



DDI8003 – Week 6

ecoinvent v3 Manuele Margni (Course built with Pascal Lesage)

**POLYTECHNIQUE
MONTRÉAL**

WORLD-CLASS
ENGINEERING



ecoinvent – A brief history

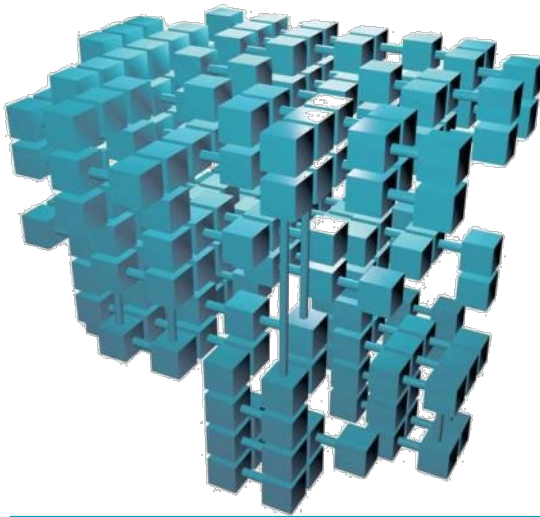


90s	Demand for LCI data growing in Switzerland Data development in many institutions Non-centralized data, sometimes contradictory No one institution is sufficiently strong to maintain a complete LCI-DB of good quality
1997	Creation of the NGO « Centre ecoinvent »: ETH Zurich, EPF Lausanne, PSI, EMPA, ART Financed by the Swiss government Goal: create and maintain the ecoinvent LCI-DB Harmonisation Characteristics aimed for: scientifically solid and transparent data All revenues reinvested in the LCI-DB
1999-2007	ecoinvent 1.0-1.3 (≈2500 datasets) Integration in main software Starts gaining momentum (particularly in research community)
2007-2013	ecoinvent 2.0-2.2 (≈4000 datasets) Work started on ecoinvent v3
2013-now	ecoinvent v3.x (> 15000 datasets)

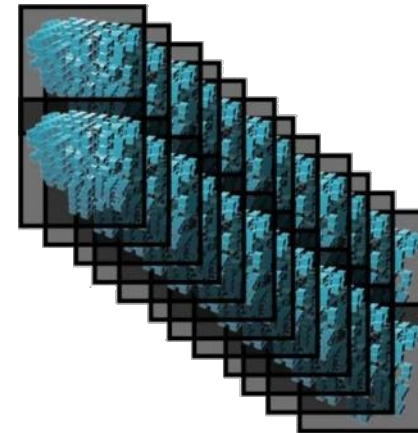
ecoinvent : some characteristics

Transparency

- Datasets available in disaggregated version (gate-to-gate) and aggregated (pre-calculated inventories)
- Exhaustive documentation (datasets, hypotheses)



ecoinvent version
« Unit process » (U)



ecoinvent version
« System process » (S)

