ENGINSOFT

Newsletter

English Special Issue 2005

modeFRONTIER
the multi-objective optimization and design environment

EnginSoft promotes modeFRONTIER all over Europe

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European School of CAE Technology

NUFRIC

NUFRIC Project
A new opportunity to help find your first job in engineering

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International Conference on CAE and Computational Technologies for Industry

A great success!

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Eua4x Project
a multidisciplinary and innovative opportunity for young researchers

Key partner in Design Process Innovation

Summary

Newsletter EnginSoft English Special Issue 2005

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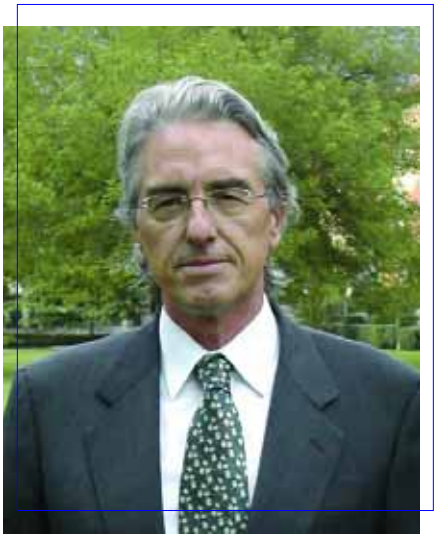
EnginSoft Flash



Ing. Stefano Odorizzi
General Manager EnginSoft

CAE, digital prototyping and computer technologies, together with their associated statistics, are tools that can make a substantial contribution to the innovation of the design process but since they impact on aspects of innovation that can be classified as 'innovations of method', it is difficult to understand their importance and contribution. In addition, these are technologies in rapid development and the players - the software houses - are continuously changing, with cross takeovers, the evolution of products for reasons that have nothing to do with the original nature of the technologies, and the disappearance or lack of stability of the smaller companies. All these factors tend to destabilise a sector that is full of valid solutions and that is certainly mature enough for systematic application in industry and among professionals.

One of the enduring characteristics of EnginSoft that distinguishes it in the market is its support of its software and services for CAE and Intelligent Digital Prototyping targeted at innovation in the design process. Here the company offers a wide-range of multi-level information programmes, training and cultural transfer activities, a context in which it has developed a range of support tools that includes:

- ongoing training (short courses, mini-masters and distance and blended learning through the TCN consortium);
- vocational and advanced and specialist training (pilot projects and the publication of original teaching materials);
- training on software technologies (over 80 courses held every year, plus in-company training);
- technology transfer (industrial research projects);
- bridging projects with universities and research institutes:
- membership of associations such as NAFEMS;
- information services (contributions to the trade and general press, Internet sites);
- organisation of conferences and seminars such as TCN-CAE;
- participation in both private international networks (TechNet and TCN network), and those organised in an EU context (EUA4X, Autosim, ect.)

The EnginSoft newsletter gives periodic summaries of all these product support activites. This issue is a special edition published in English for events promoting EnginSoft's characteristic role in disseminating culture and knowledge among CAE and iDP users. A few examples of such events are: the European Atelier for Engineering and Computational Sciences, the Technet Spring Meeting, some pilot training projects, , the TCN network, the distance learning and distance engineering portals, the 'Computational Knowledge Meets Evolutionary Economics' workshop and the TCN-CAE 2005 conference.
These ideas are suggested to the reader with the sole intention of painting the cultural background to EnginSoft's activities (and, in a wider sense, of the network in which it operates), a culture which lies behind the company's certainty of being industry's partner of choice in the innovation of the design process.

Stefano Odorizzi

TCN CAE 2005 International Conference on CAE and Computational Technologies for Industry

The splendid, newly-restored 15th century Convento di San Domenico Fuori le Mura in Lecce was the venue of the annual TCN-CAE international conference.
Once again this year, the event was a great success as it continued the tradition of earlier conferences in bringing together the academic world of universities and research and that of industry in the field of computational technologies, a sector in which the role of knowledge is ever more fundamental to innovation.
First of all, the event's numbers speak for themselves: 217 works accepted by the Scientific Committee, over 30 posters displayed on the cloister walls, four workshops and five parallel sessions for the presentations that took place over the four days of the conference.
But, beyond the numbers, the event was really noteworthy both in terms of its substance and quality.

The debates and introductory and plenary sessions featured speakers of the calibre of Xiao-Bo Chen of Boureau Veritas, Carlo Bottasso from the Politecnico di Milano, Daniel Benoualid from the Hutchinson Research Centre, Peter Wriggers from Hanover University, Patrick LeTallec from Ecole Polytechnique di Palaiseau, Christian Bucher from Weimar University, Hubert Lobo from Matereality LLC New York, Solke Bruin from Eindhoven University and Maurizio Angelillo from Salerno University.

The conference also enjoyed a particularly strong attendance of international delegates representing a range of industrial sectors in countries with different traditions, including the ex Soviet Union, the United States, Japan and European countries.
The themes covered at the conference were dealt with from the perspective of business value, and this stimulated debate that was of real use to all those involved. The topics included those classics of numerical and computational methods, computational solid and fluid mechanics, multi-physics, structural dynamics and flexible multibody dynamics, crashworthiness and impact engineering, multidisciplinary optimization, mesh generation and CAD/CAE integration. To these were added the less usual or more recent areas of computational bioengineering, food engineering, food rheology and structure, robust design and reliability analysis, the integrated applications for work flow management, results summary and presentation and decision making. Space was also given over to the discussion of permanent training and knowledge capture in differing industrial contexts.
The backbone of the conference was provided by the five main sessions on current and future scenarios in computational mechanics, multi-objective and multidisciplinary optimisation, process simulation (food and agriculture), computational material science, and computational medicine and Biotechnology. These sessions were flanked by those in parallel on enabling technologies, both for differing industrial sectors (automotive, aerospace, shipbuilding and off-shore household appliances, etc.) and method categories (combustion, energy, industrial processes, acoustics and noise, materials, integration environments, etc.).

The participants at the conference also greatly appreciated its setting, with its warmth of Italian hospitality, which took the form of an exuberance of sound and colour, and a wealth and freshness in its culinary offerings, and the attention given to art, the unquestioned occasion and vehicle of culture. The only off note was the rain that somewhat veiled the beauty of the townscapes with their contrasts between the warm white of the local stone used in the town's baroque architecture and the usually deep Mediterranean blue of the sky.
The event will remain a wonderful memory for many, and a good reason for attending a similar conference in the future.

TCN expands with Network

Network TCN is the new brand name that guarantees quality in the field of numerical simulation and its applications.

Network TCN expands the TCN consortium's activities through the creation of a network of highly qualified participants who represent both users and suppliers of training and education in the field of numerical simulation. These players all have the same rights as those of the founders of the consortium apart, of course, from a participation in its capital and consequent membership of its governing bodies.

The objectives of Network TCN is to establish itself as a brand and as a guarantee of quality in the field of numerical simulation and its applications, both for its members and for various activities in this sector.

Members of the Network abide by a contract that gives them the following mutual benefits and rights:

- use of the brand name;
- receive regular information on the activities of the consortium and the network;
- enjoy privileged access to TCN training and education programmes;
- use of TCN resources and personnel (including teaching resources) for their own training and /or education activities;
- access to TCN for the promotion of their own training and education activities;
- request TCN to organise both training and educational activities.

New members of Network TCN

PIAGGIO (www.piaggio.it)

Gruppo Piaggio was founded in 1884 by Rinaldo Piaggio in Pontedera, Pisa, Italy. Today the company is one of the world's leading motorbike manufactures and the market leader in Europe, with sales in excess of Euro 1.5 billion. The group is controlled by Immsi S.p.A., an industrial and services holding company quoted on the Milan stock exchange and chaired by Piaggio's Chairman Roberto Colaninno (Rocco Sabelli is the Managing Director). Following the merger with Gruppo Aprilia, finalised on 30 December 2004, Piaggio is numbered among the top four global players in its market. The key numbers are:

- consolidated leadership in the European market with a 24% market share at the end of 2004 (35% share in Italy) and a dominant position in the scooter and 50 cc sectors (40% of the European market and 48% in Italy;
- A production capacity of 600,000 vehicles a year in the two and three wheel sectors, and in four wheel commercial vehicles;
- Seven production plants, four in Italy and three abroad, in India, Spain and the People's Republic of China;
- Six research and development centres;
- 6,000 employees worldwide;
- distribution in over 50 countries;
- a wide network of associated companies, importers and dealers.

The group's products include scooters, motorbikes and mopeds from 50 cc to over 1000 cc, with the Piaggio, Vespa, Gilera, Derbi, Aprilia, Guzzi, Scarabeo and Laverda brands. The group also produces ranges of light three and four wheel commercial vehicles under the Ape, Porter and Quargo brands. Engines also represent a significant group activity with the production and marketing of high technology, high performance and environmentally friendly engines that span the 50 cc to 1000 cc segments and find applications in mopeds, scooters, motorbikes, minibikes, go karts and commercial vehicles..

In over 120 years of activity, Piaggio has been involved in almost every sector of transport, from fitting out ships to building railway trains and wagons, and civil and military aviation and naval engines. More recently, the company has identified with light transport: with the creation of the Vespa in 1946, Piaggio not only anticipated the emerging needs for personal transport that continue to characterise modern society, but also launched one of the best known symbols of Italian style worldwide. The Vespa has enjoyed, and continues to enjoy, the most extraordinary commercial success with over 16 million units having been produced to date.

