



Natural Resources  
Canada

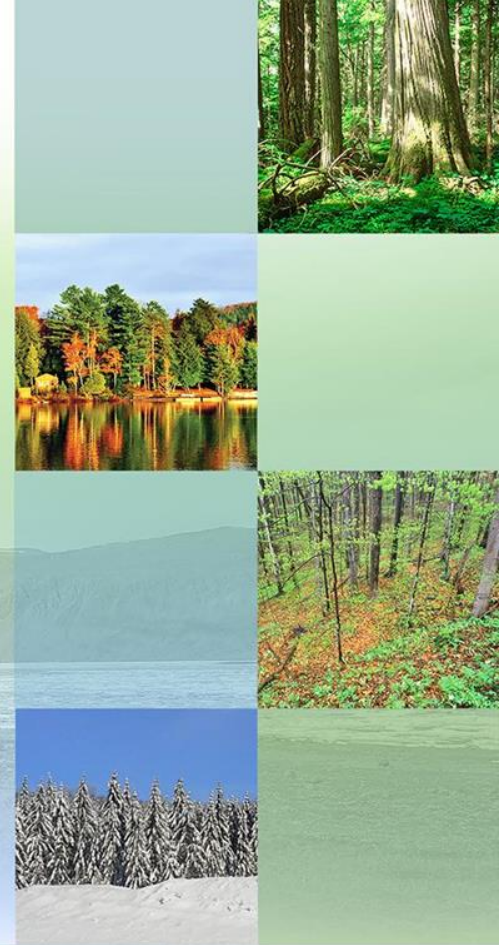
Ressources naturelles  
Canada

# Bio-hubs: Roles in Biomass Supply Chains

Bruno Gagnon, Heather MacDonald, Adekunbi Adetona  
Natural Resources Canada, Canadian Forest Service

Biljana Kulišić  
European Commission, Directorate-General for Energy

23 January 2024



# Bio-hubs: Role in Bioenergy and the Broader Bioeconomy

A bio-hub acts as an **intermediary** in biomass supply chains and markets.

## Benefits

- Functions as a storage, loading, recycling, and processing facility.
- Improves biomass supply chains, enhances the value of biomass products, and creates business opportunities.

## Challenges

- Variability in biomass availability (weather conditions, seasonality).
- Requires efficient logistics and transportation management.
- Capital investment, operation costs and technical complexity.

## Opportunities

- Integrate within the bioeconomy through strategic planning and collaboration with various stakeholders.
- Capitalize on the growing demand for diverse feedstocks from bio-based industries

# Bio-hub Business Model and Business Model Canvas (BMC)

## Bio-hub Business Model:

A framework defining how a business creates, delivers, and captures value for sustainable revenue.