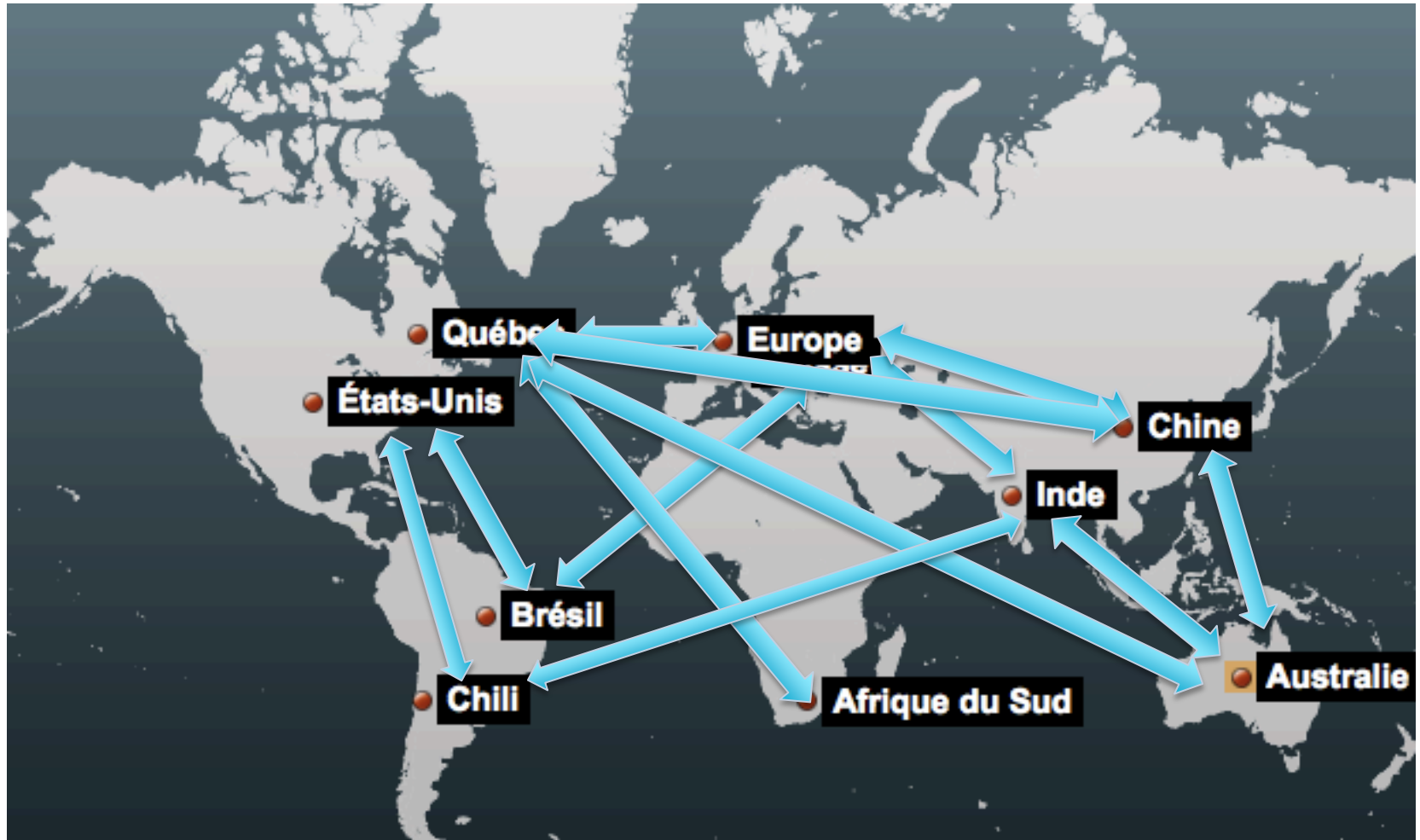
Note: some datasets are only available in
« S », e.g. plastics, for confidentiality
reasons imposed by industry associations

