



FPINNOVATIONS: ACCELERATING THE BIOECONOMY'S GROWTH

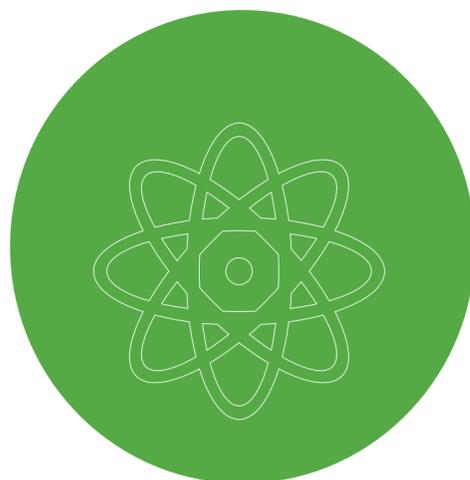
November 6, 2019

Stéphane Renou



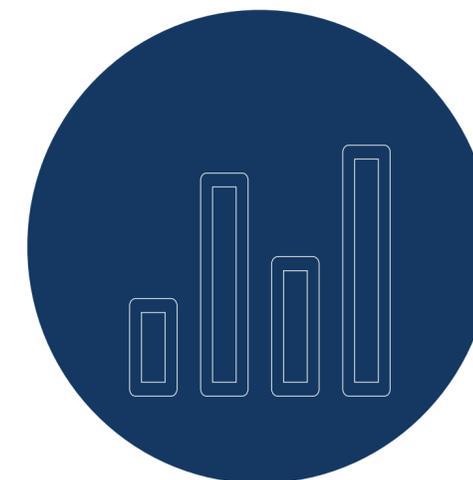
THE FOREST: GROWING FOR THE BIO-ECONOMY

Key solution for economic growth
Key solution to climate change
Key solution to regional development



