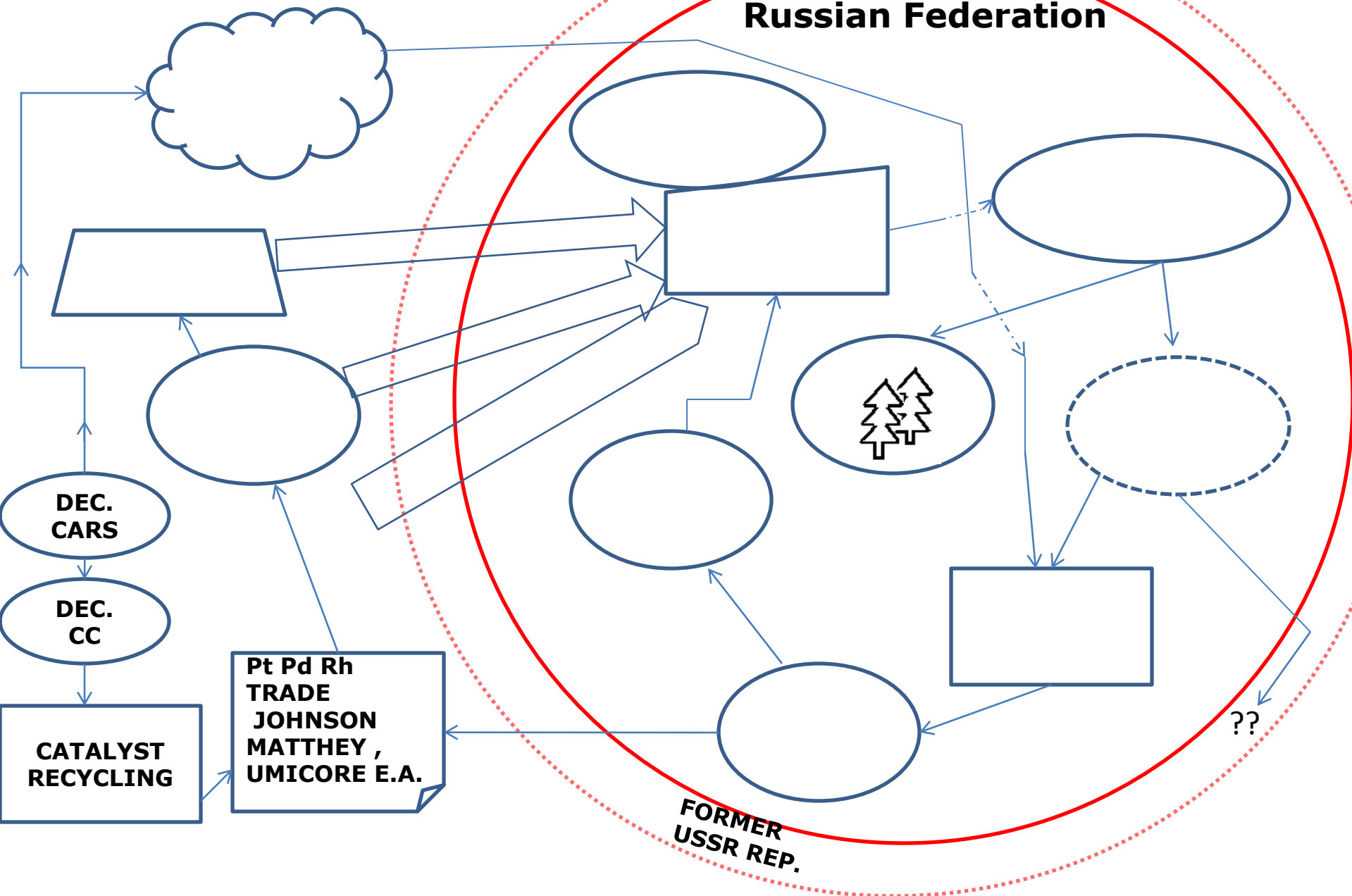


CC: CAR  
CATALYST

# Russian Federation



DEC.  
CARS

DEC.  
CC

CATALYST  
RECYCLING

Pt Pd Rh  
TRADE  
JOHNSON  
MATTHEY,  
UMICORE E.A.

