

# GM Daewoo's Streamlined Vehicle Development Process using UGS PLM solutions

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Senior Manager, Technical Center

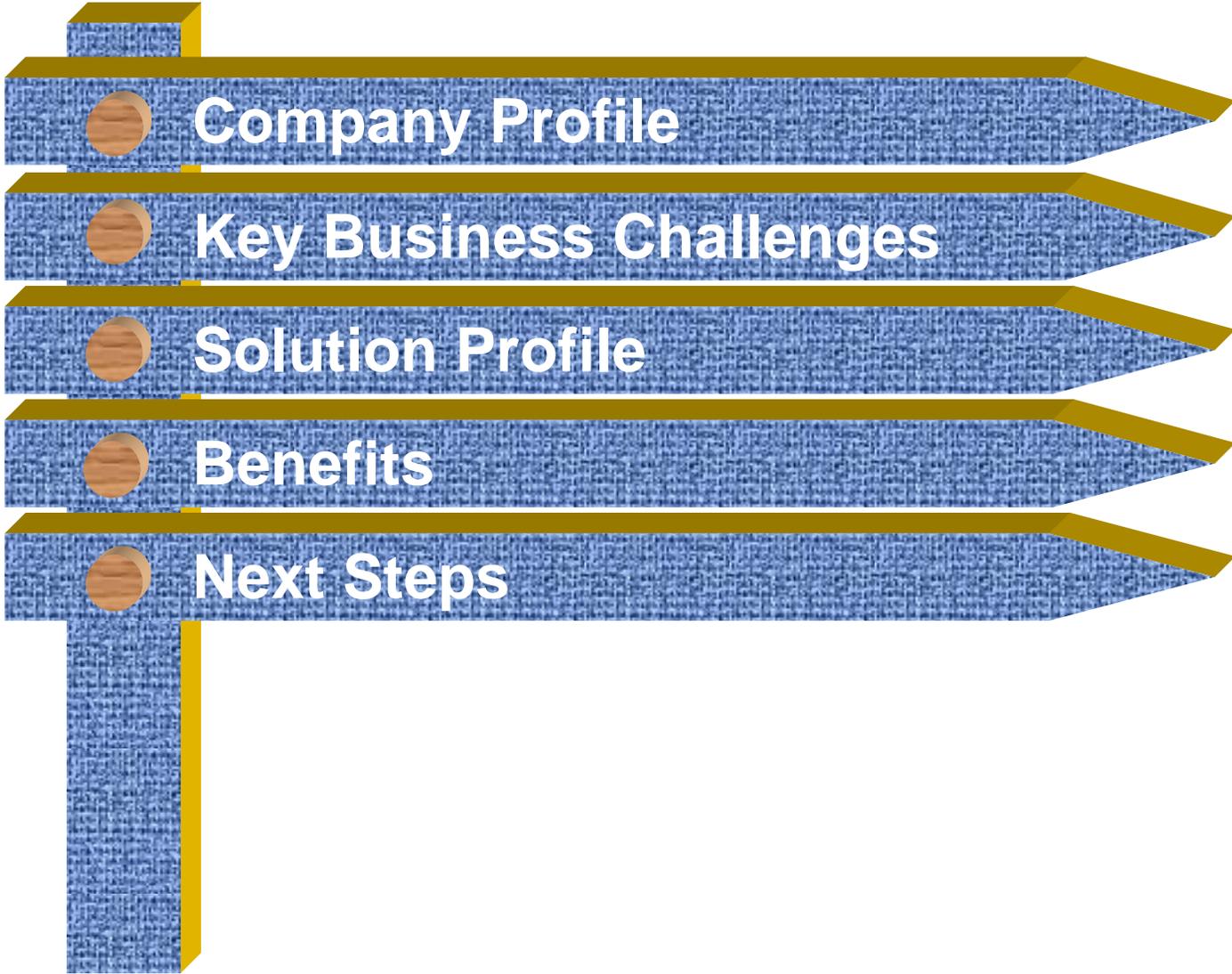
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**GM DAEWOO**

**GM DAEWOO Auto & Technology Co.**

# Contents



- **Company Profile**

- **Key Business Challenges**

- **Solution Profile**

- **Benefits**

- **Next Steps**

# Contents – Company Profile

## Company Profile

- Who we are
- GM DAEWOO Vision
- GM DAEWOO Products

## Key Business Challenges

## Solution Profile

## Benefits

## Next Steps

# Company profile

- Company Name                   **GM Daewoo Auto & Technology Co.**
- Division                         **Product Engineering**
- URL                               **<http://www.gmdaewoo.co.kr>**
- 2005 Sales Volume           **1,150,000 units**
- 2006 Sales Volume           **1,500,000 units (Forecast)**
- Number of Employees       **Total 14,725 employees ('06 March 31)**
- Vision                         **The most respected Korean automotive company...  
And the global benchmark for high customer value**