ecoinvent : some characteristics

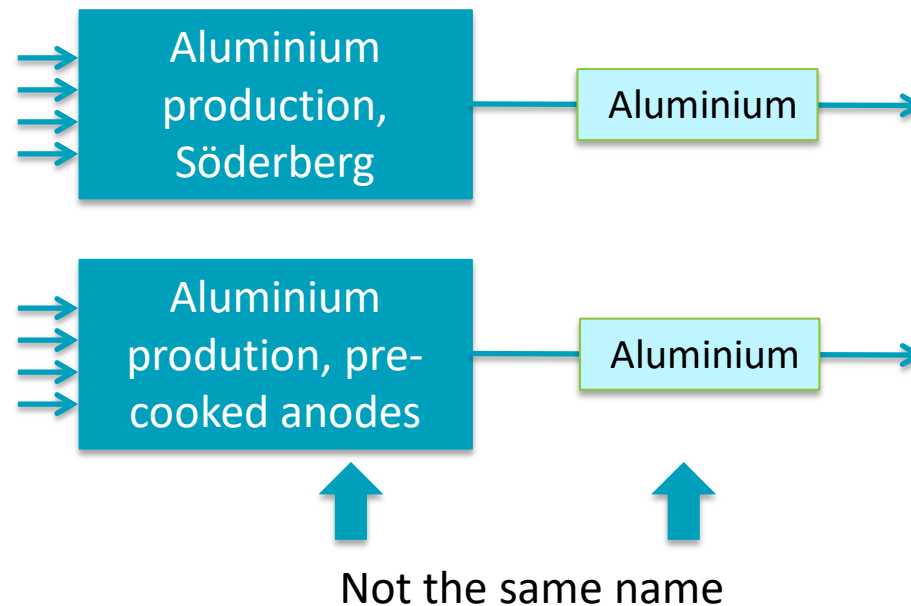
Comprehensiveness

- Elementary flows
 - All extraction/emissions included, even if the substances are not yet associated to a characterisation factor
- Intermediary flows
 - Effort to cover as many intermediary flows as possible (no exclusion criteria)
 - Infrastructure, transport, packaging, etc.
- Industry sectors
 - Extraction of resources, agriculture, production and transformation of materials, energy, end of life, transport
- Geography
 - More countries, especially since v3

Data integration on *uncertainty* of flows



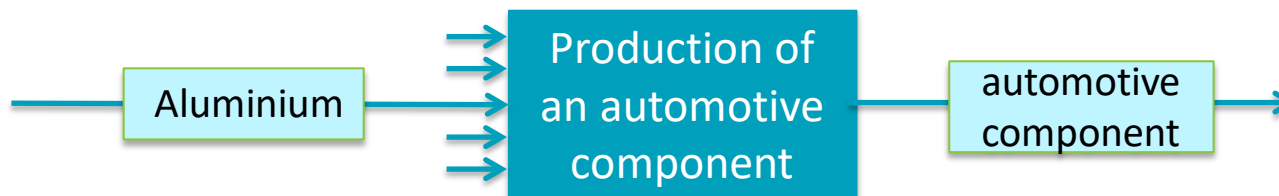
1. Distinction between the nomenclature of products (flows) and processes (activities)



ecoinvent v3 – Technical differences

2. Distinction between processes of *transformation* and *market*

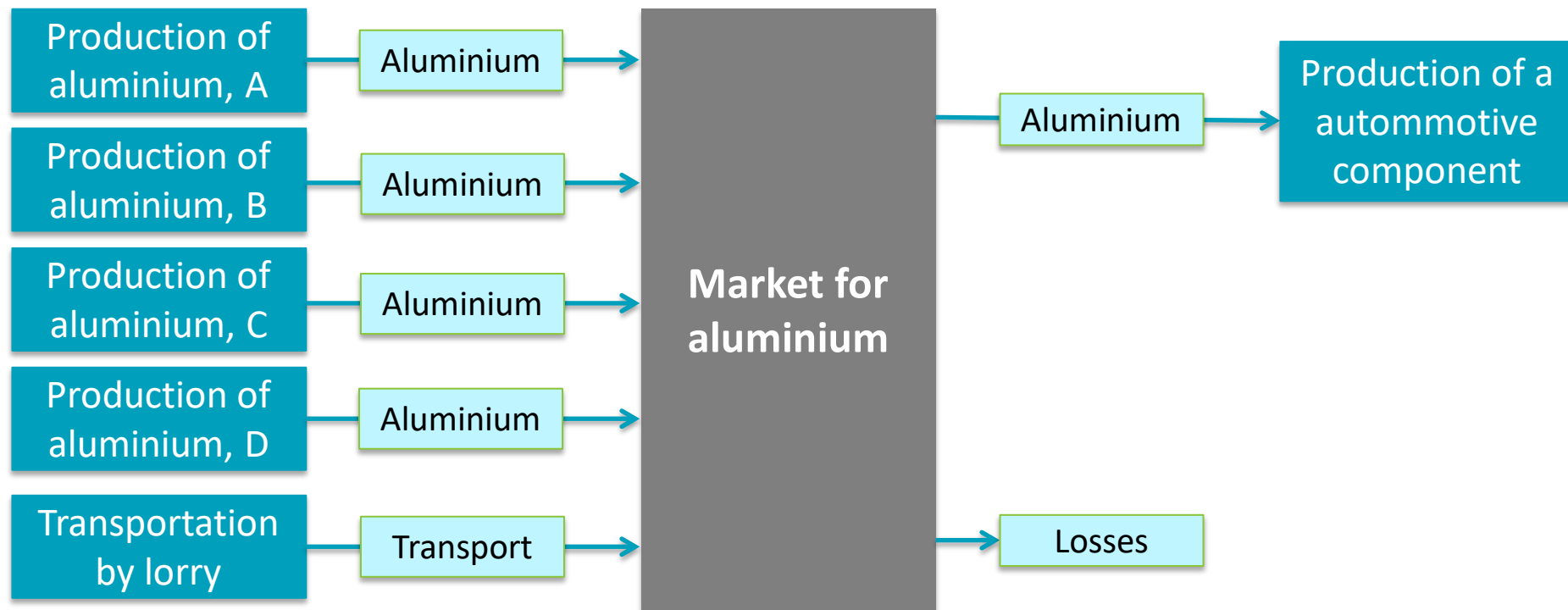
- Transformation process, inputs $\neq$ outputs