INTEGRATED APPROACH

Forest
+
Forest products
+
Substitution in
materials and energy



TARGETED RESULTS

Economic impact

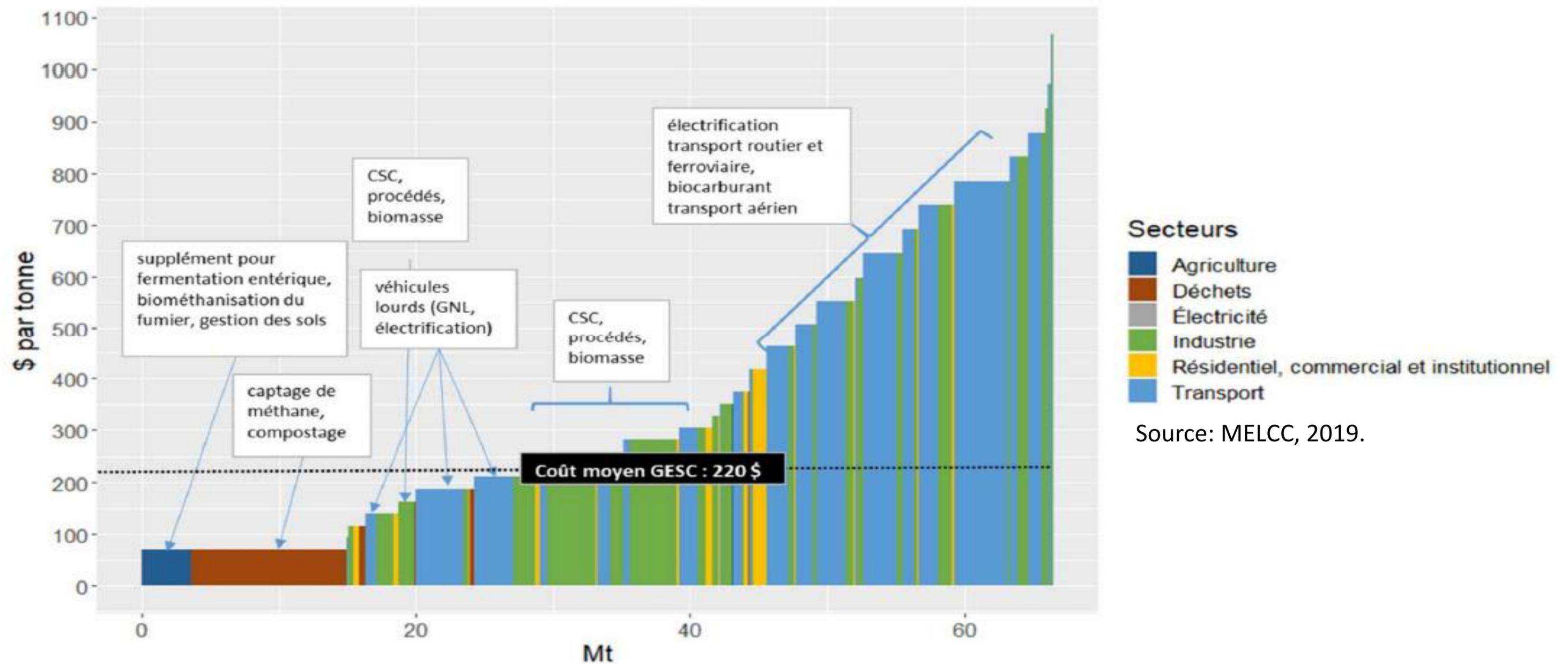
- Growth, competitiveness, added value

Environmental impact

- The forest, carbon sink
- Materials, carbon capture
- Substitution, emissions reduction

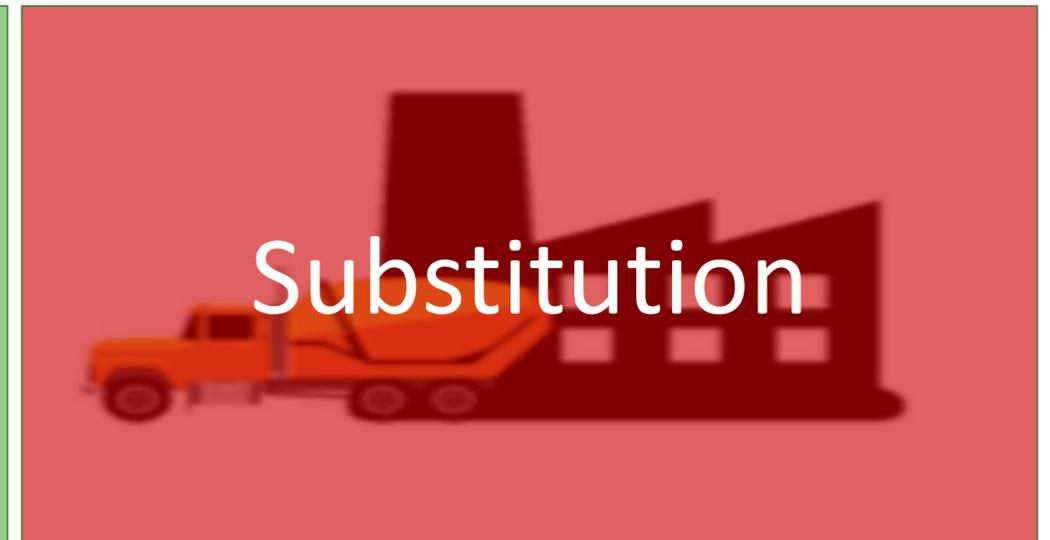
THE GHG REDUCTION CHALLENGE

ALL OPTIONS HAVE A COST



Source: MELCC, 2019.

