

# AEC Technologies, Trends, and Transformation

## CIMdata PLM Leadership Webinar Series—13 October 2016

PLM Leadership

### AEC Technologies, Trends, and Transformation: What Now, What Next?

CIMdata PLM Leadership Webinar Series  
13 October 2016  
#cimdatawebinar



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## Agenda

- Introduction
- Survey Overview
- Performance, Investment, and Technology Usage / Plans
- Potential Benefits, Who Wins, and Sources of Improvement
- Priorities for Improvement, and Obstacles to Change
- CIMdata's Perspective

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### Presenter's Profile

*Your presenter's professional background*



- Ed Martin, Director, AEC & Manufacturing Convergence Consulting Practice
  - Over 36 years of PLM and manufacturing industry experience in the disciplines of product development, manufacturing automation, lean manufacturing, and systems engineering. Before joining CIMdata, Sr. Business Line Manager for Autodesk; Product Line Manager for Delphi Corporation, and Product Engineer at General Motors. Has held management positions in the manufacturing industry and PLM software and services industry, including responsibility for strategic planning, product management, manufacturing strategy, product and industry marketing, and strategic business development. He has driven the development of new solutions and championed the adoption of new technologies ranging from 3D laser scanning to configure/quote solutions and 3D layout.



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### Our Mission...

*Strategic management consulting for competitive advantage in global markets*

**CIMdata is the leading independent global strategic management consulting and research authority focused exclusively on the PLM market.**

**We are dedicated to maximizing our clients' ability to design and deliver innovative products and services through the application of PLM.**



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### AEC & Manufacturing Convergence Practice

*Practice overview*

- The AEC & Manufacturing Convergence Practice serves manufacturers, AEC & EPC services firms, owners / operators and solution providers who are interested in capitalizing on the opportunities for information and workflow convergence

Strategic Focus	Customer Benefits
Bridge the flow of information and integrate processes across: <ul style="list-style-type: none"> <li>Manufacturing, and</li> <li>Facility and infrastructure:               <ul style="list-style-type: none"> <li>Design &amp; engineering</li> <li>Construction</li> <li>Operations &amp; maintenance</li> <li>Decommissioning and recommissioning</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Develop new business models and opportunities</li> <li>Reduce waste from project proposal through commissioning</li> <li>Reduce budget and timeline contingencies</li> <li>Improve quality and compliance</li> <li>Improve efficiency and effectiveness of operations and maintenance</li> <li>Improve project lifecycle economics</li> </ul>

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### Our Services...

*Creating, disseminating, and applying our intellectual capital*



**Research**

- Market research & analysis
- Technology research & analysis
- Reports & publications
- Market news
- Member services...



**Education**

- Executive seminars
- PLM Certificate Programs
- Technology seminars
- Int'l conferences & workshops
- Best practices training...



**Consulting**

- Strategy & vision
- Needs assessment
- Solution evaluation
- Best practices
- Quality assurance
- Program management
- Market planning...

*Delivering strategic advice and counsel through a comprehensive, integrated set of research, education, and consulting services*

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### PLM Transformation

*Services for Industrial Organizations—improving your PLM-related processes*

**CIMdata's PLM consulting methodology—transforming your business for a competitive advantage!**

**A comprehensive set of services tailored to fit your specific needs...**

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### Our PLM Transformation Clients...

*A sampling of CIMdata's international industrial clients (1 of 2)*

A&D	Auto	Fab & Assembly	High-Tech

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### Our PLM Transformation Clients...

*A sampling of CIMdata's international industrial clients (2 of 2)*

CPG/F&B/Process	Medical/Pharma	Emerging Ind.	Other

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### Questions?

*Please use the GoToMeeting chat panel*

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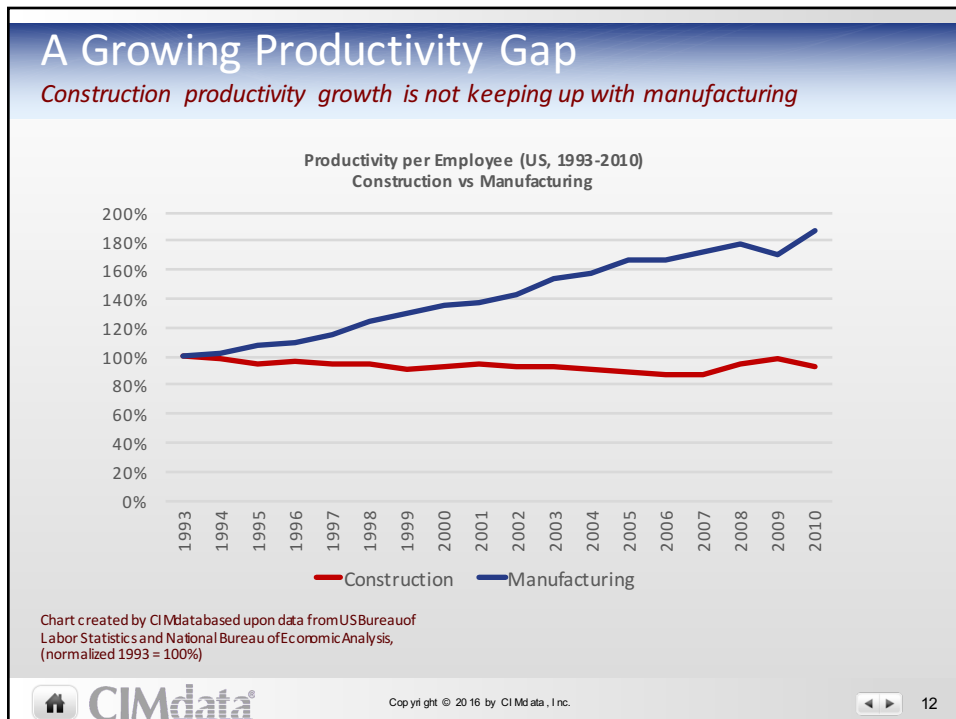
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### CIMdata AEC Survey Demographics

*Respondents mainly in NA, but a representative cross-section of the industry*

- 84 responses included in analysis
- Evenly split across company sizes
  - 20% ± 5% in each size “bin” (1–20, 21–100, 101–500, 501–2000, 2000+)
- 73% of survey respondents are executives, managers, architects, or engineers
- 64% of companies based in North America
  - About 40% of companies get at least 10% of revenue from both Europe & Asia
- Most respondents work on larger scale projects
  - Commercial facilities, Industrial facilities, Process & power, and Public facilities were top 4 project categories



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### Key Takeaways

*There is a major opportunity, and seizing it requires investing in capabilities*

