- **Pioneer Software Developper in the area of Computational Fluid Dynamics (CFD)**

- **15 years market presence with worldwide customer base**

- **A team of 60 highly qualified engineers and PhD worldwide**

- **A strong expertise in Turbomachinery design for axial, radial and mixed flow configurations**

- **A strategy based on application oriented software systems and services**

- **A continuous 2 digits growth rate**

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Grants
11%

Training
1%

R&D Industrial Funded Projects
4%

Consulting
11%

License & Maintenance
73%

34%

41%

25%

Europe   America   Asia
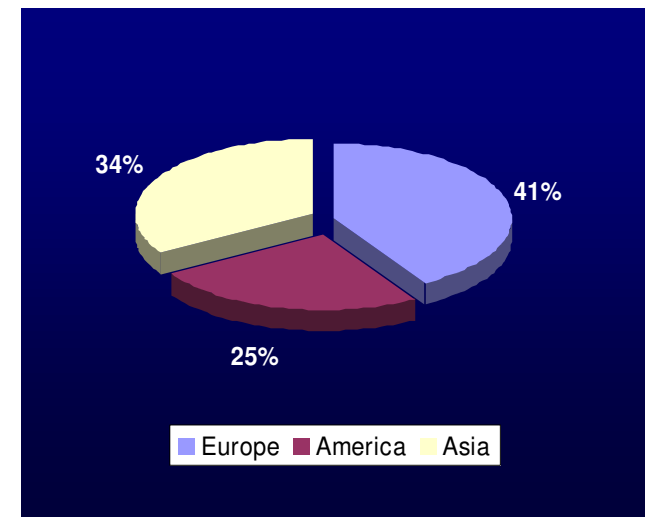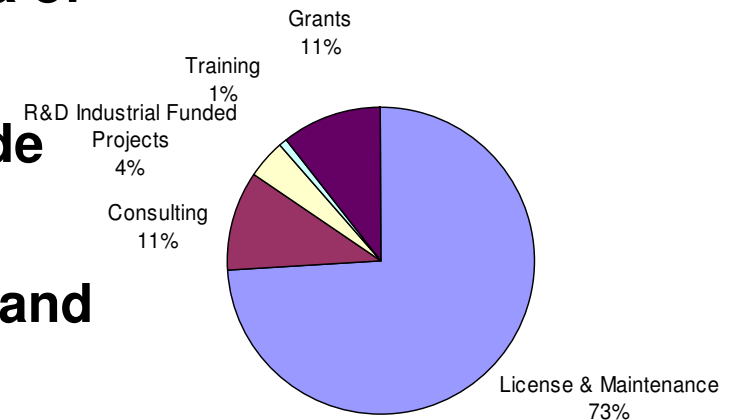
NUMECA Software Products

- **Turbomachinery Blade Design, Analysis and Optimisation**
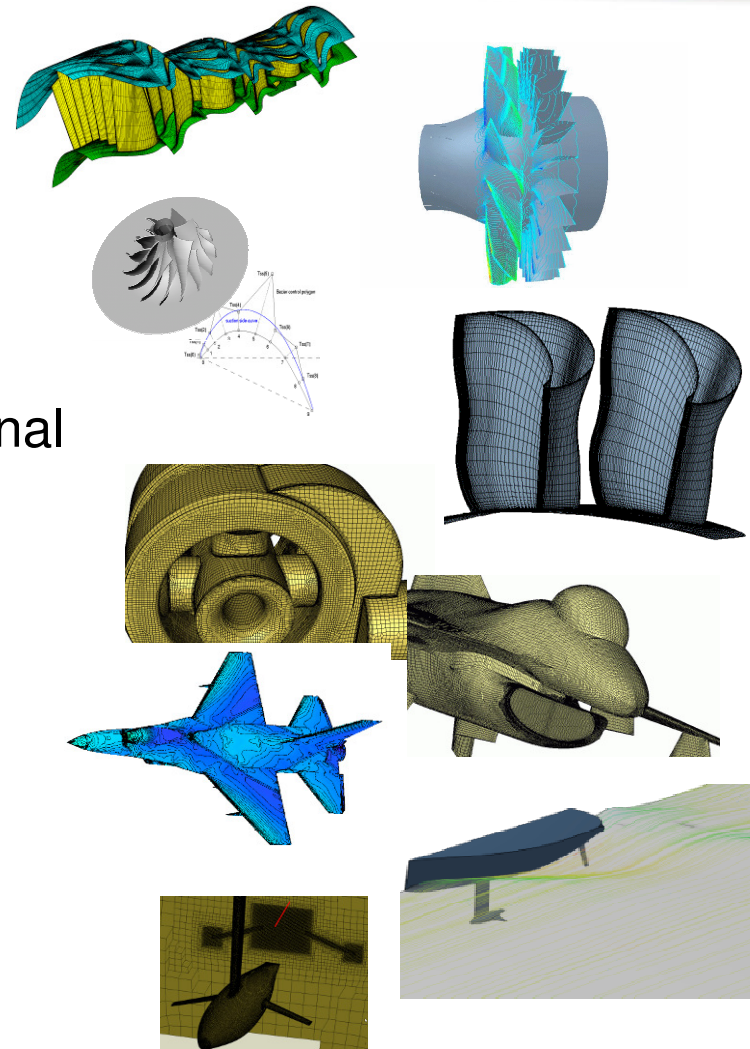   - **Autogrid™**
    - **FINE™/Turbo**
    - **Autoblade™**
    - **FINE™/Design3D**
    - **CFView**

