The SusChem Platform: think large, think possible
European Union today: 28 Countries + Associated Countries
The SusChem (European + National Technology Platforms) network aims to capitalize on its synergies in order to gain the critical mass needed to promote and achieve its strategic objectives at European and National level without duplicating its efforts.
SusChem, the Network growing..

- SusChem NTP’s Network is growing;
  - *Besides the current 11 National Technology Platforms:*

  - SusChem Switzerland will be launched in November 19th in Basell, at the Ecochem event.

  - Greece has also showed an interest in creating a National Technology Platform. The document “Rules of Operation” has been sent for consideration.
Ready for the Future: Strengthening collaboration

- The Europe 2020 strategy:
  - Transform Europe through smart, sustainable and inclusive growth of the EU Economy;
  - Encourage and support for a stronger Innovation component to address the Societal challenges;
- SusChem ETP working on sustainable chemistry:
  - A joint European vision firmly rooted in national strategies;
  - Strong Partnerships with National Technology Platforms

To support national engagement in EU collaborative projects and programmes to contribute to transnational collaborations.
Core activities:

- Developing **Strategic Research and Innovation** Agendas, including identification of skill requirements and regulatory barriers
- Encouraging industry participation in Horizon 2020 and helping widen participation and build capabilities within Member States through active cooperation with *networks/partnerships in Member States*;
- Identifying opportunities for international cooperation;
- Moving towards more open models of innovation and
- Facilitating the formation of new partnerships.
European Innovation Partnership (EIP) on Water:

Priorities defined in the Strategic Implementation Plan (SIP)

Cross-cutting issues:
- Financing for Innovation
- Water Governance
- Management Models and Monitoring

Water reuse and recycling
Water and waste water treatments
Water-energy nexus
Risk Mngt. Of extreme water events
Ecosystem Services

Smart technology *(enabling factor)*

Vision and objectives

- New water treatments
- More efficient
- Alternative water sources

Identification barriers to innovation:
- Financing; Regulation, etc.

- Less energy consuming membranes
- Energy recovery

- Close loops
- Reduction fresh water uptake
- Symbiotic approach
Other activities:

- SusChem is leading the “Industry Expert Group on Barriers to Innovation in Water”, cooperating with the Task Force members and the EIP on Water Secretariat in the preparation of the “diagnosis report on barriers and bottlenecks to innovation in water”.

- Cefic is member of the Action Group: “Industrial water reuse and recycling”
SusChem priorities, think possible... Smart Cities & Communities EIP

- Objectives focus on innovative technologies and solutions at the intersection of these three sectors (energy, transport, ITC)

- Targets by 2020: to demonstrate and scale up at least 20 major innovative solutions combining energy, transport and ICT technologies and enable pioneering cities to outperform in sustainability.
SusChem priorities, think possible...
Raw Materials (I)

European Innovation Partnership in Raw Materials

- Main objectives:
  - Increasing the share of industry to 20% of GDP and ensuring the sustainable supply of raw materials to the EU economy
  - To reduce Europe’s import dependency, promoting production and exports
  - To put Europe at the forefront in raw materials sectors and mitigating the related negative environmental, social, and health impacts
SusChem priorities, think possible...
Raw Materials (II)

- Other activities:
  - Cefic is a member of the “Ad-hoc Working Group on Critical Raw Materials”
    - New version of the “Study on Critical Raw Materials at EU level” is expected to be published in 1Q 2014. The first edition was published in 2010 and this new version will include new Critical Raw Materials.
  - Cefic is member of the ERECON project, funded by the European Parliament and led by DG Enterprise: European Rare Earths Competency Network:
    - Working Group III: European end-user industries and rare earth supply trends and challenges.
    - WG I: Opportunities and road blocks for primary supply of rare earths in Europe.
    - WG II: Closing the loop: European rare earth resource efficiency and recycling.
SusChem priorities, think possible, think wider ... SPIRE PPP
Think wider: 8 sectors working together

With a new concept:

REDUCE   RE-USE   REPLACE   RE-INVENT
SusChem priorities, think possible...
Bio-based & renewable industries PPP
SusChem priorities, think possible...

