

# FP9 y Key enabling technologies SusChem vision

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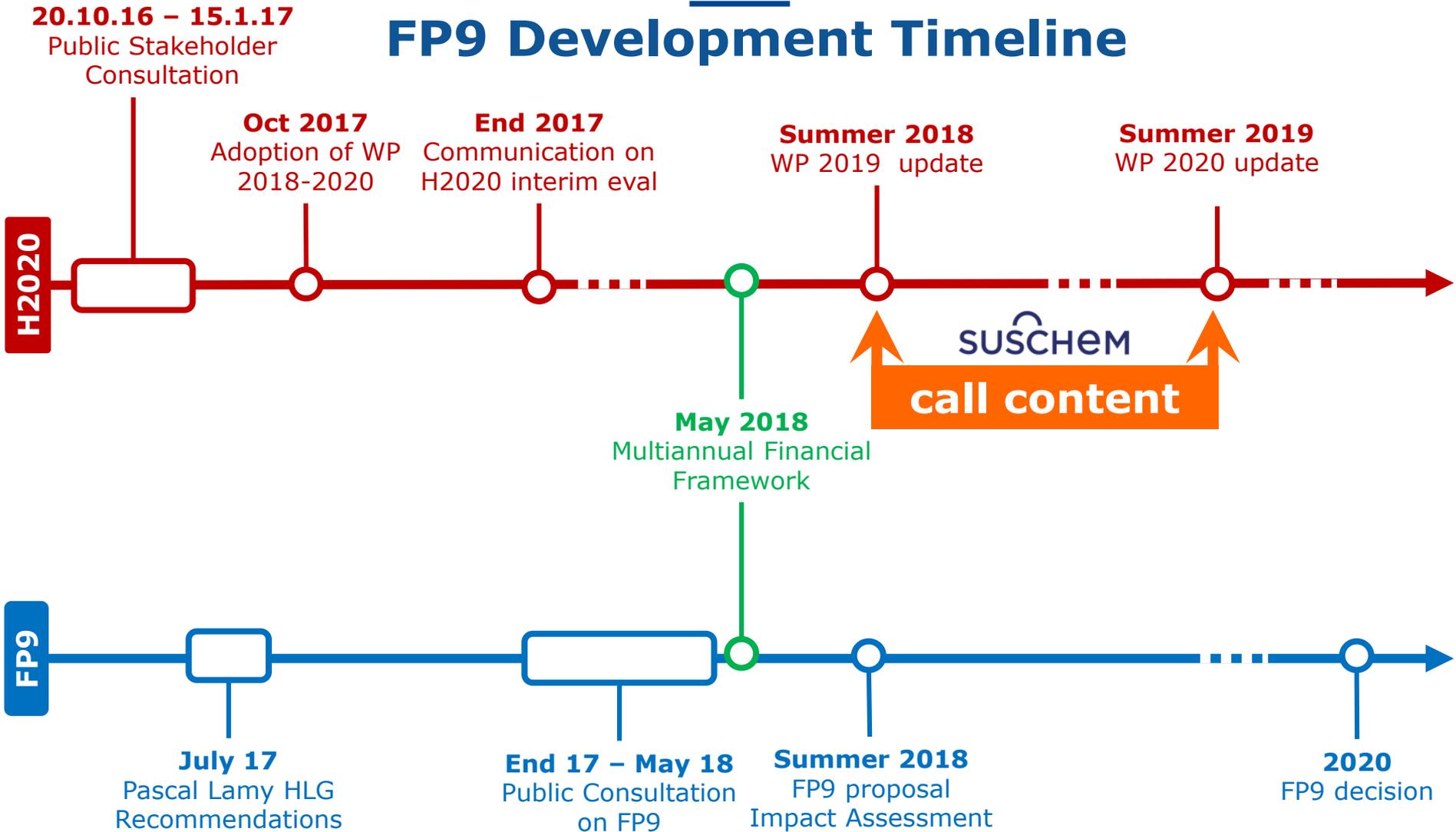
**SusChem 14 March 2018**

