**Nanotechnology Industries Association – Symposium 2018**

Brussels, 10 May 2018

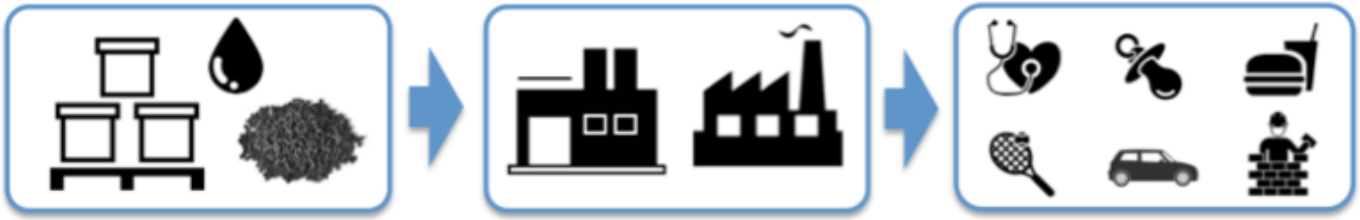
## Chemical manufacturers

Raw materials

Chemical manufacturing plant

Placement of chemicals on the market

## Downstream users: formulators and article manufacturers

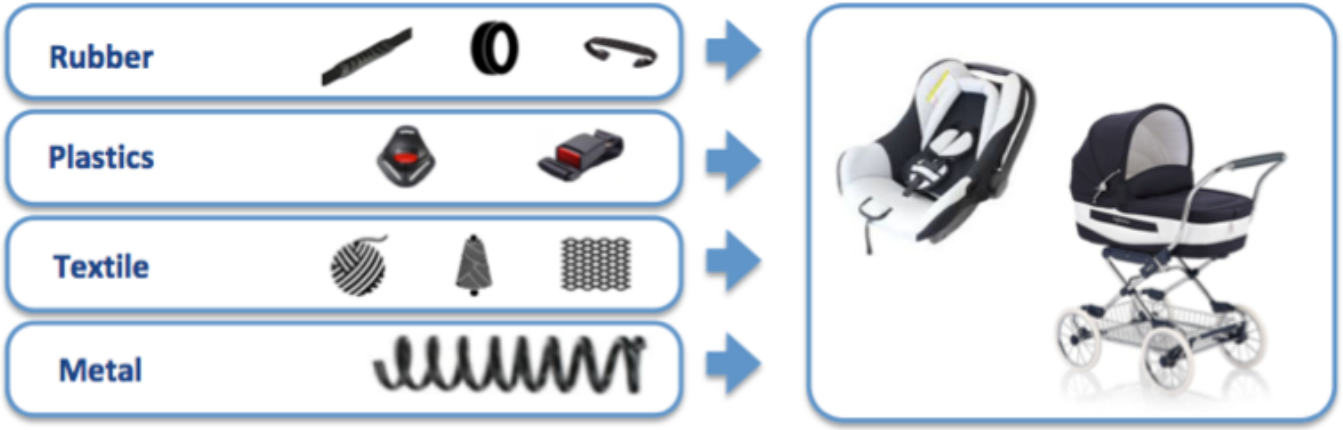


Raw materials

Article manufacturing

Sectors of use

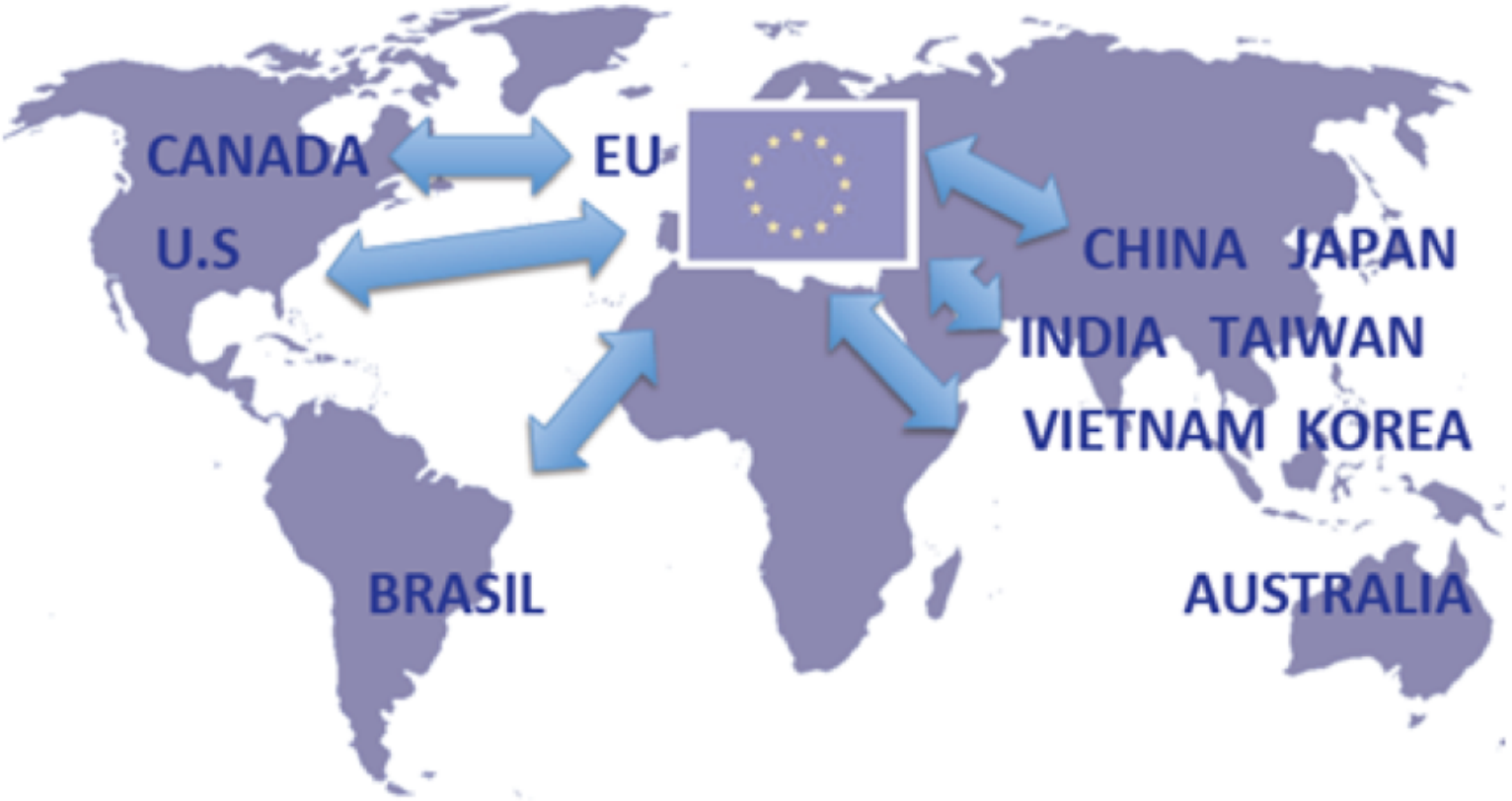
## Complex-article manufacturers




Components of different materials

Complex articles

# Evolving Chemical Regulatory Frameworks

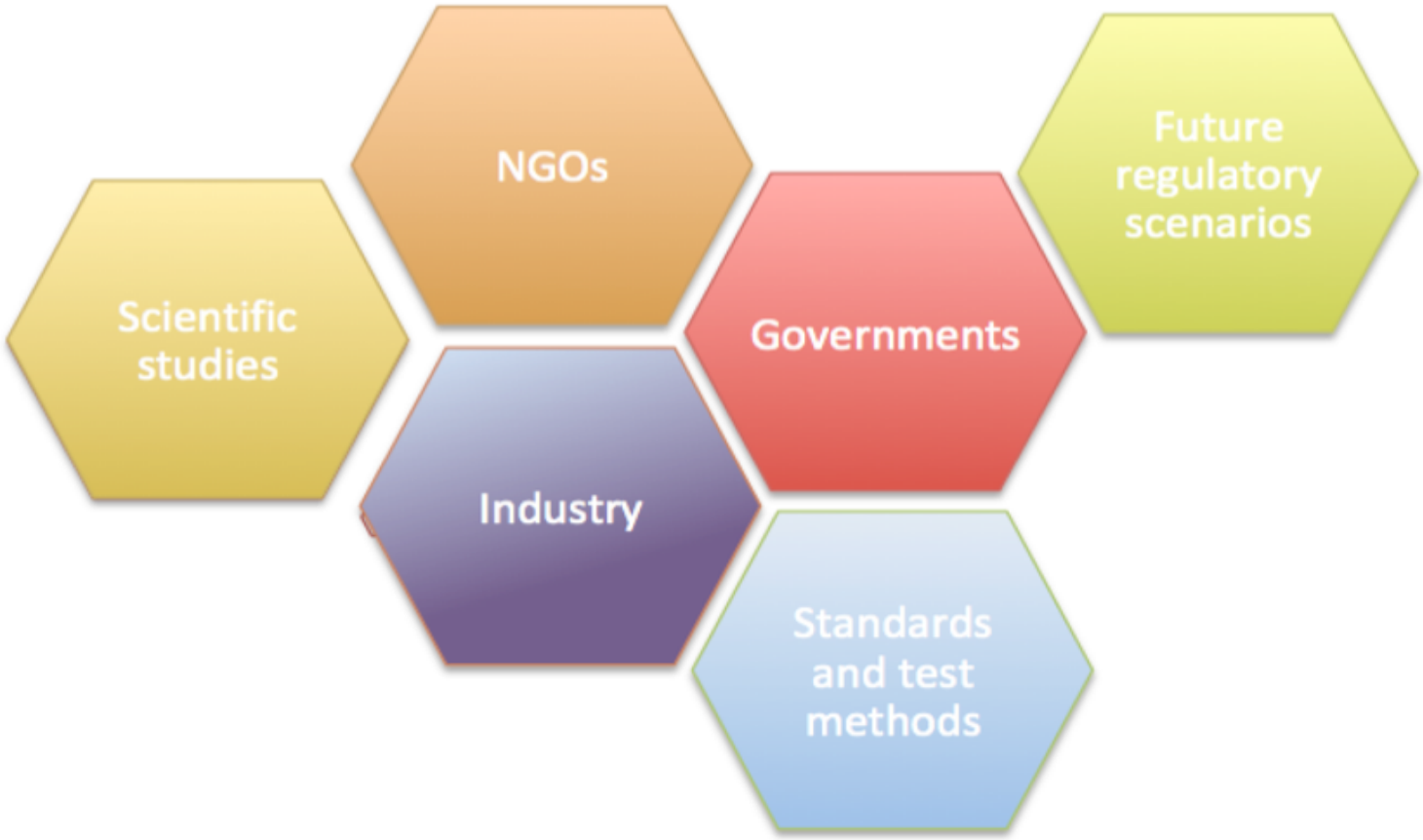



