The 3rd Intelligent Industrial Design Conference
& 2018 Users Conference of Tianfu Software

Unlimited CFD simulations using TCFD®

September 7, 2018

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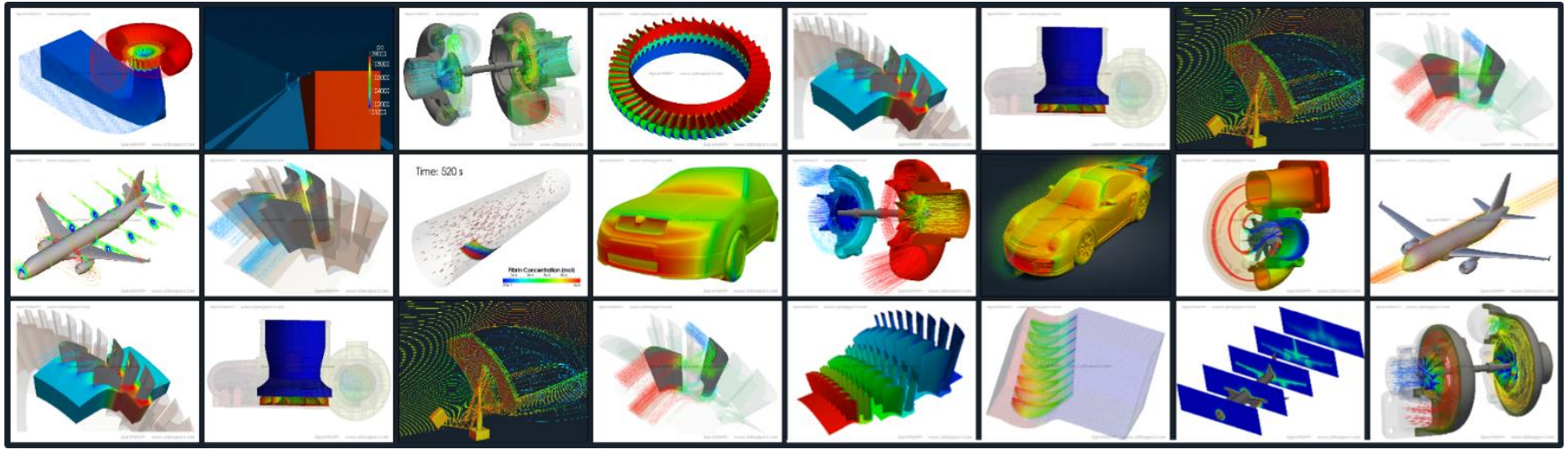
CFDsupport

CFD = Computational Fluid Dynamics



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CFDsupport = **Virtual Prototyping**

"We build bridges between design and manufacturing."

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The way of thinking

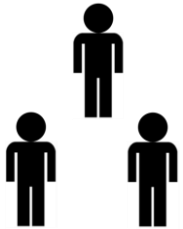
“In a time of drastic change

it is the learners who inherit the future.”

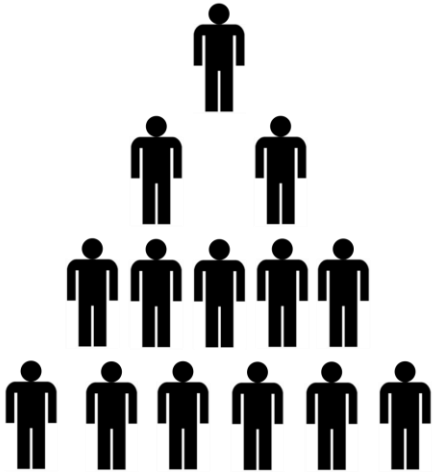
Eric Hoffer, philosopher

Democratization of CFD:
More people are getting involved

Past



Future



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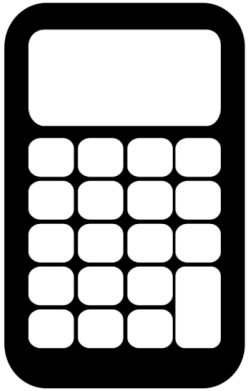
Automation: Workflow is changing rapidly