- Better performance vs competition is correlated with growth in IT budget and higher adoption of advanced technologies
- Most respondents see significant savings potential (10% or more) for *both* design/construction and operations/maintenance
- Building products manufacturers, AE firms, general contractors, and owners/operators all stand to benefit
- Most improvement will come via reducing changes and project risk
- Collaboration, change management, and interoperability are priorities
- Main challenges are technology interoperability, lack of owner understanding, and “incrementalism”



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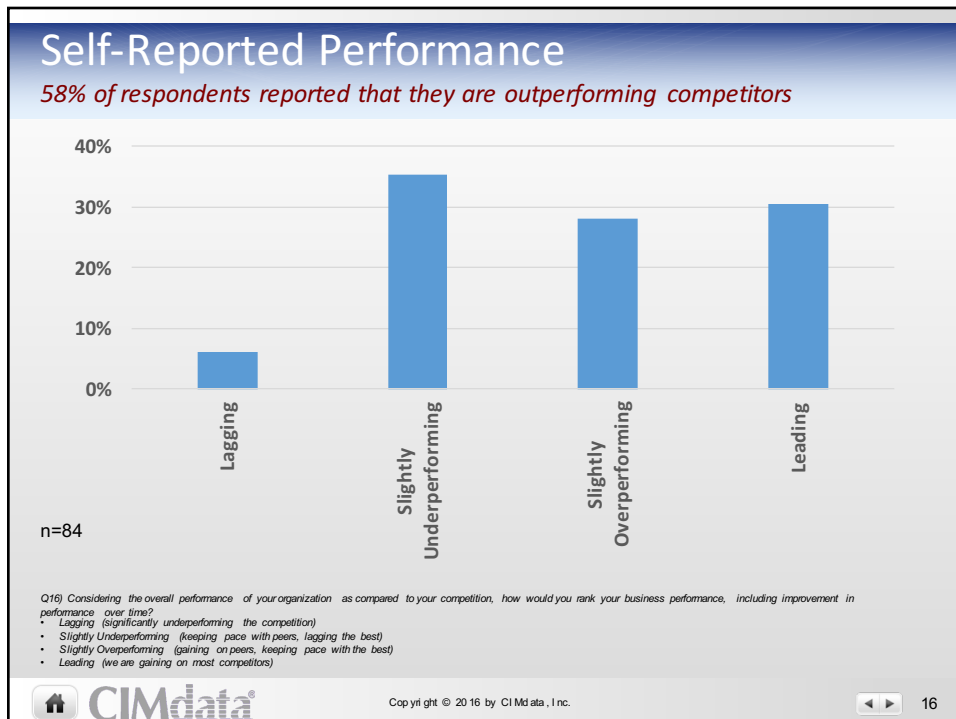
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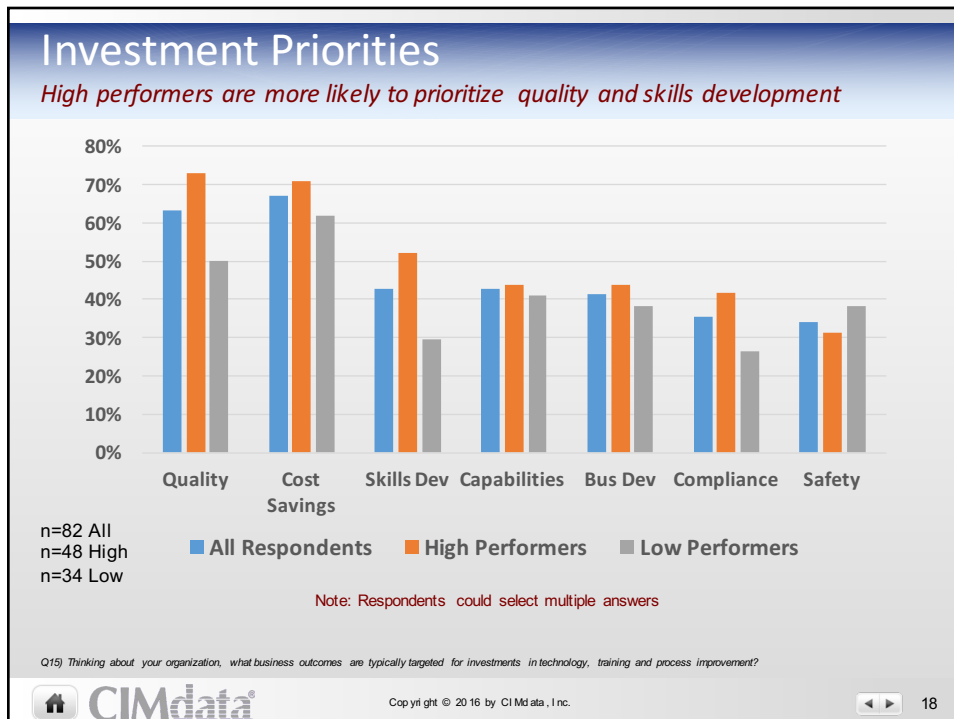
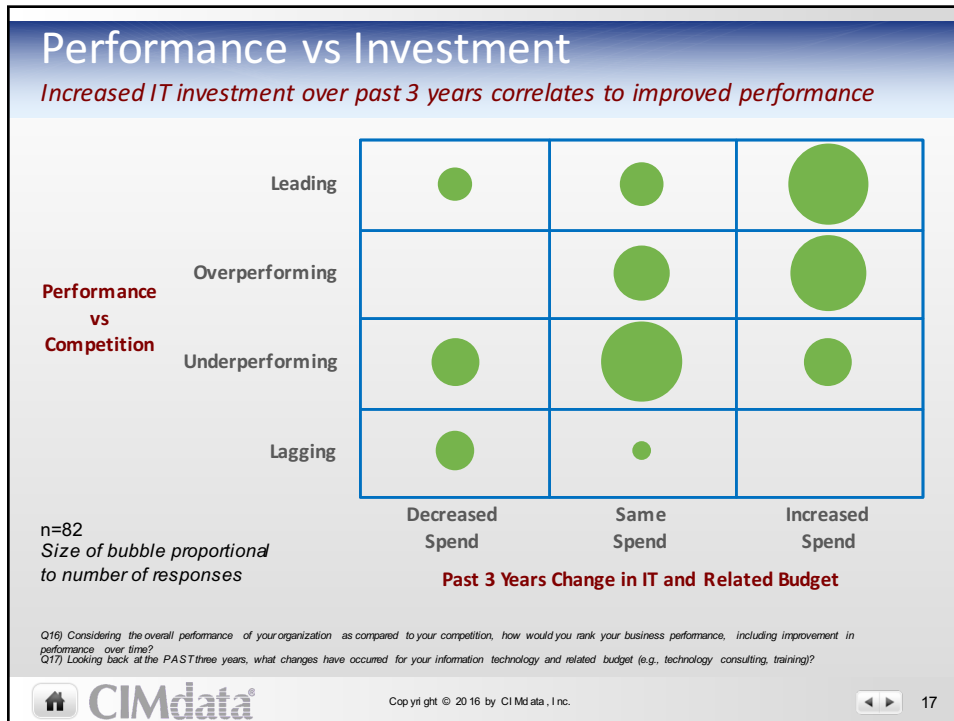
