

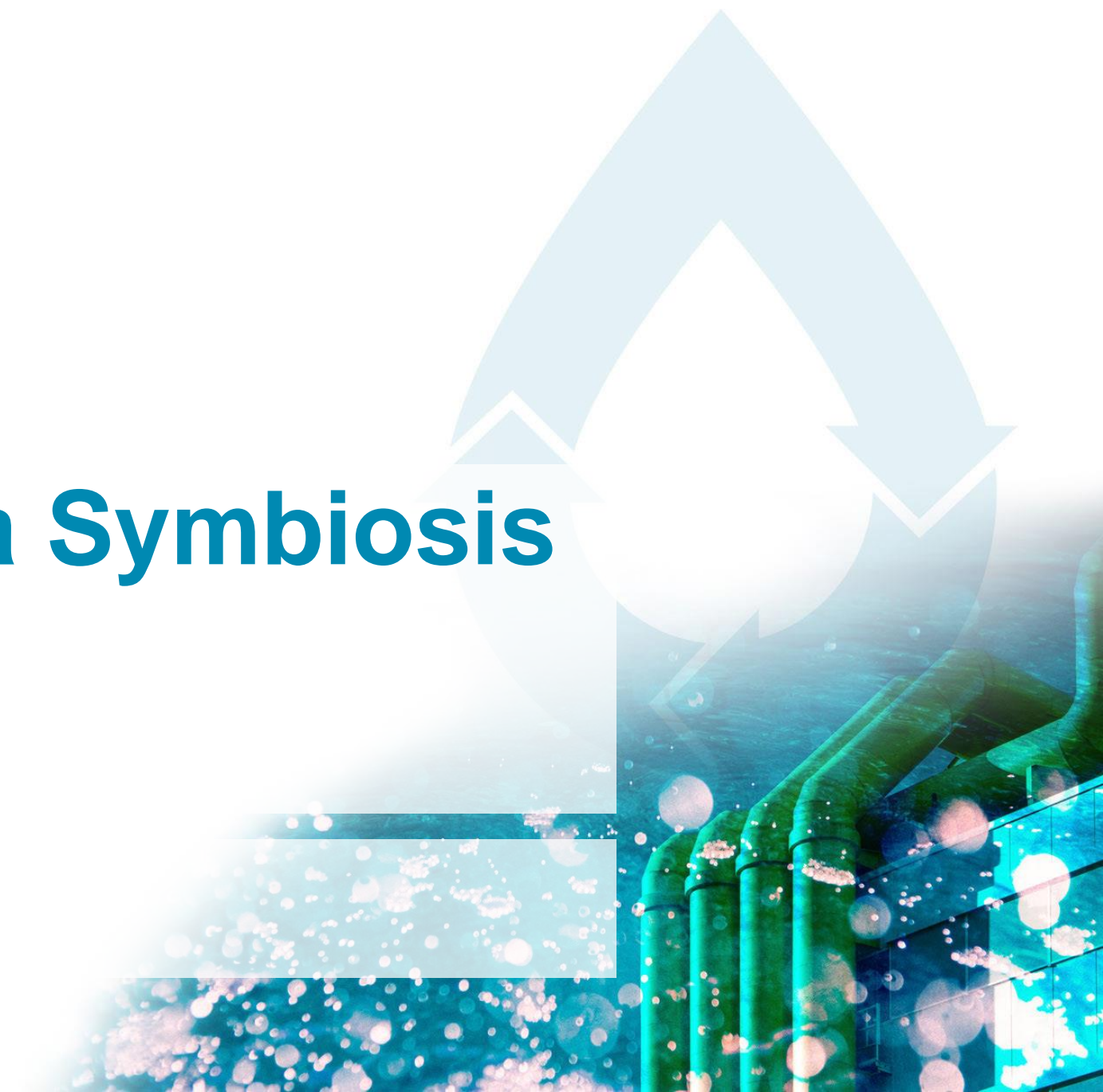
# ULTIMATE



WATER SMART INDUSTRIAL SYMBIOSIS

## CS3: The Aretusa Symbiosis

G. Pettinello – L. Bagnoni





# What is the secret of a successful symbiosis?

A **common target** between Industry, Public Authorities, Universities, Local Stakeholders

Often the target comes from a **common need**:

Water scarcity



Need to recycle and reuse water for the industry





# Solvay ONE Planet



Reduce the environmental impact of our operations at planetary scale: tackle climate & biodiversity

## CLIMATE



Accelerate the transition toward circular business and operations models

## RESOURCES



Improve the quality of life of our employees and the society at large

## BETTER LIFE

**Greenhouse gas emissions:** Align its trajectory with “well below 2°C temperature increase” (2015 Paris Agreement)

**No more coal plant and phase out coal usage in energy production:** wherever renewable alternatives exist

**Biodiversity:** reduce negative pressure on biodiversity beyond climate change: terrestrial acidification, water eutrophication, marine ecotoxicity

**Sustainable Solutions:** increase the share of revenue in Sustainable Solutions

**Circular economy:** increase the percentage of sales of products based on renewable or recycled resources

**Industrial waste:** reduce non-recoverable industrial waste (landfill or incinerated without energy recovery)

**Water use efficiency:** decrease the impact on freshwater withdrawal by reducing intake of freshwater

**Safety:** a zero accident policy aiming to protect the safety and security of employees

**Inclusion and Diversity:** Gender parity for mid-and senior-level management by 2035

**Extending maternity and paternity leave:** Solvay is adapting its global policy of 14 weeks maternity leave to 16 weeks, extending it to co-parents inside the company regardless of their gender, by 2021.

Baseline 2018

-26% (-2%/y)

Achieve 100%

30% reduction

Achieve 65% vs 50%

Achieve 15% vs 7%

30% reduction

25% reduction

Aim for zero accident

Parity vs 24%

Extension to 16 weeks (by 2021)



The project leading to this application has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 869318

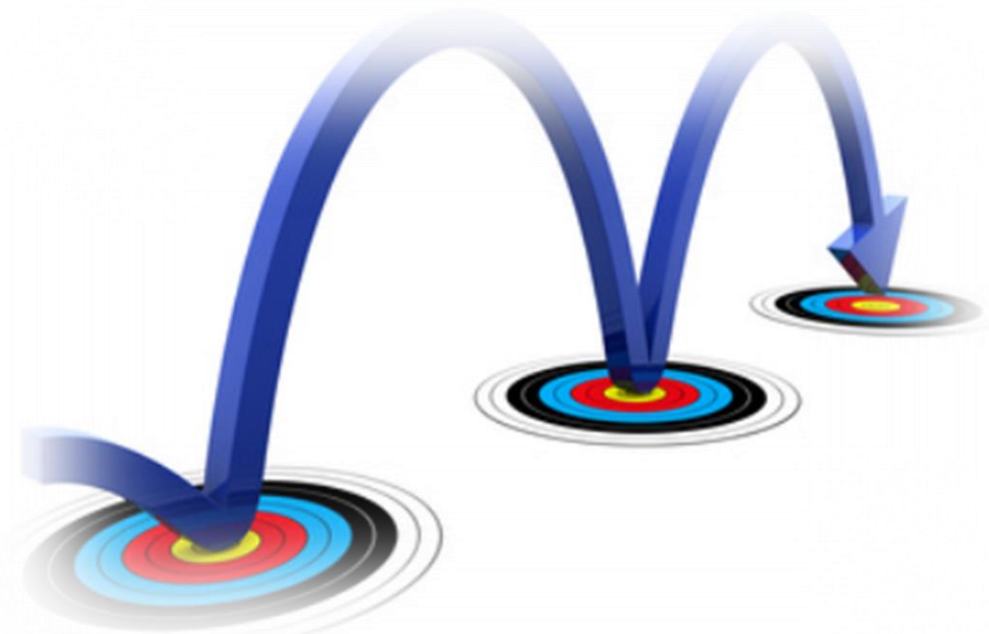


# ASA – Aretusa Commitment



## Objectives in terms of Water-Footprint reduction:

- Collaboration in the growth of water re-use by Solvay;
- Processes optimization in Aretusa WRP;
- Enhancement of digital solutions: smart monitoring and control, Early Warning System model-based;
- Collaboration in the analysis of potential replication of this system;
- Enhancement of ASA's institutional tasks as head of a more circular Integrated Water Management in the area;





# What is the secret of a successful symbiosis?

**Open communication** between the parties:

Local community, Public Authorities, stakeholders have to drive the industry towards a more sustainable footprint