TCN
Tecnologie per il calcolo numerico
:: Centro Superiore di Formazione

ATA (www.ata.it)

The Associazione Tecnica della Automobile was founded in 1948 with the objective of spreading automotive know-how, developing technical awareness of automotive technology among the young and promoting cooperation between universities and automotive companies. Today the association organises numerous specialised conferences every year, events that stimulate the exchange of information and opinions among the many professionals active in the sector and representing car makers, components companies, research centres and universities. The association also publishes Ingegneria dello Autoveicolo, a journal featuring articles that range from interviews, papers written by industrial experts and in-depth theoretical pieces from the academic world. Particular attention is paid to university students because of the fundamental synergy between education and the world of work, and in this context the ATA organises company visits and conferences at universities, as well as awarding scholarships to outstanding students. The association keeps a finger on the pulse of the relationship between universities and industry by conducting an annual survey followed up by workshop at which the results and successful collaboration projects are presented. Nearly 60 years have passed since the association's creation in 1948, and it continues to renew itself in line with the evolution of technology and the market.

EUA4X Project

EUA4X. European Atelier for Engineering and Computational Sciences: a multidisciplinary and innovative opportunity for young researchers.

The kick-off meeting of the European Atelier for Engineering and Computational Sciences (EUA4X) was held on Saturday 16th April 2005 at the CRN-IAC headquarters in Viale del Politecnico, Rome.

EUA4X is a 36 month project which provides an example of a multifaceted, multidisciplinary partnership whose programme includes eight training courses, 13 authoritative training courses, four international conferences, two on-line events running in parallel with residential, workshop and summer school programmes. Given its complex structure, EUA4X is all but unique in Europe in the field of computer science and engineering training and specialisation.

The promoters and partners in the project are TCN, Tecnologie per il calcolo numerico, Centro Superiore di Formazione (of which EnginSoft is a member), the Centro di ricerca, sviluppo e studi superiori in Sardengna (CRS4), the Von Karman Instutute for Fluid Dynamics (VKI), the International Centre for Mechanical Sciences (CISM), the Istituto per le applicazioni del calcolo del Consiglio nazionale delle ricerche (IAC-CNR), the University of Utrecht (UTR), and the Centre internacional de mètodes numerics en enginyeria (CIMNE).

The original and innovative feature of the project lies above all in its series of high level, international scientific events distributed throughout Europe with a new balance between training, courses, conferences workshops and seminars.

The training is mainly targeted at young researchers to favour mobility and thus help them compare their experiences in a range of cutting-edge fields while spreading awareness of complementary and multidisciplinary approaches (a total of some 750 is expected to participate in the events). The disciplines in the programme include structural mechanics and dynamics, computational fluid dynamics, aeroacoustics, environmental sciences and materials science.

The EUA4X project has the principal objective of bridging the gap that has been created between the fast evolution of technological systems and the still untested interdisciplinary abilities of young researchers to enable them to manage complex problems and measure the results.

The events in the programme reflect a marked need of an interdisciplinary approach and flexible curricula: during the training the participants, drawn from both academia and industry, will work with a staff of experts. The advantage will come from the daily contact with high quality research work as well as the direct and continuous supervision of their research projects. Participants will be offered a series of lessons, seminars, workshops and summer schools, giving these young academics and researchers an opportunity to test and share the results of a number of research programmes, as well as to discuss innovative approaches and methodologies.

The overall programme therefore has the objective of providing the tools, abilities, methodologies and competences, combining the theory and practice of the disciplines involved and all in an international setting at a high educational, training and technical level. In addition, and with the intention of maintaining the know how gained, a virtual school or E-Atelier for scientific computing will be established, as well as an on-line forum for the definition of a new terminology in the field of automatic grid generation.

The European Atelier for Engineering and Computational Sciences is intended to be an Atelier in the strict sense of term, offering an opportunity for exchange and communication between researchers and laying the foundation for a "European scientific community".

For further information, visit: www.eua4x.net

EUA4X is a project financed by European Union Marie Curie Conferences and Training Courses. Series of Events (SCF) and Large Conferences (LCF). Contract number MSCF-CT-2004-013336: http://europa.eu.int/mariecurie-actions

2005 UPCOMING EVENTS

Large-Scale Numerical Applications to Surface and Subsurface Flow and Transport Processes
CRS4 - Pula, Italy
10-11 Nov 2005

Higher Order Discretization Methods for Computational Physics
VKI - Brussels, Belgium
14-18 Nov 2005

Simulation Methods for Membranes I: Polymeric Membranes
CRS4 - Pula, Italy
15-17 Dic 2005

For the schedule of 2006 events please visit: www.eua4x.net/atelier/event2006

EnginSoft promotes modeFRONTIER all over Europe

EnginSoft will play a key role in developing the modeFRONTIER business in Europe, and further.

From previous newsletters and events by EnginSoft, you may allready be aware of the modeFRONTIER product. This unique product for design optimization can be obtained in Italy at EnginSoft, but EnginSoft is playing a more extended role for this Italian product than this.
modeFRONTIER is a multi-objective design optimisation tool that originates from a European Community project named FRONTIER that started in 1996. One of the founding members was the University of Trieste. Once the project was completed in 1999, EnginSoft saw the potential of this product and obtained the rights to this product. For the further development a new company was founded in Trieste; this is the company we now all know as Esteco.

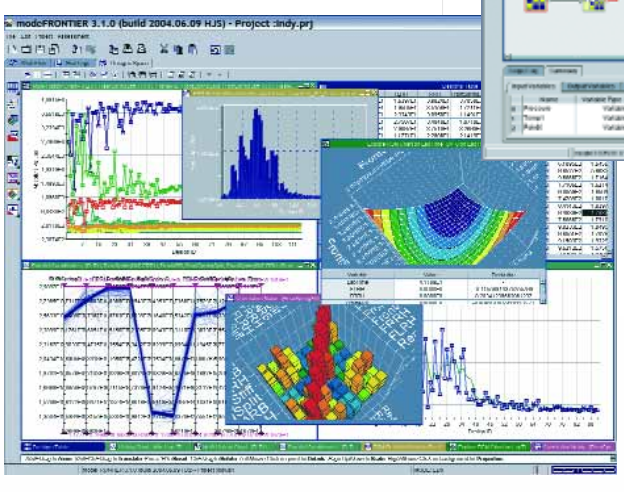
Now that the development organisation was taken care of, it was important to have a mechanism to bring this exiting new technology to potential customers. For this, EnginSoft helped build relationships with distributors abroad, which resulted in the appointment of resellers in Japan, Germany and France. EnginSoft is responsible for the sales of modeFRONTIER in Italy. This has led to a very healthy growth, reaching an installed base of over 100 licenses by the end of 2004.

To further expedite the expansion of modeFRONTIER in Eu-rope, EnginSoft has further increased its involvement in the international sales of modeFRONTIER by appointing Paul Grootendorst, as 'Business Development Manager Europe'. Mr Grootendorst has a long experience in building and maintaining resellers networks for new products. The appointment of Mr Grootendorst also marks the beginning of the division of tasks between Esteco and EnginSoft, where Esteco is responsible on development and EnginSoft will be in charge of the international distribution for the modeFRONTIER product, able to offer engineering expertise in many fields of engineering, required to be able to advise European customers on optimization and help carry out the optimization itself.

Mr. Grootendorst has joined EnginSoft in October 2004 and has since built relationships with many partner companies in many countries.
Given the general-purpose nature of the modeFRONTIER product, it is important to have local partners that have expertise in specific engineering fields, like CFD, fluid-systems, vehicle dynamics, crash, structural analysis, etc.

A part from building and maintaining relationships with independent distributors, EnginSoft has the intention to set-up local representative offices in the most important regions in Europe like Germany, France, UK, Scandi-navia. Having local offices will allow Engin-Soft be very close to its customers and to offer pre and post sales support.

Design Optimization is seen as the next step beyond analysis, and increasingly capable CAE tools + powerful hardware is opening up a huge market for optimization. EnginSoft is investing today to make sure that modeFRONTIER continues to play a dominating role in the international market place.



EnginSoft with Maserati for the TECHNET Spring Meeting

The periodic TechNet meetings (ww.caeworld.com) are usually lively and stimulating events for those who take part, that is to say the members of the 'Alliance' who can report back and be updated on new projects.

The companies that make use of TechNet services can evaluate new potential values for sector specialists

who can not only take part in scientific debates but also develop their learning in industrial contexts.

EnginSoft organised the recent TechNet Spring Meeting held in Modena on 29th and 30th April and hosted by Maserati as part of a visit to the plant producing the famous dream car.

The meeting was particularly appreciated by those attending it, and it marked an important new phase in the growth of TNA. This was evidenced by the proposal by CRF to become an active member, the presentation by Whirlpool and the Avio Group as Corporate Members, and by Prof. Stefania Bandini, who gave a paper on knowledge management suggesting new, integrated approaches to CAE and numerical simulation, who accepted to become a new honorary member.

Other important Italian contributions at the meeting were on data base design for the projects and competences in biomechanics (set up by CRS4) and agriculture and food processing (EnginSoft and CIMNE); the formulation of a proposal for a cluster of projects for EU funding under the Leonardo da Vinci programme and dealing with, on the one hand, the definition of CAE competences and, on the other, their maximisation in those industrial sectors identified by the FENet project (a proposal drawn up and presented by EnginSoft).
Foreign members also made an important contribution.

Overall the meeting was recognised as a great success: the Italian guests were responsible for the particularly creative climate of collaboration, Maserati enjoyed the pride of being able to make a dream come true, and EnginSoft could boast the ability to bring off a well organised, multifaceted event with vivacity and style.

