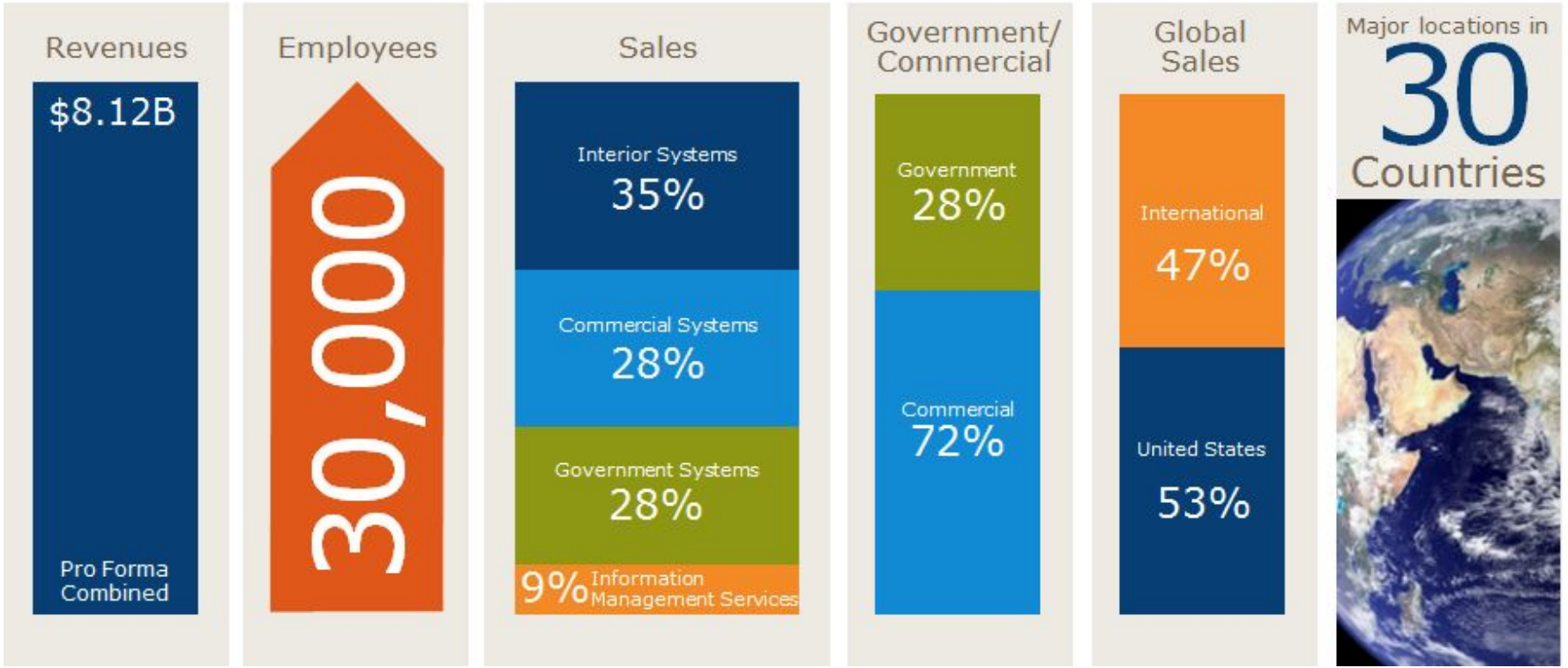
ALM at Rockwell Collins

Date March 29, 2018
Presented by Paul Streit

Rockwell Collins
Building trust every day

By the numbers

Rockwell Collins at a Glance



Who we are

Core Competencies

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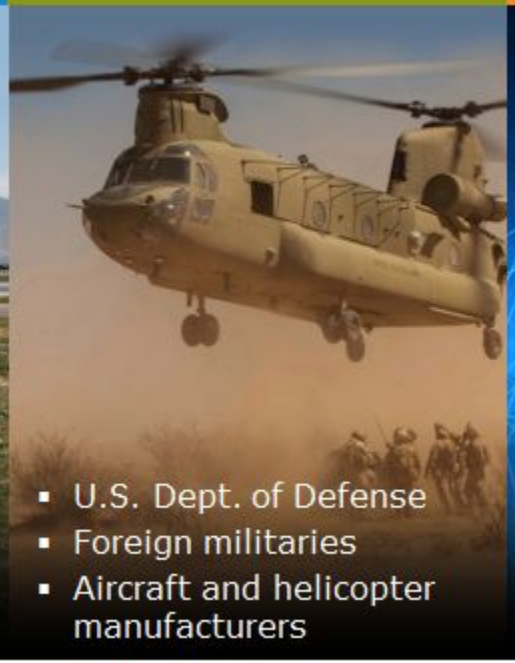
Who we are

