic of **value creation and capture** (Shafer et al., 2005; Teece, 2010), and the **structure, architecture, or framework** of the business (Teece, 2010; George and Bock, 2011; Mason and Palo, 2012). These two areas aspects enable the business model concept to connect **abstract-level strategy** (i.e., theoretical thinking) to its implementation on a **practical level** (i.e., action) (Osterwalder and Pigneur, 2002; Richardson, 2008).
- It can be a **document or a practical strategy** which outlines how a business or organization delivers value to its customers. In its simplest form, a business model provides information about an **organization's target market, that market's need, and the role that the business's products or services will play in meeting those needs** (Landry, 2020)
- A pathway towards viable commercialization of products and services in any field.



Core elements of business models



- <https://www.innovate-strategy.com/blogposts/2017/10/22/business-model-innovation-an-uber-story-you-havent-heard-yet>



Circular Business Models and Potential “Circularness” in the Mineral Exploration Sector

- Circular business model (CBM) is defined as the way “*a company creates, captures, and delivers value with the value creation logic designed to improve resource efficiency through contributing to extending useful life of products and parts (e.g., through long-life design, repair and remanufacturing) and closing material loops*” (Nußholz, 2017:5).
- Along with the contribution to environmental sustainability aspect, CBMs also increase the **efficiency and competitiveness of the firms** using them **through innovative tools**.
- However, despite the increase in research on CBMs in recent years, **mining, and mineral exploration sectors** have rather been absent from the discussion. A couple of scholars have highlighted the potential of general circular economy principles’ applicability in the fields of mining and mineral exploration (e.g., Kinnunen and Kaksonen, 2019).
- In another study, Tayebi-Khorami *et al.*, (2019) have focused on offering circular economy solutions to mining waste. In another recent study, Upadhyay *et al.* (2021) have offered a detailed description of both barriers and drivers to the implementation of circular economy in the mining sector.



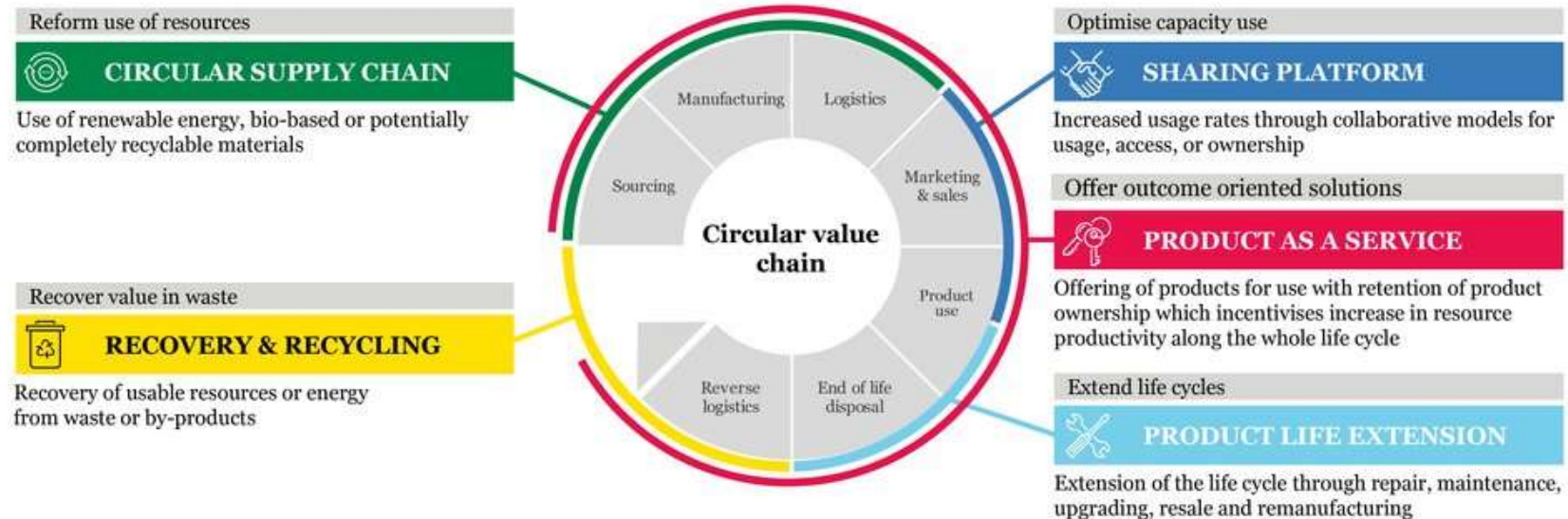
Current trends influencing business model development!

- Collaboration between different (internal and external) stakeholders
- The need for transparency and accountability (focus on value chains and their sustainability)
- Possibility of new technological advancements (like precision mineral exploration technology of MinExTarget)
- Increased focus on efficiency and effectiveness due to competition

If we look at MinExTarget does it have elements of 'circularness'?



Elements of circular business model



– <https://bh4s.no/sustainable-business-model-archetypes/circular-economy-business-models>



Product-service systems in CBMs

- A **product-service system** like MinexTarget has the potential to bring in the elements of “circularness” in the mineral exploration sector, even though the mineral exploration on its is not circular.
- A product service-system is “a specific type of value proposition that a business (network) offers to (or co-produces with) its clients” (Tukker, 2015).
- It tend to be “a mix of tangible products and intangible services designed and combined so that they are jointly capable of fulfilling final customer needs” (Tukker and Tischner, 2006).
- According to Tukker (2015), types of product-service systems (PSS) within CBMs are
 - Product-oriented PSS (supplementing product with additional services e.g. maintenance contracts)
 - Use-oriented PSS (focus on minimizing material flows like subscriptions or sharing rather than owning)
 - Result-oriented PSS (focus on results selling to customers)
- Based on my preliminary understanding for MinexTarget and mineral exploration sector, a combination of product-oriented PSS and Result PSS is more applicable.



The Way forward

- The need to research the elements of ‘circularness’ in business models in the mineral exploration sector
 - Sustainable development goals of UN and increased pressure on organizations in all the sectors to conform
 - A very important sector with significant economic contributions and “circularness” has the potential to increase the competitiveness
 - Context of mineral exploration in different geographical locations and “circularness” benchmarking possibilities!
- I have created a conceptual book chapter/paper draft co-written with my supervisor Timo Koivumäki and Ferenc Molnar on this specific topic.
- Future research plans