For more information:
eventi@enginsoft.it
www.caeworld.com

Results of the European FENet project

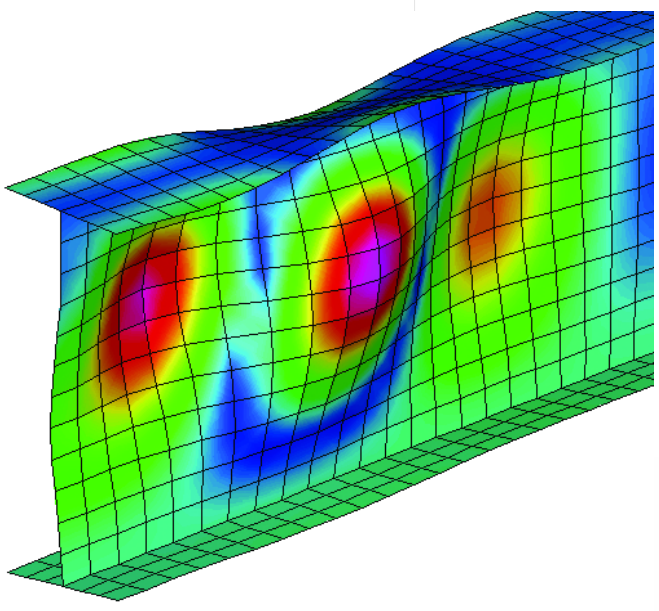
The closing of the European FENet project was marked by a meeting at the World NAFEMS Conference in Malta, 17 - 20 May, 2005

The four-year, Euro 2.2 million FENet EU project was coordinated by NAFEMS and took the form of a thematic European network involving 110 industrial organisations, researchers and producers of field code.
The project featured eight industrial and technical sectors grouped into four broad themes with the following main objectives:

- improvement of quality and efficiency in the applications developed by industry using numerical optimization;
- promotion of technology and know-how transfer between companies;
- improvement of understanding by academia of the research and development needs of industry using finite elements.

The better part of the NAFEMS congress was devoted to the FENet project:

- each of the 12 technical sessions in the various industrial sectors was opened by a presentation given by one of the FENet coordinators from the corresponding industrial field. This introduction served to underline the enormous amount of work undertaken within the project and the results obtained;
- each of the conference's industrial sessions was thus enabled to participate in a discussion coordinated by a FENet manager;
- a separate plenary session, coordinated by FENet members, was held to provide an opportunity to discuss demands for, and the opportunities for research. The European manager of the project, Andrea Gentili, gave a presentation inviting examination of the opportunities offered by new European projects;
- a Round Table was organised for the Friday afternoon to conclude the conference with the clear end of holding an in-depth discussion of the results of the project with FENet representatives.



The integration of the FENet project into the NAFEMS conference undoubtedly gave marked advantages to the delegates and in particular to those who had not taken direct part in the project itself.

Participants enjoyed an excellent opportunity to learn about the results achieved, and a platform was provided for evaluation and comment prior to the drafting of the final reports.

It is certainly possible now to say that a true international 'network' was created and, at a formal level, technical information was shared and discussed, with many opportunities and individual cooperation agreements being created.

The new challenge now that the project has reached its end is to define and put into practice a range of appropriate activities designed to ensure that these contacts are maintained.

The FENet project presentations are not included in the NAFEMS conference proceedings CD, but were collected in a publication distributed to all the conference participants.

For further details:
www.fe-net.org

ESoCAET Pilot Project

Project status: 4 months into mission.

The ESoCAET project, part of the Leonardo da Vinci programme, is intended to create a Community policy for occupational training and thus contribute to the promotion of a "knowledge-based Europe through the development of European cooperation in the field of occupational education and training ..." and supporting "... the life-long training and education policies of member States and the development of the knowledge, attitudes and skills favouring the working population and employability."
ESoCAET finds its place within priority II of the 2003-2004 call that aims to favour the development of new methods of teaching and learning in the context of occupational training.

In response to that challenge, ESoCAET proposes to realise a technical operation with a transnational culture, promoting the learning of new advanced deign systems, highlighting the practical aspects in the context of differing historical, social and technical cultures of the participating member countries.
In detail, the objective of the pilot project is to create a Masters for the transfer of knowledge from the sector of numerical simulation directly to industry, the priority for the process being that is on-going and paced to the evolution of each technology.
The end of the "Analysis of Demand" phase of the project was marked by a meeting in Modena on 28th April at which the participating companies reported on the results of a questionnaire designed to understand the extent to which the project represented a positive impact on production efficiency for the participating manufacturing companies.

24 companies were invited to answer to the questionnaire in Italy, and 12 large companies responded. Among these, the CAE managers received the prospect enthusiastically, and four were decided to have their employees take part in the European project.

The next steps are the definition of the first course that should start in September and the setting up of the web site www.esocaet.com on which project news and information updates are to be published.

The NUFRIC Project

A new opportunity to help find your first job in engineering.

As part of EnginSoft's ever deeper involvement with the development of Leonardo projects, the company is working on the development of NUFRIC (Numerical Based Medium Level Training on Industrial Friction Problems) programme promoted by the University of Granada.

The objective of the project is the development of teaching materials on numerical simulation applied to the wear of mechanical parts by friction and addressed to university students and recent graduates. This is a subject that is normally reserved to researchers but which is essential for increasing the competitively of engineering companies. The targets for the project are students and young professionals seeking their first jobs and who, thanks to their mastery of the course materials, will greatly increase their knowledge base and thus their 'employability'.

Methodology: Leonardo projects are characterised by their innovative approach to occupational training and from this point of view NUFRIC is marked not only by the originality of its content but also by the training methods it proposes. The programme intends to be an example of how to truly change the style of occupational education, which is still largely based on manuals presenting theories.

The project, on the other hand, intends to create a user-friendly software package based on finite element methods and distributed via the internet. A number of monographs will also be published. The teaching materials will be fully tested under 'real world' conditions as they are adopted for the final-year classes of engineering teaching institutes.

Partners: NUFRIC is distinguished by the high scientific level of its partners and its broad international base: in addition to EnginSoft and the University of Granada, partners include the Institut für Baumechanik und Numerische Mechanik (IBNM), University of Hanover, the CIMNE, Barcelona, the Turin Politecnico, the TCN consortium and NAFEMS.

For more informations:
www.nufric.org



Master of Engineering in Applied Computational Mechanics

Excellent study conditions at the University of Applied Sciences Ingolstadt in the hometown of AUDI.

ESoCAET
European School of CAE Technology

On the Master's Program

The Master of Engineering in Applied Computational Mechanics is a high-quality study program. It supplies its participants with excellent CAE knowledge and is offered as a part-time course that may be attended while regular working in a company. Students are kept up-to-date with the latest developments in CAE and are taught to solve complex simulation problems. Complemented with soft skills such as management issues and presentation techniques the master course provides its graduates with the necessary means to advance their career.

Duration

The master program takes two years (four German semesters) including the preparation of a master thesis. Participants are required to be present for 11 weeks (mainly two sequential weeks) and 14 weekends (600 lecture hours, each 45 minutes) during the first three semesters. Additionally, they will be required to study large parts of the curriculum in their own time.

International Standards & Title

The curriculum is organized into modules, matched with an internationally approved credit point system (ECTS). The program has in total 90 credits, and the resulting qualification is a Master of Engineering awarded by the Fachhochschulen Ingolstadt and Landshut (Universities of Applied Sciences).

Progression of Graduates

For graduates of the master program there are numerous opportunities to develop their careers. Graduates will leave the program with a high qualification enabling them to work as technical advising managers and specialized engineers in research & development.

Curriculum

With strong focus on application, the curriculum offers an interdisciplinary approach to CAE topics, also taking management issues and software skills into consideration. A variety of optional subjects deals with the topical issues of CAE.

Modules

Mathematics
Numerical Methods in Engineering
- Computational Methods and Algorithms
- Finite Element Method

Solid Mechanics and Heat Transfer
- Solid Mechanics
- Heat Transfer

Fatigue and Fracture Mechanics
Computational Dynamics
- Structural Dynamics
- Multi Body Systems

Non-linear Computational Mechanics
- Materials and Material Models
- Geometrical Non-linear and Contact Analysis

Basics in Multiphysics
- Computational Fluid Dynamics
- Mechatronics

Advanced Simulation Techniques (Seminar and selected topics)
- Basics in Modeling Techniques, Control Engineering, Optimization, Probabilistic Design, Application of Crashworthiness & Occupant Safety, Metal Forming, Casting, Acoustics

Management Skills and Processes
- Project Work and Presentation
- Project Management

Management of Product Development and Manufacturing Processes
- Quality Management
- Product Development and Manufacturing Processes

Master Thesis with Colloquium

Fachhochschule Ingolstadt
University of Applied Sciences

Fachhochschule Landshut
University of Applied Sciences



Small classes and well-equipped labs at the University of Applied Sciences Landshut in the vincinity of BMW.

Study Conditions

Students are offered an intensive support in small classes. Instead of simply lecturing, the teaching contents are conveyed mainly by interactive seminars and practical exercises, completed by intensive practice on the computer.

Lecturers

Lectures are held by experienced academic staff from the Fachhochschulen Ingolstadt and Landshut (Universities of Applied Sciences) supplemented by renowned professors from other universities and CAE experts from industry.

Requirements

Applicants should hold a Bachelor degree in Engineering or Natural Sciences or a related field or a Diploma degree (university or university of applied sciences) in the above mentioned fields.

Students from China are required to submit an APS certificate; Indian applicants must submit a GATE.

At least two years' professional experience is required.

Teaching Language

Modules will be taught in English. A TOEFL score of 213 CBT, or equivalent test results are required as evidence to provide sufficient knowledge of the English language.

