EU GREEN WEEK

NEW CIRCULAR BUSINESS MODELS

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DRAXIS

T. KNEZEVIC

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online
Evgenia Vogiatzidaki is a chemical engineer, holding an MSc degree in environmental engineering and an MBA. After working for several consulting companies, she joined DRAXIS Environmental S.A. in 2019. Her expertise lays in the environmental management and impact assessment mainly focused on solid waste and circular economy.

HOOP Partner, WP Leader in WP4 “PDA Circular Bio-based Business Models”. 

PRESENTER

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Project Manager

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DRAXIS in a nutshell

• Type: SME
• Year of Establishment: 2000
• Average Annual Turnover: ~1,5 M €
• Location: Thessaloniki, Athens
• Main Areas of Expertise: Environmental Technology & Software, ICT for Agriculture, Climate Services, Energy, Industrial Applications, Waste and e-Government
• Experience: Coordination and Partnerships in more than 20 FP7 & H2020 projects. Consultation for Public & Private organizations
Content of the presentation…

✓ The evolution of the Business Model concept
✓ CBM categorization
✓ CBMs for the biowaste management
✓ Challenges for adopting CBMs in biowaste sector
✓ CBM Tools
✓ CBM Canvas – Case study Phenix Company
From the early 1990s several authors tried to formulate a definition: Timmers (1998), Linder & Cantrell (2000), Eriksson & Penker (2000), Magretta (2002), Afuah & Tucci (2003), Afuah (2004), Osterwalder et al. (2005), Al-Debei et al. (2008). Based on Wirtz (2011) the concept of the BM has evolved through time and in academia can be supported through three basic approaches i.e.:

- information technology
- strategy
- organizational theory
The evolution of the Business Model concept

- **Origin of the business model term, unspecific usage**
  - McGuire (1965)
  - Bellmann/Clark (1957)

- **Business model as business modeling to system construction, computer and system modeling; development into e-business**

- **Business model as an abstract representation of the company’s architecture**

- **Business model as an integrated description of entrepreneurial activities in an aggregated form**

- **Business model management as an integrative approach**

**Timeline**:
- 1950
- 1975
- 1995
- 2000
- 2005
- 2010

**Approaches**:
- **Strategic approach**
- **Organization-theoretical approach**
- **Technological approach -> e-business**

Wirtz, 2011
The HOOP project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement N°101000836.

Based on these, a more specific categorization is provided also by the EIB and is used in order to guide the Bank in the origination and appraisal of circular economy projects.

**CBM Categories mapped on the Value Hill**

Achterberg et al., 2010
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The 5 CBMs by Lacy & Rutqvist (2015)

CBMs categorisation

Lacy & Rutqvist, 2015
The 5 CBMs by OECD (2019)

<table>
<thead>
<tr>
<th>Key characteristic</th>
<th>Circular supply</th>
<th>Resource recovery</th>
<th>Product life extension</th>
<th>Sharing</th>
<th>Product service system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recourse efficiency driver</td>
<td>Replace traditional material inputs with renewable, bio-based, recovered ones</td>
<td>Produce secondary raw materials from waste</td>
<td>Extent product lives</td>
<td>Increase utilization of existing products and assets</td>
<td>Provision of services rather than products. Product ownership remains with supplier</td>
</tr>
<tr>
<td>Business model subtypes</td>
<td>Close material loops</td>
<td>Close material loops</td>
<td>Slow material loops</td>
<td>Narrow resource flows</td>
<td>Narrow resource flows</td>
</tr>
<tr>
<td>Cradle to Cradle</td>
<td>Industrial symbiosis</td>
<td>Classic long life</td>
<td>Direct reuse</td>
<td>Co-ownership</td>
<td>Product oriented</td>
</tr>
<tr>
<td></td>
<td>Recycling</td>
<td>Industrial symbiosis</td>
<td>Repair</td>
<td>Co-access</td>
<td>User oriented</td>
</tr>
<tr>
<td></td>
<td>Upcycling</td>
<td>Industrial symbiosis</td>
<td>Refurbishment</td>
<td>Co-access</td>
<td>Result oriented</td>
</tr>
<tr>
<td></td>
<td>Downcycling</td>
<td>Industrial symbiosis</td>
<td>Remanufacture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main sector currently applied in</td>
<td>Diverse consumer product sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metals</td>
<td>Automotive</td>
<td></td>
<td>Transport</td>
<td>Transport</td>
</tr>
<tr>
<td></td>
<td>Paper and pulp</td>
<td>Heavy machinery</td>
<td></td>
<td>Chemicals</td>
<td>Chemicals</td>
</tr>
<tr>
<td></td>
<td>Plastics</td>
<td>Electronics</td>
<td></td>
<td>Machinery</td>
<td>Machinery</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Consumer products</td>
<td>Consumer products</td>
</tr>
</tbody>
</table>

