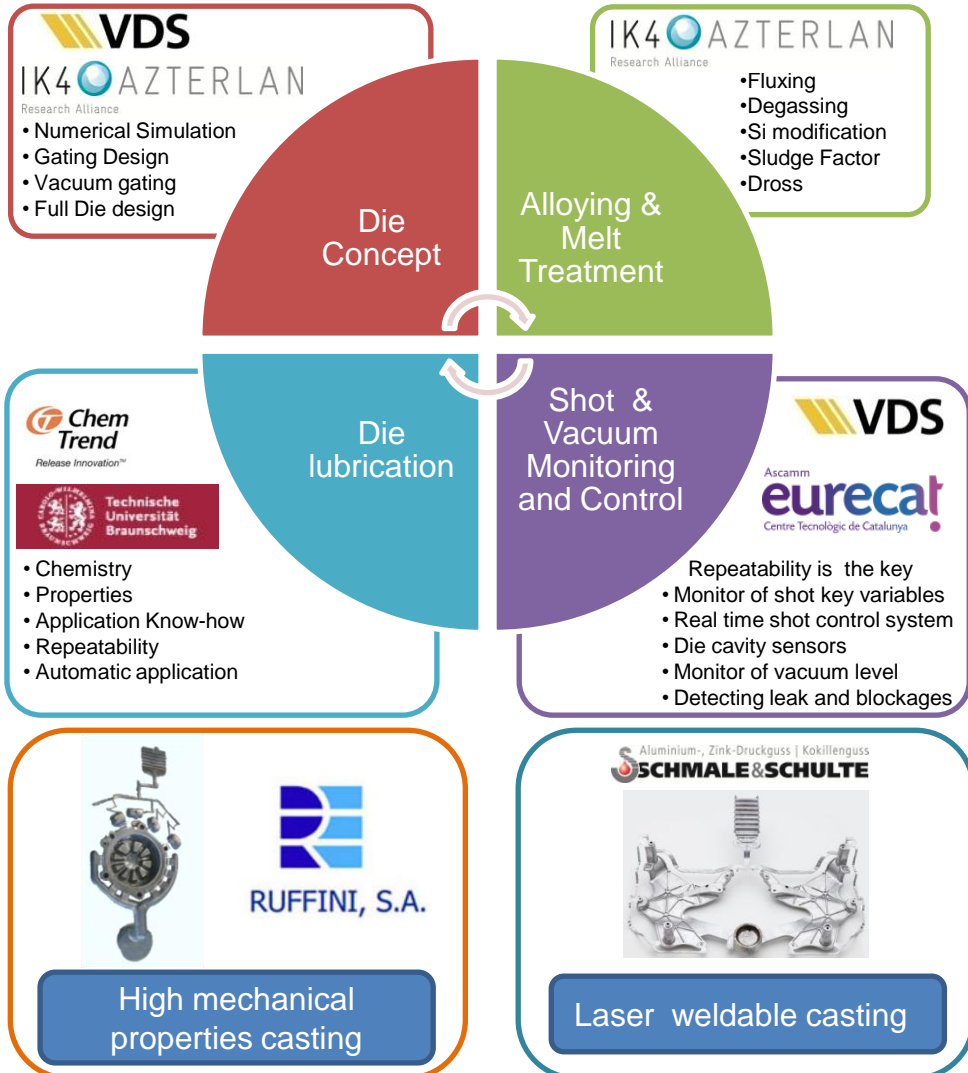


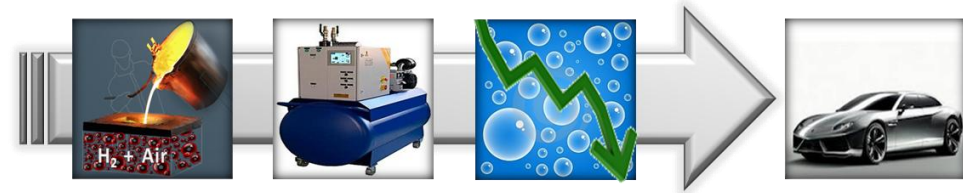
## Soundcast Consortium (last phase of the project)

### Successful factors for vacuum-assisted HPDC

It is not just to apply vacuum: it is a combination of technologies, know-hows and quality checks.



# SOUNDCAST



## SOUNDCAST

### VACUUM-ASSISTED HIGH PRESSURE DIE CASTINGS WITH REDUCED POROSITY AT LOW COST

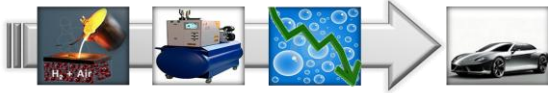


<http://www.soundcastproject.eu/>

(afernandez@azterlan.es)

"The research leading to these results has received funding from the European Union's Seventh Framework Programme managed by REA-Research Executive Agency <http://ec.europa.eu/research/rea> (FP7/2001/2013) under grant agreement N°315506.