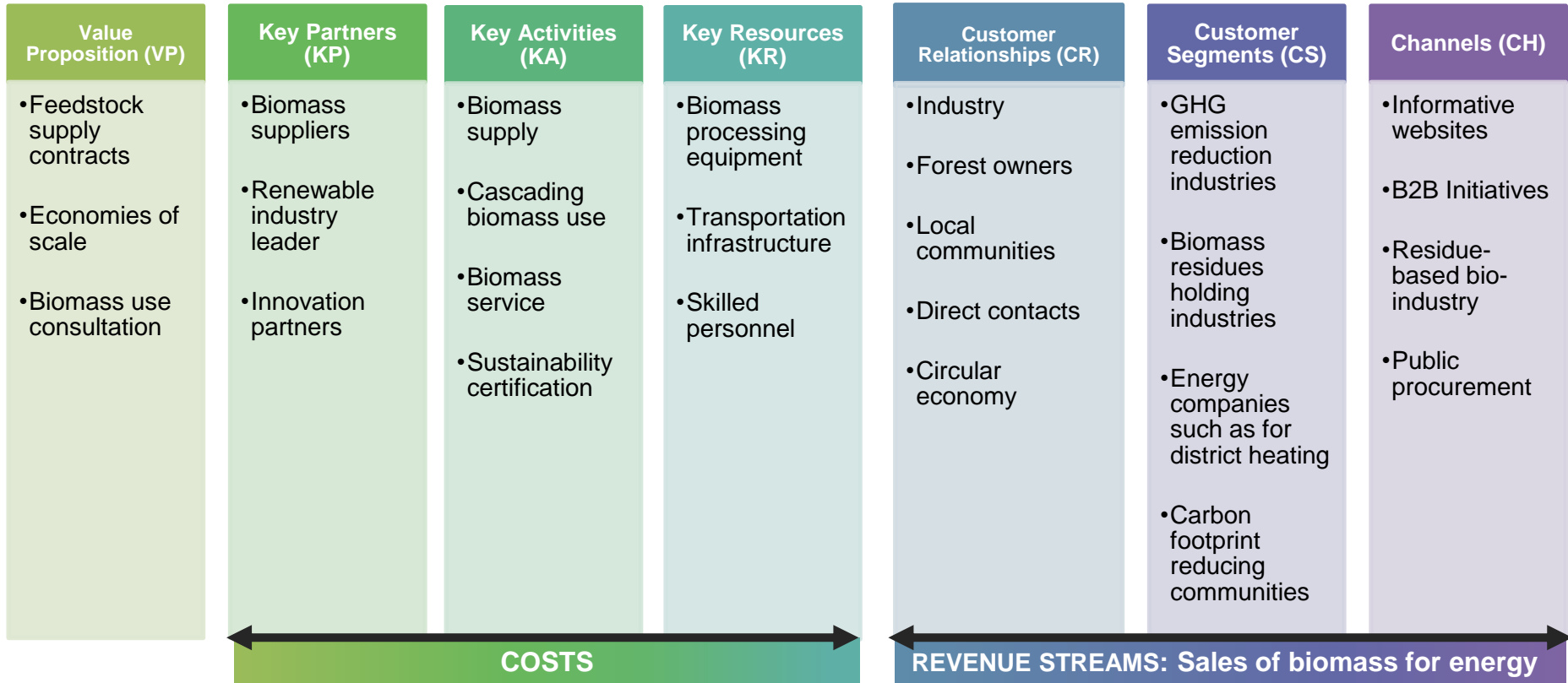
- Essential for **optimizing processes** within bio-hubs, bioenergy production, and the broader bioeconomy.
- **The theoretical bio-hub business model** surfaced from two workshops: Europe, 2019 and Canada, 2020.

## Business Model Canvas:

A visual framework for developing, describing, and analyzing a business model.

- A **guide for** outlining essential components within the business model.
- **Components:** Key partners, activities, resources, propositions, customer relationships, customer segments, channels, cost structure, and revenue streams.

