



**SOLVAY**

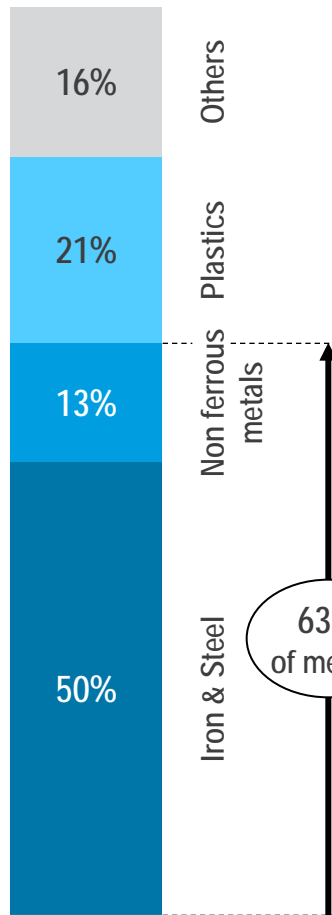
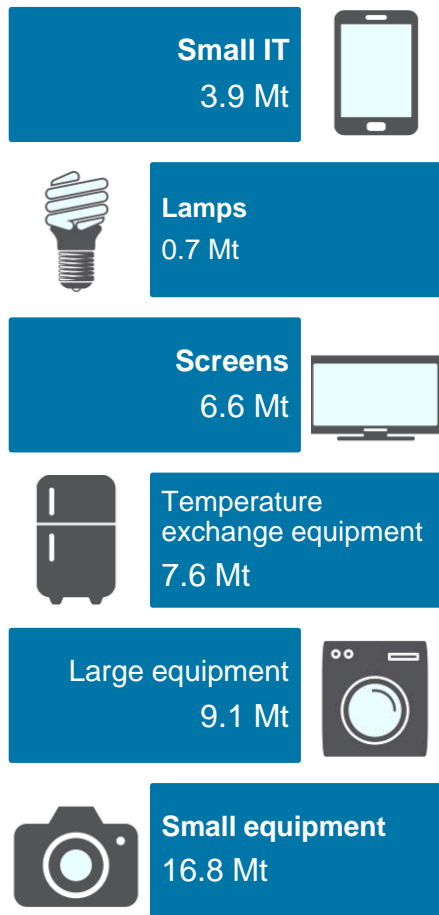
asking more from chemistry®



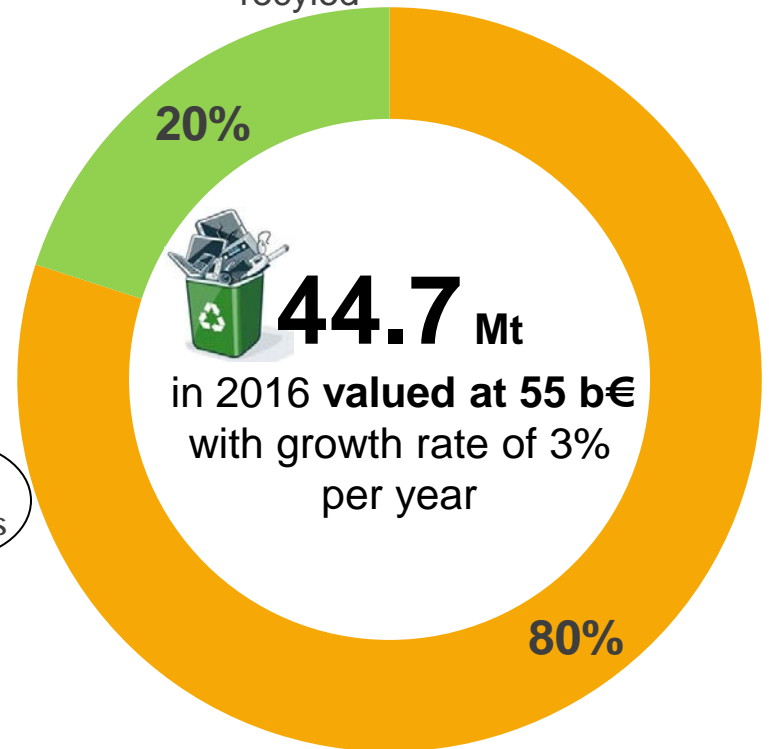
# Innovation & Circular economy as solution to e-waste

