

# The living lab of ecological transition

Leaf Community







# Loccioni

## From data to value. For the wellbeing of people and the planet.

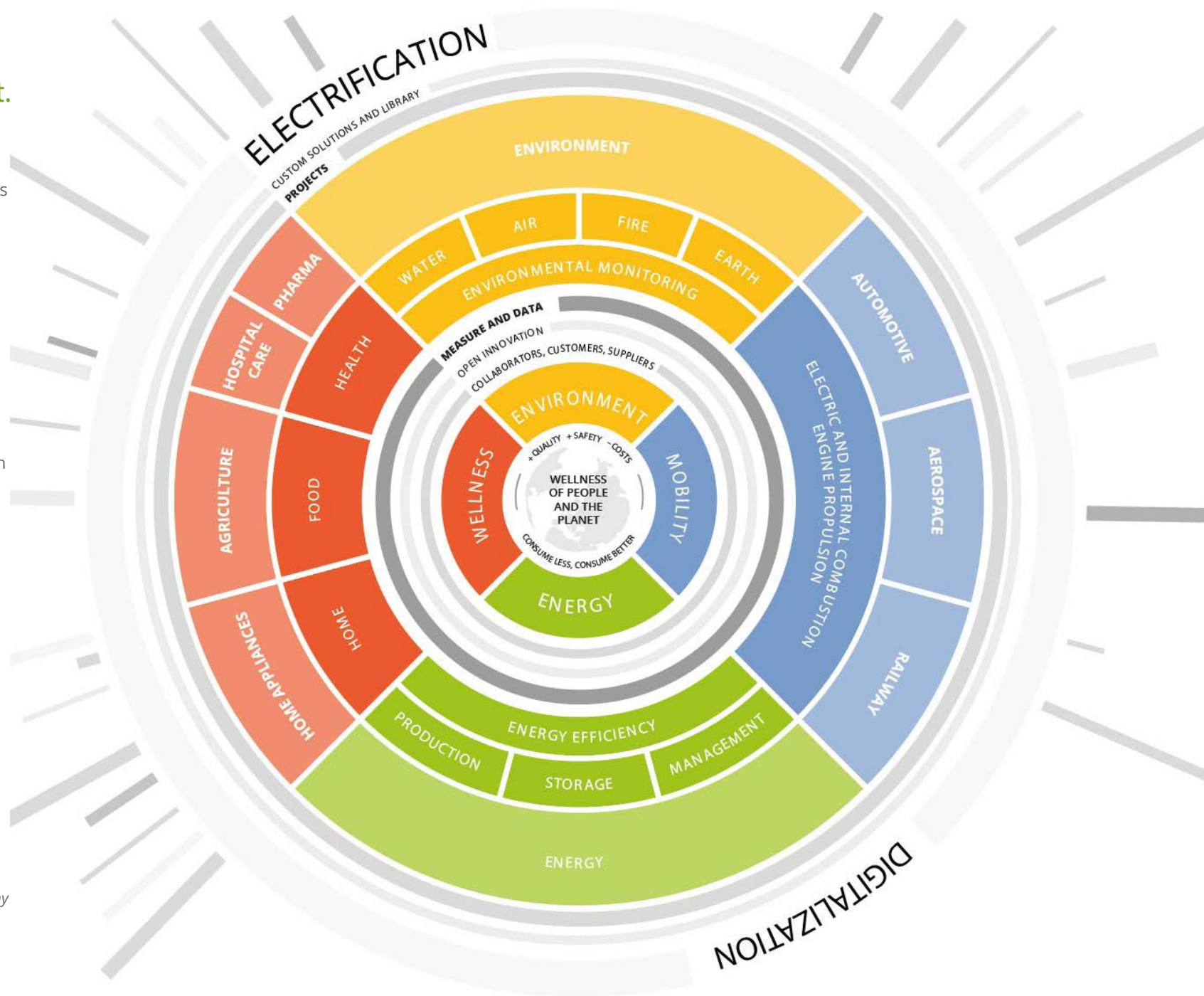
Loccioni is a family-company based in the Marche hinterland, whose cultural roots lie in the Benedictine and farmers tradition, whose values the company preserves and foster.

The Loccioni mission, is to improve the wellbeing of people and the planet. It means contributing to consume less and better, to improve the quality, safety and sustainability of industrial products and processes.

From aerospace to medical, from agriculture to mobility, passing through the home, energy and environment, each technological project, fueled by the thrust of electrification and digitalization, is a small step towards the ecological transition.