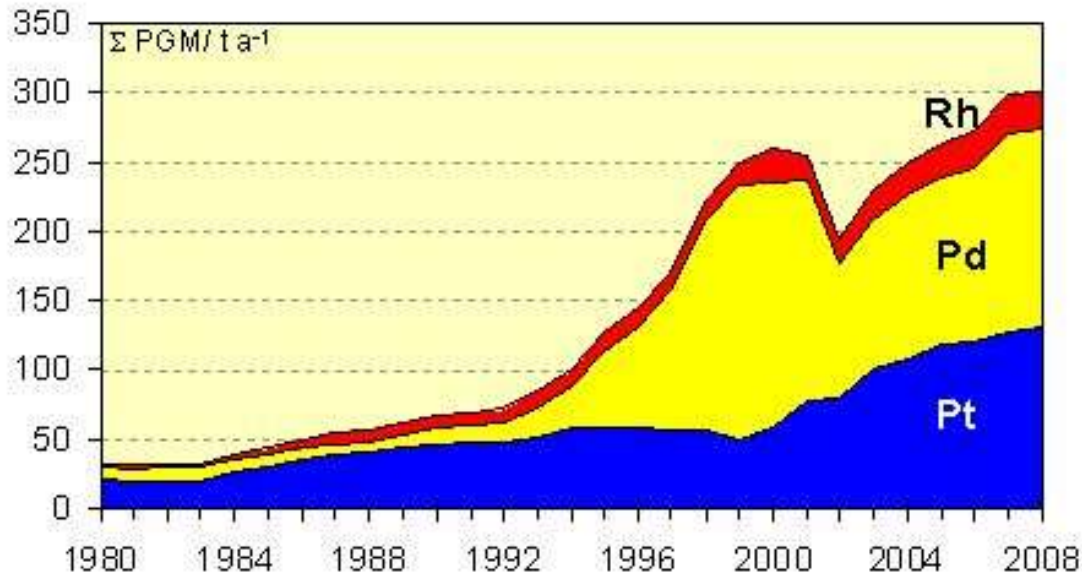
FORMER  
USSR REP.

??

## the 'West'

- Decommissioned cars 'Western World': number known for Europe, not directly relevant for business case
- Decommissioned car catalysts 'west': exact number not relevant, price average € 37,- per cat. as received by dismantler (nov. 2009)
- Catalyst recycling 'west': known by market players, both steady price increase and steady consumption increase until recent crisis.