# Components of Business Model Canvas



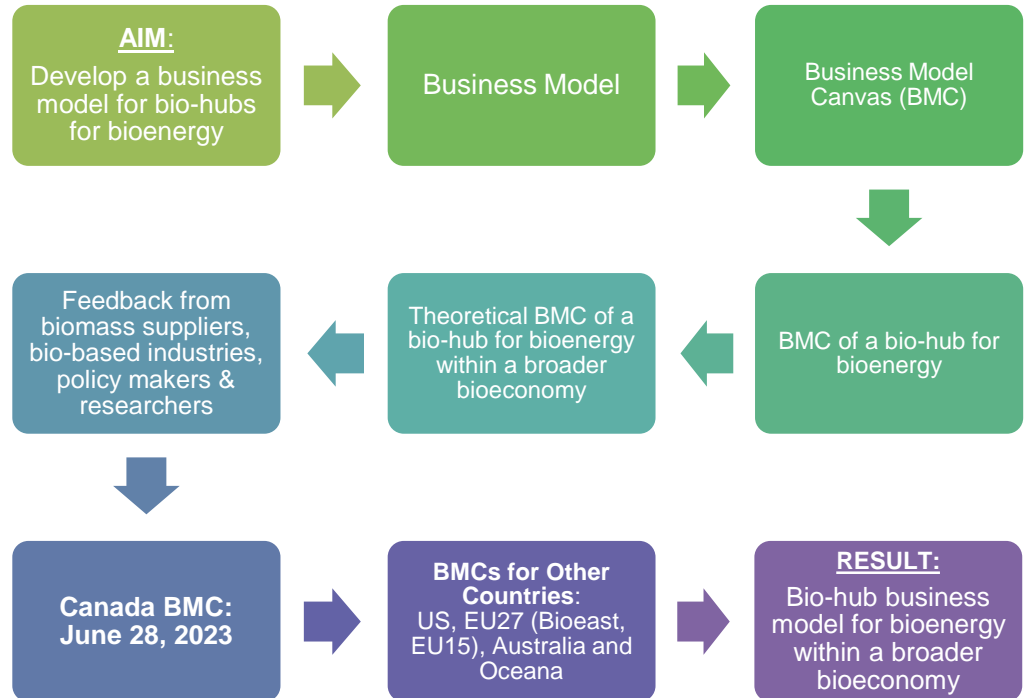
# Workshop: Business Model for Bio-hubs in Canada

## Event Details

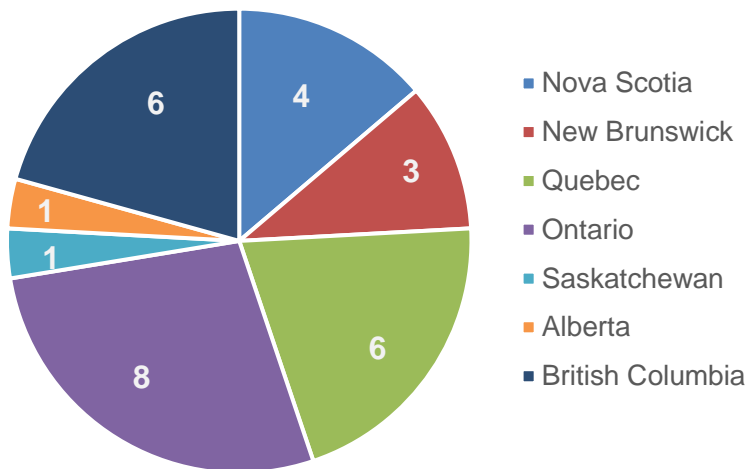
- Date: June 28, 2023
- Participants: 27 pre-selected experts

## Objectives

- **Present a theoretical bio-hub business model** using the BMC template to enhance and tailor the model for Canada.
