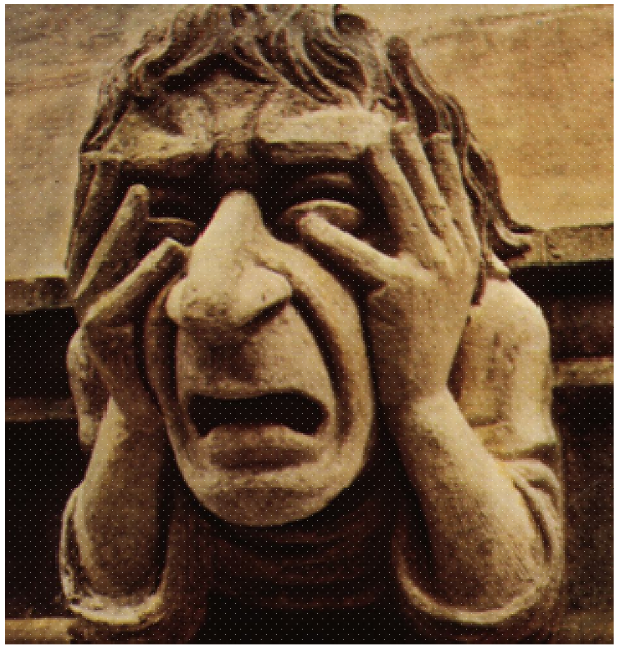
The Subcontractor Dilemma



In the commercial aerospace industry

Gil Strauss
V.P. Engineering
Blades technology Ltd

October
2010

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GEnX Project Road map

GE

2004: Project kickoff
2005: Component Verification
2008: Component Qualification
2010: Production ramp up + PIP2

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Component qualification 2008

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GEnX Project Road map

GE

2004: Project kickoff
2005: Component Verification
2008: Component Qualification
2010: Production ramp up + PIP2

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2004: Supplier Investment in the project
2005: 5 Stages vanes industrialization
2008: Final qualification
2010: Production ramp up + PIP2

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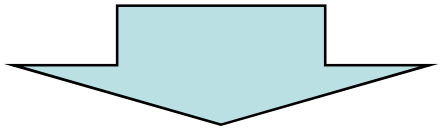
GEnX Performance and requirements:

GE

- 12% improved fuel consumption (2 M$ /Plane / Year)
- Reduced CO_2 emission
- Noise reduction (12 – 17 % in noise footprint)
- Low Cost – Maintenance & Spare parts



BTL Challenge

- Highly complex geometry
- Tighter profile tolerances
- Tighter Leading edge tolerances
- Fast development and reaction to quick changes
- Low production cost