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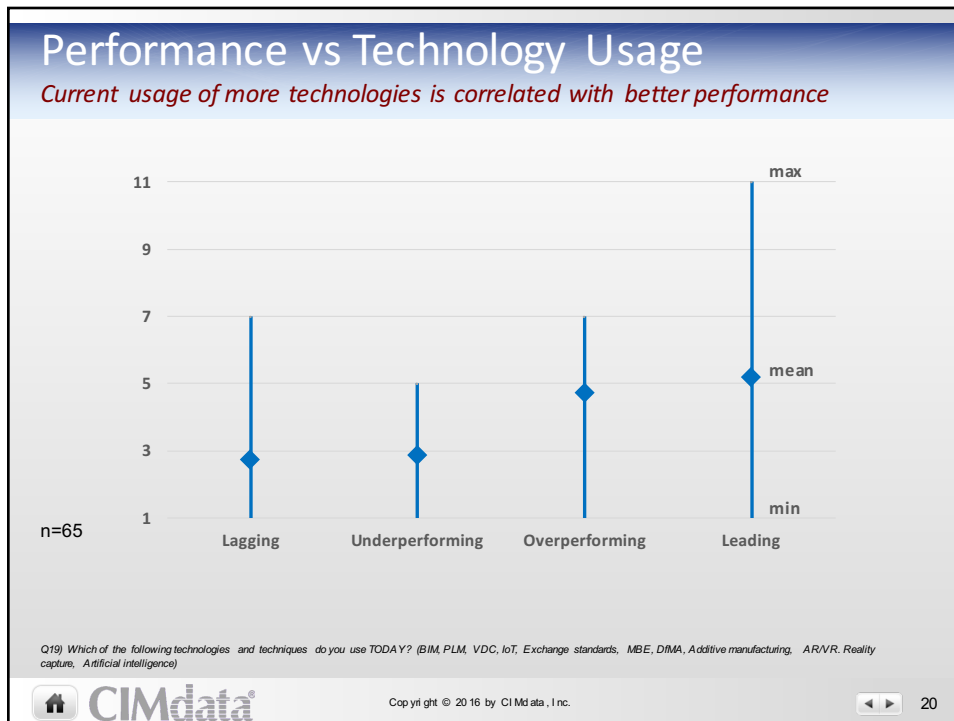
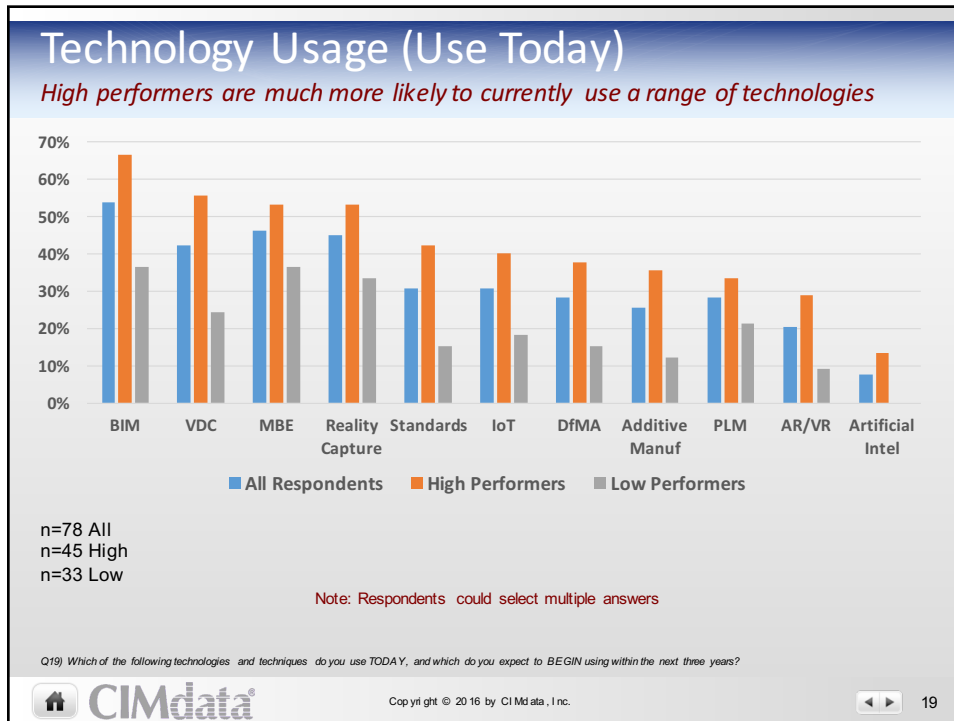
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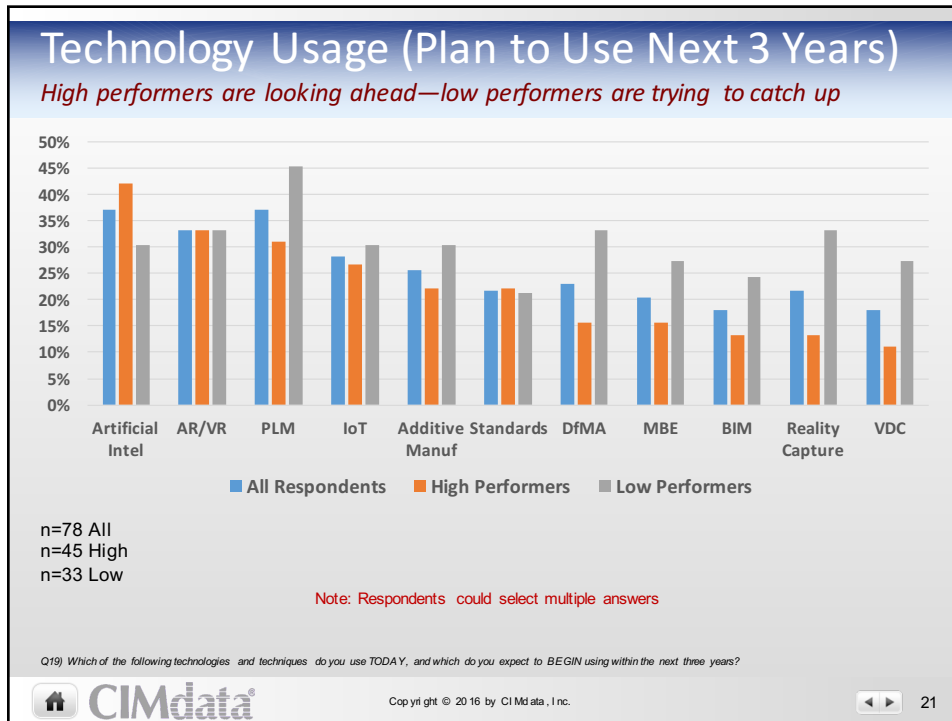
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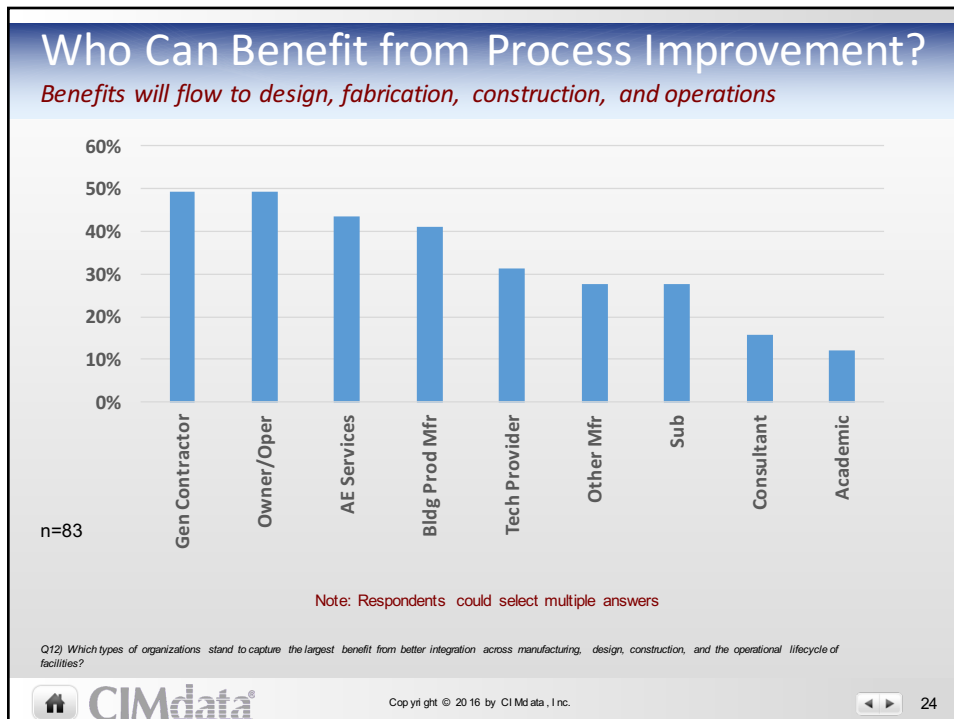
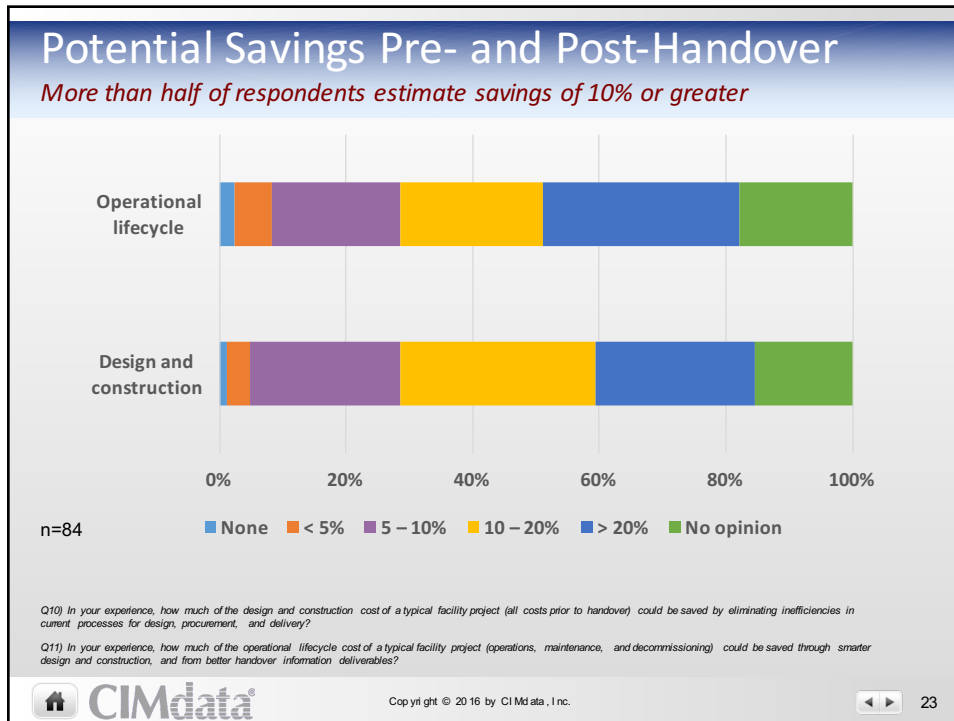
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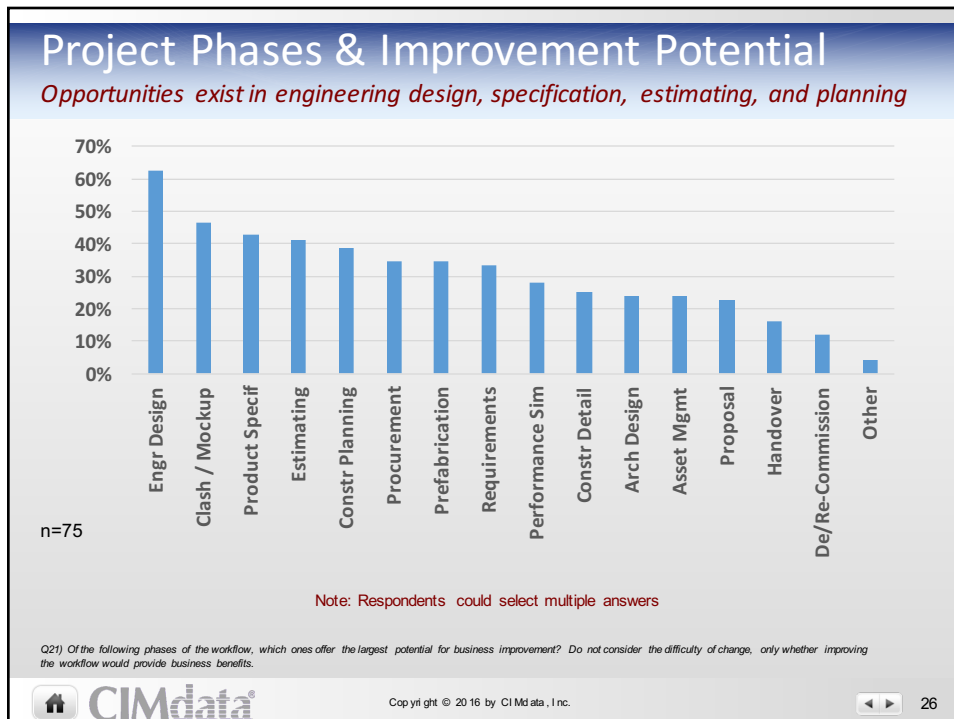