Anne Chloe Devic

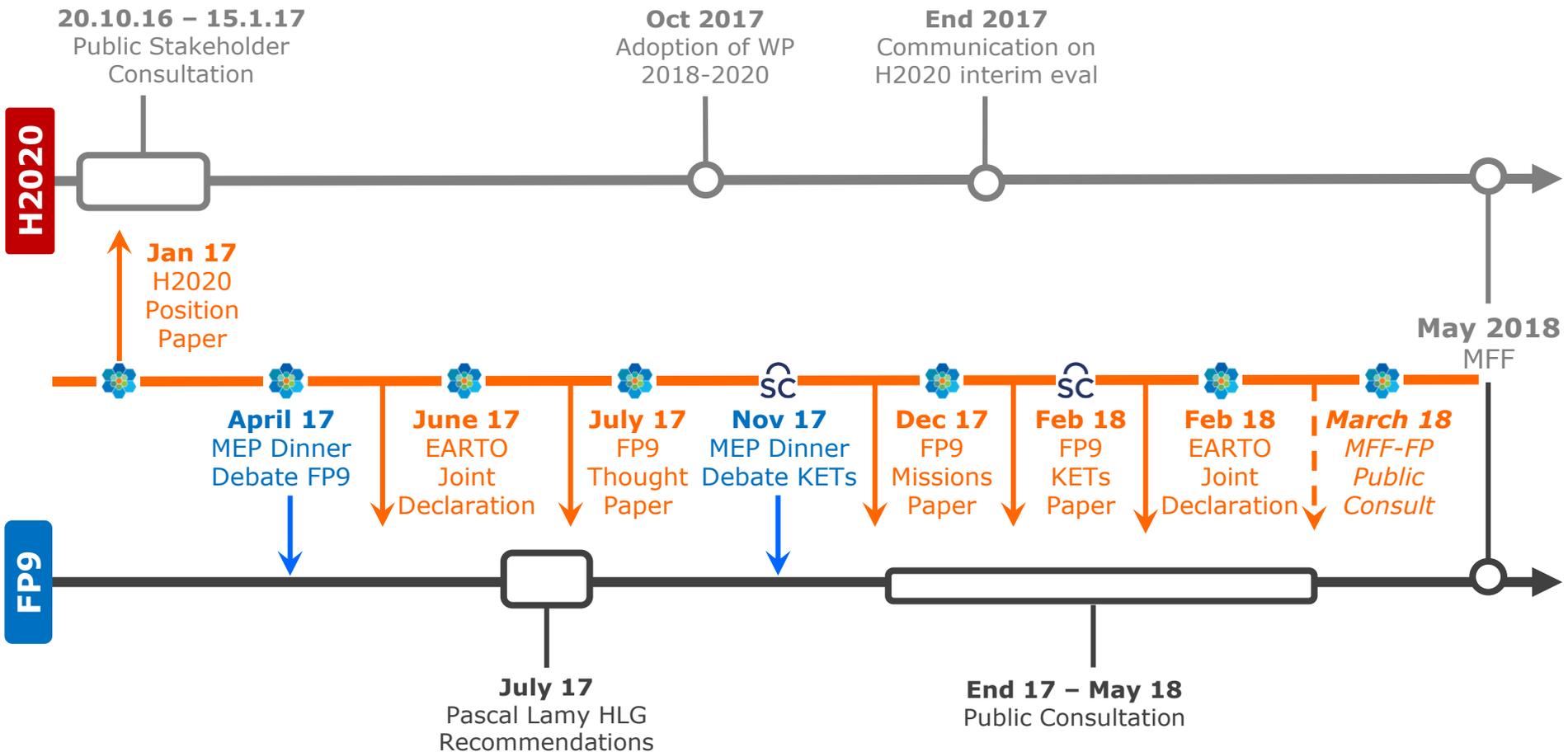
Innovation Manager, Cefic- SusChem National platforms coordinator



# FP9 Development Timeline

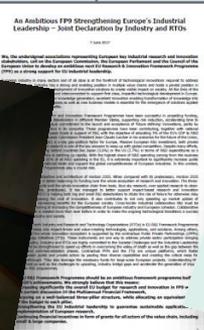


# FP9 Development Timeline



## Positioning and Key Messages

	Industry Participation	Innovation / Eco-System	Partnerships	KETs	Impact
H2020 Interim Review	✓	✓			
FP9 Dinner Debate	✓		✓	✓	
1 <sup>st</sup> Joint Declaration	✓				
FP9 Thought Paper	✓	✓			✓
KETs Dinner Debate	✓			✓	
FP9 Mission Paper	✓		✓		✓
2 <sup>nd</sup> Joint Declaration	✓		✓		✓
KETs Paper	✓			✓	✓



