The Aras Difference

Innovating in Technology, Business Model and Implementation Approach to Power the Business of Engineering
Agenda

- Aras Company
- Aras background
- Aras Differences
- Aras Focus
- Aras Innovator Functional scope
- Demo
Aras Company Overview

POWERING THE BUSINESS OF ENGINEERING

Created in 2000

Global Operations | Veteran PLM Team
North America, Europe and Asia

Focus on markets with complex products and processes
- Aerospace & Defense
- Automotive & Industrial
- High Tech Electronics
- Consumer Goods
- Life Sciences
- Energy

Seven years of double-digit growth: 50% CAGR
- 80% growth in 2014
- 73% growth in 2015
- 60% growth in 2016

Over 95% Subscription renewal rate

Private company with Venture Capital and private investors

INNOVATING IN OUR TECHNOLOGY, BUSINESS MODEL AND IMPLEMENTATION
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Aras view of Legacy PLM

- Narrow focus on 3D mechanical design only – reducing the rest of company to islands of home grown and 3rd party applications and EXCEL
- Customization is too expensive
  - prevents upgrades and support
  - not agile enough to adapt as fast as the business needs
- Implementation takes too long
- Too difficult to use
- Licensing model is wrong for the enterprise
  - PDM/PLM is priced as a specialist’s tool
Companies Choosing Aras ...

- Either
  - Have No current PLM system
  - Are Replacing global legacy PLM / PDM
  - Integrate Aras with existing PDM / PLM (co-existence)

- Often use Aras for high user count or end to end processes
  - NPDI / NPI / Stage-Gate
  - Enterprise engineering change
  - Quality management & compliance
  - . . . Many more
Why are companies using Aras?

- At Aras we’ve taken a different approach
  - Technology: Model-based SOA
  - Business: SaaS subscription model
  - Implementation: Overlay/Agile approach

- We’ve built a solution that:
  - Removes unnecessary barriers to collaboration
  - Adapts to your business, not the other way around
  - Changes the economics of PLM in your favor

- That delivers greater benefits sooner and a lower TCO
What makes companies choosing Aras

- Business Model, Cost Savings
- Technical Architecture, Flexibility
- Complete PLM Functionality
- Speed of Configuration, Implementation
- Protection against Obsolescence
“Aras offers a different kind of PLM in a radically different kind of business model.”
Dec 2016 – Bruce Morey, advancedmanufacturing.org

“We picked Aras based on value and business model. I told a big box player watch your rearview mirror.”
Jan 2017 – D. Sherburne, Exec Director, Carestream Health

“I see Aras pushing upstream as competition to the “big three.”
June 2016 – March Halpern, Gartner

“Aras PLM has clearly moved into an interesting position where we can expect to see some powerful expansion.”
June 2016 – Verdi Ogewell, engineering.com

“Aras accomplished more in 3 months than we had done in 3 years with our previous PLM solutions.”
2016 - Microsoft

“Aras has long been a real thorn in the flesh for the PLM software establishment of Siemens, PTC, and Dassault Systems....”
Jan 2017 - PJ Jakovljevic, Principal Analyst, Technology Evaluation Center
Major Distribution and OEM Contracts

IBM

Infor
Community Applications

Complex challenges addressed quickly

- ‘As planned’ supply chain BOM / MCO for aircraft engines
- MBSE platform for vehicle development & model variant management
- Custom applications in engineering, manufacturing, test & quality
- PLM-based technical documentation authoring environment
- MBOM, Routing, Work Instructions, Preventive Maintenance, Tooling
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Technology

- **Flexible**
  - Available applications can be quickly customized to fit your business and changed at any time

- **Scalable**
  - Performance proven to scale to 250,000 concurrent users

- **Upgradable**
  - Upgrades to new versions (including customizations) performed by Aras
Technology - Upgradable

How is this possible?

- Aras’s architecture: Model-Based SOA
- Clean separation of web services vs. data model
- Strict internal policies on backward compatibility

What’s different?

