Ontario Association of Architects

KIRKOR ARCHITECTS AND PLANNERS

CARBON COALITION

Know Your Impact

Findings and Outcomes from the Carbon Coalition Conference

OAA WEBINAR – APRIL 3, 2025

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CARBON COALITION

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CARBON COALITION

Intro & Conference Info / Terms, Importance, Types & Process of Making EPDs

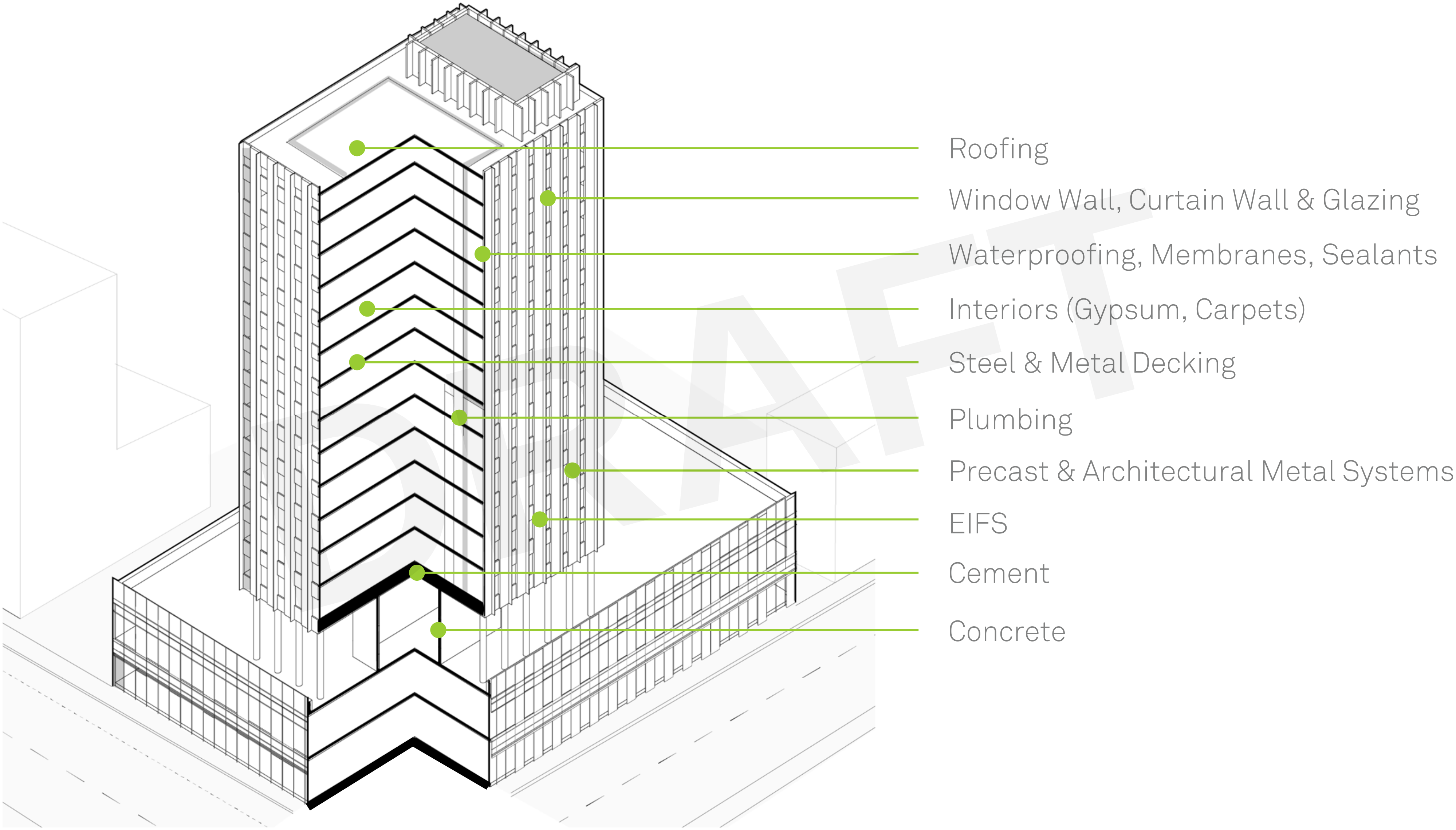
1. Bridge Information Gaps
2. Understand the Challenges
3. Align Efforts & Address the Impacts

WHAT WAS THE CONFERENCE ABOUT?

1. The Need for Data (EPD's) – Why & When?
2. Cross Sector Communication & Collaboration
3. Articulate the Challenges in Decarbonization Implementation
4. From Theory to Practice
5. Questions then Answers

WHO WAS IN ATTENDANCE?

- Architects
- Developers
- Land Owners
- Contractors & Builders
- Sustainability Experts
- Mechanical Engineers
- Structural Engineers
- Spec Writers
- Federal Government
- Municipal Government
- Third Party Organizations
- Communications
- Product Distributors
- Product Manufacturers
- Industry Associations
- Industry Councils


Roofing
Window Wall, Curtain Wall & Glazing
Waterproofing, Membranes, Sealants
Interiors (Gypsum, Carpets)
Steel & Metal Decking
Plumbing
Precast & Architectural Metal Systems
EIFS
Cement
Concrete

 Terms, Importance, Types & Process of Making EPDs

EMBODIED CARBON

Carbon emissions associated with materials and construction processes throughout the whole lifecycle of a building

LCA

(LIFECYCLE ASSESSMENT)

Method of tracking materials, energy & environmental impacts of a product throughout its lifecycle

GWP

(GLOBAL WARMING POTENTIAL)

Embodied Carbon value of the product (units of CO2e)

EPD

(ENVIRONMENTAL PRODUCT DECLARATION)

Document that shows the environmental impacts (like GWP & others) of a product

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Increasing Market Demand

Developer
Corporate Objectives to reduce carbon emissions

Market Evolution
Certifications require embodied carbon reporting

Levels of Government
Legislation is creating incrementally stringent requirements on embodied carbon

Building Code
Soon to include embodied carbon limits (for ex: NBC 2030)

EPD

(ENVIRONMENTAL PRODUCT DECLARATION)