# GM Network



\* Alliance Partner



# GM DAEWOO - Incheon

WINSTORM



Kalos



Magnus L6



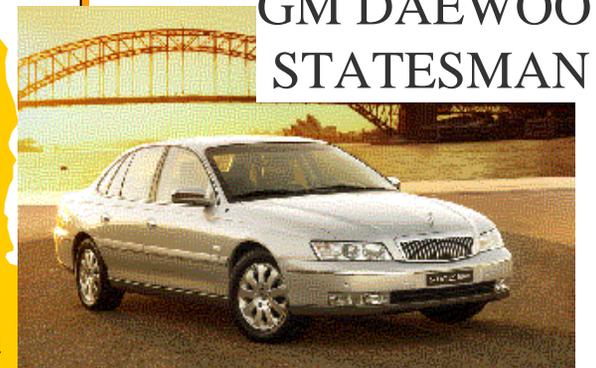
(WE ARE HERE - TECHNICAL CENTER)



South Korea



TOSCA



GM DAEWOO STATESMAN



GENTRA

# GM DAEWOO - Gunsan



Lacetti HB



Rezzo



Lacetti NB



Lacetti NB

# GM DAEWOO - Changwon

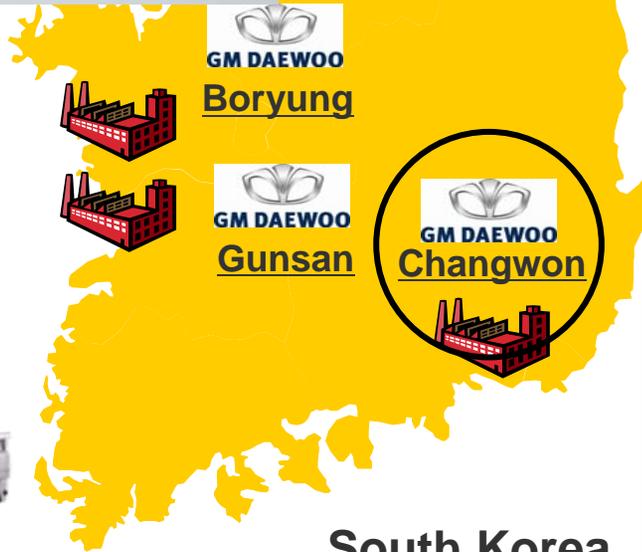


All New Matiz

Labo



HNICAL CENTER)



South Korea



Damas

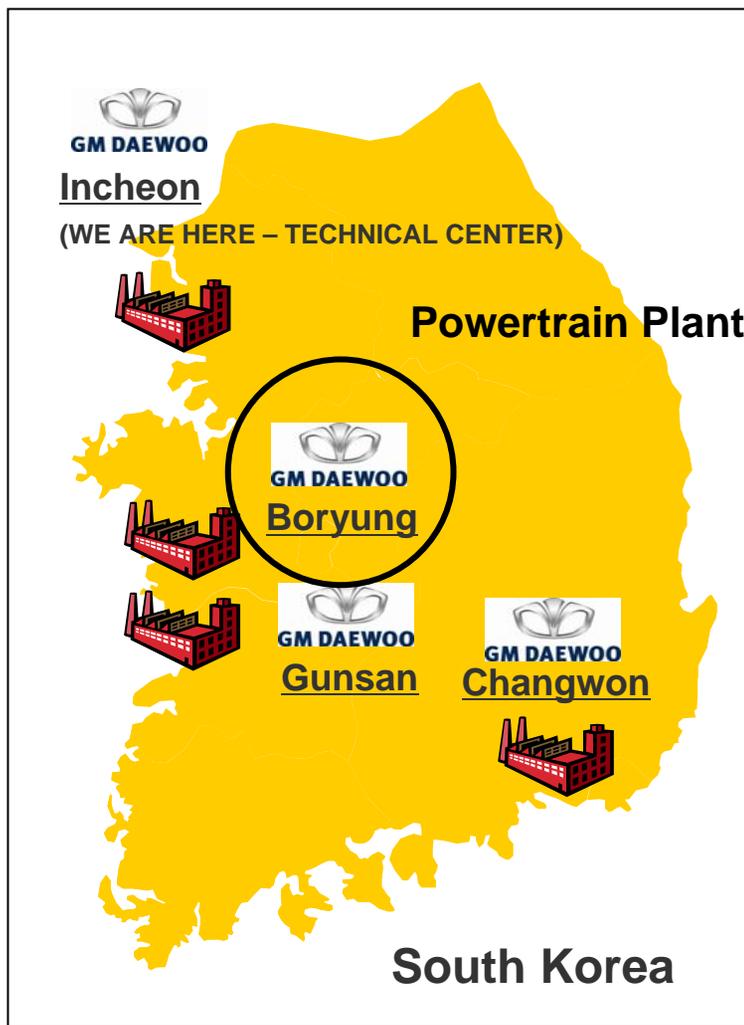
Matiz - Concept



# GM DAEWOO - Boryung



4HP14



GM DAEWOO  
Incheon

(WE ARE HERE - TECHNICAL CENTER)

