



Will Product and Process Data Standards Ever Become Mainstream in the PLM Software World?

Challenges, Opportunities, and Best Practices

PDT Europe 2009

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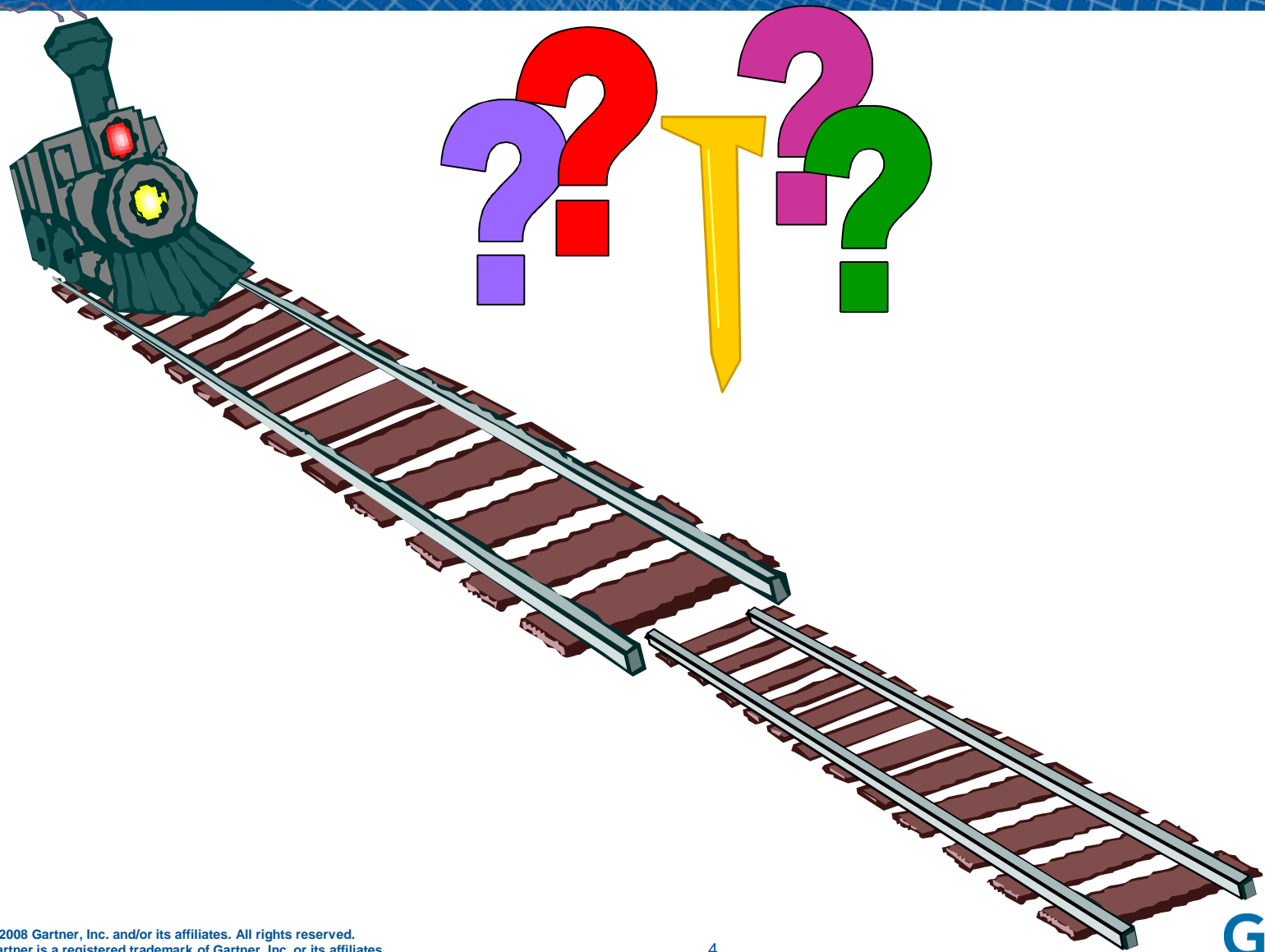
Key Issues

- What conditions drive successful adoption of standards?
- What are the most important sets of challenges that PLM standards could alleviate today?
- What inhibits PLM standards adoption and how can individuals and organizations address them?
- What are best practices for any manufacturer to deploy PLM processes and adoption of standards??

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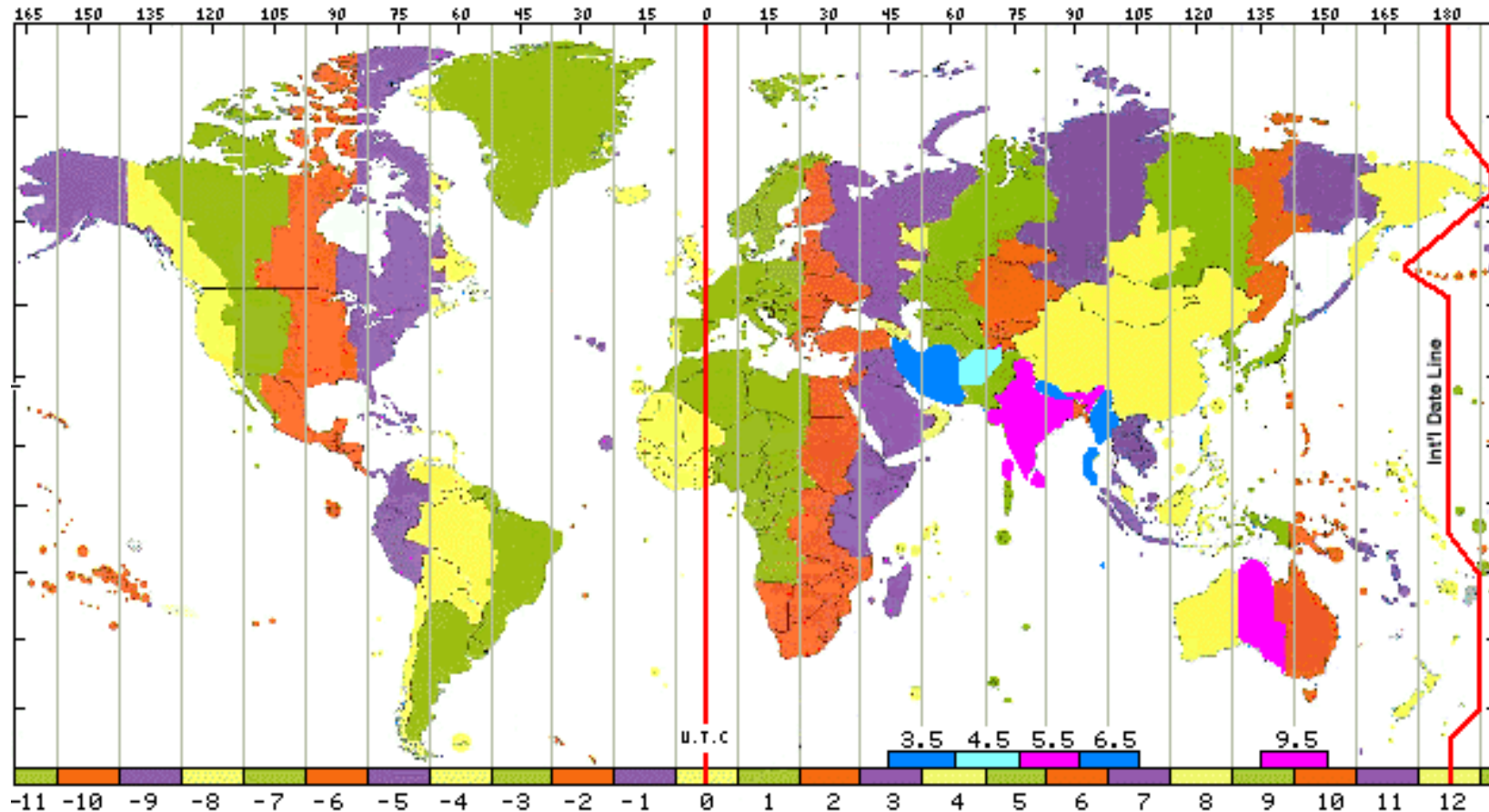
Are We Reliving the Painful History of 19th Century Railroads?