*"In our working community the ecological transition is a path involving any aspect of the company. The goal is to restore harmony between man and nature through technology. After all we are working for this goal: to leave it a little better than we have found."*

Enrico Loccioni



# The European Green Deal

Today the whole world is talking about the need for ecological transition. Europe is indicating a **roadmap to drive** this important evolution.

**Loccioni started to work on these drivers many years ago** and **can be a witness and open lab**, having reached and measured many of these goals.

- Done in the Leaf Community
- Ongoing in the Leaf Community



# An ecological transition started 30 years ago

## 1990 Flooding of Esino river

How can a menace be transformed into a resource?



## 2005 Marche Region

Energy efficiency and consumption monitoring in the government palace



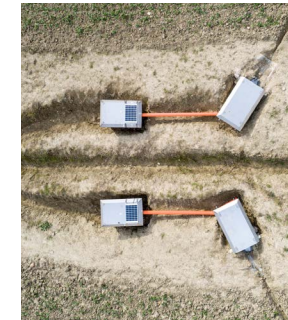
## 2008 LEAF COMMUNITY Sustainability open lab

Living, working, moving, learning at zero impact.



## 2013 LOV

An agro-technological farming project to experience the ecological transition in agriculture.



## 2019 Loccioni goes electric

The entire Loccioni's campus is powered by electricity. Zero gas and fossil energy.



Comfort

Safety

Efficiency

Sustainability

Biodiversity

Intelligence

## 1985 Comfort of people

Installation of the first air conditioning system in the open space labs: but it consumes a fortune! How to balance comfort with consumption?

## 2000 Buildings

Implementation of solutions for energy saving and consumption monitoring, to avoid any waste and increase efficiency.



## 2007 Water as a resource

The Leaf Waters, micro hydroelectric power plants supply clean energy to the company. Thanks to rain water collection and the use of ground water for irrigation, drinkable water saving reaches up to 75%.

## 2012 The river as a resource for the future

Taking care of the river's banks and the installation of micro-hydroelectric power plants have transformed the river into a resource of energy and beauty for all.



## 2014 Smart micro-grid

Storage, digitalization and smart management of energy fluxes.

## 2020 Nomadic Labs

Mobile testing rooms to perform energy absorbing tests on electric components. A new concept of energy island to be transferred to the customer.