ecoinvent v3 – Technical differences

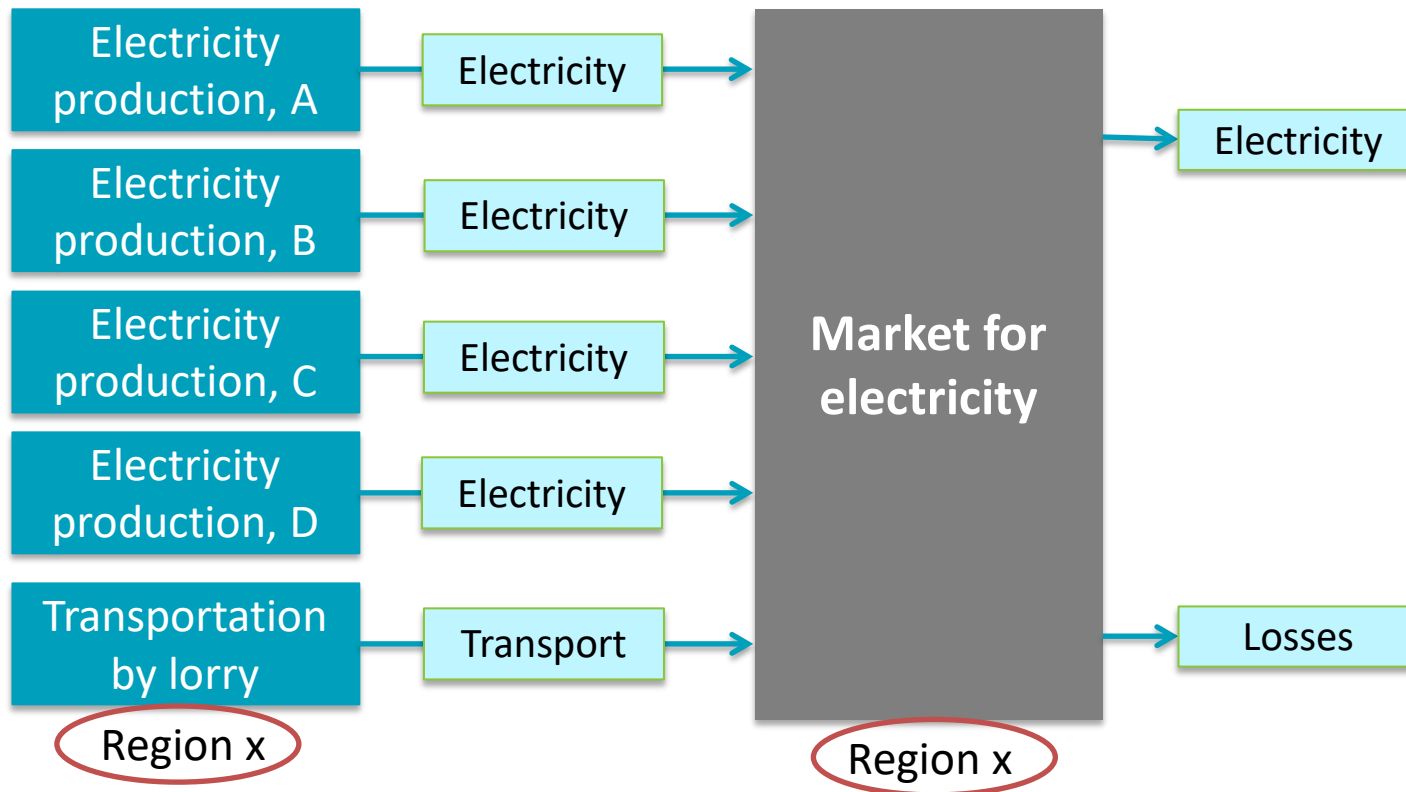
2. Distinction between processes of *transformation* and *market*