Financial Aspects

Tuition fees are 10,000 Euro + VAT if applicable a year. The first installment is due at the beginning of the course.

Students may apply to their company for financial support. Please note that in Germany further education costs are tax deductible.

Places of Study

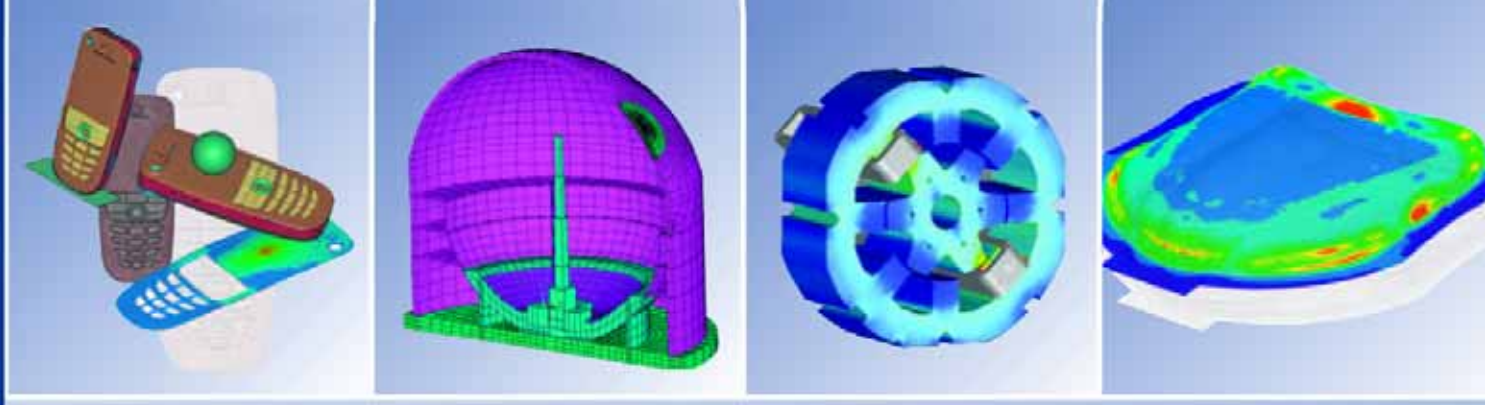
Lectures take place at the Ingolstadt and Landshut Universities of Applied Sciences. Both Bavarian universities offer their students the very best conditions to study and place a strong emphasis on scientifically based application.

The Fachhochschule Ingolstadt – University of Applied Sciences is a new and dynamic Bavarian university for technology, computer sciences and business administration. With around 2,000 students, there is an open, friendly atmosphere at the university. Classes are small and students receive individual attention. The close interaction between professors, instructors and students provides a pleasant contrast to studying at a larger university.

Alongside instruction, the university is active in applied research and technology transfer. The modern laboratories and expertise provides students a range of opportunities for cooperating with companies.

The main focus of Fachhochschule Landshut – University of Applied Sciences has always been the quality of its teaching. This quality is guaranteed by the fact that the university has only 2,600 students and 70 professors and instructors. Teaching facilities, laboratories and administration buildings are all grouped around the central university building which houses the dining room, cafeteria and the nationwide unique library with 24-hours-lending.

In the technological sector numerous products have been developed at Landshut University of Applied Sciences through research projects carried out in close cooperation with industry.



Impact Simulations of a Mobile Phone: Drop Test and Ball Drop, Courtesy Motorola, Inc., Italy;
Earthquake and Airplane Impact Simulation of a Nuclear Power Station, Courtesy DYNARDO GmbH, Germany; Switched-Reluctance-Motor, Courtesy ANSYS, Inc. USA;
Sheet Hydroforming of Hood with segmented elastic Blank Holder, Courtesy IFU Stuttgart, Germany

About CAE

Today Computer Aided Engineering is an essential tool in the product development process. The term "CAE" mainly concernes the field of numerical simulation, including methods such as Finite Element Method (FEM), Finite Volumes Method (FVM) and Multi Body Systems (MBS). However, it also encompasses technologies such as Virtual Reality (VR) and is strongly linked to other methodologies such as PLM (Product Lifecycle Management), CAD (Computer Aided Design) and PDM (Product Data Management).

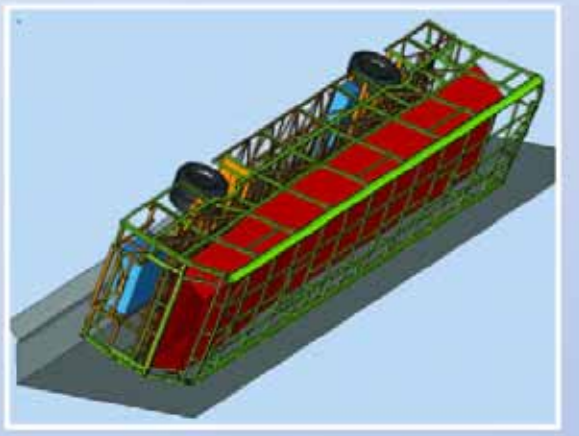
Computer Aided Engineering helps to
- cut production costs,
- reduce the time necessary to develop a product,
- keep the testing of expensive physical prototypes to a minimum,
- rapidly simulate multiple designs and materials,
- optimize design.

Development Costs

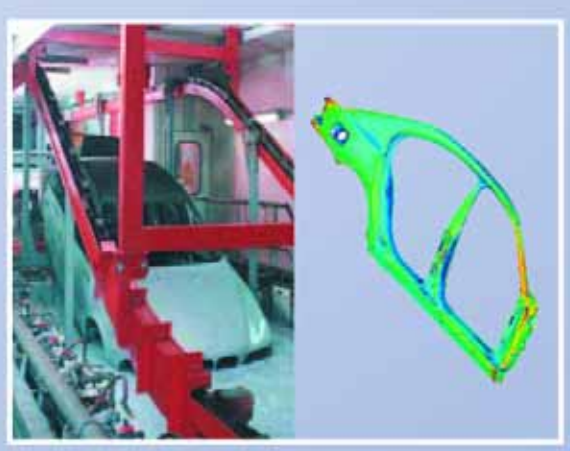
A well-known example is crashworthiness simulation in the automotive industry. The potential to reduce time and costs is huge since only few cars have to be driven against the wall to check – and usually to confirm – the calculations. The cost for this type of simulation amounts to about 60 percent of a physical test. For subsequent simulations, the cost can be as low as 10 percent. Furthermore, simulation saves not only money, but time as well – just 25 percent of a "real" test. Subsequent simulations can cut time down to 6 percent.

Process Simulation

Computer aided simulation is currently used in nearly all fields of technology and science. The main applications are static, dynamics, temperature field, acoustics, electro magnetic field and coupled fields as well as fluid-structure-interaction. Besides product behavior, more and more manufacturing processes are being simulated, such as metal forming, plastic injection, and lacquer coating for a vehicle body. Development is backed by the increasing rising power of simulation software. As simulation enables huge savings of both time and money, use of this technology will certainly increase in the future.



Bus Rollover Simulation, TEMSA, A.S., Turkey



Electro Deposition Coating of a Side-Panel, CADFEM GmbH

European School of CAE Technology

ESoCAET

European School of CAE Technology

Impact simulation with LS-DYNA

Misson

The application of Computer Aided Engineering requires expert knowledge in both engineering and computational methods. The rapid development of computer and software technology means CAE specialists must continuously update their knowledge in this area.

At present, it is only possible to follow German master programs in the field of numerical simulation while attending a full-time university course. However due to the necessity of lifelong learning, an increasing request for educational opportunities asks for new and more flexible study forms. ESoCAET meets this demand with part-time master programs in the field of numerical simulation which can be completed while working.

Characteristics

The European School of CAE Technologies (ESoCAET) was founded in 2003 by CADFEM GmbH which is well-known for its CAE expertise. ESoCAET is open to partners from both industry and universities.
The school is committed to providing education that focuses on the specific needs of industry. ESoCAET's high-quality master courses are placed with strong emphasis on application and the effective solution of complex problems. Its present and future study programs combine engineering with management skills and prepare graduates for an increasingly complex and rapidly developing market. Comments of industry professionals when presented with ESoCAET's first master program ranged from a "well balanced selection of topics" to "encourage people to learn more about CAE".

Programs will be developed and offered in cooperation with universities. They are accompanied by a quality management system which includes the accreditation of programs at a German accreditation agency. Supervised by a Scientific and Industrial Advisory Board, ESoCAET is able to react quickly to changing market demands.

European Context

ESoCAET is backed by the European Union's Leonardo da Vinci program. Granted as a pilot project it has received considerable funding for two years which underlines the European dimension of the venture. The European Commission voted the scheme "to be an innovative, original and daring project, on the pulse of time".

Project partners are FIGES (Turkey), SVS FEM (Czech Republic), MESco (Poland), TCN and EnginSoft (both Italy), Fachhochschule Ingolstadt and Fachhochschule Landshut – Universities of Applied Sciences (both Germany) and CADFEM GmbH (Germany).

Education and Culture
Leonardo da Vinci
Pilot projects

CADFEM
ENGIN SOFT
Fachhochschule Ingolstadt University of Applied Sciences
Fachhochschule Landshut University of Applied Sciences
FIGES CAD CAE
MESco
SVS FEM
TCN

www.esocaet.com

EnginSoft joint organizer of the 'Computational Knowledge Meets Evolutionary Economics' Workshop

An ambitious workshop entitled 'Computational Knowledge Meets Evolutionary Economics' was organized at the International Conference on Artificial Intelligence (Milan, 20 September) thanks to the joint efforts of EnginSoft and the Artificial Intelligence in Companies workgroup promoted by the Italian Association for Artificial Intelligence, Gruppo Fabbri and Aletheia.