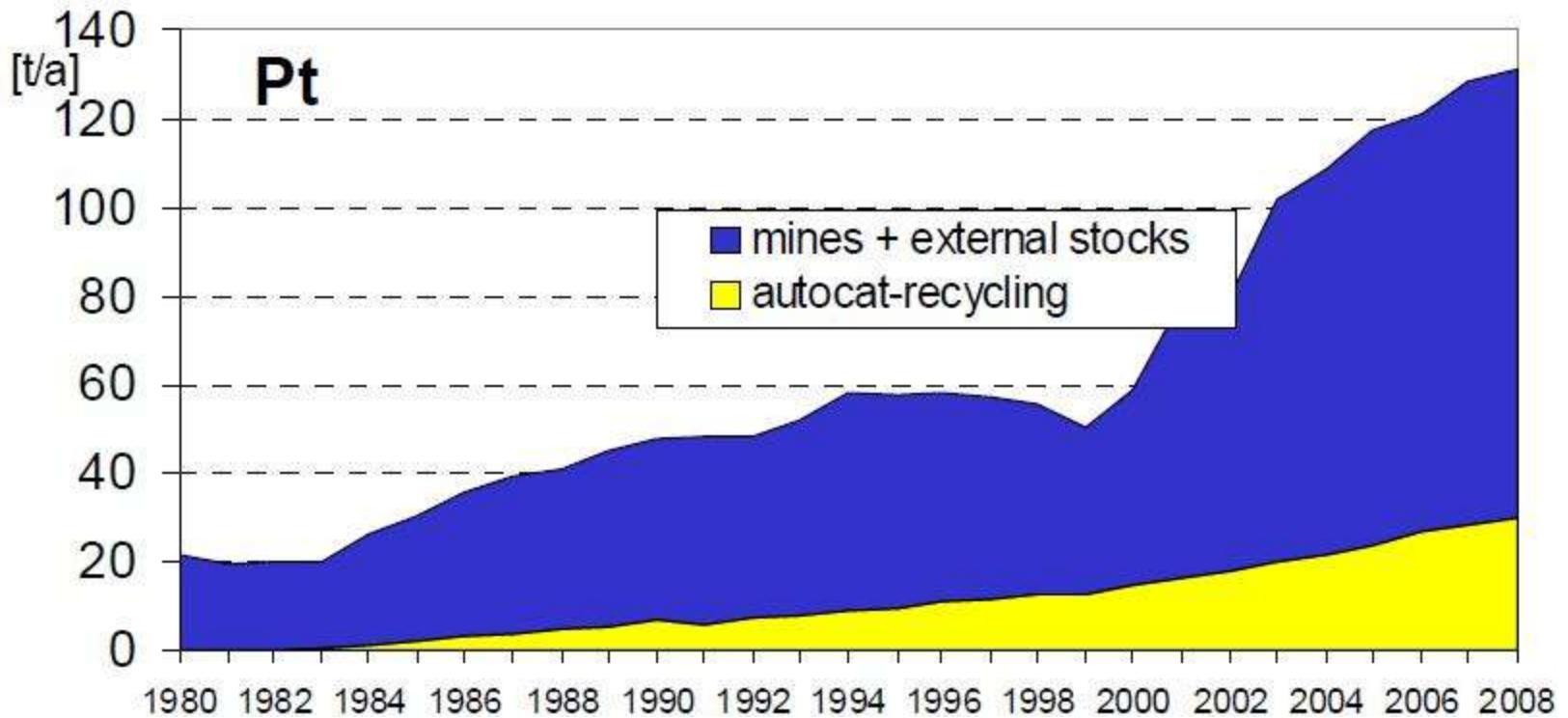
# Market of PG-Metals



Global demand for Pt, Pd, Rh in new car catalysts over the last 28 years.