- **Market process, inputs = outputs**



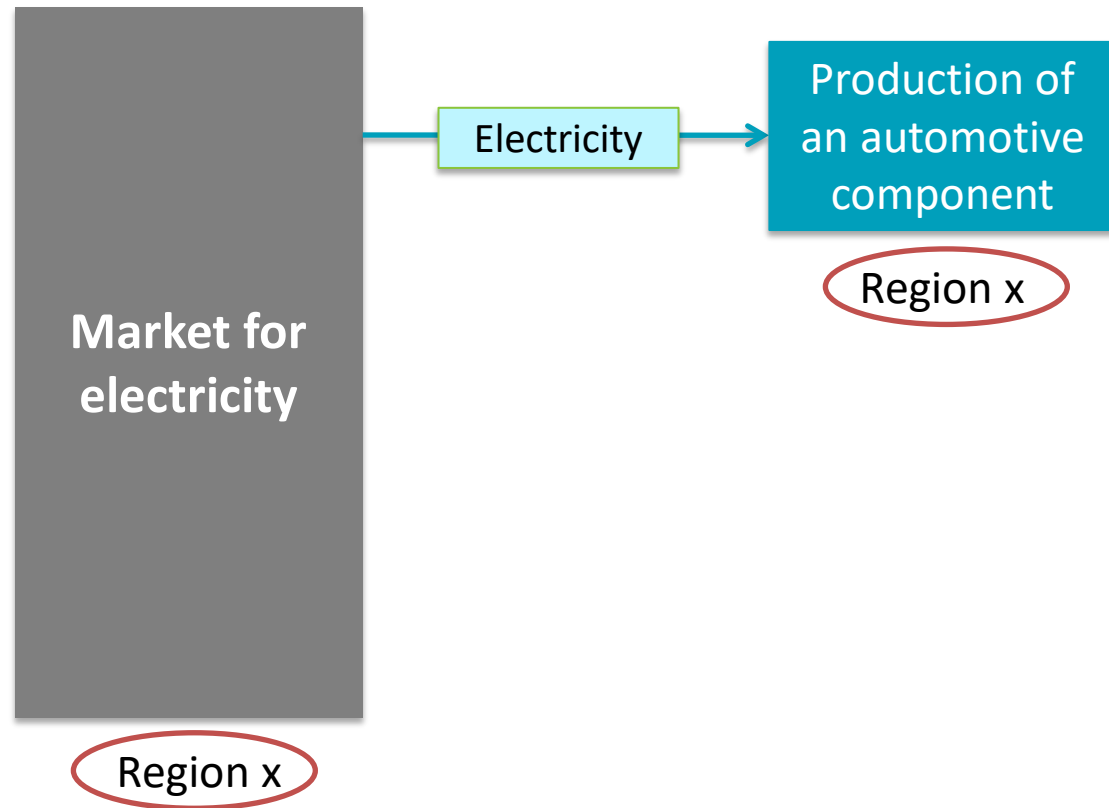
ecoinvent v3 – How it works

Automatic link between suppliers and markets, based on location



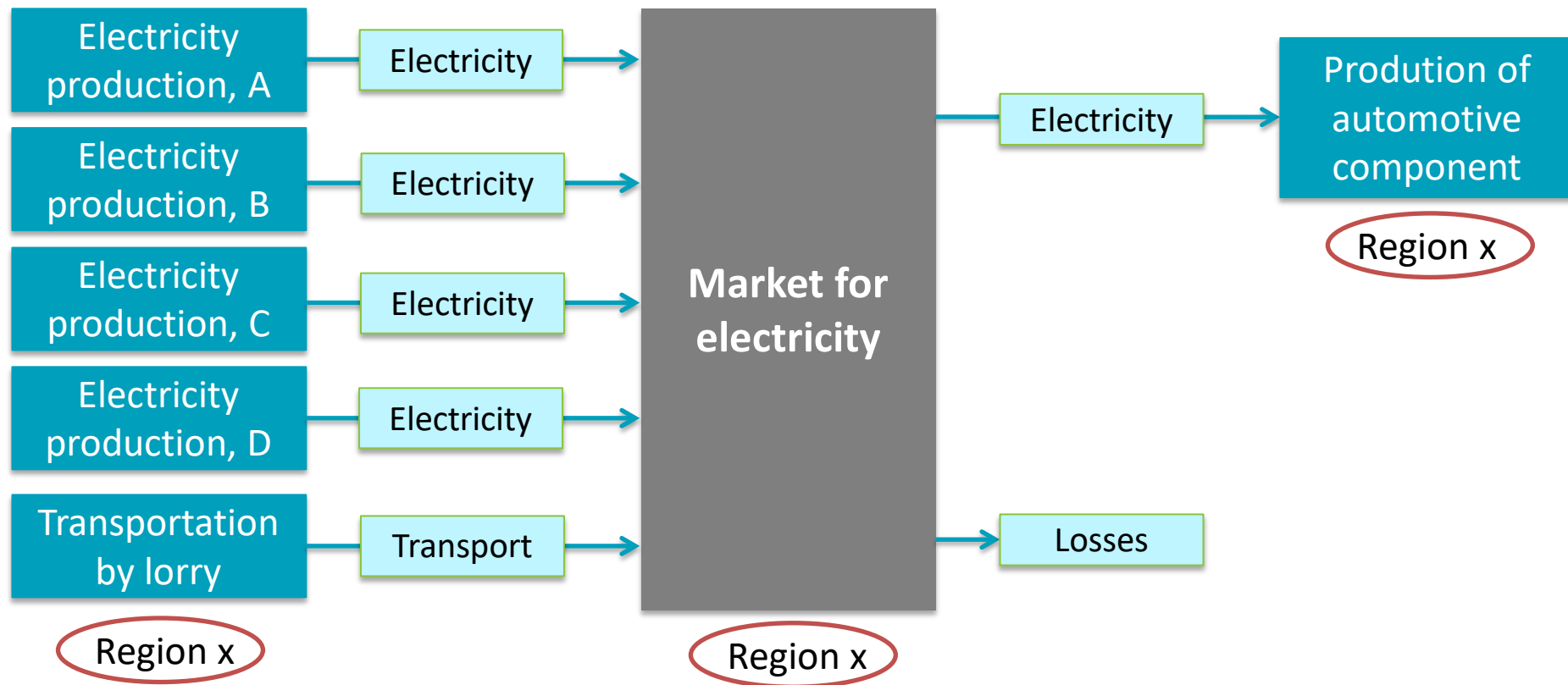
ecoinvent v3 – How it works

Automatic link between producers and markets, based on location