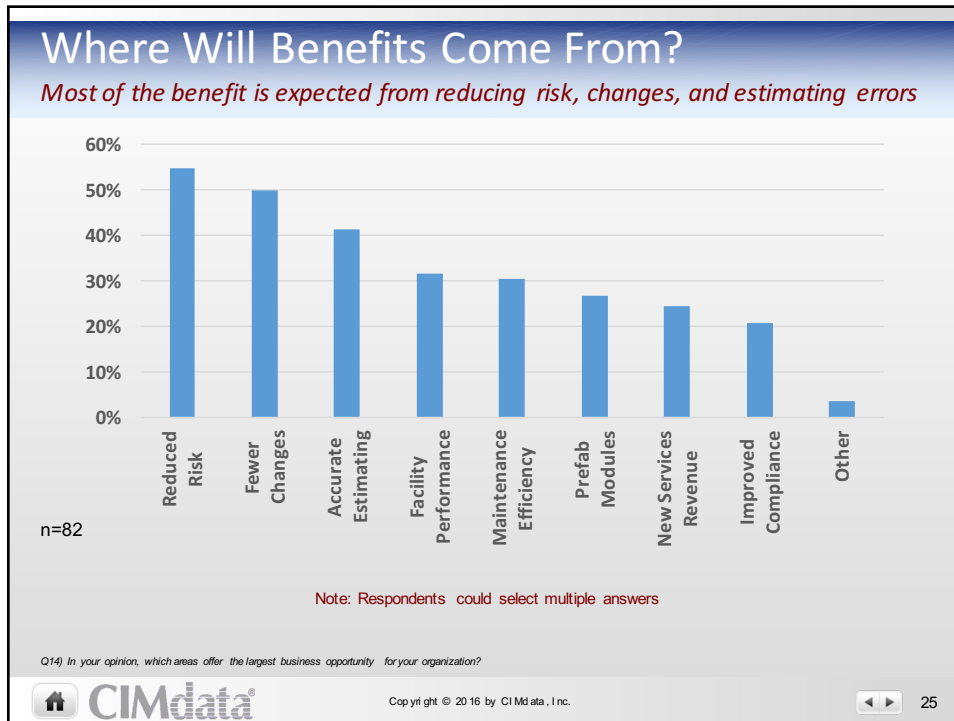
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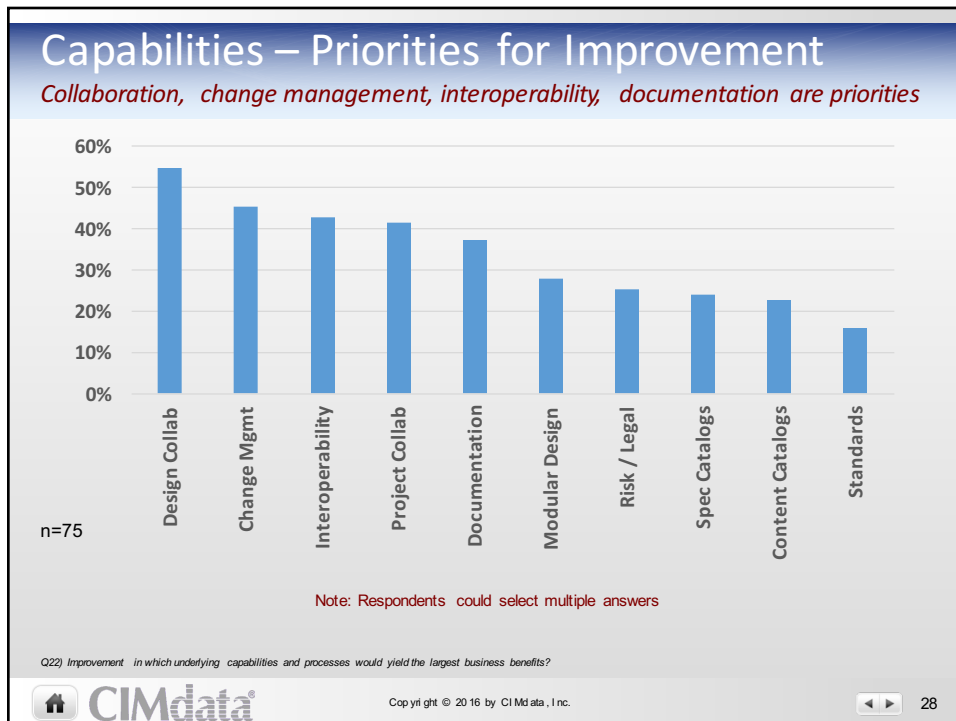
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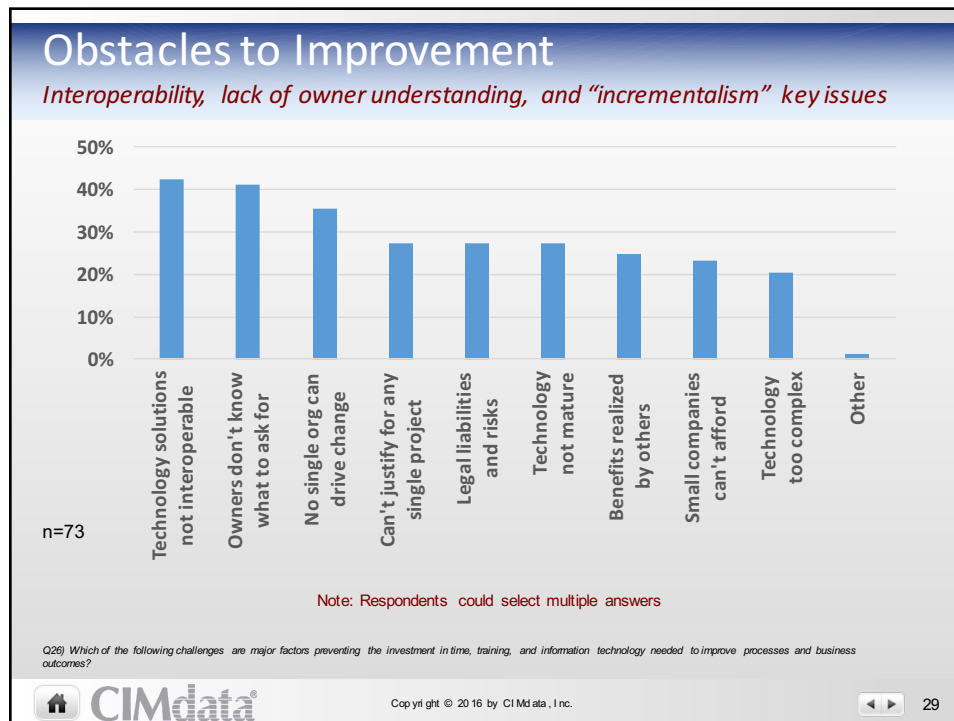
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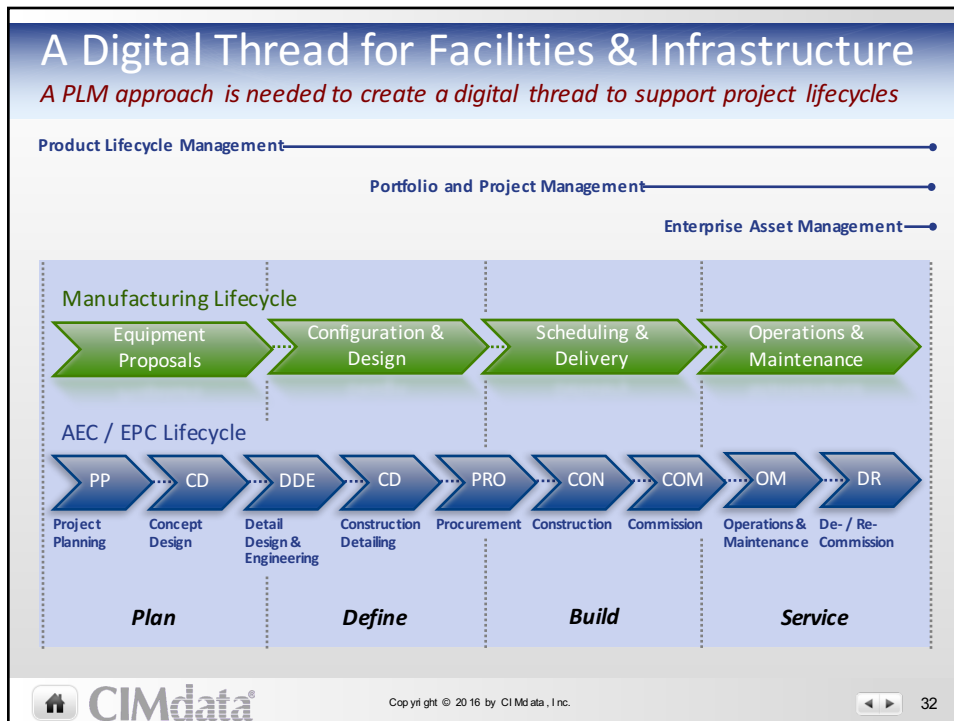
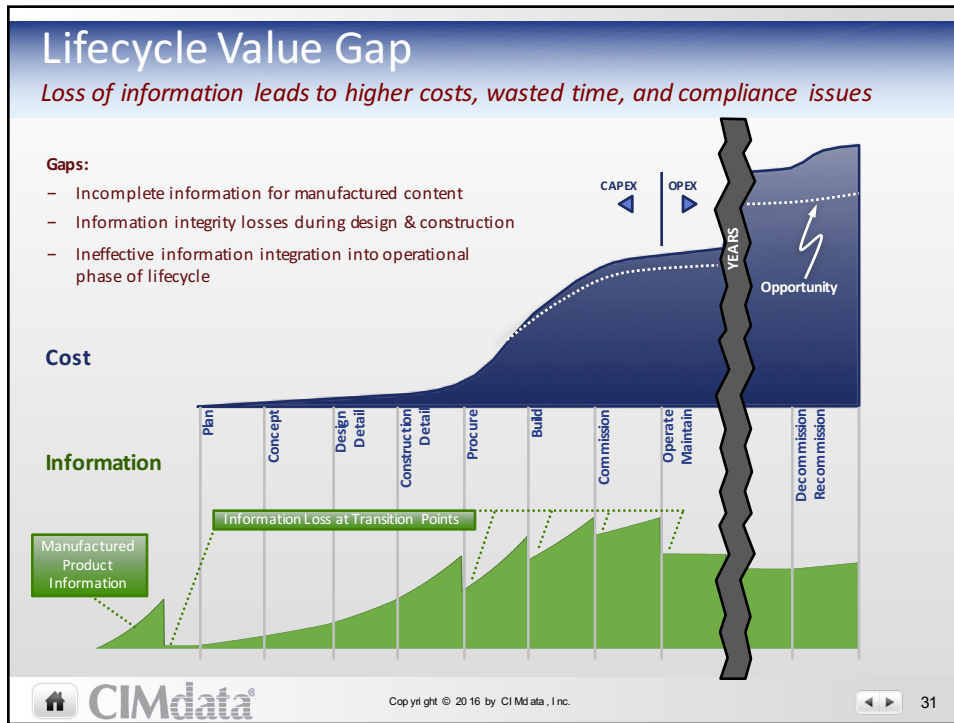
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### Opportunities for Improvement

