

# What is a H4C?

A brief definition and the core characteristics of Hubs4Circularity

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**Hubs4Circularity**  
COMMUNITY OF PRACTICE

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# 1. What Are Hubs4Circularity?

**Hubs4Circularity (H4Cs) support a paradigm shift both in terms of material sourcing and the organisation of interconnected production and recycling networks, aiming toward climate neutrality, circular economy, net zero competitive industries and strategic autonomy of Europe.**

## Key Contributions and Regional Implementation

H4Cs as defined in the context of the Process4Planet (P4P) co-programmed Public Private Partnership (PPP) are industrial clusters that realise lighthouse projects in industrial and industrial-urban symbiosis and circularity of materials and resources. These projects contribute significantly to the reduction of CO2 emissions, increases in energy and resource efficiency, independence from imported resources, and to the reduction of waste that is currently incinerated or landfilled. H4Cs help to implement innovative technologies that are developed by the Processes4Planet PPP and other European and national programs in a coordinated regional setting.

The regional implementation helps to accelerate the deployment of cross-sectorial innovations by involving all necessary stakeholders and maximising the synergies of different funding schemes and co-investments on the European, national and regional level. H4Cs target increased sharing of flows of energy and materials, data, services, and infrastructures joint development and implementation activities. H4Cs can also be realised around shared infrastructures, for example for hydrogen or CO2 or logistic infrastructures, and can play a crucial role in the sharing of knowledge and the creation of specialised ecosystems.

The transition to a circular economy requires to establish specific value networks for the upcycling of waste to produce feedstock for the process industries. Often solutions for specific waste streams will cover large geographic areas in order to collect enough material for plants that produce secondary feedstock and are economically and environmentally attractive. While collection, dismantling, sorting and separation systems will be local or regional, the further steps will often be performed by relatively few large plants, H4Cs may cluster elements of different value networks to exploit synergies.

## The Role of Stakeholders and Long-Term Vision

H4Cs embed plants or sites of the process industries or are connected to the process industries within the large-scale value networks. They integrate multiple (regional) stakeholders and develop a joint strategic plan to drive the innovation process towards climate neutrality, zero waste and circular economy. H4Cs should share best practices and support replication. They play an enabling role to significantly enhance European resilience, reduce Europe's material footprint, overall emissions and create new employment opportunities.

The creation and implementation of H4C is a long-term process that requires coordinated actions from many participants and commitment from the private sector and from regional authorities. A H4C with a significant number of stakeholders requires the set-up of a long-term coordinating structure.

## Enabling Collaboration and Knowledge Sharing

In H4Cs facilitators of transformative change that are fostering collaboration among industries, academia, society, and governments often play a crucial role. Due to the different set-ups and regional and sector needs there is a variety of operational models for H4Cs. Exchange of best practices among the different hubs and initiatives is a key factor for success. The necessity of such exchange led to the creation of a Community of Practice of H4C in Europe.

## 2. The main characteristics of H4Cs and H4C initiatives

An H4C is characterised by three main elements:

- A **structure** that coordinates the activities of the regional stakeholders ('facilitating organization')
- A set of activities that contribute to climate neutrality, circular economy and net zero industry
- The resulting measurable impact in terms of sustainability, economics, and protection of the biosphere and the humans within and around the hub.

The extent to which these elements are present defines the level of maturity of an H4C from an initiative (seed) to a full-fledged implementation and can be used to monitor its performance.

### THE STRUCTURE

The **structure** of a H4C is characterised by the presence of the following elements:

- a. A set of **stakeholders**, in particular industrial companies but also innovators, investors, and regional authorities who subscribe to a long-term strategic cooperation towards climate neutrality, circular economy, and net zero industry
- b. A **joint strategic vision and development plan** for the H4C that is 'owned' by the stakeholders and is periodically updated
- c. A **facilitation structure** that drives the coordinated approach on a regional or local scale by some or all of the following activities:

- i. Developing the joint strategic vision and development plan for the H4C in a **co-creation** process with the stakeholders, monitoring its implementation and organizing a periodic update process
- ii. **Initiating and incubating** Industrial / Industrial-Urban Symbiosis and Circular Economy projects and supporting applications for funding and the execution of the projects
- iii. **Mobilizing investments** from single or multiple sources to finance industrial / industrial-urban and circular economy related deployments of innovative technologies and joint-infrastructures
- iv. Identifying novel potential **collaborations** to share resources, spotting and testing technological solutions and investigating related business cases, in order to realize untapped IS, IUS and CE opportunities
- v. **Promoting the concept** of H4C within the region and beyond, raising awareness and performing educational activities
- vi. **Collaboration and knowledge sharing** with other similar activities, in particular within the European Community of Practice of H4Cs.

## THE ACTIVITIES

The operation of a H4C will typically include one or more of the following **activities** towards climate neutrality, energy and resource efficiency, reduced emissions, circularity, and resilience:

- a. An increasing **exchange of streams of energy and materials** between industrial companies and with the surrounding urban or regional environment (industrial / industrial-urban symbiosis) to improve energy and resource efficiency and to reduce production waste
- b. **Contributions** to the realization of **regional or large-scale value networks** for the transformation and production of end-of-use waste into valuable materials
- c. The reduction of emissions into the environment, of the proliferation of substances which are detrimental for health and environment and of the intake of fresh water
- d. The joint creation, improvement, sharing, and operation of **infrastructures for the transport and exchange** of energy and materials
- e. The creation and operation of **joint research and innovation facilities** that accelerate the development of enabling solutions for IS, IUS and CE
- f. The formation or expansion of **industrial parks or clusters** based on industrial symbiosis and/or targeting circular economy and net zero industries.

In addition, H4Cs may provide support structures for sharing of knowledge, technology scouting, partnering between end-users and technology providers, attraction of funding for projects and investments, attraction of talent, etc.


## MEASURABLE IMPACTS


The activities of the H4C should result in **investments in and deployments at a relevant scale of innovative sustainable production technologies circular value networks and infrastructures for the sharing of resources**. They should have **measurable and sustained impacts** towards:

- a. Climate neutrality
  - b. Circular economy
  - c. Zero-waste and safe production of safe materials
  - d. Preservation of the biosphere
  - e. Employment, income, social coherence, resilience and stability of Europe.
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### Share Your Thoughts

We value your input! Help shape the future of Hubs4Circularity by joining the conversation on the **H4C Community of Practice Knowledge Platform**.

 **Discussion Forum:** Start a conversation, share your ideas, and connect with fellow members.

 **Email Us:** Send your feedback to [info@h4c-community.eu](mailto:info@h4c-community.eu)

Let's collaborate for a sustainable Europe! 