ecoinvent v3 – How it works

And therefore automatic links between producers and suppliers,
based on location



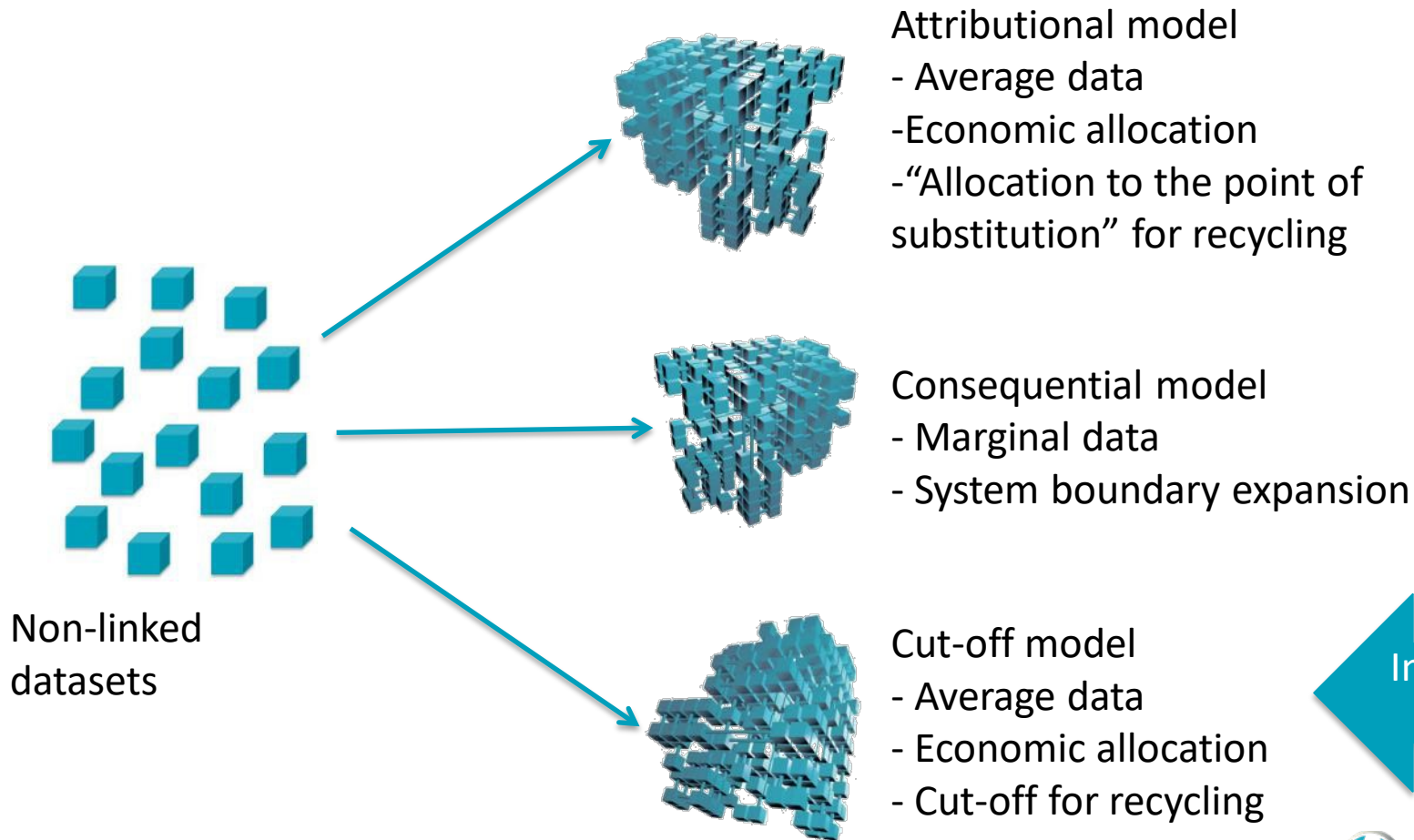
ecoinvent v3 – How it works

And therefore automatic links between producers and suppliers, based on location

- *Some important details:*