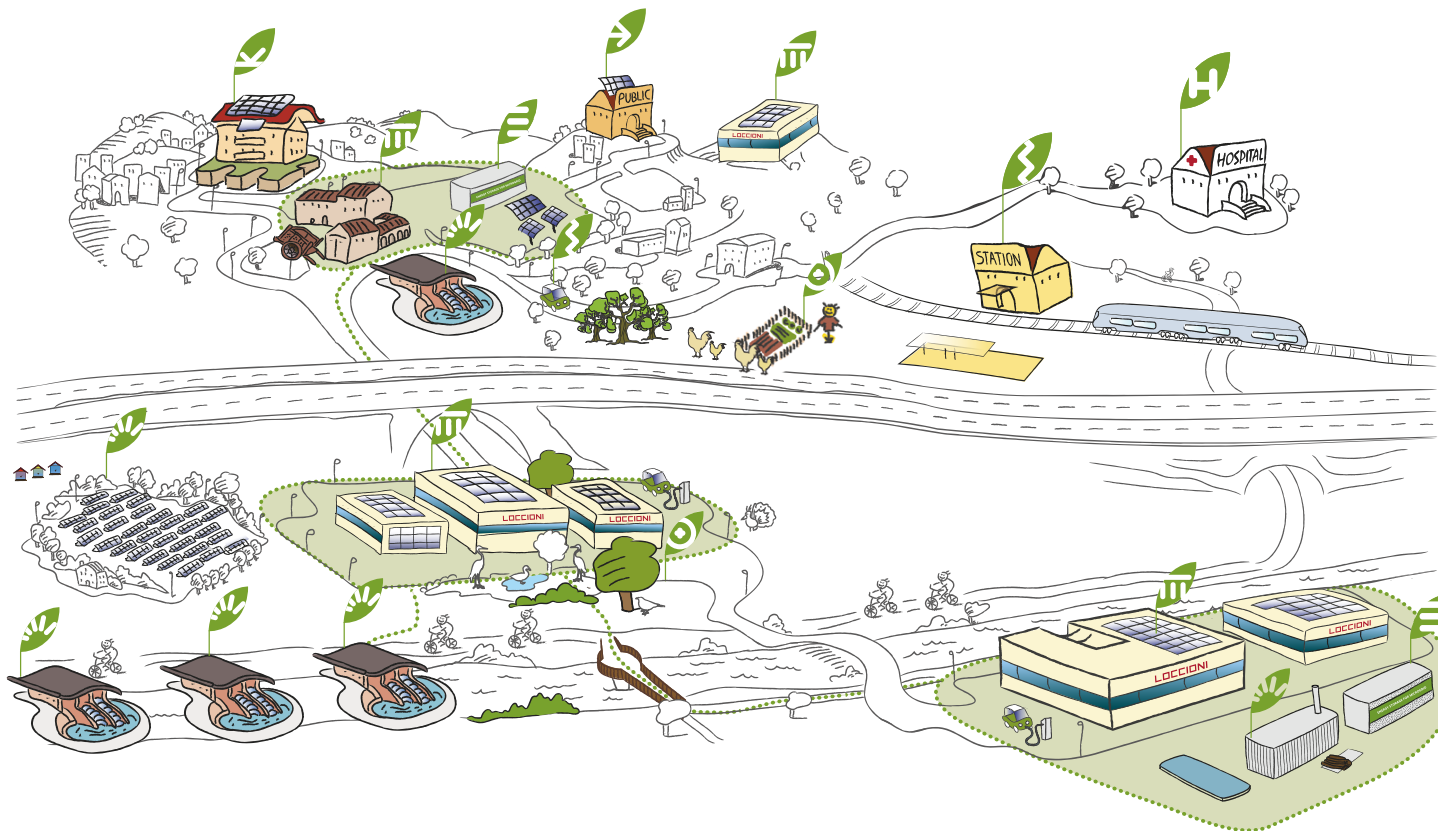




# LEAF Community

## The living lab of ecological transition

Since 2008, in Angeli di Rosora (AN), Loccioni develops the first ecosustainable community in Italy. On open air lab to demonstrate that it is possible to balance man, nature and technology.



### Agriculture

Renerative agronomic practices to capture CO<sub>2</sub>; only electric machinery; valorization of the waste to compost; tree planting to increase biodiversity and reduce the hydrogeological risk; sensorised bee hives to monitor bees and environmental health.



### Working

Loccioni's labs are example of new and renewed industrial buildings, beyond the NZeb standards. The Nomadic Labs are a new concept for testing electric components in circular-energy autonomous labs.



### Water

Hydric harvesting and saving; water consumption monitoring; water based thermic storage. Up to 75% of drinkable water saved. The river, once a problem, transformed into a resource for the company and the territory.



### Wood

The pyrogasifier produces energy by promoting the wood industry and forest maintenance.



### Home living

The Leaf House as a laboratory for zero impact living.



### Energy

Production from renewable sources (solar, hydroelectric and biomass) covers now the 60% of need and is 90% self consumed. Intelligent micro-grid, zero gas. In 2023 the goal is energy autonomy using only renewable energy produced in situ covering 100% of energy need of the company. Thermal and electric storage also powered by hydrogen.



### Mobility

Electric fleet integrated into the smart grid and used as flexible storage; second life for exhausted car batteries used as stationary storage.



### Hospital

Regional hospital in Ancona saves energy and monitors consumption.



### Recycling

Towards circular economy with the reuse and valorization of metal, paper, wood, organic waste and cultural approach to reuse and zero waste.



### Emissions

Continuous monitoring, control and CO<sub>2</sub> capture. From the energy point of view Loccioni is already zero carbon.



### Culture

Sant'Urbano Abbey as an example of cultural heritage powered by an autonomous intelligent renewable energy grid.







## The numbers of Loccioni LEAF Community

13 photovoltaic systems installed for a total of 1,870 kW  
4 Hydroelectric power plants for a total of 174 kW  
1 cogeneration power plant for 50kW  
3242 MWh of renewable energy produced in total  
3074 MWh of energy consumed  
2 electric storage for a total of 750 kW  
1 thermal storage of 450 m<sup>3</sup>  
83% self-consumed and produced renewable energy  
923 tons of CO<sub>2</sub> avoided / year  
10 electric cars in the fleet and potential storage for the grid  
14 charging stations connected to the micro-grid  
923 tons of CO<sub>2</sub> avoided.