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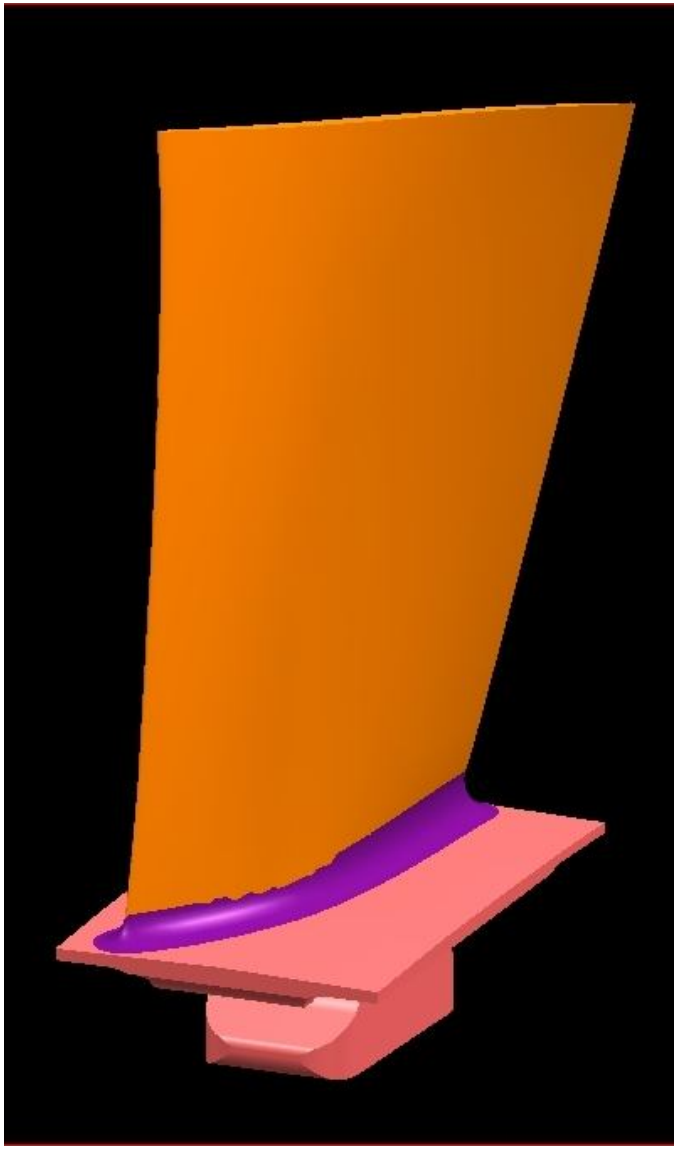
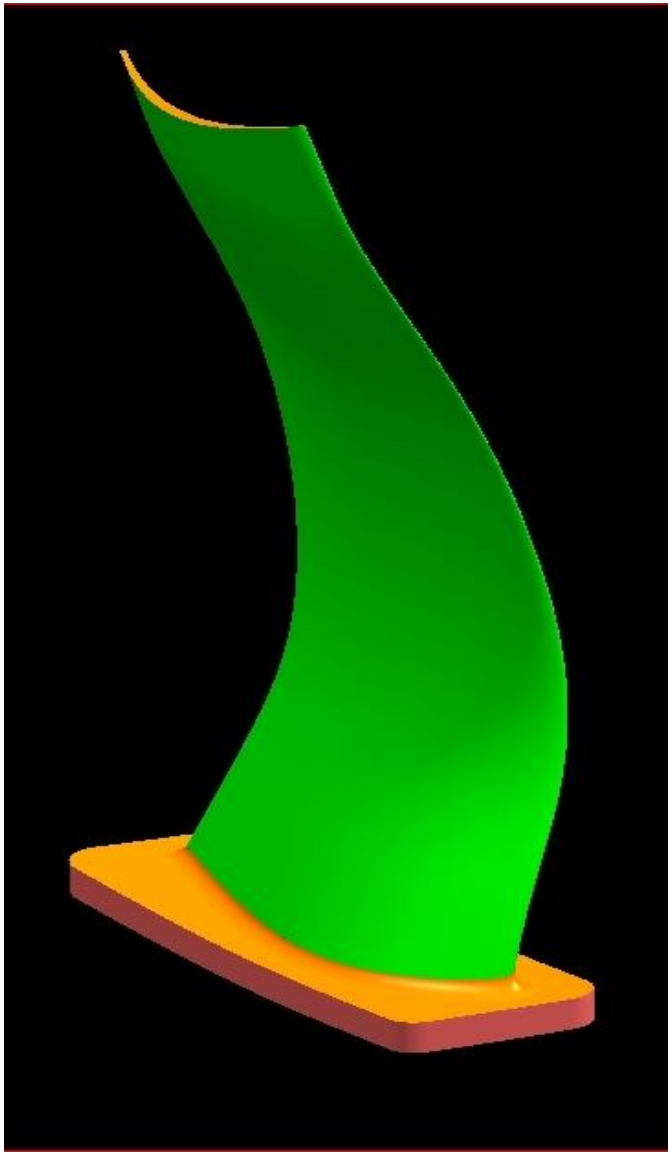
CFM 56 Rotor - “Old design”

GEnX Stg. 5





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The supplier Dilemma

- Long term financing: 7 – 9 years ROI
- High risk (no success guaranteed)
- Fast development tools required – simulations and offline programming
- Demanding geometries require advanced machining technologies
- Investment in new production technologies - Capital