 - Default region = global (GLO)
 - When a region < GLO is defined, another region « rest of world» (RoW) is created
 - The more regions created, the more the production volume of RoW is reduced

ecoinvent v3 – How it works

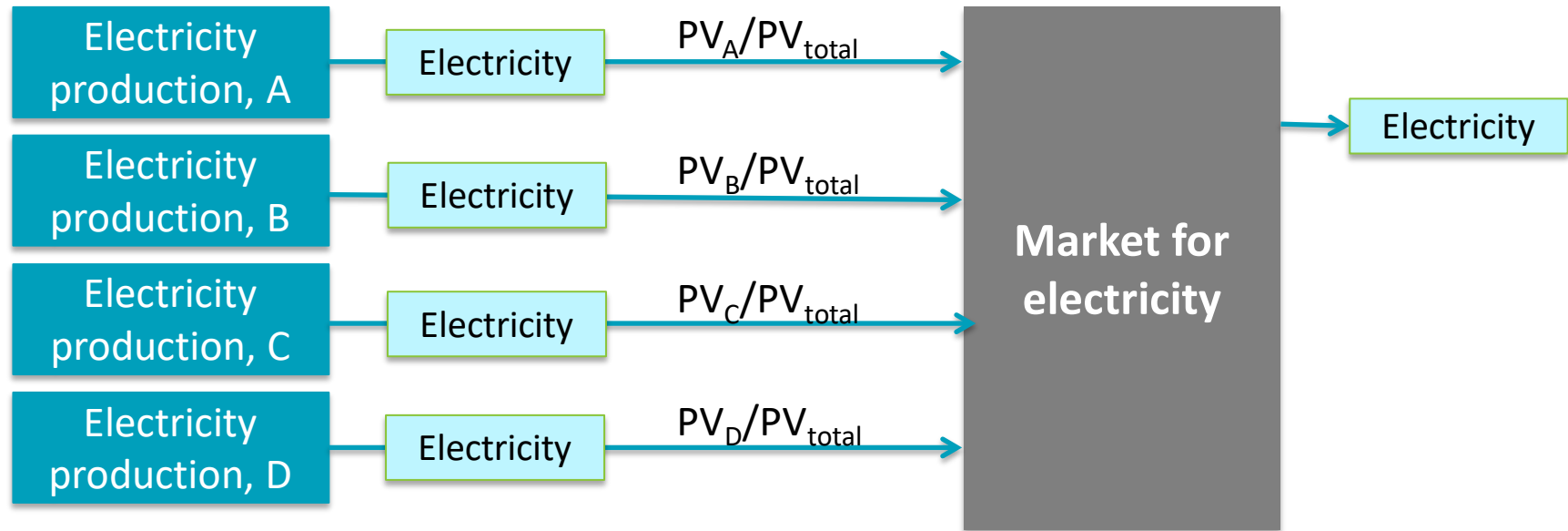
A group of disaggregated unit processes, many system models