Powertrain Plant (1996)

GM DAEWOO  
Boryung

GM DAEWOO  
Gunsan

GM DAEWOO  
Changwon

South Korea

4HP16



# Contents – Key Business Challenges

Company Profile

Key Business Challenges

- Challenges in the Automotive Industry
- PLM Vision

Solution Profile

Benefits

Next Steps

# Key Business Challenges

## Challenges

**Market environment changing rapidly**

**Automotive Industrial Paradigm shifts**

**International and domestic competition being severe**

**GM Daewoo management circumstance changing**

**Too many IT solutions available**

## PLM Vision

**Integrated management of product lifecycle, knowledge reuse and virtual validation**

**Reinforcing competitive factors of each company and integrating it**

**Unification of process and system management within GM**

**Remote collaboration incorporate with CAx data**

**Integration into one bundled IT solution**

# Contents – Solution Profile

**Company Profile**

**Key Business Challenges**

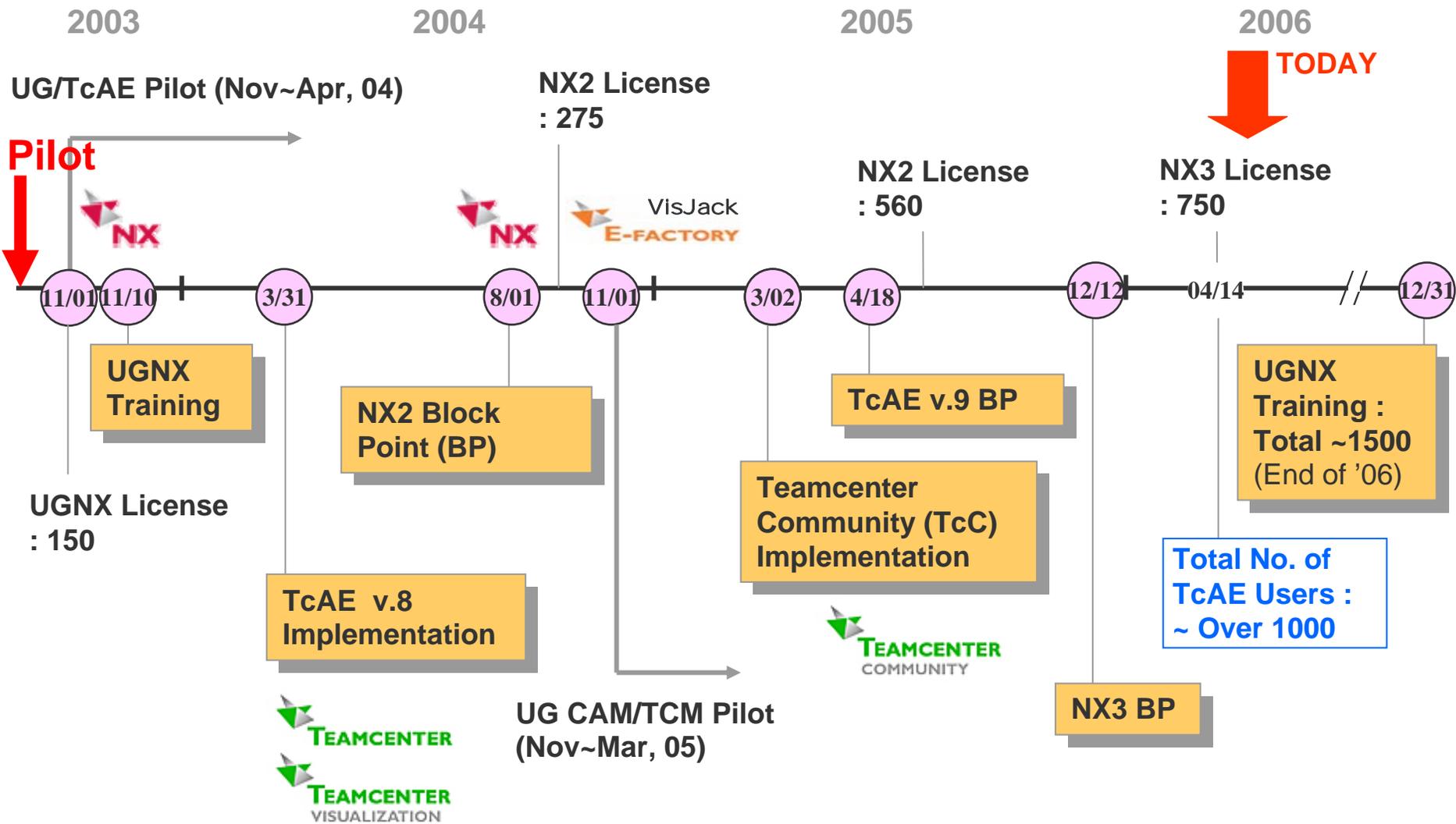
**Solution Profile**

- **Key Milestones**
- **Pilot Projects and Assessments**
- **Solution Profile & Best Practice**

