



World
Manufacturing
Forum

Como Lake,
Italy

16 May 2011

A Business Case for Long-Term Archiving & Retrieval of the Model-Based Enterprise's Data

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PDES, Inc
Board of Directors
Model-Based Sustainment Champion

- I. Global Drivers of Manufacturing Transformation
- II. PDES's Model-Based Enterprise Vision and Necessity for LOTAR strategies, standards and tools
- III. LOTAR International Roadmap and Status

Part I

Global Drivers of Manufacturing Transformation

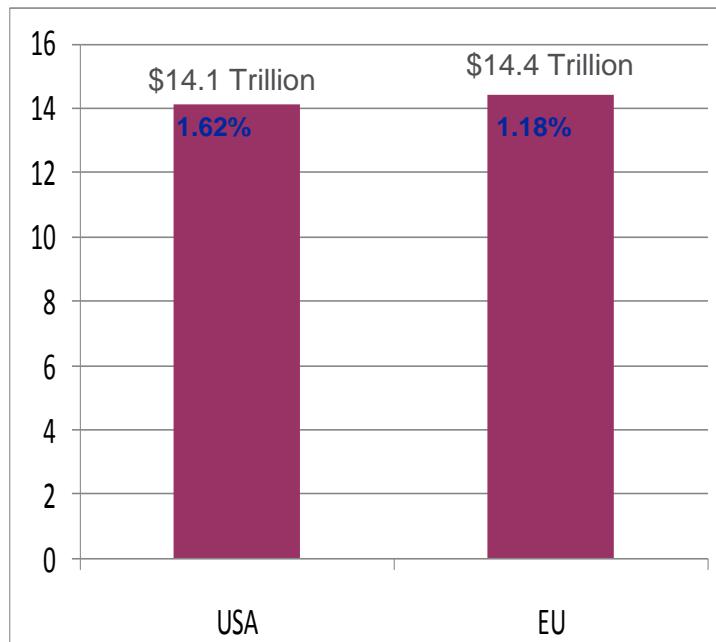
- Product Concept
- Product Engineering
- Process Engineering
- Line/Plant Design and Realization
- Supply Chain Management
- Product Fabrication & Distribution
- Product Lifecycle Support & Service
- Other Regulatory Factors, Contractual and/or Competitive Factors

For many of us the market is demanding more from us and the world is changing

- Respond more quickly to opportunities
- Skills set management
- Intellectual property and knowledge
- Introduction of new technology
- Creation of new processes
- Dynamic Supply chains

A Brief Glimpse into the corner of the
world in which I live and work...
the US and Western Europe

Gross Domestic Production (2009)

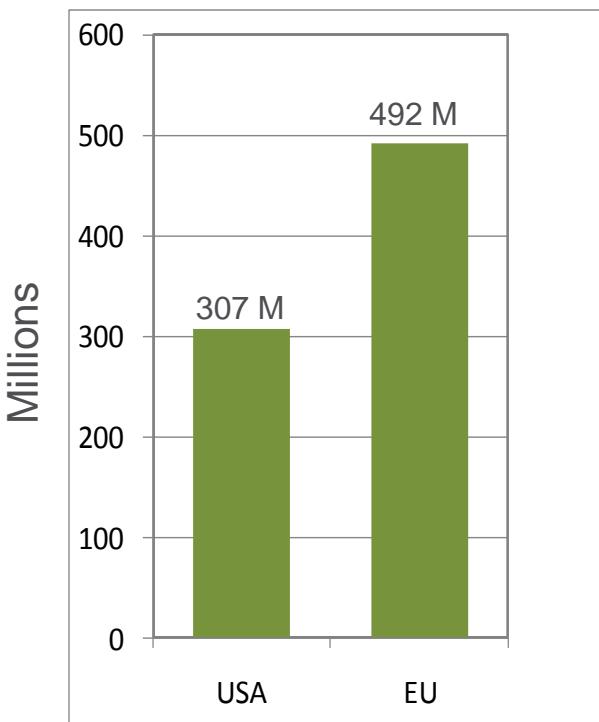


“Per Capita GDP”

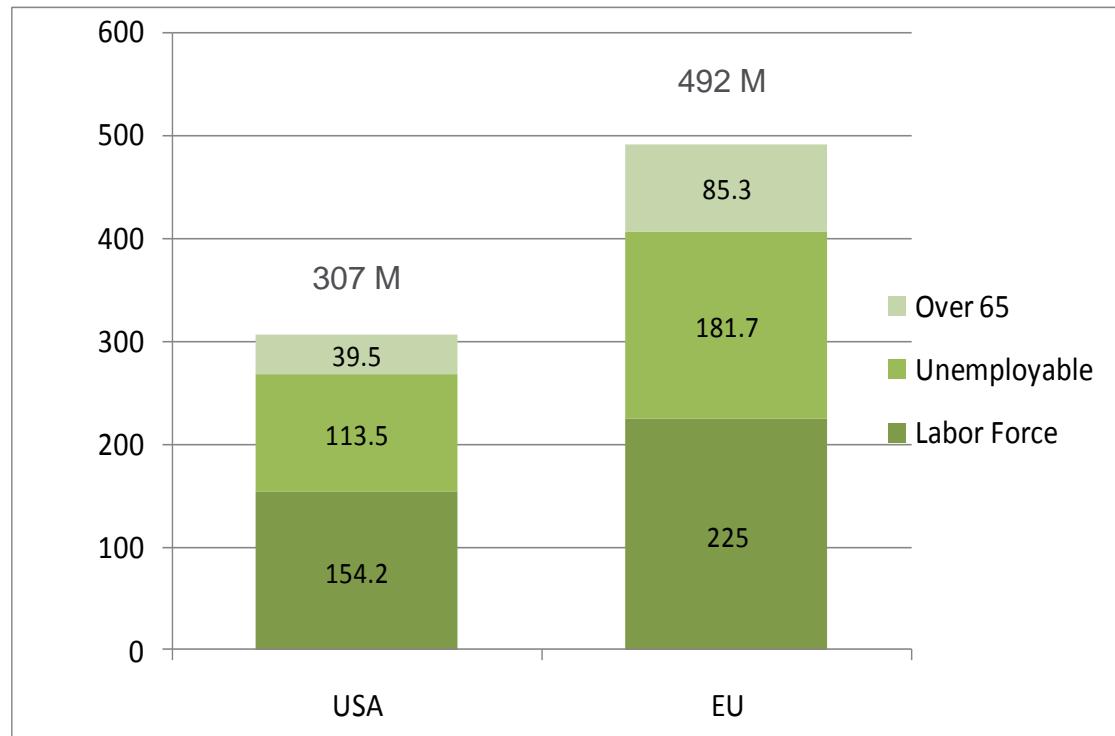
\$45.9K/person – USA

\$29.3K/person – EU

Population (2010 est.)