In your projects,
by default

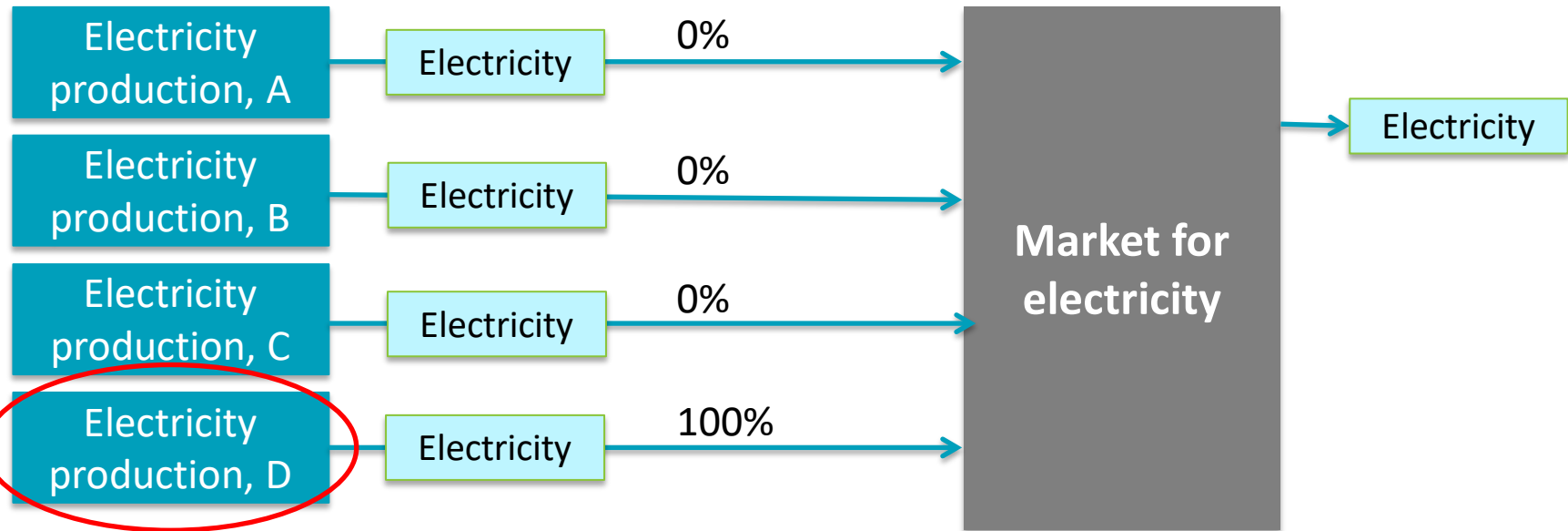
ecoinvent v3 – How it works

Attributional model



ecoinvent v3 – How it works

Consequential model



Marginal technology, a default *technology level* is applied or could be imposed

Resources

- Definitions: <http://www.ecoinvent.org/support/glossary/glossary.html>
- Frequently asked questions: <http://www.ecoinvent.org/support/faqs/faqs.html>
- Short presentation: <http://www.ecoinvent.org/support/documents-and-files/documents-and-files.html>
- Webinar: https://www.youtube.com/channel/UC4Ma_pX9r1-DoNi2D2Fd6g