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CREATION, DEVELOPMENT AND COMMERCIALISATION OF INNOVATION

Public institutions and governance models for a low carbon economy

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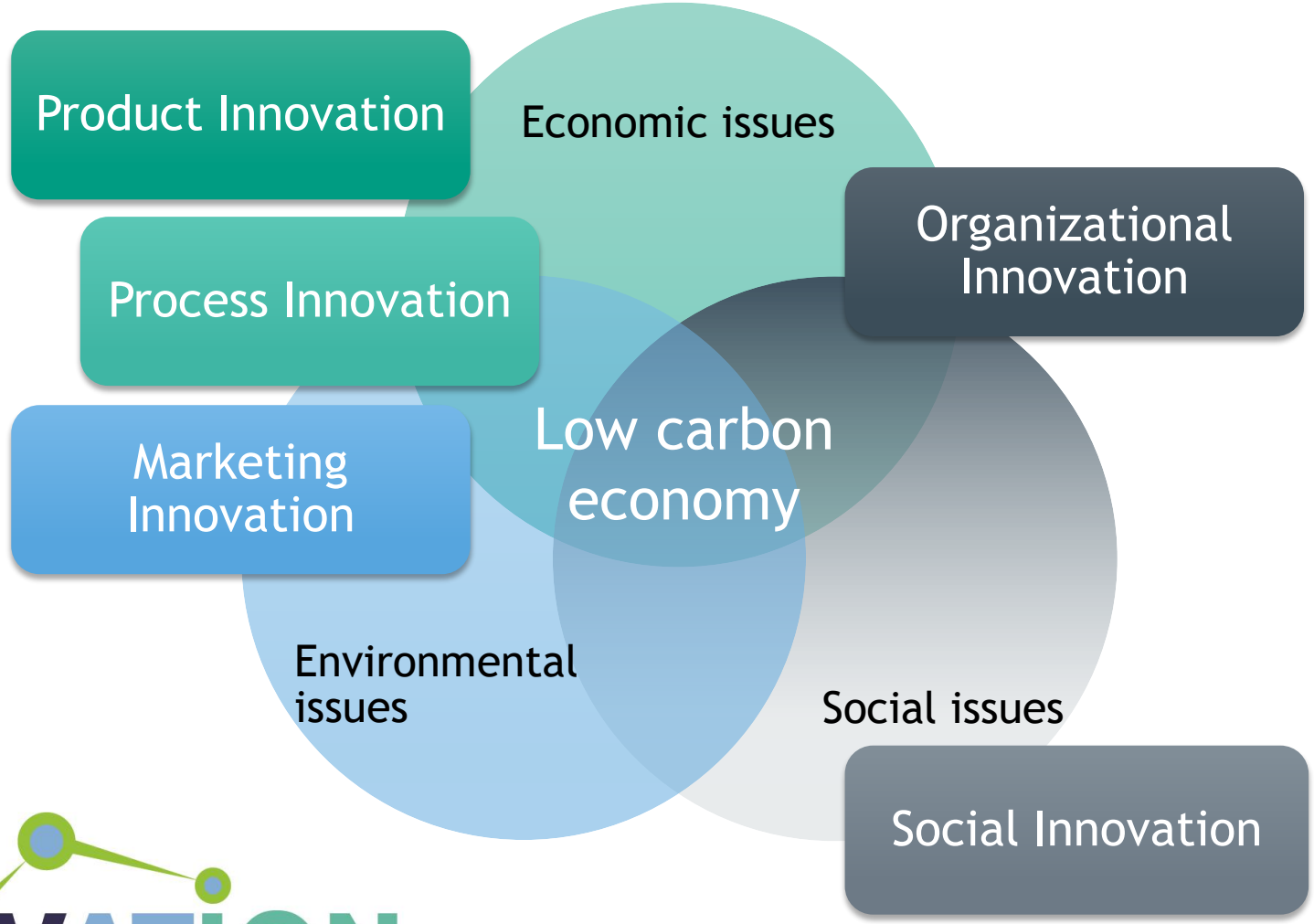
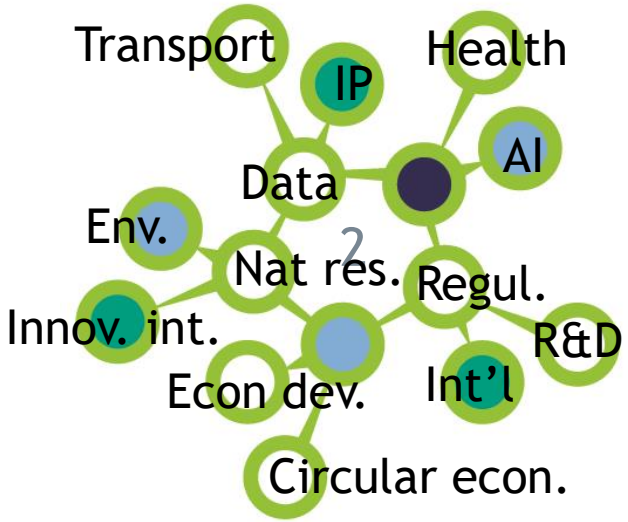
Innovation for a low carbon Economy





