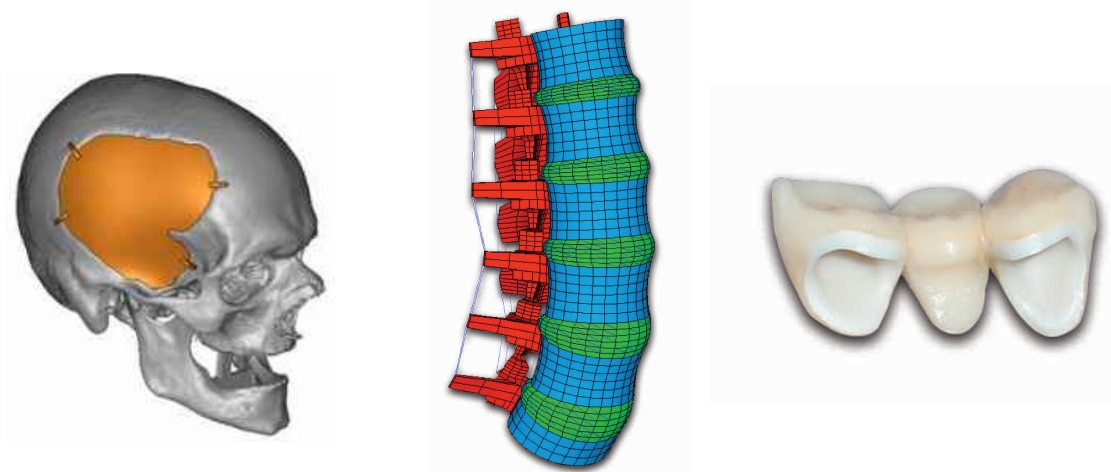


Customised Implants in 48h

The 2010 industry paradigm will be that surgeons implant customised medical devices that have been designed, manufactured, sterilised and delivered within a 48 hours time frame to fit the specific needs and characteristics of each patient. The Custom-IMD Project, integrated within the European Commission's 6th Framework programme seeks to achieve this goal by creating a synergism between 23 partners from 7 European countries, starting in February 2007. The total project budget is 10⁶ million.











The main goal of the Custom-IMD project is to produce customised implants in 48 hours, focusing on three case studies: a craniofacial bone plate, a lumbar intervertebral disc, and dental restorations. This means of course, meeting medical regulatory standards and creating a viable e-supply chain which will allow for the implementation of the entire implant cycle.



Activities within the project will begin by developing innovative biomaterials and enhancing rapid manufacturing technologies in order to be able to combine the two, achieving targeted material properties and abiding to the timeframe. Work has begun in parallel on the integration of a medically certified e-supply chain which will manage: confidential patient data, material supply, implant design and manufacture, sterilisation and certification. Finally, creative implant designs which fully exploit the enormous flexibility of rapid manufacturing technologies are being developed.

The Custom-IMD project results will increase patient quality of life, benefiting the European Community as a whole including a 20% reduction in Healthcare costs, improved efficiency and greater added value.

Partners	Description	Activity within the project
	Research Centre: new and innovative technologies. Plastics, metal, R&D, training. www.ascamm.com	E-supply chain functional integration / rapid tooling and Cax, Research for spinal implants.
	High-tech neurosurgical implants. www.neosurgery.com	Lumbar Spinal Implant design and development. Exploitation and Dissemination issues. Regulatory Support.
	Regenerative medicine and connective tissue engineering. www.progentix.com	Development and optimisation of osteo-inductive materials for 3D printing. Support for design of craniofacial plates.
	Customer-specific, high-tech fibre-reinforced biomaterials. www.icotec.com	Continuous fibre-reinforced materials for indirect rapid manufacturing. Integration into e-supply chain.
	Polymer Research, development and processing. www.aimplas.es	Indirect Manufacturing. Compounding. Processability testing. Materials characterisation.
	Biomechanical research. www.ibv.org	Animal testing. Design and Development of spinal disc device. Biomechanical testing of prototypes. In vitro cadaveric testing.
	High-tech software. www.materialise.com	Optimisation of implant design and engineering software. Surgical planning software. Supply chain integration, interface with hospitals.
	Degradable medical implants: dental and orthopaedic. www.degradable.ch	Development of high-strength bioresorbable materials. Innovative coatings to enhance adhesion. Sterilisation studies.
	Supplier of dentistry materials and devices for the dental technician. www.bego.com	Development of a Dental Restoration framework: requirements, manufacturing and testing.
	Technology platform of supramolecular polymers. www.suprapolix.com	Bioresorbable polymers with tailored degradation and mechanical behaviour.
	Manufacturer of ceramic products for various industrial applications. www.innalox.com	Development and scale-up of innovative ceramic materials. Implant design and manufacturing. Materials testing.
	Technological centre serving the productive and institutional framework. www.inasmertecnalia.com	Development of shape memory biomaterials for spinal implant design. Dissemination and technology transfer activities.
	Laser-Sintering systems for e-Manufacturing ; Rapid Prototyping, Tooling and Manufacturing. www.eos.info	Development of PEEK powder for Laser-Sintering systems. Integration of Laser-Sintering into e-supply chain.