Source: US Central Intelligence Agency



"Per Worker GDP"

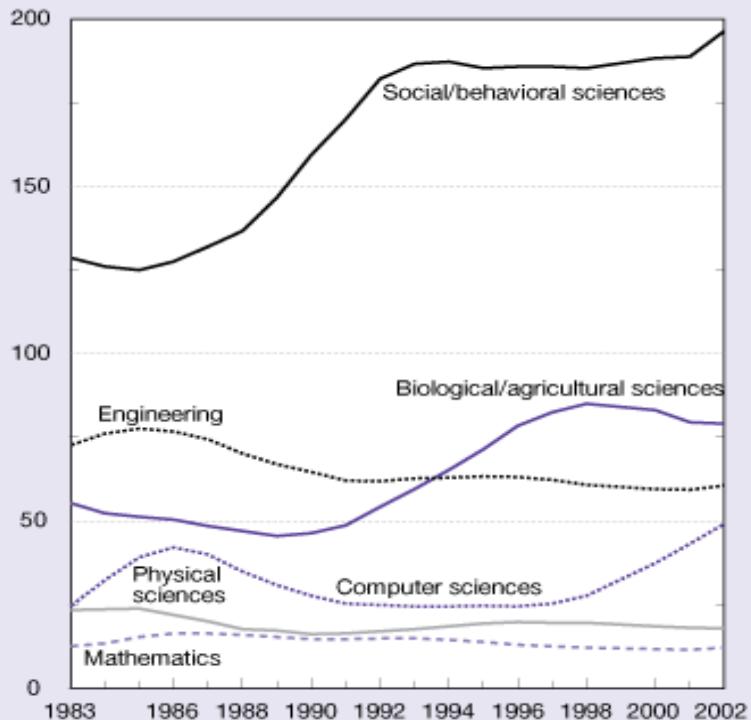
\$91.4K/worker – USA

\$64.0K/worker – EU

Source: US Central Intelligence Agency

Figure 2-10
S&E bachelor's degrees, by field: 1983–2002

Degrees (thousands)



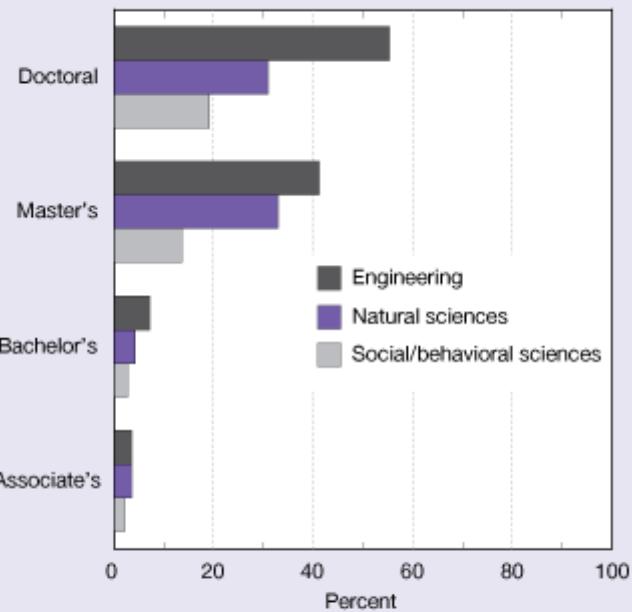
NOTES: Physical sciences include earth, atmospheric, and ocean sciences. Data not available for 1999.

SOURCES: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, Division of Science Resources Statistics, WebCASPAR database, <http://webcaspar.nsf.gov>. See appendix table 2-26.

Science and Engineering Indicators 2006

A Trend of Concern?

Figure 2-20
Foreign share of U.S. S&E degrees, by degree and field: 2002 or 2003

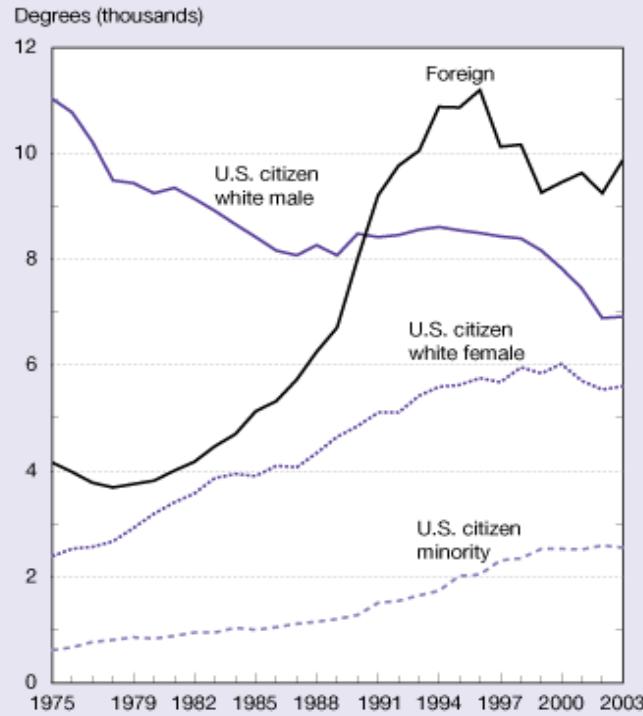


NOTES: Doctoral degree data are for 2003; other data are for 2002. Foreign includes temporary residents only. Natural sciences include physical, biological, agricultural, computer, earth, atmospheric, and ocean sciences and mathematics.