**862**
Chemicals that NGOs would like to be regulated

**189**
Chemicals internationally identified as possibly carcinogenic to humans

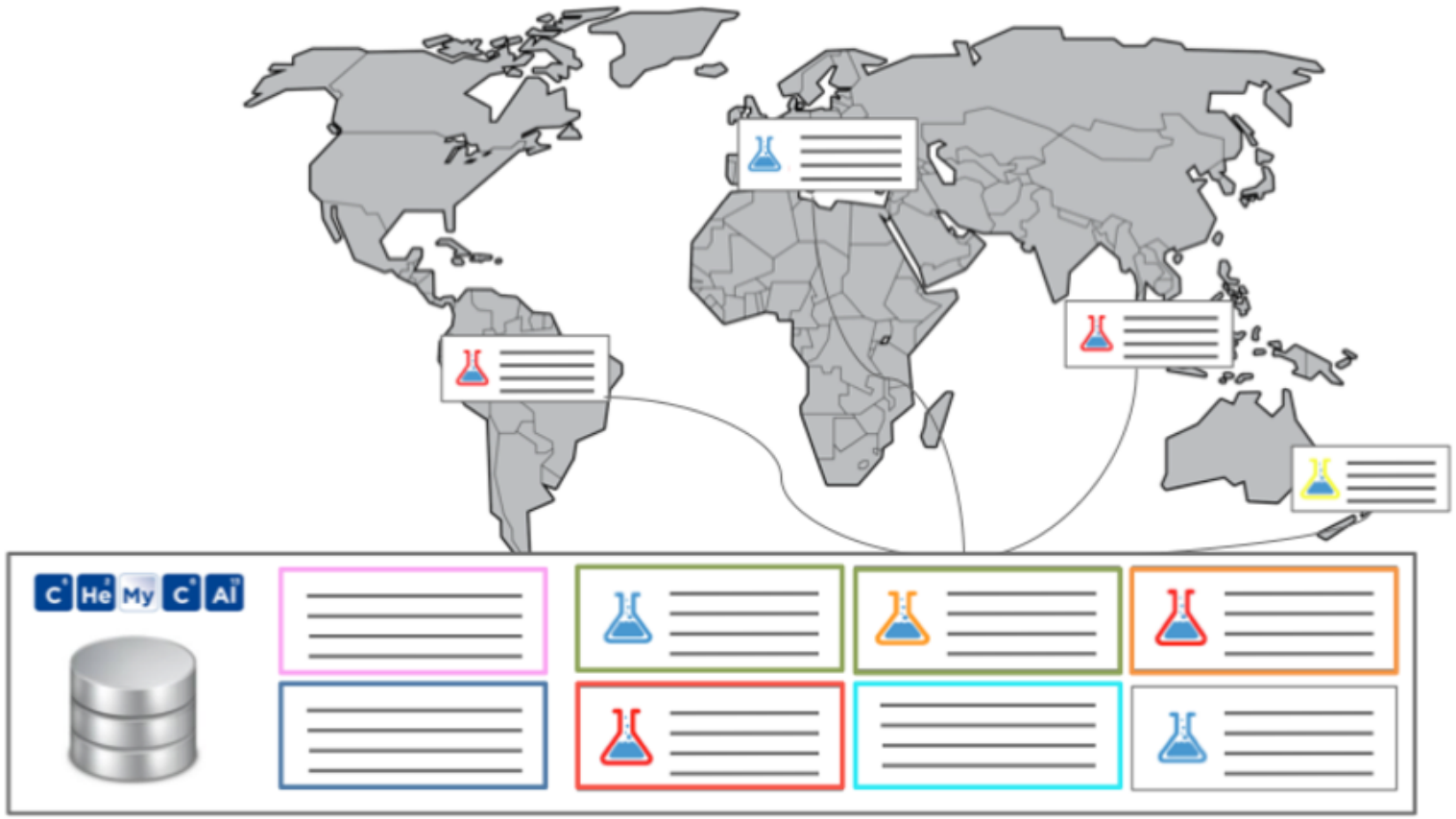
**1000+**
Potential endocrine disruptors currently scrutinized in various regions

