

Solid Edge CAD Standards

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Standardization Defined

- Optimizing a documented implementation
- tailored to advance a particular business
- starting at current conditions
- expanding to govern the entire operation

Don't look to others. . .



Tailor your own standards. . .



for the perfect fit.

An Infant Star. . .

Solid Edge Un-standardized

FOCUS on BENEFITS

ENHANCE

- communication
- productivity
- alternatives
- compliance
- quality

DIMINISH

- cycle time
- delivery time
- stress
- errors
- overtime



The Crucible

- Reduced costs
- Better products
- Responsiveness
- Ease & Comfort



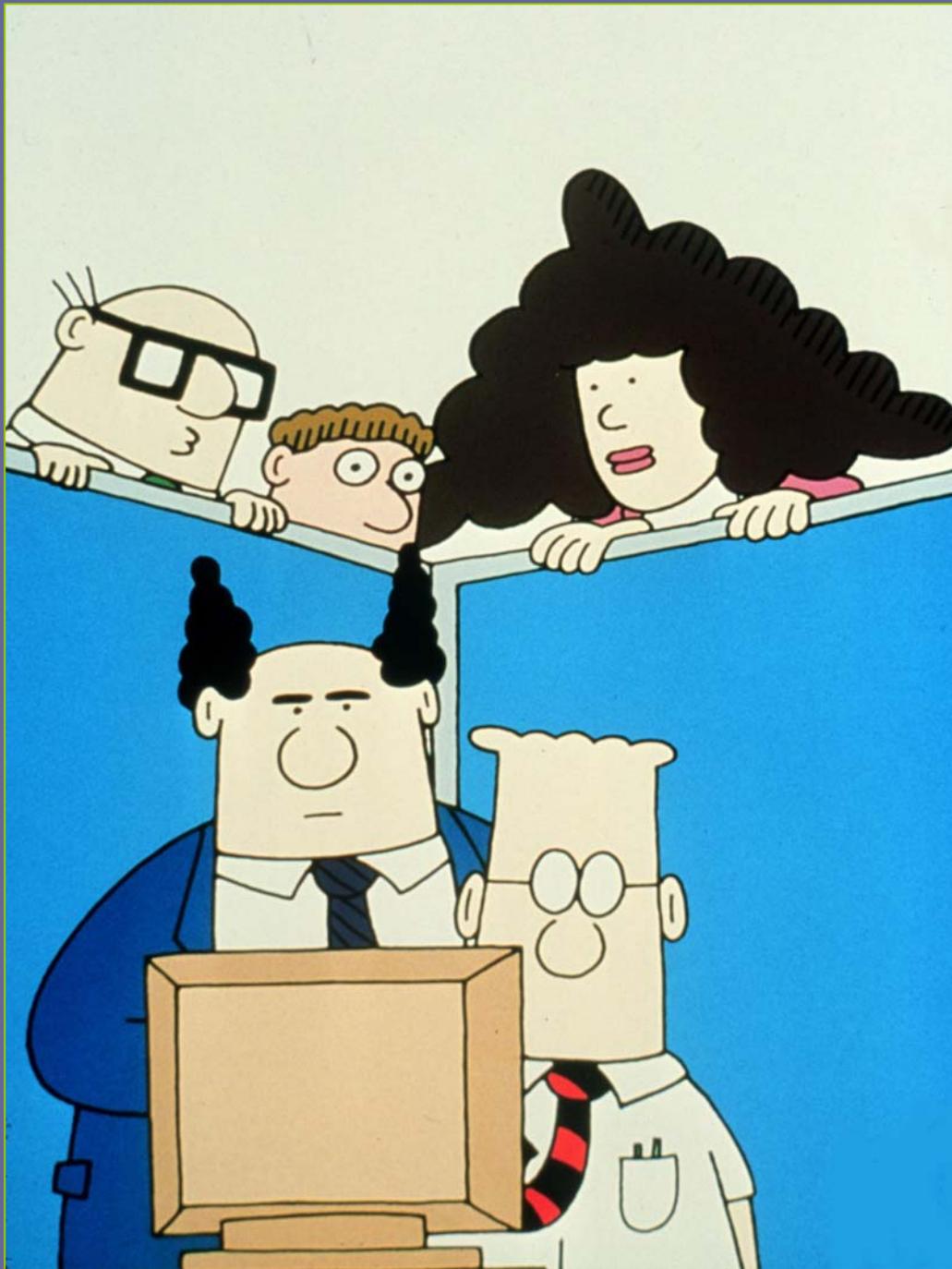
products = value

value $\leftarrow \rightarrow$ \$\$\$

time/cost/quality

\wedge value \rightarrow \wedge \$\$\$

Engineering using business ideas. . .

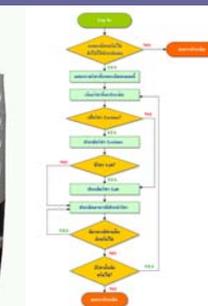


Team Building

- Management
- Principles
- Vision
- Best practices
- Training

Standardize *this* . . .

- Part designators*
- Template files*
- Drafting conventions*
- Part modeling*
- Assy modeling*
- Specifications
- Data management*
- Design workflows
- CAD computers*
- Parts libraries
- Version updating
- Keyboard shortcuts*
- Training
- CAD Manager



Then Standardize *THIS* . . .

- Data Management -- PDM or PLM
- Design for Manufacturing (DFM)
- Model-based Manufacturing (MBM)
- Design Process Automation

Find the best practices your company needs
-- *and implement them with Solid Edge!*

60p

More real life for your money

Pick Me Up

BEST NEW MAGAZINE



SAFE WITH GRANDMA

after our Mummy KILLED Daddy



The quick FLASH that caught my cheating wife out

BIG CASH PUZZLES!