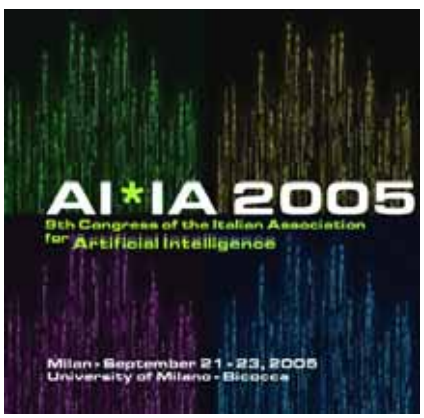
The workshop was truly innovative and probably unique of its kind, and thus merits some introduction.

One of the founding characteristics of the new 'Evolutionary Economics' is the putting into play of knowledge as a basic parameter of an economic system.
In doing this, some academics have proposed a new layer between the micro and macro economies, namely the level at which a myriad producers/consumers of knowledge have to propose their ideas as new 'routines', then to be reflected in products, machines, structures, artificial systems, and much else. This type of knowledge is in continuous evolution and is continuously adapting to limits and turbulence caused by the interactions of all the players competing to have their ideas accepted, normally in a context in which resources are limited and that is itself continuously moving in uncertain conditions.

Much of the turbulence is cushioned by the capacity to incorporate forms and structures of knowledge that cannot immediately be reduced to a formal model as, for example, classical analysis, but rather to a grouping of conceptual scenarios each with its own syntactic/semantic code and various forms of expression (even, on occasions, a narrative form).

It is here that computing has an important role to play, and where it has today learnt to integrate different conceptual levels even though it has still taken but only the first steps in a very wide landscape.

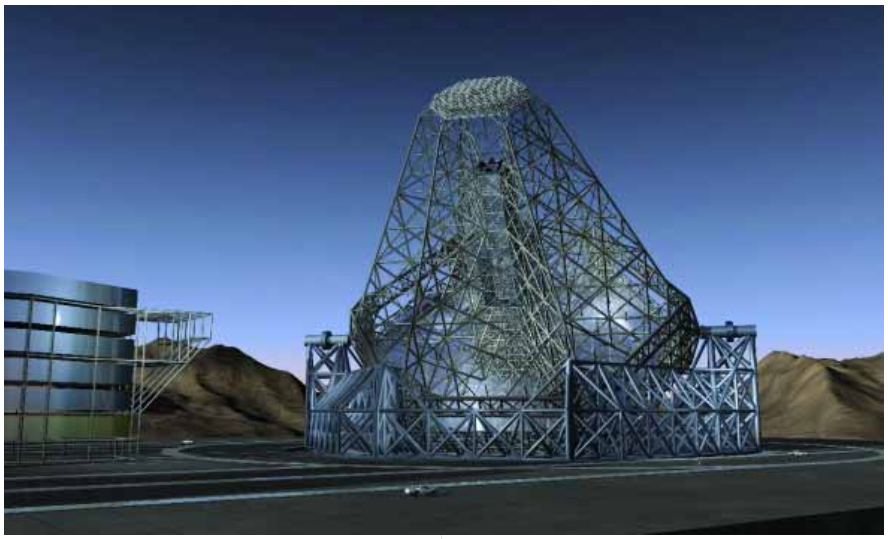
Now, what happens when these different types of knowledge constitute, and constitute an ever greater economic asset? How will economic science itself change? What will be the new parameters, and which the measure of the computational complexity of a problem? Problem solving ability as a Knowledge Artefact? Analytical formulation and experiment? These questions were the starting point for the workshop and its ambition to offer a view on the possibility of creating a 'cultural hybrid' from some basic concepts of Evolutionary Economics and the theoretical and applied experience of computational knowledge.



The speakers, drawn from different backgrounds, including traditional and evolutionary economics, epistemology, computer science, artificial intelligence and virtual prototyping and iDP, and with experience in differing industrial contexts, outlined a design for an approach to knowledge animated by the principal of multidisciplinary participation.

For more information:
http://aiia2005.disco.unimib.it

Optimization of a segment of the main mirror for the "OWL" Telescope



In OWL very large telescope ESO project, integrated modeFRONTIER and ANSYS environment, the aim is to reach the optimum solution for the support configuration and geometry of mirror modules. The goal (minimizing the areal density) without loosing optical performances, has been reached succesfully.

After a starting configuration sample, to qualify the optimization process and alghoritms, the game-theory approach to multi-objective optimization gave 31% weight reduction amazing result, complying with all design requirements and constraints.

Summary of the Case History

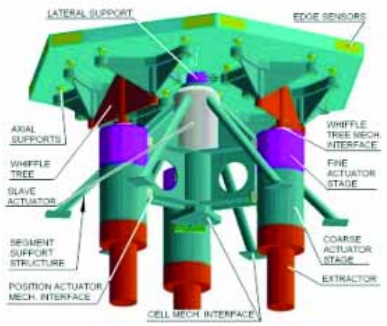
Building on the success of its 8-m Very Large Telescope (VLT) and the coming to maturity of controlled optical systems, ESO is undertaking the design of a giant, next generation optical and near-infrared telescope, dubbed OWL for the eponymous bird's keen night vision, and for OverWhelmingly Large. With a diameter of 100 meter, OWL will combine unrivalled light gathering power with the ability to resolve details down to a milli-arc second.

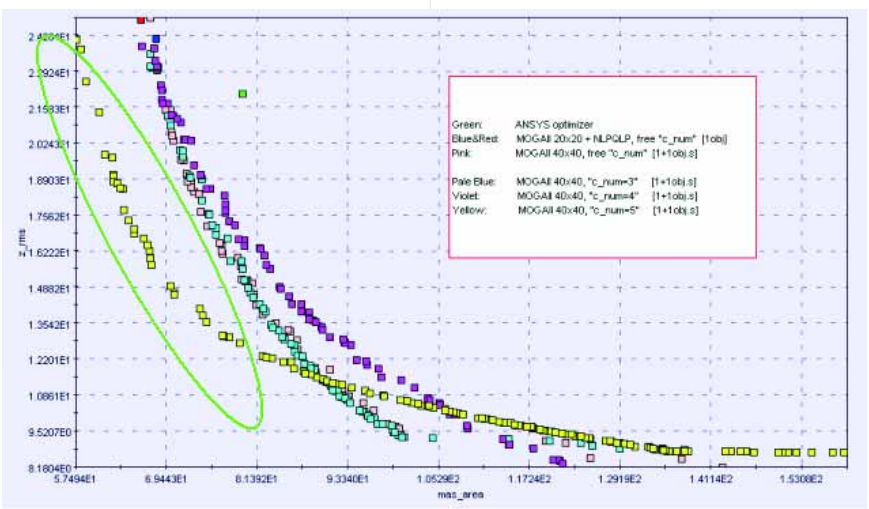
This work is focused on the crucial issue to optimize the support configuration and the geometry of the mirror modules used for the OWL main and secondary optical surfaces.

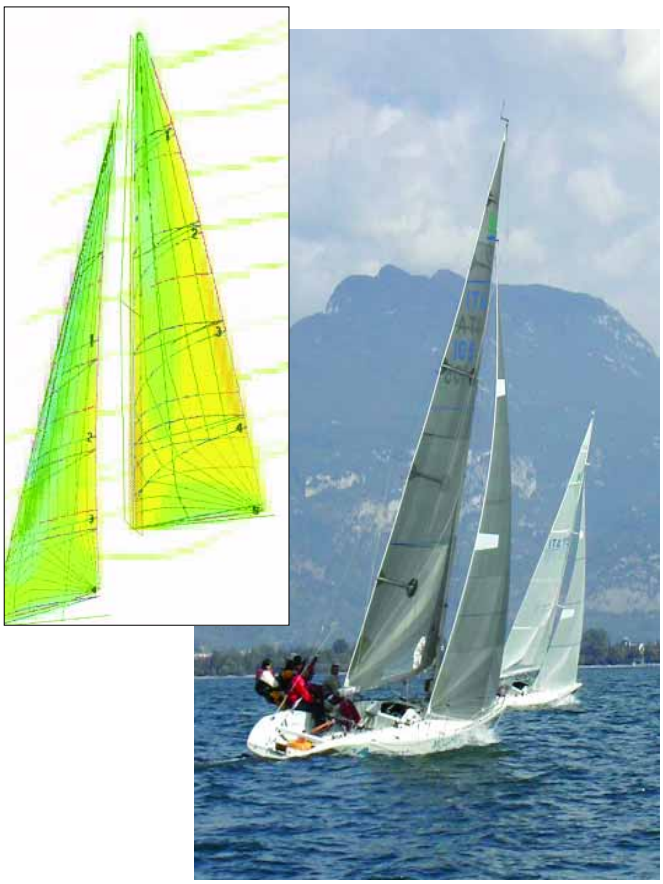
The goal is to design a lightweight structure (minimizing the areal density) keeping the deformation of the mirror surface at least under a fixed maximum limit.

In the frame of the project one crucial issue is the optimization of the support configuration and of the geometry of the mirror modules that are used for the OWL main and secondary optical surfaces. The goal is to design a lightweight structure (minimising the areal density), while keeping the deformation of the mirror surface within design limits.

Such target was hit through a modeFRONTIER based procedure, controlling a parameterised model which was built in the ANSYS environment. The starting configuration was a relatively good design which was obtained by running the standard ANSYS optimiser with default settings. Working on that with modeFRONTIER an amazing theoretical 31% weight saving was obtained, which, compared to the total mirror size, leads to a global weight saving of 167 tons. And this without any loss of optical performances and quality, as well as complying with all other design requirements and constraints!