THE FOREST PROPOSAL



Needed conditions:

- ✓ Renewable forest practices
- ✓ Access to fiber
- ✓ Intensification

Needed conditions:

- ✓ Performance based code
- ✓ Economical benefits
- ✓ Industrialization

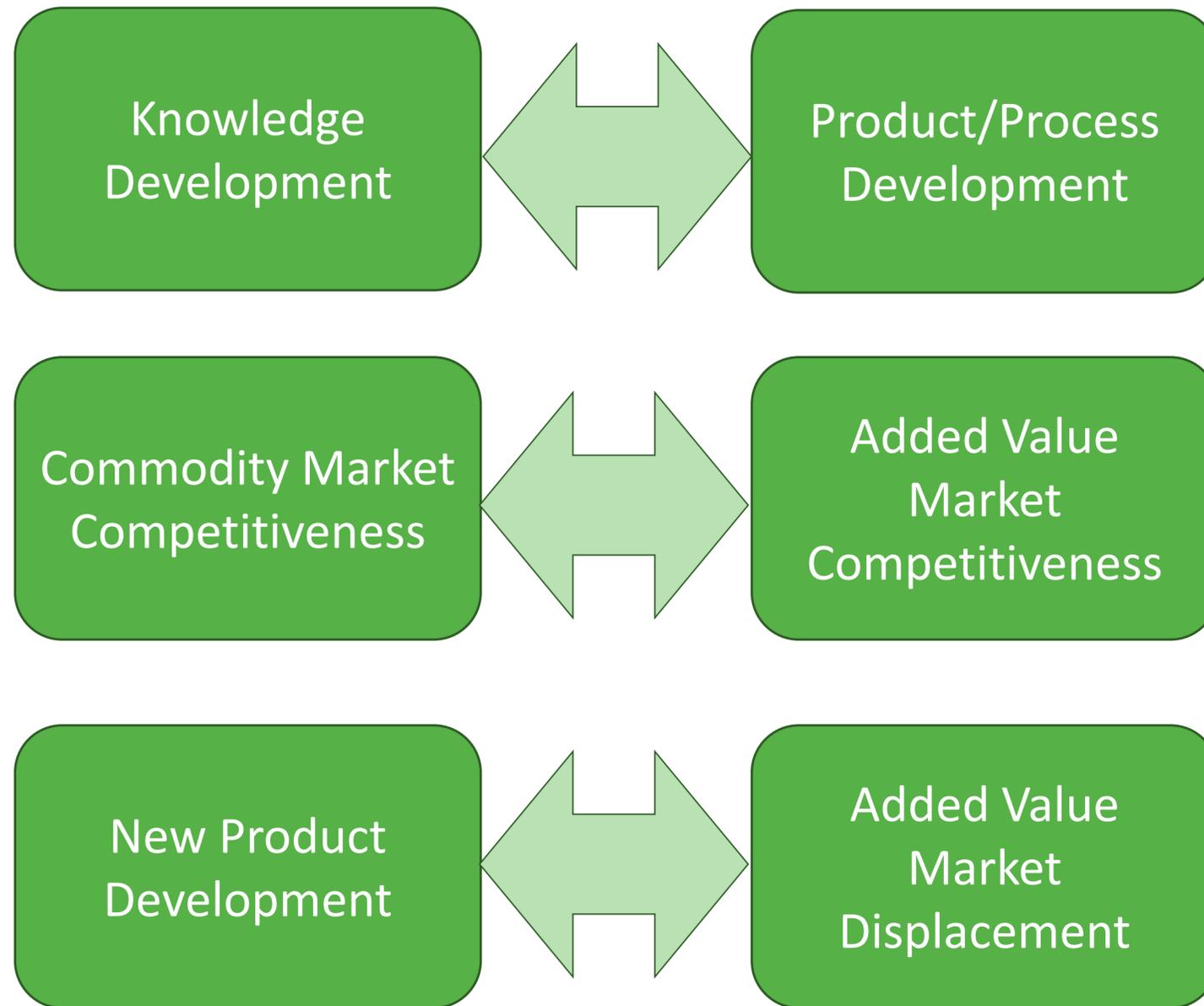
Needed conditions:

- ✓ Substitution policies
- ✓ Market value
- ✓ In channels transition

Use every molecule of every tree harvested to meet the GHG reduction challenge

BUSINESS CHALLENGES

Getting real with innovation



- Lots of ideas, need product path assessment
- Critical mass of skills, tech leadership is a challenge
- Receiving hands are sparse

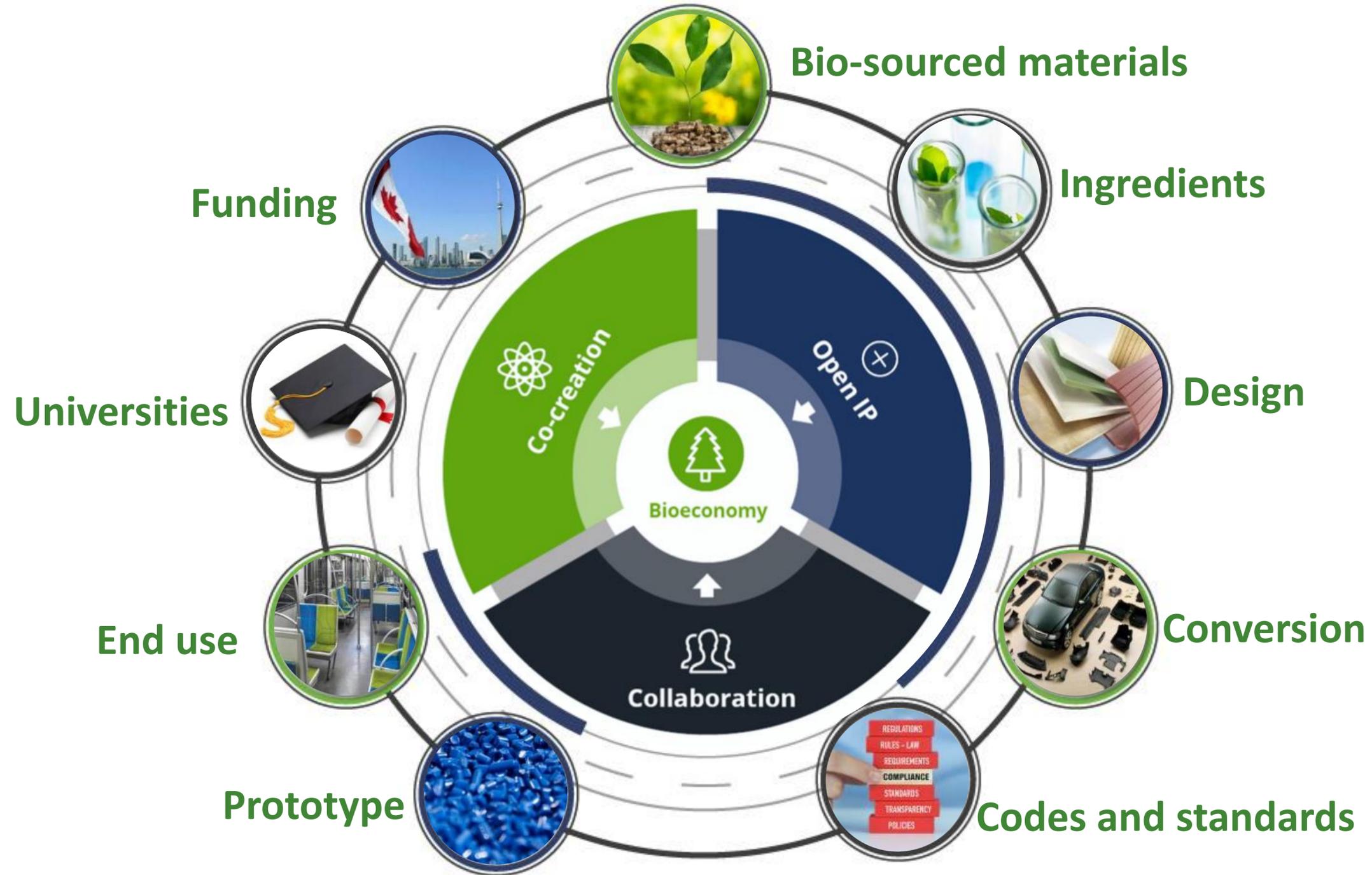
- Cost control vs value pricing
- Need to combine business skills... or businesses
- Vertical integration from the top or bottom?