*A range of stakeholders can benefit by adopting proven manufacturing techniques*


Building Products Manufacturers & Fabricators	Architectural & Engineering Services	Construction Services	Owners & Operators
			
<ul style="list-style-type: none"> <li>• Bid process improvement</li> <li>• Configuration management</li> <li>• PLM integration</li> <li>• Content publishing automation</li> <li>• Digital manufacturing</li> <li>• Service lifecycle processes</li> </ul>	<ul style="list-style-type: none"> <li>• Requirements management</li> <li>• Multi-discipline design integration</li> <li>• Change management</li> <li>• Collaboration and security processes</li> <li>• Systems engineering</li> <li>• Cloud services integration</li> </ul>	<ul style="list-style-type: none"> <li>• Change management</li> <li>• Collaboration and security processes</li> <li>• BIM integration</li> <li>• Handover package automation</li> <li>• Cloud services integration</li> </ul>	<ul style="list-style-type: none"> <li>• Requirements definition</li> <li>• Change management</li> <li>• Predictive maintenance</li> <li>• IoT integration</li> <li>• Advanced analytics and machine learning</li> </ul>

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### CIMdata's Perspective on the Near Future

*What the next three to five years will bring (1 of 2)*

- Meaningful adoption of standards
  - Standards will mature beyond design data, to support the entire lifecycle
- Construction productivity focus
  - Construction solution providers will embrace BIM, and vice-versa
- Manufacturing technologies and processes will take hold
  - PLM, prefabrication, configuration, automation, lean, and more ...
- Wide adoption of cloud services and integration via Web APIs
  - The advantages are compelling, and we are just hitting the tipping point
- Reality capture will become common practice
  - The technology will penetrate everything from quality assurance to maintenance use cases