**A scientific approach:**

Science and Technology are the only sensible tool to solve the environmental challenge

**Willingness to “make it happen”:**

Aretusa Consortium has been successful because of the “make it happen” approach. Ultimate is showing the willingness to go one step beyond

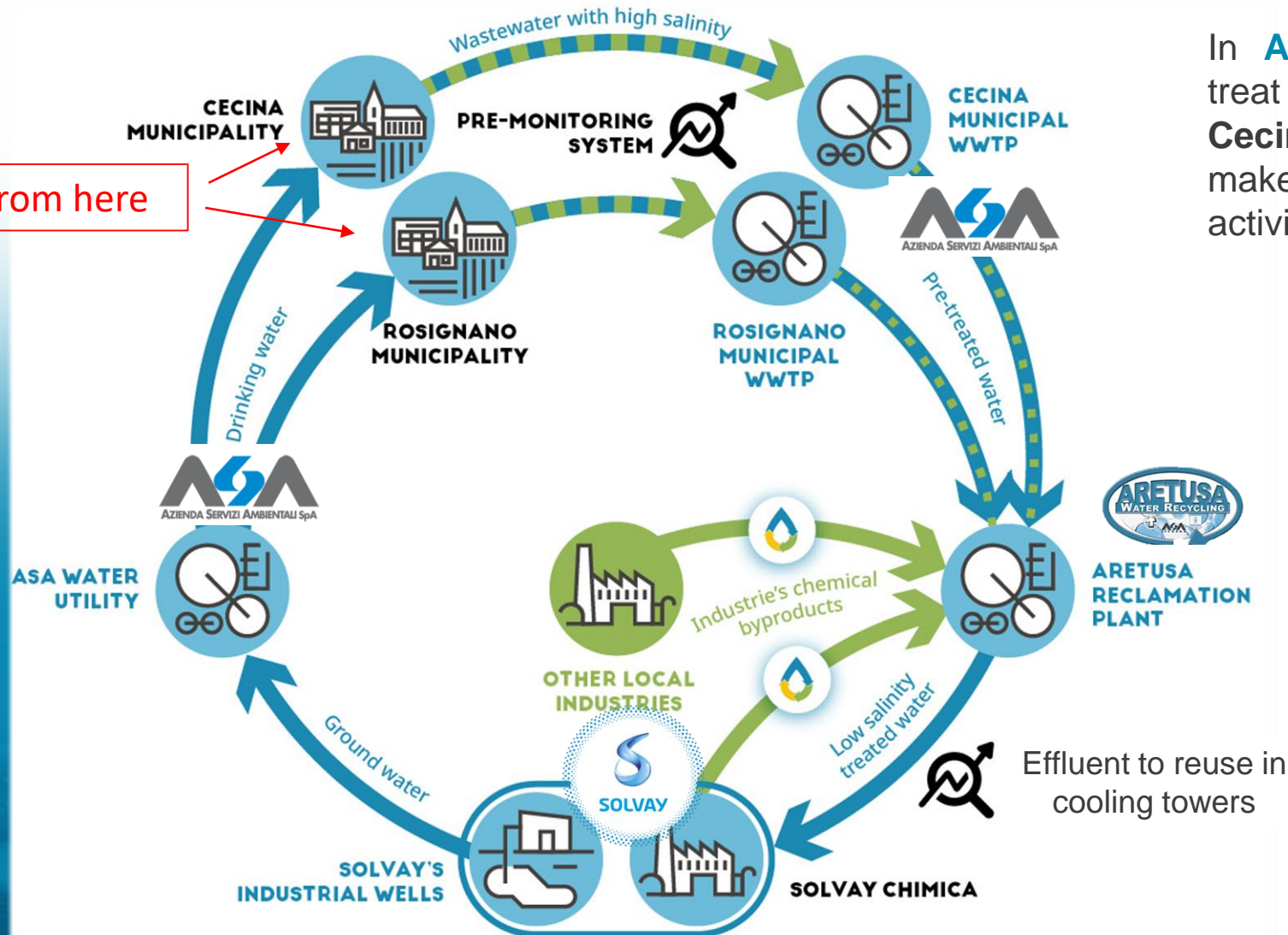






# Aretusa concept – The technical idea

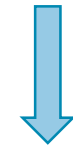
Start from here



In **ARETUSA** Water Reclamation Plant we treat the secondary effluent coming from **Cecina** and **Rosignano WWTP** plants to make it **suitable for being reused** in industrial activities.