- **Delve into specific model components** to improve the model.
- **Establishing a platform for sharing information** related to the engagement requirements for bio-hubs to enhance the “theoretical” business model.



# Pre-workshop Survey



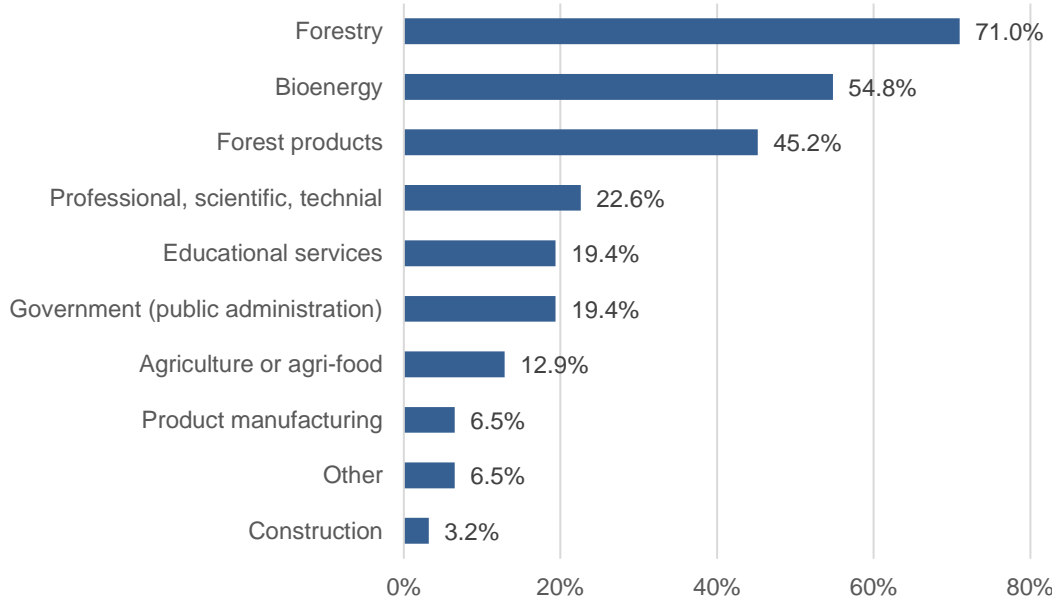
**Regional distribution of workshop participants**