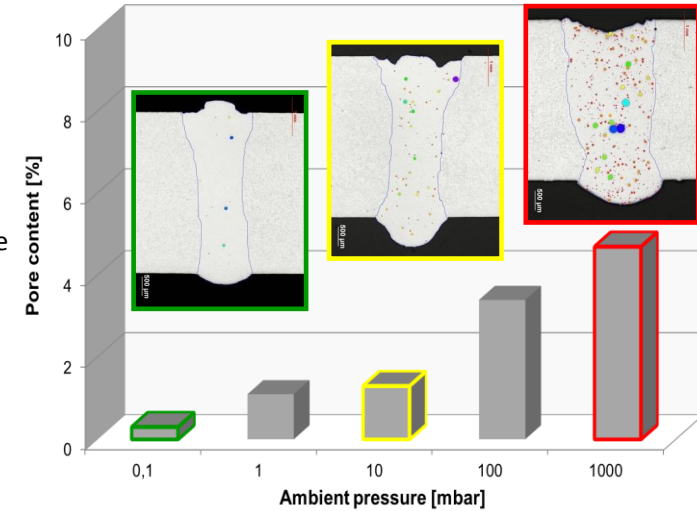
# SOUNDCAST



## MAIN EXPECTED RESULTS

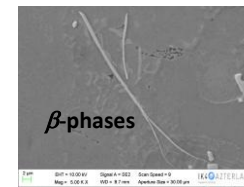
### New welding process.

Challenge: Develop economical laser beam welding technique at reduced pressure reliable to weld aluminum die-casting.

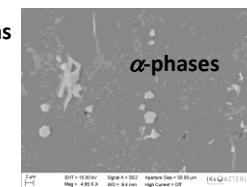


### Formulation of a new recycled alloy with high ductility (0.6 % Fe)

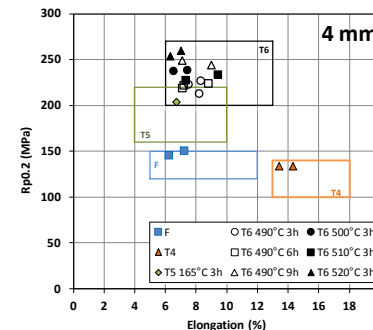
The aim is to substitute the AlSi10MnMg primary alloys with high Mn content by less expensive secondary alloys with high Fe content and moderate Mn content and to reduce die solder due to the higher Fe content.



Microadditions of Mn



Challenge: Convert the harmful  $\beta$  phases into a less harmful  $\alpha$  phases by microaddition.

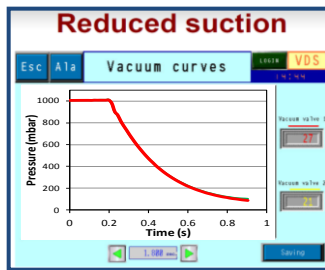


Challenge: Achieve high mechanical properties with a secondary alloy (> 0.6% Fe). High mechanical properties within the range of ductile primary AlSi10MnMg alloy.

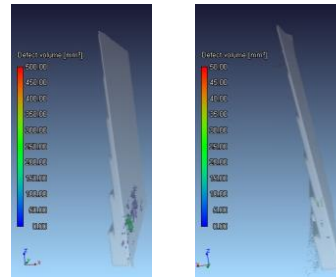
## OBJECTIVE

The aim of this project is to provide a **SOUNDCAST Technology** which allows the manufacturing of sound and weldable vacuum-assisted HPDC (VPDC) components at competitive cost by using secondary alloys with enhanced mechanical properties and to establish a VPDC control system that assures casting quality.

### High speed vacuum valves

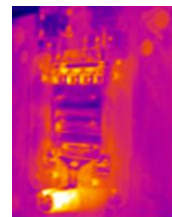


WITHOUT VACUUM WITH VACUUM



### Design of test piece & Simulation of cavity filling

A step casting is selected with thickness between 1-10 mm for evaluation of mechanical properties

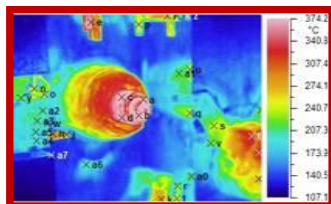


### Die lubrication



Development of new die casting lubricants to achieve optimum die lubrication

BEFORE



AFTER