- **Aras performs the major version upgrades** including the application code tree and database schema
- Includes updating any custom changes
- Keeps your solution on current technologies
- Minimizes risk and preserves your investment
Technology - Flexible

Modeling Engine

- Full-featured enterprise application development environment
- Defines data, processes, logic, UI, permissions, etc.
- Portable models can be moved between Dev/Test/Prod environments and to other Aras Innovator systems
- Aras Applications are created using the Modeling Engine and can be easily changed – best of both worlds

Why does this matter?

- Fastest way to create and change applications
- Applications are easily upgraded
- Self-documenting

“Aras’s modelling capabilities ... enable solutions to be developed quickly”
Technology - Scalable

Toyota’s 100k User Challenge

How does Aras achieve absurdly high scalability results?

- Only one IT technology partner means we can optimize
- All custom changes are driven to the database to take advantage of SQL engine optimization, indexes and constraints
- All end user requests reduced to short SQL queries with minimum “joins”, allowing the database to best optimize execution plans

Why think about massive user scalability?

- PLM should be broadly used, including design, manufacturing, quality and sales employees, as well as suppliers, partners and customers
- End-user acceptance depends on reasonable performance

“Average response times were excellent”
Technology - Deployment options

Data Center
- on premise

Hybrid
- on premise + cloud

Cloud
- public or private

HMTL 5 Browser Client – Replicated / distributed Vaults
Technology - Full set of Federation/Integration Features

- **Federation**
  - Bi-directional on the fly transparent access to data in remote systems

- **Web Services Integrations**
  - Web services call to Aras Server through XML/SOAP or WSDL (Web Services Description Language)

- **Other Integrations**
  - Fully Documented Aras Innovator Object Model (IOM)
  - Freely distributed DLL version of the API
  - Support of all .NET data exchange methods.
  - Integration capabilities include ODBC, ADO, flat file or direct API.
Integration Landscape

Authoring Systems
- MCAD
- EDA
- Electrical Software
- Firmware
- MS-Office
- Desktop Publishing
- Graphic Design
- Simulation
- CAM
- CAPP
- Digital Factory
- Ideation
- Requirements Mgt.

Enterprise Systems
- PLM / PDM
- Sales Configurator
- Collaboration
- Costing
- Compliance
- PLM Legacy / Point Solution

Aras Innovator

Converge
- Design
- Development
- Launch
- Manufacture
- Support

Phase-Gate Program Management

PLM / PDM
- Sales Configurator
- Collaboration
- Costing
- Compliance
- PLM Legacy / Point Solution

ERP
- CRM

Legacy ERP Systems
Business - open/subscription model

*Lowest TCO*

- **Open:** source, business, roadmap, Community
  - 100% of core development by Aras to ensure data integrity, security & scalability
  - Open source applications on a common platform
  - Sustainable low-cost “Pull” versus “Push” sales business model

- **Subscription:**
  - Predictable annual cost
  - Includes maintenance, support, training
  - Includes Subscriber features and applications
  - **Includes upgrades performed by Aras**
    - Support and Upgrade of all customizations - no matter how many changes you've made
Business - Change the economics of PLM

- **Traditional PLM**
  - Up-front software licensing costs
  - High recurring costs to customize and upgrade
  - Benefits limited by architecture and delayed until customization is completed

- **Aras PLM**
  - No software licensing costs
  - Lower costs to customize and predictable subscription cost includes upgrades
  - Benefits accrue earlier and increase more quickly due to unique architecture
Implementation - SAFe® Agile

Scaled Agile Framework

- Enables lean-agile practices at enterprise scale
- Leverages the flexible Aras architecture
- Iterative small wins for end-user buy-in
- Solutions delivered in weeks, not years
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The Goal: Full Lifecycle Traceability
And Digital Integration

Through-life configuration management and Disciplines Integration
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Aras Visual Collaboration

- Easily see your **product content**, including:
  - Office Documents
  - Drawings, Schematics
  - 3D Models
  - Images, Photos