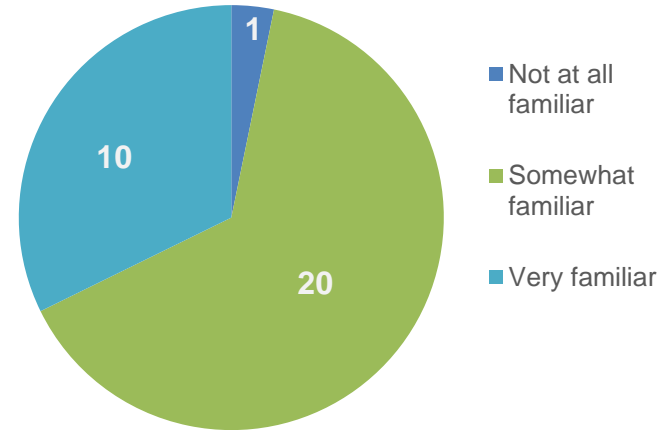
**Respondents by type of organization**

# Pre-workshop Survey

Percentage of Survey Respondents



Respondents by Type of Sector



Respondents' familiarity with bio-hubs

# Presentation of Theoretical BMC Utilizing Miro



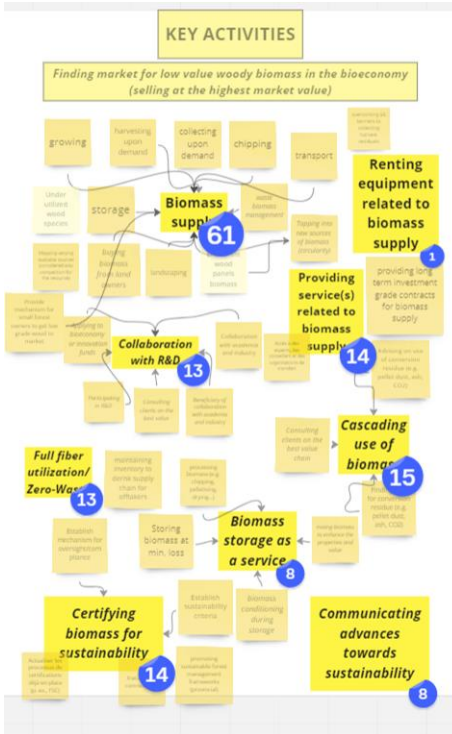


# Voting Feature of Miro

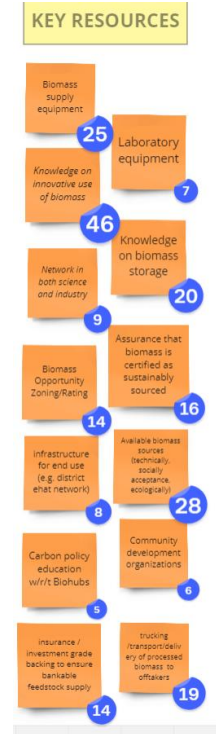
## Key Partners



## Key Activities



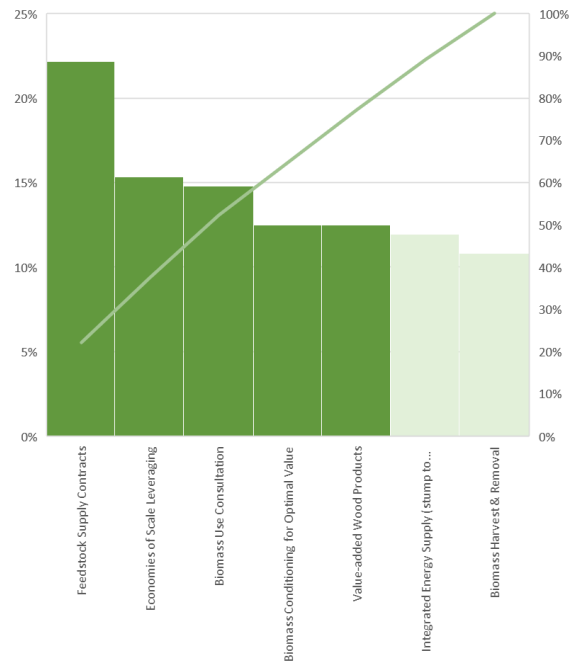
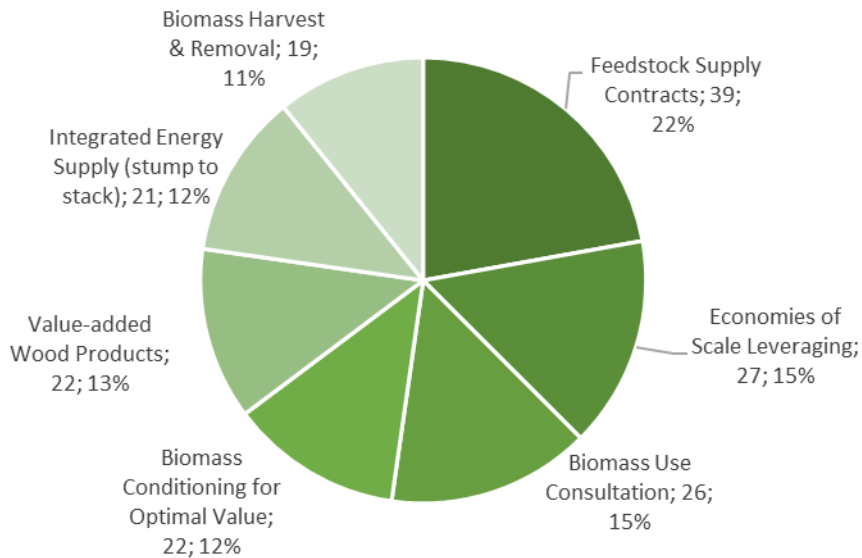
## Key Resources