SOURCES: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, WebCASPAR database, <http://webcaspar.nsf.gov>. See appendix tables 2-25, 2-27, 2-29, and 2-31.

Science and Engineering Indicators 2006

Figure 2-18
U.S. S&E doctoral degrees, by sex, race/ethnicity, and citizenship: 1975–2003

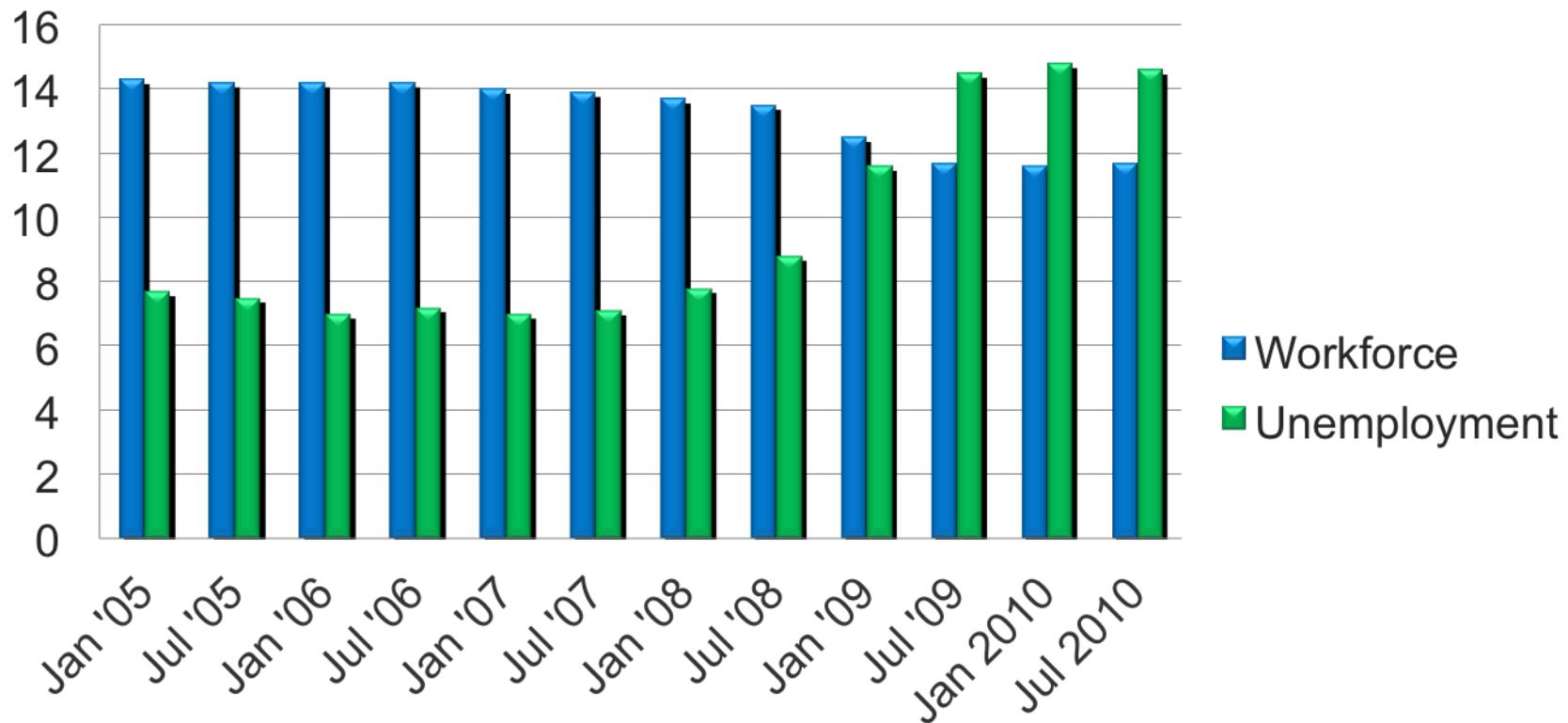


NOTES: Foreign includes permanent and temporary residents. Minority includes Asian/Pacific Islander, black, Hispanic, and American Indian/Alaska Native. Degree recipients with unknown citizenship omitted.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, WebCASPAR database, <http://webcaspar.nsf.gov>. See appendix table 2-31.

Science and Engineering Indicators 2006

US Manufacturing Employment



So... How Do These Drivers Lead to Model-Based Enterprise Transformation?



- Manufacturing is a highly competitive industry
- Manufacturing is a highly regulated industry
- Workforce dynamics & world economics are not favorable
- Many manufacturer's turn to technology for solution