From: Hagelüken, Umicore

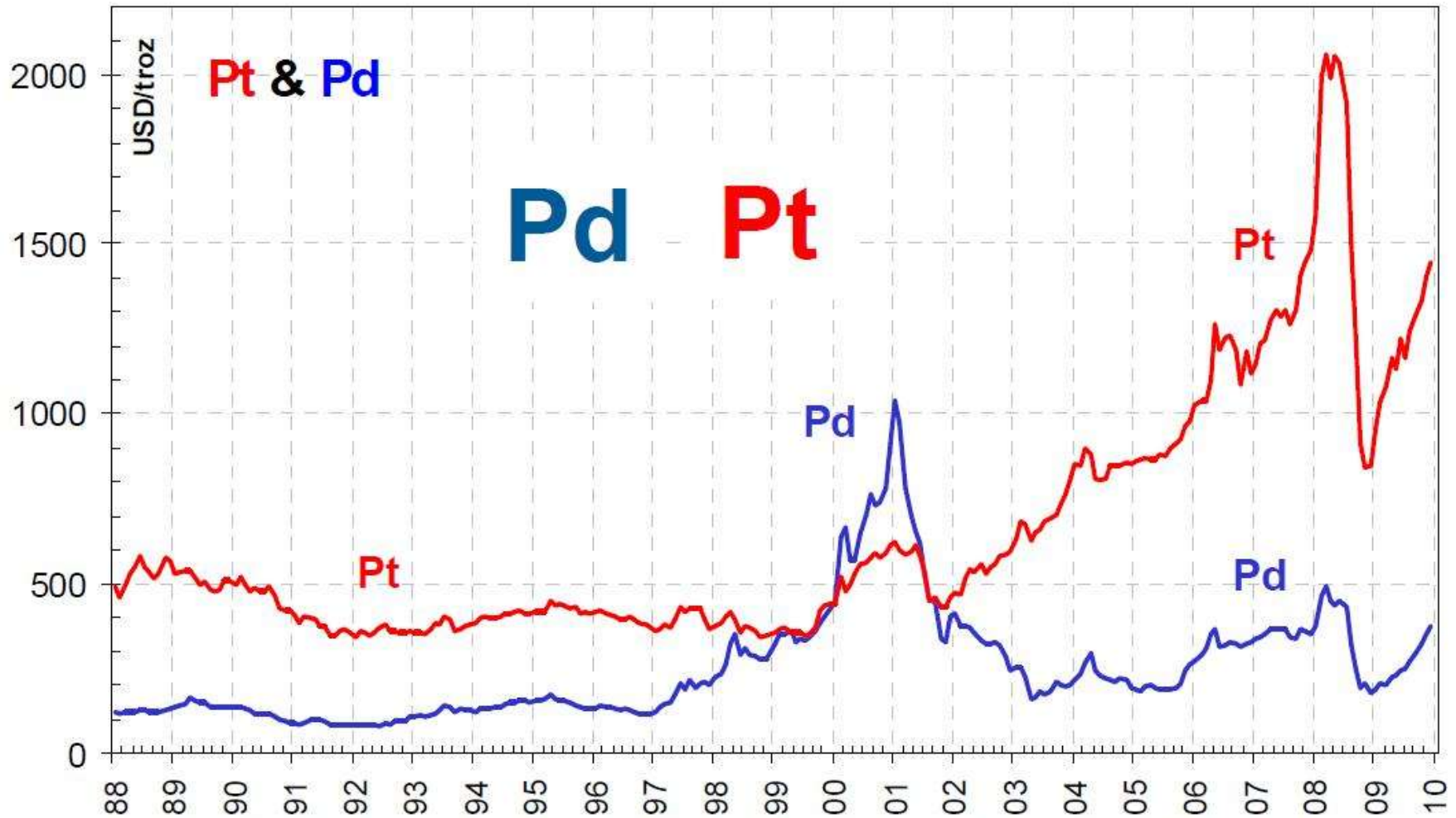
# Availability of PG-Metals



Global availability of Pt over the last 28 years.