# How future regulatory scenarios are shaped



# **400+ information sources** and **150+ watch-lists** monitored on a daily basis

# Information is selected and classified according to substances and topics

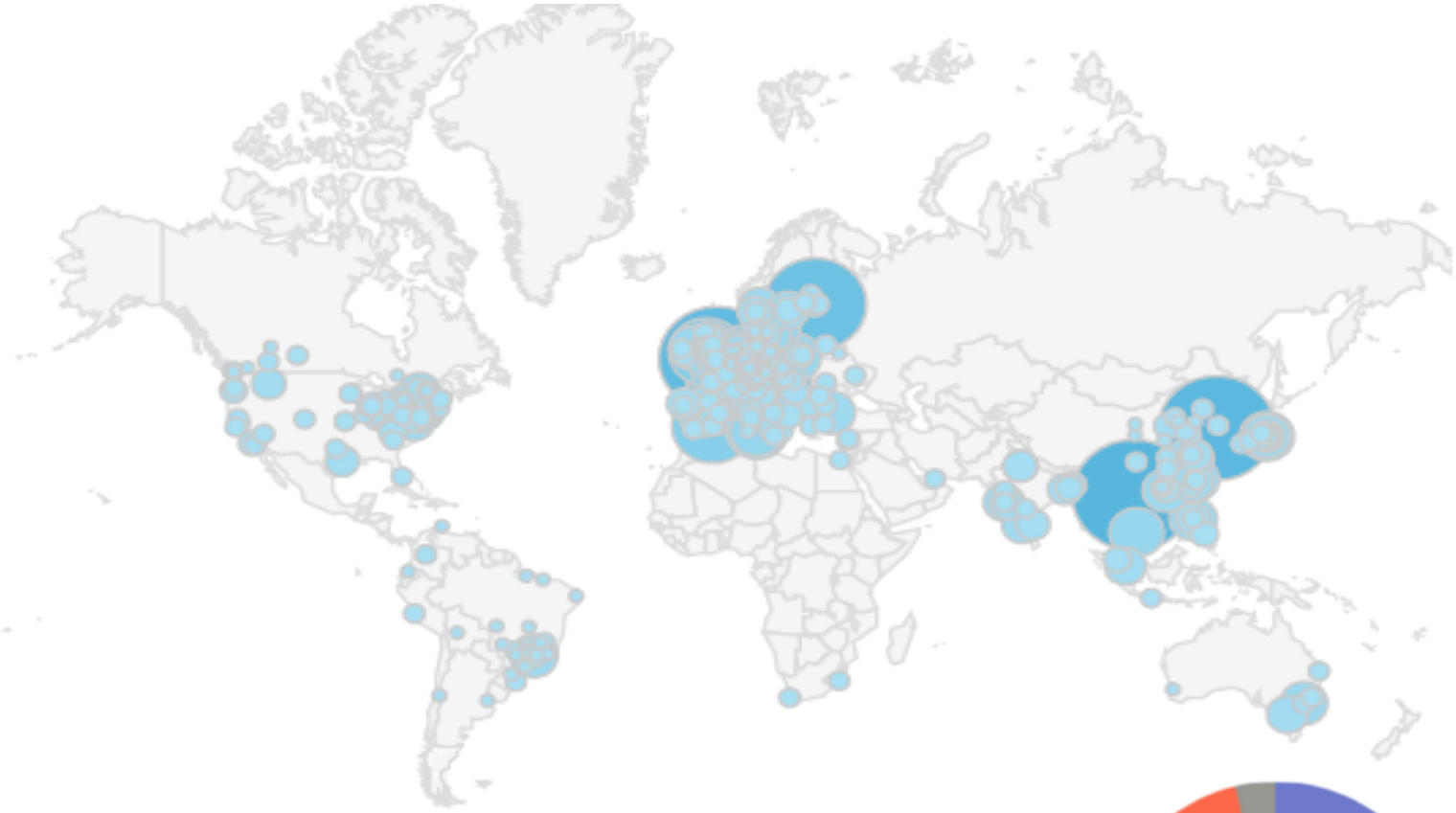


# RISK/OPPORTUNITY PROFILES

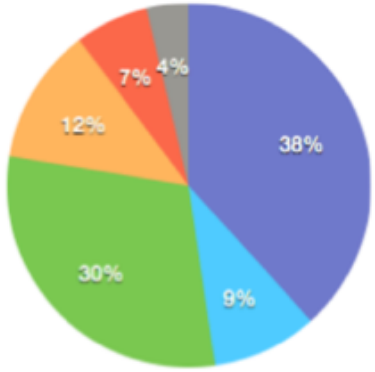
- Substance-specific “risk profiles” based on **key indicators**
- Identification of the most “critical” or “positive” substances
- Easy identification of emerging **risks/opportunities** within sectors or organisations

# Online Chemycal visitors

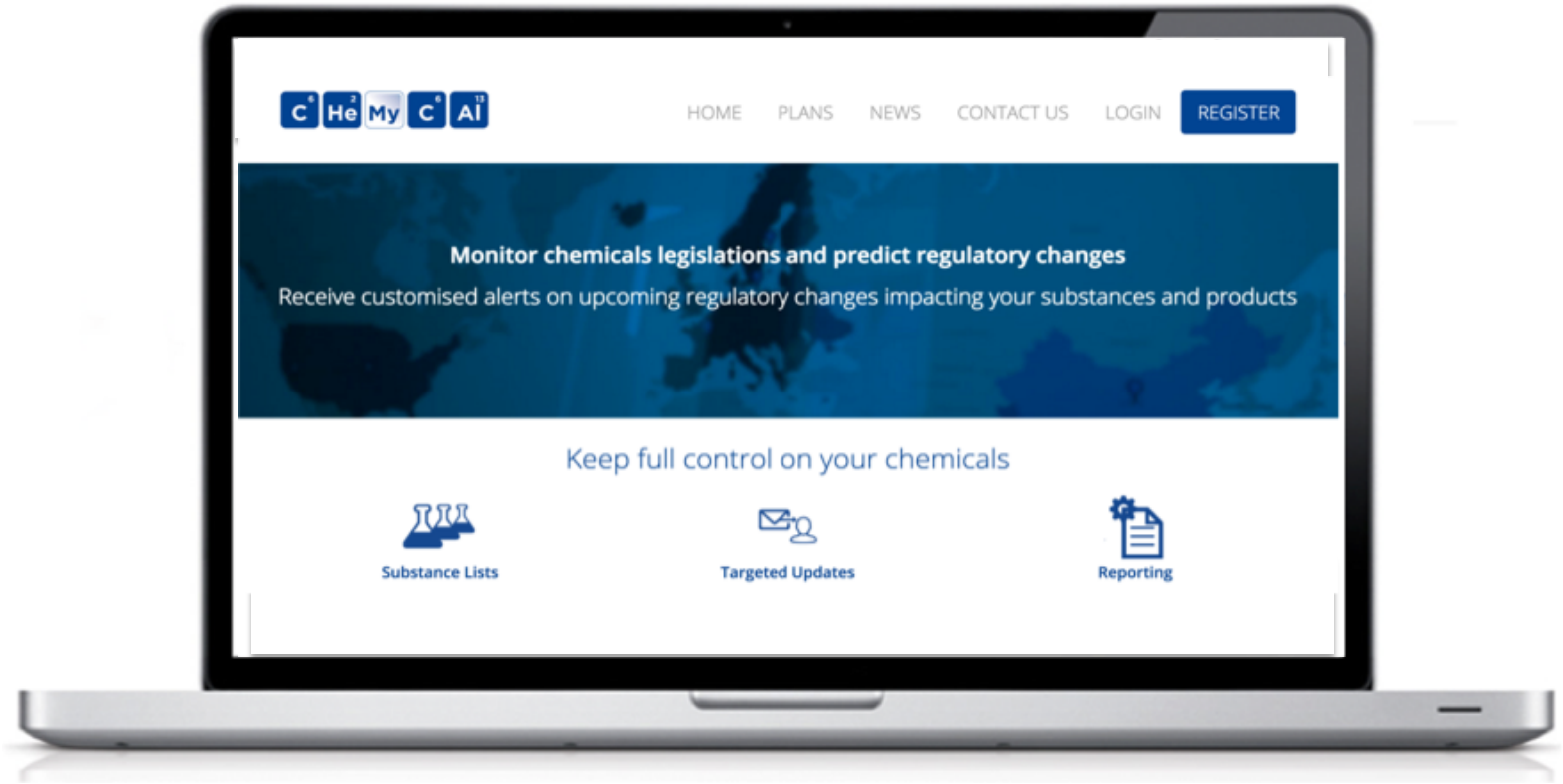
Increasing number of visitors/users, currently from 100+ countries



- Industry
- Industry associations
- Consultants
- Governments, agencies, institutes/laboratories
- Law firms
- Others