Past

Future



Engineering: Software Integration

Past

DESIGN TEST

CAD CFD FEM

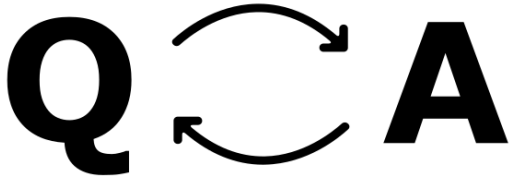
OPTIMIZATION

Future

Optimization: Game Changer in CFD

Past

- CFD used to give us one answer on one question



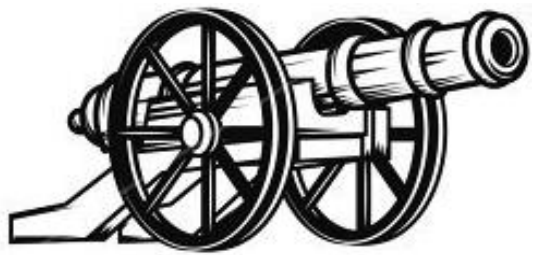
Future

- CFD tells us what is the best option

Focused vs. General Purpose CFD codes

Past

- General purpose CFD codes



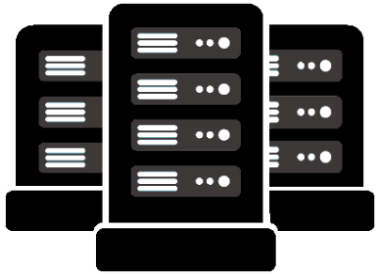
Future

- Focused CFD codes

High Performance Computing: Pay per Use

Past

Future



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Code mode: Open-source

Past

Black box

Future

Open-source

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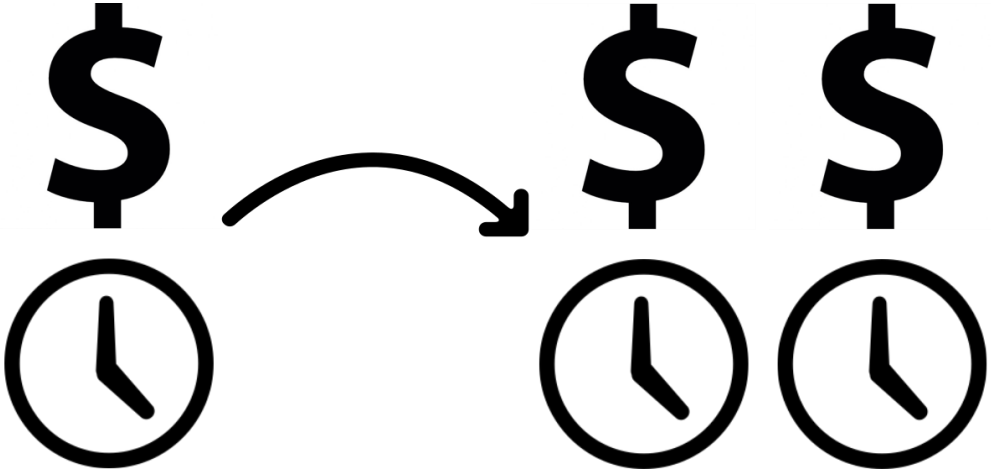
Time & Costs: Scalability



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Trends and challenges in CFD for 21st century

- Democratization
- Automation
- Integration
- Optimization
- Focus
- Open-source
- Scalability

- Cloud computing
- Multiphysics
- Graphical Processor Unit
- CAD Embedding
- Mobile Devices
- Artificial Intelligence
- Related to each other

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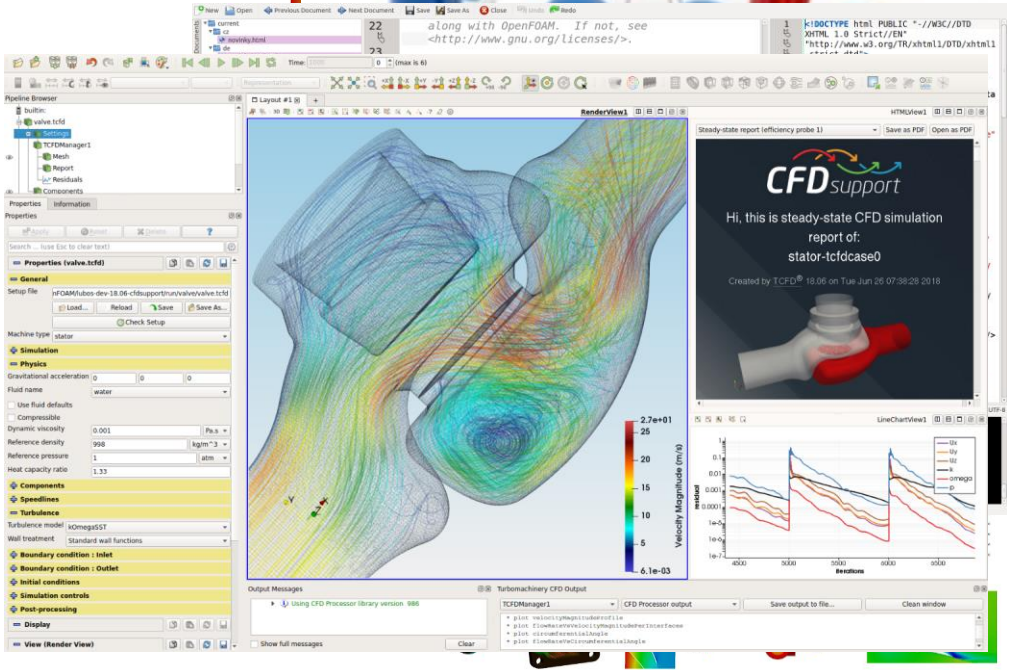
The way of thinking