GHASTLY goings-on in our garage



SHOCK SURGERY

Cut open - and I FELT every slice



EMERGENCY! Trust me... I'm a toddler

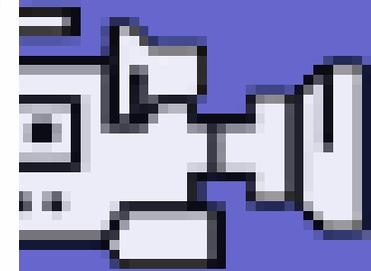


Evil crept upstairs

Mum slept as her KILLER tip-toed silently through the darkness



ories real



ES

ories real

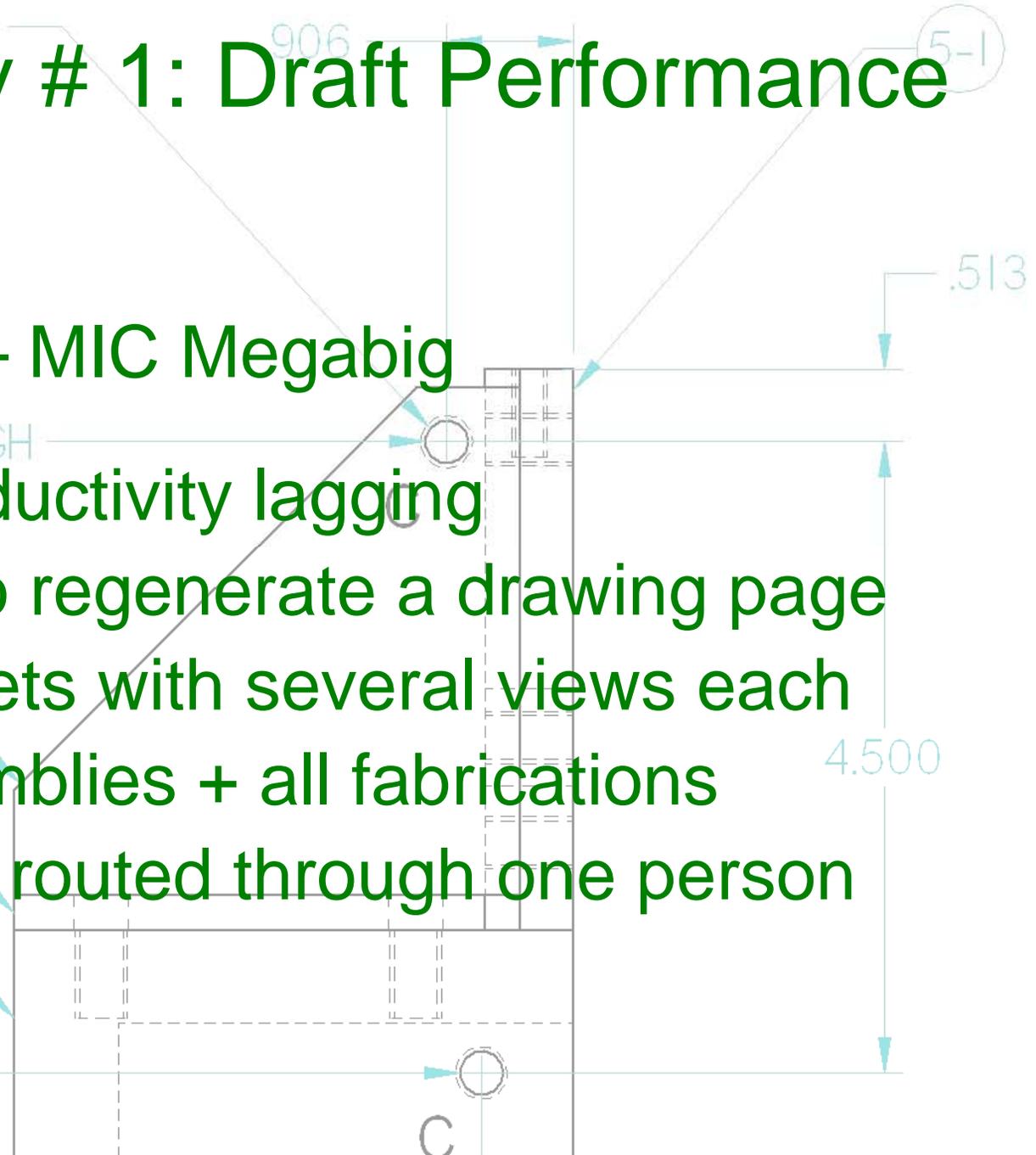
4X 3/8-16 UNC-2B
2NS & 2FS

Case Study # 1: Draft Performance

The Problem – MIC Megabig

- Drafting productivity lagging
- 2 hrs. plus to regenerate a drawing page
- Multiple sheets with several views each
- 38 top assemblies + all fabrications
- Checking all routed through one person

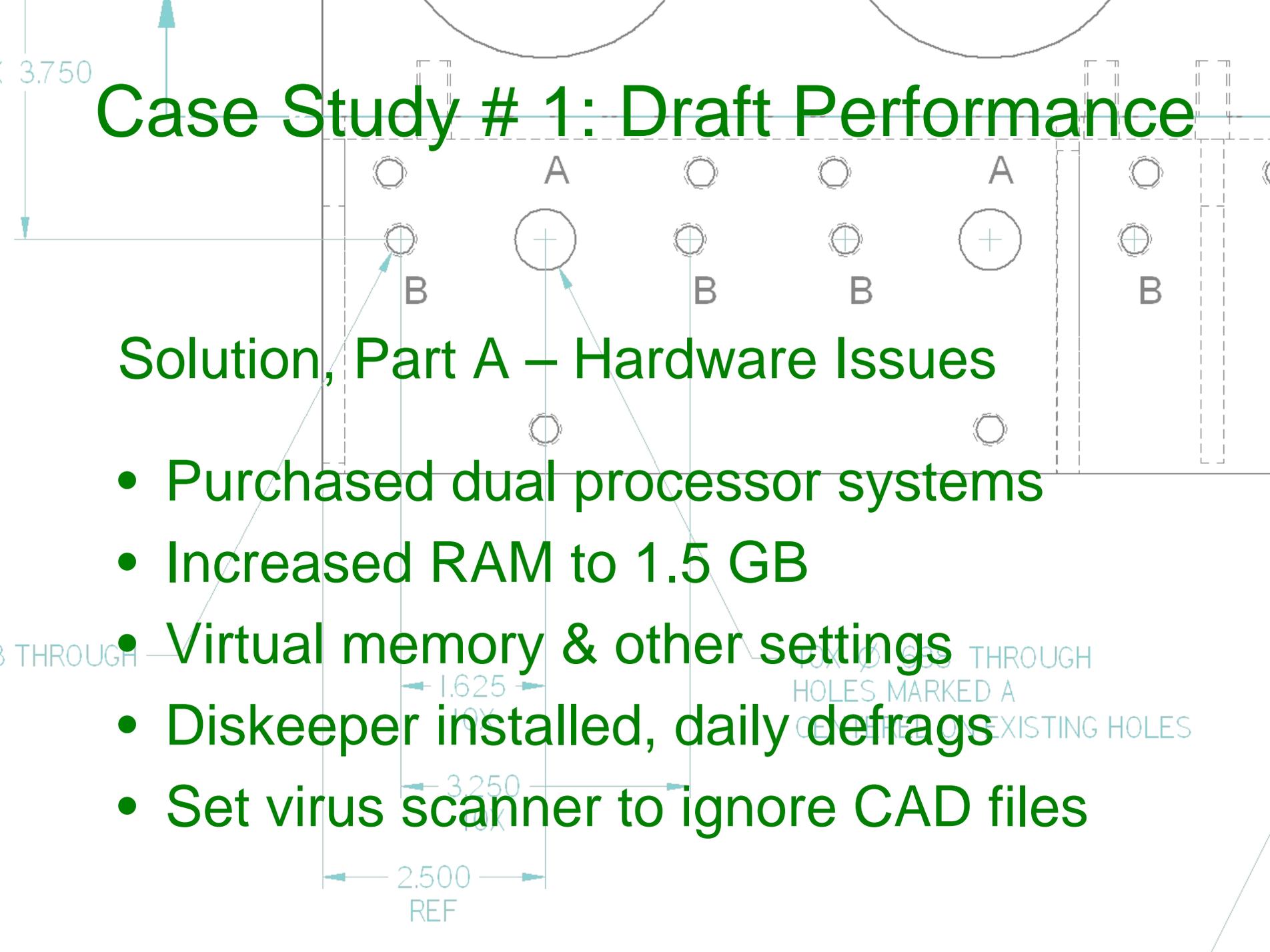
2X ∇ .625
NS & FS



Case Study # 1: Draft Performance

Solution, Part A – Hardware Issues

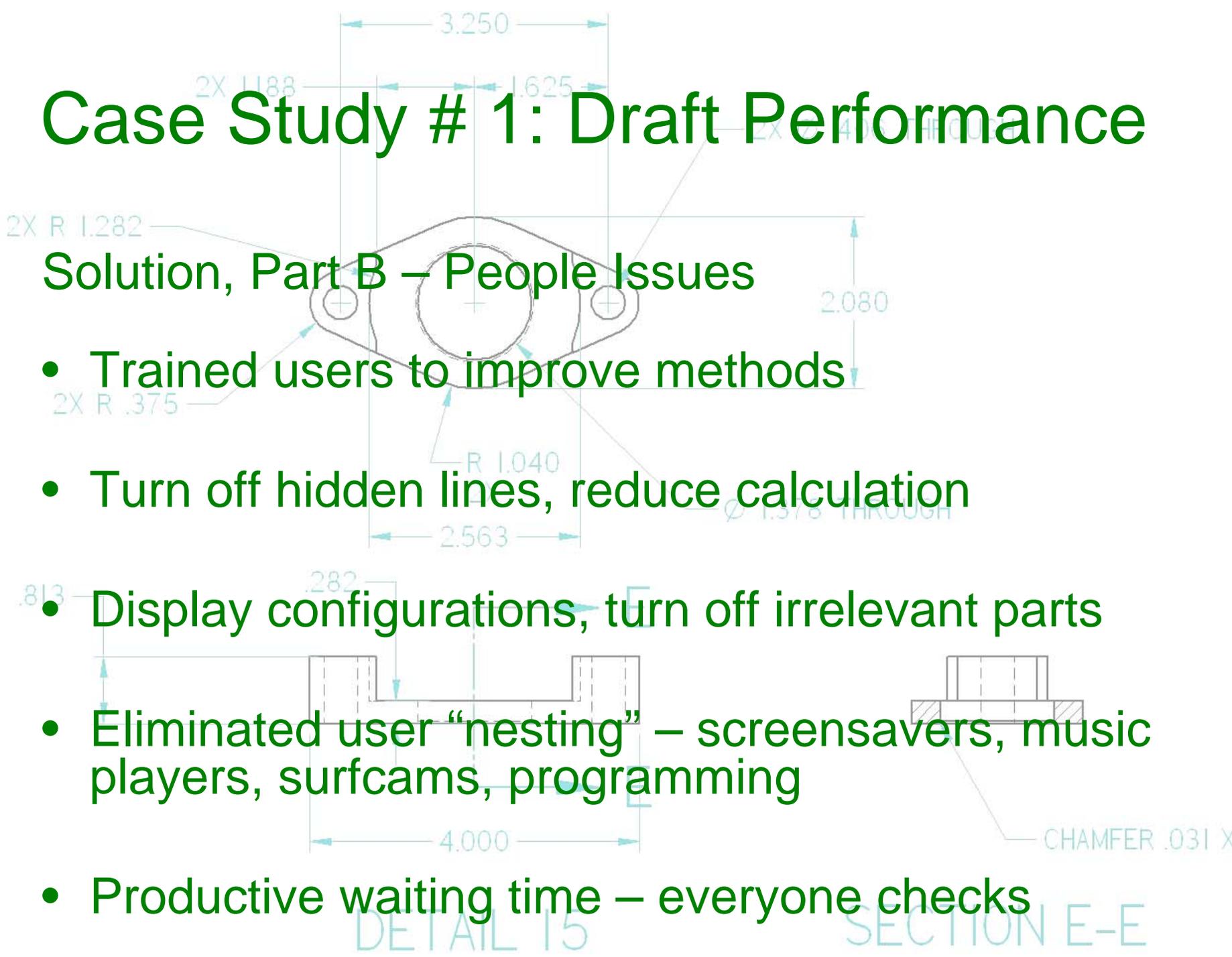
- Purchased dual processor systems
- Increased RAM to 1.5 GB
- Virtual memory & other settings
- Diskkeeper installed, daily defrags
- Set virus scanner to ignore CAD files