Railroad History Insights for Product Data Exchange

- Railroad standards took 70 years
- Often, “arbitrary” legacy decisions define the details of standards
- Standards win over best technology over the long term
- A key advantage for the North during the U.S. Civil War
- Derivative business opportunities and cultural changes due to standards

Time Zones – A Global Standards Success



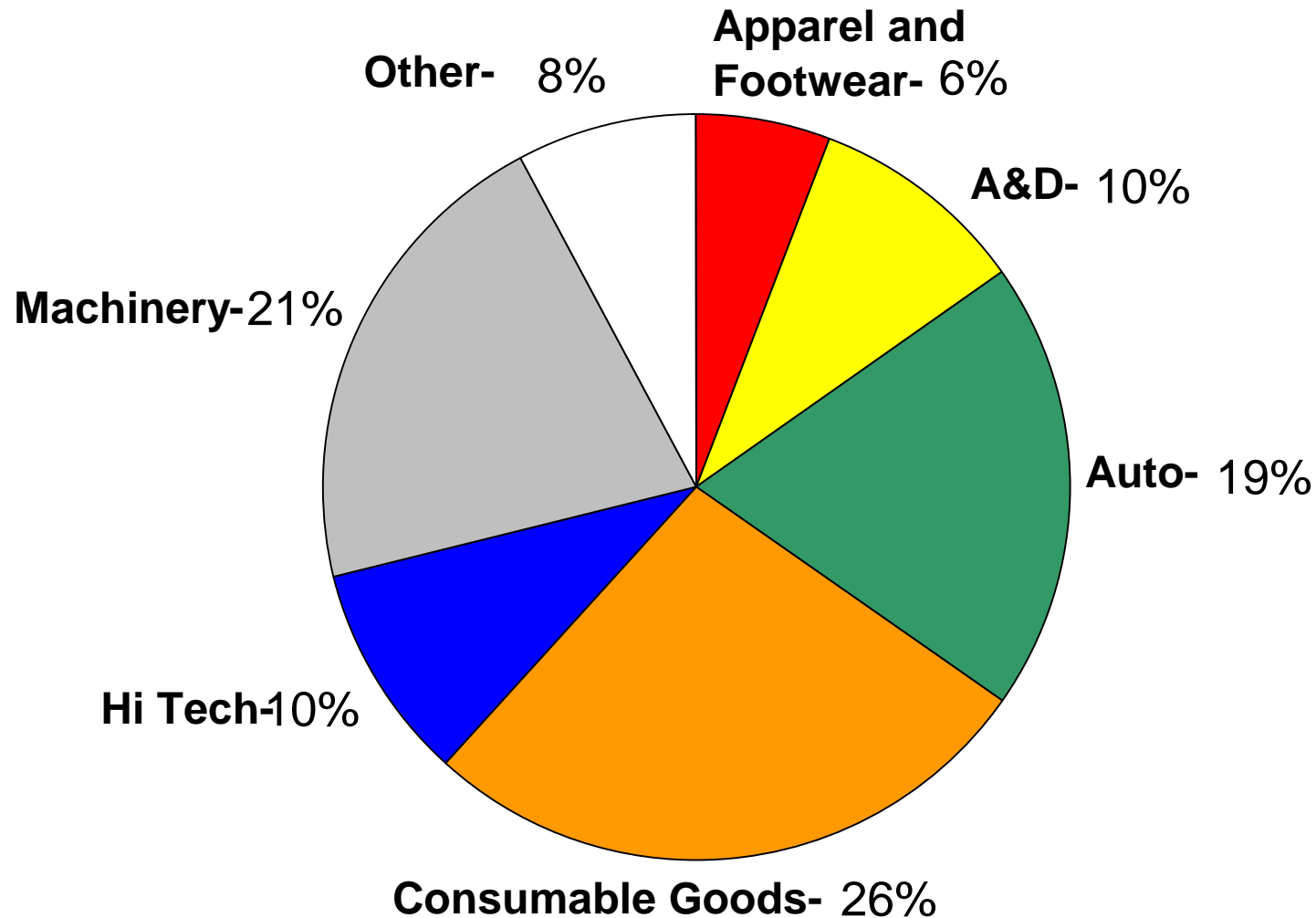
Lessons Learned from Successful Adoption of Time Zone Standards

- Urgency of global and regional business drivers
 - Railroads and accelerating international communications and commerce
- Leadership required
 - Extensive Anglo-American influence at that time
 - Meridian conference, Washington D.C. –October 1884
 - 41 delegates from 21 nations
- Historical precedents influence standards
 - Prime Meridian runs through Royal Observatory in Greenwich, England founded by Charles II in 1675; British 19th century global influence
- Disasters accelerate standards adoption
 - Board of longitude founded in 1707 after a navigational disaster caused the deaths of 2000 British sailors. Prime Meridian established as basis of measurement
 - Disasters accelerated development of engineering design standards

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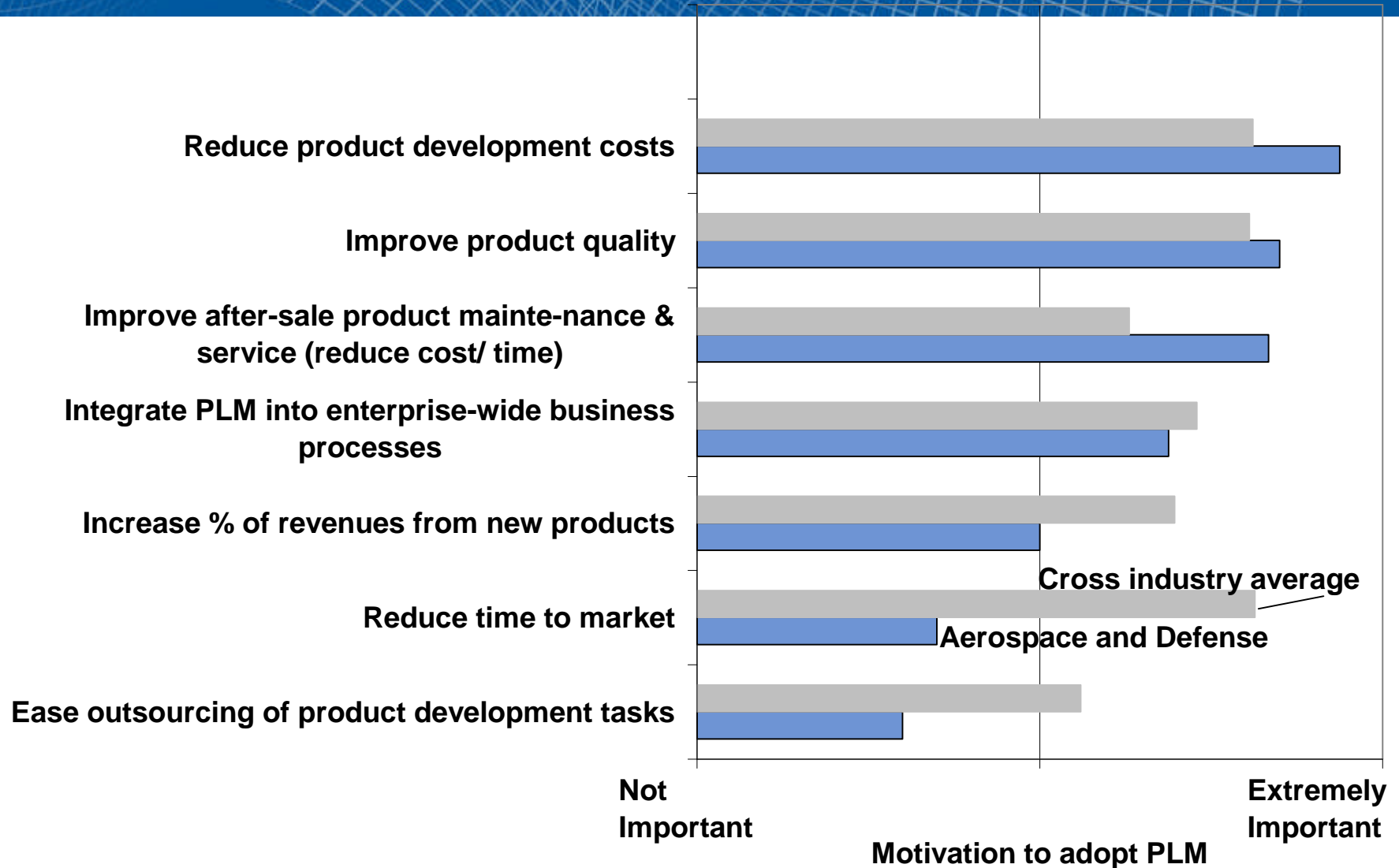
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Gartner Product Lifecycle Management Survey – 67 Manufacturers Have Participated So Far