Document that shows the environmental impacts (like GWP & others) of a product

Benefits Beyond Market Demand

Manufacturer & Product Transparency

Marketing and Promotion through disclosures means greater exposure of products

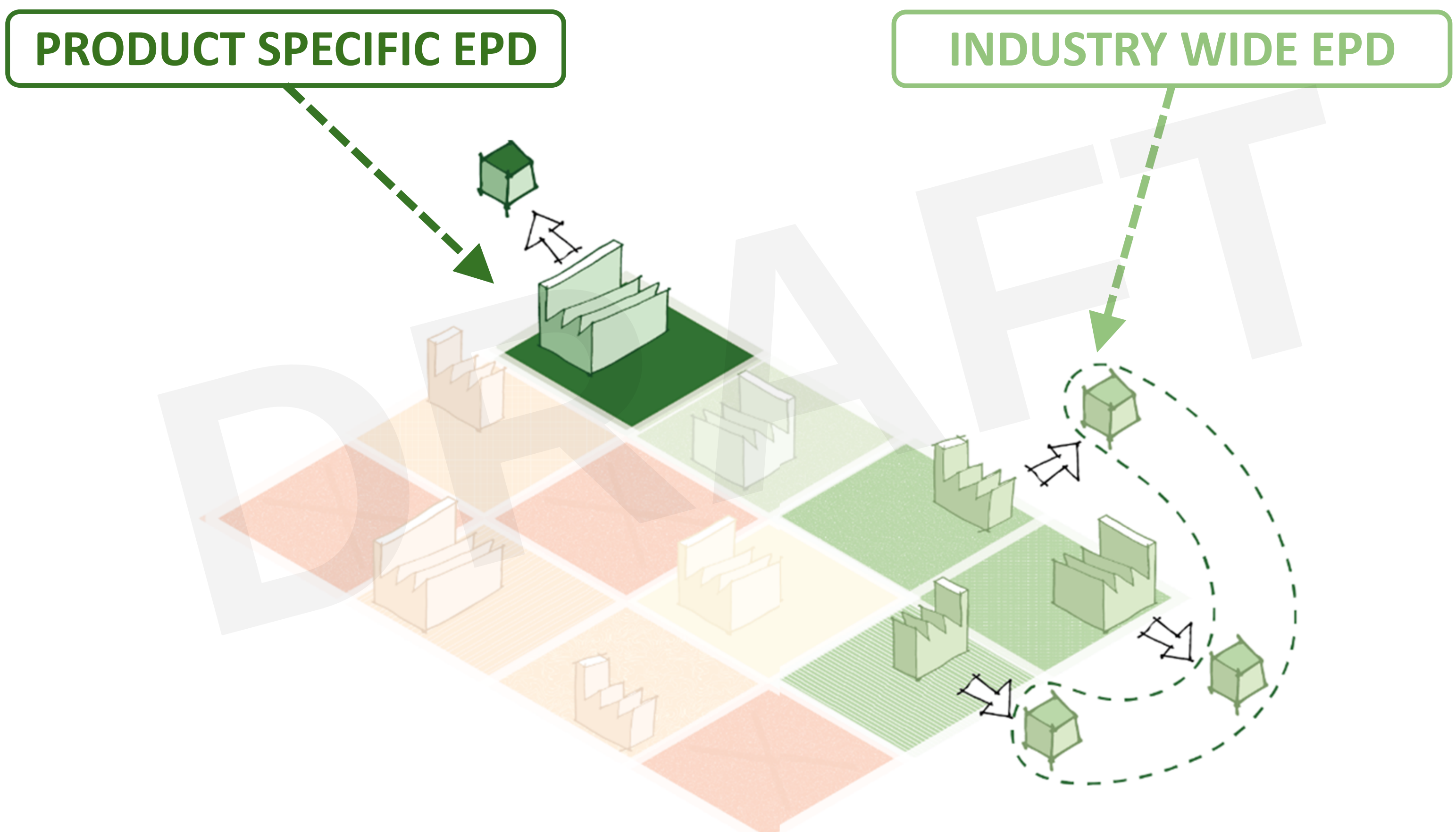
Material Libraries & Specifications means greater exposure of products

Identify 'hotspots' for greater optimization and improvement within manufacturing plan

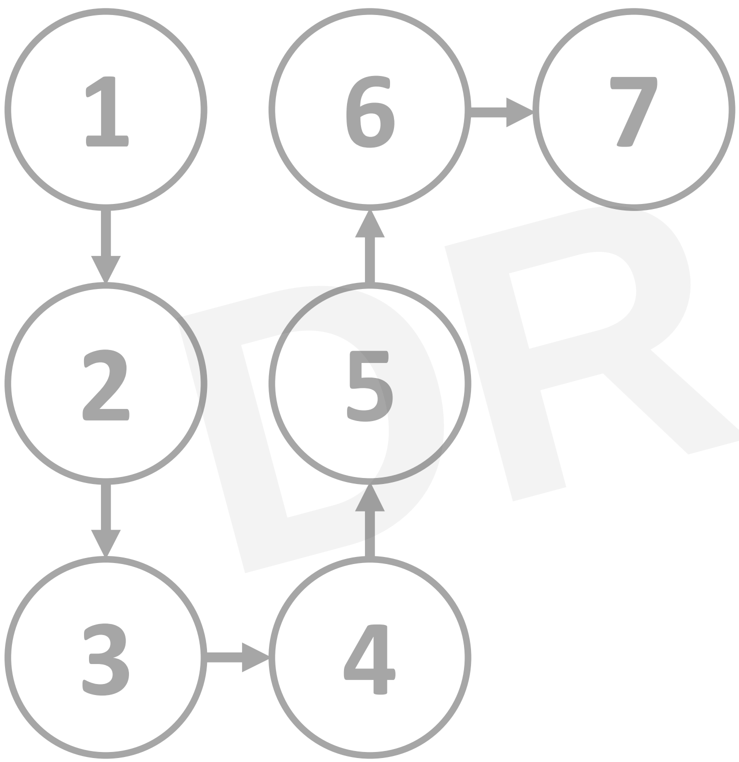
EPD

(ENVIRONMENTAL PRODUCT DECLARATION)

