



Project no. NMP2-CT-2004-507331

VIF-CA

Virtual Intelligent Forging - CA

Instrument: Coordination Action

Thematic Priority: NMP/IST

Publishable executive summary

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ARMINES-CEMEF

Revision [Draft]

Forging and related metal forming processes are key industrial technologies since they are required to produce economically many highly reliable parts. Over the last decades, these industrial processes have been improved through many RTD projects in materials science, mechanical engineering and more recently in numerical simulation. The goal of ViF-CA was to gather and analyse this scattered knowledge in order to solve some of today's industrial problems and to incorporate into industrial practices the recent advances in virtual production, supply chain and life-cycle management. The strategy was to create a forging knowledge community through several scientific, technological, training and educational activities. These activities were designed to :

- identify current industrial and societal needs, analyse and use the existing knowledge to solve these problems
- define, validate and use reference benchmarks for virtual process simulations and materials testing
- create an e-Forging environment
- determine the needs for material data and define a blueprint for an e-Database
- design a structure for the virtual integration of process simulations from raw materials to product design
- promote transversal educational programmes and a roadmap for an e-learning forging platform
- organise workshops for gathering the current necessary knowledge and disseminate the results of the project
- promote programmes for mobility of researchers, students and industrial staff.

The consortium gathered educational and research organisations, experts in the various scientific areas, and a large number of forging, software and IT industries from 17 European countries.

The Deliverables include :

- a list of industrial and societal needs in the field of forming and related forming activities, which can be used to construct new research projects, and to identify and meet industrial and societal goals
- projects for an e-Database and an e-learning platform, which provide blue prints in these fields
- cold and hot forming benchmarks for process simulations and materials testing, which can be used and are already used as reference cases
- an e-Book of forging, a reference document for educational or communication purposes
- a structure for a virtual supply chain and a validated test case

- pedagogical analyses for forging activities
- curricula experimented through two ViF-University one-week sessions
- a large number of seminars, workshops and conferences proceedings
- available exchange programs for students and academics

All these Deliverables have already proved useful. They are being used, and are included in current projects in the whole spectrum of activities related to forming processes.