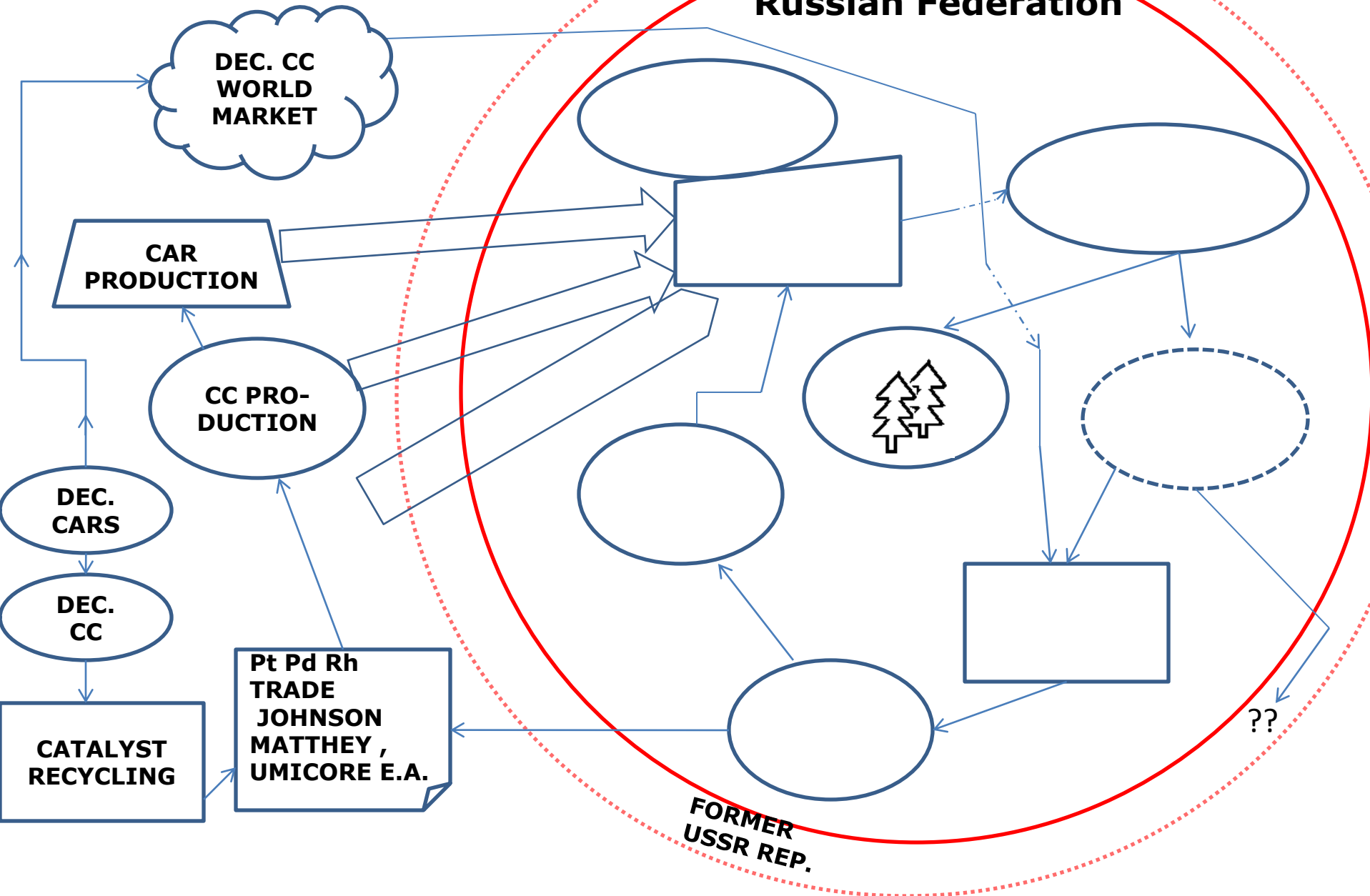
From: Hagelüken, Umicore, IARC 2009

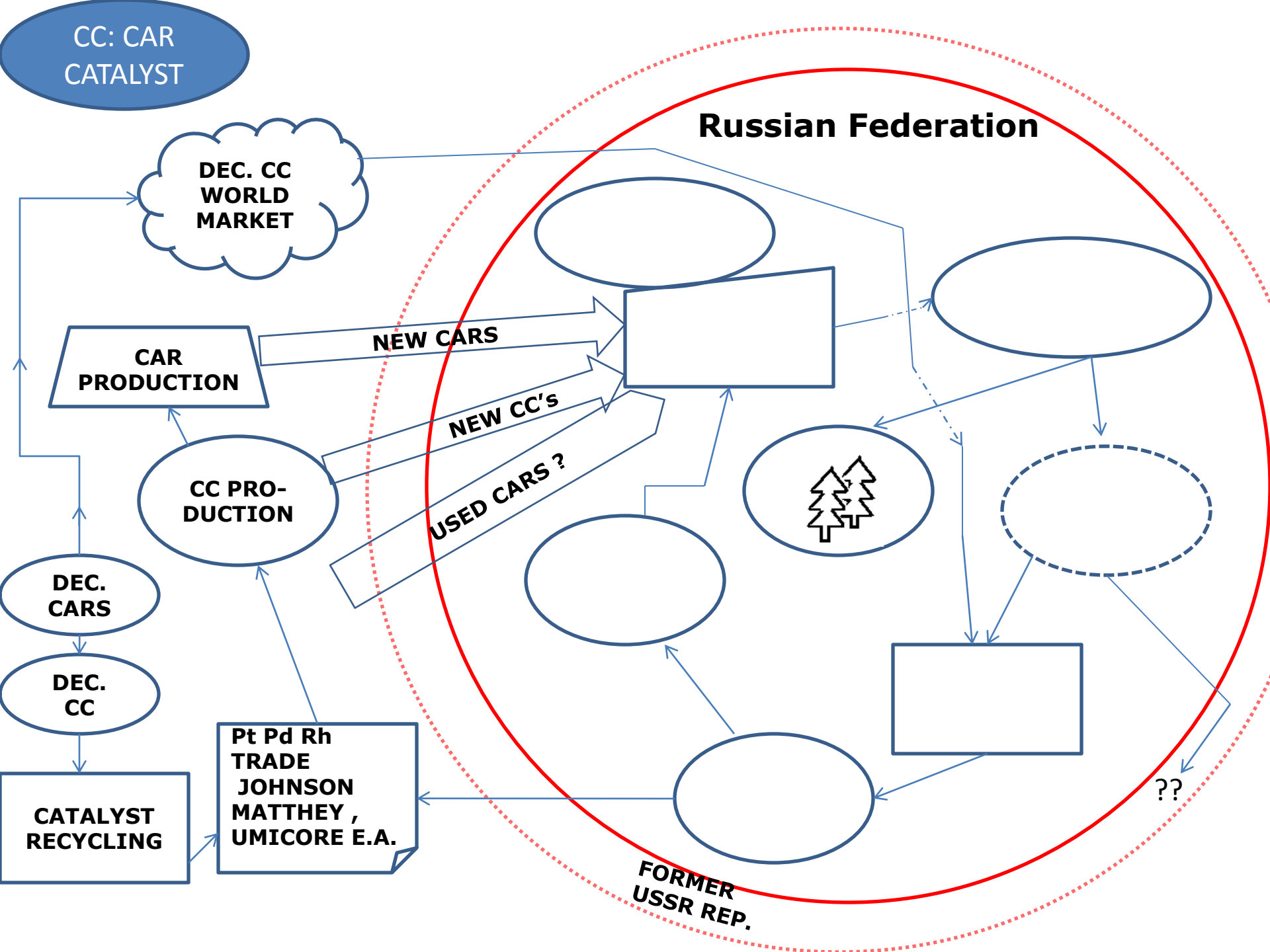
# Price of PG-Metals – only short term effect of economic crisis