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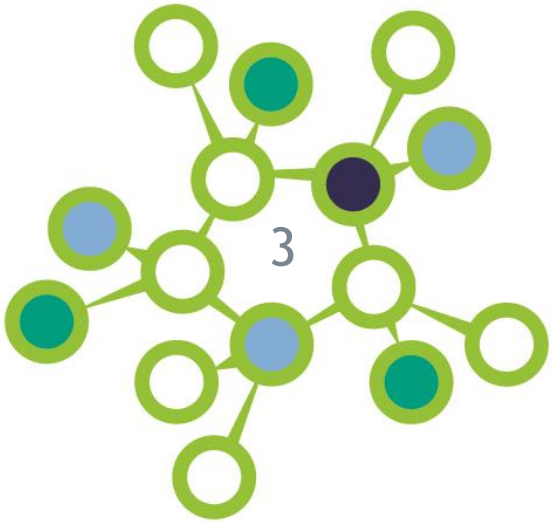
Innovation challenges (I/II)–Natural resources

- Low carbon value added to natural resources extraction
- All types of innovation need to be considered
- Need a Canadian strategy to develop an integrated strategy for the local transformation of natural resources
- Value added need to be put into perspective
  - Before selling natural resources to foreign entities, calculate the complete life cycle emissions all along the transformation process
  - Is the cost of these emissions lower than if the transformation was performed in Canada?



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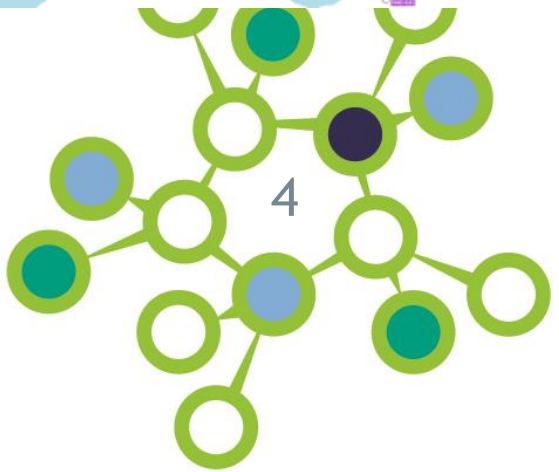
Innovation challenges (II/II)–Transport

- Labour mobility needs to be facilitated by intelligent, rapid, efficient low carbon integrated transport
  - High speed trains for long distances
  - Duplication of alternative routes for short distance transport
  - People are obliged to take their cars because of lack of alternatives
  - Multi-modal keeps people fit but is a disincentive
  - 5 days to clear snow in Montreal…
    - Chaos for cars and buses
    - Enormous costs and environmental costs
    - Underground networks have some advantages



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Barcelona and Montreal:
same size, same population…

Multi-sectoral international approach (I/II)

- A policy on self-driving cars that perpetuates the “auto-solo” pattern cannot be devised without considering
  - Battery lifecycle legislation
  - Environmental legislation of countries where rare metals and other ores are extracted
  - Transport planning and multi-modal integration
  - GES emissions regulation
  - IP-related issues (international ownership of AI algorithms)
  - Cybersecurity issues