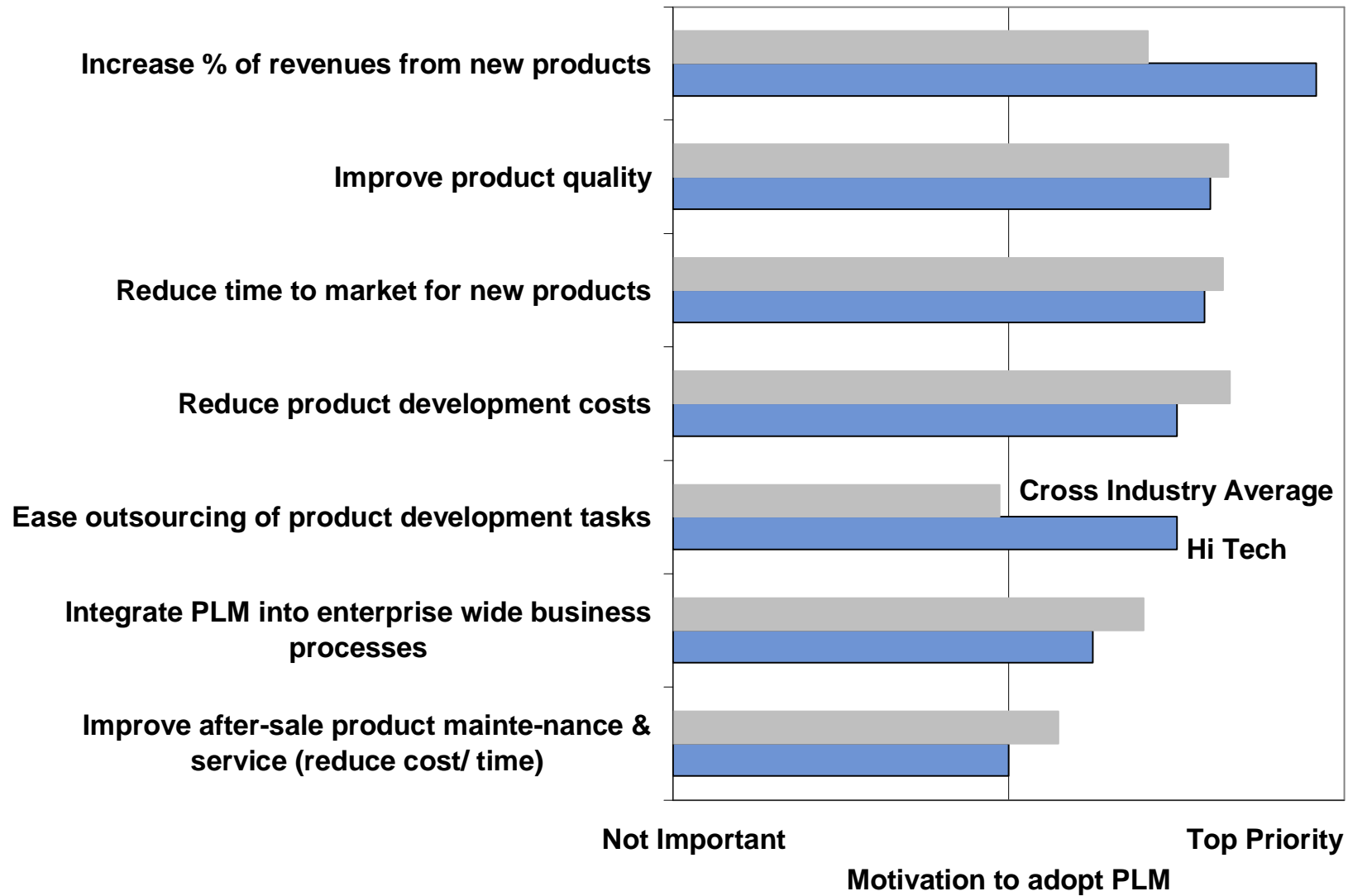


In collaboration with Profs. Satish Nambisan (RPI) and Rob Fichman (Boston College)
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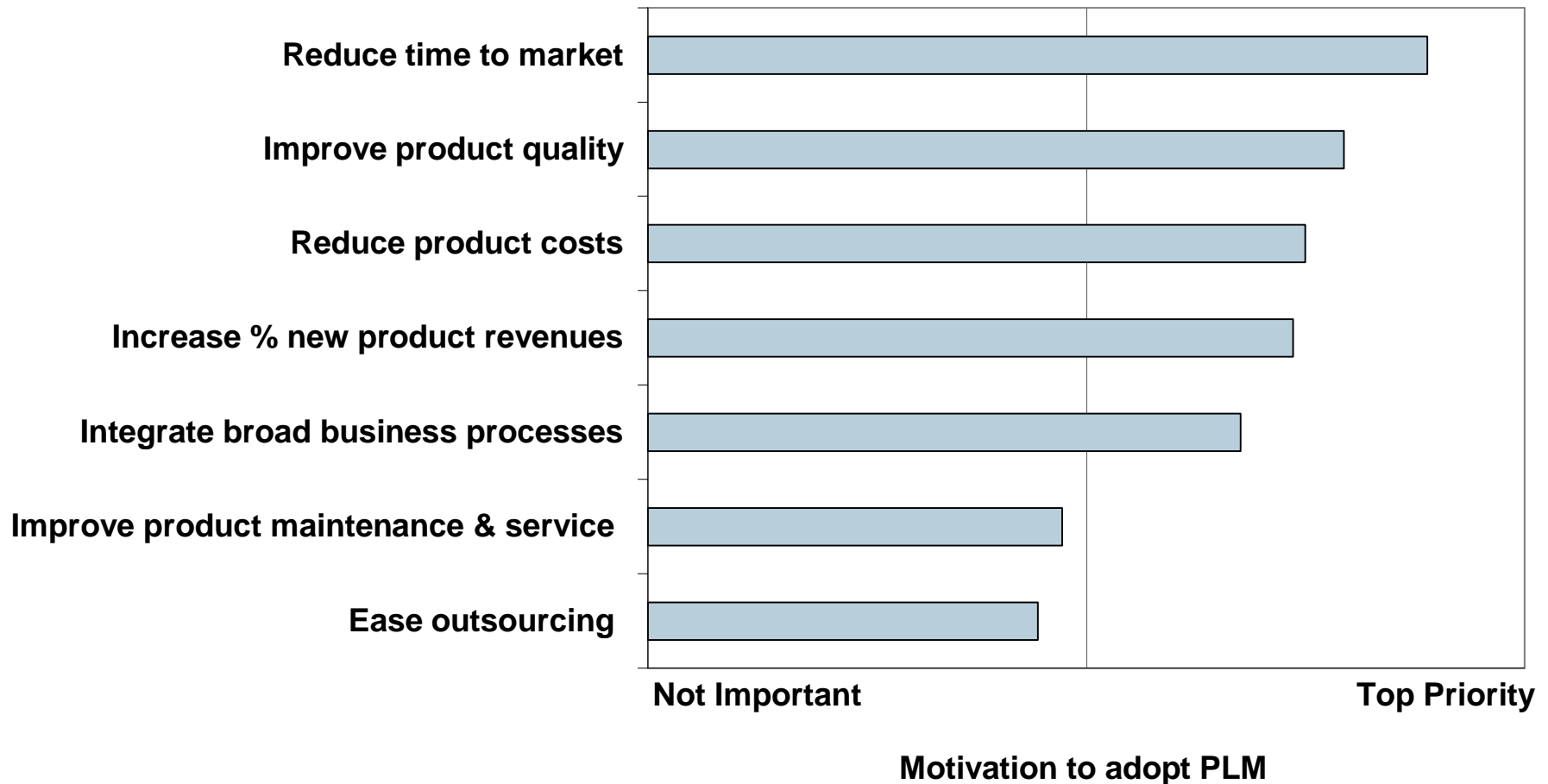
A&D Companies Prioritize PLM for Cost Reduction, Quality Improvement, and MRO



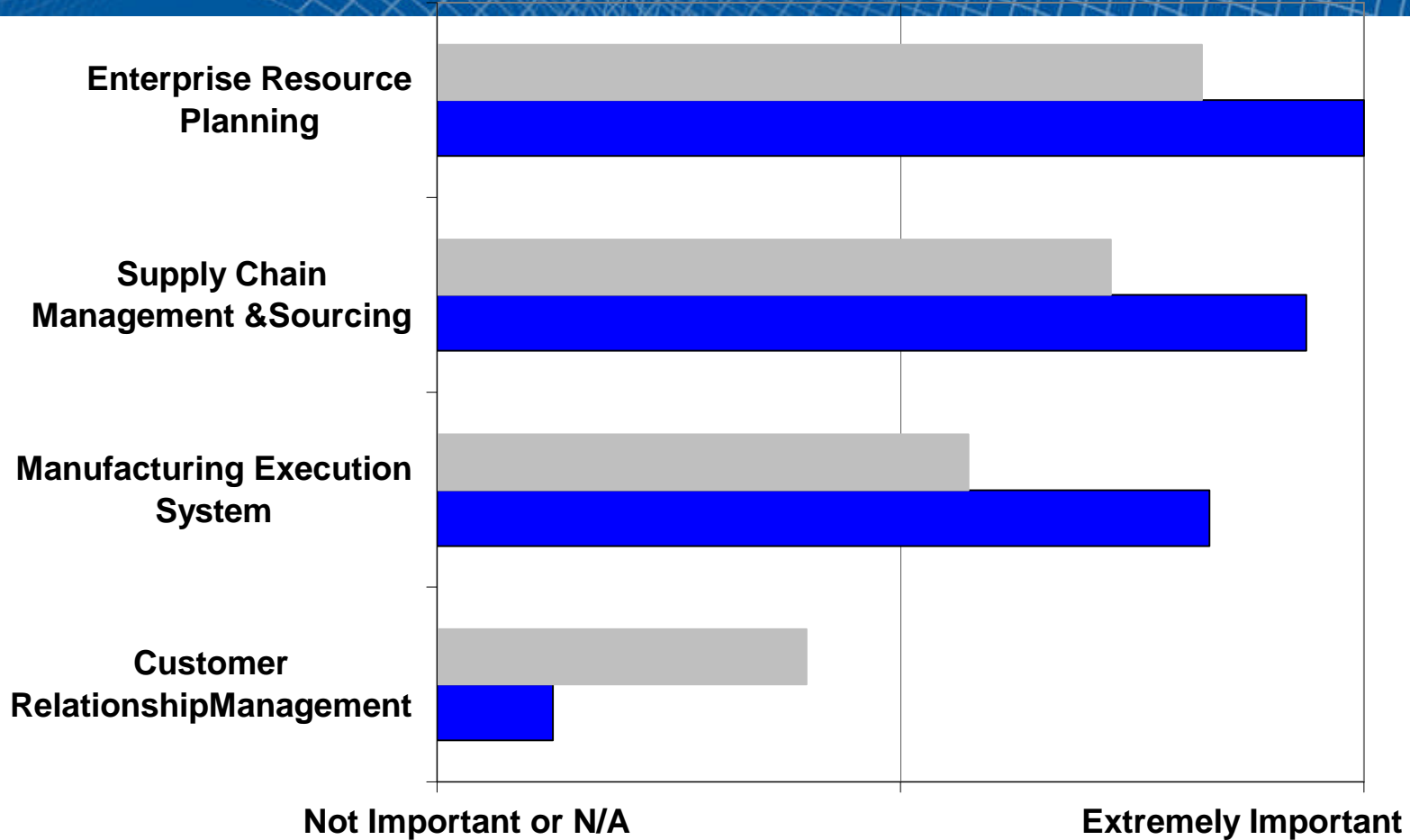
Hi Tech Manufacturers Prioritize Need for Innovation