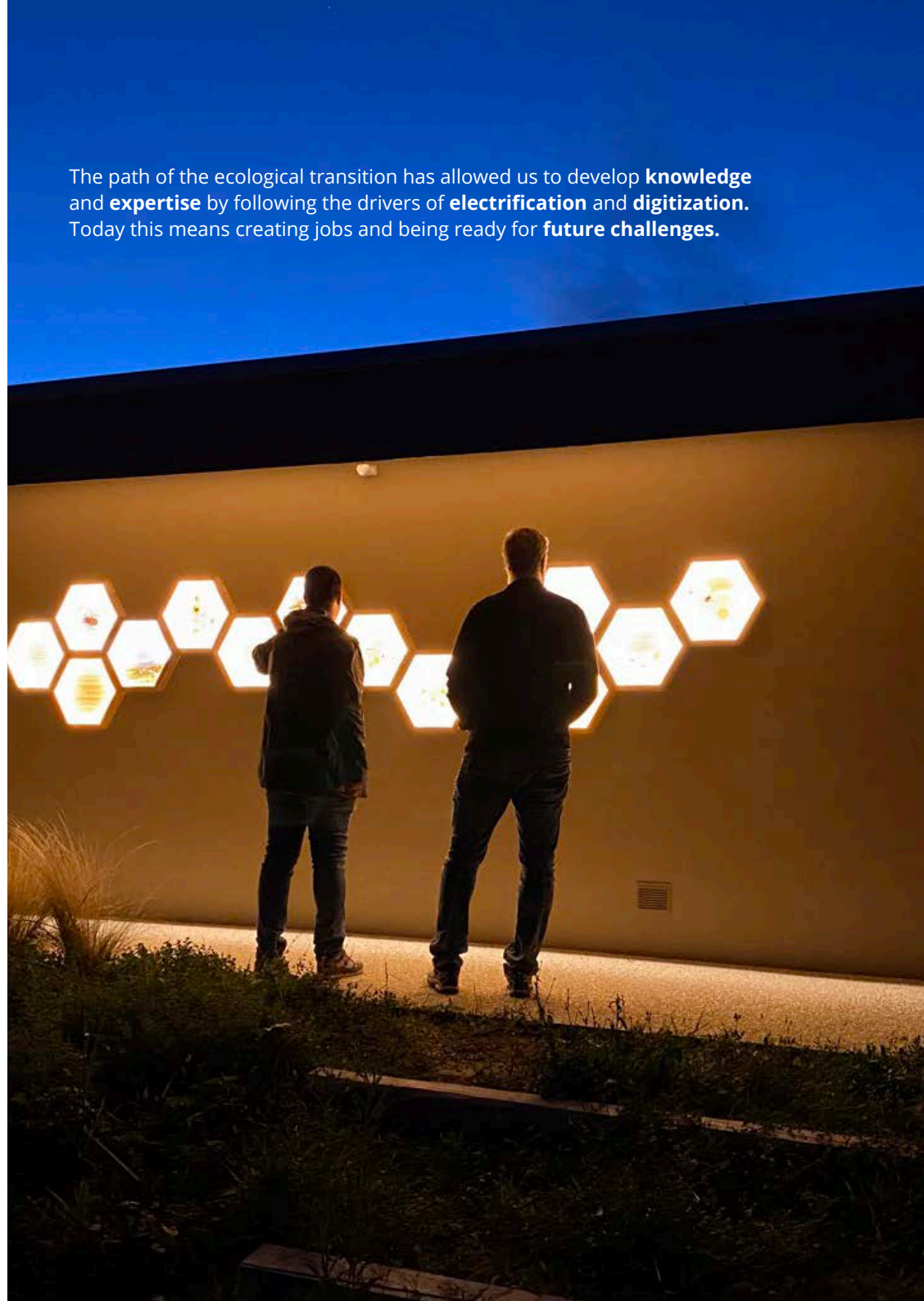
Despite the considerable increase in collaborators, new laboratories and energy-intensive tests, the energy balance remains positive. Each Loccioni employee is a "negative emitter" who absorbs 0.78 tons of CO<sub>2</sub> per year.

### Energy balance 2020

Electric energy produced and consumed in Loccioni (MWh)



The path of the ecological transition has allowed us to develop **knowledge** and **expertise** by following the drivers of **electrification** and **digitization**. Today this means creating jobs and being ready for **future challenges**.





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[Loccioni.com](http://Loccioni.com)