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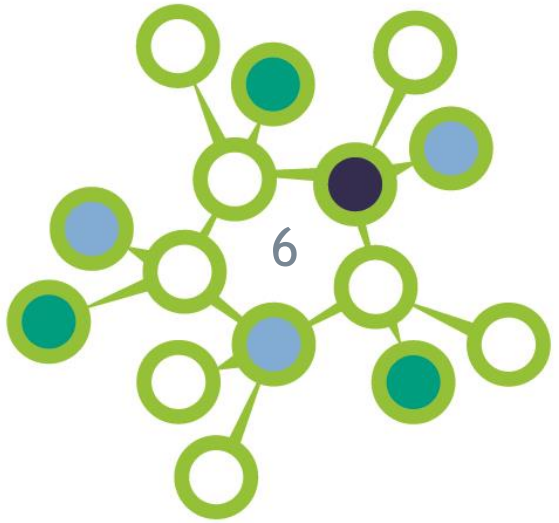
Multi-sectoral international approach (II/II)

- An innovation policy encouraging smart manufacturing and wanting to unleash 3D-printing cannot be devised without considering
  - Standardization of 3D-printing of replacement parts
  - IP-related issues (technology ownership – software, hardware, materials)
  - Quality assurance and origin of nanotechnology powders
  - Health related issues
  - Life cycle of these nano-based products
  - Waste management of these powders (located in smaller firms, houses, etc.)



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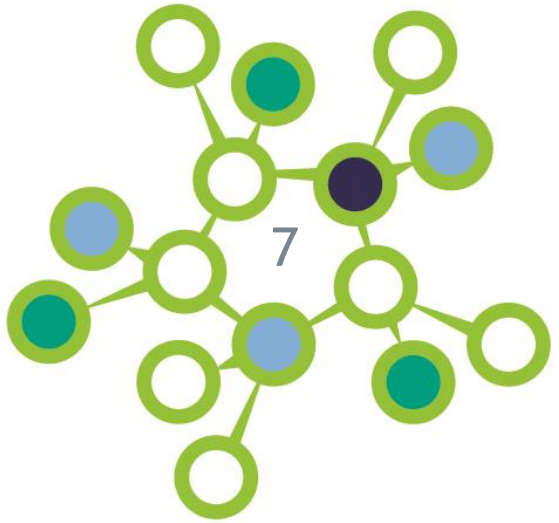
Network of Institutions

- Co-development of policies
- Cross-validation of short-, medium-, and long-term impact of these policies (feedback loops)
  - Constant measurement of interim impacts
- Multi-organisation involvement
  - Triple helix and quadruple helix
  - All stakeholders around the same table



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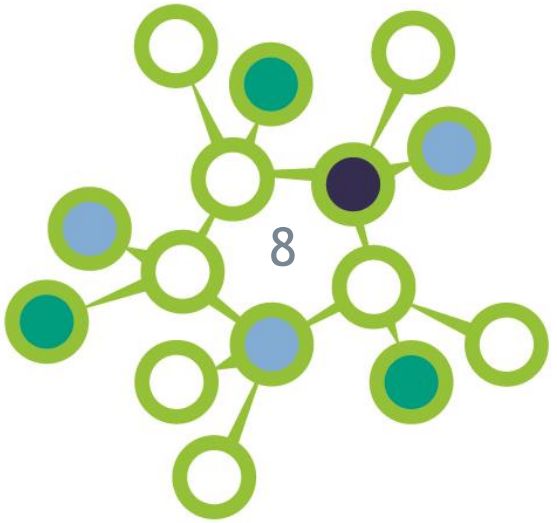
Prizes as an incitation

- A great mechanism to address the so-called *Grand challenges*
  - That do not necessarily offer direct and immediate returns to the private sector
  - But are absolutely necessary for a transition to a low carbon economy
  - Lead to social, technological (product mainly), organisational, and some times marketing innovations (Ansari Xprize – for commercial space travel)



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Innovation Supercluster Initiative
Similar to a prize competition?

Perceived arbitrage: financial returns versus sustainability → unsustainable in the long term

- Conclusion
  - How to decouple economic issues of a low carbon economy?
  - Innovate and rethink the value models and the value itself
  - Put the human back in the center of the innovation process
  - Managing such a complex system is less than trivial

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Thank you

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