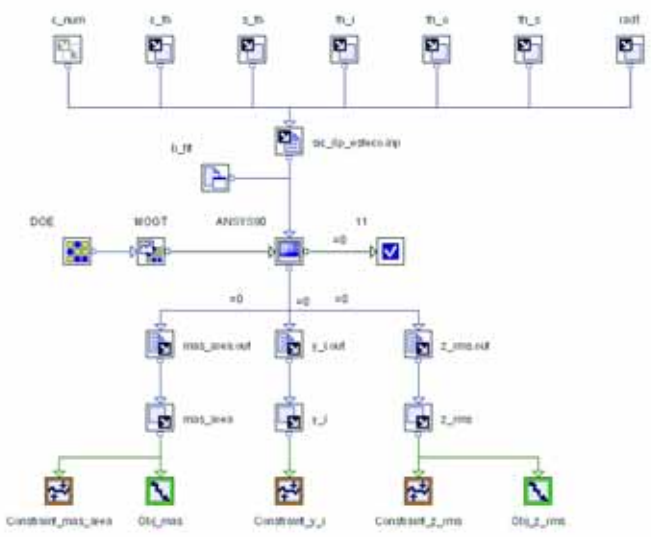
New financial support to ESTECO from Friuli Venezia Giulia Region (Italy) to make a research for:

"Automatic Simulation and Optimization Methodology for aero/hydrodynamic performances of sailing boats"

After the pioneering experience that some years ago brought ESTECO to realize and offer an on-line methodology for the planning of the boats sails in bowline rate, now with this new financial support the company will develop a wider simulation and optimization system working together with some important international yatch designers.
For more information: www.esteco.com

modeFRONTIER
the multi-objective optimization and design environment

The coupling between ANSYS and modeFRONTIER proved to be the right choice and, moreover, straightforward and very efficient. After some preliminary tests to find out which approach and algorithm among the variety offered by modeFRONTIER should better suite the application, the choice was the new set of multi-objective optimization algorithms based on the game theory. A total of only 107 models were evaluated to reach the result.



All in all, the different tests carried out, as well as the comparison with the 'standard' ANSYS optimization and the nature of the algorithms that were employed, leads to conclude that the solution is likely the 'global optimum' within the current bounded input variables domain space.

The full paper (authors, Franz Koch - European Southern Observatory - Technology Division; Hans Sippel - CAEvolution GmbH; Enrico Rigoni - ES.TEC.O. srl Area Science Park - Luca Fuligno Dipartimento di Ingegneria Meccanica - Università di Trieste) will be printed soon on.

For more information:
Dott. Enrico Rigoni
rigoni@esteco.com

Images from:
http://www.eso.org/projects/owl

Distance engineering with DENGI

http://dengi.enginsoft.it: a new company service from EnginSoft

Dengi is a portal that allows companies access to high-level engineering applications via a standard internet browser.
Companies often find that they have to limit the use of TCO applications because of:

- expensive user licences ;
- installations that require changes to the existing hardware and software configurations;
- steep learning curves.

Dengi avoids all these obstacles. All that is needed is a standard PC, an internet connection and a normal browser: EnginSoft looks after the rest! You input the data, and we see to the computations on our dedicated servers. After connecting to the portal and having chosen the application that best meets your needs, all you have to do is the initial data input.

A simple click of the mouse will then launch the programme. You don't even have to remember when the computation finishes as an e-mail will let you know when the process has finished.

What's more, Dengi lets you access your results whenever and from wherever you like. Dengi's archiving system allows access with an internet browser without the need to install dedicated plug-ins. The security of your data is ensured by the portal's authentication system: only you can access your data.
Dengi also offers a great opportunity to companies.

Would you like to propose an application for inclusion on the portal?
Get in touch and give us a full and serious analysis for the integration of your application on the portal. If you are happy with our proposal you'll have the chance to exploit our computer lab for the implementation of the software throughout the portal. This is an opportunity for companies with great technical know how but little computing knowledge to exploit the potential of their ideas in tandem with Dengi.

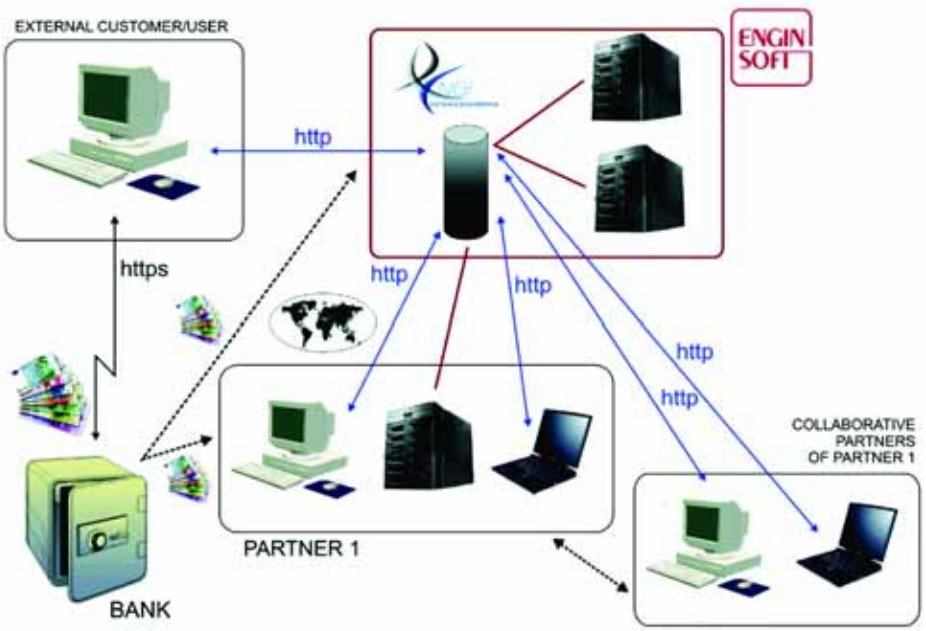
By integrating your applications in our portal you can exploit its innumerable advantages which include:

- ability to use your applications anywhere, anytime;;
- income from the use of your software by third parties without having to supply installations and avoiding problems of pirating and unauthorised copies;
- protected, high securtity storage of your data.

Dengi therefore lets you share your engineering applications over a number of sites or among a number of companies.
This results in the standardisation of computing systems to obtain homogeneous data and, in the case of their use by your partners, in imposing quality standards also during the design phase.
In addition, Dengi can become a source of profit for the companies that decide to let third parties use their applications without having to take on the typical problems of software distribution and so avoiding assistance with installation, piracy, the coping of code by competitors, and so on.

Dengi is your ideal ally for your software. Contact our consultants for more information and to discover the many advantages our portal can offer your company.

For more information:
dengi@enginsoft.it



The Koonet Project

With the substantial failure of the concept of 'production districts', the industrial rebirth of Italy is now passing to an alliance between companies working in different sectors and therefore not in competition one with an other but who have learnt to share. The knowledge engineers have named this new process "coopetition".

Italy is often accused of being unable to "make a system" and thus, being unable to face up to a difficult economic situation, going into an industrial decline that appears difficult to avoid.
The truth is that two different problems hide behind this accusation. Firstly, it denotes an inability of both institutions, employers and unions to develop common strategies to confront the crisis. Government, trades union and employers' representatives often seem to be more focused in protecting their own interests than those of the country as a whole, looking after their own and protecting positions can no longer be defended. Secondly, it is the companies themselves who are unable to make a system, who fail to share the tools, knowledge and resources needed to confront the competition from Asia and eastern Europe, and who thus determine a progressive loss of competitively in the Italian system.

This is all the more strange when one considers the nature of Italian industry, organised as it is on 'technological districts', that is to say on geographical areas with a given production specialisation which would appear to encourage an aggregation of companies that "make the same thing". But in reality the experience of 'production districts' today appears to have substantially failed, above all because the companies belonging to the same district consider themselves competitors and are therefore ill disposed to share resources, and above all know-how, with the company next door as they see in this a threat to their market position. As a result it is necessary to develop new models of cooperation which allow companies to cooperate without feeling that their competitive position is under threat.

Economists have coined the term "coopetition" to describe this new collaborative model.
But how is it possible for a company to share that which knowledge engineers define as core knowledge, the tacit knowledge that has not been formalised and yet constitutes a company's most valuable asset, without it loosing its competitive edge?
Thanks to the techniques of knowledge management, today it is possible to construct networks of companies that can draw an effective competitive advantage from sharing know-how, tools and resources if they belong to different production sectors. In other words, it is possible for a company that produces engines to benefit from the fluid dynamic studies of a pharmaceutical institute investigating the blood dynamics of cardiac patients.
While dealing with different objects, the company and the research institute share the same design needs on a functional basis, that is the optimisation of a flow within a cavity. In order for the experimental data and the methods of one to be exploited by the other, that which is known in knowledge management as "ontological discrepancy" has to be eliminated.

This requires a representation of the knowledge in play that allows its abstraction from the various domains from which it has been extracted. In other words, the research institute and the automotive company have to find common ground which will allow them to exchange data and share methods.

At this point it is necessary to translate the knowledge that the companies share into a computational model and, on this basis, define a software architecture that integrates the functionality derived from the specifications that have been introduced, the techniques for communication and information sharing, and collaborative problem sharing.

A key characteristic of the infrastructure will be the potential for communication, the exchange of information and the coordination of activities between a possibly large number heterogenic software components such simulators, local and global DBMSs and workflow management systems, which typically belong to separate stakeholders. From the users point of view, the infrastructure should allow concurrent "integrated product design" based on a computer network. It will also need to cope with the large number of initial design variables, the design limitations and metric structures while taking into consideration the changing needs and on-going evaluation of the product during the design stage.

