Army Materiel Command

Model Based Sustainment
– Army Materiel Command Perspective

Dr. Raj Iyer
Chief Technology Officer
HQ Army Materiel Command
Redstone Arsenal, Alabama

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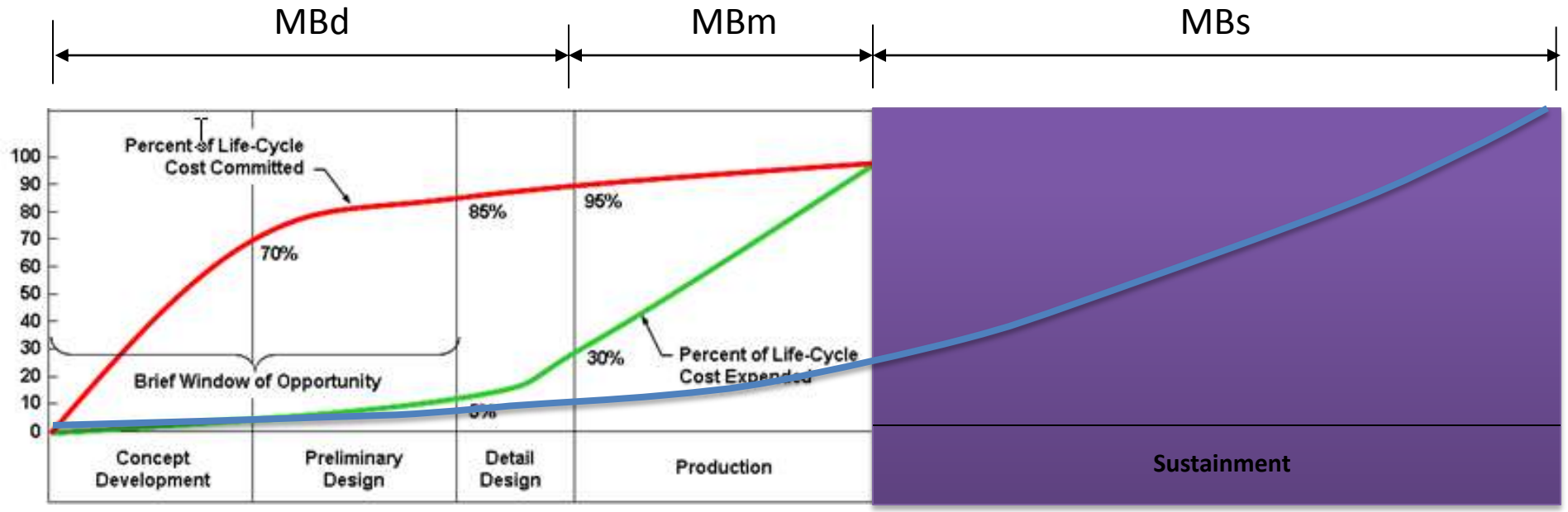
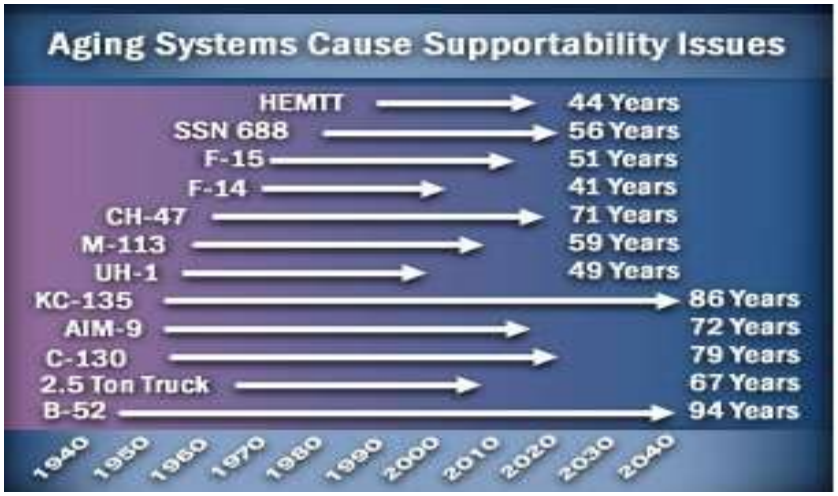
Model Based Sustainment – the motivation



With increased pressure to sustain weapon systems longer than originally designed for and decreasing DOD budget in the next few years, it is imperative to adopt sustainment technologies such as MBS to improve efficiencies and reduce lifecycle costs.



A Few Targets of Opportunity

- System modifications and upgrades
- Depot maintenance, repair and overhaul
- Field repair and maintenance
- Competitive sourcing of parts
- DMSMS and obsolescence management
- Predictive prognostics and condition based maintenance

These processes today are sub-optimized because of the lack of availability of high quality integrated systems engineering data through the supply chain

Constraints

- MBE requires a collaborative environment to be established across the extended supply chain – “a throw it over the wall” approach will not work
- The Government as the receiver of such data in most cases must be an active partner in the process (conflicts with DOD guidance)
- MBE needs to support mixed data rights through the acquisition process (“who owns what and how do we control this”)
- Organizational barriers and culture gaps between the engineering world and logistics
- The post production world is dominated by ERP systems - ERPs unable to fully leverage the models developed in systems engineering process
- Sustainment world continues to be dominated by paper-based and other unintelligent digital processes

These constraints are the reasons why Model Based Sustainment has the greatest potential for cost savings in the sustainment world

Impacts of not adopting MBS

- Data duplication and recreation in sustainment – adds to lead time
- Product documentation continues to lag behind current product configuration – increased operational risks
- Data quality issues with accuracy and currency of data not kept synchronized with engineering changes
- Inability to rapidly respond to changing requirements since no “model” exists
- Poor tradeoffs in logistics because systems engineering models and underlying assumptions are not passed downstream

Where are we today?

- Technology:
  - 3D CAD systems have matured tremendously to support model-based design, but little of this is re-usable in logistics
  - PLM systems have matured and are capable of managing complex product data models (geometry and metadata)
- Process:
  - Lacking in terms of establishing standard re-usable processes
  - Lacking in terms of defining what data (and metadata) is truly required versus “good to have”
- People:
  - Much work needs to be done in educating the knowledge worker of the value in reusing data and collaboration
- Policy:
  - DOD has reversed long standing policy relating to acquisition of technical data – cannot expect any more

Key tenets to success

- Flexibility in the use of software tools to develop models
- Must configuration control all model data within a PLM system – single authoritative source
- Standards (such as ISO 10303) can help establish the right metadata and business rules for models
- Models must be deployable in ubiquitous formats (such as 3D PDF)
- Model data must be federated across the supply chain – a SOA approach to data exchange

Pilots continue to focus on technology and not on developing the required process integration and adoption challenges.