- A good product doesn't make a market win
- Incumbents will react, they have margins
- Pricing value of green

And then what about Carbon markets?

INNOVATION ECOSYSTEM

Silicon Valley concept applied to forestry



AN AGILE APPROACH NEEDED TO GET CRITICAL MASS

FPI TRANSFORMATION

NATIONAL COLLABORATIVE RESEARCH PROGRAM

Develop technologies



INITIATIVES PROGRAM

Mobilize value chain actors to accelerate commercialization

FIBRES

BIOCOMPOSITES (Packaging – Automotive...)
Forest – Chemical - Converters – End Users

FOREST 4.0

PLATOONING (Access roads to natural resources)
Forest - Mines - Defense – Constructors - Technology

NANOCELLULOSE

EMULSIFIERS (Paint – Cosmetics...)
Forest – Chemical – Producers – End Users

LIGNIN

GREEN CHEMISTRY (Adhesives – Concrete...)
Forest – Chemical – Producers – End Users

FILAMENTS

CONCRETE (Roads – Construction...)
Forest – Admixtures – Constructors – Public Authorities

BIOCOMPOSITES INITIATIVE



Prototypes to
Customer
Specifications



Non-food
rigid plastics



Rigid food
packaging



Caps &
closures



Automotive

- ✓ Replace petro-sourced polymers with bio-sourced fiber material
- ✓ Improve product mechanical properties
- ✓ Reduce overall product costs
- ✓ Lightweight (critical to automotive)
- ✓ Respond to the need to find alternative solutions to virgin plastic
- ✓ Sequester Carbon – Reduce GHG emissions
- ✓ Sustain corporate environmental strategies

BIOCOMPOSITE SUPPLY CHAIN

20+ ORGANIZATIONS SUPPORT THE APPROACH



FOREST PRODUCTS



CHEMICALS



CONVERTERS



OEMs



END USERS

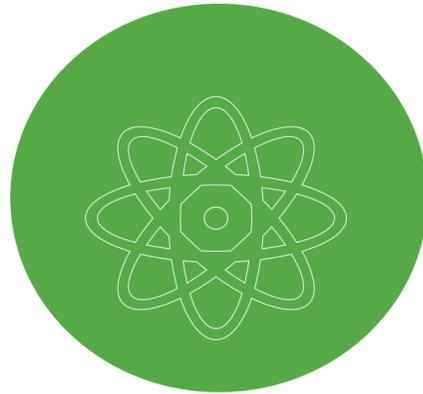


R&D & FUNDING SUPPORT



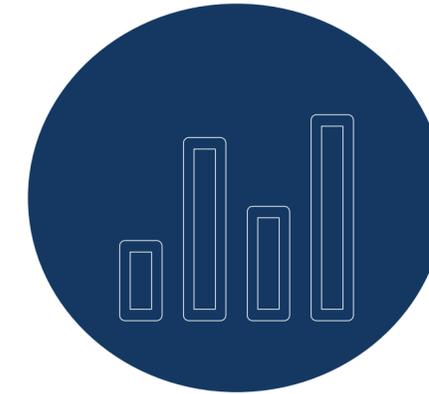
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**It's all about the economics...
Market economics and Carbon economics
That is the choice and opportunity**



THANK YOU

Stéphane Renou

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