Case Study # 1: Draft Performance

Solution, Part B – People Issues

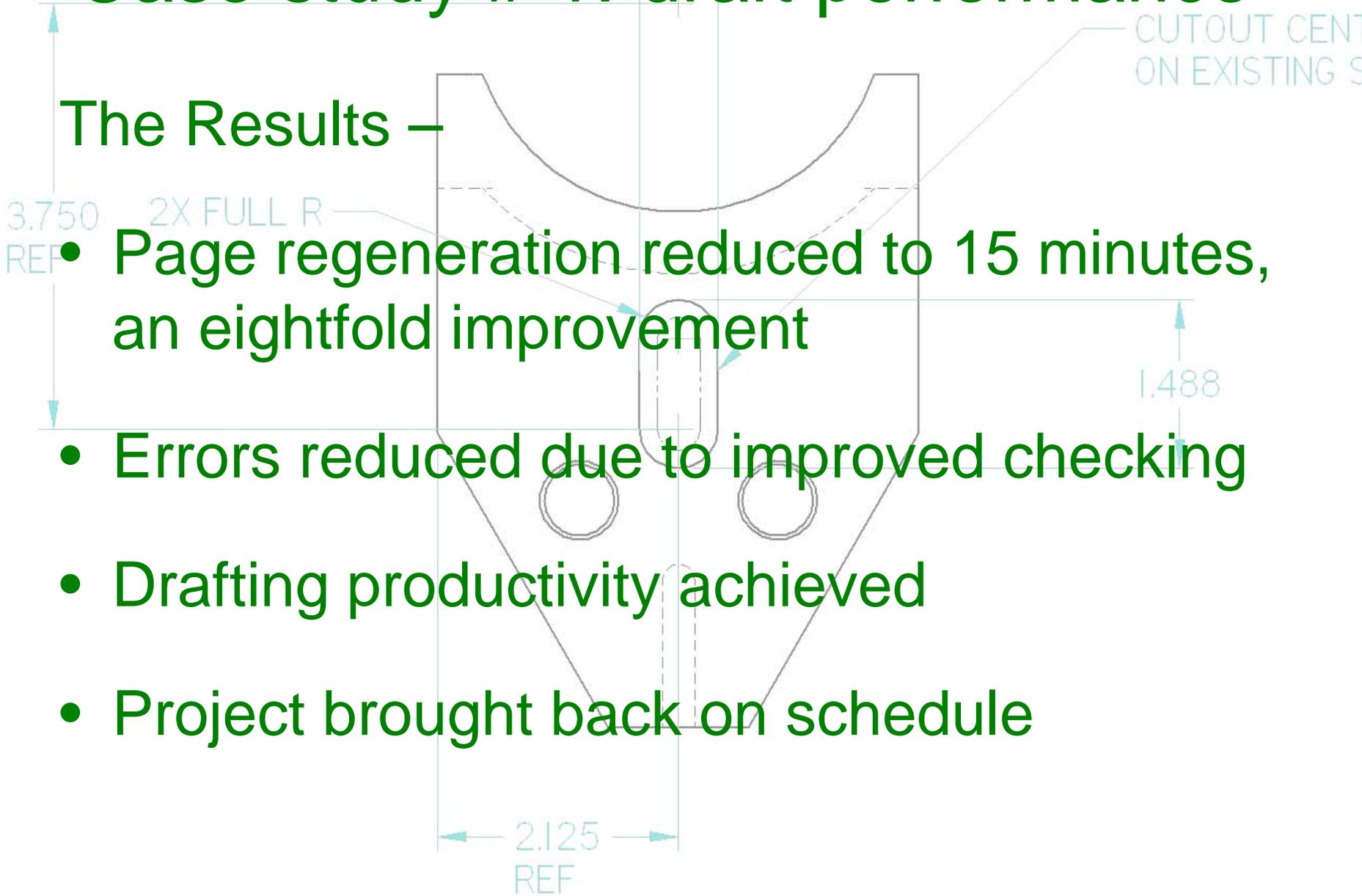
- Trained users to improve methods
- Turn off hidden lines, reduce calculation
- Display configurations, turn off irrelevant parts
- Eliminated user “nesting” – screensavers, music players, surfcams, programming
- Productive waiting time – everyone checks



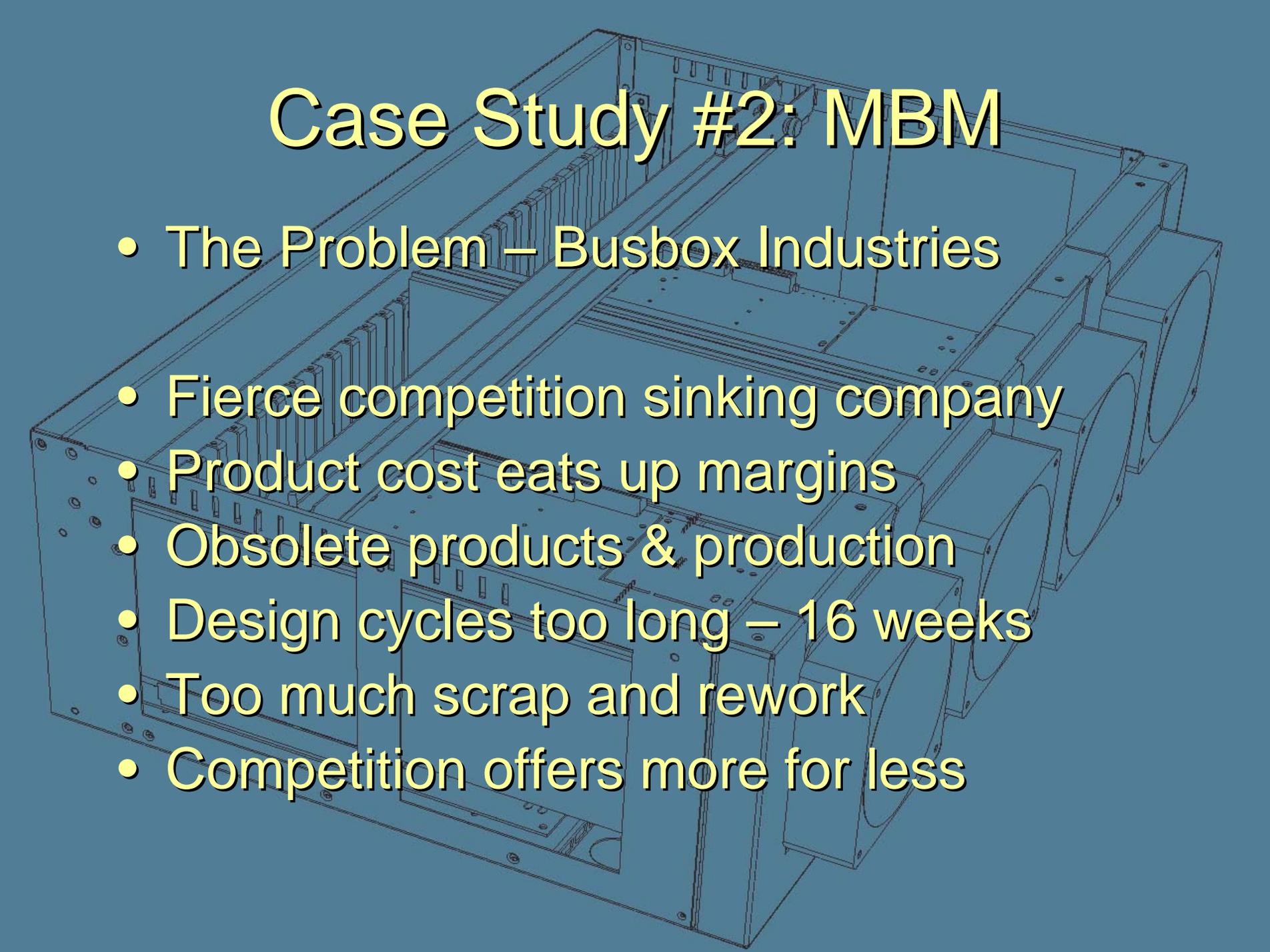
Case study # 1: draft performance

The Results –

- Page regeneration reduced to 15 minutes, an eightfold improvement
- Errors reduced due to improved checking
- Drafting productivity achieved
- Project brought back on schedule