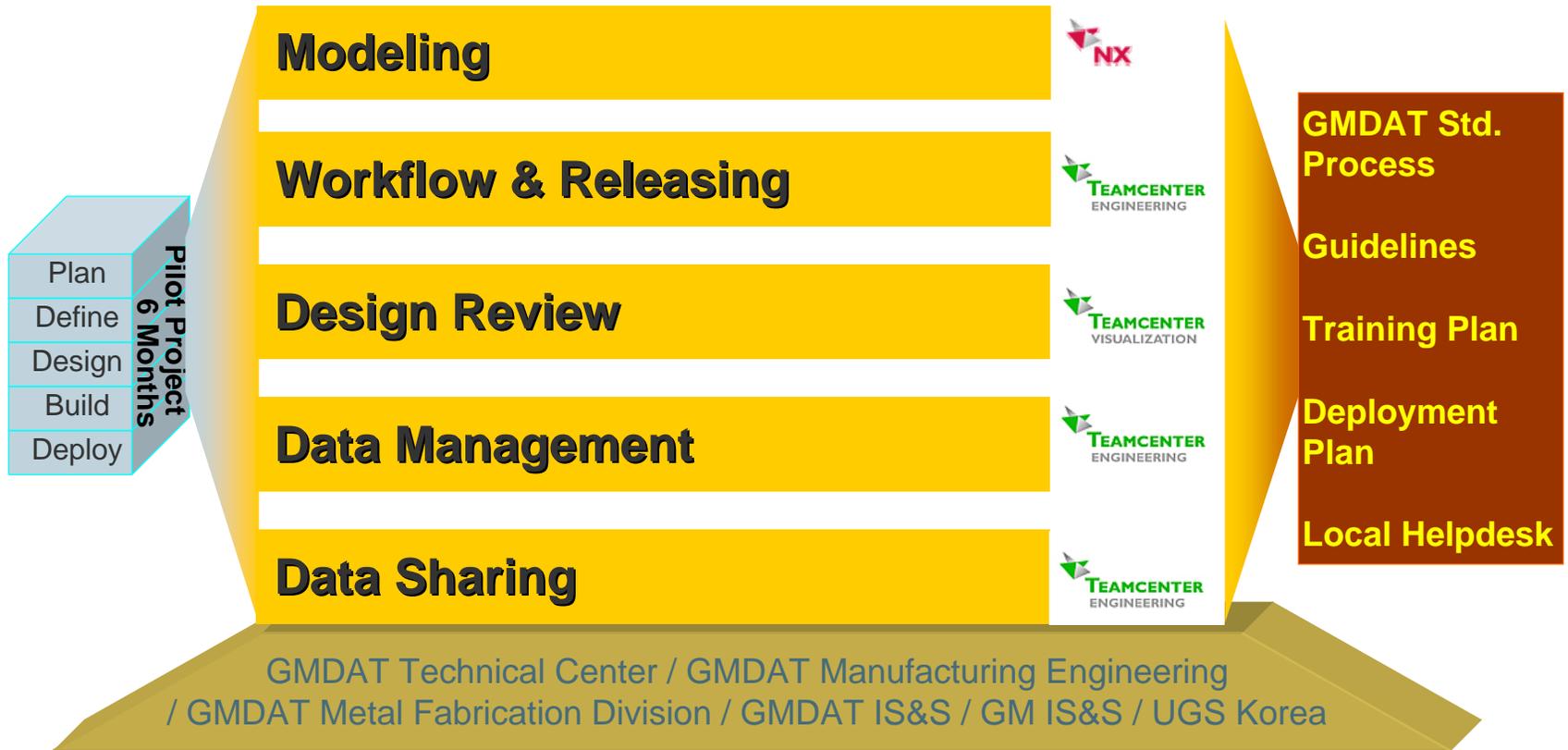
**Benefits**

**Next Steps**

# Key Milestones

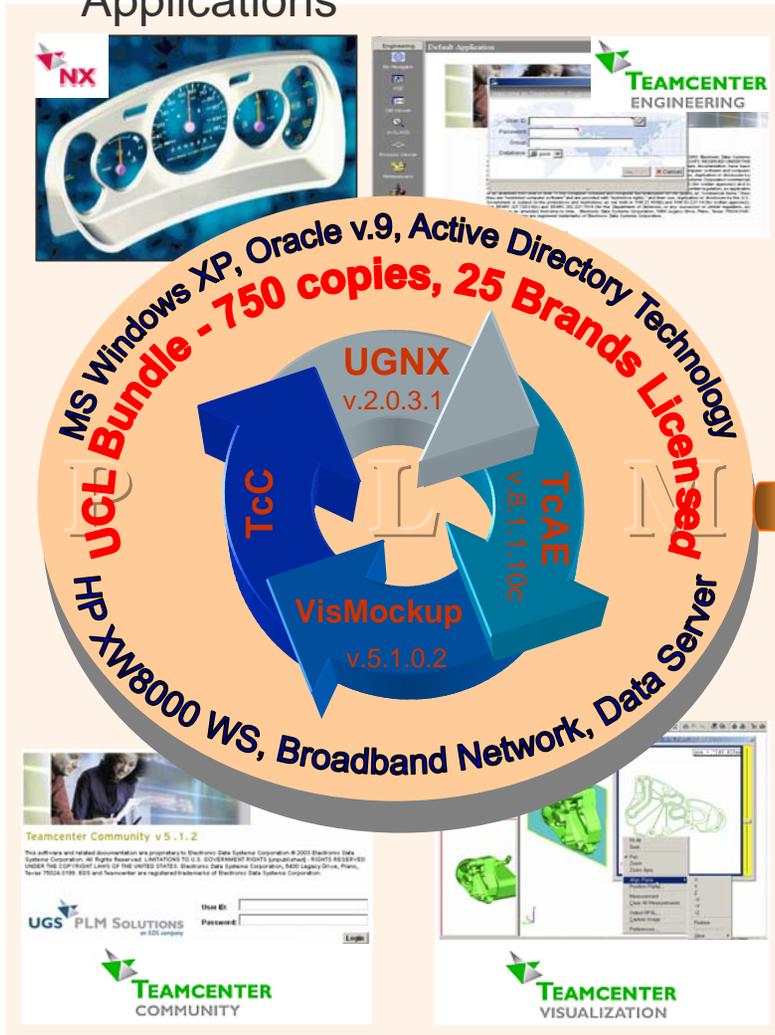


# Pilot Projects & Assessments



# Solutions Profile

## Technology Infrastructure & Applications



## Best Practice

Best Practices	Result
<p>New SUV Program (1<sup>st</sup> Application)</p>	<ul style="list-style-type: none"> <li>- Enable Global Vehicle Development Process</li> <li>- Parts reuse</li> <li>- Vehicle Assembly Structure</li> <li>- Data sharing</li> </ul>
<p>Manufacturing Engineering</p>  <p>TEAMCENTER MANUFACTURING</p>	<ul style="list-style-type: none"> <li>- DMU applied</li> <li>- Defect validation after design change</li> <li>- Equipments and facilities DB</li> <li>- Win '2004 BK Award* - KNOWLEDGE-BASED DIE TOOLING INNOVATION</li> </ul>