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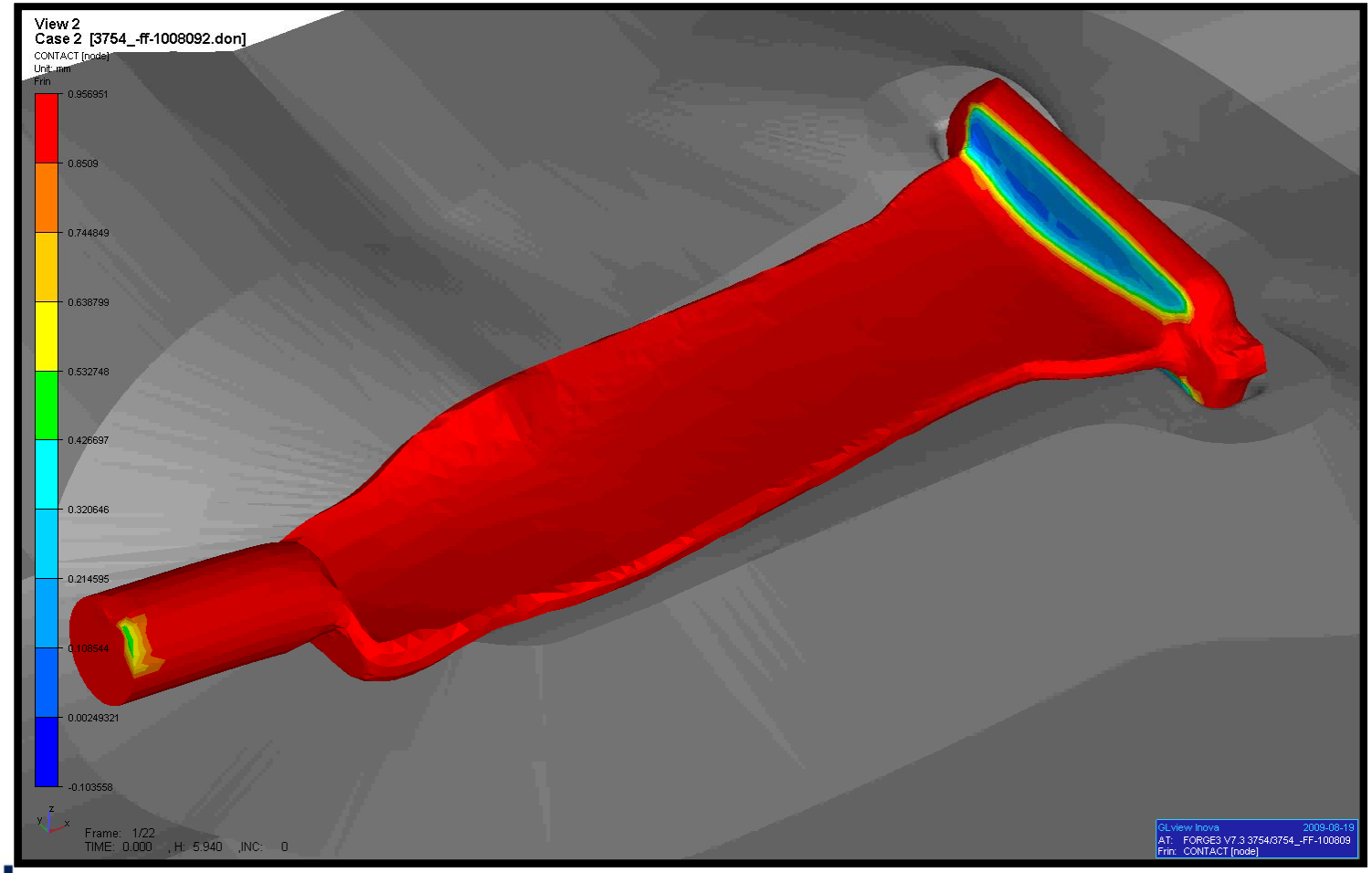
Forging process simulation