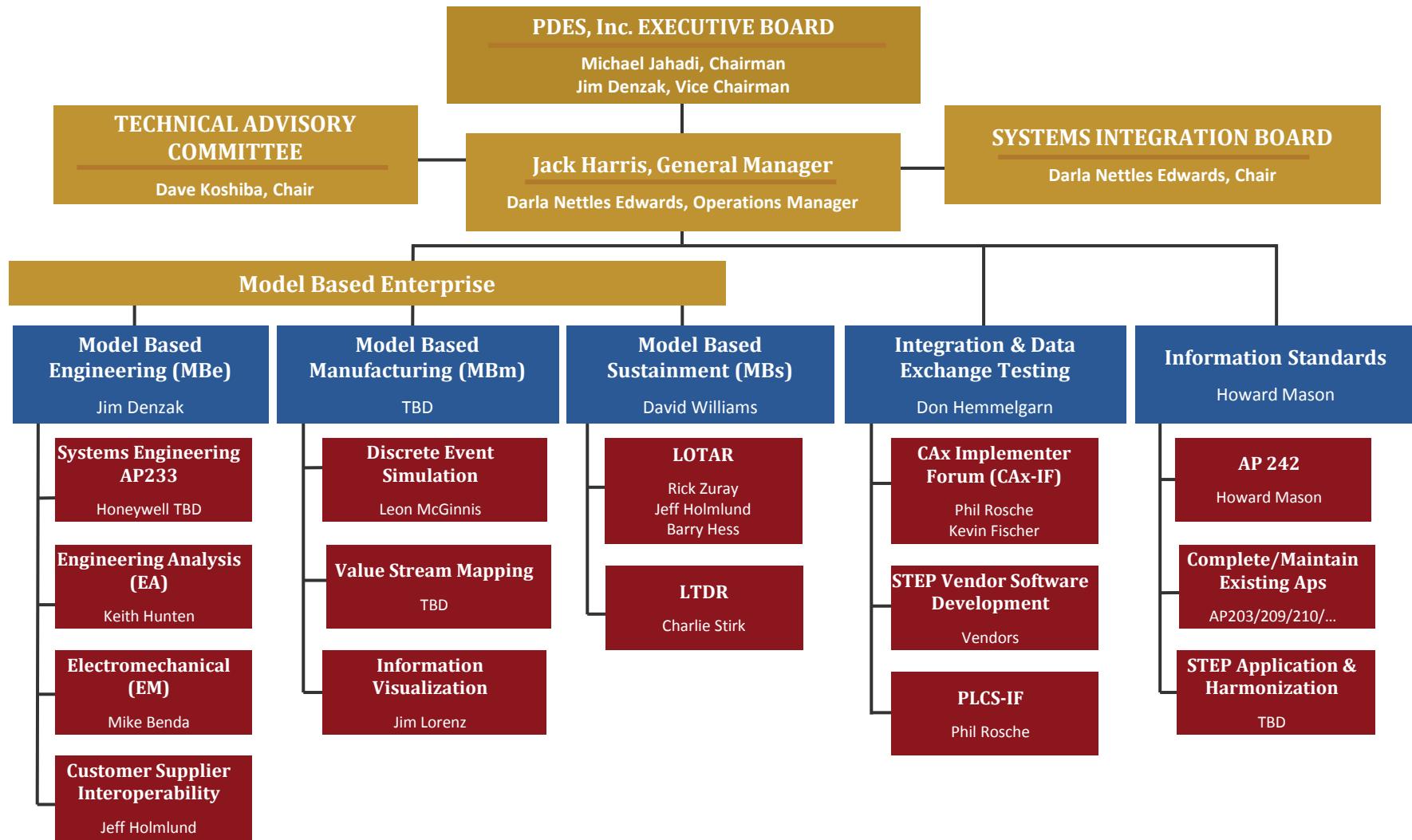
→Creating a Model-Based Enterprise is many manufacturers' approach of choice

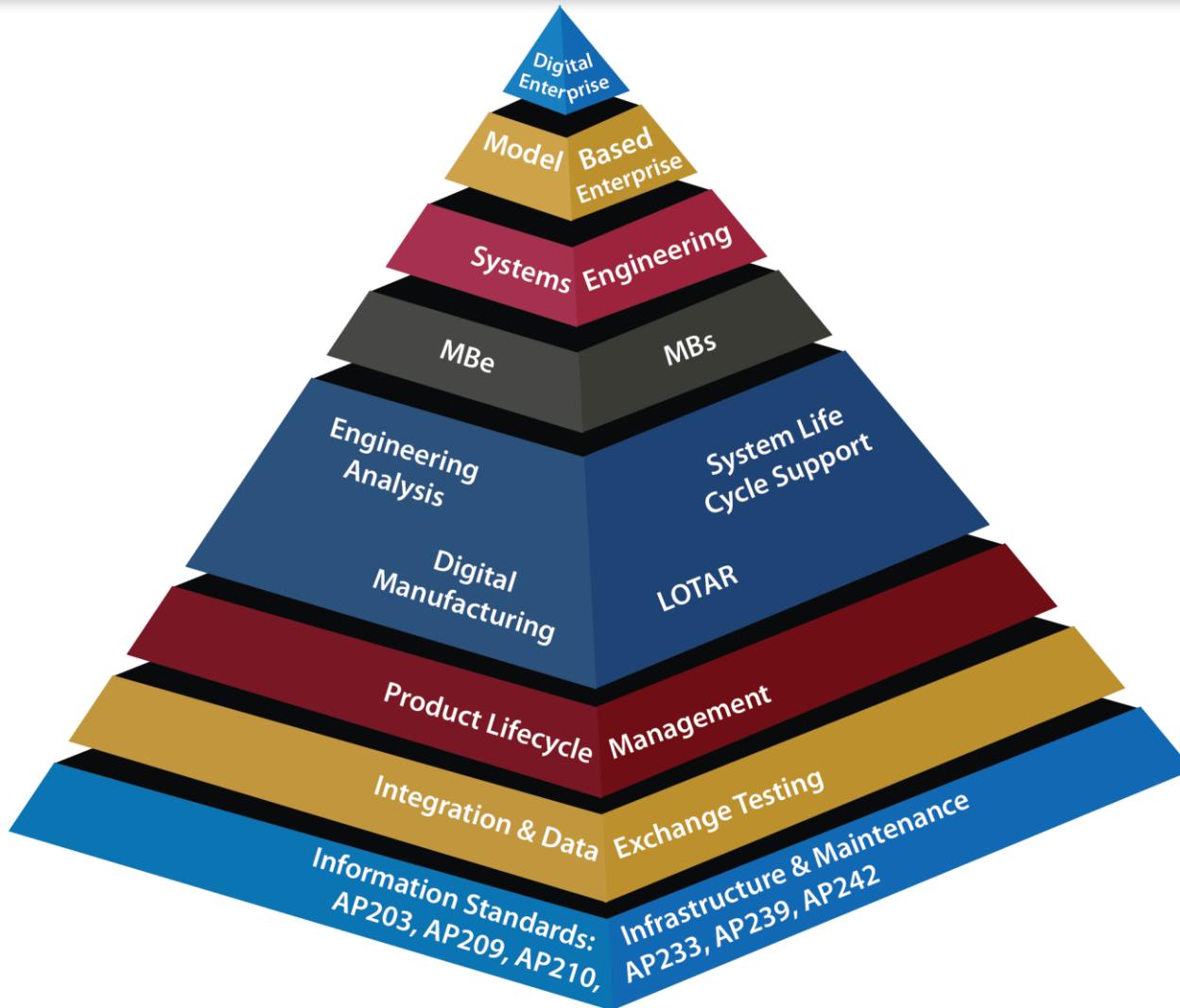
LOTAR is essential to this choice!