From **ARETUSA** WRP to **Solvay** Industry



**3.5 M m3/y**



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# Ultimate – Going beyond

- Because the need to **reduce the environmental footprint** of industry has **grown** over the years
  - More social awareness of the climate change
  - Stakeholders expect the governments and the industries to act and act quickly
- Because the system can be **further optimized**
  - Improved water quality
  - Other more demanding uses within the Industry

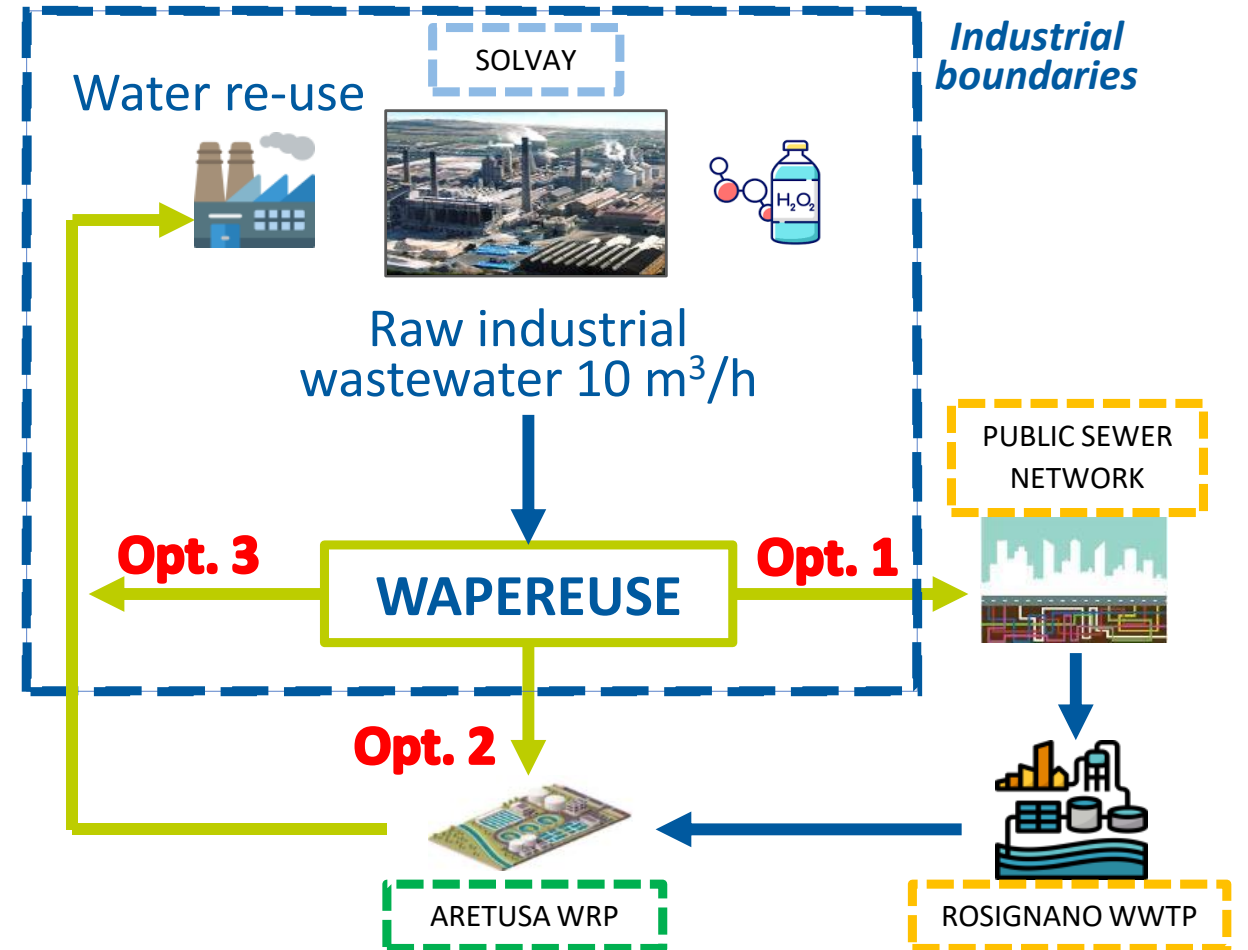
The Aretusa Water Symbiosis attracts new actors, new activities