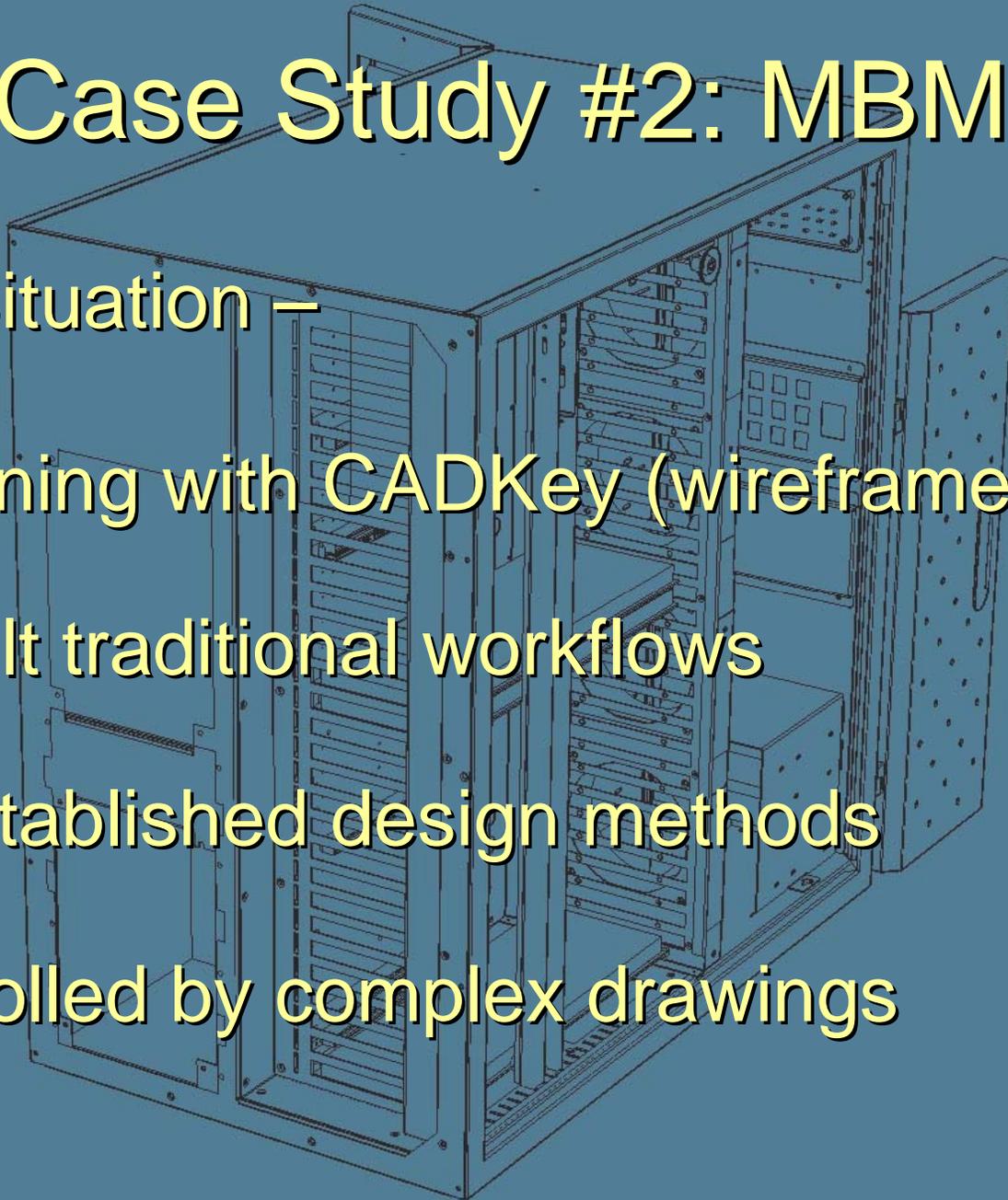
Case Study #2: MBM



- The Problem – Busbox Industries
- Fierce competition sinking company
- Product cost eats up margins
- Obsolete products & production
- Design cycles too long – 16 weeks
- Too much scrap and rework
- Competition offers more for less

Case Study #2: MBM

- The Situation –
- Designing with CADKey (wireframe)
- Default traditional workflows
- No established design methods
- Controlled by complex drawings



Case Study #2: MBM

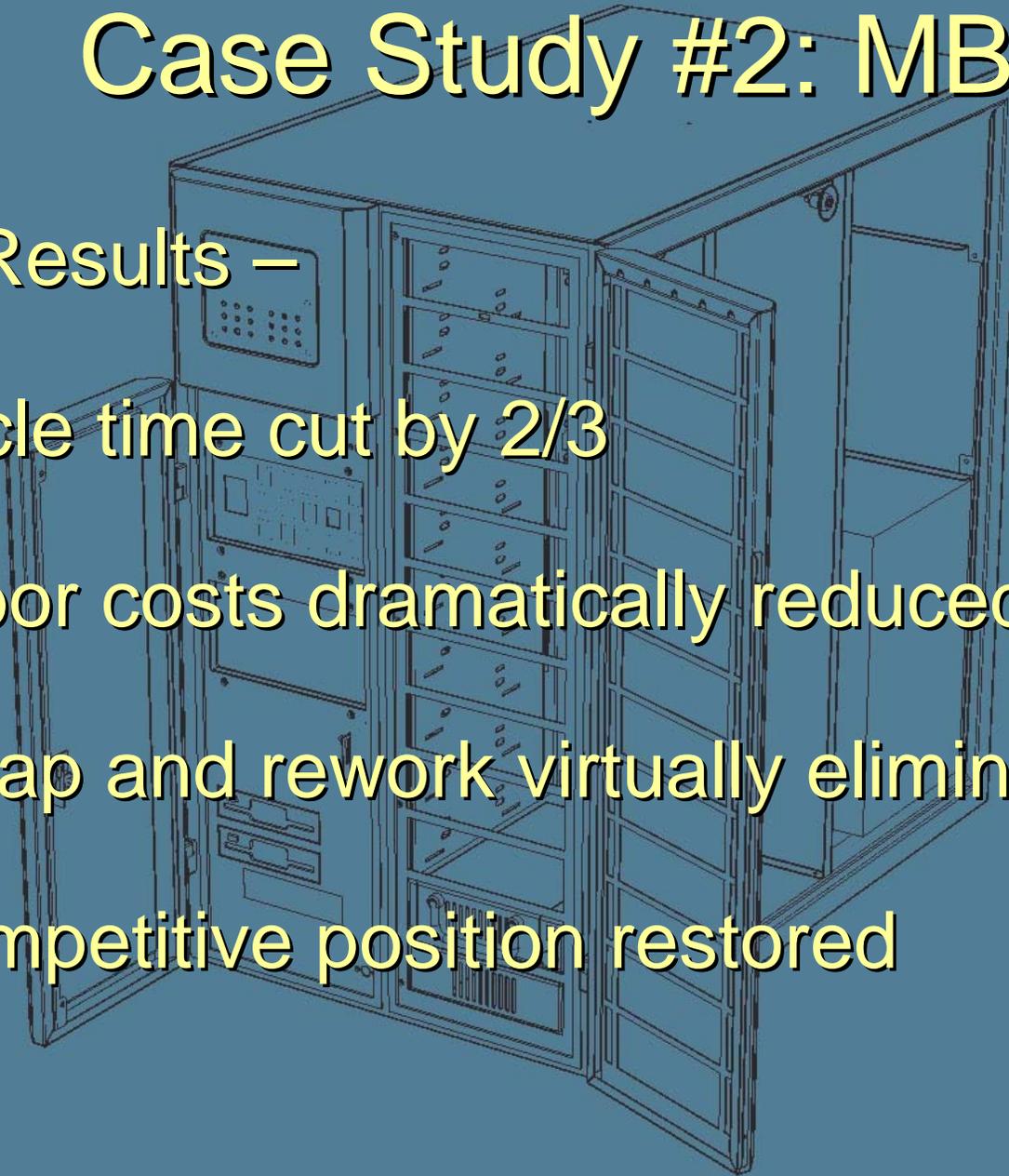
The Solution –

- Solid Edge replaces CADKey
- Models are controlling documents
- Design models to process yields
- Part models go to partner fabricator
- Fabricator sets design rules
- Programs from 3D flats
- Minimize drafting and inspection