Part II

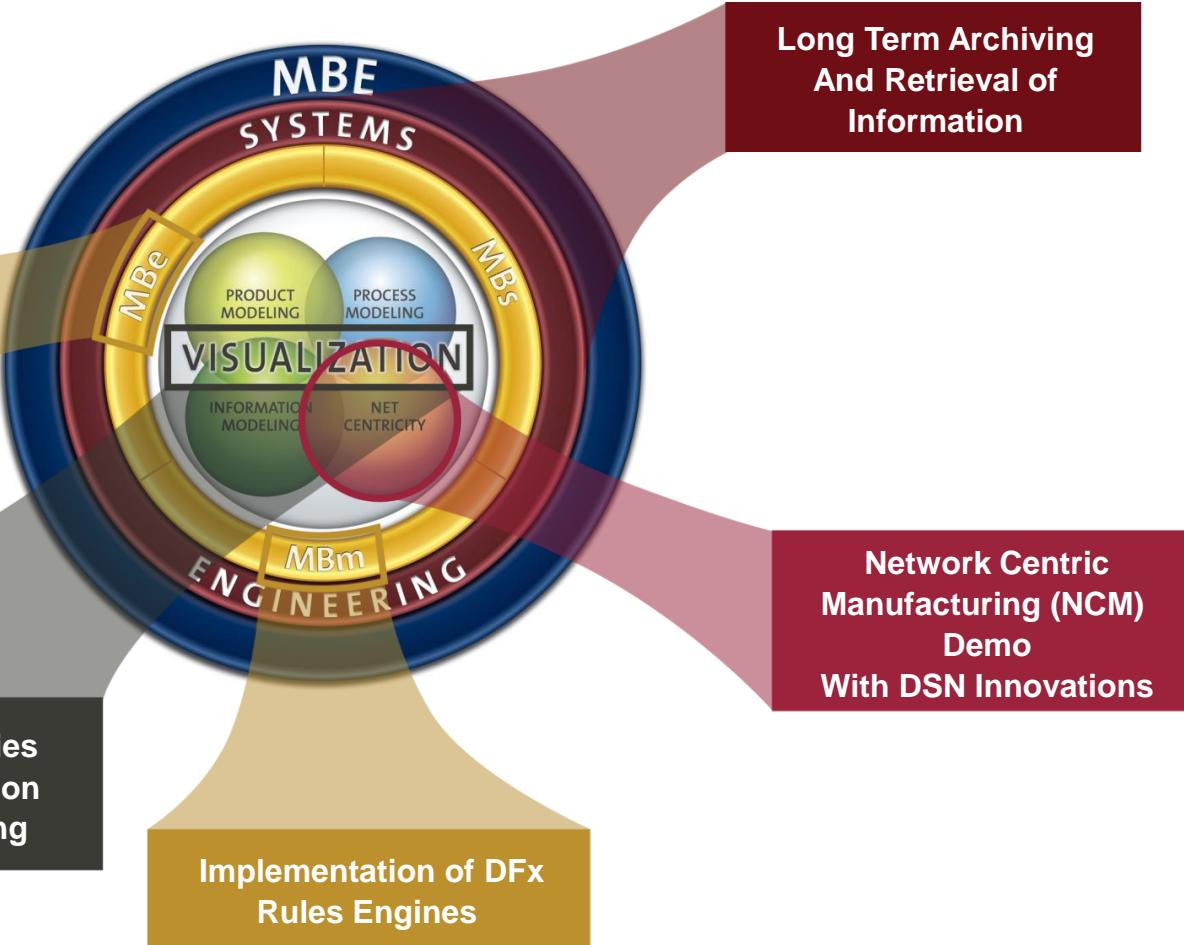
PDES, Inc. & LOTAR International “A Partnership for Progress”