'04 BK Award : GM's highest award for recognizing GM technical inventions and innovations

# Contents - Benefits

**Company Profile**

**Key Business Challenges**

**Solution Profile**

**Benefits**

- Overall
- UGNX
- Teamcenter Engineering
- Teamcenter Visualization
- Teamcenter Community
- Unexpected Benefits

**Next Steps**

# Benefits

## !! The Results Were Outstanding !!

**Reduction in vehicle development time**

**Up to 6 months**

**Reduction in engineering system cost**

**Approx. 15 Mil. USD**

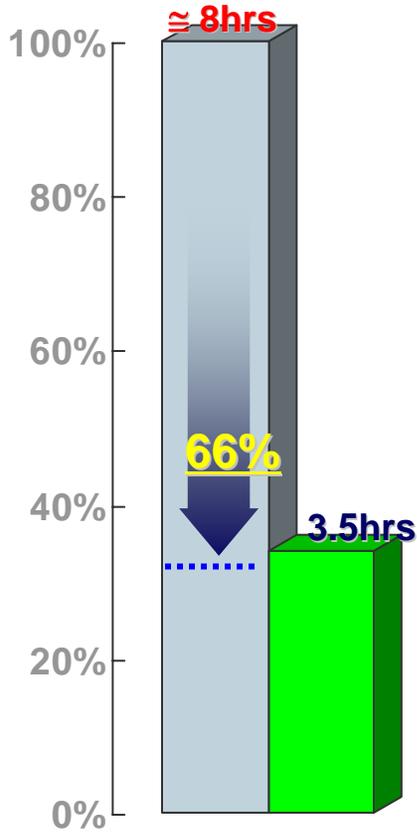
**Increased in Knowledge Reuse**

**Achieved**

- Work in collaboration with global GM
- Unification of process
- Data sharing
- Part reuse