# FP9 Developments –WE NEED TO :

1. Be vocal on **STRONG MFF** at EU and **Member States level** (ministers of finance) + highlight importance of FP9 (Innovation)
2. Highlight the **role of industry** in the innovation ecosystem and the need for continuous support for **Key Enabling Technologies (KETs)** and industrial technologies
3. Advocate for **continued funding** for both small and large companies and cPPPs under FP9
4. Highlight the **unique role of the chemical industry** (innovative sector that enables innovation in many value chains and downstream industries)



## H2020 Interim

**EU Research & Innovation: Interim Evaluation of Horizon 2020**

**Executive Summary**

**Key Findings:**

- Horizon 2020 has been a success in many respects, but it has also faced significant challenges.
- The Commission has identified several areas for improvement, including the need to better support small and medium-sized enterprises (SMEs) and to improve the overall efficiency of the programme.
- The interim evaluation highlights the need for a stronger focus on innovation and research, particularly in the areas of digital technologies, artificial intelligence, and quantum computing.

## Joint Declaration

**An Ambitious FP9 Strengthening Europe's Industrial Leadership – Joint Declaration by Industry and RTDs**

**7 June 2021**

**Key Messages:**

- The chemical industry and research and technology development (RTD) sectors are committed to a strong and ambitious FP9 that will support the European Union's industrial leadership.
- Industry and RTD sectors will work together to address the challenges of the transition to a sustainable and circular economy.
- The joint declaration calls for a strong focus on Key Enabling Technologies (KETs) and industrial technologies, which are essential for the competitiveness of the European industrial sector.

## FP9 Thought Paper

**EU Research & Innovation Framework Programme**

**The Chemical Industry's role in EU growth and competitiveness**

**Key Findings:**

- The chemical industry is a key driver of economic growth and innovation in the European Union.
- Industry and RTD sectors are committed to a strong and ambitious FP9 that will support the European Union's industrial leadership.
- The joint declaration calls for a strong focus on Key Enabling Technologies (KETs) and industrial technologies, which are essential for the competitiveness of the European industrial sector.

## FP9 Mission Paper

**EU Research & Innovation Framework Programme**

**Key Enabling Technologies in FP9**

**Key Findings:**

- Key Enabling Technologies (KETs) are essential for the competitiveness of the European industrial sector.
- Industry and RTD sectors are committed to a strong and ambitious FP9 that will support the European Union's industrial leadership.
- The joint declaration calls for a strong focus on Key Enabling Technologies (KETs) and industrial technologies, which are essential for the competitiveness of the European industrial sector.

## KETs Paper

**Key Enabling Technologies in FP9**

**Key Findings:**

- Key Enabling Technologies (KETs) are essential for the competitiveness of the European industrial sector.
- Industry and RTD sectors are committed to a strong and ambitious FP9 that will support the European Union's industrial leadership.
- The joint declaration calls for a strong focus on Key Enabling Technologies (KETs) and industrial technologies, which are essential for the competitiveness of the European industrial sector.

# Cefic FP9 Missions Suggestions



## Low Carbon Industries

*Addressing climate change and EU resource objectives* Inspired by



## Materials Up- & Recycling

*retaining functionality, durability, value and enabling circularity* Inspired by



## Affordable and abundant low carbon energy for all

*sparkling energy!*

Inspired by



- Build from input Cefic
- Provisional use with EU commission
- Opens doors for early position in discussion
- Dynamic document – update as/when needed
-  *Link = Excellent*
- *“Not wrong”* The challenge is (progress) metrics & impact

# KETs paper

- *create Advanced Materials*
- *develop Advanced Process Technologies*
- *leverage Digital Technologies*

## Key Enabling Technologies in FP9

### *Call for strong support for EU Future Technology Competitiveness*

Key Enabling Technologies<sup>1</sup> are technologies selected for their ability to: 1) address global challenges (e.g. low-carbon energy or resource efficiency), 2) support the development of new products, and 3) stimulate economic growth and provide jobs.