World Material Forum, June 29th 2018, Nancy  
Jean-Pierre Clamadiou

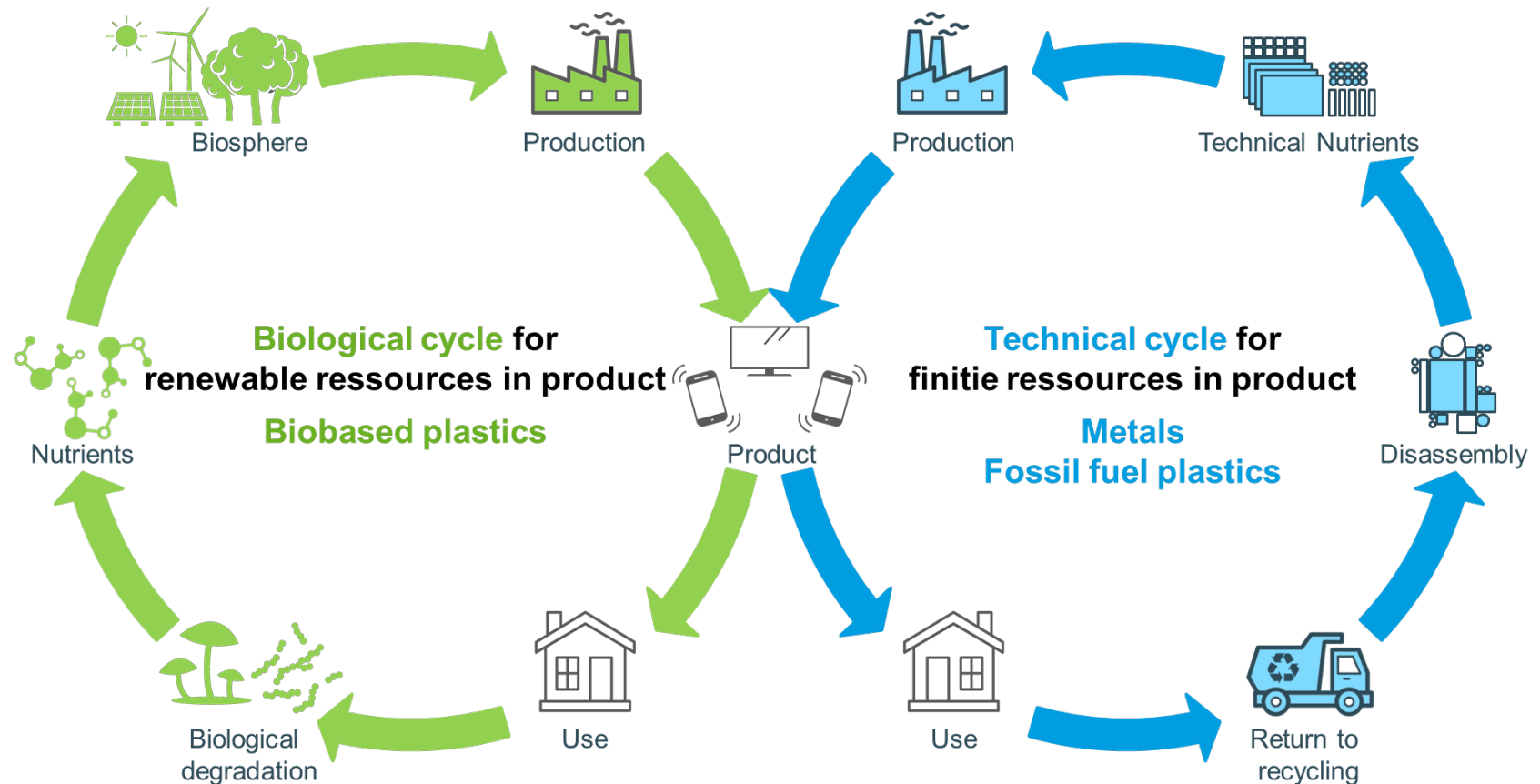
# E-WASTE CREATES MASSIVE CHALLENGES FOR METALS AS WELL FOR PLASTICS



- E-waste dumped, traded, or recycled with inferior conditions
- E-waste documented as collected and properly recycled