Time to Market is Top Priority for Consumer Goods Manufacturers

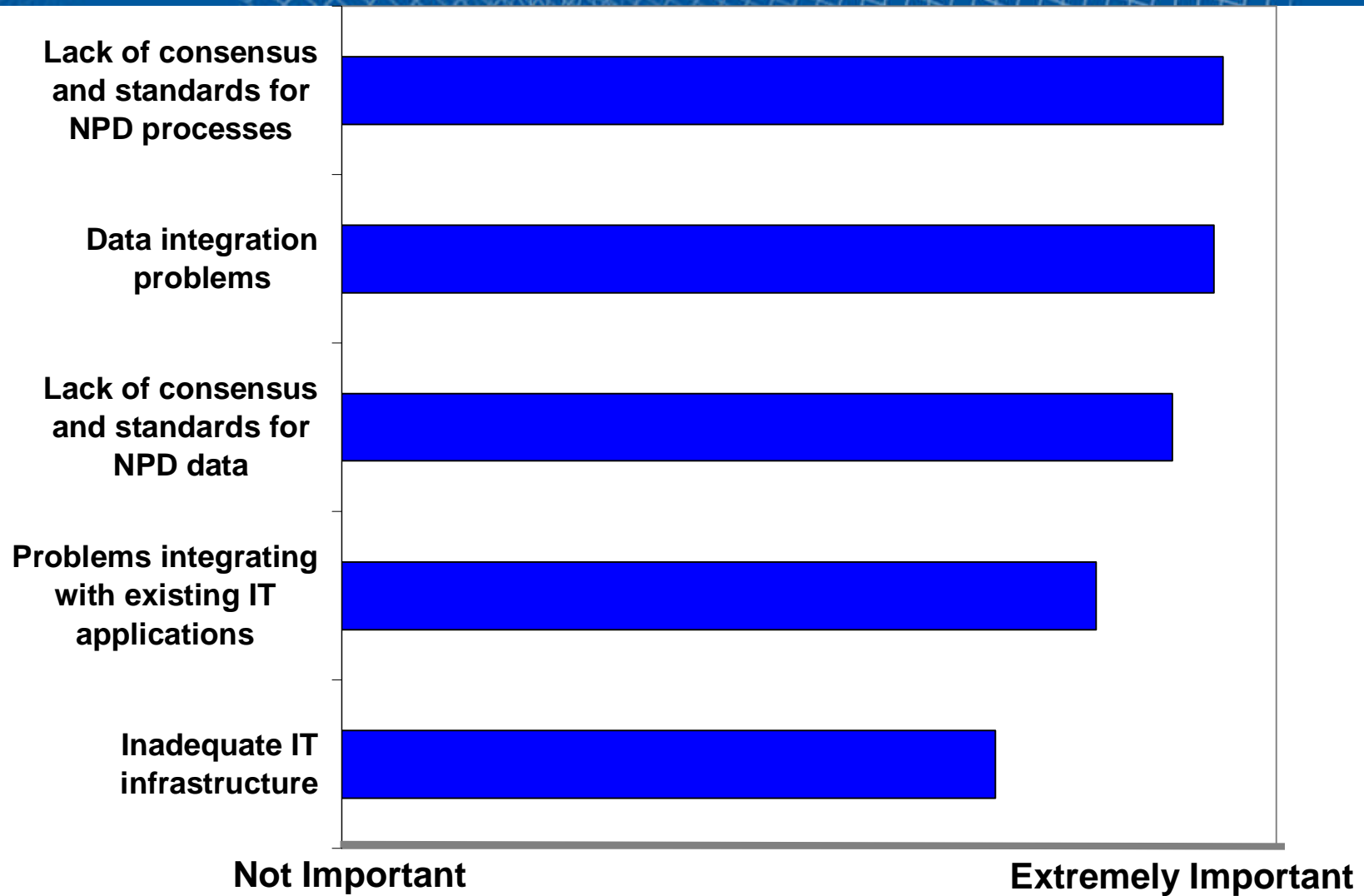


PLM Integration With ERP, SCM, and MES Reflects Complexity of NPI Across Industries



Priority of PLM Integration into Other Classes of Enterprise Applications

PLM Adoption Challenges



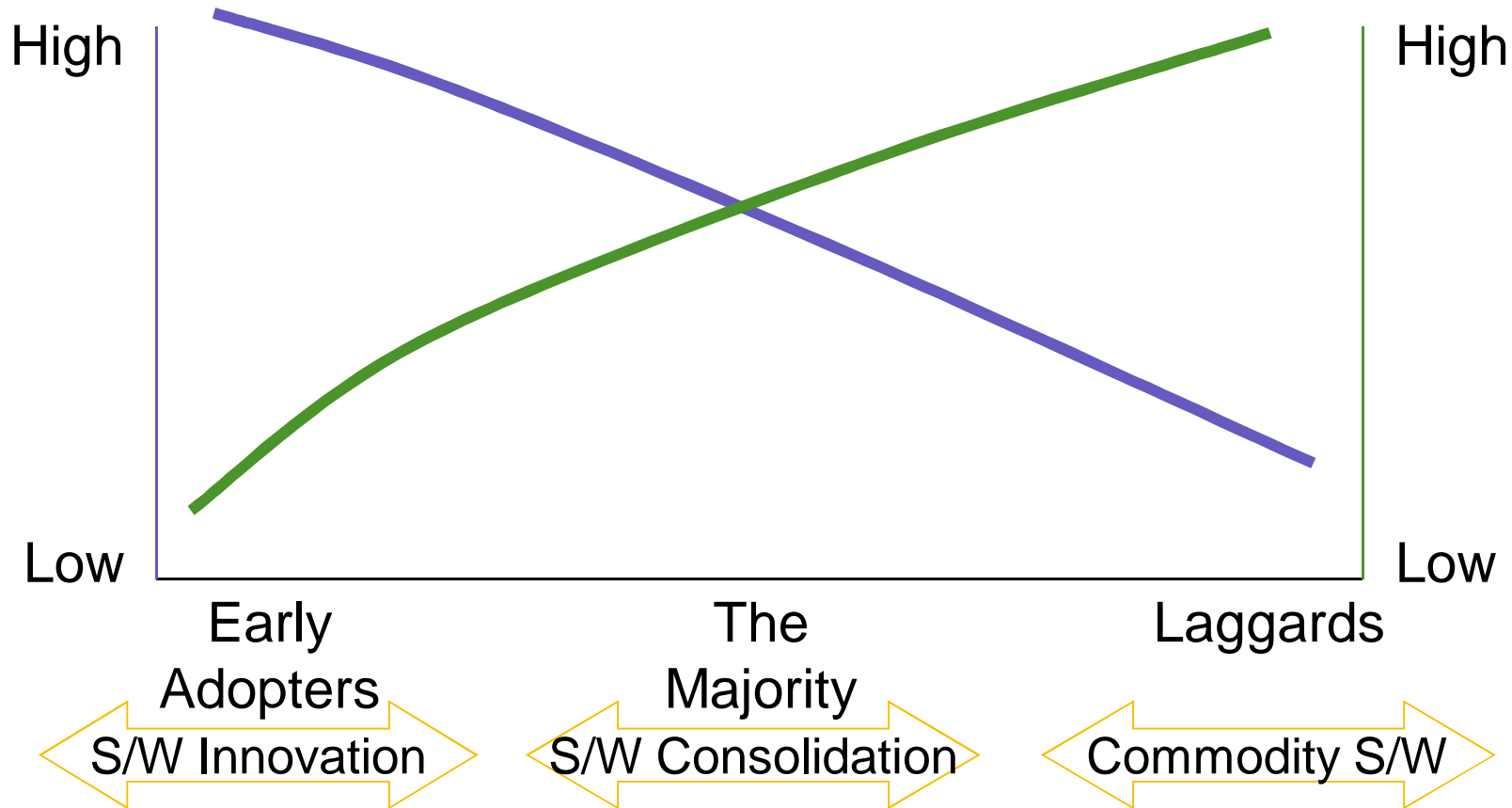
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A Dilemma for Organizations Wishing to Share Product Content Through Standards