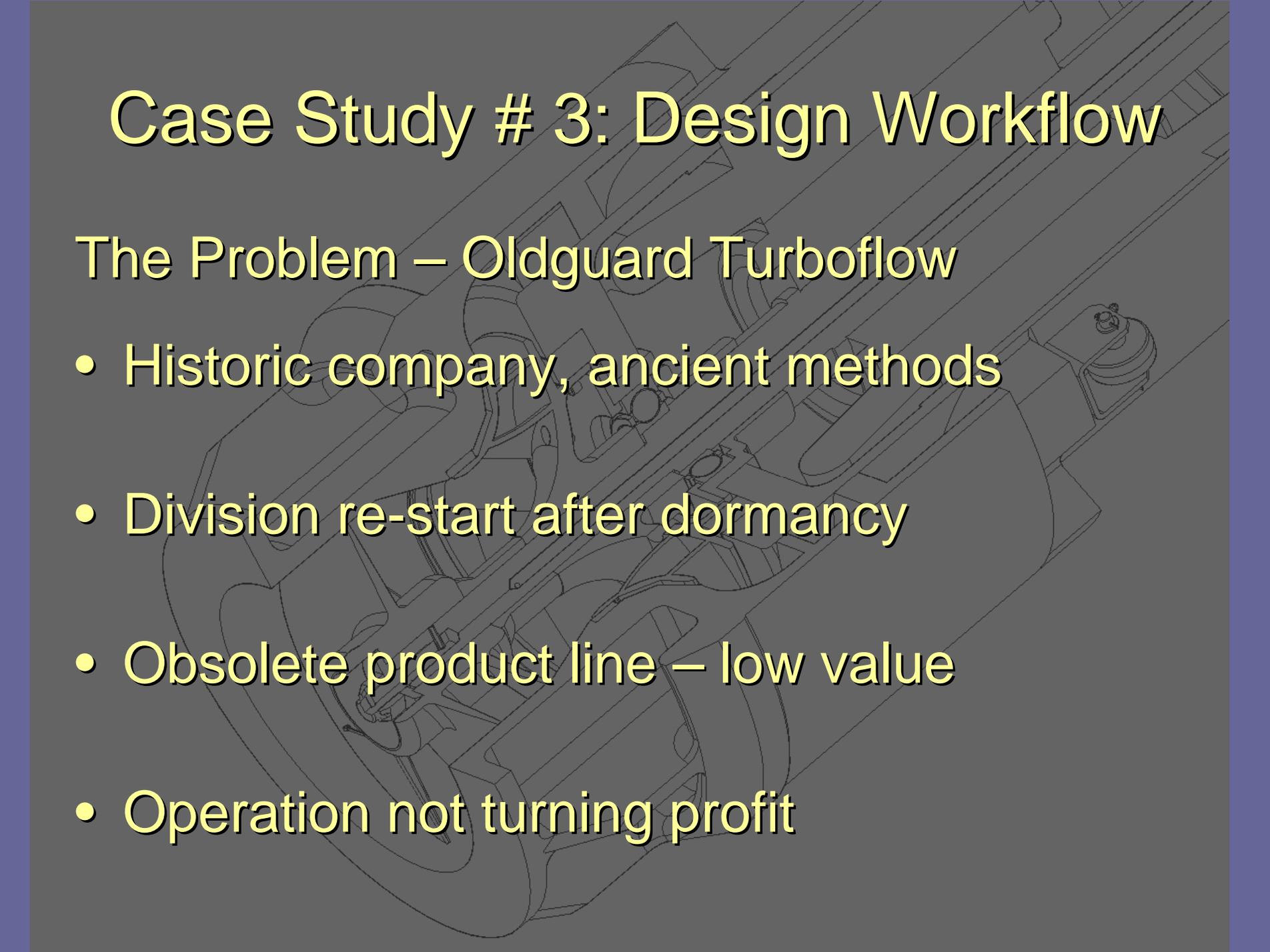
Case Study #2: MBM

The Results –

- Cycle time cut by 2/3
- Labor costs dramatically reduced
- Scrap and rework virtually eliminated
- Competitive position restored



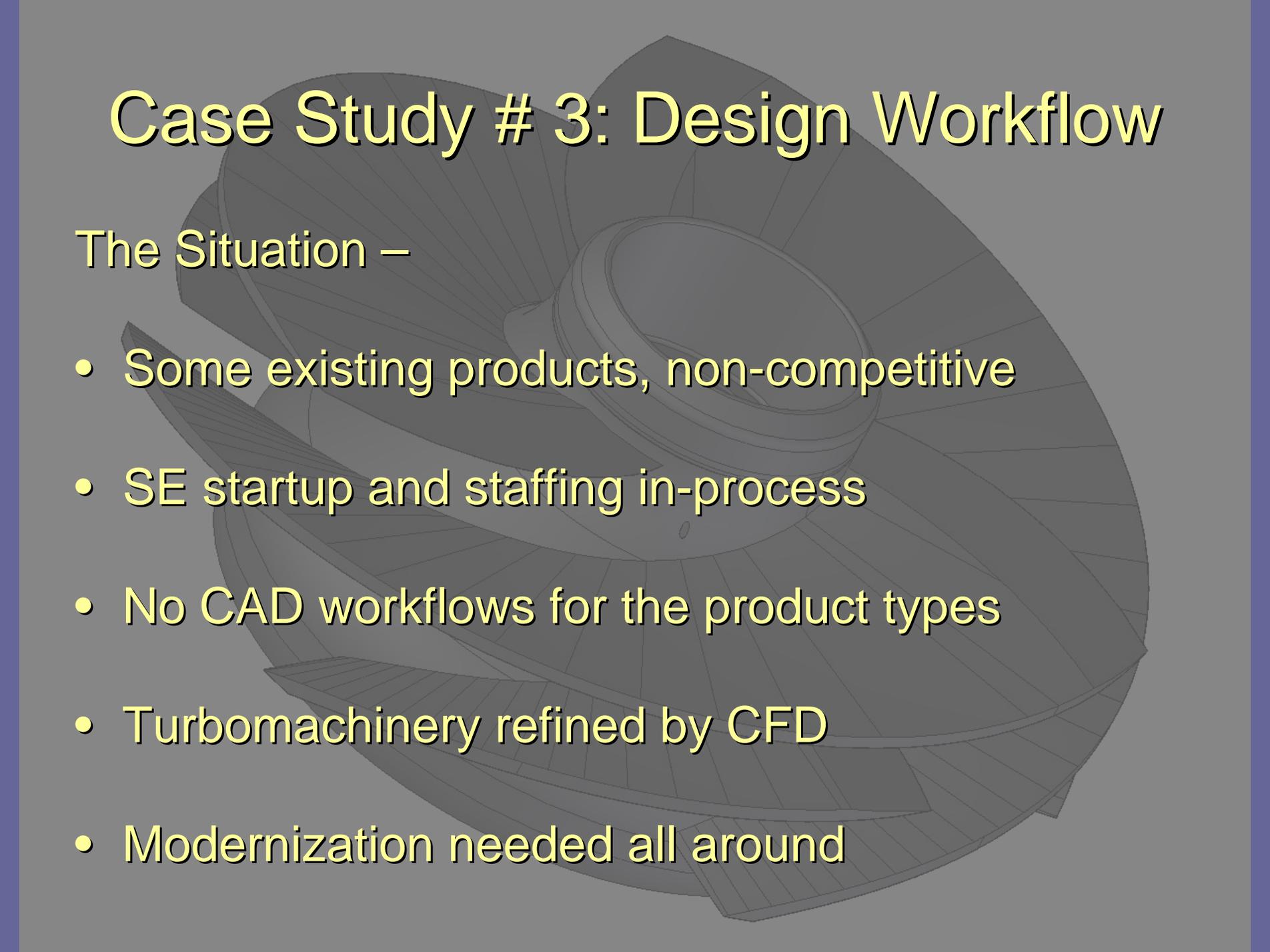
Case Study # 3: Design Workflow



The Problem – Oldguard Turboflow

- Historic company, ancient methods
- Division re-start after dormancy
- Obsolete product line – low value
- Operation not turning profit