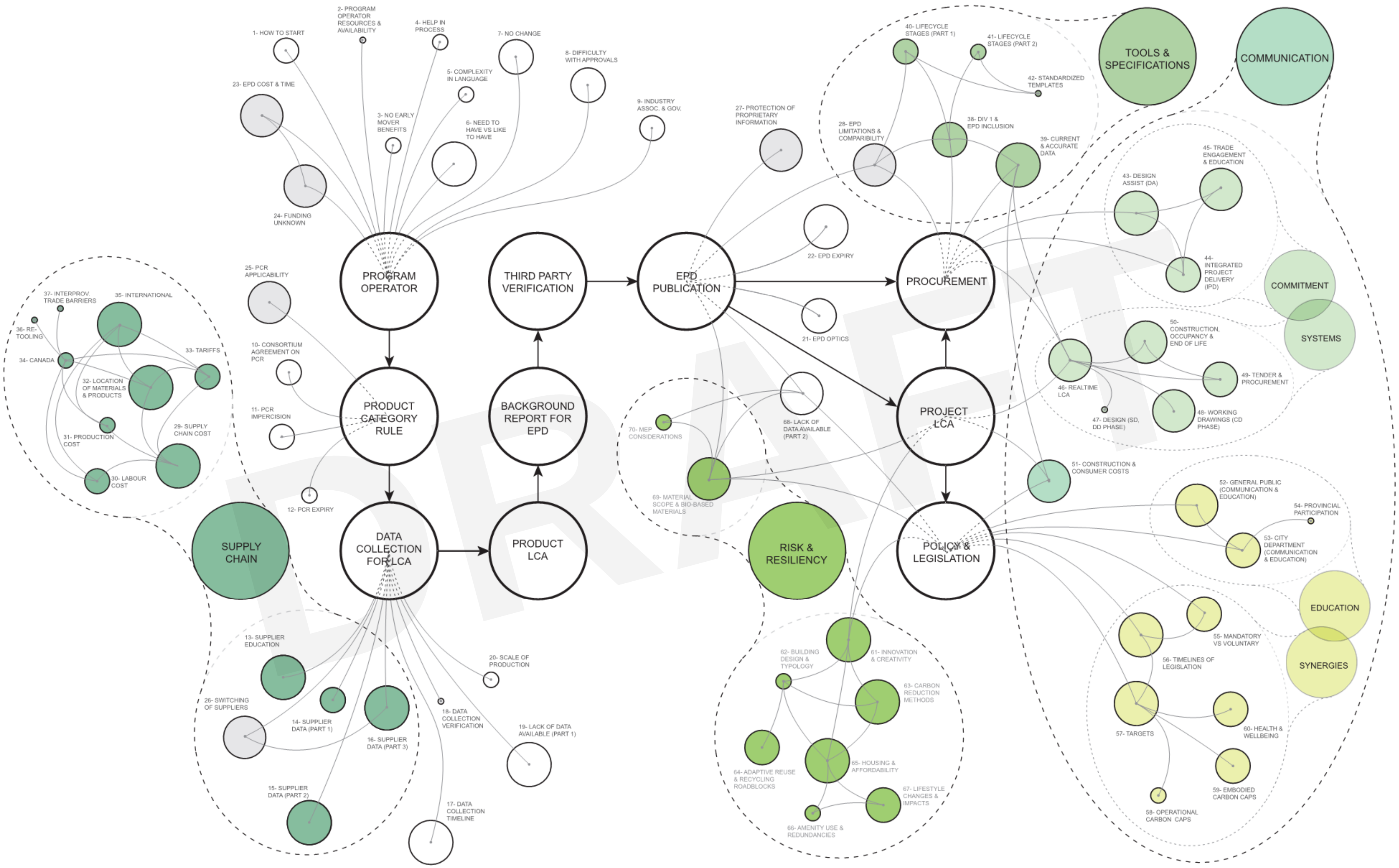
Document that shows the environmental impacts (like GWP & others) of a product


PRODUCT SPECIFIC EPD
INDUSTRY WIDE EPD

Process of Making EPD



1. **Program Operator**
   Organization that manages the development and publication of PCR & EPDs
2. **Product Category Rule (PCR)**
   Rules for conducting an LCA and developing EPDs for one or more product categories
3. **Data Collection for LCA**
4. **Product LCA**
5. **Background Report for EPD**
6. **Third Party Verification**
7. **EPD Publication**