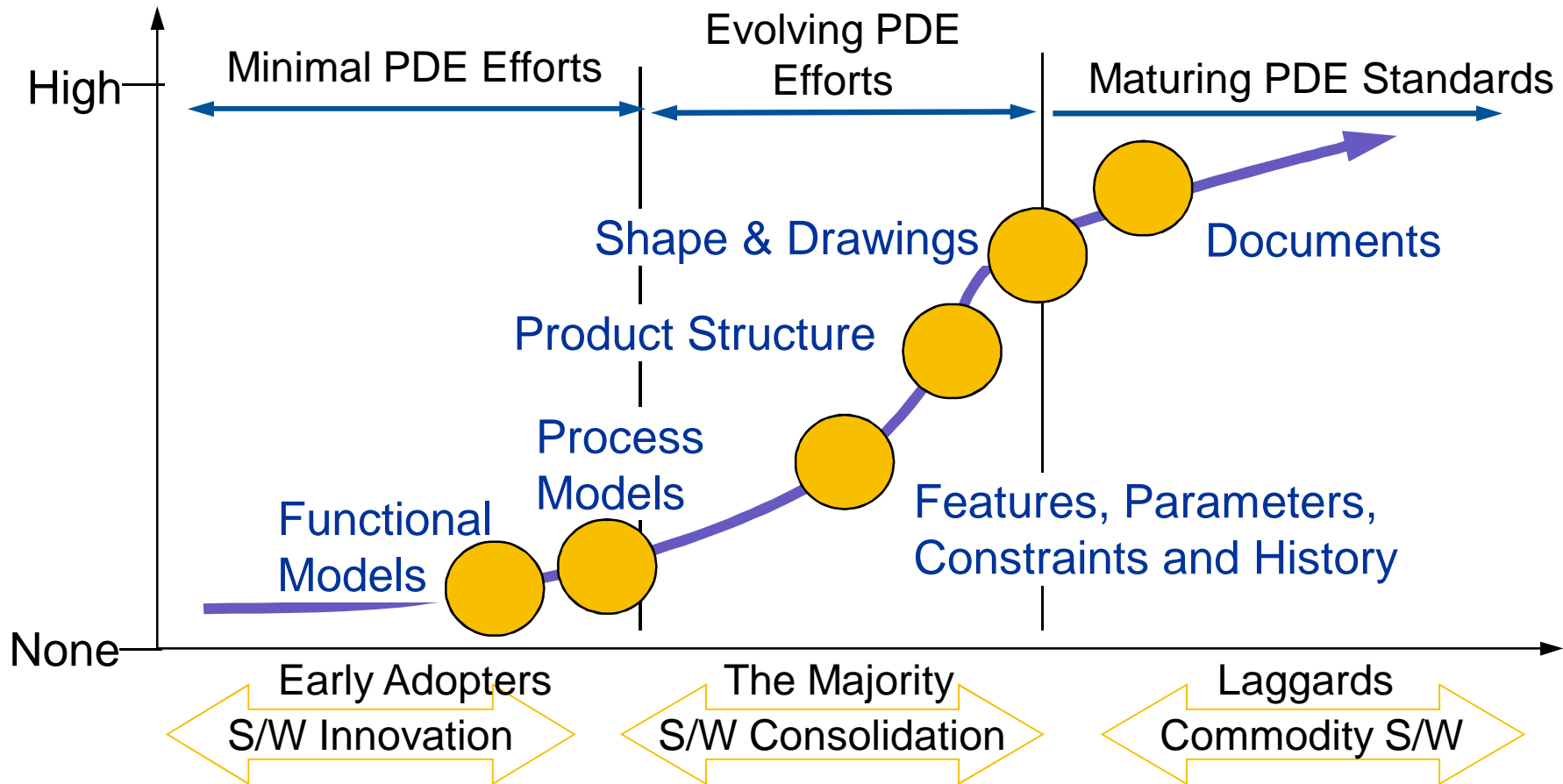
Competitive
Potential of Design
Applications

Long-Term PDE
Reliability



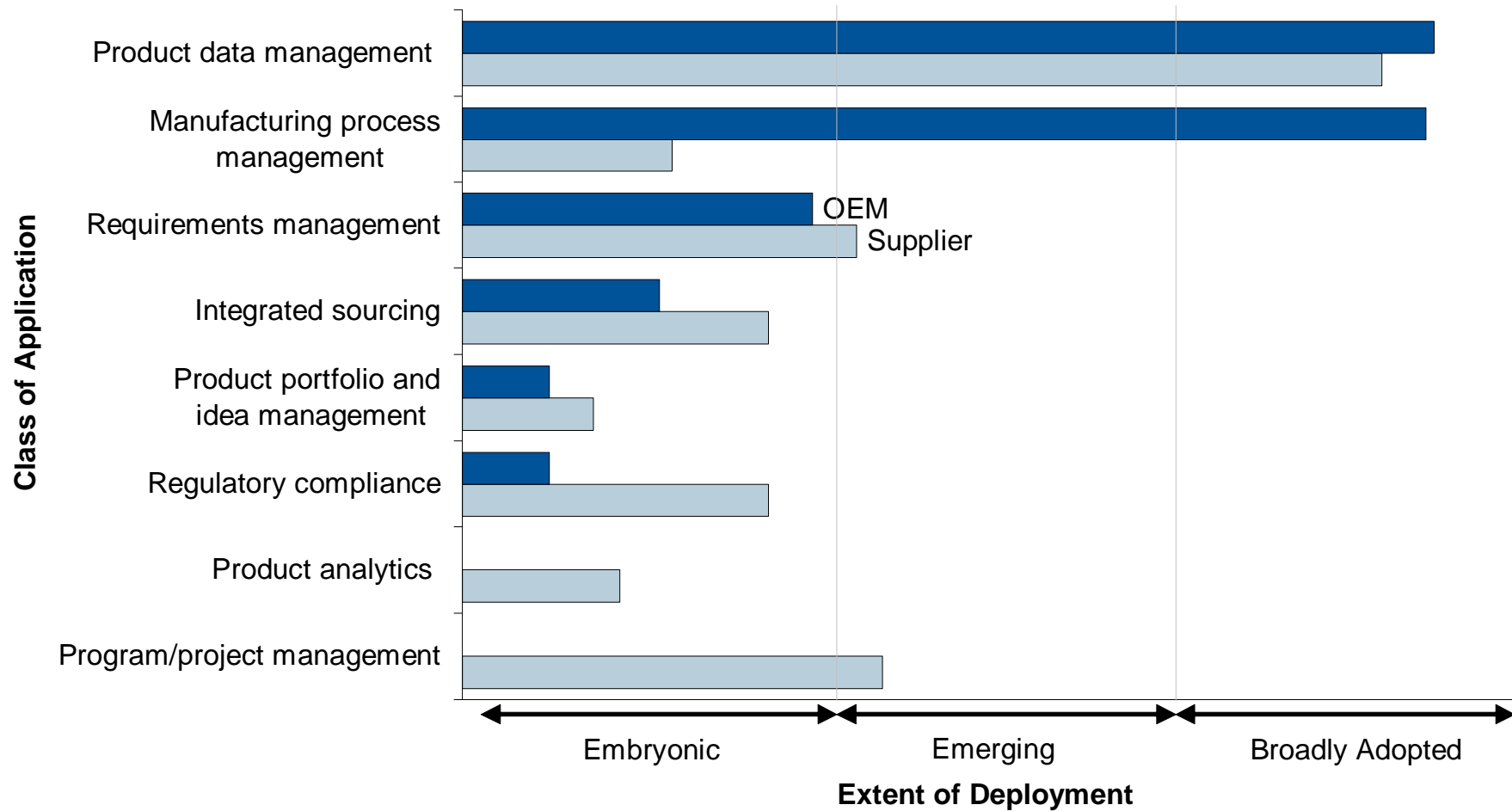
Standards Lag Software Apps: Gaps Create Opportunities and Dangers