Our Businesses – and Who They Serve

Commercial Systems

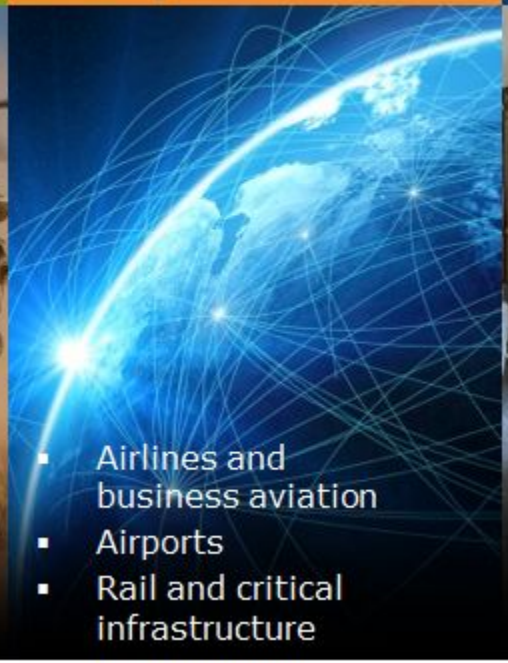
- Aircraft manufacturers
- Airlines and business aviation

Government Systems



- U.S. Dept. of Defense
- Foreign militaries
- Aircraft and helicopter manufacturers

Information Management Services



- Airlines and business aviation
- Airports
- Rail and critical infrastructure

Interior Systems

- Aircraft manufacturers
- Airlines and business aviation

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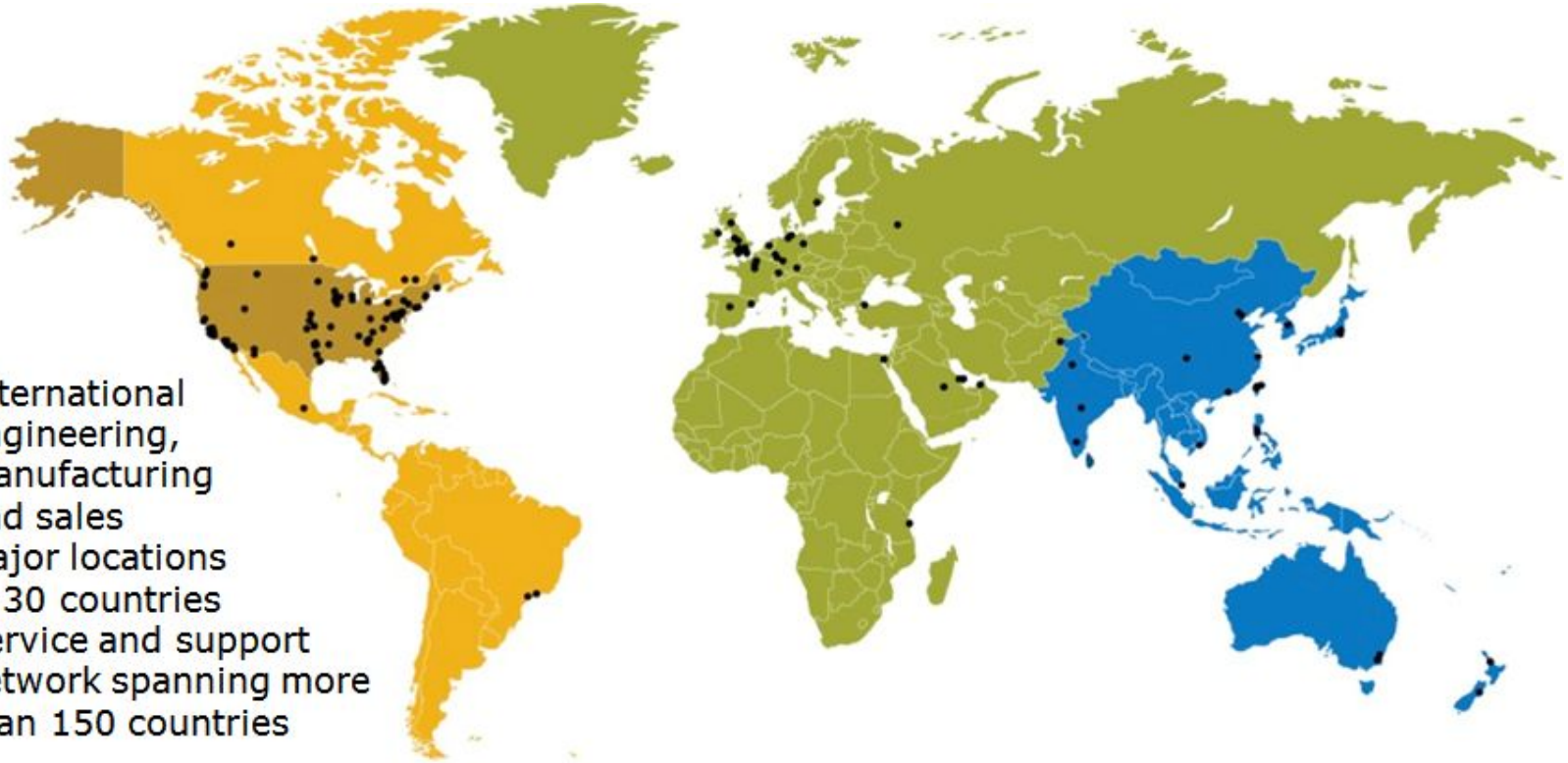
Who we are