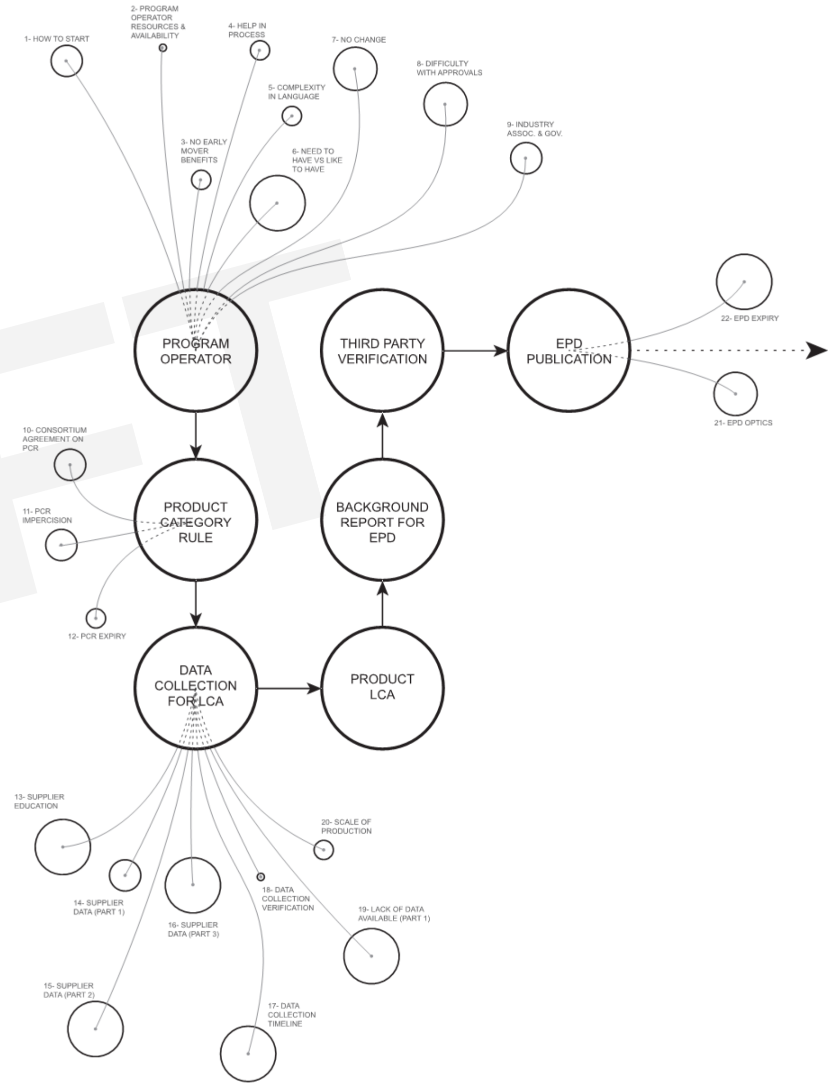


PROGRAM OPERATOR
THIRD PARTY VERIFICATION
EPD PUBLICATION
PROCUREMENT
PRODUCT CATEGORY RULE
BACKGROUND REPORT FOR EPD
PROJECT LCA
DATA COLLECTION FOR LCA
PRODUCT LCA
POLICY & LEGISLATION
SUPPLY CHAIN
RISK & RESILIENCY
TOOLS & SPECIFICATIONS
COMMUNICATION
COMMITMENT
SYSTEMS
EDUCATION
SYNERGIES
DRAFT
1- HOW TO START
2- PROGRAM OPERATOR RESOURCES & AVAILABILITY
3- NO EARLY MOVER BENEFITS
4- HELP IN PROCESS
5- COMPLEXITY IN LANGUAGE
6- NEED TO HAVE VS LIKE TO HAVE
7- NO CHANGE
8- DIFFICULTY WITH APPROVALS
9- INDUSTRY ASSOC. & GOV.
10- CONSORTIUM AGREEMENT ON PCR
11- PCR IMPERCISION
12- PCR EXPIRY
13- SUPPLIER EDUCATION
14- SUPPLIER DATA (PART 1)
15- SUPPLIER DATA (PART 2)
16- SUPPLIER DATA (PART 3)
17- DATA COLLECTION TIMELINE
18- DATA COLLECTION VERIFICATION
19- LACK OF DATA AVAILABLE (PART 1)
20- SCALE OF PRODUCTION
21- EPD OPTICS
22- EPD EXPIRY
23- EPD COST & TIME
24- FUNDING UNKNOWN
25- PCR APPLICABILITY
26- SWITCHING OF SUPPLIERS
27- PROTECTION OF PROPRIETARY INFORMATION
28- EPD LIMITATIONS & COMPARIBILITY
29- SUPPLY CHAIN COST
30- LABOUR COST
31- PRODUCTION COST
32- LOCATION OF MATERIALS & PRODUCTS
33- TARIFFS
34- CANADA
35- INTERNATIONAL
36- RE-TOOLING
37- INTERPROV. TRADE BARRIERS
38- DIV 1 & EPD INCLUSION
39- CURRENT & ACCURATE DATA
40- LIFECYCLE STAGES (PART 1)
41- LIFECYCLE STAGES (PART 2)
42- STANDARDIZED TEMPLATES
43- DESIGN ASSIST (DA)
44- INTEGRATED PROJECT DELIVERY (IPD)
45- TRADE ENGAGEMENT & EDUCATION
46- REALTIME LCA
47- DESIGN (SD, DD PHASE)
48- WORKING DRAWINGS (CD PHASE)
49- TENDER & PROCUREMENT
50- CONSTRUCTION, OCCUPANCY & END OF LIFE
51- CONSTRUCTION & CONSUMER COSTS
52- GENERAL PUBLIC (COMMUNICATION & EDUCATION)
53- CITY DEPARTMENT (COMMUNICATION & EDUCATION)
54- PROVINCIAL PARTICIPATION
55- MANDATORY VS VOLUNTARY
56- TIMELINES OF LEGISLATION
57- TARGETS
58- OPERATIONAL CARBON CAPS
59- EMBODIED CARBON CAPS
60- HEALTH & WELLBEING
61- INNOVATION & CREATIVITY
62- BUILDING DESIGN & TYPOLOGY
63- CARBON REDUCTION METHODS
64- ADAPTIVE REUSE & RECYCLING ROADBLOCKS
65- HOUSING & AFFORDABILITY
66- AMENITY USE & REDUNDANCIES
67- LIFESTYLE CHANGES & IMPACTS
68- LACK OF DATA AVAILABLE (PART 2)
69- MATERIAL SCOPE & BIO-BASED MATERIALS
70- MEP CONSIDERATIONS

Findings from Sector Challenges & Opportunities

The EPD Process (Part 1)

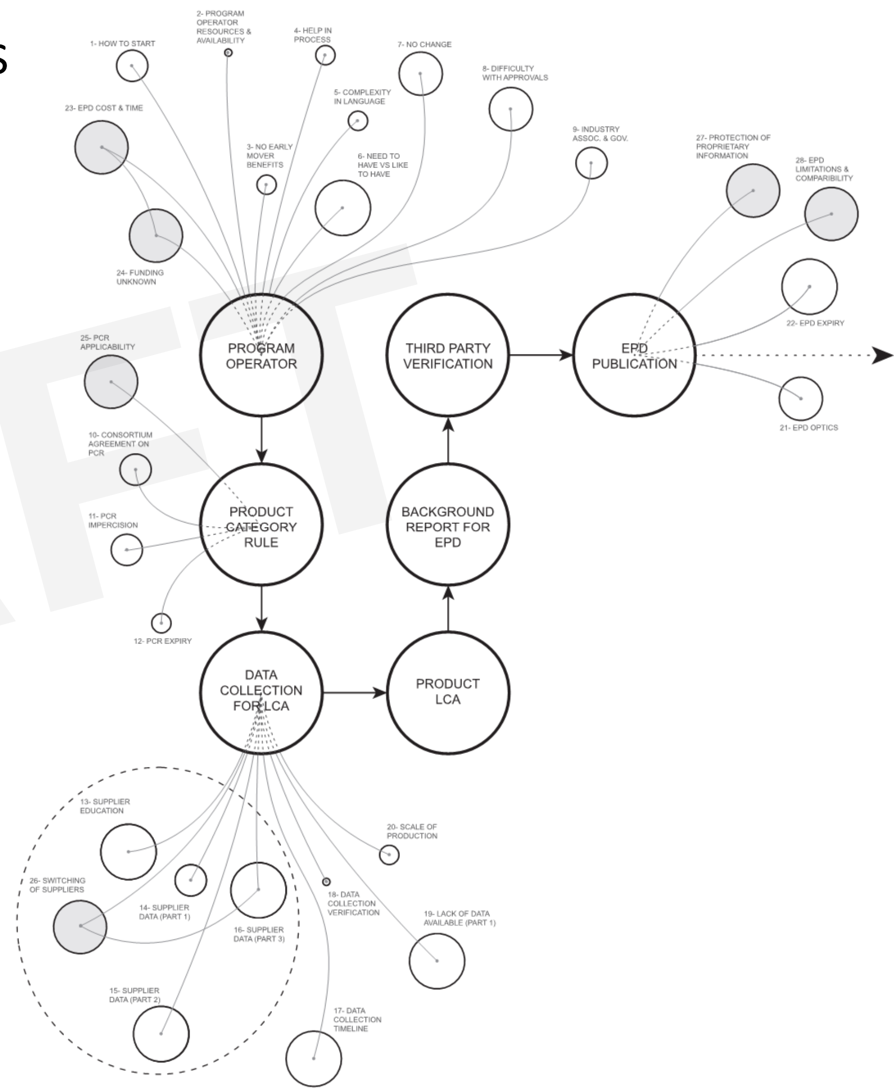
- OPPORTUNITIES –
  - Agreement on EPDs as a tool for decarbonization
  - Creating EPDs help them meet their own goals in decarbonization
  - Become leaders in their respective field
- CHALLENGES –
  - How to start, Help in process,
  - *Need to have vs Like to Have, No change*
  - *Data collection timeline & verification*
  - Consortium agreement on PCR,
  - PCR expiry, EPD optics, EPD expiry