# Chemycal – SaaS prodiver

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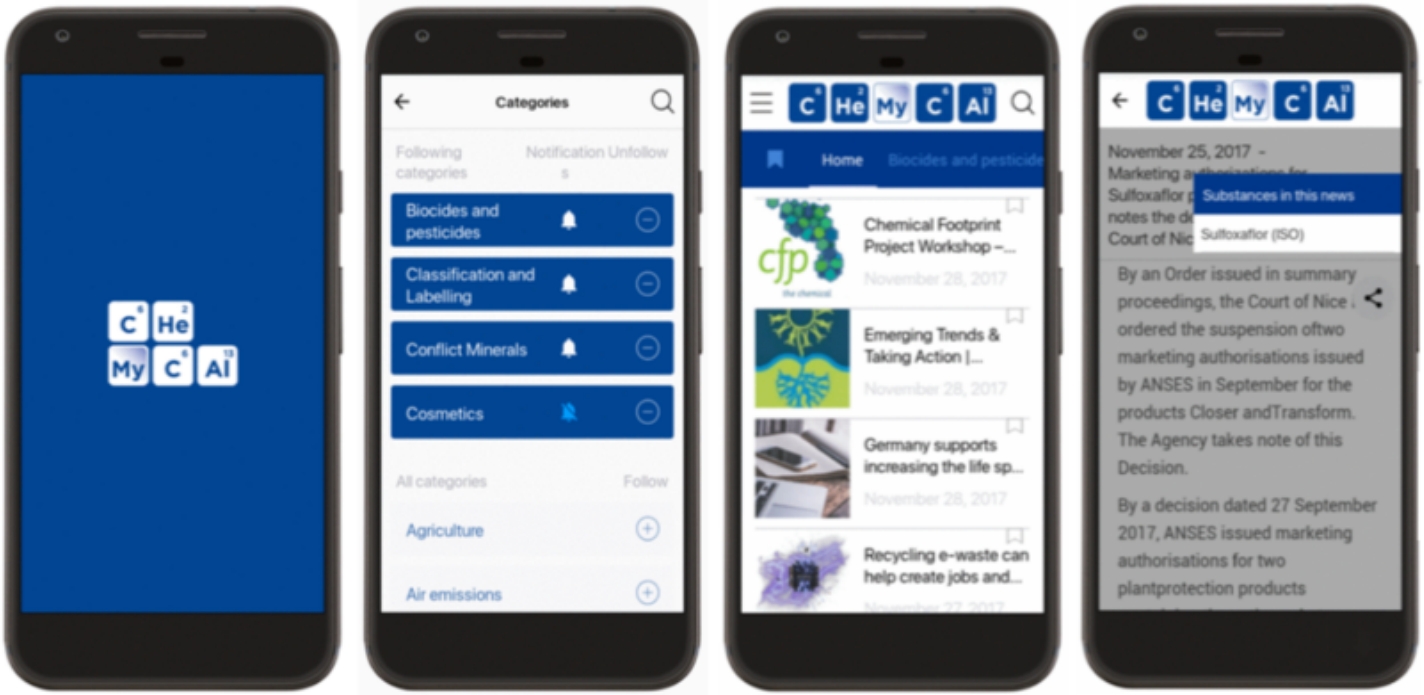
# Chemycal – SaaS prodiver




**Download the Chemycal App**

Google Play

# Chemical Blockchain

# First application into nano value chains

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# Challenges related to communication of data/info along the supply chain

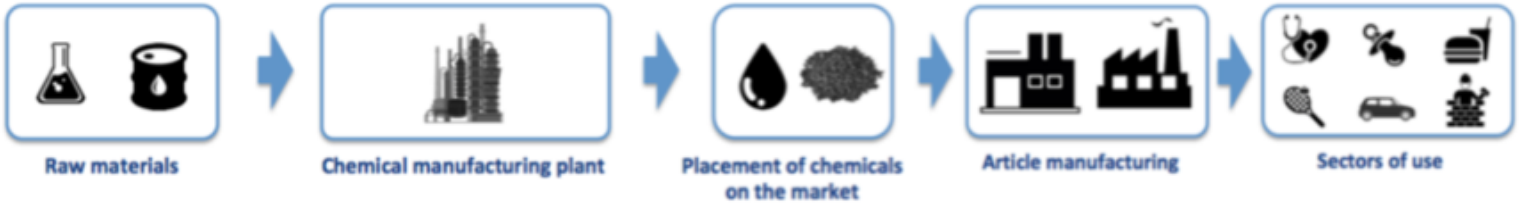
# Tracking information on chemicals along the supply chain

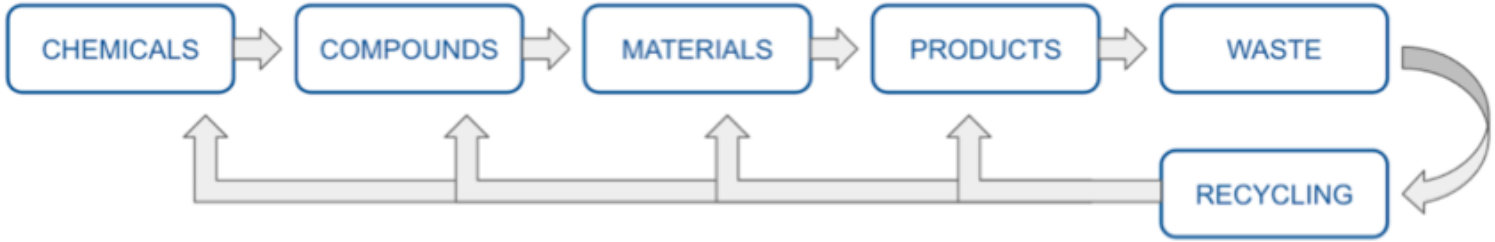
Information required to be communicated along the supply chain includes:

- Presence of Substances of Very High Concern along the entire supply chain until the final consumer
- Authorised substances and related authorisation number
- Nanomaterials (national registries)
- REACH Registration numbers
- Conflict minerals
- …