A Global Presence



- International engineering, manufacturing and sales
- Major locations in 30 countries
- Service and support network spanning more than 150 countries

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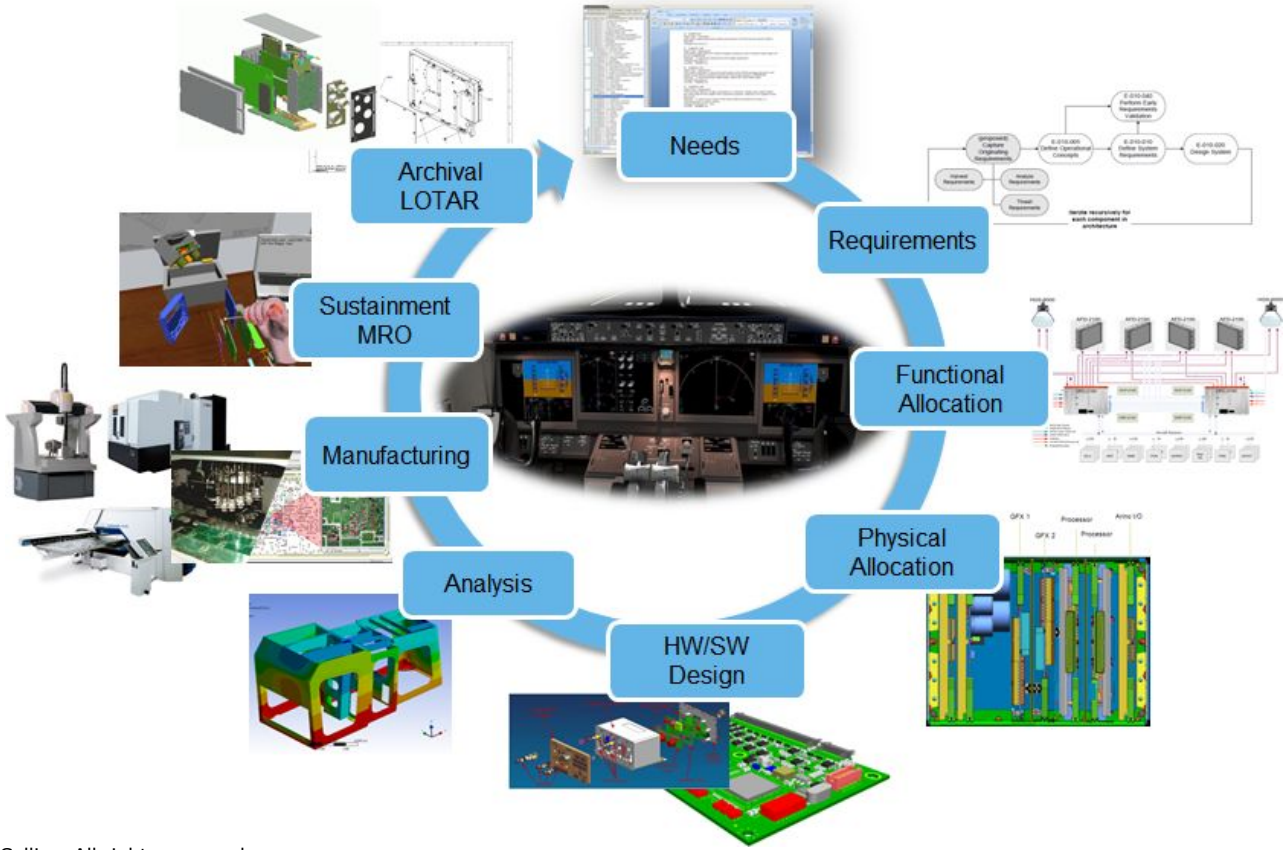
ALM Defined