Findings from Sector Challenges & Opportunities

The EPD Process (Part 2)

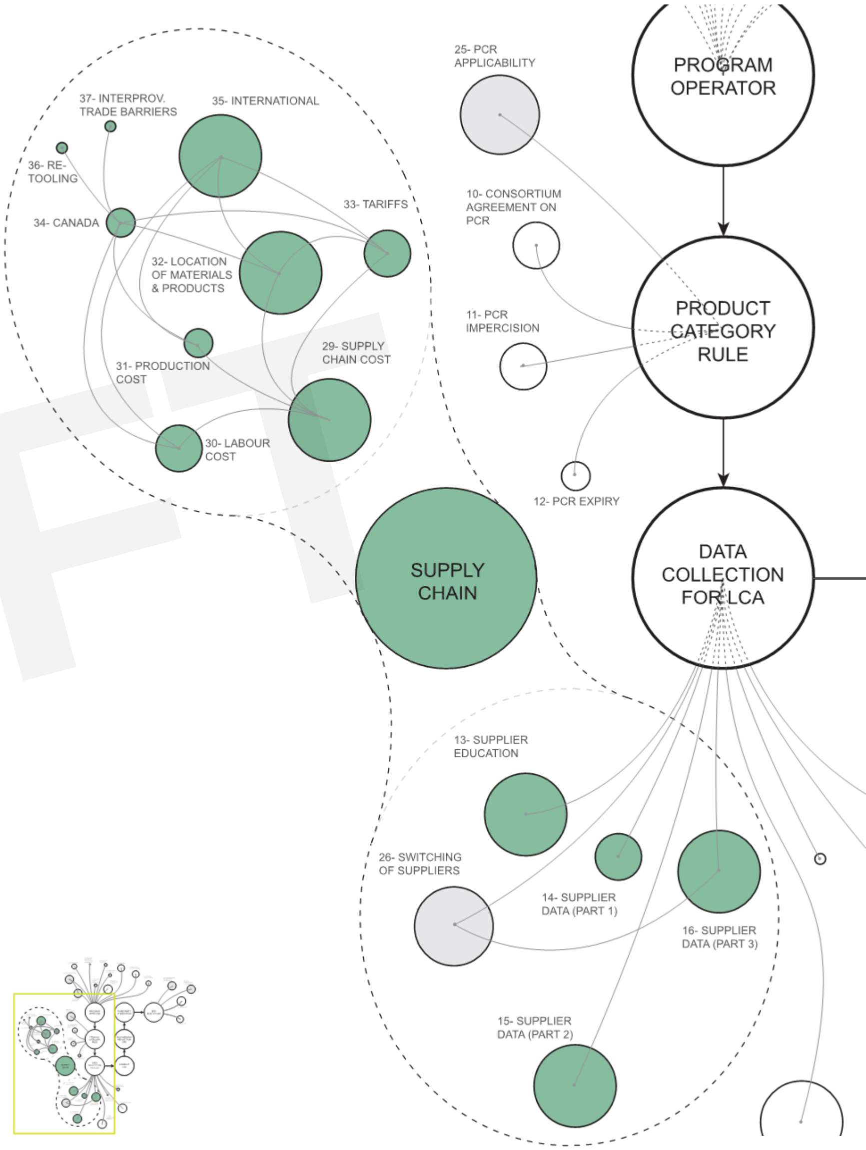
- TOP 6 CHALLENGES & **RESPONSES** (if available)
  - EPD cost & time
  - Funding unknown
  - PCR applicability – **work with program operator to find a PCR that is applicable**
  - Switching of Suppliers – **unless there is a major change for example in material or energy, no redo of EPD is required**
  - Protection of proprietary information – **sensitive data not shown in EPD, rather in LCA which is not publicly disclosed**
  - EPD limitations and Comparability – **dependent on PCR; if comparing, make sure it's the same PCR between products**



Findings from Sector Challenges & Opportunities

The Supply Chain

- CHALLENGES –
    - *Supplier Education, Supplier Data*
    - Supply chain cost, labour cost, production cost,
    - *Location of materials and products*
    - *Tariffs*
    - *Retooling*
    - *Interprovincial Trade Barriers*

