

"SME Supply Chain Integration for Enhanced Fully Customisable Medical Implants, using New Biomaterials and Rapid Manufacturing Technologies, to Enhance the Quality of Life for EU Citizens"

Integrated Project for SME's, coordinated by



Project Final Results

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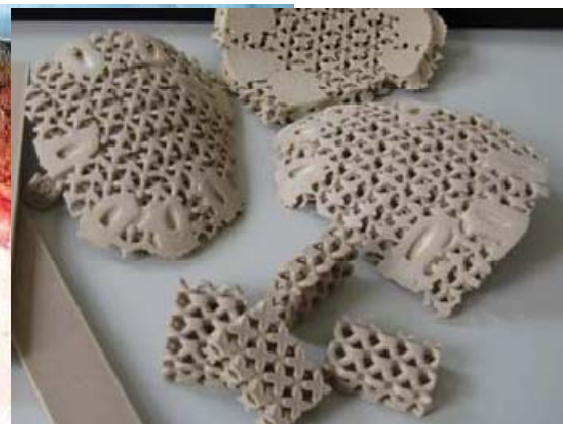
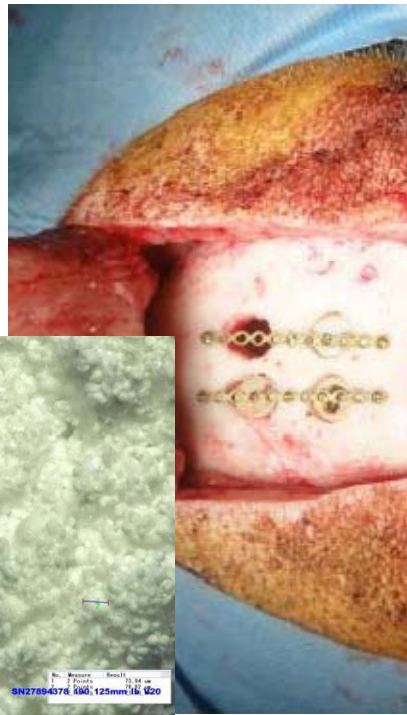
Public meeting
Jan 21 2011 Barcelona

Outline

- **Overview**
- **TRL level approach**
- **Conclusions**

Overview

- Good progress after four years
- All demo's present and on the table:
“show of multiple demonstrators”



TRL level approach

Programme phase	MCRL	State of development
Phase 3 Production implementation	9	Fully production capable process qualified on full range of parts over extended period (all Business Case metrics achieved)
	8	Fully production capable (FAIR Stage 2) process qualified on full range of parts over significant run lengths
	7	Capability and rate confirmed (FAIR Stage 1 without concessions) via economic run lengths on production parts
Phase 2 Pre-production	6	Process optimised for capability and rate using production equipment
	5	Basic capability demonstrated using production equipment
Phase 1 Technology assessment and proving	4	Process validated in laboratory using representative development equipment
	3	Experimental proof of concept completed
	2	Applicability and validity of concept described and vetted, or demonstrated
	1	Process concept proposed with scientific foundation

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Progress per case study

- Identify / classify Custom IMD results
- Select Manufacturing related results
- Assess status 2007 and today
- Identify progress levels

Note:

Manufacturing related!

Also many supporting/underlying deliverables
(Eco, Sterilization, E-supply chain, Training ...)

Progress per case study: Cranial **C**

PEEK frame sintering:

2007: PEEK available, no PEEK AM machine (EOS)

2011: Working PEEK AM machine on the market

TRL level progress: from **3** to **6** (proc. opt. use prod eq.)



Supra B material infiltration:

2007: SupraB available (unfilled type)

2011: Tailored TCP filled SupraB compound can be infiltrated in frame using tool

TRL level progress: from **2** to **4** (lab proto)

Progress per case study: Dental **D**

Ceramics SLM process:

2007: Process not available, concept proposed (ILT)

2011: Working Ceramics SLM machine in lab

TRL level progress: from **1** to **4** (proc. valid. use dev. eq.)

Ceramics material for SLM:

2007: No material available, some good thoughts

2011: Tailored Al-Zr compound can be SLM-ed,
processing powder on lab scale (printing slurries)

TRL level progress: from **1** to **3 - 4** (proof lab proto)



Progress per case study: Spinal **S**

Process via Rapid Tooling (Moulding):

2007: Process RT available, concept demonstrated

2011: Final tooling made and running

TRL level progress: from **5** to **6** (proc. opt. use prod. eq.)

PU material:

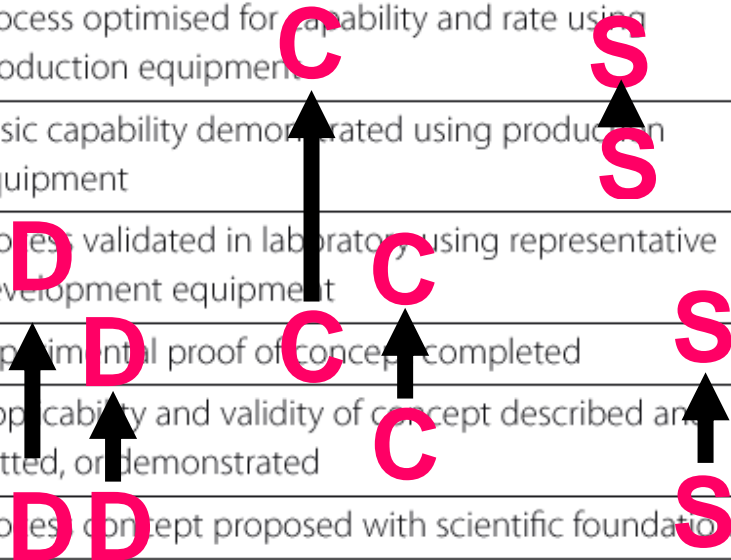
2007: No material available, requirements known

2011: Tailored PU compound synthesized (RAPRA) on
lab scale

TRL level progress: from **1** to **3-4** (proof of concept)

TRL level approach Results

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Conclusion

- Overall progress in TRL is very good
- All in Phase 1 = precompetitive
- Further steps are needed to get to next Phases
Industrialisation/development + investments
- Demo parts are key! (+ available for marketing results)
- Have a look at the expo table!