- **Aerospace, Automotive, Chemistry Internal and external flows analysis**
    - **FINE™/Hexa:**
        - **HEXPRESS™**
        - **HEXSTREAM™**
        - **CFView™**

- **Naval Architecture, Marine Applications, Free surface flows**
    - **FINE™/Marine:**
        - **HEXPRESS™**
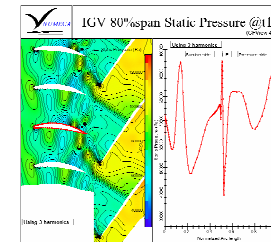   - **ISIS-CFD™**
        - **CFView™**

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FINE/Turbo v7.1

Automated Conjugate Heat Transfer Analysis
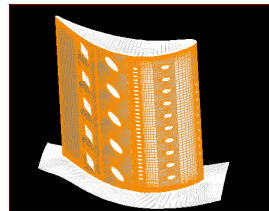
**Optimized CHT solver to run cases with up to 80 Mpts. Ongoing development.**

Our mission aims at giving pumps & turbomachinery designers faster and more reliable tools for better prediction of their product performances

Fast and affordable unsteady simulation within design cycle

Non linear harmonic model

Automated meshing of 3D non axisymetric items such as hole, seal, bassin, cavity…

AutoGrid v5

Multidisciplinary
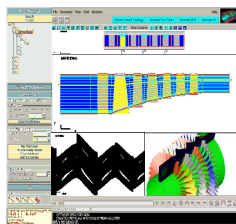
Fluid/Structure interaction

Higher accuracy through better modeling

Transition, V2F and SST Turbulence models - non reflecting BC – improved source cooling/bleed model – cavitation - thermodynamic tables…

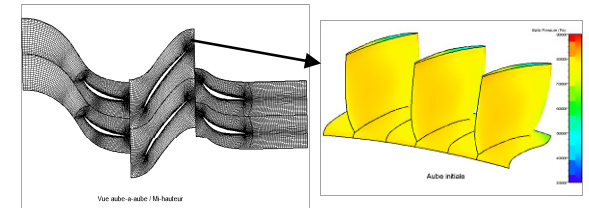www.numeca.com

FINE/Design3D V2.6

Higher interactivity, flexibility and capabilities in AutoBlade
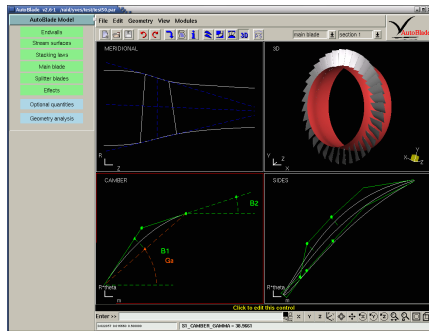
AutoBlade V 2.6

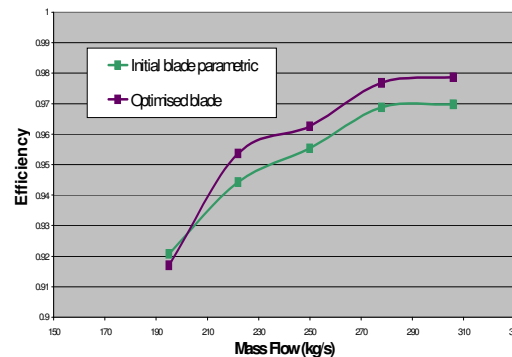### Our mission is to give pumps & turbomachinery designers advanced and efficient integrated design and optimization tools