From: Hagelüken, Umicore, IARC 2010

CC: CAR CATALYST





# Quantitative data on flow to Russian Federation

**NEW CARS**



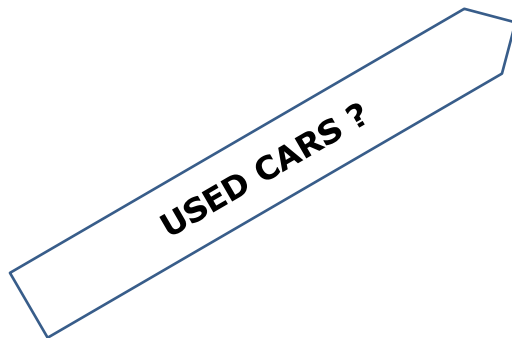
1.6 million (2008, Fed. Customs Russ. Fed, via Greenpeace Russia)

**NEW CC's**

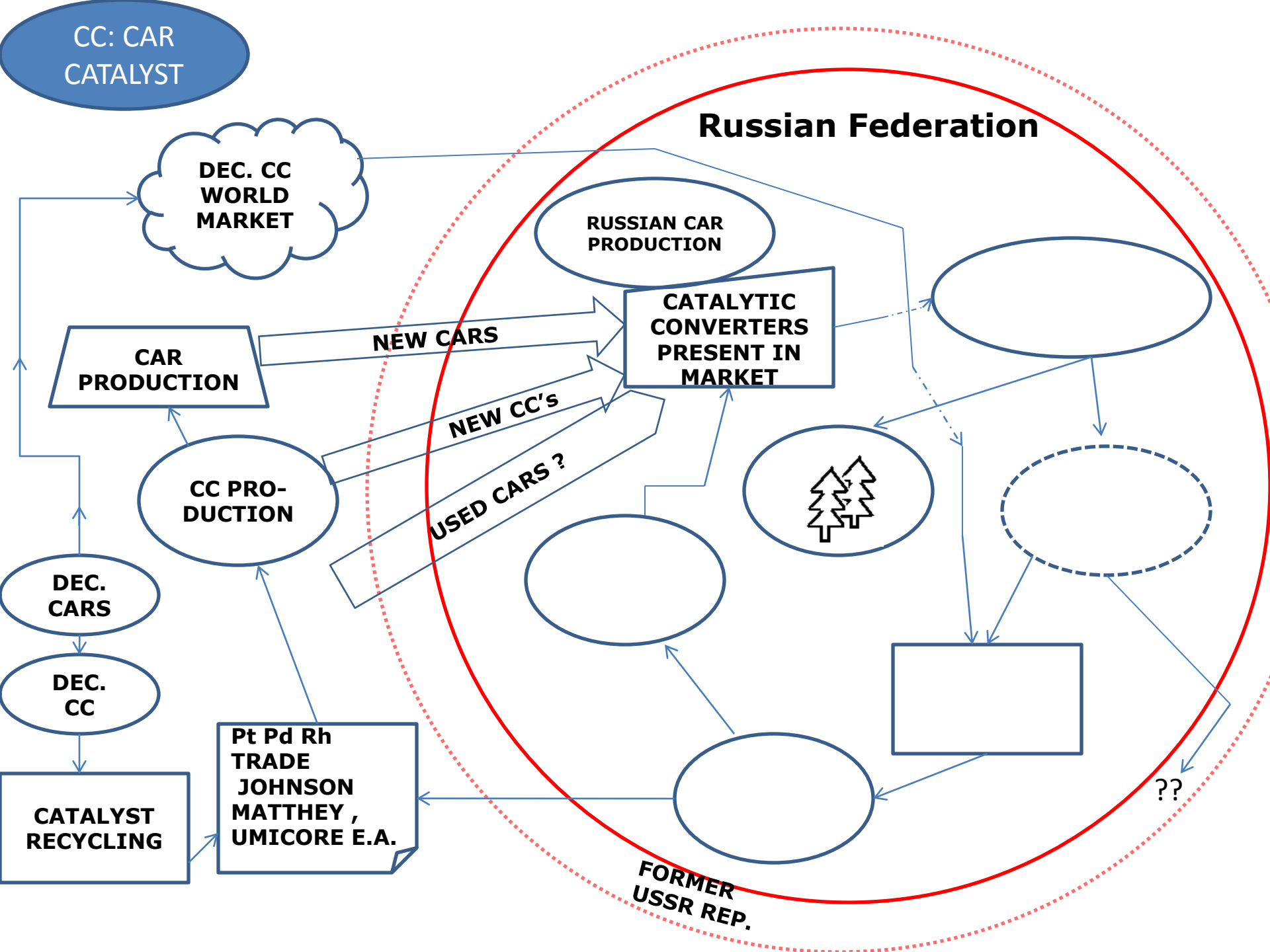


No information found (Öko Institut, Umicore, Greenpeace Russia, ARN)

**USED CARS ?**



Öko Institut: trying to get reasonable data makes no sense due to unknown third country-exports to Russian Federation