Sustainable chemistry is essential to the technological advancement of Key Enabling Technologies (KETs) such as advanced materials, advanced manufacturing technologies, industrial biotechnology, micro and nanoelectronics, nanotechnology, and photonics.

#### SusChem KETs in FP9 Key Messages:

1. SusChem asks that the next innovation framework programme (FP9) firmly embraces KETs as drivers of technology development, ensures its overall policy alignment and assigns appropriate levels of funding to maintain the EU's KETs leadership and keep industry jobs in Europe.
2. Advanced Materials, Advanced Process Technologies and Industrial Biotechnology KETs are essential to address societal challenges and accelerate the development of a low-carbon economy, circular economy, and the energy transition.
3. Considering the current digital evolution and the enormous benefits that it offers, SusChem recognises the need to integrate digital technologies into processes technologies, materials development, and business model creation. Synergies between the current KETs and potential new 'digital' KETs will accelerate the creation of new markets, growth, and jobs.

#### *KETs address societal needs, but have low visibility in Society*

KETs contribute to strengthening and modernising Europe's industrial base, and the development of entirely new markets, opportunities and industries. KETs reduce CO<sub>2</sub> emissions, make cars lighter and safer, enable storage of energy, and make a range of products from medicines to mobile devices more effective and sustainable. They "drive" innovation and value creation in a range of industrial value chains such as automotive, food, chemicals, electronics, energy, pharmaceuticals, construction, and telecommunications.

SusChem embraces KETs as the main technology building blocks for advancing Europe.

In preparation for the next Research and Innovation (R&I) Framework Programme, SusChem outlines *what can be achieved by KETs* and details the major *technology developments and initiatives needed to:*

- *create Advanced Materials* for use in energy efficiency (e.g., light weight), renewable electricity production and energy storage (e.g., batteries elements), or smart functionalities responding to stimuli (e.g., self repair).
- *develop Advanced Process Technologies*, including Industrial Biotechnology, for more sustainable production including through utilisation of alternative carbon feedstock (waste, biomass, CO<sub>2</sub>) and alternative energy sources.
- *leverage Digital Technologies* for use in advanced process control and materials modeling, to enable disruptive business models and to create new customer experiences.

<sup>1</sup> KETs are knowledge intensive and associated with high R&D intensity, rapid innovation cycles, high capital expenditure and highly-skilled employment. They enable process, goods and service innovation throughout the economy and are of systemic relevance. They are multidisciplinary, cutting across many technology areas with a trend towards convergence and integration. KETs can assist technology leaders in other fields to capitalise on their research efforts.

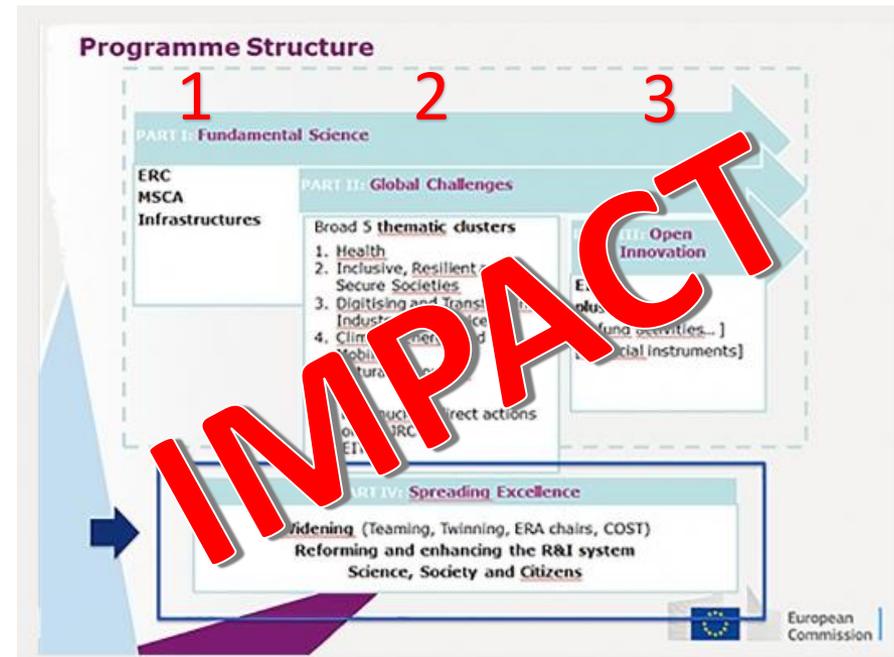
Ref. EC Document 30 September 2009: *Preparing for our future: Developing a common strategy for key enabling technologies in the EU*