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### CIMdata's Perspective on the Near Future

*What the next three to five years will bring (2 of 2)*

- IoT moves from an acronym to an expectation
  - Real-world benefits will be realized using data science combined with IoT
- Security concerns
  - A significant incident will galvanize the industry's attention
- Artificial Intelligence will gain traction
  - Primary applications will be in the areas of computational design, construction planning optimization, and predictive analytics
- Systems engineering will become the next hot topic
  - Accelerating complexity will force the industry to deal with systems of systems



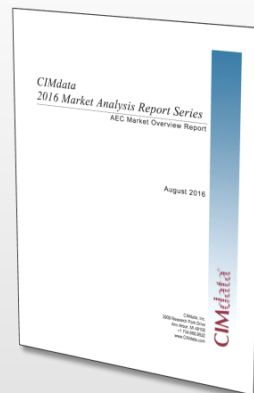
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### Special Offer for Attendees

- 2016 AEC Market Overview Report
- This report contains CIMdata's detailed analysis of the AEC market. The 60 page report contains more than 20 tables and charts and includes:
  - A detailed discussion of trends in the market
  - How AEC solution providers are responding
  - CIMdata's estimates for the AEC market for CY 2015, with a forecast through 2020
  - Detailed descriptions of the top 16 solution providers
- Regular price \$1,795
  - Webinar attendees are eligible for a \$500 discount, good through November 13, 2016
  - Contact [c.peck@cimdata.com](mailto:c.peck@cimdata.com) for a discount code



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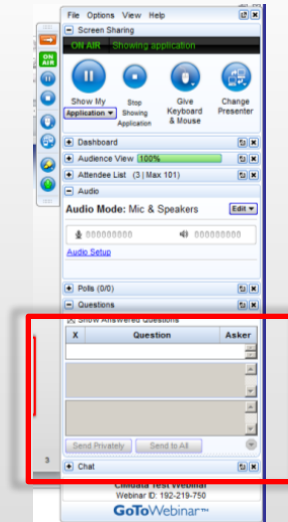
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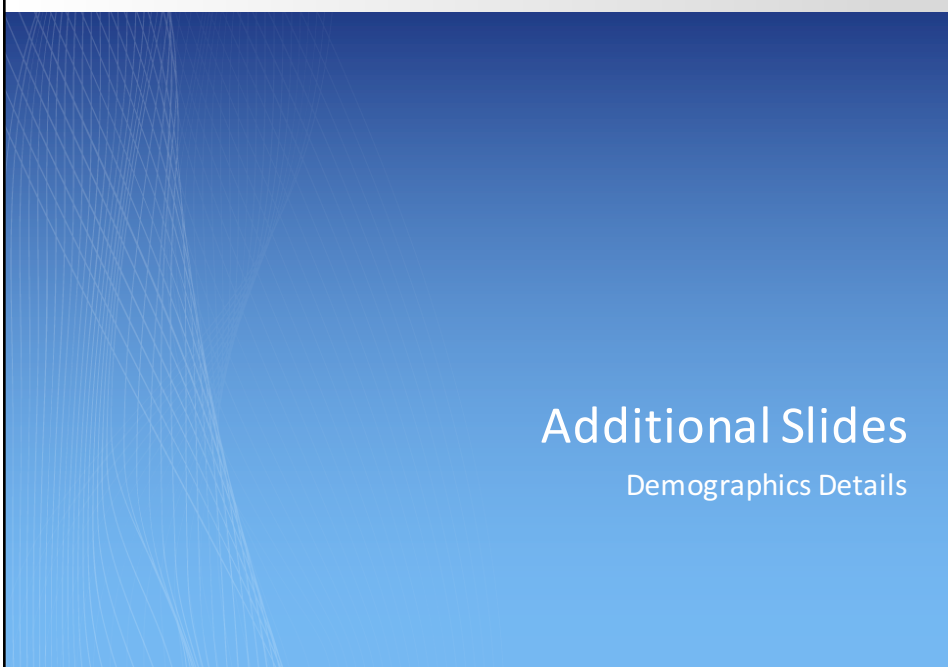
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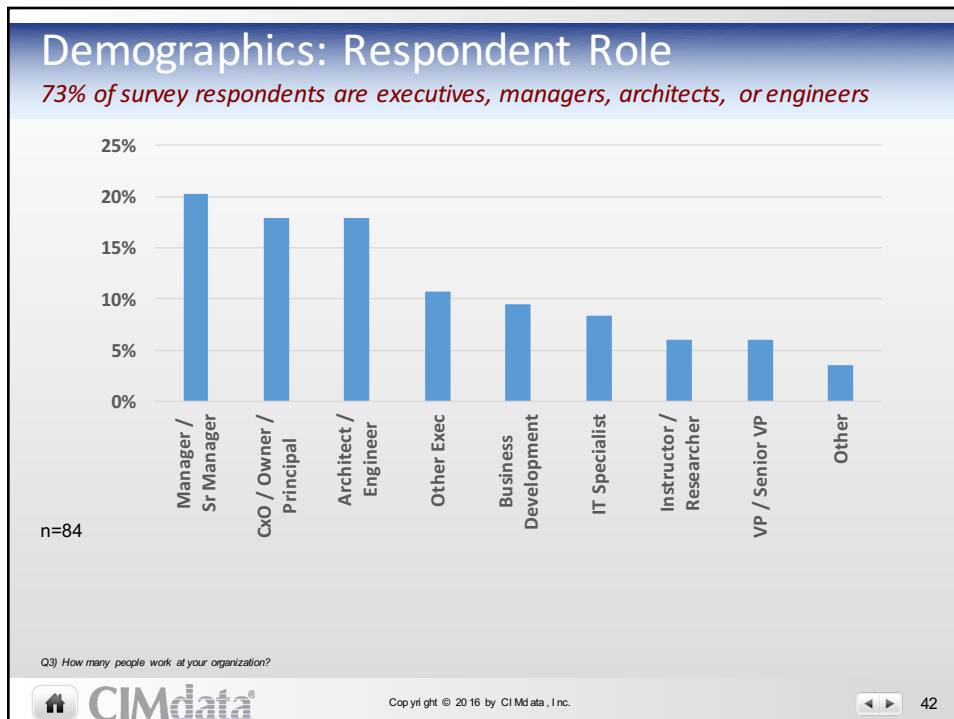
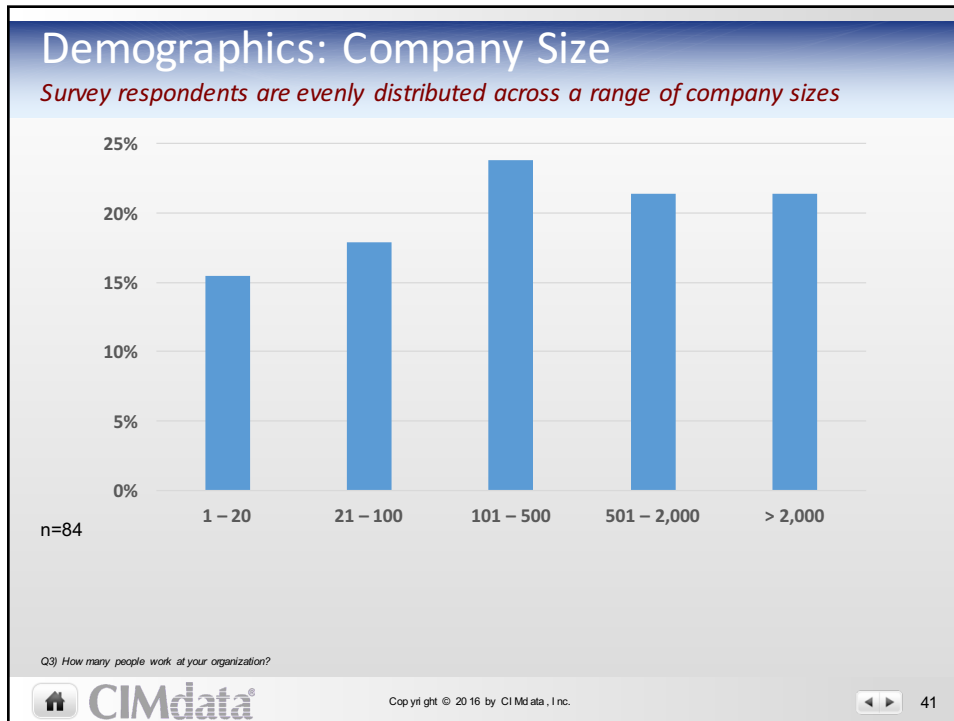