PDES, Inc. Organizational Chart





Facets of Interoperability



**“... for Gulfstream, LOTAR is not a
'nice-to-have', it is an essential must-have.”**



Part III

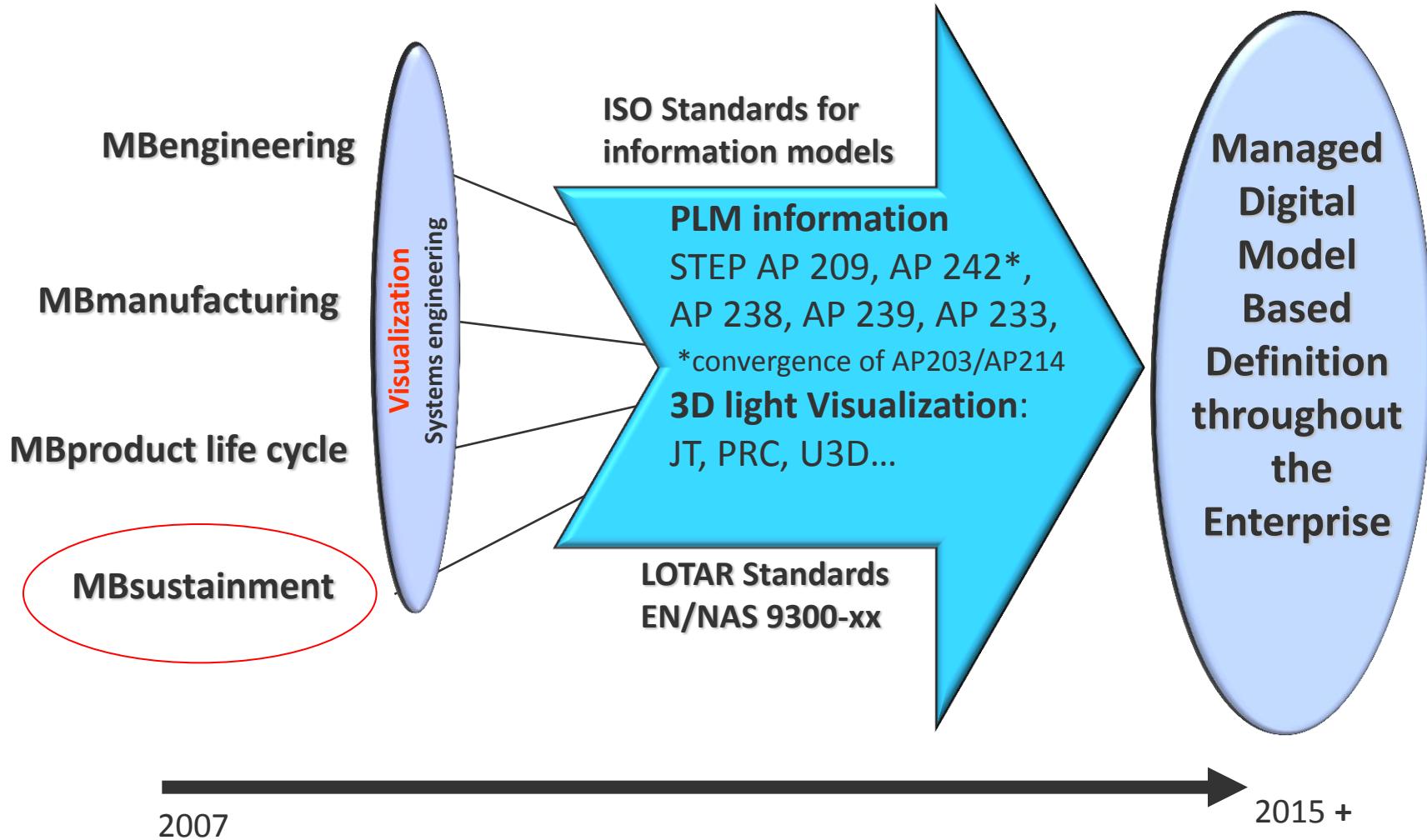
LOTAR International Roadmap & Status

LOTAR International Mission Statement

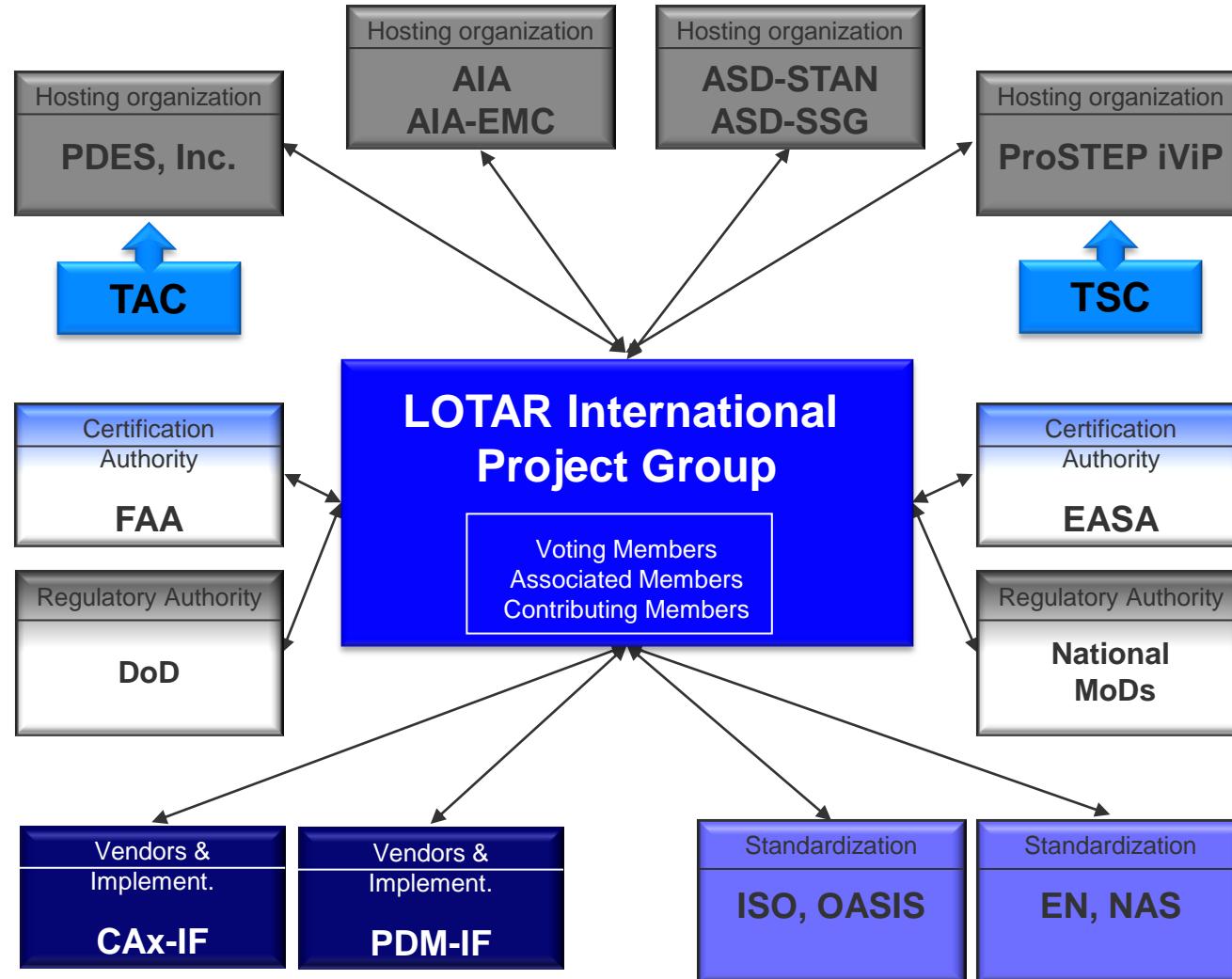


“It is the mission of LOTAR International to globalize a standards-based archival and retrieval mechanism for digital product and technical information through the ongoing harmonization and standardization efforts of Aerospace and Defense organizational affiliations.”