This ambitious declaration of intent is the objective of Koonet, a research project recently presented to MIUR by the Department of Knowledge Engineering, University of Milan Bicocca, with its partners EnginSoft, the University of Modena and Reggio Emilia, the University of Florence and the CRIT consortium. The latter itself represents an example of a coopetition alliance between companies including Ferrari, Tetrapak, Gruppo Fabbri etc, which, while belonging to different industrial sectors, share excellence and the need to maintain it in the face of competitors.

For further information:
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Better quality products: Bridgestone

The Bridgestone Corporation is one of the world's largest manufactures of tyres and rubber products, selling in over 150 countries and employing over 150,000 people. This result is the fruit of the work started by the company's founder, Shojiro Ishibashi, who on the production of his first tyre in 1931, set out his mission as "Serving society with better quality products".

The company expanded rapidly in the 1930s and 40s with the massive production of types in a new factory in Kurume, Japan. In the 1950s the company changed its name to Bridgestone, the literal translation of the founder's name, Ishibashi, into English. The 60s saw Bridgestone riding the wave of the rapidly expanding car market and opening its first overseas plant in Malaysia.

The transformation of Bridgestone into a world player, however, came in 1988 with its purchase of the American Firestone Tire & Rubber Company, at the time the world's number two tyre manufacturer. Following the merger with Firestone, Bridgestone conquered the European market. With six Europe-based plants and 100 Research and Development centres, Bridgestone Europe (BSEU) today develops a wide range of tyres and diversified products for the European market, both as original equipment and for the replacement markets. Bridgestone distributes over 20 million tyres a year throughout Europe and exports to markets that include Japan. BSEU has 10,130 direct employees in Europe, as well as having created thousands of jobs among its suppliers and distributors.

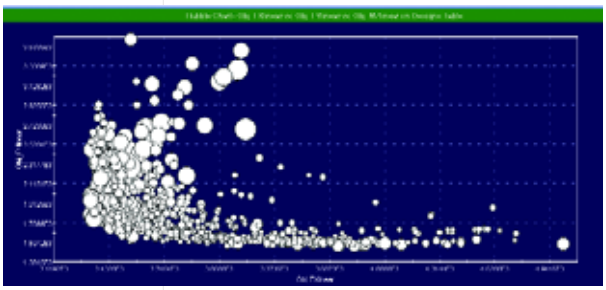
Bridgestone is the fruit of its commitment to quality technologies. The list of its achievements is impressive, ranging from the development of "Multicell Compound" for nailless snow tyres, to its Potenza tyres for Formula 1 that helped deliver five consecutive Constructors' World Championship titles to the Scuderia Ferrari Marlboro Formula One team.

Yet another innovation, the 'Run Flat' tyre that allows a vehicle to be driven even when the tyre is flat, has caught the attention of those carmakers that fit it as original equipment. True to its original mission, Bridgestone is currently working on a number of interesting projects aimed at ensuring better safety for all vehicles, from cars to trucks, in order to deliver better quality products.

Visit Bridgestone's site:
www.bridgestone-eu.com

Using modeFRONTIER in design

The Bridgestone Technical Centre in Rome uses modeFRONTIER to reduce the differences between the results obtained with computer analysis models and the data obtained through experimental testing. Problems of "model updating", or understanding which data obtained from various software packages have the greatest impact on the product's characteristics, are often encountered when designing a new tyre to meet certain comfort/noise/handling parameters. Thanks to modeFRONTIER, Bridges-tone's design staff can automatically identify the data sets from which to obtain given results compatible with the design objectives and the same as those obtained through testing. The data produced by modeFRONTIER come from various software systems on the basis of the tyre model to be made: Adams, MatLab and Fortran. The modified genetic algorithms classified as MOGA and FMOGA have been particularly efficacious.



Why Bridgestone chose modeFRONTIER

"Following a series of careful evaluations," says Fernando Baldoni, chief of Advanced Engineering, European Technical Centre "we chose modeFRONTIER because it demonstrated itself to be the only multidisciplinary and multi-objective technology available on the market."

"modeFRONTIER allows us to get the most out of the CAE techno-logies already installed in our technical departments and to evaluate, faster than before, numerous design alternatives and to make optimised choices in terms of our technical and cost objectives. This in turn has greatly reduced our Time To Market while at the same time improving the quality level of our products. "During the key phase of implementing this new technology" concludes Baldoni "EnginSoft supported us seriously and professionally, quickly transferring the technical skills and enabling us to be independent and up to speed in a very short time."

From Consorzio TCN: www.improve.it

Success of the www.improve.it distance learning project

Consorzio TCN - Tecnologie per il Calcolo Numerico - has for some time been running a distance learning system from its site www.improve.it. From here users can attend a selection of courses provided by the consortium, right from their desk tops. Registered users can log on at any time and follow the recorded lessons as well as refer to the hard copy version of the lesions that are sent to all users.

This year sees the continuation of the videoing and publication on-line of the scheduled TCN courses which are enjoying growing success with well over 3000 students now registered.

Thanks to this affirmation, it has been possible to work with the Parma-based college of engineers to publish on-line a course "Corso sulla nuova normativa sismica allegata all'ordinanza della Presidenza del Consiglio dei Ministri n.3274": this programme has become an event of national importance and has been reported in the "L'edilizia" and "Analisi e Calcolo" magazines. A number of important activities have begun in association with Italian universities.

An example of this is that the TCN consortium has been working with the Department of Con-struction and Transport of the Faculty of Engineering of the University of Padua.

As part of this collaboration, the entire "Scienza delle Costruzioni" course has been adapted for distance learning and published on-line for a class of mature engineering students. As a result, some 630 mature students have been able to attend this basic course this year with a mix of traditional and on-line lessons, studying, for example, from their own homes with the support of one of the faculty's tutors.

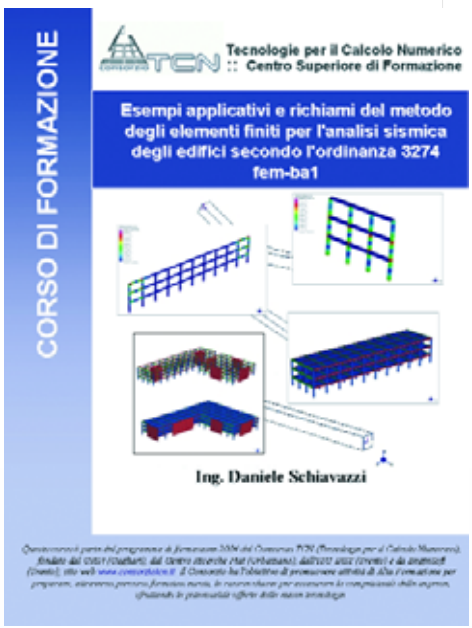
TCN's contribution took the form of supplying the technology, the installation of a server dedicated to distance learning at the faculty, the set up of the dedicated portal for the students (http://e-learning.dic.unipd.it/corsidct/) and the videoing of the entire 40 hour course.

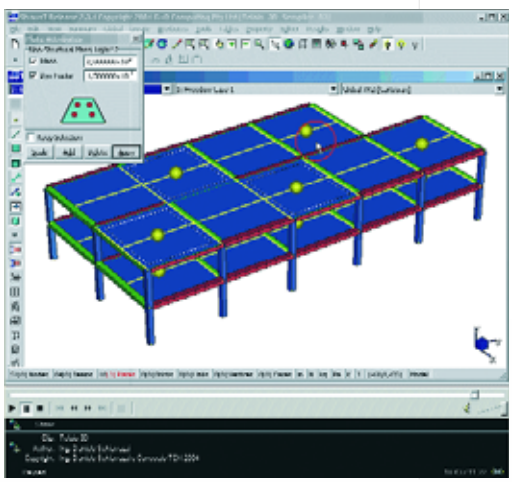
To take a free test drive of the cou-rses available on the site www.improve.it all you have to do is:

1) click "log in" on the portal's home page (http://www.improve.it);
2) complete the new user (Nuovo Utente) form.
3) read the e-mail that will be sent to you and click the link it contains.

Your registration will be confirmed and you will be recognised by the system as a registered user. Click on the free courses to access the lessons.

For more information:
Giovanni Borzi
Project Manager
g.borzi@enginsoft.it





Reviews

Open Innovation: the new imperative for creating and profiting from technology

Authors: Henry William Chesbrough
ISBN: 1-57851-837-7 Hardback, Page Length: 224
Price: US$35.00; GBP 18.87; AU$59.95
Publication Date: April 2003
Publisher: Harvard Business School Publishing, Cambridge MA

Reviewed by: Stefano Mazzocchi
Research Scientist
Digital Libraries Research Group
Massachusetts Institute of Technology
Cambridge MA, USA

Companies that don't innovate die, but meta-innovation (innovating how to innovate) is becoming increasingly the center of the attention. In his book, Chesbrough describes two different paradigms for technological innovation: one internal (described as 'classic' or 'closed') and one external. Chesbrough's thesis is that the internal paradigm is now being rendered obsolete by the external one.

The internal paradigm is based on research and development done in-house: companies fund their research labs, which produce intellectual property, which is developed and capitalized by the company and can inject further funding in the research process. Chesbrough indicates two major factors eroding this paradigm: the growing mobility of skilled people; and the growing presence of Venture Capital. The combination of these two factors increases the permeability of the firm, and allows ideas and intellectual property to escape the company's boundaries. Chesbrough outlines how these erosions factors impacted Xerox in its PARC research center. He shows how the company failed to capitalize on several of the groundbreaking innovations that originated in those labs and were made profitable elsewhere.