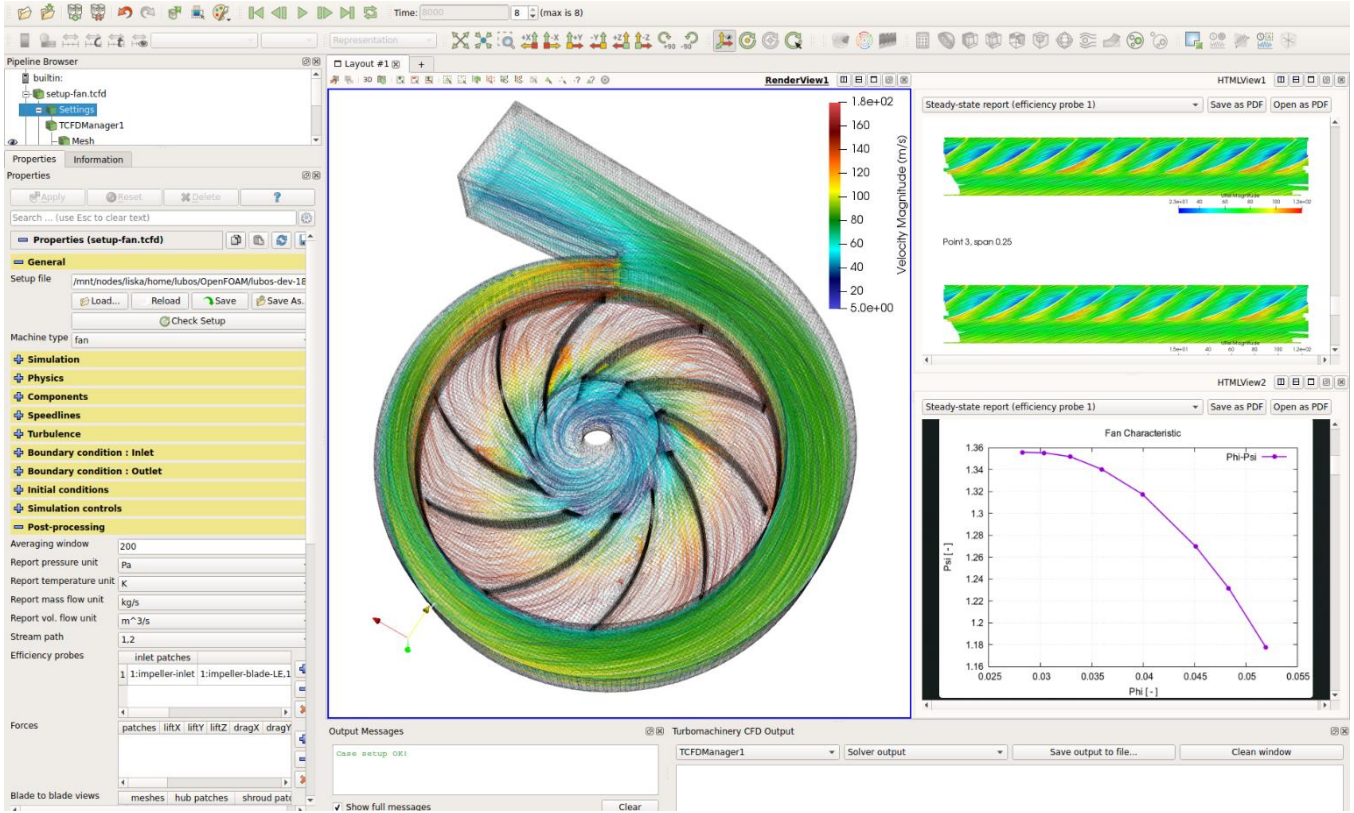
- We follow the latest trends in CFD
- We reflect the engineering needs
- We always innovate
- **We are always on the way**

CFD support - Services

- CFD Engineering Projects
- OpenFOAM Training
- OpenFOAM support & development
- TCFD®