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The ReSOLVE framework
Ellen MacArthur Foundation (2015)
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CBMs for bio-waste management practices

Achterberg et al. (2016)
‘after-use’ phase of product

Lacy & Rutqvist (2015)
‘Recovery & Recycling’ model

ReSOLVE framework (2015)
‘Loop’

OECD (2019)
the ‘Resource recovery’
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The market share held by circular business models is limited.

<table>
<thead>
<tr>
<th>Business model</th>
<th>Sector</th>
<th>Market penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSS: result-oriented (chemicals)</td>
<td>Automotive</td>
<td>50 - 80%</td>
</tr>
<tr>
<td>PSS: result oriented (digital content)</td>
<td>Music</td>
<td>50%</td>
</tr>
<tr>
<td>Waste as value: recycling</td>
<td>Pulp and paper</td>
<td>38%</td>
</tr>
<tr>
<td>PSS: result-oriented (digital content)</td>
<td>Books</td>
<td>25% - 35%</td>
</tr>
<tr>
<td>Waste as value: recycling</td>
<td>Steel</td>
<td>25%</td>
</tr>
<tr>
<td>PSS: result-oriented (chemicals)</td>
<td>Aerospace</td>
<td>5 - 15%</td>
</tr>
<tr>
<td>Waste as value: recycling</td>
<td>Plastics</td>
<td>13%</td>
</tr>
<tr>
<td>Product life extension: refurbishment</td>
<td>Smartphones</td>
<td>4 - 8%</td>
</tr>
<tr>
<td>PSS: result-oriented (lighting &amp; heating)</td>
<td>Various</td>
<td>4 - 8%</td>
</tr>
<tr>
<td>Product life extension: remanufacturing</td>
<td>Machinery</td>
<td>3 - 4%</td>
</tr>
<tr>
<td>Product life extension: refurbishment</td>
<td>Various</td>
<td>2 - 3%</td>
</tr>
<tr>
<td>Product life extension: remanufacturing</td>
<td>Aerospace</td>
<td>2 - 12%</td>
</tr>
<tr>
<td>Idle Capacity: co-access</td>
<td>Lodging</td>
<td>1% - 6%</td>
</tr>
<tr>
<td>Product life extension: remanufacturing</td>
<td>Automotive</td>
<td>1%</td>
</tr>
<tr>
<td>Product life extension: remanufacturing</td>
<td>Consumer and electrical and electronic equipment (EEE)</td>
<td>0 - 1%</td>
</tr>
<tr>
<td>Waste as value: recycling</td>
<td>Rare earth element (REE) metals</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>PSS: user-oriented (car sharing)</td>
<td>Transport</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

Related to the lack of an effective, stable and supportive EU regulatory framework

Existing policies are often inflexible and unable to support the transition into circularity

Lack of developed markets and insufficient demand for biobased outputs and products (largely affected by regulation)

Often high initial investment costs required in order to move to new business models

Feedstock diversity and supply security can become a significant challenge for the development of viable new business models
Lack of awareness and demand of customers. Customers feel wary about products and materials that come from biowaste management.

Established linear way of thinking. Need for behavioral change.

Integration throughout the value chain is a challenge for biobased industries. Different stakeholders should collaborate successfully.

Need for additional innovation/technologies for biowaste management.

Massive developments is needed in the biobased economy in order to promote the transition away from fossil resources (highly connected with supportive investment conditions).
CBM Tools: Business Canvas and its 9 building blocks

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CBM Tools: Sustainable Business Canvas

16 new building blocks of the Flourishing Business Model Canvas takes respect of the economy, society and environment.

Source: Eric Fath-Kolmes, 2018
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CBM Tools: Circular Business Canvas

What other types of value a business may promote e.g. human, social or natural capital...

Partnerships with organisations across the value chain to benefit from circularity (flows of materials, information and capital)

Feedback loops and reverse logistics

Reduce dependence on the use of finite resources

Source: Ellen MacArthur Foundation and IDEO 2016
The company’s global mission is to “unleash the potential of waste” (food waste).

- Digital platform that works as an intermediary connecting waste suppliers” (mainly retailers) and waste receivers (mostly charities)

- Environmental and social value

- Environmental and social cost/impact
Thank you for your attention!