Standards-based Approach for the Digital Enterprise



LOTAR International Organization



LOTAR International Way of Working



- Team and Sub-projects in place
 - Telecons/Meetings/Off-sites
- LOTAR Consortium Formed
 - MOU/Charter
- Process Steering Council established
 - Bi-annual review

- Improve project management
- Expand technical involvement in project support
- Solicit new membership

- High-performing culture
- Focus on functional excellence and project metrics
- Growth opportunities within and outside Aerospace Industry



- Model Based 3D vs 2D Paper
- Neutral format for data retention (STEP) Polyline Presentation + U3D, JT, PRC
- STEP Verification and Validation

- Improve communication of Model Based Environment
- Improve pilot activity with solution providers
- Reduce verification and validation cycle time

- Leaner & more efficient processes
- Semantic Representation of PMI Data
- Integrated verification and validation process
- Complete end to end LOTAR process with Visualization support

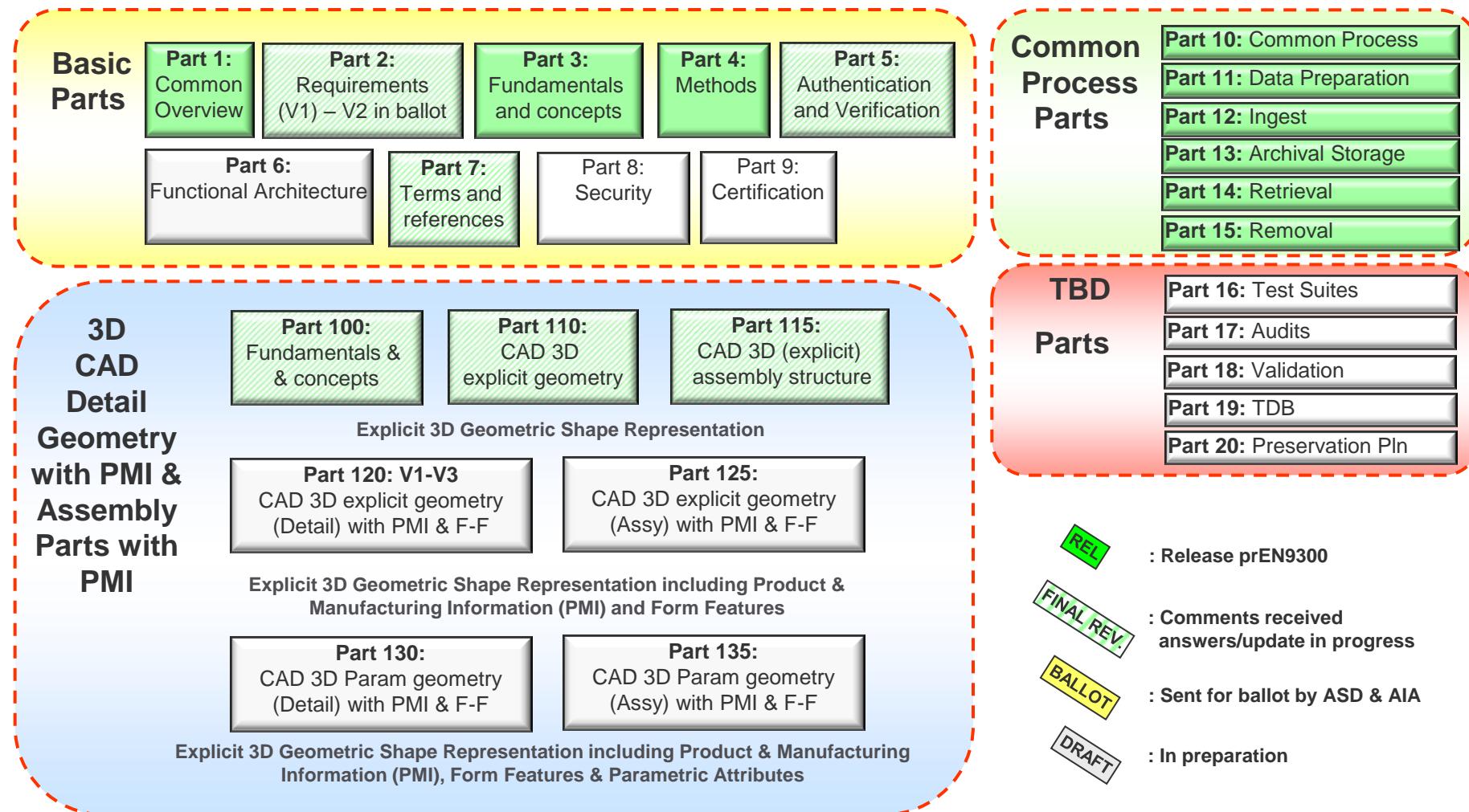


- Ineffective and inefficient tools
- Limited use of technologies
- Technology maturation limited

- Develop clear requirements with supporting use cases
- Consider technologies outside the box
- Work with industry leaders to develop new technologies in support of requirements

- Single source of data retention
- Seamless Design reuse
- Verification and Validation built in