- Create **markup** which is linked with text **comments** into a **discussion thread** visible to other users

- Pure HTML5, no plugins

- No cost to Aras subscribers
Document Management

- Easy-to-use Aras document management for Microsoft Office
- Works within Office 2007, 2010, and 2013 applications to manage:
  - Word, Excel, and PowerPoint documents
  - Outlook Emails
- Benefits provided include:
  - Process compliance
  - Productivity improvement
  - Security enforcement
Self Service Reporting

- Wizard-based query and report builder
- Run, save and share reports
- Follows Aras permissions
Product Engineering

- Bill of Materials (BOM)
- Document management
- Change & Configuration Management
  - CMII PR / ECR / ECN
  - Simple ECO / MCO
  - Express ECO & Impact Matrix
- Sourcing
  - Manufacturer Parts
  - Approved Manufacturers / Vendors
- Connectors for Microsoft Office and CAD
Program Management

- PMI Principles
- Project Planning
  - Activities, Milestones, Deliverables
  - Forward / Backward Scheduling
  - Templating
- Project Execution
  - Real Time Project Status
  - Status Rollups / Dashboard Views
  - Deliverable Attachment
- GANTT Charts
Requirements Management

- Secure extended enterprise requirements gathering
  - Requirements in documents, chapters, and content
- Configuration control includes requirements
  - Requirements versioning
  - Change management workflows
- Impact analysis (including requirements and PLM items)
- Trace matrix
- Closed loop validation
Component Engineering

- Complete solution for search, selection, and approval of electronic components using cloud services
- IHS CAPS Universe – 430 million parts
- Data Access Includes
  - Alternates & Transfers
  - IPC 1752A XML
  - Environmental Compliance
  - Conflict Minerals
  - EOL/PCN/PFN Alerts
  - Datasheets & Documents
Quality Planning

- Ensure your product meets requirements
  - Product / Process design and analysis
  - Risk assessment and mitigation

- Produce and Update Quality Documents
  - Design/Process Failure Modes Effects Analysis (DFMEA/PFMEA)
  - Process Control Plan (PCP)
  - Process Flow Diagram (PFD)

- Based on AIAG standards
  - APQP & Control Plan (2nd Edition)
Technical Documentation

https://youtu.be/iym3WLBMvEQ

- Web-based “Tech Pubs” authoring inside PLM
- Leverages PLM core functionality
  - Access Control, Change Management, Workflow/Lifecycle, Relationships, ...
- Embed or reference content from managed Business Items
- Publish to PDF, HTML, and XML
- Open Download + advanced subscriber features
Manufacturing Process Planning

- Process Plan and Work Instruction authoring in PLM
- MBOM Editor optionally linked to Process Plans
- EBOM/MBOM reconciliation
Quality Management System (QMS)

- Second Release - **Quality Systems (QS)**
- Manage CAPA data and processes to:
  - Identify, contain, and analyze issues
  - Perform corrective and preventive actions
- Leverage PLM as single source of Design, Mfg. and Quality data
- Track key CAPA metrics - % CAPA closed, % CAPA due
Variants & Options

- Core Configurator Engine for defining and resolving Variability
- Rules define permitted configurations
- Core service to express Effectivity
- Usage applies Variability to Items & Relations
- Usage resolved for specific Variations
- Basis for sales & product configurator
Supplier Exchange Portal 2018

- Supplier Portal with lightweight UI
- Workflow & Visual Collaboration
- Managed File Transfer
- Security Model
- Simple RFQ

- Replace E-mail and FTP!
Conclusion - Why Aras?

- More Agile
  - Faster to change
  - Can re-do as you learn
- More Inclusive
  - All Users, not just engineers
  - All Data, not just 3D
- Less Risk
  - Move in small steps, less up-front investment
- Lowest Cost of Ownership
  - Less expensive to Purchase, Deploy and Maintain
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DISCOVER YOUR NEXT PLM

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