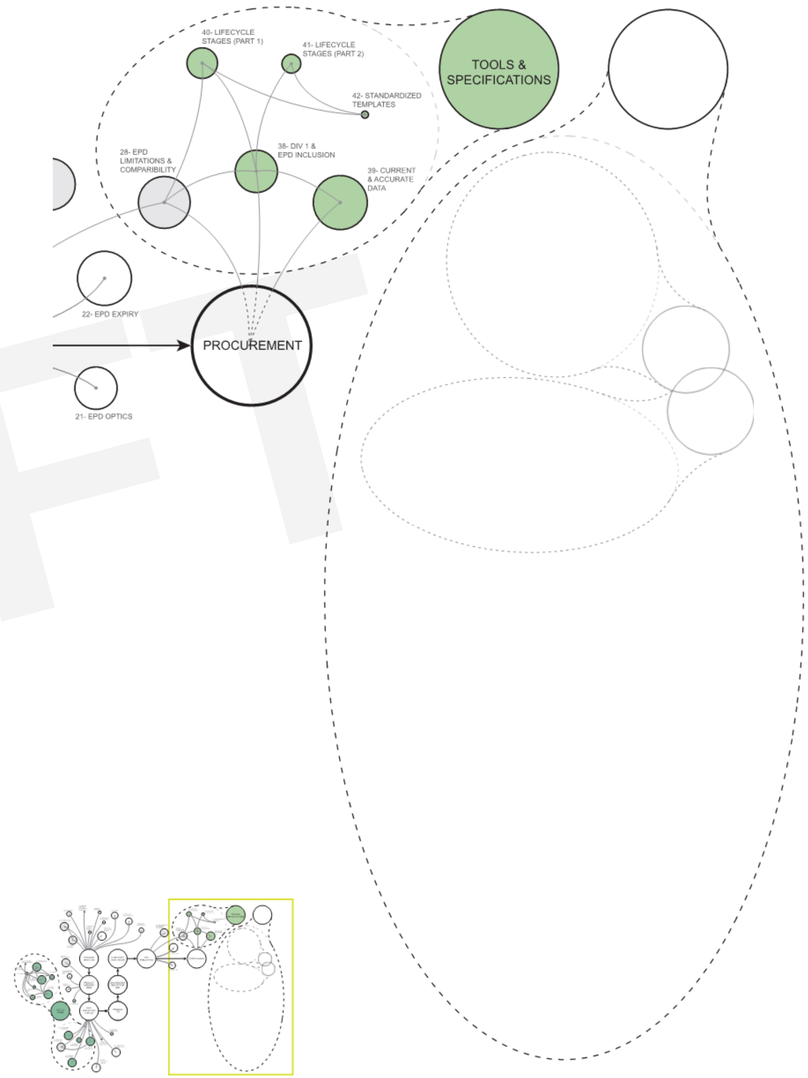


DRAFT

Findings from Sector Challenges & Opportunities

Procurement – Tools & Specifications

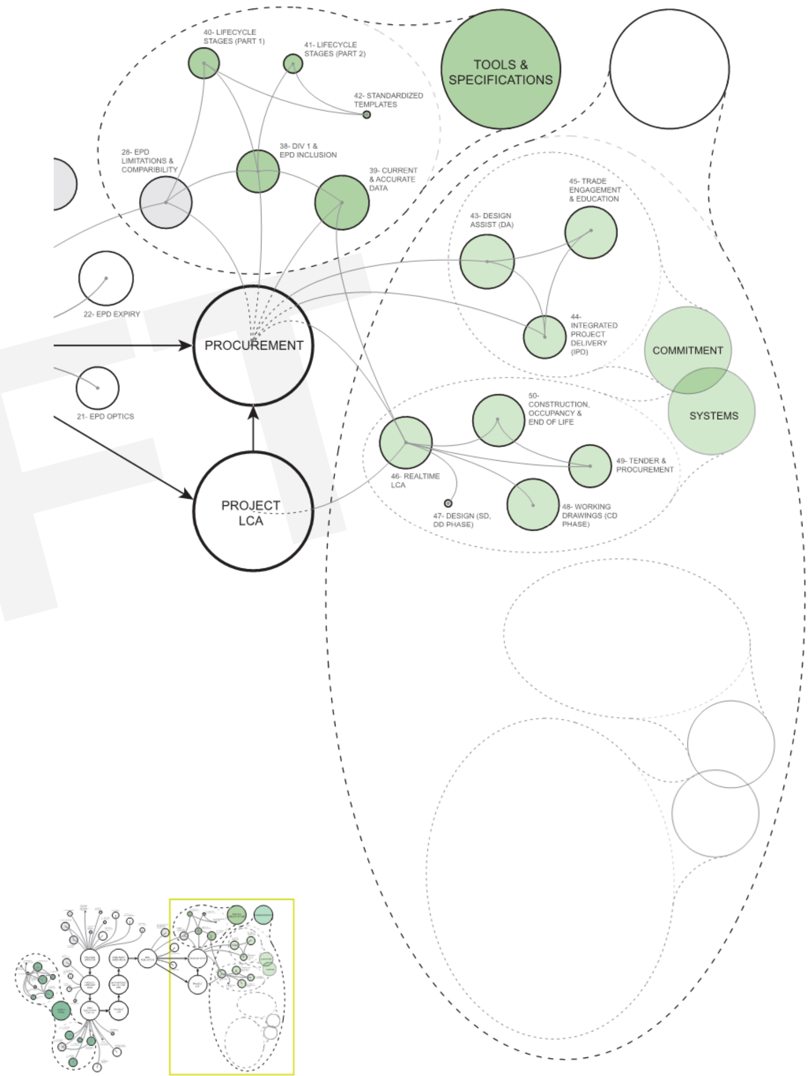
- OPPORTUNITIES –
  - Agreement from both Industry & Private Sector that <u>specifications are critical to decarbonization</u>
- CHALLENGES –
  - Div 1 & EPD inclusion
  - Current & Accurate Data
  - *Lifecycle Stages*
  - Standardized templates



Findings from Sector Challenges & Opportunities

Procurement - Commitment

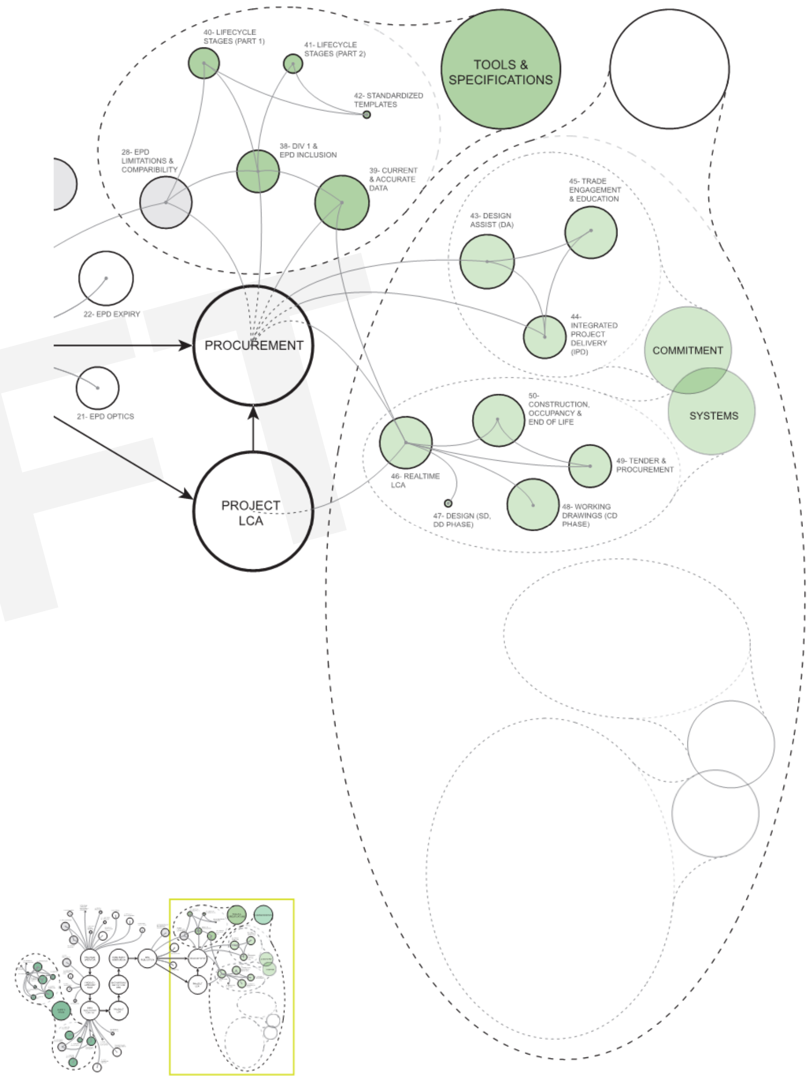
- OPPORTUNITIES –
  - Agreement from both Industry & Private Sector that early engagement between both parties is critical
  - There was consensus from private sector regarding education for trades and contractors
- CHALLENGES –
  - *Design Assist (DA)*
  - *Integrated Project Delivery (IPD)*
  - Trade Engagement & Education