# Blockchain open-source technology to track chemicals in the supply chain

# Tracking information on chemicals along the supply chain

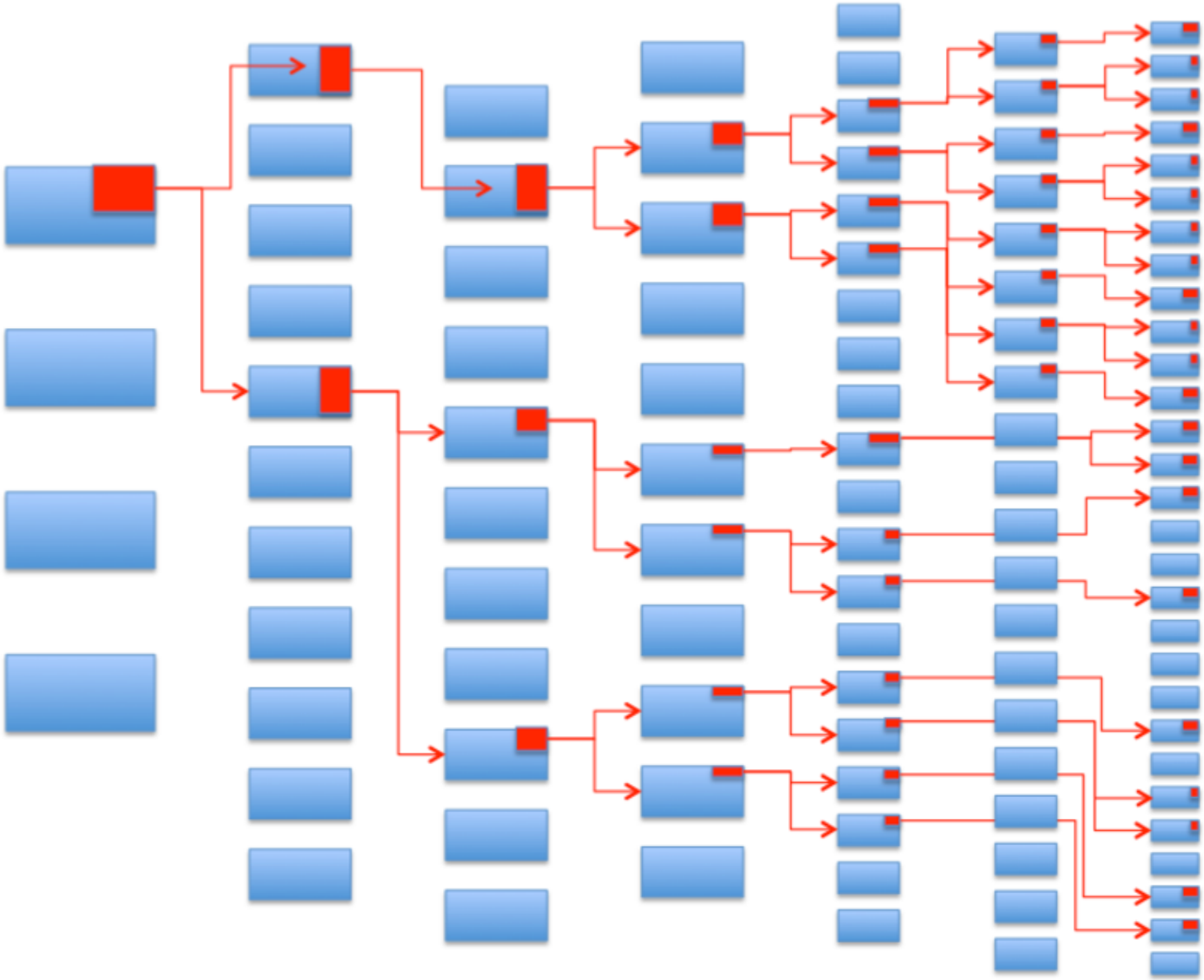


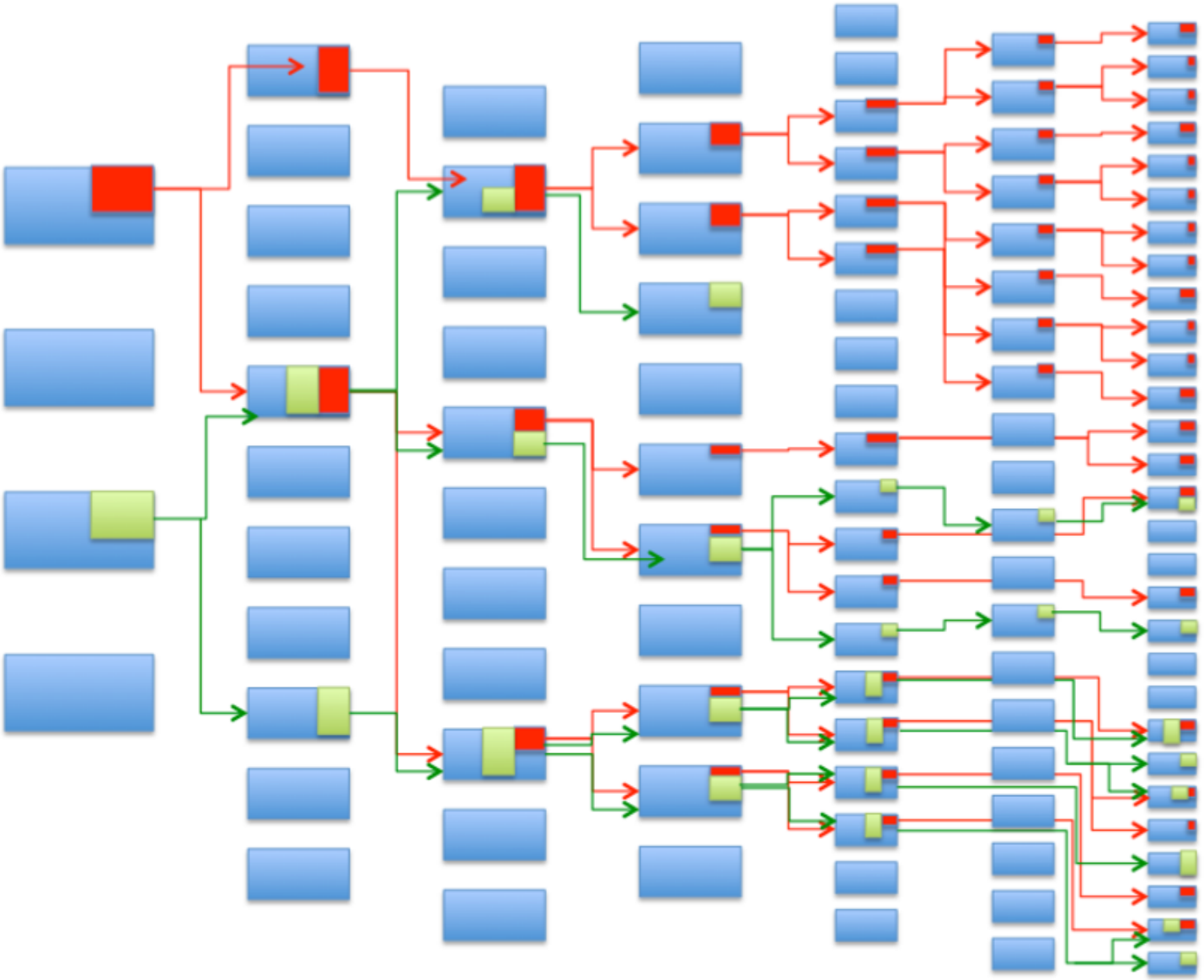