# CIRCULAR ECONOMY IS A UNIQUE WAY TO ADDRESS E-WASTE CHALLENGES



Circularity is fostered by **Collaboration & Innovation**

# COLLABORATION: SOLVAY IS THE CHEMICAL GLOBAL PARTNER FOR THE ELLEN MCARTHUR FOUNDATION



 **SOLVAY**  
asking more from chemistry®

**Global Partner  
of the Ellen Mac  
Arthur Foundation**

 **PHILIPS**

**Inc.**

   
Unilever

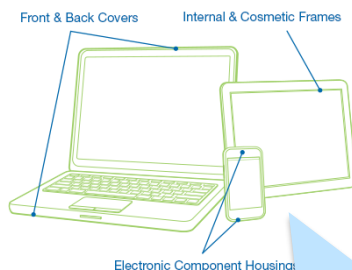
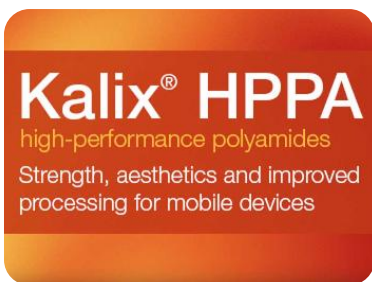
INTESA  SANPAOLO

   
**RENAULT**

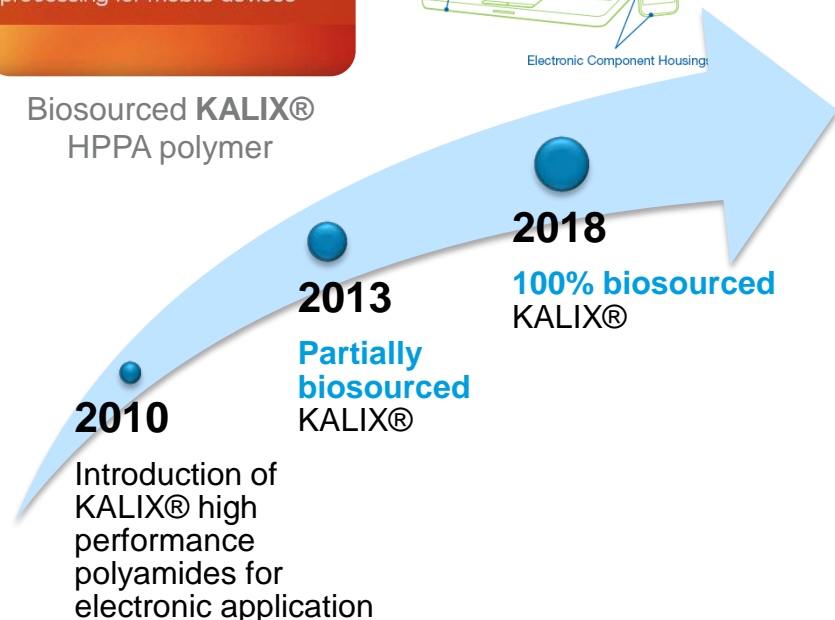
DANONE 

# INNOVATION – SMARTPHONES: SOLVAY'S SPECIALTY POLYMERS DEVELOPS RENEWABLE SOLUTIONS

## 100% Biosourced polymers for smartphones application



Biosourced **KALIX®** HPPA polymer



## Solar farm renewable energy for production of plastics for smartphones



271,000 panels  
~ 500 soccer fields

**U.S. Solvay solar farm opening** addressing customer demand for sustainable energy

160 kWh/year  
~ 15 000 houses



**Reduction of GHG**  
for climate change

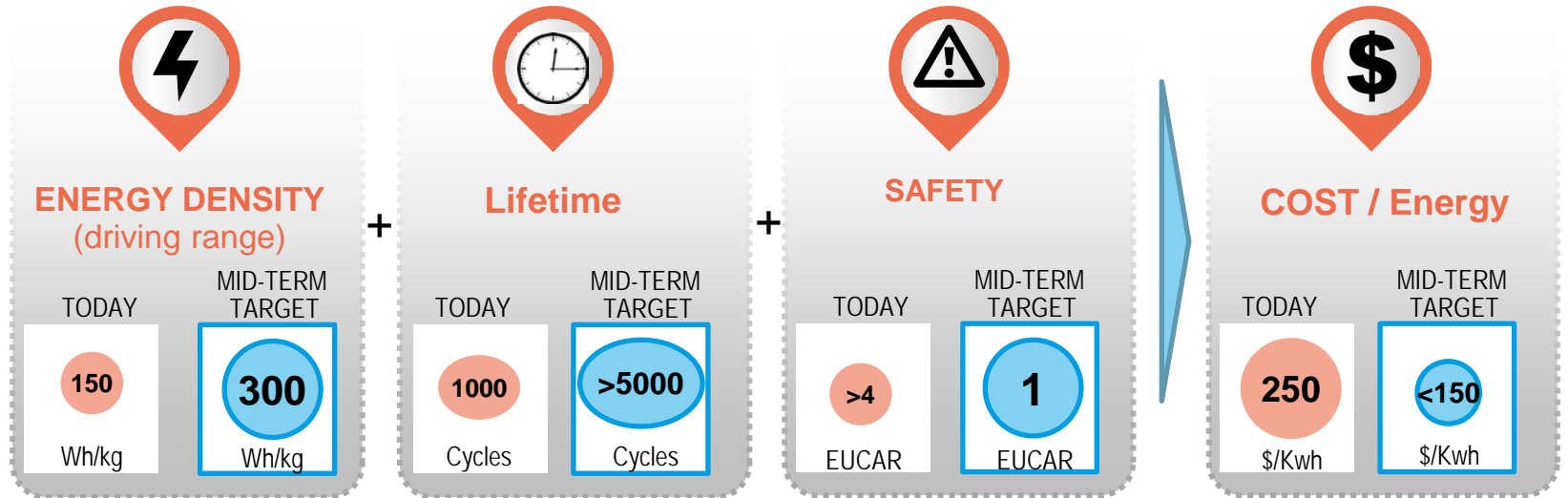


Ribbon cutting  