Findings from Sector Challenges & Opportunities

Project LCA - Systems

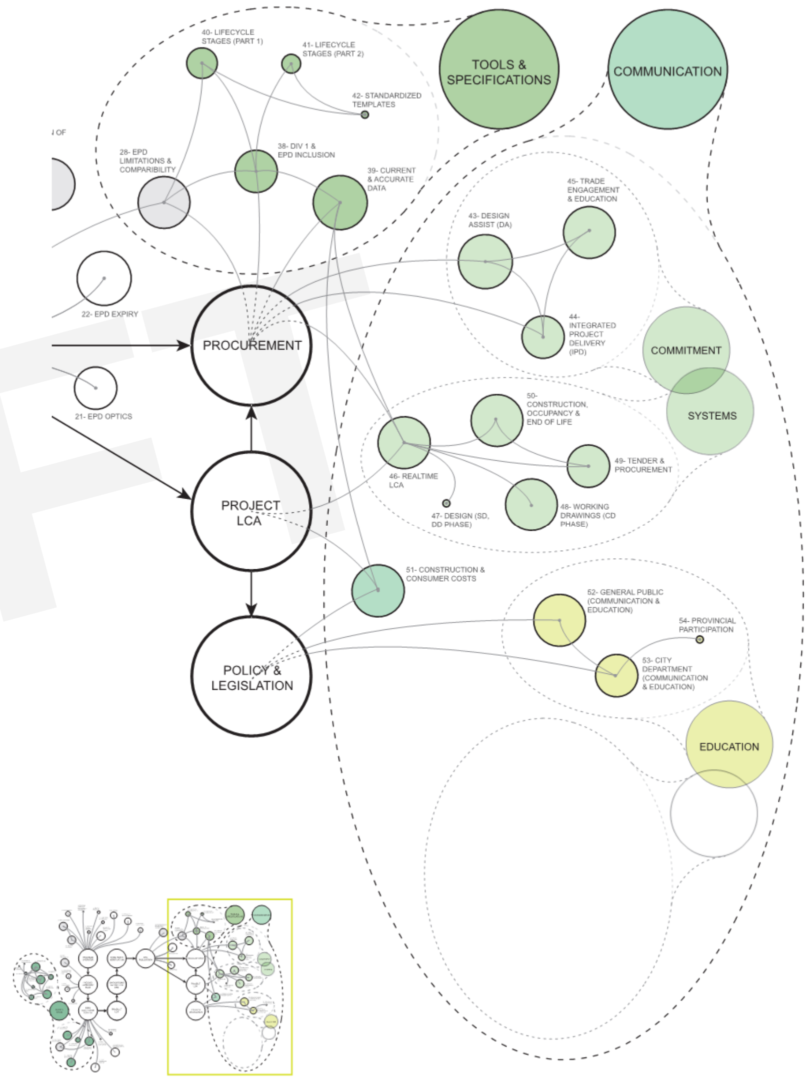
- OPPORTUNITIES –
  - Agreement from Private that preparing LCA's and <u>verifying on site</u> is <u>needed to better understand</u> what the embodied <u>carbon values</u> are <u>of a project</u>
- CHALLENGES –
  - Realtime LCA
  - Design (SD, DD Phase)
  - *Working Drawings (CD Phase)*
  - *Tender & Procurement*
  - *Construction, Occupancy & End-of-Life*



Findings from Sector Challenges & Opportunities

Policy & Legislation – Communication & Education

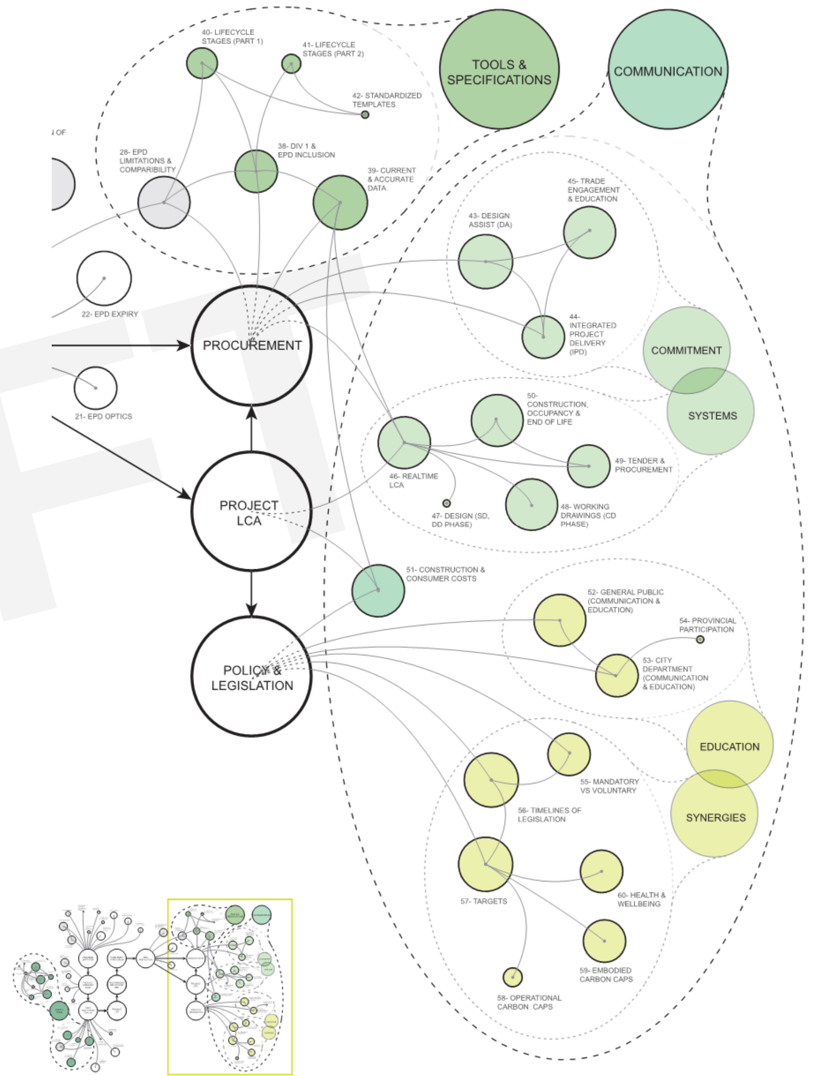
- OPPORTUNITIES –
  - Agreement from all sectors (including government) on the need for communication & education to all involved and not involved in process
- CHALLENGES –
  - General Public (Communication & Education)
  - City Department (Communication & Education)
  - Provincial Participation