**Enable rapid, real-time  
& global *Architecture* development**

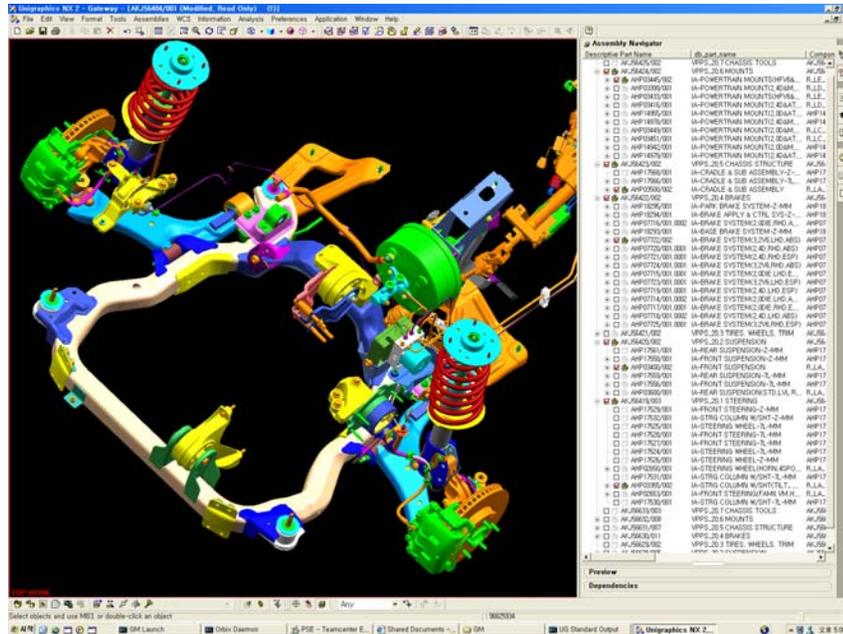
**Achieved**



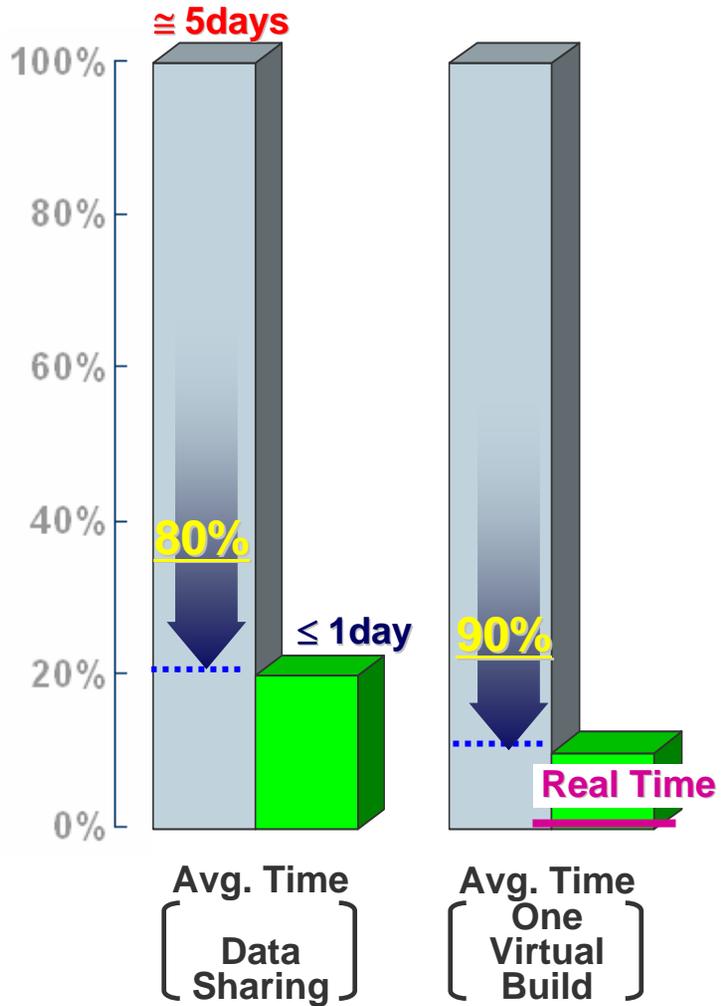
Avg. Time Design Change per part

■ Previous ■ Now

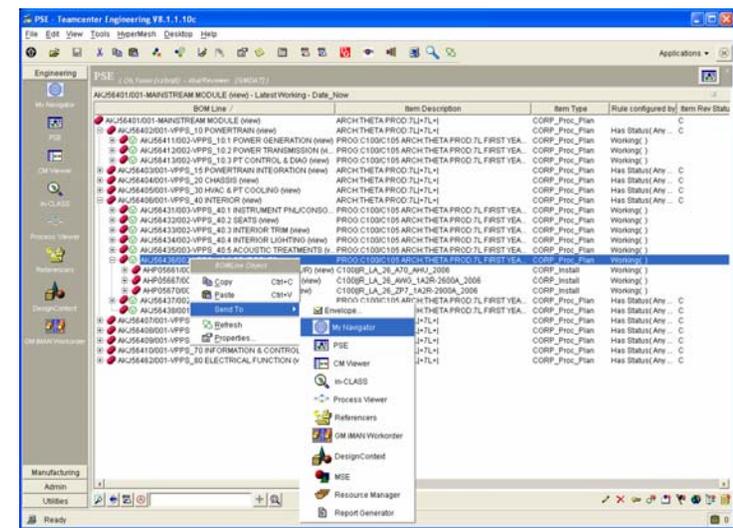
- Reduction in avg. time for a design modification
- Enable virtual review for design, analysis, & tooling
- Simple to model a design according to industrial & global GM std.