Multi-Stage optimization

Higher performances

Improved task manager, parallel calculation, objectives functions...
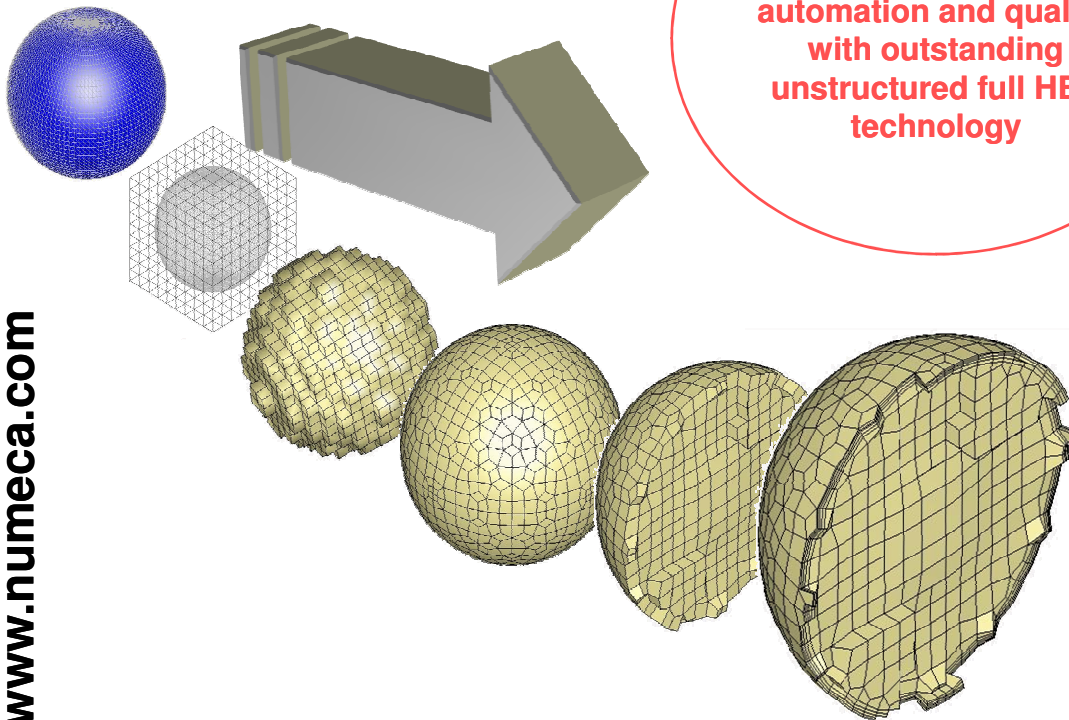
Multi-point optimization

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HEXPRESS V2

Meshing all complex geometries, while keeping the same level of automation and quality, with outstanding unstructured full HEX technology
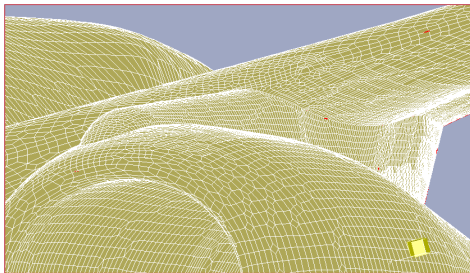
NUMECA
INTERNATIONAL

FINE/Hexa v2.1

Higher level of automation and more capabilities in mesh generation

HEXPRESS V2.2

Extend the application range of FINE/Turbo to complex & general applications, while keeping the same level of automation, quality and accuracy, with outstanding unstructured technology
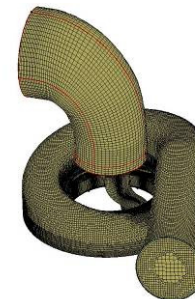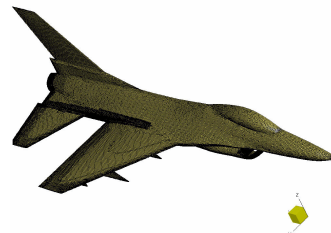
Higher accuracy through better modeling

Rotating frame of reference – advanced Conjugate Heat transfer – adaptation…

Full mesh flexibility for incorporation of rotating components

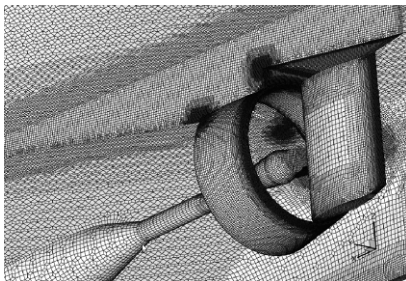**Multidisciplinary**

Fluid/Structure interaction

(ANSYS coupling - generic MPCCI interface - mesh deformation…): ongoing development

Still faster convergence

Multigrid with agglomeration

HEXPRESS v2 + AutoGrid v5 + IGG

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FINE/Marine v1.0

**Higher level of automation and more capabilities in mesh generation**

HEXPRESS

Extend the application range of NUMECA products to Marine applications offering the high level of automation, quality and accuracy, with outstanding unstructured technology

Higher accuracy through better modeling

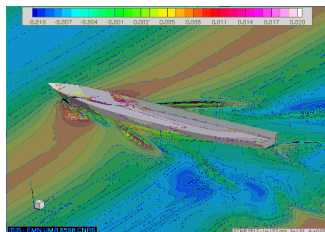Complex geometries (unstructured full-hex mesh)

Many advanced statistical models for turbulence
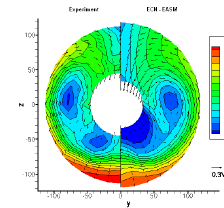
Model scale flow in the propeller disk of Nawigator XXI

Free-surface

Free-surface or cavitating flows (interface capturing) within « Mono-fluid framework »

Faster design turn around time

• Automatic grid generation HEXPRESS
• Parallel computations
• Recent industrial study:
9 days from IGES complex database to the delivery of full-scale free-surface CFD results (for 6 million points).

Free-surface elevation at y=cst.

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