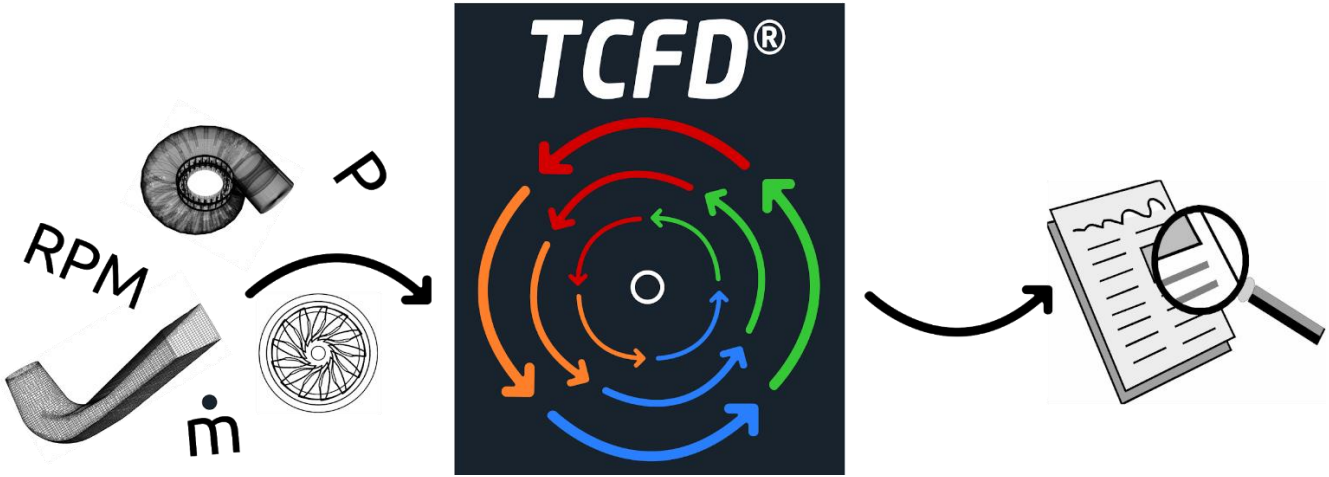


TCFD® - Focused & Unlimited Software



TCFD® - Focused & Unlimited Software

- Unique simulation code: Focused & Unlimited
- Merged open-source and commercial code
- Data in - data out.



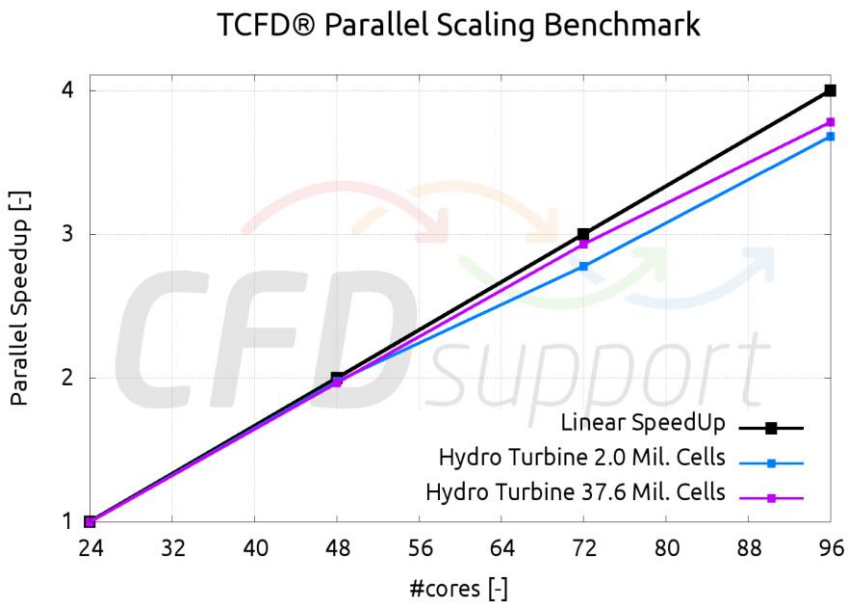
TCFD® - Unique Value

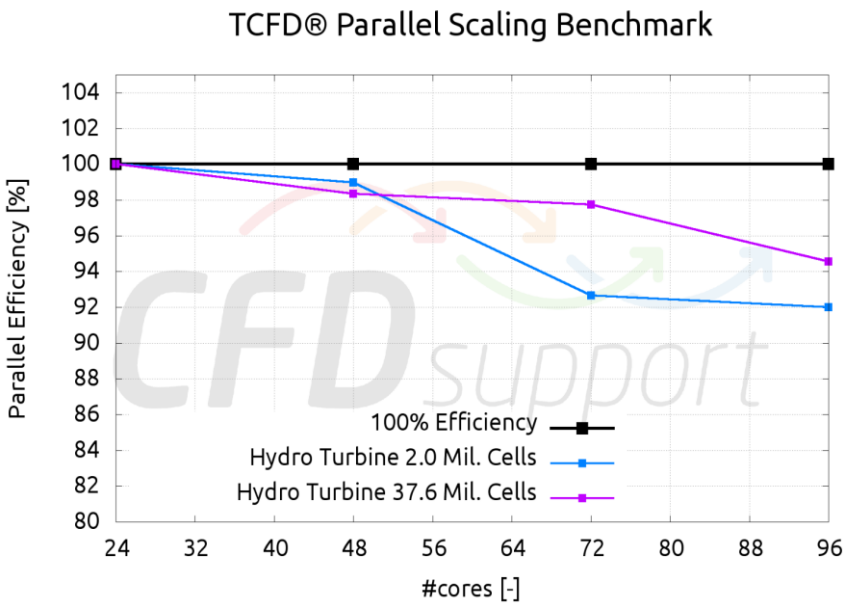
- Unlimited = perpetual, unlimited users jobs and cores
- Automated & Focused = extremely effective
- Technical Support = flexible, custom approach
- Real Tutorials = best practice settings