## Framework Programme Structure

### SusChem KETs in FP9 Key Messages

- Next innovation framework programme (FP9) firmly **embraces KETs** as drivers of technology development, ensures its overall policy alignment and assigns appropriate levels of funding to maintain the EU's KETs leadership and **keep industry jobs in Europe**.
- Advanced Materials, Advanced Process Technologies and Industrial Biotechnology **KETs are essential to address societal challenges** and accelerate the development of a low-carbon economy, circular economy, and the energy **transition**.
- Considering the current digital evolution and the enormous benefits that it offers, SusChem recognises the need to **integrate digital technologies** into processes technologies, materials development, and business model creation. Synergies between the current KETs and potential new 'digital' KETs will accelerate the creation of new markets, growth, and jobs.

### FP9 Design



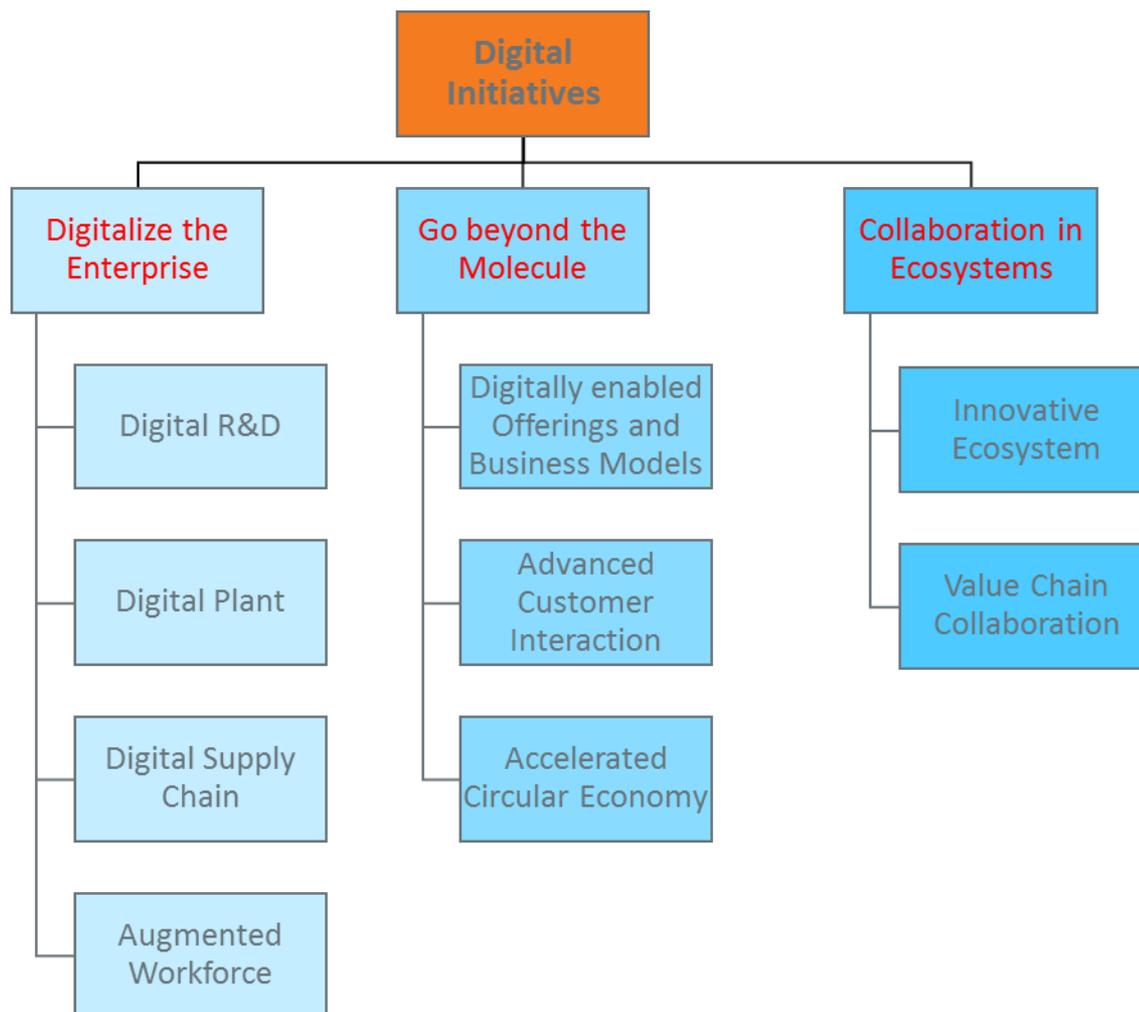
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|----|--|-----|
| 1. | <b>Fundamental Science</b>                                 | ERC |
| 2. | <b>Global Challenges</b>                                   | EC  |
|    | <i>Programme Elements: Calls – Missions - Partnerships</i> |     |
| 3. | <b>Open Innovation</b>                                     | EIC |