Case Study # 3: Design Workflow



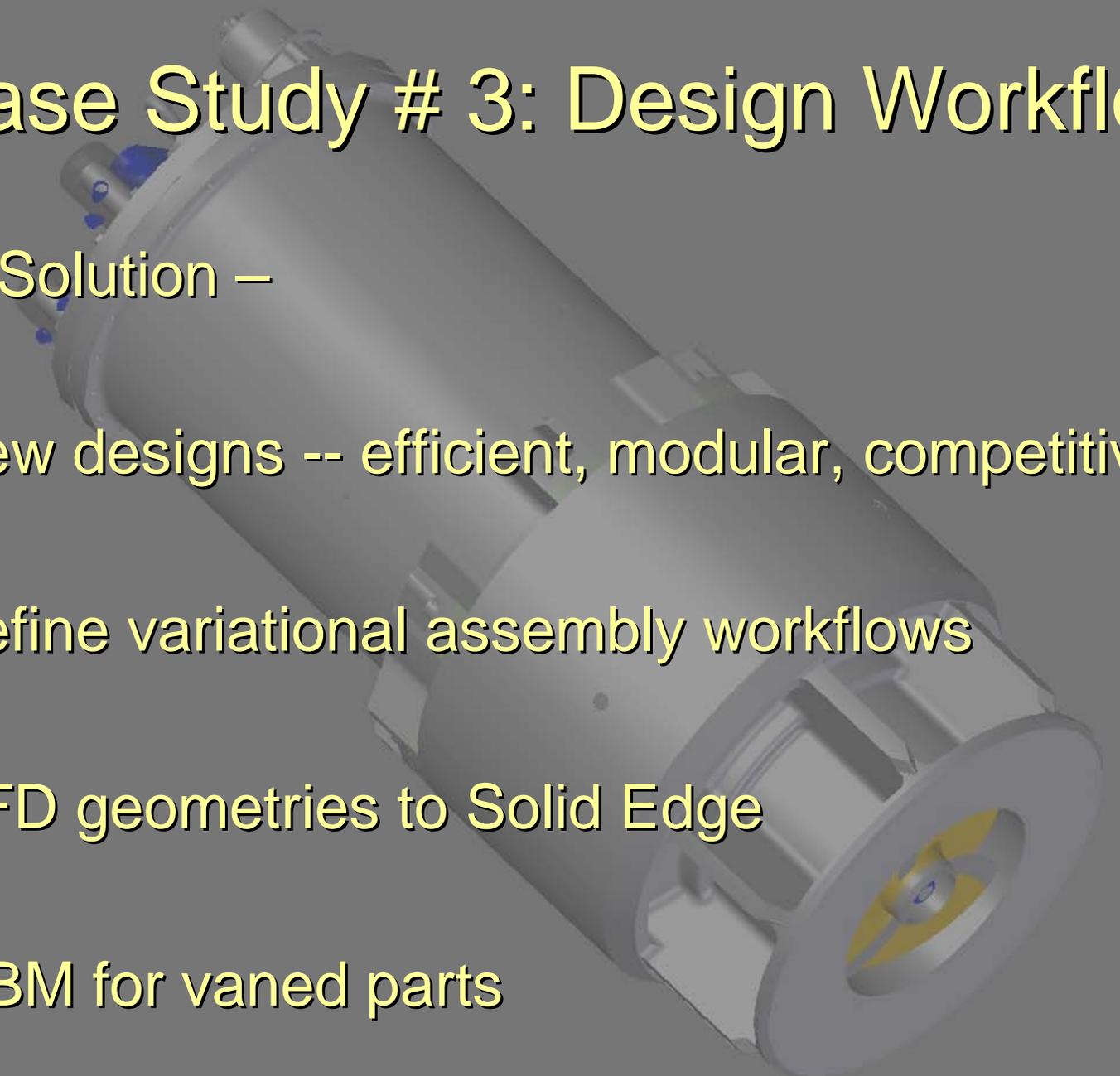
The Situation –

- Some existing products, non-competitive
- SE startup and staffing in-process
- No CAD workflows for the product types
- Turbomachinery refined by CFD
- Modernization needed all around

Case Study # 3: Design Workflow

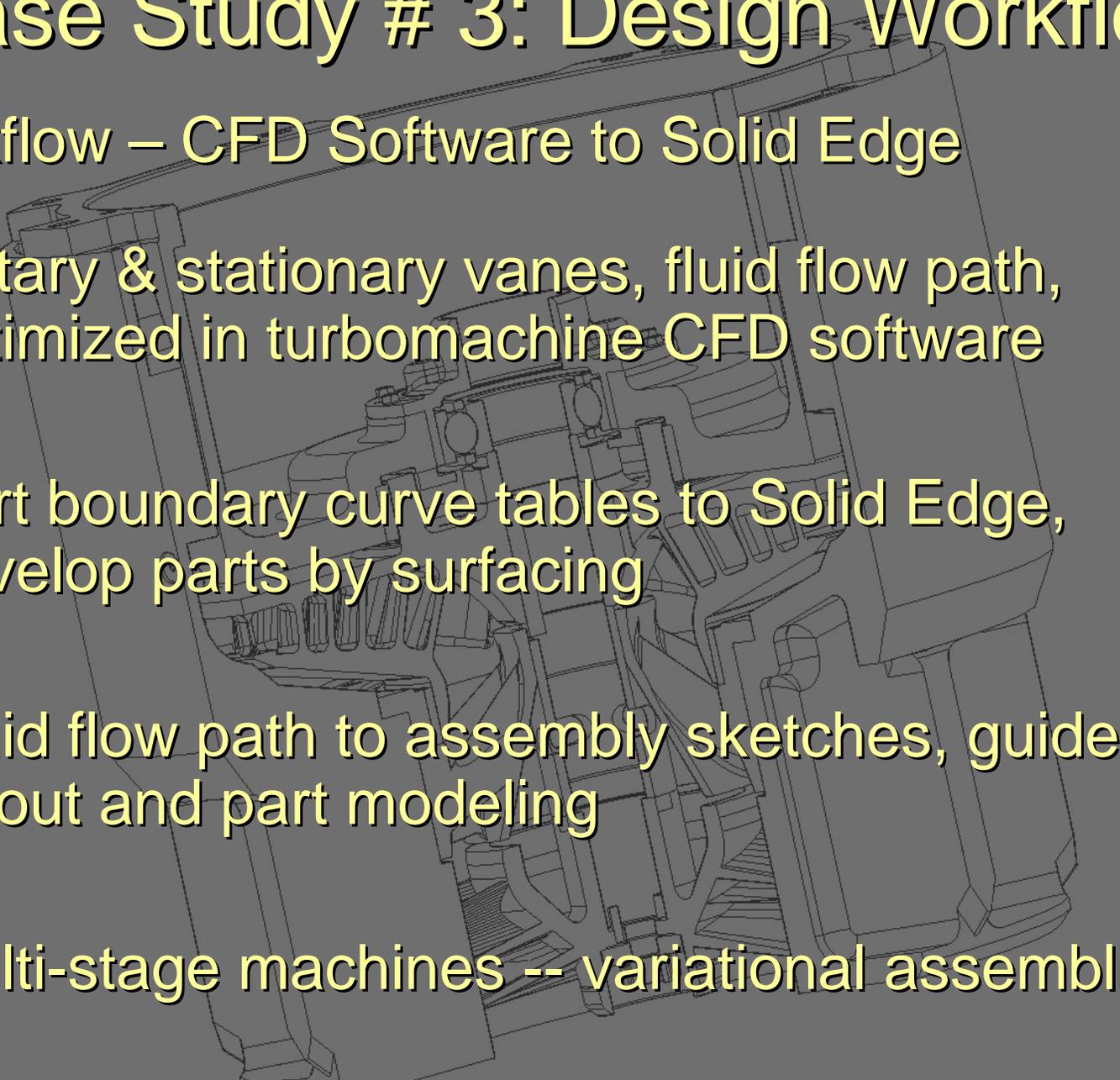
The Solution –

- New designs -- efficient, modular, competitive
- Define variational assembly workflows
- CFD geometries to Solid Edge
- MBM for vaned parts



