eQube® - Establishing Digital Backbone for the Enterprise

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Key business drivers

• “First mover advantage”

• Substantially higher returns on investment

• Lower product and process costs (Through life cycle costs)

• Reduction of waste throughout business processes

• Need for Innovative offerings in the market
  • Leverage organizational knowledge
  • Harness creativity

• Processes need to be more predictable!
Key Objectives

- Product launch Throughput
- Higher speed (of execution)
- Lower total cost (of Product and Process)
- Higher quality and efficiency (reduction in “waste”)
- Predictable processes
Challenges

• Many disparate systems
  – Legacy and COTS
  – Massive amounts of data
  – It's "all in there" …however, it is hard to analyze the data

• Information needs to flow seamlessly across applications
  – To support efficient business processes
  – ALM, PLM, ERP, MES, Quality Systems

• Legacy applications need to be retired responsibly without disrupting the business

• Data needs to be turned to Information
  – That is accurate
  – Timely
  – Is actionable!
eQ Technologic

Makers of the eQube Platform

Digital Backbone – Actionable Insight

eQube®- a platform for Enterprise Information Infrastructure
- eQube-MI – for application migration, synchronization, and integration
- eQube-BI – “Rapid-BI” solution for enterprise-wide visibility with Big Data analytics
- eQube-DP – for profiling data – data quality assessment, correction, and repair
- eQube-TM – for transformation modeling – establishes a knowledge-base of simple / complex maps of disparate systems for rule-based transformations

World Wide Customer Base
- Aerospace & Defense, High-tech, Automotive & Transportation, CPG & Retail
- Hundreds of large customers worldwide.
Digital Backbone – Actionable Insight

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Enterprise-wide BI

Cost | Throughput | Quality | Cycle Time | Performance

ORACLE Financials

TEAMCENTER

IBM Rational software

IFS

OPENTEXT DMS

Adobe

Microsoft SharePoint

SOLUMINA

Legacy Systems

Web Services

Databases

eQube®-MI Digital Backbone
Digital Backbone
eQube®-MI – Digital backbone

- Integrating ALM, PLM, ERP, MES, etc.
  - DOORS, Teamcenter, Windchill, Enovia, SAP, Primavera, DOORS, Solumina, IFS, HMS-CAPP, Legacy databases

- Synchronizing legacy with New
  - Teamcenter Enterprise with Teamcenter
  - Enovia, Windchill, Agile PLM, and Teamcenter
  - Legacy PDM systems with Teamcenter

- Orderly migration of legacy systems (PLM, ALM, MES, ..)
  - Proven risk mitigation strategies using eQ’s synchronous technology
  - Migration without disrupting the business
ALM – PLM – ERP on the Digital Backbone

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DOORS to Teamcenter Migration

BOP Data Transfer

Teamcenter to SAP

DOORS to Teamcenter Integration

Enterprise Application Service

BOP data in Teamcenter

BCM structure from Teamcenter and Price and Plant from SAP
eQube-MI - Customer Case Studies

- BAE Systems – MAI (Typhoon program), UK
- GDC4S, Phoenix
- Lockheed Martin Aero (F-35 program)
- Lockheed Martin ADP
- Northrop Grumman
- BAE SUBS
- L-3 CSW
- B/E Aerospace
- L-3 Greenville
- United Launch Alliance (ULA)
- Rolls-Royce
eQube-MI Digital Backbone @ LM - JSF

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Diagram showing integration between various systems and data sources:
- **TEAMCENTER ENTERPRISE**: Tooling
- **HMS-CAPP**: Planning data sync
- **TEAMCENTER ENTERPRISE**: Parts, CAD, Qty-based-EBOM, Change
- **TEAMCENTER**: Tooling and Planning structures
- **CDM**: Parts, CAD, Occurrence-based-EBOM, Change
- **STEP Data for Partners**

Integration points include:
- **Italy**, **Israel**, **Japan**

Note: The diagram illustrates the interoperability and data exchange between different systems and data sources, emphasizing the digital backbone and partners' involvement.
Actionable Insight
eQube-BI – Innovative areas

- **Scalable & Robust Architecture**
  - Data virtualization layer with caching
  - Pre-built application connectors using APIs

- **Data Security – Governance:**
  - Direct connectivity to source systems using APIs
  - Honors the underlying applications’ security rules
  - Leverages the entire object model including customizations

- **Semantic modeling capability integrated in the product**
  (based on domain ontologies)

- **eQube 3D-Insight module**
  - Visualize Product in 3D with color renderings based on various parameters:
    - # of changes, velocity of change, inventory levels, production and supply-chain bottlenecks, stock outages, cost overruns, warranty claims, etc.
Digital Backbone – Actionable Insight

Enterprise-wide BI

eQube®-MI Digital Backbone

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Databases

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Enterprise Engineering

Teamcenter
Systems Engineering

Teamcenter

SAP

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Web Services

Legacy Systems

HMS-CAPP

Elysium

Northrop Grumman
Digital backbone for the Enterprise