- Battery energy storage stakeholders input
  - Work done in 2017 / Beginning of 2018
  - Circulated to SusChem WG + other stakeholders of interest – The last version circulated to the board will be the final version to be published.
  - Main findings:
    - Next generation lithium/solid state and flow batteries technologies are highly promising
    - Europe has the knowledge on many batteries components technologies (materials, systems, manufacturing – Use of multi scale-multiphysics modelling for solutions development
    - Further development of advanced materials to increase performance and decrease costs- long duration hybrid storage
    - Regulatory environment harmonization- development of the European battery value chain (cell production capacity) – new business models
  - Publication of a longer version white paper as a brochure by May 2018 (planned).
  - Communication plan for the short paper (SusChem and Cefic network, EC DG RTD/Energy)

- Summary

- Work done in 2017
- Circulated to SusChem WG + other stakeholders of interest in the value chain (e.g. CFK valley recycling, Faurecia, plastic recyclers Europe...) and final draft to the board
- Main findings:
  - European Know-How for engaging more in recycling of composites, credible LCAs key, resins (thermoplastics, biobased), recyclability by design, re-use, secondary raw materials)
  - Coupling material developments with recycling developments – decentralization for recycling for process waste streams
  - Need for policy implementation harmonization – quality of recycled materials – Sorting, tracking – Stimulation of cross-value chain collaboration
- Publication of the long version (25 pages draft in circulation) white paper as a brochure by March/April 2018 (planned).
- Communication plan for the short paper (SusChem and Cefic network, EC DG RTD/GROW/ENV)

# DIGITAL KET : digital playgrounds and initiatives in the chemical industry



## DIGITAL KET

1. Digital is seen by most chemical players as **clear growth opportunity - chemical value chains known by today might change completely** through digitalization, products and related process getting more personalized creating and delivering **higher value for customers** through empowering of local, **more specialized value chains**
  2. Digital will further **improve operations**, e.g. **cognitive plants, advanced maintenance, digital process and plant design** through in-silico “digital twins”
  3. Many companies have **built-up significant resources and additional organizational structures** to start capture the full range of digital opportunities - but **different digital operating models** in place. **Collaboration** is becoming a key success factor
  4. New type of **education and job profiles** will be required to transform the industry, digital is not limited to the use of digital tools and devices, but should be a real **company mindset** instead
- Expand EU to support further innovation policy and funding in the future FP9 framework programme: Investments in further **industrial innovation is required** to support the development and demonstration/ implementation of **fast emerging digital technologies** related to a **industrial competitiveness, circular economy, higher energy and resource efficiency**