Case Study # 3: Design Workflow

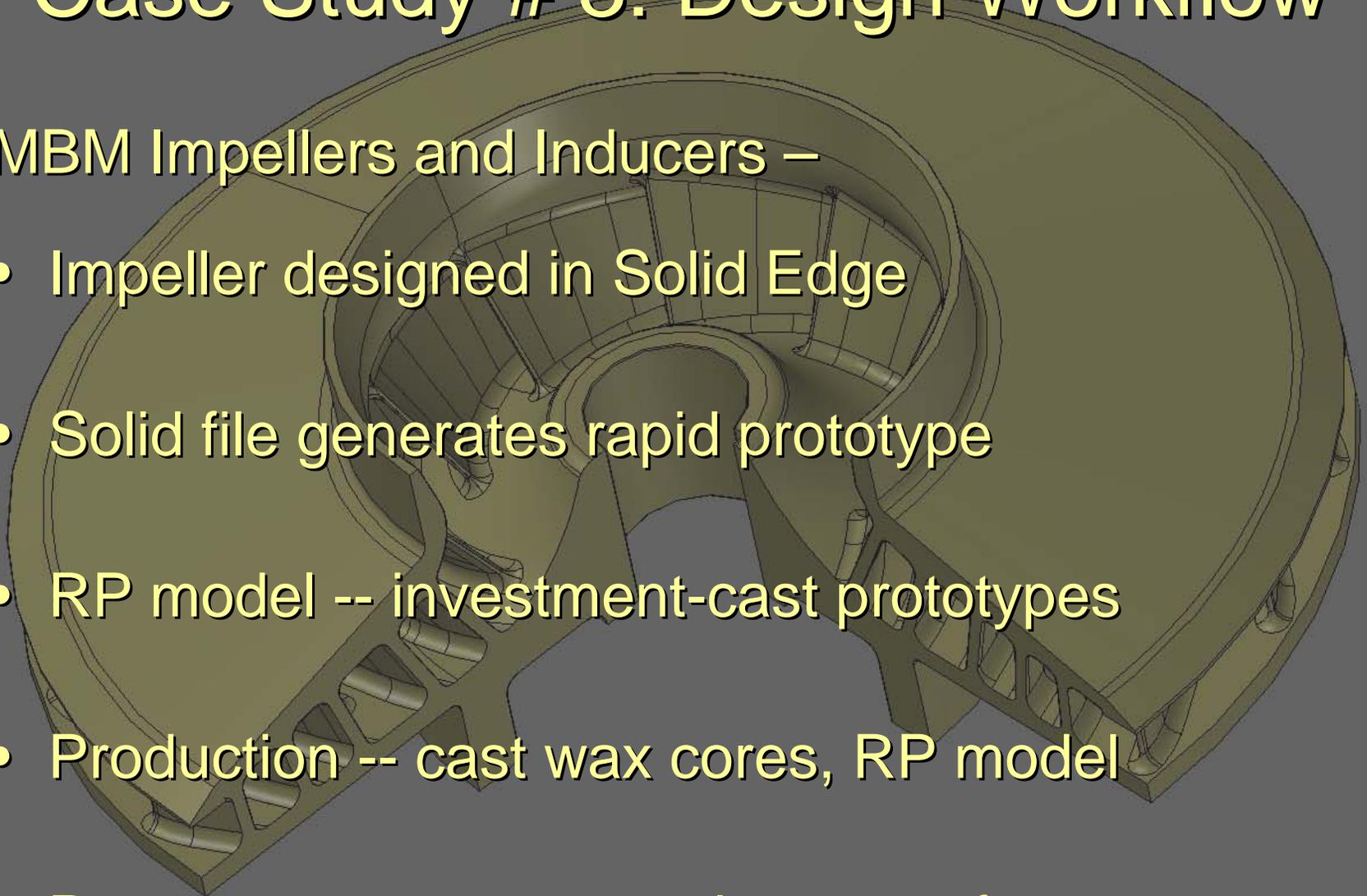
Workflow – CFD Software to Solid Edge

- Rotary & stationary vanes, fluid flow path, optimized in turbomachine CFD software
 - Part boundary curve tables to Solid Edge, develop parts by surfacing
 - Fluid flow path to assembly sketches, guides layout and part modeling
 - Multi-stage machines -- variational assemblies
- 

Case Study # 3: Design Workflow

MBM Impellers and Inducers –

- Impeller designed in Solid Edge
- Solid file generates rapid prototype
- RP model -- investment-cast prototypes
- Production -- cast wax cores, RP model
- Parts are cast near net shape, performance preserved



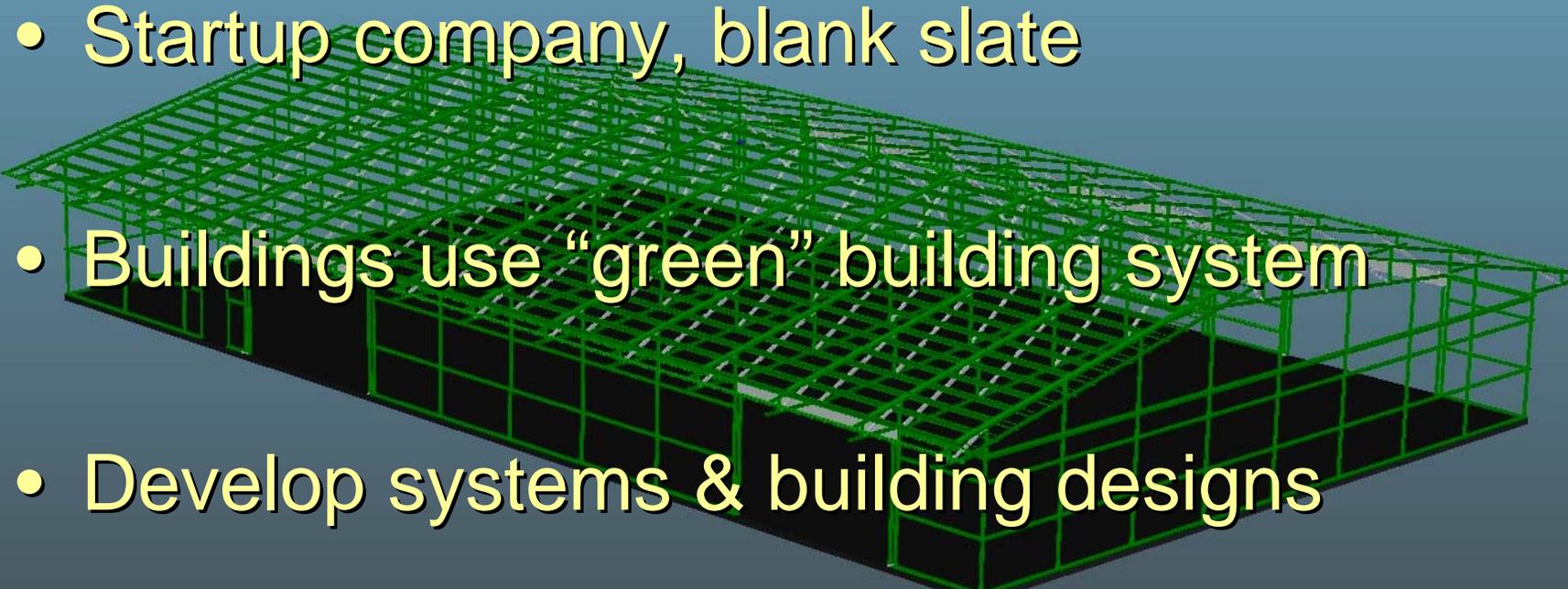
Case Study # 3: Design Workflow

The Results –

- Design methods modernized, accelerated
- Foreign CAD data integrated
- Design process flow documented
- Product line updated -- competitive
- Costs reduced, profitability established

Case Study #4: Concurrent Standardization

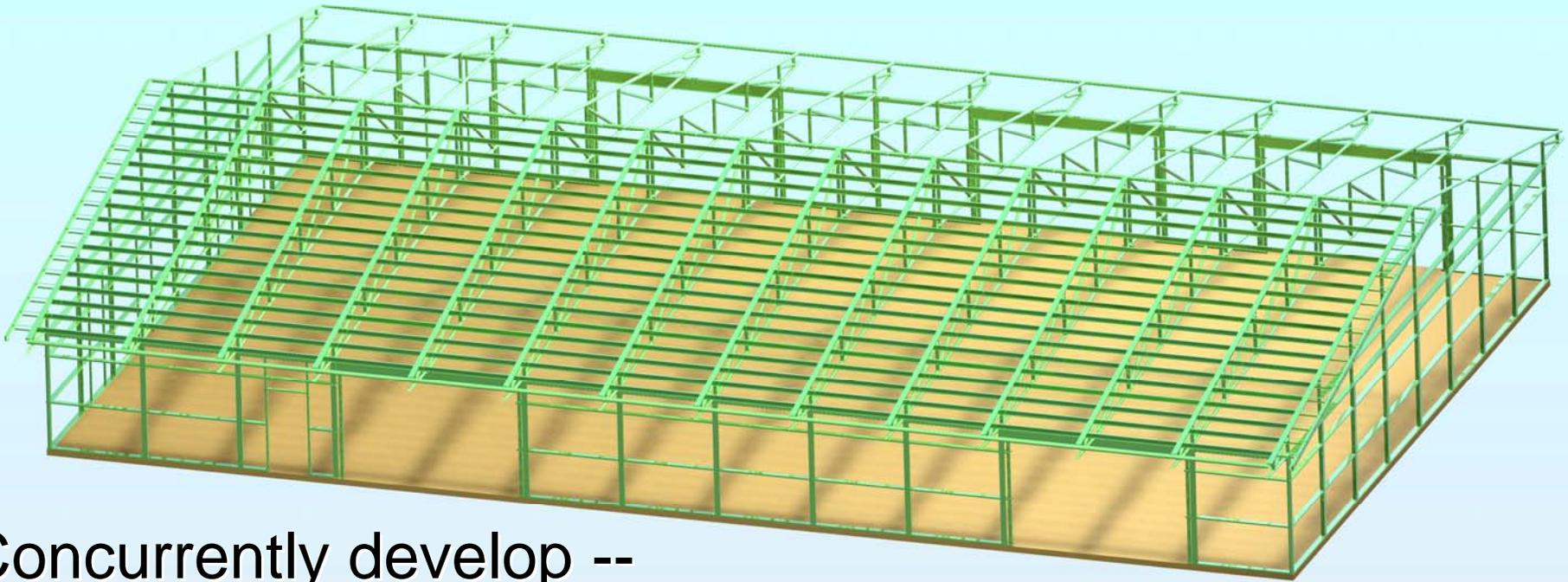
Situation – EZ2B Inc GreenFrame

- Startup company, blank slate
 - Buildings use “green” building system
 - Develop systems & building designs
 - Ultimate success? What trajectory?
- 