# Teamcenter Automotive Edition



- Structural data management (VAS\*)
- Improvement of initial math quality
- Data sharing for geographically dispersed teams & Global reuse of Cax data
- Optimal design process management

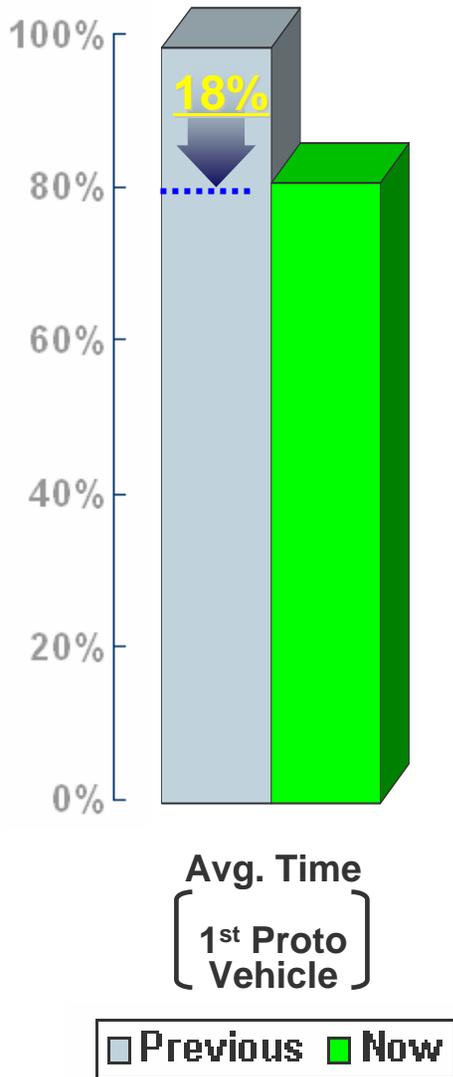


Previous
  Now

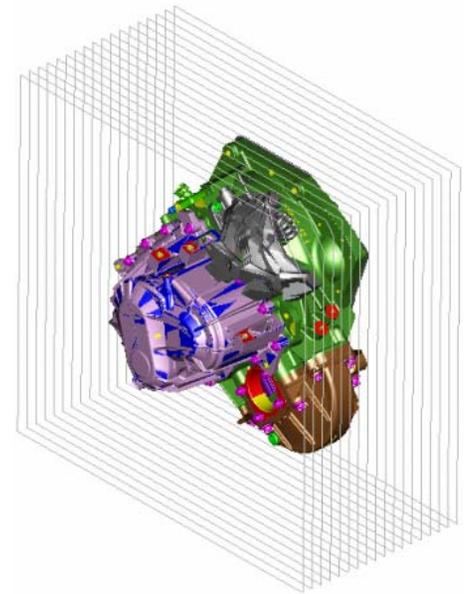
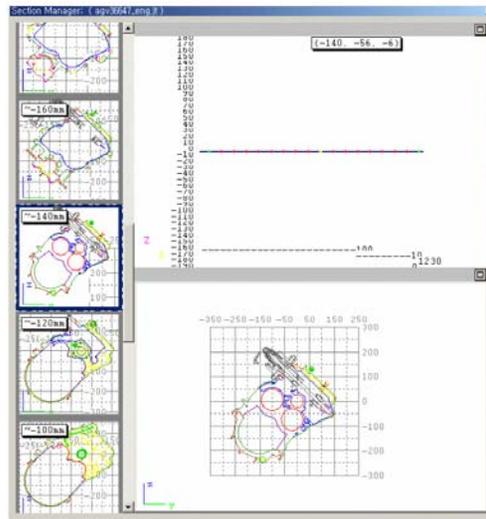
**Next Year Target**