Findings from Sector Challenges & Opportunities

Policy & Legislation – Synergies

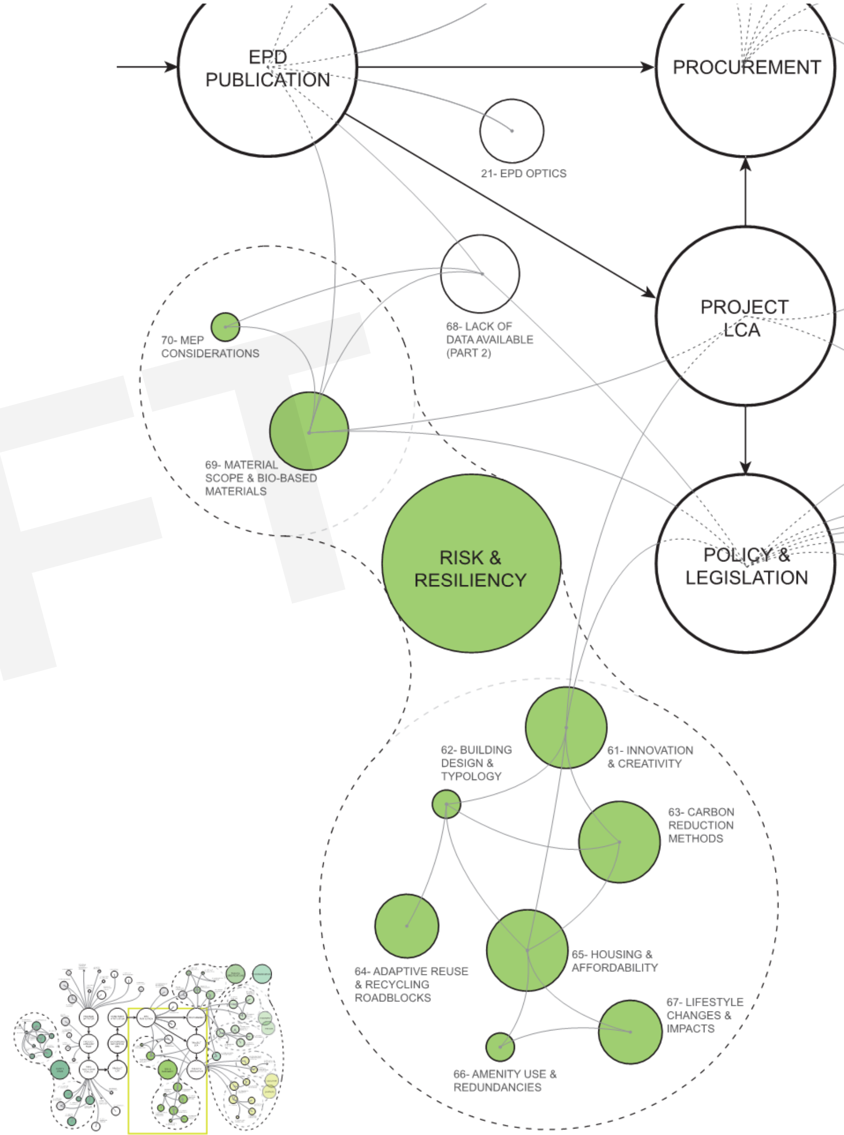
- OPPORTUNITIES –
  - All sectors including Manufacturers, agreed that Policy and legislation was a key tool for decarbonization
  - However, participants highlighted the importance of alignment, balance and feasibility to ensure accurate & viable execution (refer to challenges)
- CHALLENGES –
  - Mandatory vs Voluntary,
  - Timelines for Legislation
  - *Targets, Operational Carbon Caps, Embodied Carbon Caps, Health & Wellbeing*



Findings from Sector Challenges & Opportunities

Project LCA | Policy & Legislation – Risk & Resiliency

- OPPORTUNITIES –
  - Majority of all Participants agreed that by <u>addressing Housing & Affordability</u>, a vibrant and sustainable community is possible
- CHALLENGES –
  - *Innovation & Creativity, Carbon Reduction Methods*
  - *Building Design & Typology, Adaptive Reuse & Recycling Roadblocks*
  - Amenity use and redundancies, Lifestyle Changes & Impacts
  - *Material Scope & Bio-based Materials*



Findings from Sector Challenges & Opportunities / Key Takeaways

EPD Importance & Communication –

- Understand EPD process & communicate importance of EPD
- Work with manufacturing, get them involved in projects and introduce them to the client for potential DA opportunities
- Communicate industry challenges of EPD creation to City staff who may not know

Specification Importance & Communication –

- Understand how spec can be a tool for decarbonization

Importance of Commitment & Verification –

- Convey importance of IPD with Client, builder and consultant.
- Work on decarb goals early in process and make sure the full team is aware of what they are
- Encourage Realtime LCA to define what was executed on site

Balance & Feasibility of Carbon –

- Work with Energy & Sustainability Consultants to better understand the threshold between operational and embodied carbon

HOLISTIC STRATEGIES

CARBON COALITION

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