Case Study #4: Concurrent Standardization

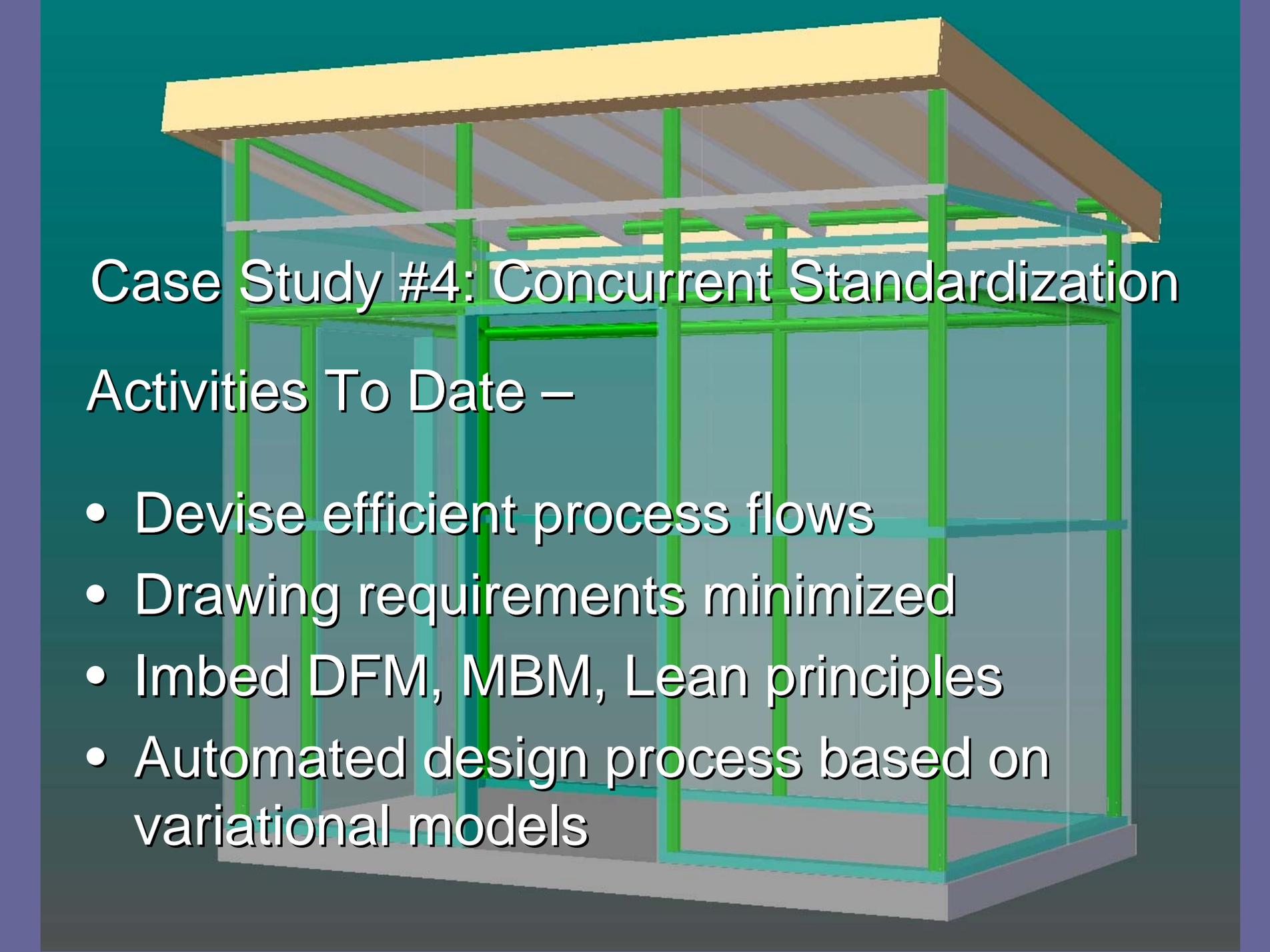
No bad habits to overcome

Context switch as required by tasks



Concurrently develop --

- framing system
- specific building designs
- engineering processes & procedures



Case Study #4: Concurrent Standardization

Activities To Date –

- Devise efficient process flows
- Drawing requirements minimized
- Imbed DFM, MBM, Lean principles
- Automated design process based on variational models

Case Study Summary

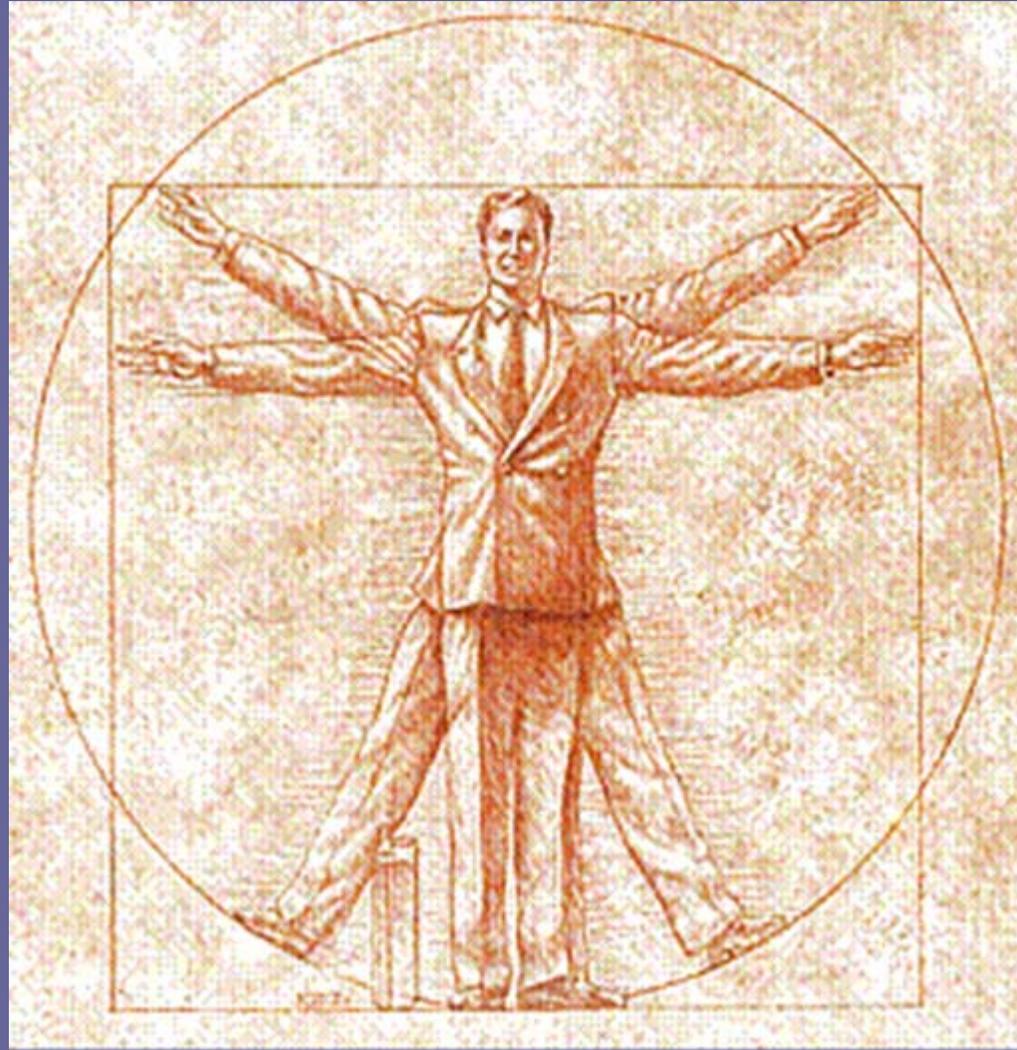
- Hardware performance & user methods
- Model Based Manufacturing & DFM
- Modeling workflows & MBM
- Concurrent Standardization – in-process

When standardizing. . .

Publish specs under rev control
Consider alternative media

Summary of Main Points

- Business thinking
- Team Building
- Discover needs
- Research
- Optimize
- Specify
- Document
- Continuously



Further References -- Newsletters

Informative newsletters –

- **IHS INFORMANT**
 - <http://engineers.ihs.com/engineering/journal/index.jsp>
- **2PLM Ezine**
 - <http://www.johnstark.com/plm.html>
- **Solid Edge Community**
 - <http://www.solidedgecommunity.com/>
- **The Leading Edge**
 - <http://www.theleadingedgenews.com/email.htm>

Further References -- Articles

References ZIP file contains relevant articles

Distribution: this Powerpoint, the Script .doc file, References ZIP file.

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