Chemical Manufacturer >> Downstream Users >> Consumers >> Waste/Recyclers

INFORMATION AVAILABILITY

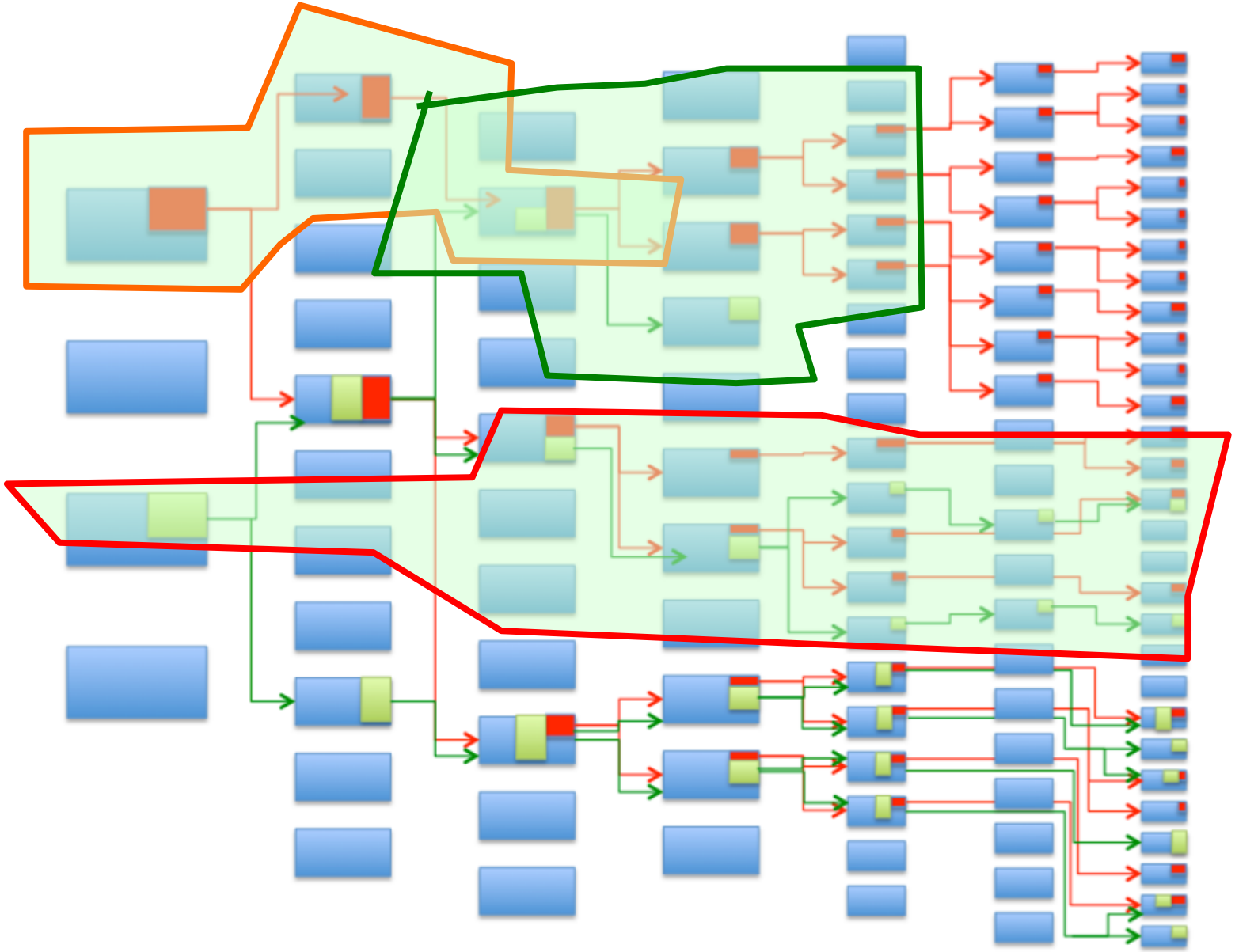
# Tracking information on chemicals along the supply chain



