

ASSIST

Smart valves based on active soft materials

Project results and exploitation perspectives

ONLINE EVENT

15 October 2021 14:30 (CET)

Funded by

Fondazione
CARIPL0



Regione
Lombardia

Partners



UNIVERSITÀ
DEGLI STUDI
DI MILANO



Fondazione
Politecnico
di Milano



POLITECNICO
MILANO 1863



WELCOME AND INTRODUCTION Paolo Milani, Università degli Studi di Milano



CHALLENGES IN MEDICAL TECHNOLOGIES FOR HOME HEALTHCARE



The **demand for home healthcare** is boosted by:

- **aging** of world population
- increase in **disabling health conditions** caused by chronic diseases (e.g. obesity and diabetes)



Development of **fluidic medical technologies** able to:

- enhance **functioning** and **autonomy** in home healthcare practices
- promote **flexibility to patients** with small size-machines



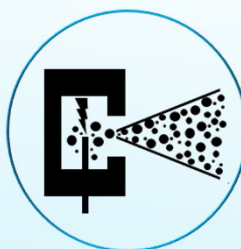
Delay in **technical evolution** towards **market's needs**:

- use of **complex fluidic circuits** and electronics
- **miniaturization** and **power savings** limited by the use of traditional bulky technology
- lack of **fluid control integration** in pumps moving parts and valves

ASSIST – SMART VALVES BASED ON ACTIVE SOFT MATERIALS



Realization of an **industrial process** for the fabrication of **innovative smart valves** with **embedded pressure sensors** based on **active soft nanocomposite materials**



Key **enabling technology**:

Supersonic Cluster Beam Implantation (SCBI)

High-sensitivity strain gauges based on **polymer/metal nanocomposites**



Portable smart valves providing **high flow**, **precise fluid control** and **miniaturization** at sustainable costs



Capacity building:

Industrial research through **knowledge exchange**

High-level **inter-sectorial** and **inter-disciplinary research and training**