TCFD® - Technical Details

- Windows and Linux
- 100% workflow in GUI
- Batch mode available
- Scriptable
- Automated Meshes
- External Meshes
- Demo Available
- Real Tutorials
- Strong PostProcessing
- HTML Reporting
- Turbo Blade Post
- Documentation, manual, videos
- Resources Available Online
- Users driven development

Parallel Scaling Case Study





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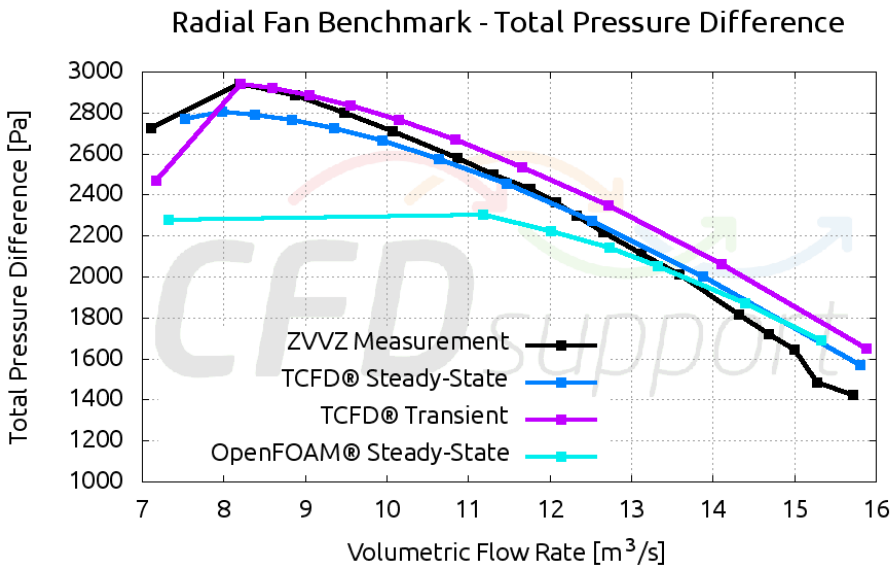
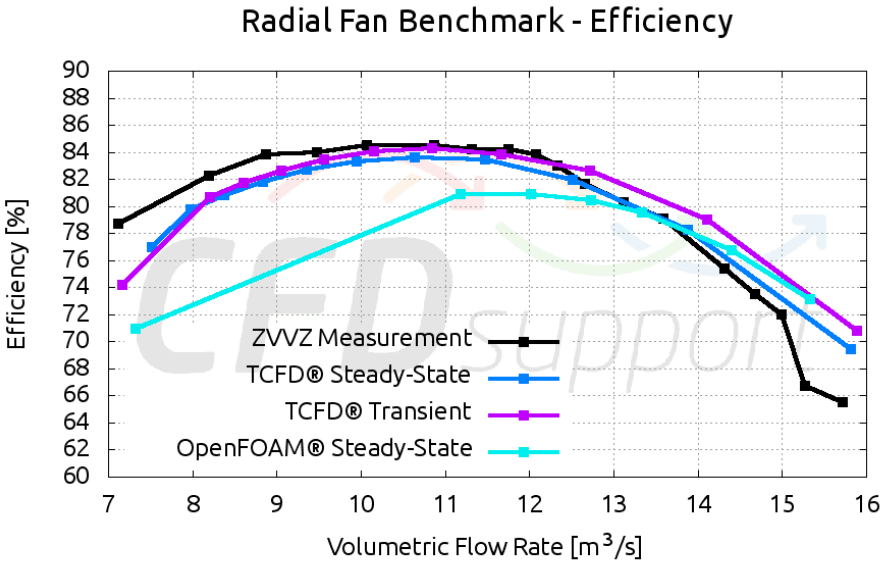
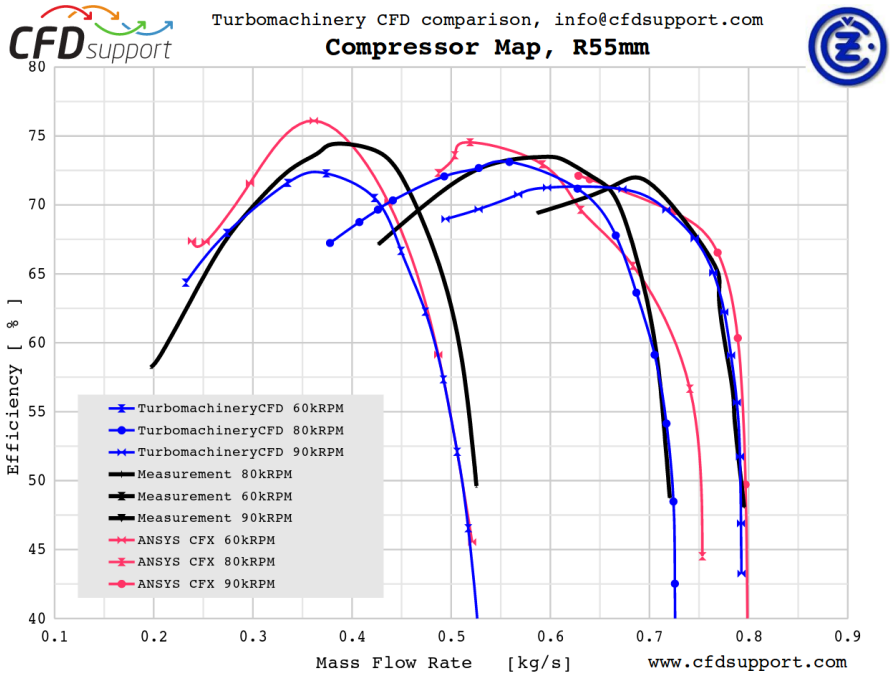
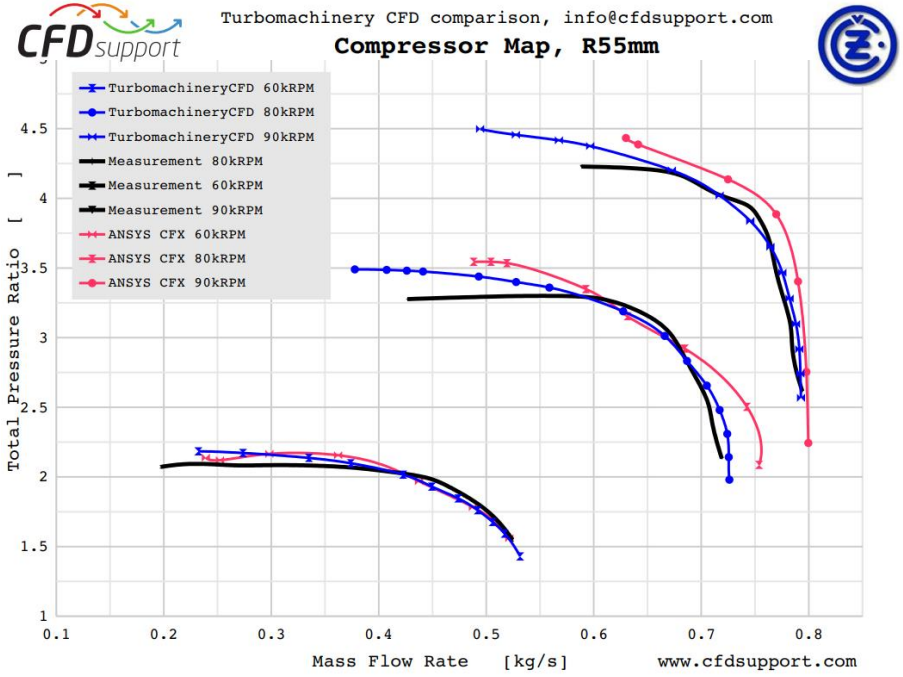
Fan Case Study