Partners	Description	Activity within the project
	Information flow and communication solutions. www.plastia.com	Leads development of e-collaboration activities and e-supply chain platform, integration activities, e-communication and e-training.
	Innovative solutions in industrial electronics, information technology, telecommunications and process control. www.ente.com.pl	Workflow and e-supply chain software development. Automation of data flow. Data protection implementation. Supply chain integration in Eastern Europe.
	Medical consulting firm for medical, marketing and regulatory issues. www.spmcgroup.com	Leads economic, environmental and societal evaluation. Regulatory support to consortium. Dissemination and technology transfer.
	Europe's leading independent plastics specialist organisation, providing research, technology and information services. www.rapra.net	Material scoping study, regulatory support, development of supply chain protocol. Biological evaluation and materials testing.
	Dutch Research Centre. www.tno.nl	Dental ceramic development. Fused deposition modelling and 3D printing. Osteo-inductivity studies / environmental analysis.
	Laser development and laser applications. www.ilt.fraunhofer.de	Development of direct laser forming equipment and processing for dental ceramics. Analysis of samples.
	Comprehensive health care services. Cutting-edge diagnostics and integration in health-care process. www.cspt.es/webcsptangles/cimd/default.html	Data acquisition requirements. Data formatting software. Integration of health-care services in Custom-IMD e-supply chain.
	University hospital, Extensive animal testing facilities. Cranio-maxillofacial department with experience in rapid prototyping and manufacturing. www.azm.nl	Craniofacial implant design, support to Board of Directors and steering committee. Input as medical end-user. Coordination of animal studies.
	High-tech hospital involved in clinical assistance and research activities related to neurosurgical devices and materials. www.santpau.es	Design of spinal device, guidelines for Custom-IMD platform implementation in large hospitals. Microsurgical animal testing. Know-how regarding regional healthcare funding.
	Initiates and coordinates work in the field of biomedical engineering. http://mitr.p.lodz.pl/biomat/overview.html	Biomaterials sterilisation targeting enhancing properties. Toxicological and biocompatibility testing. Training and education.

EU Officer:
Ms. Agnes Kulcsár

Ethical Committee:
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Prof. Dr. Coenraad Hendriksen (Dep. Alternatives Animal Studies, University Utrecht (NL))
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Drs. Drs. Jan Meeussen (Cranio-maxillofacial surgeon, AZM (NL))
Frits Feenstra (TNO, (NL))

Goals

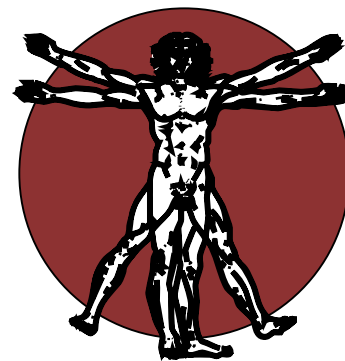
The Custom-IMD project will develop new biomaterials for innovative fully customised medical implants using enhanced rapid manufacturing technologies; achieving implant design, manufacture, sterilisation, regulatory approval and delivery to the surgeon within a 48 hour time frame. The fundamental project research areas will include:

Biomaterials	Rapid Manufacturing	Biocompatibility
E-supply chain integration	Implant Development	Extended Services
High added value	Sustainability & Eco-efficiency	

1 - Patient scanning



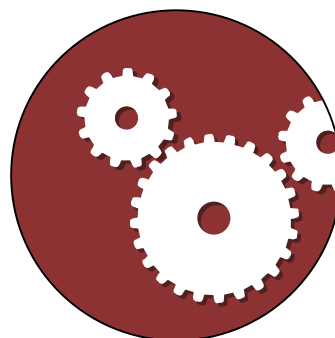
2 - Data formatting



3 - Implant development



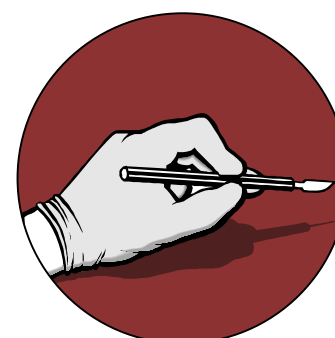
4 - Implant manufacture



5 - Logistics



6 - Implant surgery



www.customimd.eu



CUSTOM **IMD**

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



NMP (Nanotechnologies and nano-sciences, knowledge-based multifunctional materials and new production processes and devices)