A project-centric engineering tool platform that combines tool capabilities with collaboration technologies in a single, integrated environment

- Functional areas
  - requirements management
  - workflow automation
  - change tracking
  - continuous build and test
  - knowledge management
  - review and approval
  - software CM
- Major objectives
  - global collaboration
  - real-time dashboards
  - project-centric organization
  - extensibility and configurability
  - lower tool costs
  - increase productivity

Product Data Lifecycle



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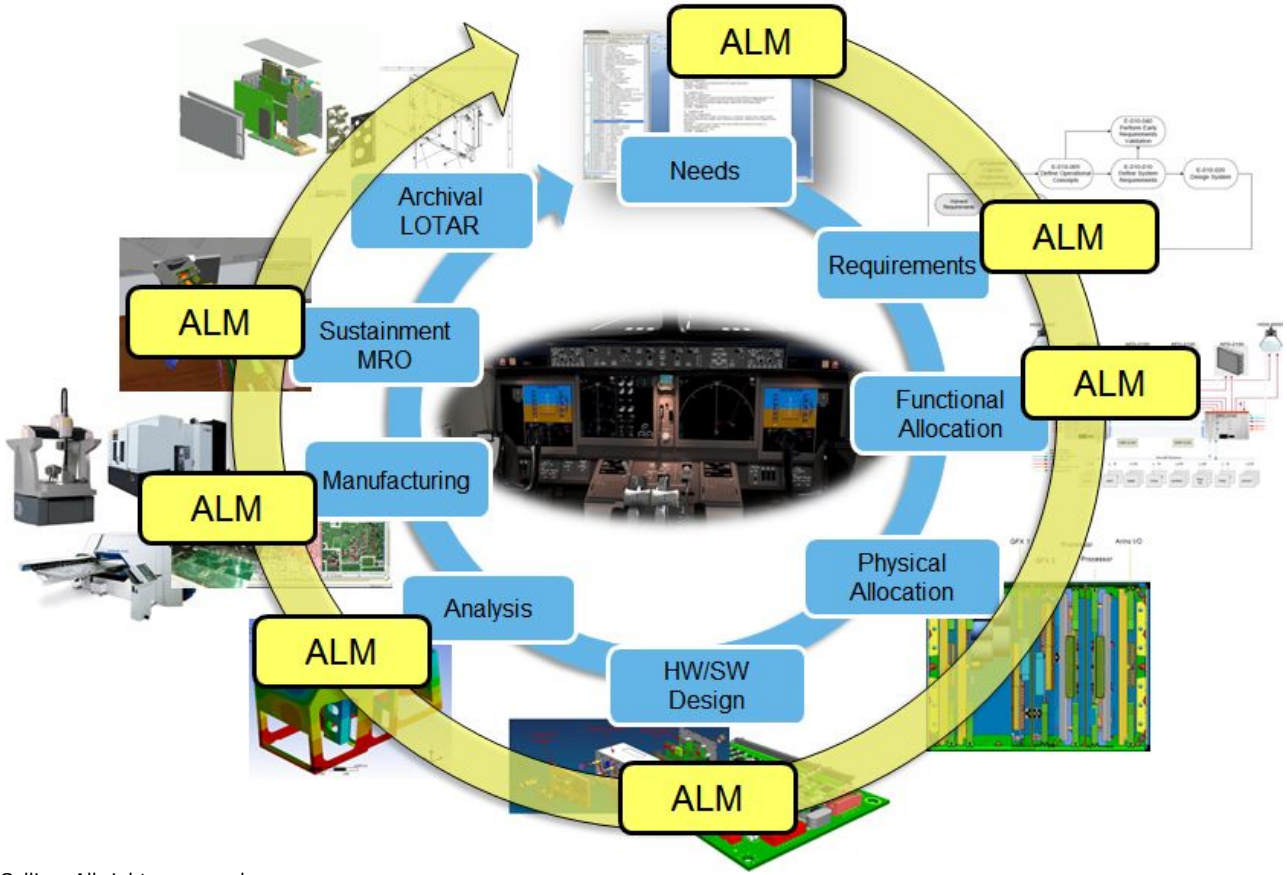
Product Data Lifecycle with ALM alignment