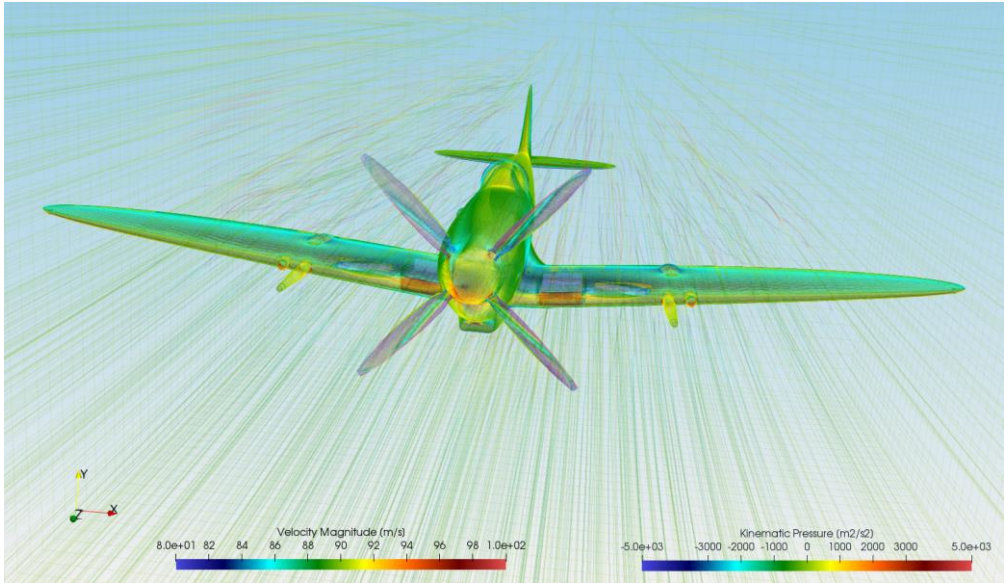


Radial Compressor Case Study





TCFD® Case Spitfire



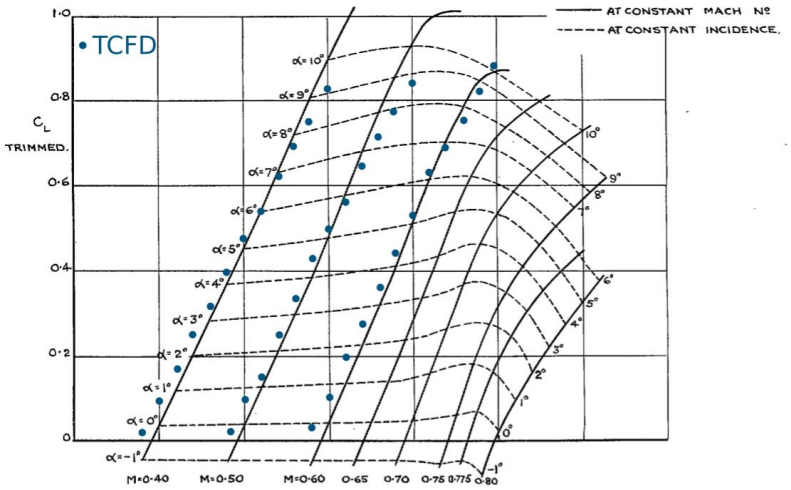
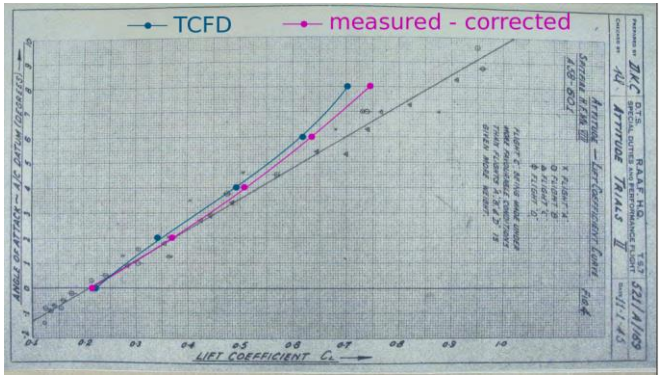


FIG. 2. Lift carpet. (Not corrected for blockage.)