# Aquaspice – Co Creation

- Example of building on top of Aretusa concept
- Ambitious project to build a H<sub>2</sub>O<sub>2</sub> zero effluent plant







# The lessons of Aretusa Symbiosis

Aretusa shows that the key factors for a successful symbiosis are:

- Keep **continuous dialogue** between the parties so that the needs/expectations are shared.
- Remove **prejudices**
- Listen and "**talk the same language**", not necessarily technical.
- Dedicate **adequate resources and competencies** to reach the common target





# Social learning systems

*“A tree falling makes more noise than one million trees growing”*

Solvay, ASA and UNIVPM are working to make local communities aware of water reuse concept and to look for opportunities:

- Projects of water reuse for **agricultural** use in the local district of Val di Cecina
- Meeting with local schools (ISIS Mattei 21-22 March 2022) to **stimulate young generations** to look at the territory with its critical issues as **opportunity** for the development of new ideas and businesses

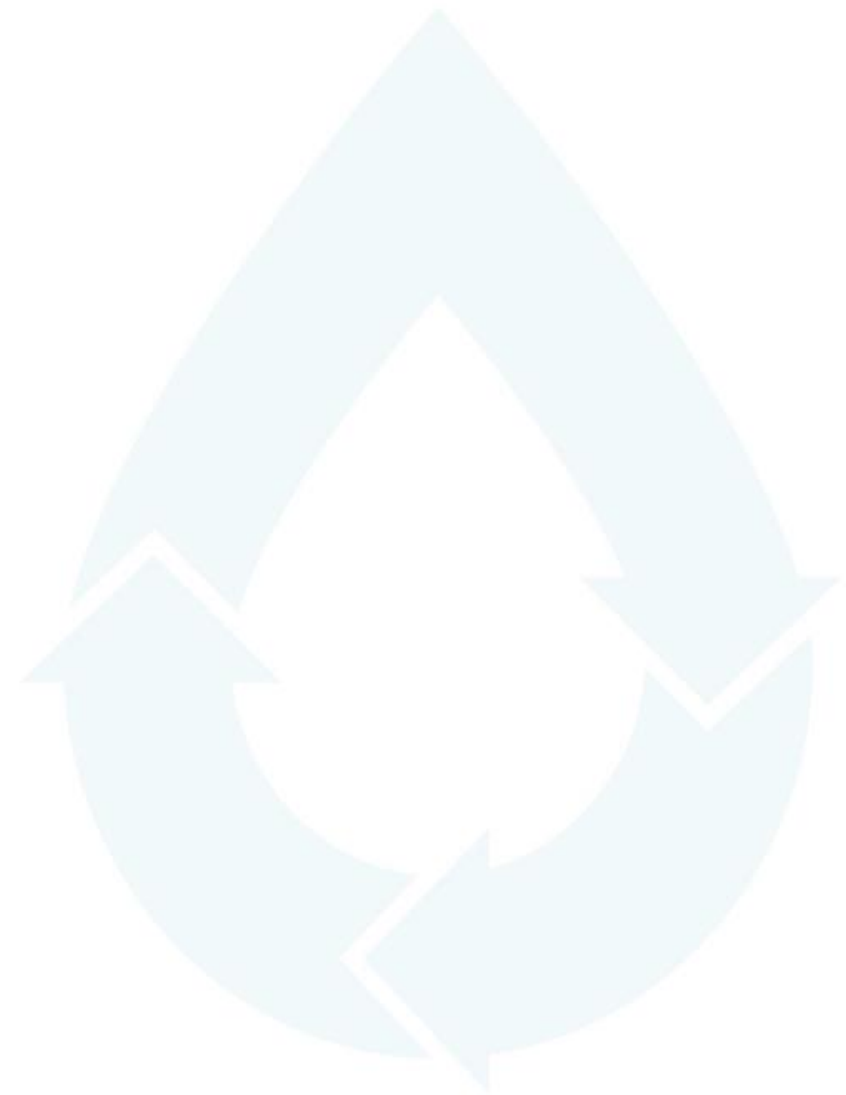




WATER SMART INDUSTRIAL SYMBIOSIS

## Contact

lorenzo.bagnoni@solvay.com



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