The external innovation paradigm (that Chesbrough names 'open' in contrast with the 'closed' one) is designed to accept and profit from those eroding factors and is based on the idea that companies should develop a knowledge-creation and intellectual property management strategy which assumes that R&D involves an effective synthesis of internal research and development and intellectual property derived from the environment.

Chesbrough suggests that if firms are working in a fertile innovation environment, innovation will flourish, and that it is much cheaper and safer for firms to simply shop for the ideas that they consider most promising, which supplement their internal development efforts. The purchasing company must continue the development in-house, refine and eventually integrate the new product with existing products or services. He shows how Intel and Cisco managed innovation at the pace required by the market by investing as venture capitalists in the open market and further refining the technologies that those start-ups were able to incubate, or simply by licensing intellectual property that originated elsewhere.

The increased effectiveness of the external innovation paradigm is not only due to the cited erosion factors, but Chesbrough describes how research and development follow different rules and while the first resembles the game of poker (high risk, fast pace, low strategy), the second resembles the game of chess (lower risk, slower pace, higher strategy). He argues that while firms normally focus on the second part, it is very hard for them to play such a different and risky game. The ability to know when to stop the funding and fold or continue the capital injection is something that Venture Capital firms have learned to master, while regular firms struggle with it.

Chesbrough suggests that firms should focus on their strategic game of intellectual property acquisition to reduce their capital risks and research costs while venture capital firms (or external smaller firms) play the risky game of research.

For more information:
http://www.innovation-enterprise.com/6.3/6.3.474.php

TCNCAE 2005

INTERNATIONAL CONFERENCE ON CAE AND COMPUTATIONAL TECHNOLOGIES FOR INDUSTRY

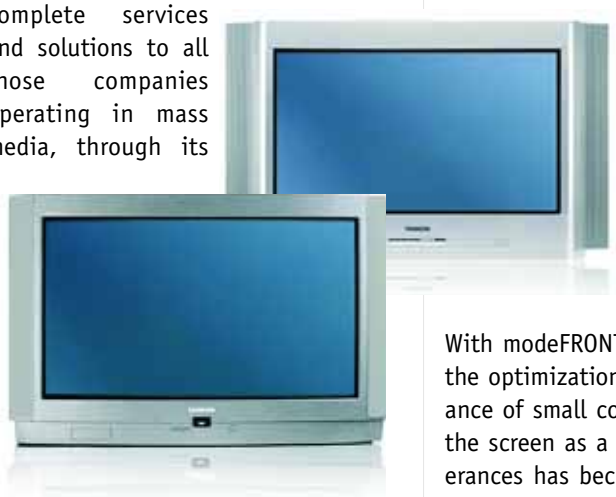
CD OF PROCEEDINGS

Conference Proceedings CD will be published soon.
TCN CAE 2005 International Conference on CAE and Computational Technologies for industry took place in Lecce (Italy) from 5th to 8th October 2005.

Once again this year, the event was a great success as it continued the tradition of earlier conferences in bringing together the academic world of universities, research and industry in the field computational technologies, a sector in which the role of knowledge is ever more fundamental to innovation.
Buy a copy of Conference Proceedings CD (25 Euro) writing an email to: tcncae@consorziotcn.it

Thomson Display Italy Technological Excellence

TDI is part of Thomson, the French multinational active in the communications and home entertainment markets. The group manages end-to-end services, sells equipment, products and systems, and provides advanced technology to its clients. The objective is to assist customers in achieving their goals and to optimise their performance in a technological environment that is undergoing continuous development. Thanks to its own experience and now-how, Thomson is able to offer complete services and solutions to all those companies operating in mass media, through its



diversified brands that include Technicolor, Grass Valley, RCA and THOMSON.

The group is present in North America, Europe and Asia, working in 30 different countries with net income Euro 8.5 million in 2003 and 59,000 employees world wide, 30% of whom are in Europe.

Research and Development

Thomson boasts unique experience in television and video technologies, tools that are much more complex to manage than are data or audio technologies

Thompson's Research and Development is mainly focused on flat screens of all sizes, the company being the first to launch the new 16:9 format with 60 and 70 centimetre screens.

Using modeFRONTIER in design

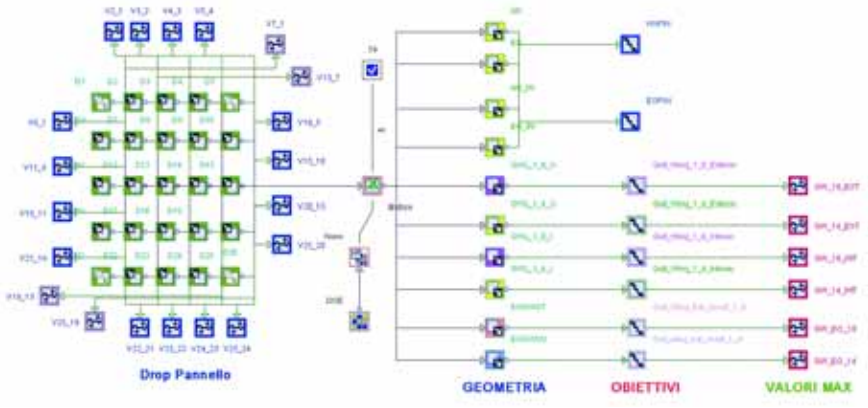
modeFRONTIER has demonstrated, and is demonstrating how it can be applied in TDI to a wide range of cases: optimization of existing procedures formalised using spread sheets, in combination with Matlab and models developed in ANSYS, the interpolation of experimental data and the set up of optimization processes within hours to identify the best performances in terms of screen brightness, flatness and tolerances, documenting the data simply and immediately.

With modeFRONTIER, problems such as the optimization of costs and performance of small components mounted on the screen as a function of supply tolerances has become a practical proposition and has been incorporated into the wider context of multi-objective optimization.

Why EnginSoft and modeFRONTIER in Thomson Display Italy

"We were able to evaluate modeFRONTIER thanks to a pilot project" says Pedro Cosma, Thomson's Technical Manager. "The result were really exciting: we were able to evaluate a number of design alternatives very fast, and to chose the best in terms of the objectives and limitations we had set ourselves. It's a very easy tool to use, its very powerful and interfaces immediately with our software".

"In my opinion, modeFRONTIER is the best Information Technology tool to invest in. We have estimated a return on investment of less that six months, even without an intensive use of it. We've also estimated it will enable us to offer our customers new products in the time and with the means that the market demands. EnginSoft," concludes Pedro Cosma "has supported us in an exemplary fashion with its own very professional and skilled people during the training and technology implementation phases."



modeFRONTIER

the multi-objective optimization and design environment

modeFRONTIER is a multi-objective optimization and design environment, written to allow easy coupling to almost any computer aided engineering (CAE) tool,whether commercial or in-house.

As the name suggests, modeFRONTIER provides an environment which allows product engineers and designers to integrate their various CAE tools, such as CAD, Finite Element Structural Analysis and Computational Fluid Dynamics (CFD) software. Using a variety of state-of-the-art optimization techniques, ranging from gradient-based methods to genetic algorithms, the process or design of interest can be optimized by specifying objectives and defining variables which affect factors such as geometric shape and operating conditions. modeFRONTIER in effect becomes a wrapper around the CAE tool, performing the optimization by modifying the value assigned to the input variables, and monitoring the outputs.

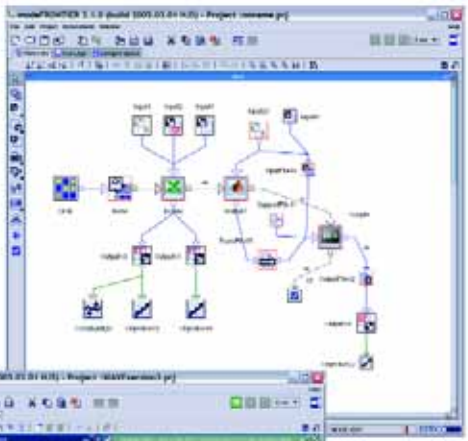
Process Integration

Running an analysis tool within the **modeFRONTIER** framework is extremely straightforward. There are no extra interfaces to license;

rather just one generic interface which can be used for virtually any CAE tool.
There are also direct interfaces for Excel, Matlab and Simulink; these programs can be used in their own right to perform an analysis, or to control another tool.
The same process integration techniques can be used to link different CAE applications; for example, **modeFRONTIER** has been used to perform a fluid-structure interaction analysis, where a CFD program and a non-linear FEM program were coupled. **modeFRONTIER** has been successfully run with a large number of commercial CAE and in-house tools, ranging from CAD software to FEM and CFD programs.

Coupled Software

modeFRONTIER has been successfully run with many CAE tools, including: Abaqus, Ansys, Adams, AVL-tools, CATIA*, CFX, Excel*, GT-Power, Icem, Kuli, LS-Dyna, Madymo, Magma, Marc, Matlab*, Nastran/Patran, Pro|E, Star-CD, Solidworks, Wave, Wamit
(* direct integration nodes)



Design Optimization

With **modeFRONTIER** only few steps are required for achieving your goals
- Describe the problem (parameterize)
- Set goals (objectives)
- Choose the optimization strategy

Using a wide set of DOE (Design of Experiment) and Optimization Algorithms, modeFrontier efficiently searches the design space for the optimum solution, or the Pareto Frontier (set of optimal design in a multi-objective problem)
Select the final design, with the help of modeFrontier's Decision Making tools

modeFRONTIER is a product developed by ESTECO srl - Italy
Find the reseller nearest to you at
www.esteco.com\product\resellers

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