- Reduced risk
- Faster design



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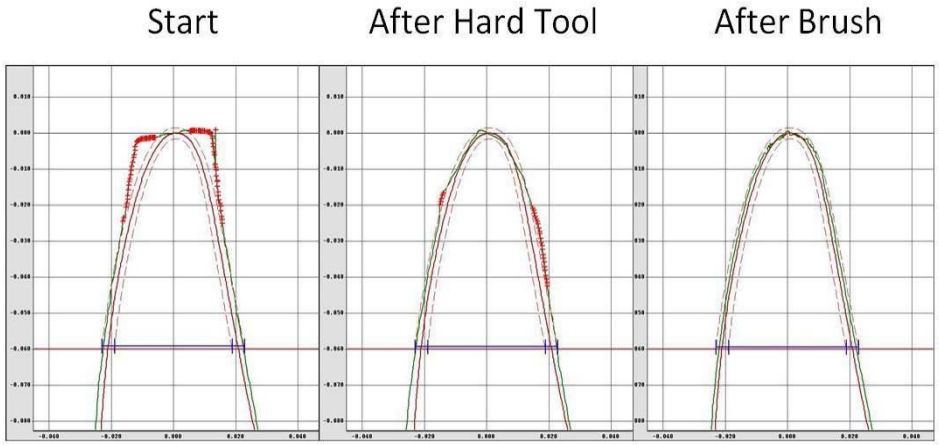
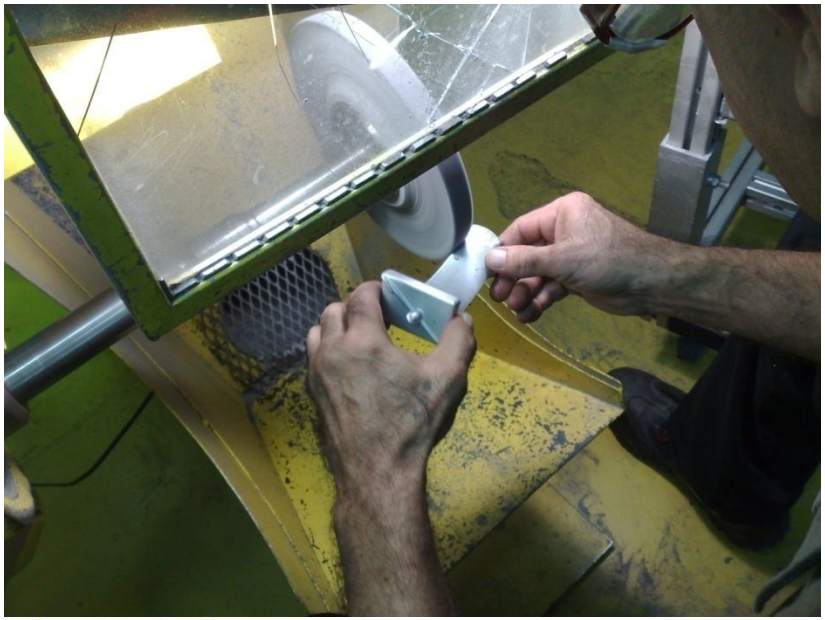
Leading Edge profiling

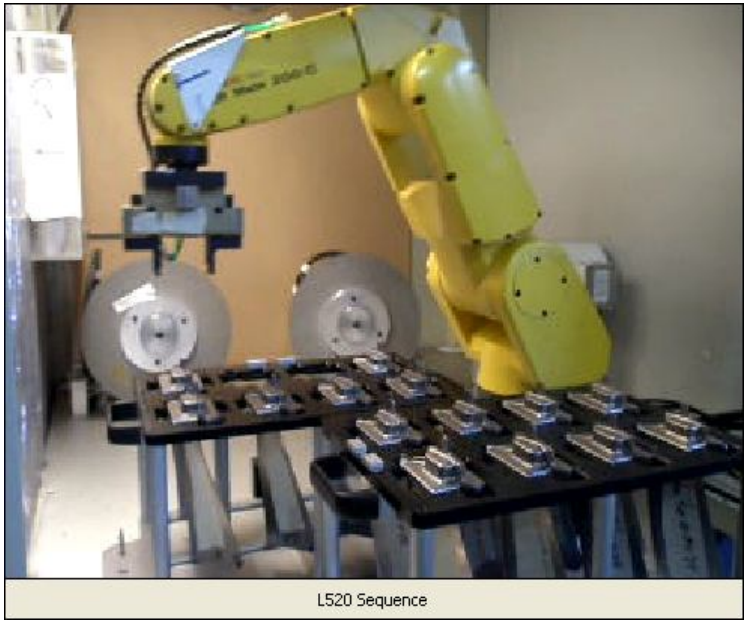
- Higher accuracy
- Improved stability
- Lower cost