**May 4th, 2018**



# INNOVATION – BATTERIES: SOLVAY'S ENERGAIN® ELECTROLYTE ENABLER FOR ADVANCED LI-ION

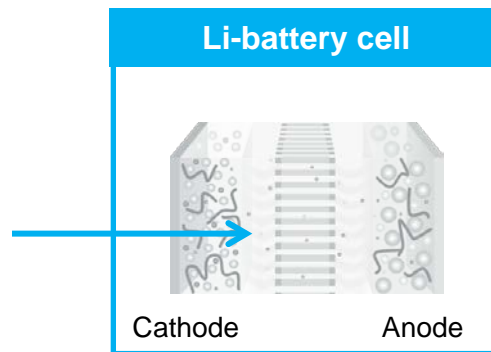
## UNMET NEEDS



## ENERGAIN® BENEFITS

- ▶ Enables battery to work at High Voltage
- ▶ Increases stability at High Voltage
- ▶ Prolongs life time
- ▶ Makes electrolytes non-flammable
- ▶ Improves ratio cost / energy

New fluorinated electrolyte systems





# 3 CONDITIONS FOR CIRCULATOR ECONOMY

## COLLABORATION, INITIATIVE AND INNOVATIONS

### ● Collaboration

- **Quantifiable ESG** to drive both investments and cooperation along value chain actors

### ● Initiative

- Call for **industry initiative/regulation** to set objectives/constraints to push the transformation of the value chains

### ● Innovations

- **New attractive business models** to use longer and smarter
- **Ecodesign** innovation to use **renewable feedstocks** for plastics
- For metals, the way forward is to **use less, use longer** and yet the ultimate solution is **recycling with e-waste mining** potentially creating a **new source of growth and green jobs**