

INJECTION MOULDING REPURPOSING FOR MEDICAL SUPPLIES ENABLED BY ADDITIVE MANUFACTURING

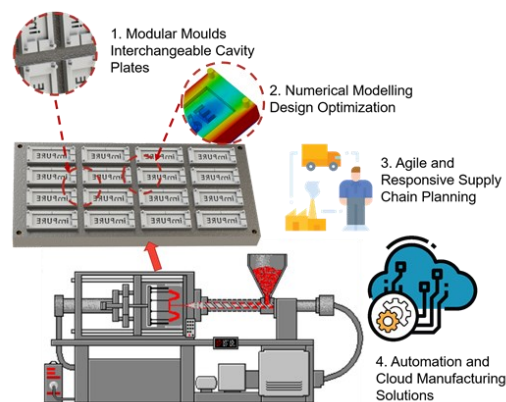


New European Horizon 2020 Innovation action project launched on innovative and rapid health-related approaches to respond to COVID-19

In 2020 **imPURE** project (Injection Moulding Repurposing for Medical Supplies Enabled by Additive Manufacturing) has been approved aiming to repurpose injection moulding lines, by integrating modular moulds with interchangeable cavity plates, in order to meet the urgent needs of our societies for vital medical supplies and equipment.

imPURE is funded by Horizon 2020 (Budget of ~7 million €). It started on December 1st, 2020 and will last for 18 months. The Coordinator of **imPURE** is Prof. Costas A. Charitidis, director of R-NanoLab, part of the School of Chemical Engineering of the National Technical University of Athens.

The modern world is fast-evolving, interconnected and highly mobile, thus facing a significant challenge in harmonizing risk mitigation measures against emerging biological hazards. The delay in imposing risk mitigation measures is crucial and can make the difference between a local outbreak of a disease with few cases and its evolution to a **pandemic** with countless sick and deceased citizens, as severely demonstrated by the recent outbreak of **Coronavirus disease 2019 (COVID-19)**. It is



of paramount importance that appropriate and proportionate measures to each phase of the pandemic are immediately implemented to interrupt human-to-human transmission chains, prevent further spread and reduce the intensity of COVID-19 outbreak. Immediate activation of national emergency response mechanisms and pandemic preparedness plans to ensure containment and mitigation of COVID-19, with non-pharmaceutical public health measures is critical for delaying transmission or decreasing the peak of the outbreak, in order to allow healthcare systems to prepare and cope with an increased influx of patients. However, **shortages** and other gaps in the global **medical supply chain** represent a mismatch of supply and demand when supply is low and/or demand is high for particular items. With healthcare workers and other first responders feeling the impact of supply chains disrupted by unprecedented challenges, many large and small businesses external to the traditional healthcare procurement system are reconfiguring their procedures to **mass production of critical medical consumables**. In order to address supply shortages, particularly in medical supplies and protective equipment, some countries have employed less traditional instruments. Correspondingly, **imPURE's** concept is based on the **development of modular moulds** for the repurposing of **injection moulding lines**. Numerical modelling, process and mould design optimization will be also considered, together with Cloud Manufacturing and **Automation technologies**.

imPURE consortium is complementary, including 4 industries, 5 research institutes, 9 SMEs and 1 Hospital from Greece. The geographical position of the partners is strategical; Italy has been selected as the centre of most activities, including an industrial injection moulding line that will be repurposed, a medical device manufacturer, as well as partners that can support the supply chain needs and the distribution network.