Manual process



Automated process



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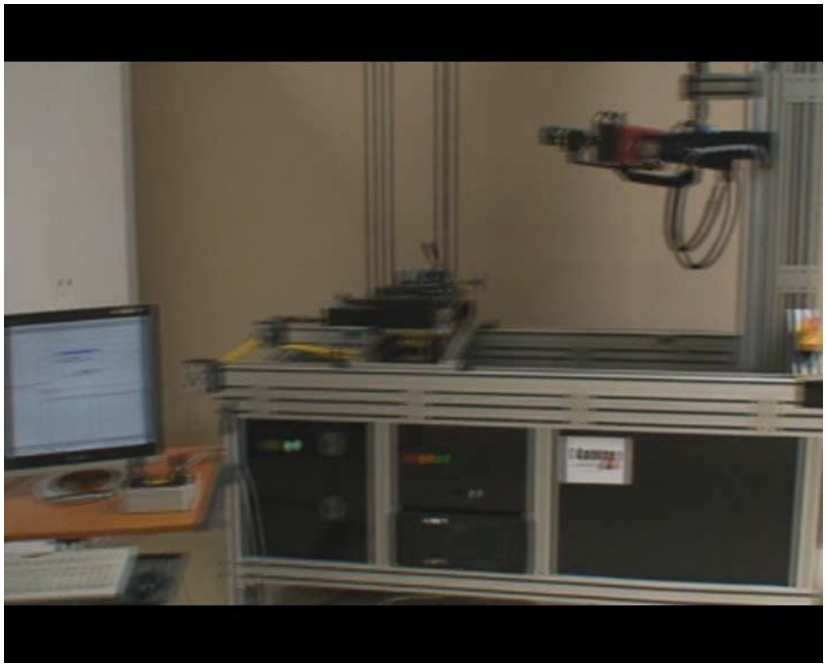
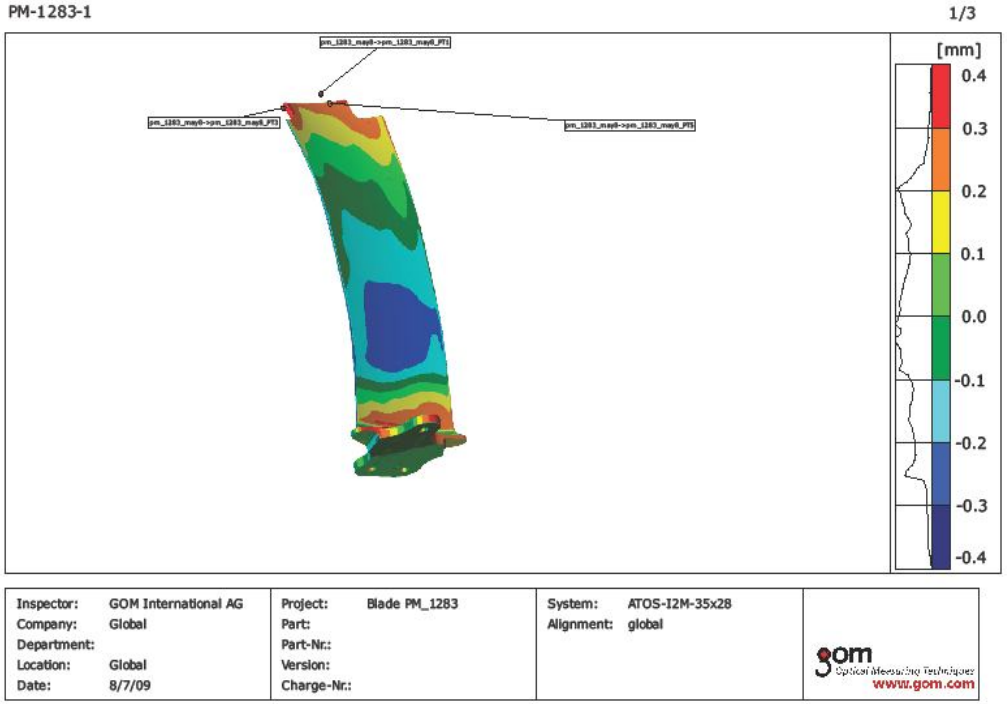
Advanced metrology tools

- 3D optical metrology – white light
- Fast comparison between Part and mode





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Conclusions

- Be ready for long term “Risky” investment
- Build infrastructure for continues investment in technology
- Build contacts for Concurrent engineering From the first step.

- It’s the big boys game !

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Thanks !

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