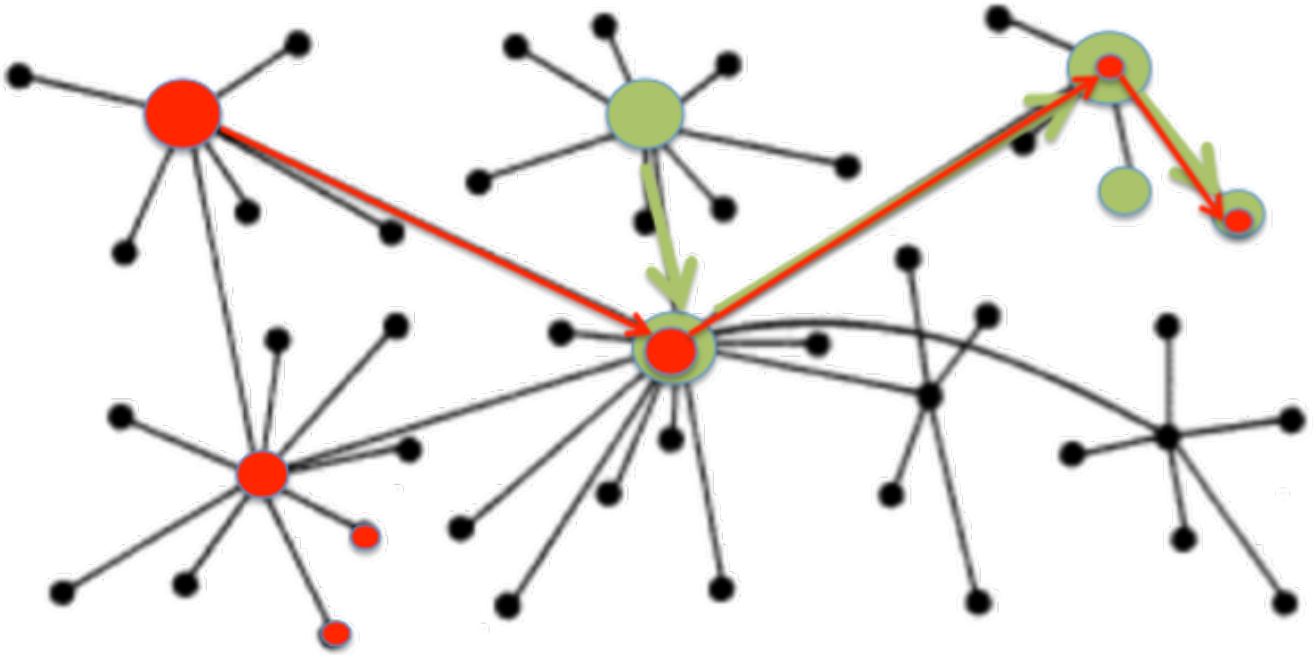
# Tracking information on chemicals along the supply chain



# Current solutions are “local” and inhomogeneous

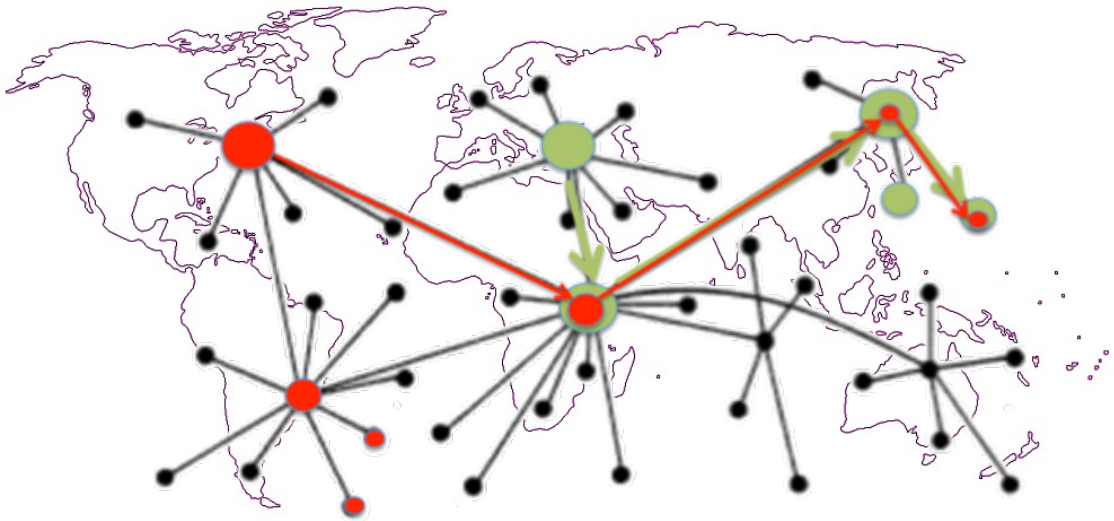


# Blockchain open-source technology



- Transparent, **open-source system**, allowing the code to be analyzed by interested parties to ensure data security
- Maintained by a neutral third party that does not have specific chemical interests that can be **trusted by all players** in the supply chain
- Regulators and companies can **access their specific data** and the supply chain **history**, but is not visible to other entities
- Resistant to tampering by external entities

# Opportunities



- Easy compliance with SVHC communication requirements
- Barcode integration: Information on presence of SVHCs in articles accessible by consumers
- Possibility to certify/prove that the use of a substance has been authorised within a specific supply chain (Authorisation number)
- Regulators and companies can **access their specific data** and the supply chain **history**, but is not visible to other entities
- Possibility for existing IT systems to interface with the blockchain framework

**Potentially disrupting technology scalable at global level that could contribute to build better knowledge and promote steps towards a circular economy**

# Chemical Blockchain - Metaphor

Node (i.e. actor in the supply chain)

Public ledger

Dapp (i.e. tool to introduce and exchange information in the Chemical Blockchain

Token
(substance ID and quantity)

Public info
(eg. Hazardous classification, info on uses)

Encrypted info
(eg. Safety data sheets, contracts, suppliers info, etc..)

# Distributed ledger

Chemical manufacturer

[Substance, tonnage]

- Description of the substances
- Hazardous classification

- Info on the chemical manufacture
- Safety Data Sheet
- Contracts between the parties
- ....

Compounder

[Substance, tonnage]

- Information on the compound

- Info on the compounder
- Contracts between the parties
- Safety Data sheet

Article manufacture

[Substance, tonnage]

- Safety information
- Waste/disposal

# Interested in the project?

Send your contact details to:

**info@chemycal.com**