LOTAR International Document Structure for EN/NAS 9300-xx



LOTAR International Technical Working Groups



Family 1 - 30

Part 20
Pres. Planning
Sean Barker

Part 9
Certification
Sean Barker

Part 8
Security
Sean Barker

Family 100 series

Part 120v1
CAD PMI
Rick Zuray

UCS-WG
R. Zuray
UDA-WG
J. Delaunay

Part 120v2
CAD PMI
Rick Zuray

CAD 3D Light
Visualization
David Harbin

Family 200 series

Part 200
PDM F&C
C. New /H. Byzio

Part 210
As-Designed
Cecil/Henrich

Part 220
As-Planned
Cecil/Henrich

Family 300 series

Part 300
Composite F&C
R. Murrish

Family 400 series

Part 400
Wire Harness F&C
TBA

Supporting Projects

AP242
LOTAR Members

NIST Work
D. Cheney

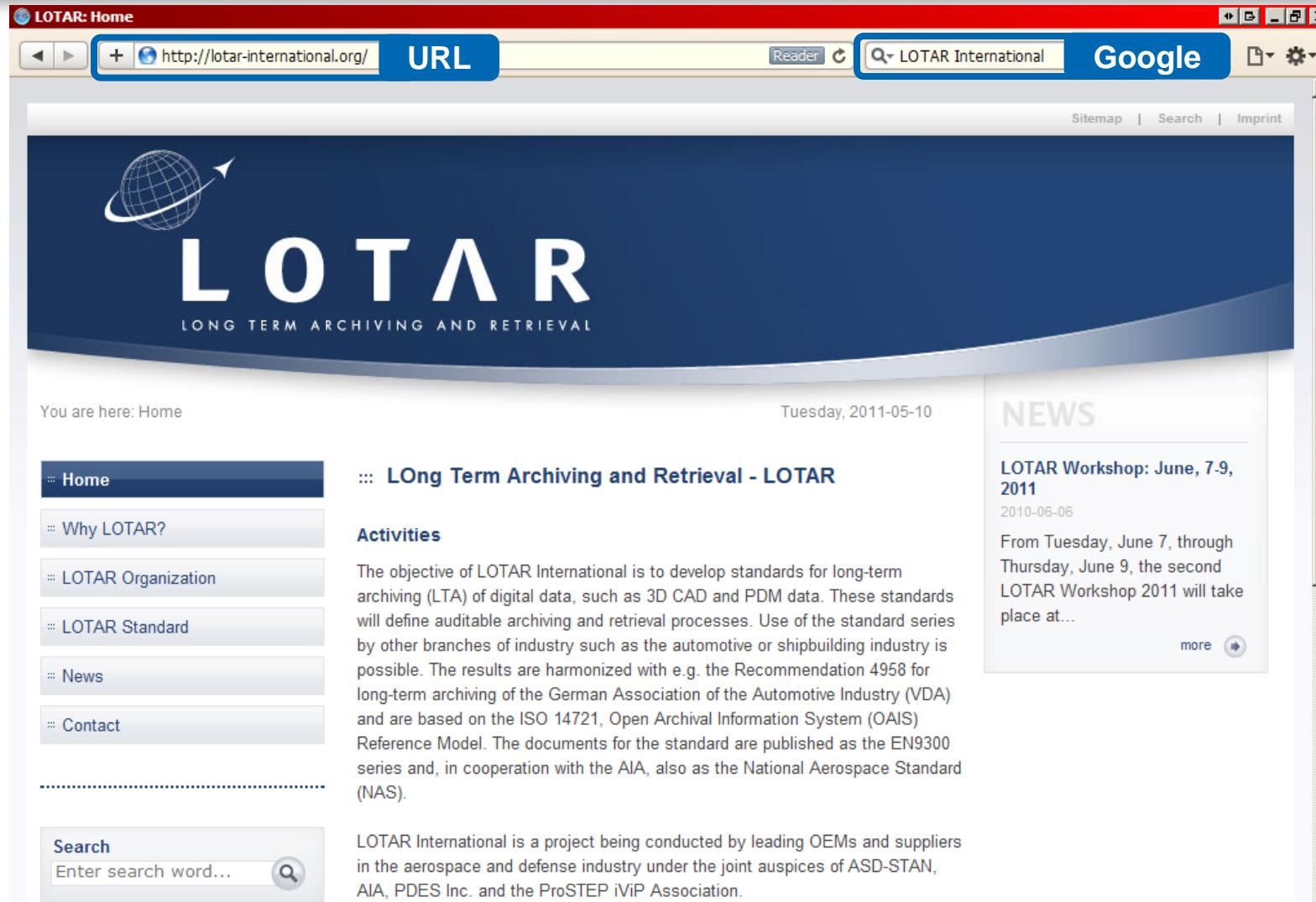
LEGEND = In-work New Considered

UCS = Unicode String
UDA = User Defined Attributes
F&C = Fundamentals & Concepts

LOTAR International

Three-Year Milestone Plan

WP No.	Title	2011												2012												2013											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
1	II.1. Project Management																																				
2	II.2. Public Relations																																				
3	III. Basic & Common Parts																																				
3.1	006: Functional Architecture																																				
3.2	007: Terms and References																																				
3.3	009: Certification																																				
3.4	020: Governance and Planning																																				
3.5	008: (Optional) Security																																				
4	IV. Data Domain Specific Parts																																				
4.1	120: LTA of 3D CAD with PMI																																				
4.2	1xy or Guideline: 3D Light Visualization																																				
4.3	2xx: LTA of PDM																																				
4.4	3xx: LTA of CAD 3D Composite Design																																				
4.5	4xx: (Optional) LTA of CAD 3D Electrical Design																																				
5	V. Harmonization with other Project Groups																																				
5.1	Support of CAx-IF																																				
5.2	Development of AP242 Edition 1																																				
6	VI. Communication																																				
		WS1	WS2	WS3	WS4	WS1	WS2	WS3	WS4	WS1	WS2	WS3	WS4	WS1	WS2	WS3	WS4	WS1	WS2	WS3	WS4	WS1	WS2	WS3	WS4	WS1	WS2	WS3	WS4	WS1	WS2	WS3	WS4				



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Tuesday, 2011-05-10

::: LOTAR
LONG TERM ARCHIVING AND RETRIEVAL

Activities

The objective of LOTAR International is to develop standards for long-term archiving (LTA) of digital data, such as 3D CAD and PDM data. These standards will define auditable archiving and retrieval processes. Use of the standard series by other branches of industry such as the automotive or shipbuilding industry is possible. The results are harmonized with e.g. the Recommendation 4958 for long-term archiving of the German Association of the Automotive Industry (VDA) and are based on the ISO 14721, Open Archival Information System (OAIS) Reference Model. The documents for the standard are published as the EN9300 series and, in cooperation with the AIA, also as the National Aerospace Standard (NAS).

NEWS

LOTAR Workshop: June, 7-9, 2011
2010-06-06

From Tuesday, June 7, through Thursday, June 9, the second LOTAR Workshop 2011 will take place at...

more 

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Enter search word... 

DRIVERS

- The market is demanding more from us
- National and Global demands are changing

ACTION

- Create the Model-Based Enterprise
- ➔ LOTAR is essential to the Model-Based Enterprise

INVITATION

- Get involved in precompetitive alliances