Bio-based & renewable industries PPP

The bio-based economy concept
**SusChem priorities, think possible...**

**Bio-based & renewable industries PPP:**

**What’s in it for Europe?**

<table>
<thead>
<tr>
<th>Growth</th>
<th>• A global bio-based market estimated at €200 billion by 2020*</th>
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<tbody>
<tr>
<td>Jobs</td>
<td>• Create over 1 million jobs between 2010 and 2030 mainly in rural areas**</td>
</tr>
<tr>
<td>Energy and Products</td>
<td>• Reduce dependence on imports with locally sourced and produced goods and products***</td>
</tr>
<tr>
<td>Climate</td>
<td>• Bio-based Industries PPP derived bio-based products can achieve an average GHG emissions reduction potential of least 50% compared to fossil alternatives****</td>
</tr>
</tbody>
</table>

Sources:
* The Future of Industrial Biorefineries, World Economic Forum, 2010
** Next generation ethanol and biochemicals: what’s in it for Europe?, Bloomberg New Energy Finance, 2010
**** Strategic Innovation and Research Agenda (SIRA), Biobased Industries Consortium, 2012
EuCheMS-Cefic initiative on CO2 conversion

Objectives:

- creation of a Research & Innovation integrated staged action plan on the utilization of CO2 as a renewable resource
  - complement existing dispersed efforts
  - create the critical mass for the next steps in this long-term engagement

- Interaction with the different DGs of the European Commission to ensure:
  - required technology developments can be supported by European funding schemes;
  - the appropriate approach and policy framework is implemented for the deployment of a CO2 based economy in and from Europe.
CO2 - a renewable raw material

Use as feedstock the only carbon resource we have in abundance in Europe

Do what plants do... ...better

CO2

Take global leadership in sustainable technologies
Definition of the Materials Technologies priorities?

- Existing Materials RoadMaps
- SusChem Existing Roadmap and IAP for Materials
- Ambitions and Visions
- Gaps
- Horizon 2020 Priorities
- Focus Areas
- Priorities

Goal: provide our priorities at this early stage
<table>
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<tr>
<th>Materials Technology domain</th>
<th>Description</th>
<th>Focus areas</th>
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| Composite Materials                              | Lighter weight materials  
Carbon fibres; reinforced materials; TP composites; etc. | Mobility for growth; Energy Efficiency; Competitive low carbon energy; waste; |
| Printed Electronics                              | Materials with specific properties (dielectric; piezoelectric) enabling printing technologies for mass production of smart components | Cross-cutting                                                               |
| Self Healing Materials                           | Specific polymer architectures and functionalization to allow physical boundings | Cross-cutting                                                               |
| Materials for Energy Storage/Recovery            |                                                                             |                                                                             |
| Thermal energy storage                           | Hydration heat; phase change materials; adaptation to small-medium size systems | Smart Cities & Communities; Comparative low carbon energy; Energy efficiency; Mobility for growth |
| Electrical energy storage                        | Flow batteries; Li-S batteries; Li-ion; new electrodes materials             |                                                                             |
| Capacitors                                       | Separators and fluids for high performance capacitors                        |                                                                             |
| Waste heat recovery                              | New refrigerants; phase change materials                                    |                                                                             |
| Hydrogen storage                                 | New materials and solutions                                                  |                                                                             |
| Materials for Energy Production                  |                                                                             |                                                                             |
| Materials for PV                                 | Conductive polymers (OPV); transparent conductive layers;                  | Competitive low carbon economy                                             |
| Solar cooling                                    | High temperature materials (>200⁰C)                                         |                                                                             |
| Concentrated solar energy                        | High thermal fluids (long life, non-toxic)                                  |                                                                             |
SusChem Educate to Innovate

Seeks to:

- exploit innovation outputs from SusChem’s Research & Innovation projects

In order to:

- enhance the innovation skills of future generations of scientists and engineers through the effective engagement of industry and higher education institutions (HEIs).
SusChem Educate to Innovate Workshop

SusChem priorities, think possible, think future...
Educate to Innovate

SusChem related R&I projects

Innovation Content

Ideas exchange and scoping of requirements for development of learning resources

EU HEIs

Scoping of context-based learning resource(s) based on F3 Factory outputs

Development & testing of learning resources

Framework for development of future learning resources based on innovation outputs from SusChem projects.

EU Industry

(undergraduate / Masters level)

(chemical / industrial biotechnology)

(pilot)
THANKS FOR YOUR ATTENTION