# MFF -> FP9 Development Timeline

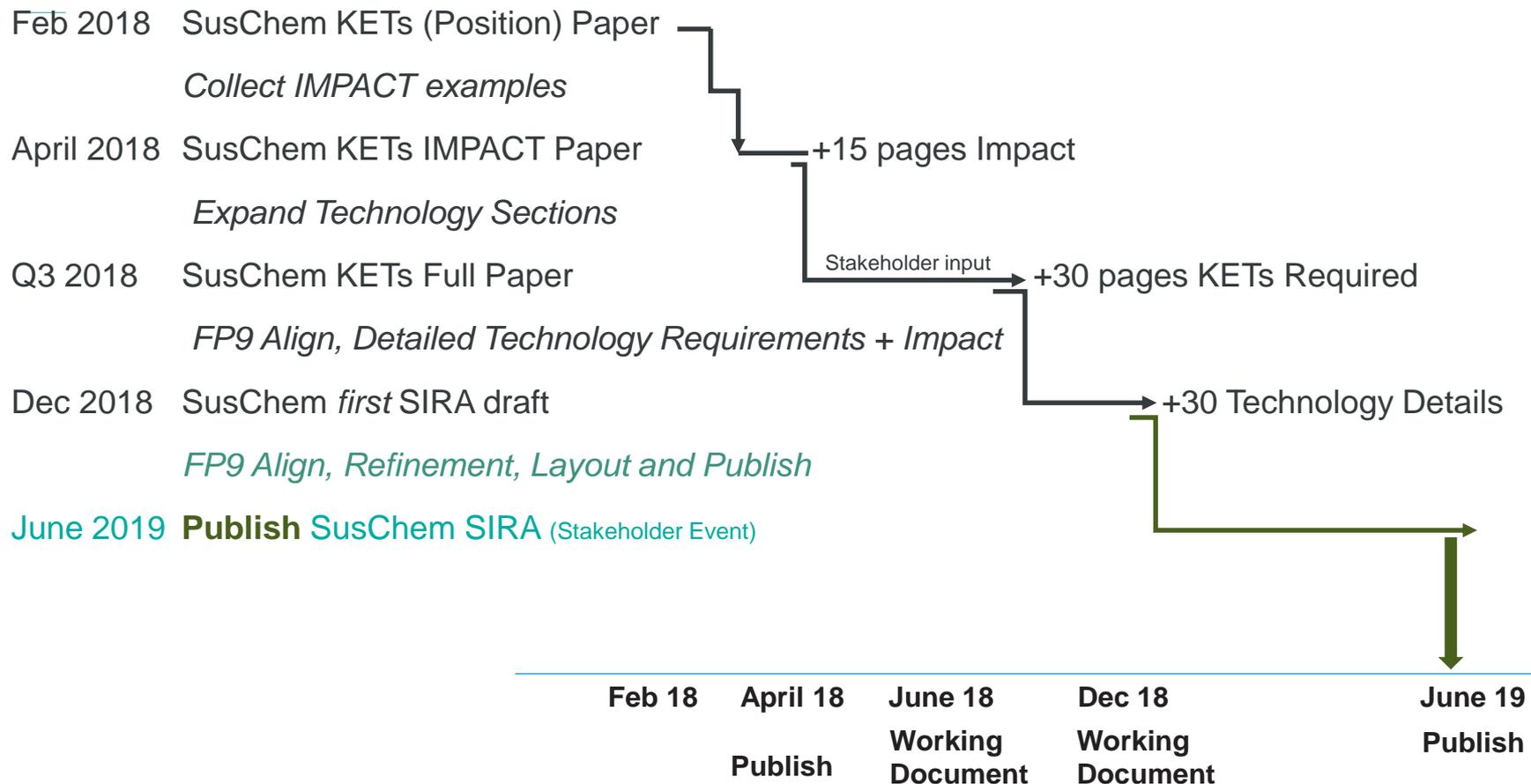


MFF	FP9	Date	Description
	✓	8 Jan	Directional release of the Bohemia (foresight) study
✓		8-9 Jan	Shaping our Future High Level Conference
✓		10 Jan	Commissioners discussion MFF lead by Oettinger. <b>Launch of consultation</b>
	✓	12 Jan	EU Commission will publish reaction to Lamy Report
	✓	End Jan	Publication of Bohemia foresight study Prof. Mariana Mazzucato discussion paper (missions) <b>Launch of consultation</b> (missions & programming pillar#3)
	✓	??	JIP (scientific) study on Missions
✓	✓	21-23 Feb	Publication KETs HLG Report at Industry Days Refinement on next MFF (several instruments together) Heads of state meeting on frame of MFF
✓	✓	End Feb	EU commission to complete the Impact study
✓	✓	23 Mar	Council meeting on MFF. Part of agenda could be Innovation
✓	✓	31 May	EU commission deliver MFF and FP9 proposal (budget – thematic structure)
	✓	Late Sep	EU commission to start developing (Thematic) Work Programme 2021





# SusChem KETs in FP9 Key Messages → SIRA





**GRACIAS**