RPD
Rapid Product Development
IMS Project No. 96005

- Realization of software tools for substantially improving process chains starting with physical or digital models of the product and leading to validated physical parts
- Development of technologies to rapidly produce parts with mass production materials in small or medium sized series using innovative tooling technologies.

Objectives

The vision of the proposal is to accelerate the product development within the described scope by shortening (increasing the speed) of the respective process chain, providing parts made of production materials and offering an increased flexibility in tooling technology. Two main objectives will help to reach this vision of realization of software tools for substantially improving process chains starting with physical or digital models of the product and leading to validated physical parts (see Fig. 1.1), and development of technologies to rapidly produce parts with mass production materials in small or medium sized series using innovative tooling technologies.

First time and cost estimations for typical parts of the involved end-users show that the proposed developments can contribute to a cost and time reduction in the manufacturing of prototypes or parts made of mass production materials of up to 40% (see chapter 8 for details). To let European industry take advantage of the results and potential, the third main objective is: -

- preparation of the commercialisation of the results especially for the benefit of SMEs.

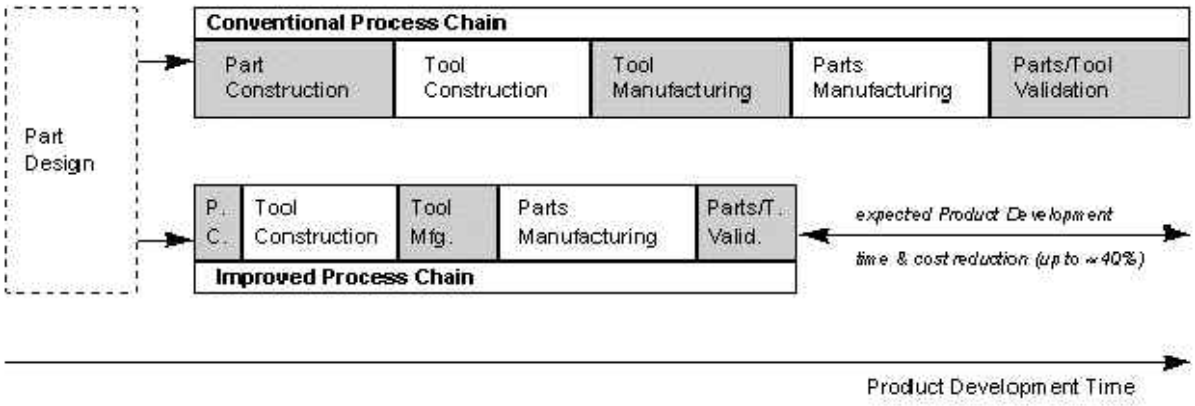

Fig. 1.1: Improved process chain

The project aims to reach the overall objectives by (see Fig. 1.2):

- development of software-tools which are based on **facet models** (triangular meshes) for: -
  - reverse engineering (improved generation of facet models from point clouds)
  - tool design
  - geometric inspection of parts
  - automated tool modification according to the inspection results of parts
- generation of manufacturing tools for injection moulding of plastic parts made of powder-binder mixtures
- development of techniques for the rapid manufacturing of tools for high-temperature and high-pressure applications based on stereolithography materials
- integration of the rapid manufacturing and reverse engineering technologies into a common demonstrator to prove and quantify the specific and overall advances reached through the R&D results
- formation of a virtual enterprise offering the complete process chain as a service to European industry.

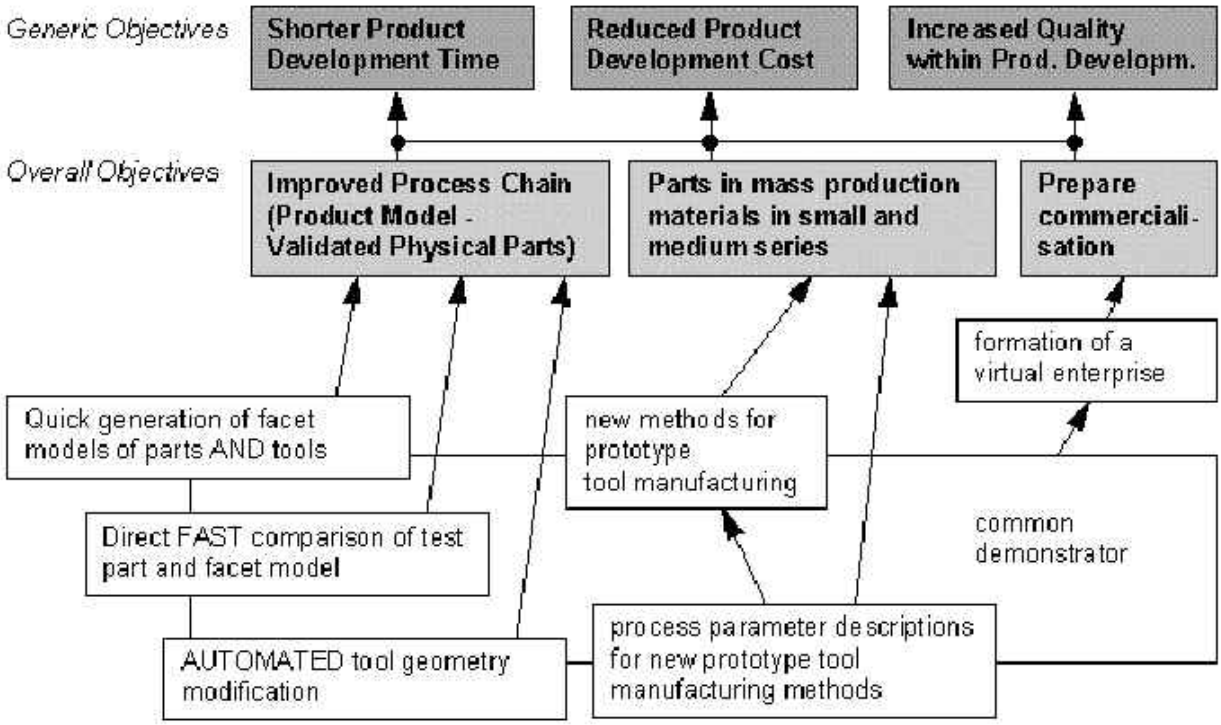

Fig. 1.2: IMS RPD objectives and their relationships

Partners

AUSTRALIA

Industrial Partners:

1. Advanced Rotomoulding Technology Pty Ltd
2. Complas Industries Pty Ltd
3. Dex Australia Pty Ltd
4. Linpac Polycast Pty Ltd
5. Seahaven Marinas Pty Ltd
6. Team Poly Pty Ltd
7. HPM Industries Pty Ltd

Research Agencies:

8. Queensland Manufacturing Institute Limited
9. University of Queensland

CANADA

10. Université de Québec, École de technlogie supérieure

EUROPE

Industrial Partners:

11. Bombardier-Rotax GmbH (BOM)
12. Daimler AG (DAG)
13. Ensinger (ENS)
14. Materialise N.V. (MAT)
15. ARRK Styles. (STY)
16. Wiba AB (WIBA)

Research Agencies:

17. De Montfort University (DEM)
18. Danish Technological Institute, Centre for Product Development (DTI)
19. Institutet för Verkstadsteknisk Forskning (IVF)
20. Fraunhofer Institute for Manufacturing Engineering and Automation (IPA)

KOREA

Industrial Partners:

21. Hyundai Motor Company (HMC)
22. Aztech Pty Ltd

Research Agencies:

23. Korea Institute of Science (KIST)
24. Korea Institute of Industrial Technology (KITECH)
25. Pusan National University (PNU)