**Additional Slides**  
Demographics Details

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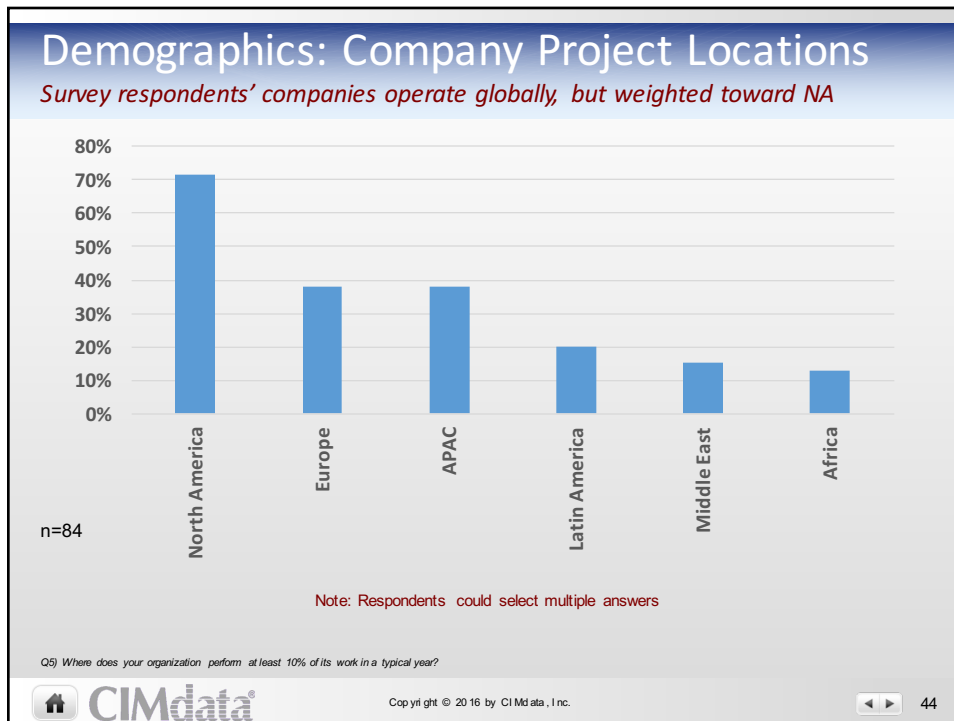
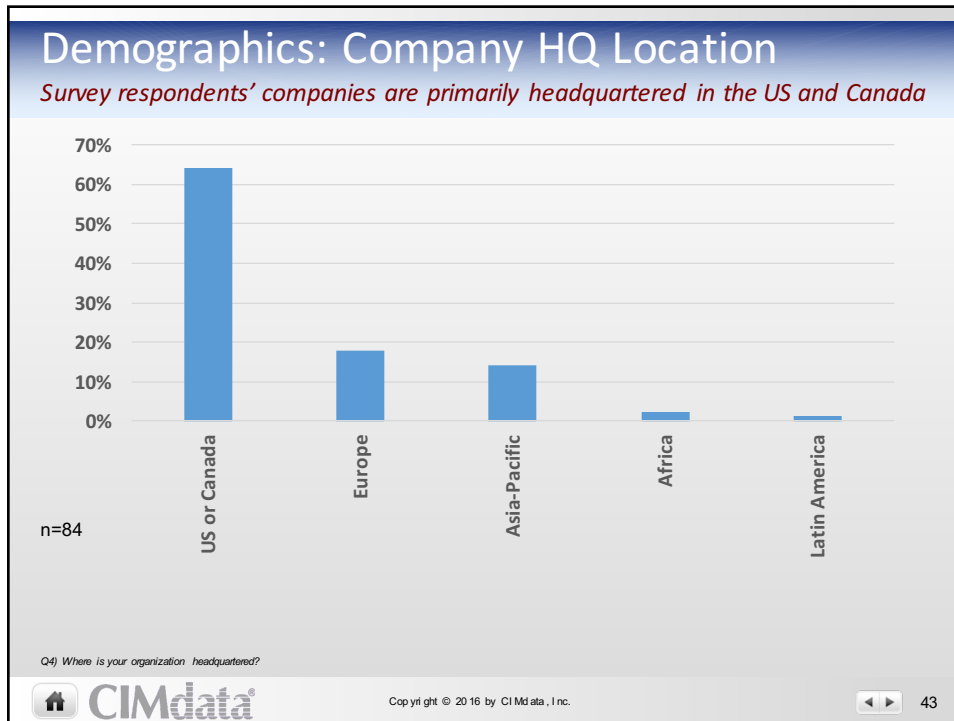
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