Market Saturation

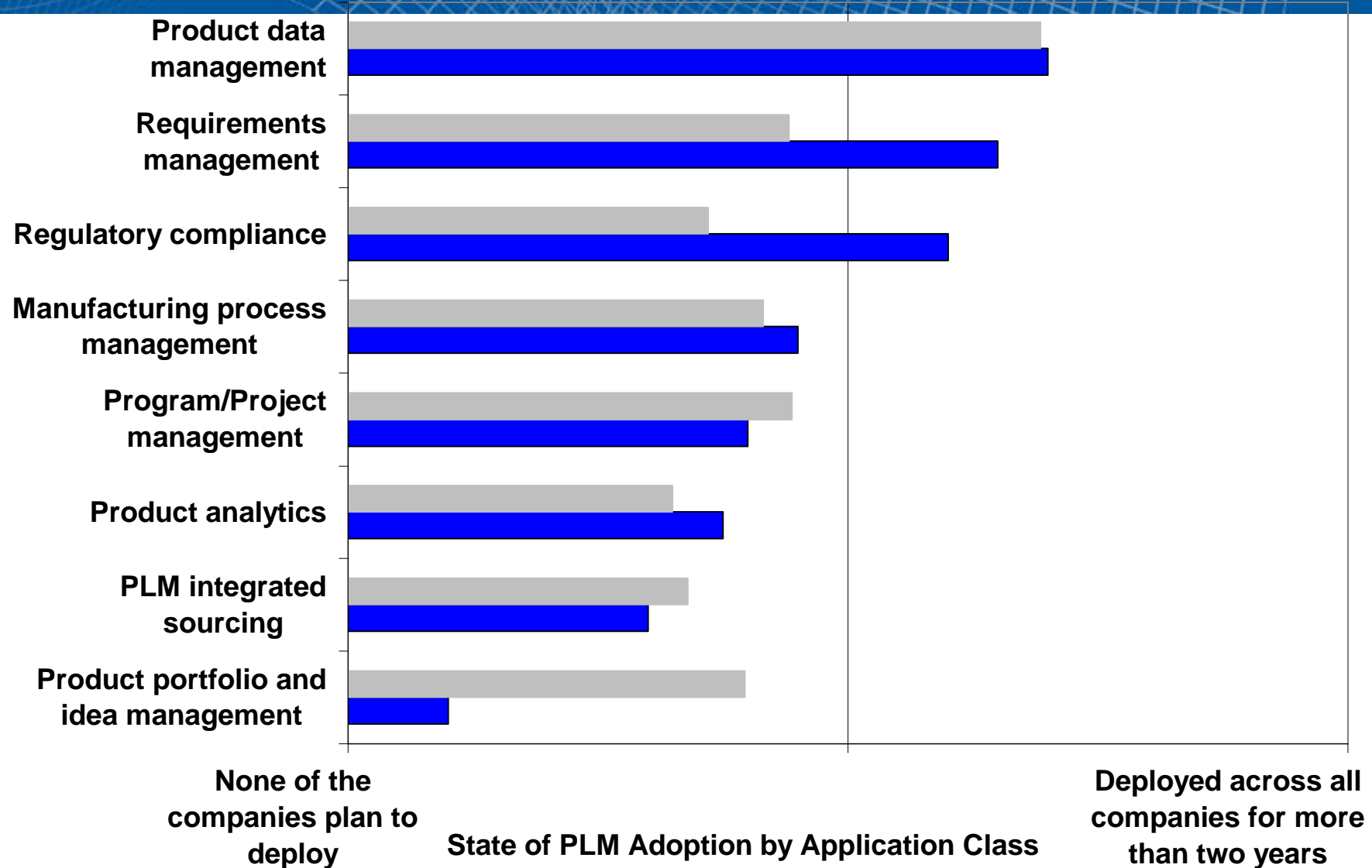


State of Software Technology Adoption

Requirements and Program Management are Emerging PLM Software Priorities in Automotive



A&D Attention to PDM, Requirements Mgmt. and Regulatory Reflect Industry Pain Points