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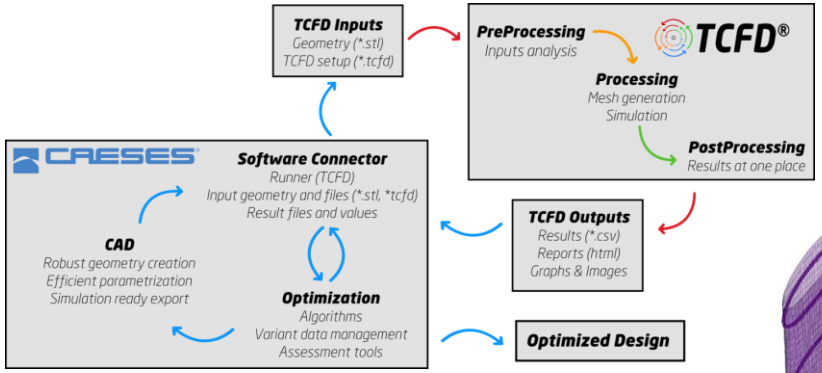
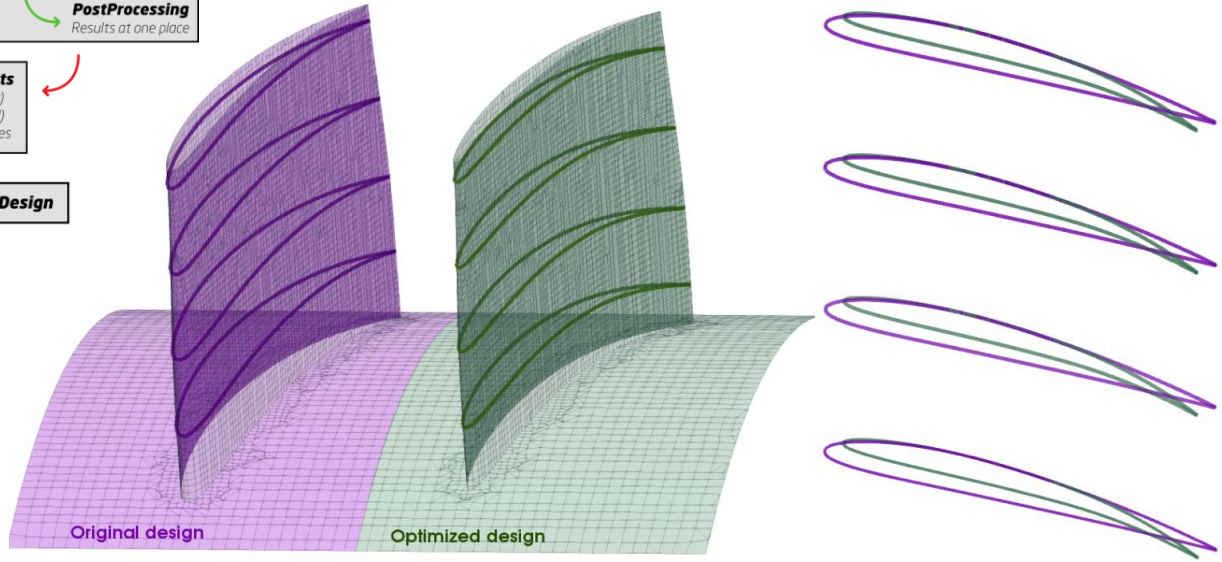
Axial Fan Optimization Case Study





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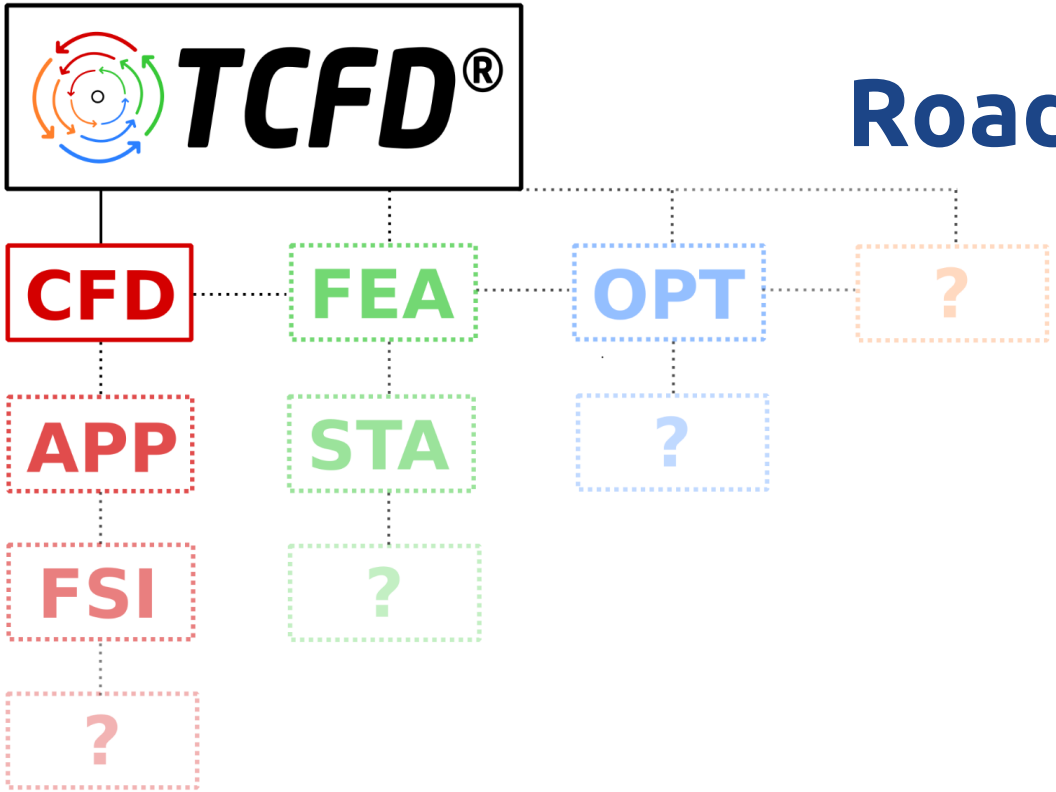
Road Map



- Customer Driven Development
- Complex CFD like Workflow
- Horizontal Development
  - New Tools
  - Simulation Plugins
- Vertical Development
  - New Applications
  - Hi Tech Methods
- Feel Free To Recommend One

Thank you for your attention!

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