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ALM Surprises

- Engineering wanted help aligning their practices, and the timing was right with an all-new platform
- Even with several levels of scalability options in the plan, we found ourselves challenged to maintain performance
- Demand for modern engineering tools far exceeded our estimates
- Engineering wanted to capture and share knowledge
- Web-based tools are capable of more functionality than we imagined
- Our users' appetite for more never faded

Over 800K pages of documentation generated in ALM

Our ALM is Actually Two Environments

- "ALM-lite" is for non-product development
  - Preceded full ALM by a year; whet engineering's appetite, and prepared us to support full ALM
  - Rapidly embraced by 1000+ tool developers, and IT and shared service teams
- Full ALM for product development, both commercial and government
  - RC-standard workflows to support rigorous processes
  - Project-centric onboarding and data migration services
  - Standard quality measures and metrics

Over 2 million collaborations or comments

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Positioning for Unanticipated Business Needs

- Co-development with customers, subcontractors, and partners
- Some Electrical and Mechanical design work
  - Project mgmt, requirements mgmt, knowledge capture, and Agile
- Distributed configuration management
- Agile
- Integration of Quality with D&D
- Integration of Certification with D&D
- DevOps
- Build and test automation
- Automate the flow of SW releases from ALM to PDM

Agile scrum usage for all ALM users grew from 25% to over 50% in three years

ALM Needs and Challenges

- Cloud - potential for lower infrastructure costs and greater DFARS compliance
- Cybersecurity
  - vulnerability scans of third party software embedded in our products
  - determine where common libraries and components are used
- Global collaboration - how do we continue to improve while protecting sensitive data?
- Hardware/software relationship in the PLM context
- Scalability - maintain performance while growth continues
- Customization vs configuration
  - Our ALM architecture is modular, but it has become very complex
  - How far should we go with unique capabilities?

Over 1 million workflow records (over 12% auto-generated)

Intersection between ALM and PLM

- Software release automation is our best example
  - Our first major tie between ALM and PDM
- Several factors increase the complexity
  - Certification and compliance requirements
  - Limited APIs of PDM systems
  - Release process tuned to the needs of hardware
- We want our solution to support controlled builds
  - ALM's build automation capability brings us closer
  - We may have to "front" PDM with a software repository so builds can reference PDM-controlled objects
- Our objective is to dramatically shorten cycle time and reduce labor for software releases

1400 project teams manage their work in ALM

Summary

- ALM has transformed how we create software, improving our...
  - ability to collaborate globally
  - cost trajectory
  - productivity
  - ability to adapt to a variety of new needs
  - position to tie software and hardware engineering
- Looking ahead, we've got a number of areas to manage
  - scalability must remain a focus while we're growing
  - managing growing data security requirements
  - satisfy an appetite for more while limiting customization
  - sustainable ties to other enterprise systems that add value

Over a third of Rockwell Collins employees have used ALM in the last year

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Management Theory Says...

CULTURE
EATS STRATEGY
FOR BREAKFAST
AND TECHNOLOGY
FOR LUNCH
AND THEN...

Thank You! Questions?