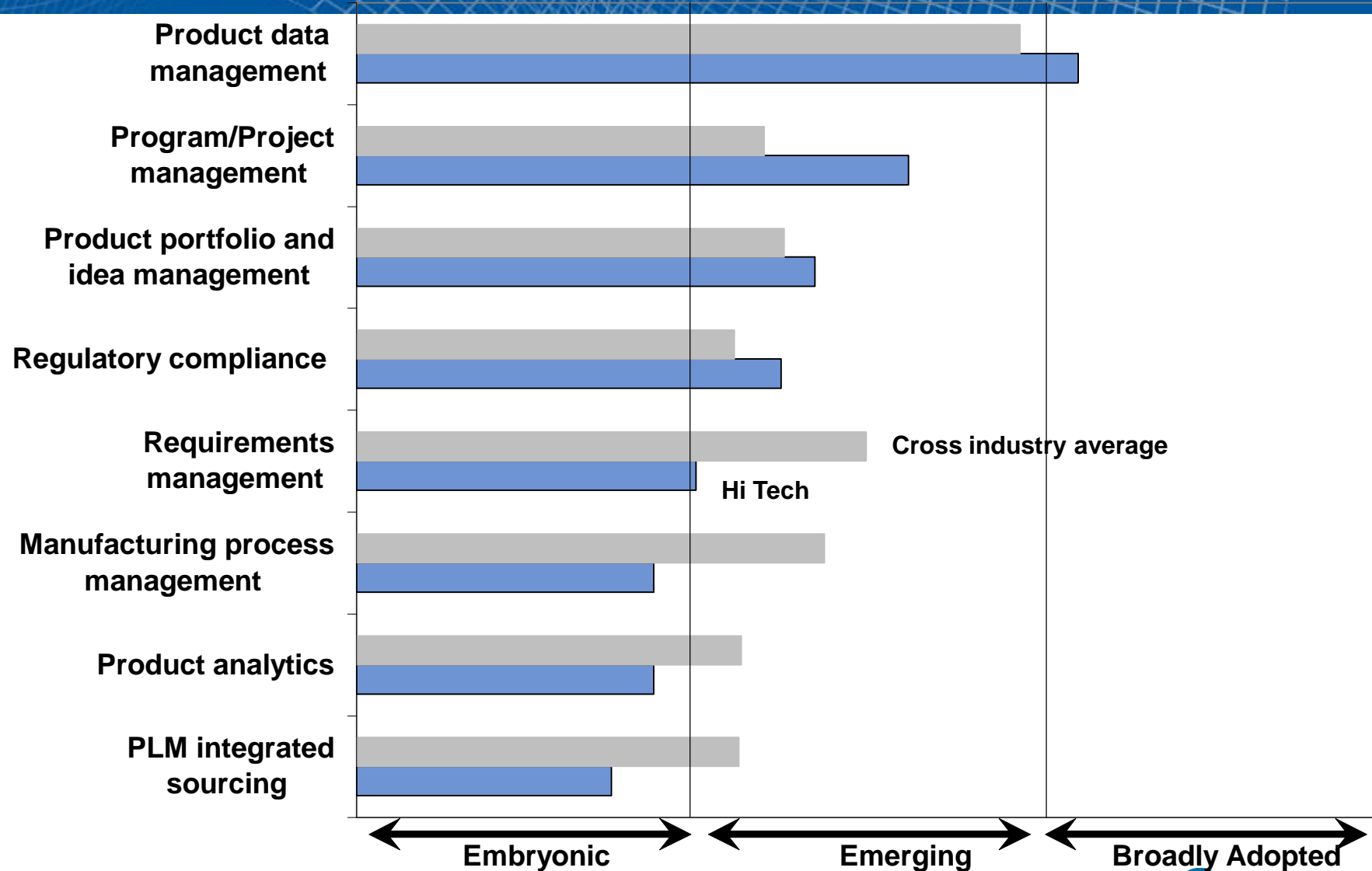


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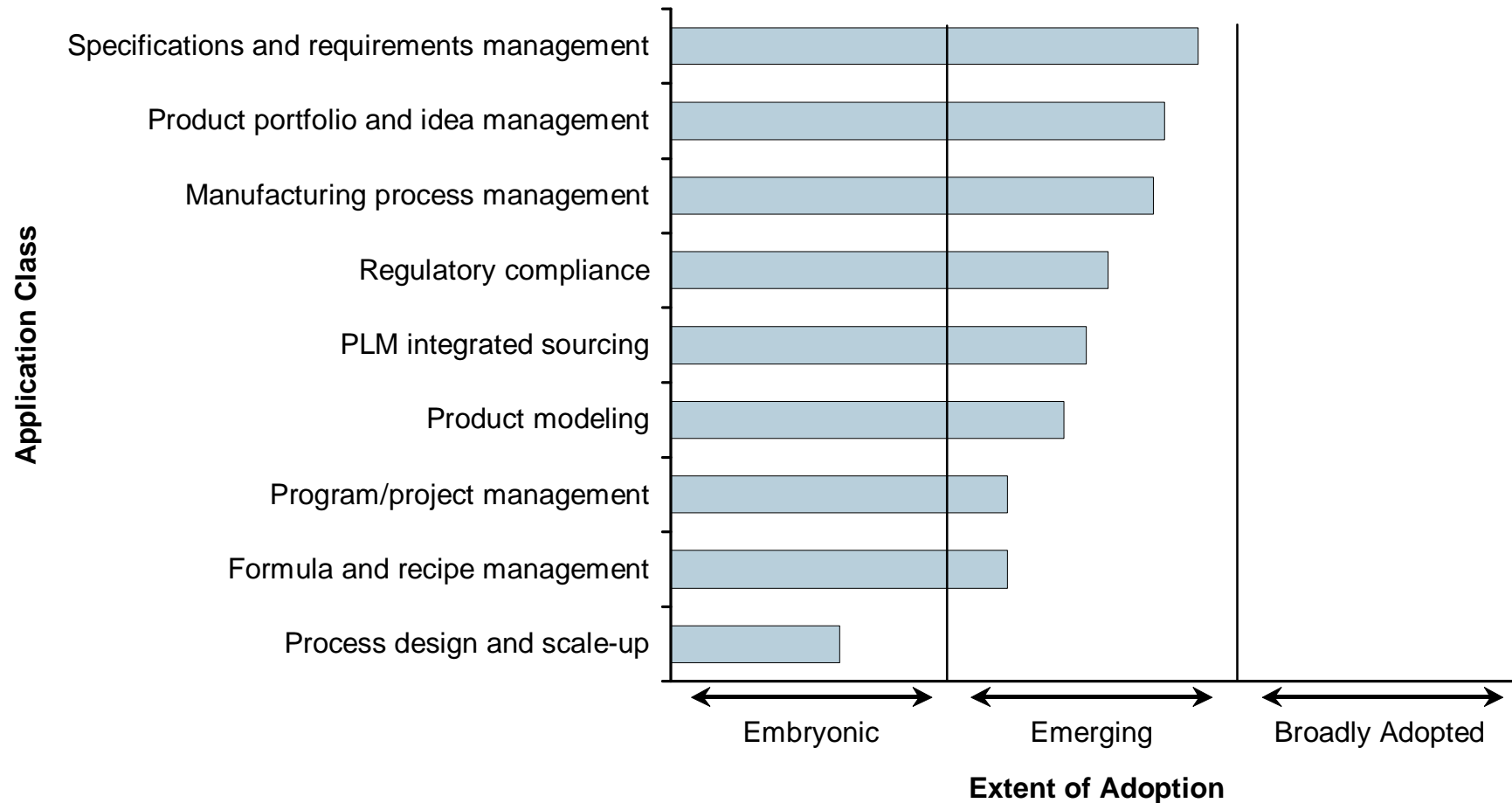
■ A&D ■ Grand Average Across Industries



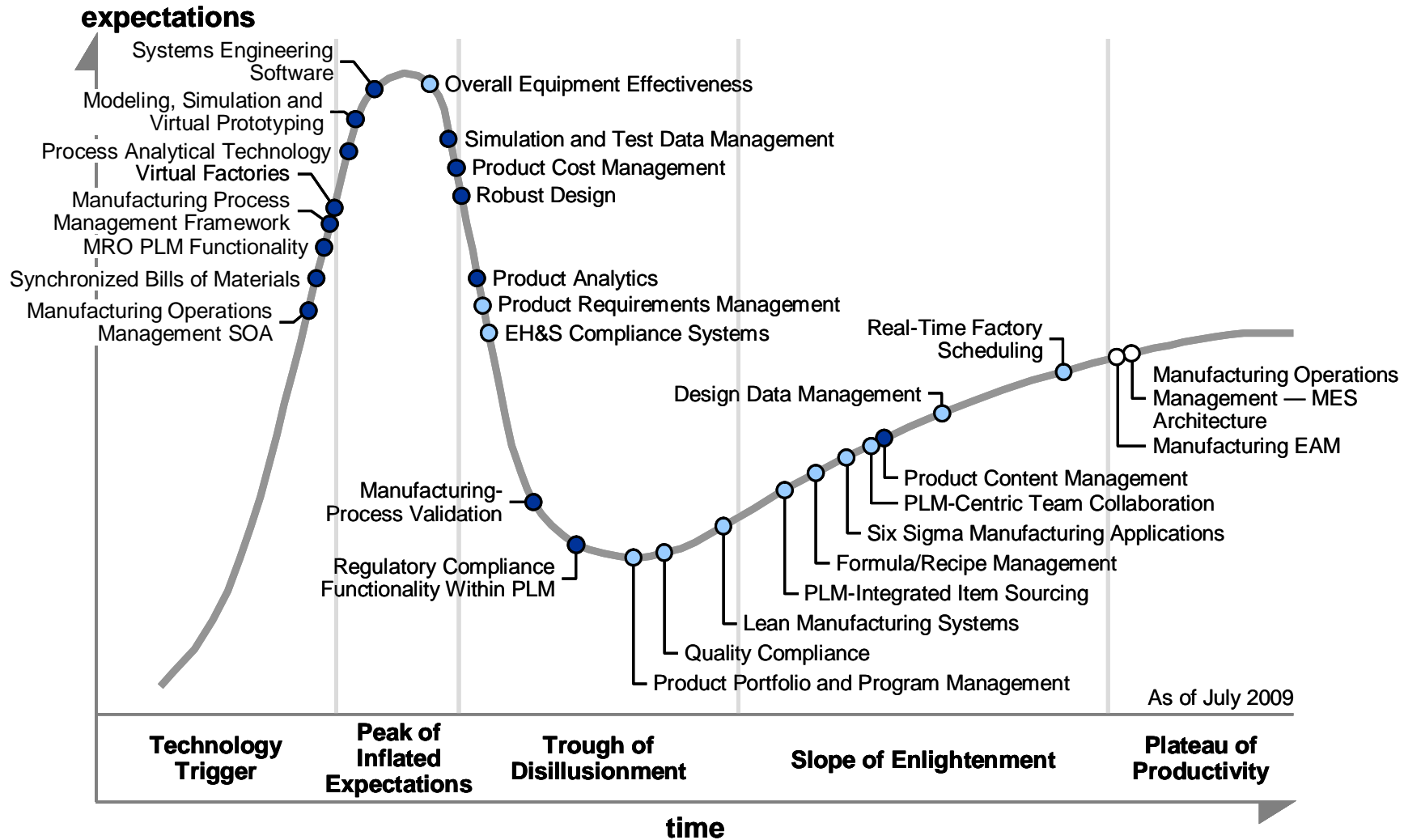
Hi Tech Firms Adopt PLM Software to Accelerate Innovation and Speed to Market



Consumer Goods Firms Adopt PLM Software to Manage Requirements and Improve Innovation



Different Classes of PLM Applications are In Different Stages of Their Lifecycles



Years to mainstream adoption:

○ less than 2 years ○ 2 to 5 years

● 5 to 10 years

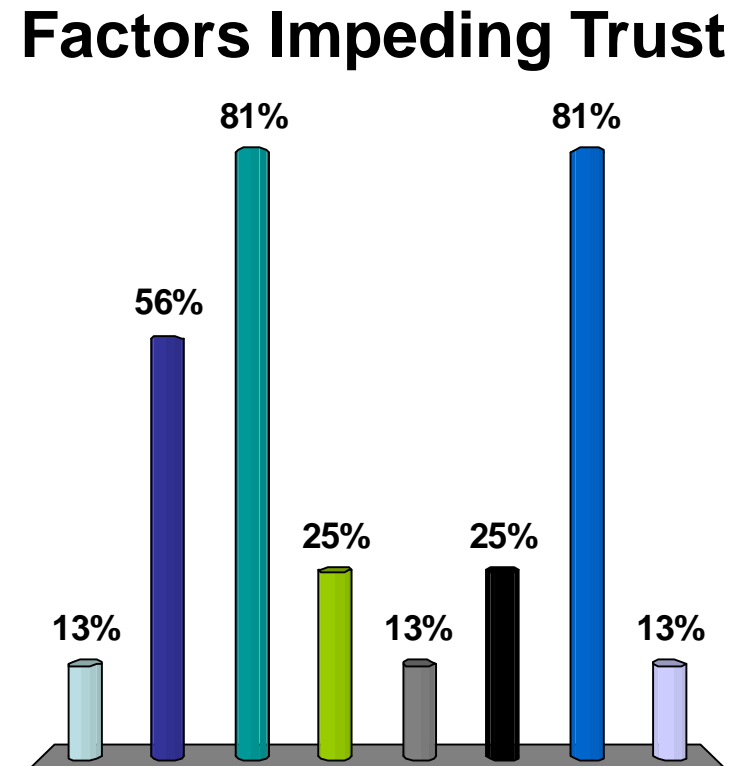
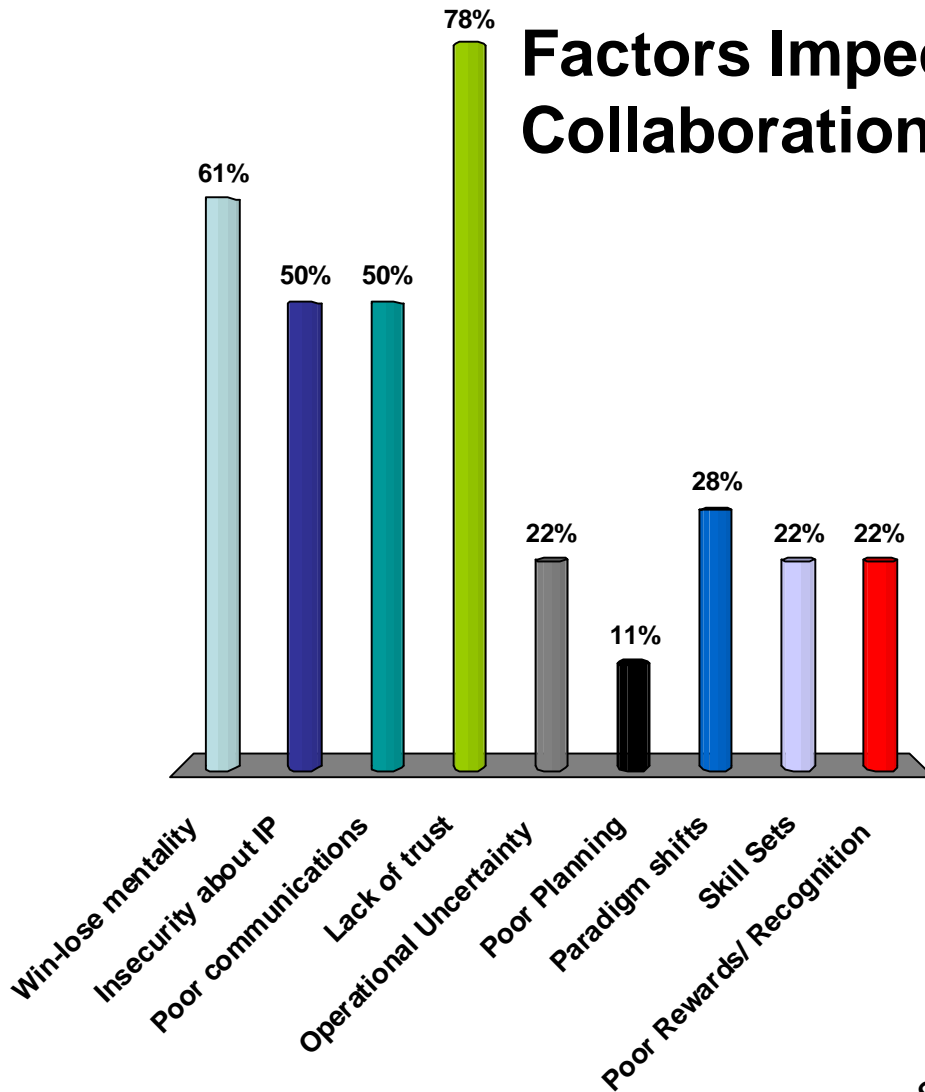
▲ more than 10 years