# Local car production and catalysts in use

Car catalytic converters in use:

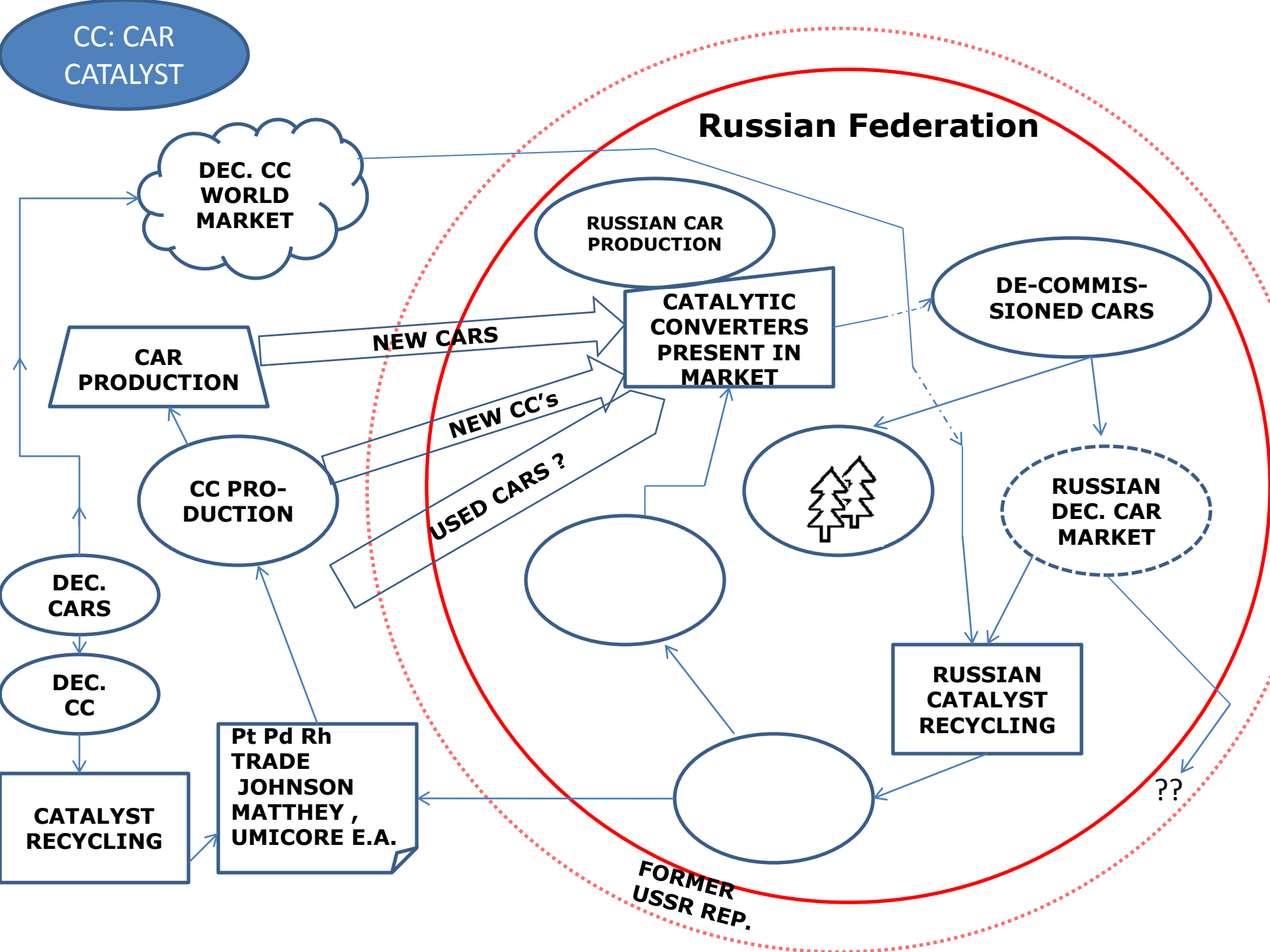
→ is # cars times % cars equipped with catalyst

# cars: 43.5 million in 2008 (Russian Association of Motor Insurers, via Greenpeace Russia)

% cars with cat.: unknown

(however, 50% of cars older than 10 yrs  
(Greenpeace Russia))

Local car production: 1.47 million (2008,  
Greenpeace Russia)



# Local car catalyst situation

- Number of cars taken out of regular use: no reliable data available (Greenpeace Russia)
- Number of cars ending 'in the forest': supposed to be large in all areas > +/- 200 km from the large cities. No hard data.
- Number of cars being scrapped (making catalyst available) unknown.
- Number of cars being exported to (more easterly) former USSR-republics unknown.