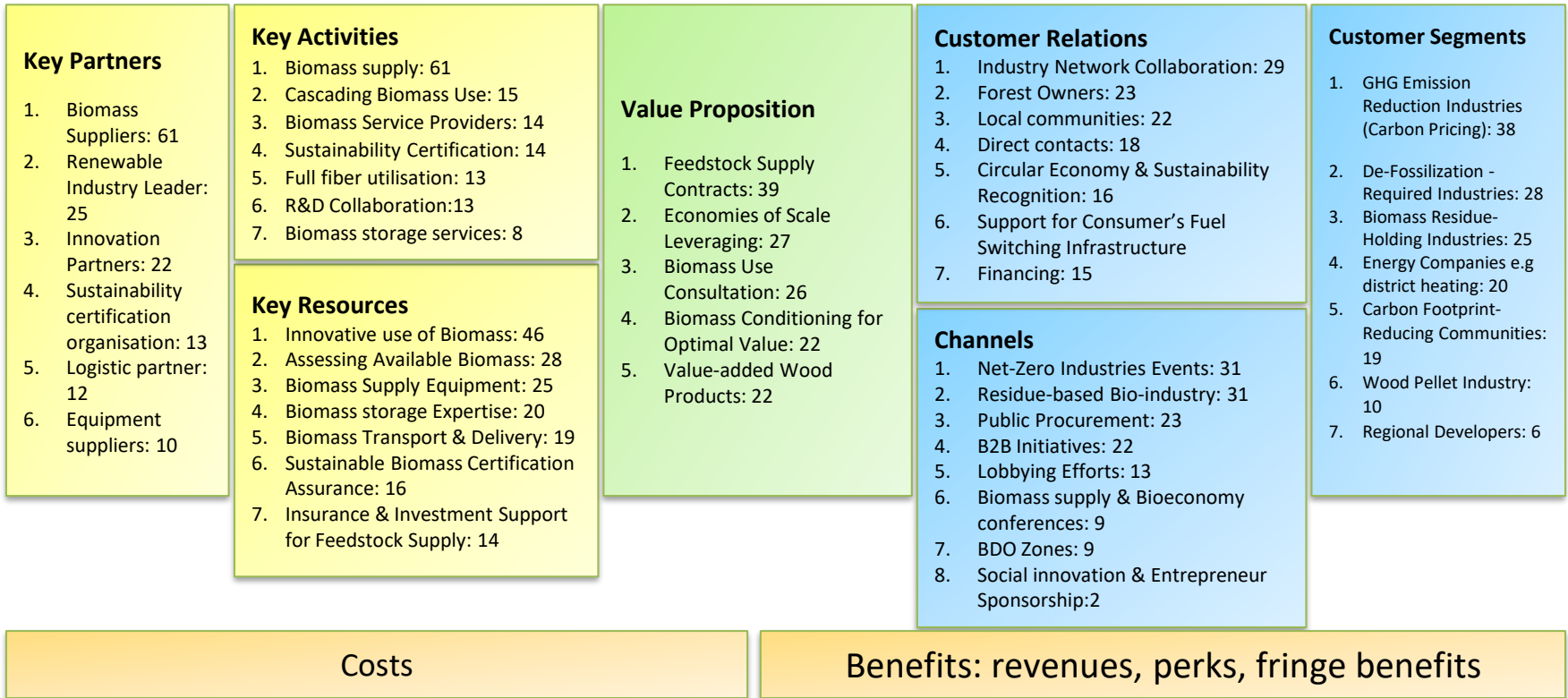
## Value Proposition



# Value Proposition for Bio-hubs



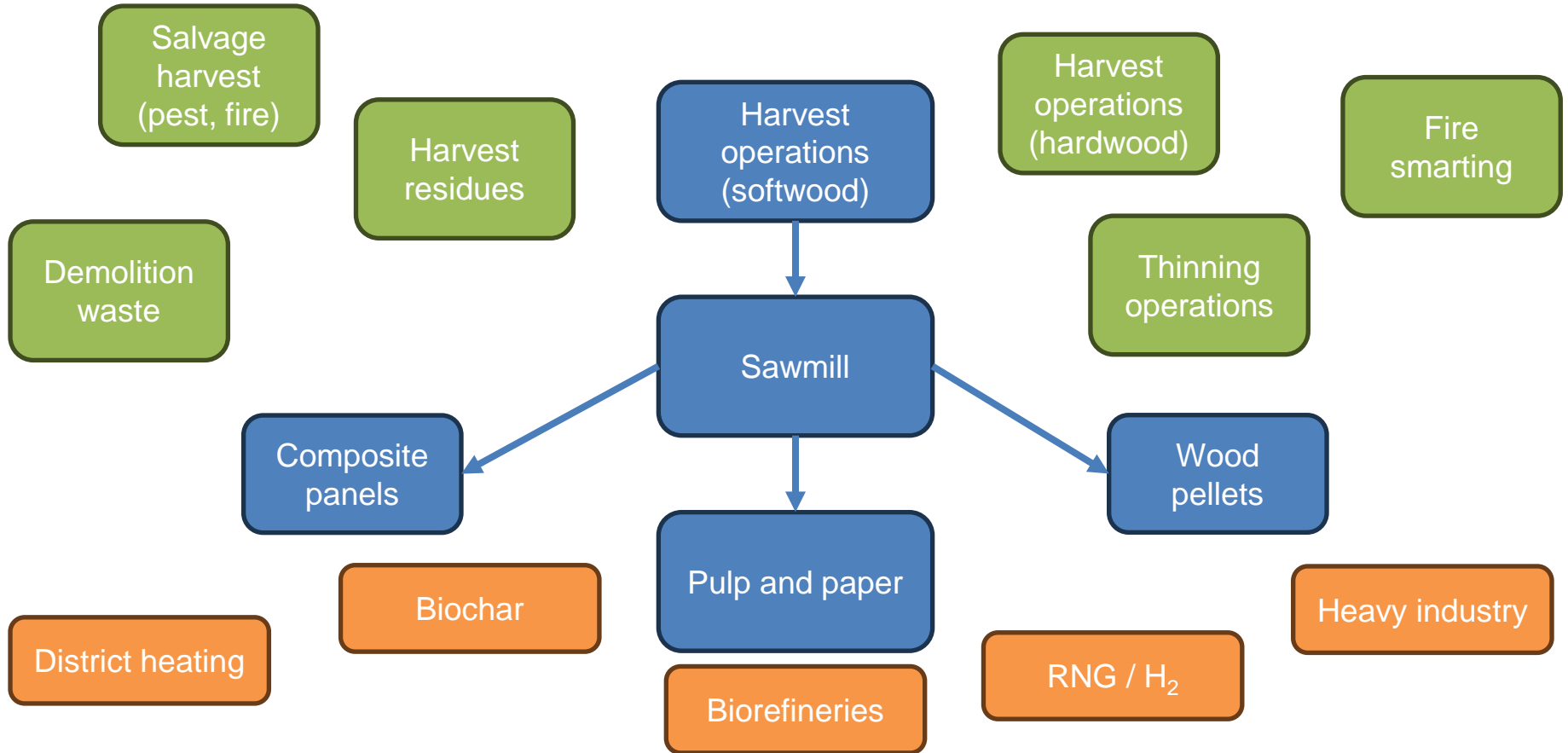
# Integration of Key Components of BMC



# Key Learnings

- **Successful biomass supply in the bioeconomy requires** strategic partnerships, optimized operations, resource access, strong customer relationships, and effective outreach channels.
- Despite the opportunities, various challenges exist in implementing elements of the bio-hub business model.
- **Tailored to Canada's unique bioenergy challenges and opportunities**, this workshop provided insights for a successful bio-hubs business model.
- **Limited bio-hub examples in Canada** mean that best practices and key success factors remain to be defined.
- Integration of bio-hubs within supply chains will evolve as we learn how they can best support business opportunities.

# Bio-hubs, Why Now?



# Study Limitations

- The workshop focused on forest supply chains, suggesting a need to **include other bio-based sectors**.
- Participation was limited considering that **conditions vary greatly across regions in Canada**, namely calling for more Indigenous involvement.
- The results are **exploratory**, providing insights into the perceptions of sector representatives rather than presenting a fully validated business model.

# Future Steps in Business Model Development

- Obtain **cost and revenue data** through case studies to inform subsequent models.
- **Connect with more stakeholders** designing and operating bio-hubs in Canada to validate the model and demonstrate bio-hub implementation.
- Future studies should investigate how **investments in biomass supply chain management** and policies can facilitate bio-hub development.
- **Replicate the workshop** in other countries, offering lessons on crucial factors for business models and fostering innovative thinking.



Natural Resources  
Canada

Ressources naturelles  
Canada

# Questions