⊗ obsolete before plateau



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“Soft” Inhibitors to Standards Adoption

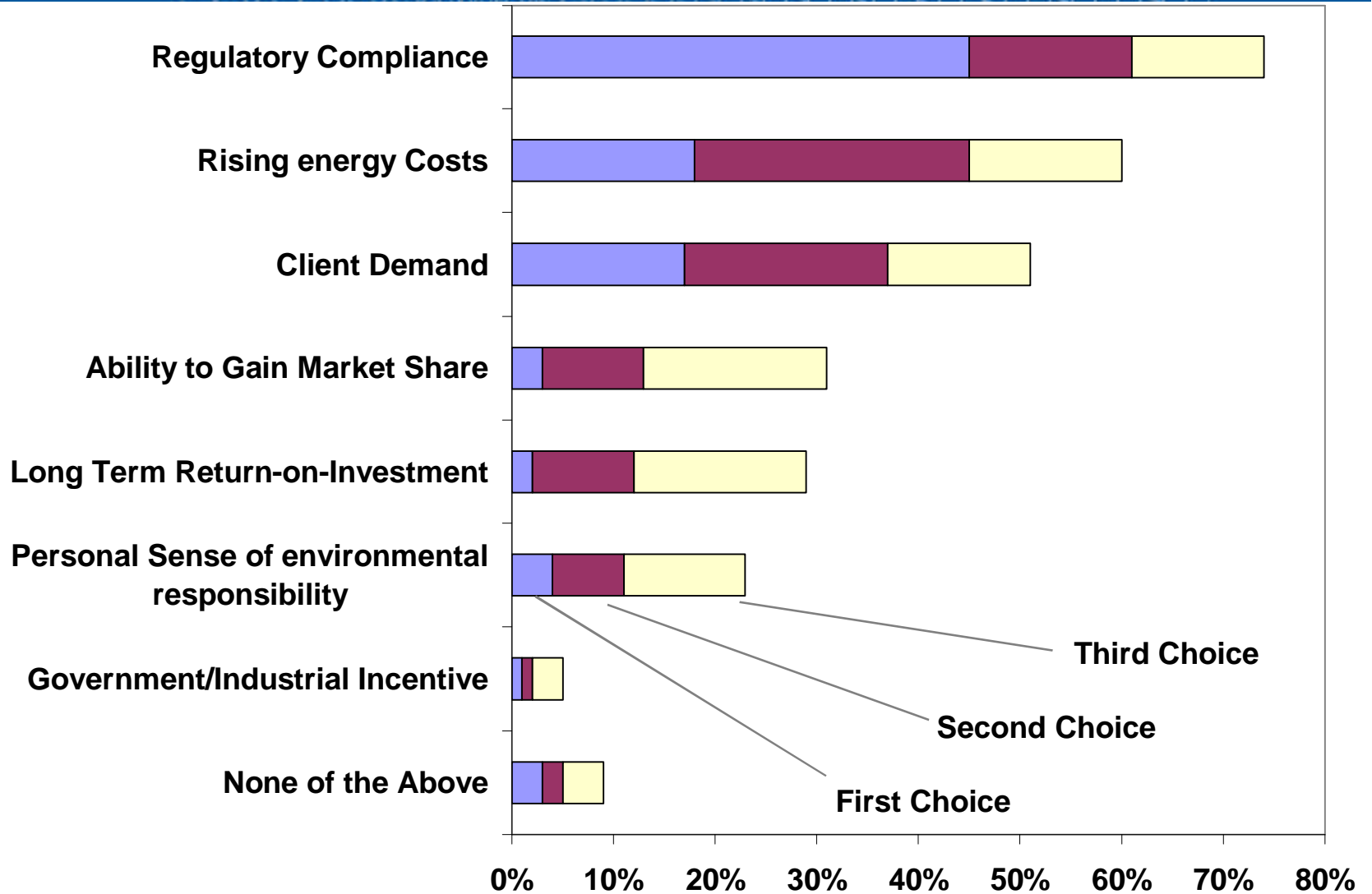


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Courtesy of Doyle Center, Ken Saban of Duquesne University, October 2007



Motivations for Green Design Initiatives



Accelerating Adoption of Product Data Exchange and Archiving Standards

- Semantically meaningful standards for data sharing should be industry specific, not cross industry
- The most influential manufacturers in each industry are most likely to drive standards for the entire industry
- Quality of standards for data sharing should be a top criterion for new purchases of PLM software
- Widely published comparative vendor ratings on standards support will increase investment by vendors
- Industry-specific crises can magnify the urgency for stronger focus on data standards

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Top Managerial Priorities

- Building communities of trust across value chains
- Educated rather than blind governance of data and process standards
- Move beyond current stage-gate practices for program management
- Generous education and training programs
- More rewarding incentive programs and career paths for technical professionals

Top PLM Deployment Best Practices

- Business needs before technical needs
- The IT solution reflects elements of business strategy, functional structure, and business process
- Evangelize the initiative in business terms
- Don't outsource business priorities and strategy
- Triangular governance across business leadership, IT, and functional groups
- Clarify roles and contributions of external partners
- Sensitivity to change management during IT deployment

Source: S. Nambisan, R. Fichman, M. Halpern - 2009

Top Enterprise Information Architecture Best Practices

- Business leadership participation
- Create horizontal ballpark views of information architecture first
- Classification according to business function first with some sensitivity to process
- Keep links between complementary information systems to a minimum but no less
- Migrate legacy information systems to new architectures via data hubs
- Appreciate differences between operational data needs and informational/analytic data needs

Case Study - US-based Parts and Equipment Supplier

- PLM project -part of a broad holistic business initiative promoted by the CEO
 - Organic growth through innovation
 - Better customer service
- Some key elements of approach:
 - New product development processes and metrics
 - Re-alignment of roles and changes to organizational structure
 - One year of internal educating and evangelizing
 - Most business and technical planning stayed internal
 - Triangular governance during deployment: business leaders, key stakeholders, and IT
- Results
 - Unrelated to this effort: Financial setbacks due to global recession in its target industries
 - Successfully streamlined product portfolio management and product development processes
 - Stock price doubled since February 2009

Summary

- Mutual sense of urgency and perceived mutual benefit by all stakeholders are the strongest motivators to adopt standards. These conditions do not broadly exist
- Strong leadership accepted by all stakeholders is necessary
- PLM standards can dramatically reduce the cost of engineering changes, data re-usability, supply chain collaboration, and innovation
- Trust issues, vendor reluctance, lack of industry conviction, and insufficient willingness to invest in “the hard work” of industry and enterprise architectures inhibit standards growth
- Appropriate metrics and industry insistence on standards compliance will accelerate standards adoption

Thank You!

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