VAS\* : Vehicle Assembly Structure

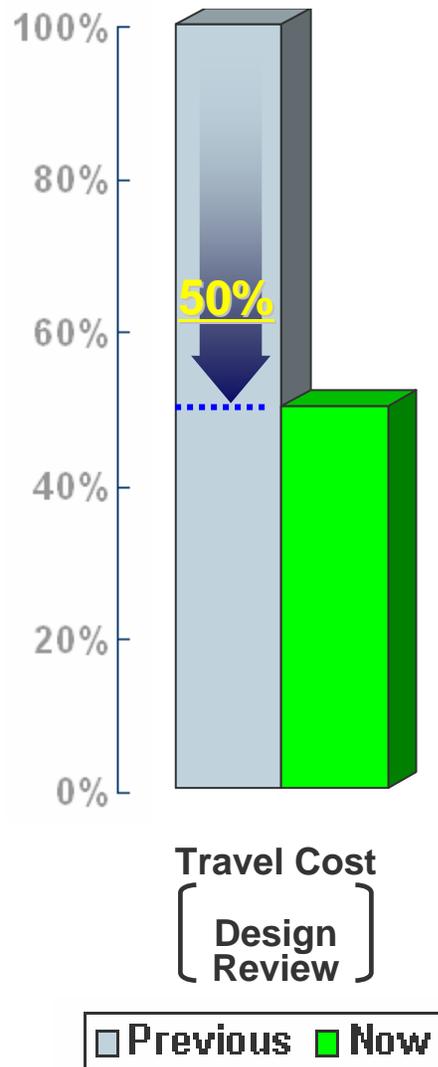
# Teamcenter Visualization



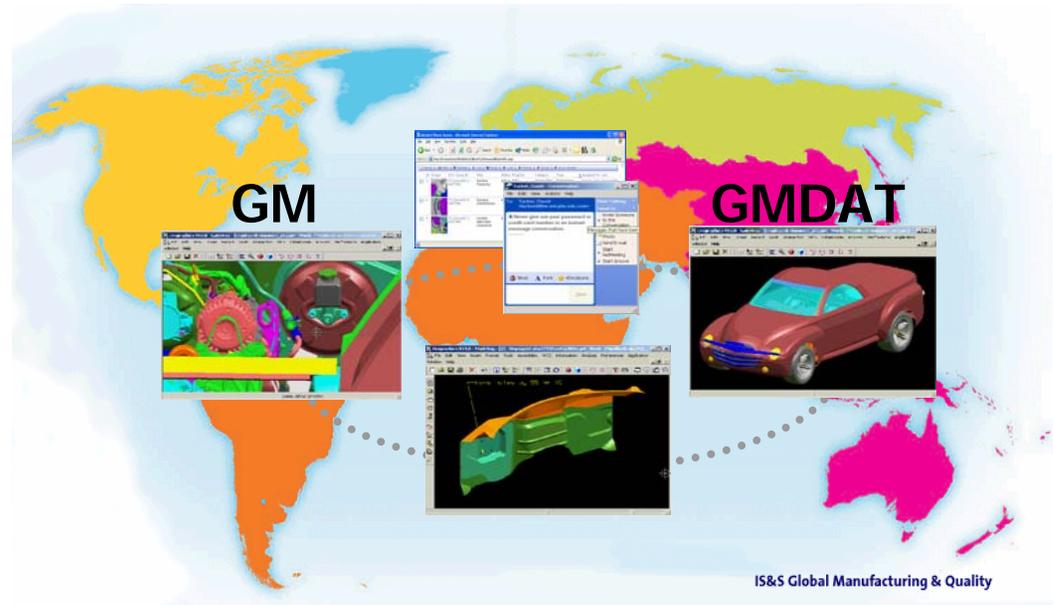
- Digital validation of vehicle-level configurations
- Validation rate increase in virtual stage
- Reduction in avg. build-time for the first proto



# Teamcenter Community



- Integrated real time collaboration
- Validation of CAx data with global GM and suppliers in secured environment (integrated with TcAE)
- Reduction in avg. business travel cost for design review



# Unexpected Benefits

- **Reduce query-time through information sharing**
- **PLM's retention capability of design revision**
- **Light-data handling capability for design review**
- **Improvement in real-time communication by instant messaging**
- **Reduce large amount of paper used**

# Contents

● **Company Profile**

● **Key Business Challenges**

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● **Benefits**

● **Next Steps**

- **RDV**
- **Part Reuse**
- **Teamcenter Manufacturing**
- **Future PLM Solutions**

# Next Steps

**RDV\* (TcAE)**



- Real-time availability of visual prototype
- Make PDM data expanded into enterprise

**Part Reuse  
(TcAE)**



- Implement Part reuse in TcAE (end of Q2, 2006)
- Improve part reuse rate for new car programs
- Implement Visual Bom via TcWeb (end of Q2, 2006)

**Teamcenter  
Manufacturing  
& UG CAM**



- Manage manufacturing product & process in a common data environment
- Cost reduction in change order & resource investment

**Future  
PLM solutions**



- Extend development environment to different regions and across the company
- Achieve targets for 2006

**Complete the PLM loop over the whole product lifecycle**

# THANK YOU!

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