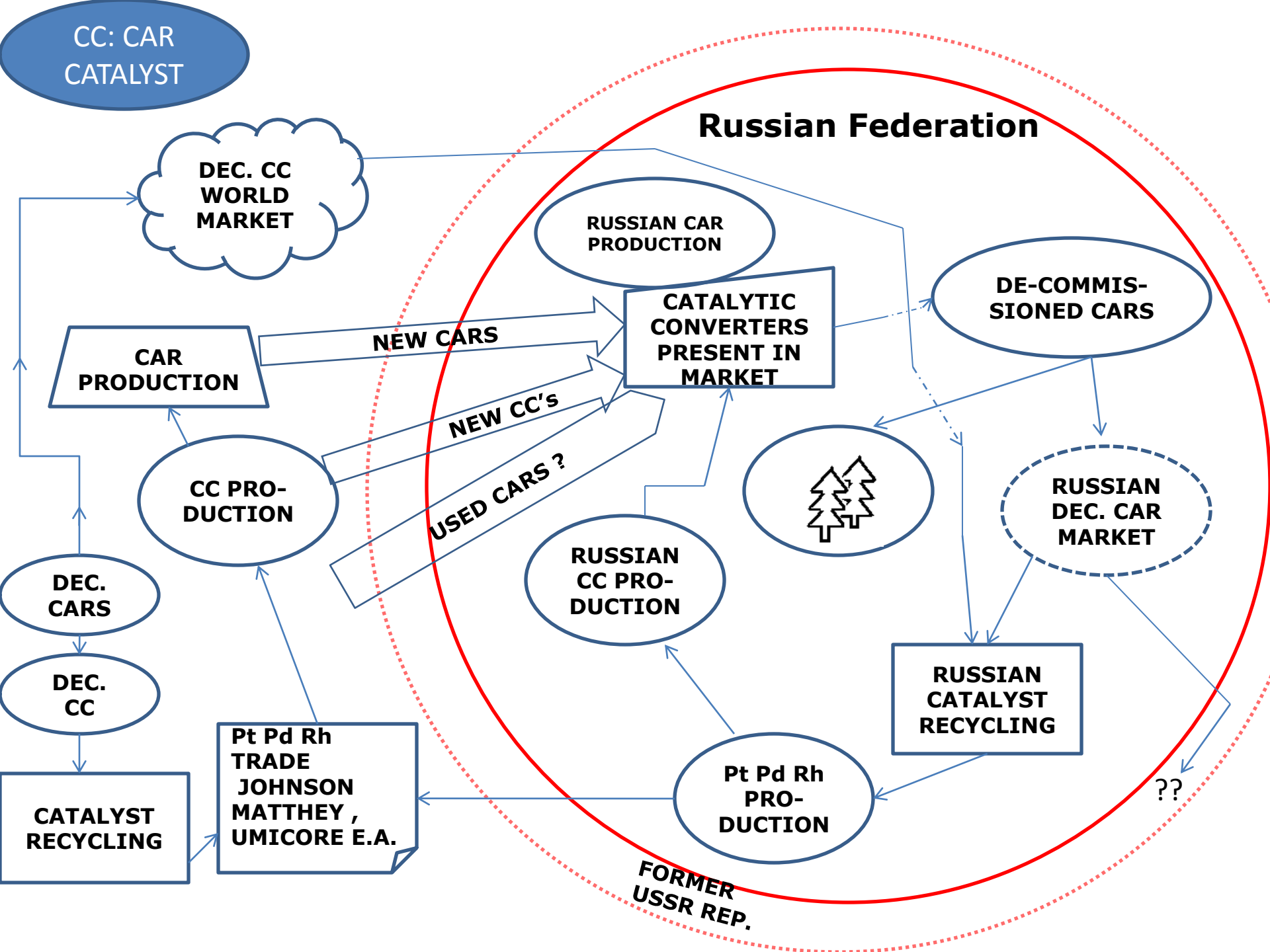
## Near Moscow sustainable car recycling



...with efficient catalyst removal



Hydraulic shears



# Catalyst recycling and PGM production

- Russian catalyst recycling:
  - Norilsk Nickel (ISO 14001)
  - Other non-ferrous metal producers (e.g. copper plants) (Krasnoyarsk, Prioksky)
- Production of Pt, Pd and Rh:  
Hagelüken (Umicore): Russ. Fed. almost 50% of world Pd-production
- Catalyst production: unknown