Digital Greenhouse

Air Force Information Technology & Cyberpower Conference

AFITC 2018 – Montgomery, Alabama – August 27 – 29th

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Overview

- The Technology Greenhouse will provide cloud-based NIPRNet and SIPRNet access to a suite of 12 Open-source Product Lifecycle Management business modules.
- Selected small businesses will be provided application development training, a cloud-based application development environment with Air Force test and evaluation capabilities, and a rapid path to operational deployment based on customer demand.
- The Technology Greenhouse concept will be expanded to enable the deployment of Innovation Centers throughout AFMC organizations. The Technology Greenhouse can provide a low-cost, low-risk, high-value response to the challenges encountered during the ECSS program.

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40 Years of challenging implementations

Expeditionary Combat Support System	2012	$1,100M	Eight Years, Program Canceled
Depot Maintenance Management Information System	1989	$242M	300% cost increase, partially deployed Original budget $84M
Advanced Logistics System	1977	$821M	Budget Allocation, Program Canceled

It’s time to fundamentally change the way we implement enterprise-wide business processes

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What can we do different?

- Open-source software, No procurement cost
- Minimized application development and sustainment costs
- No-Code, low-Code application development
- Highly customized solutions tailored to user requirements
- Low requirements development costs, high user acceptance
- Quarterly software releases
- Live process modifications in accordance to user requirements
- Minimized software upgrade risks and costs

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Let’s enable a systems development revolt!

- Develop systems from the bottom up
- Let users tell us what they want
- Give users exactly what they want
- Give it to them fast
- Give it to them cheap
- And change it whenever they have a better idea

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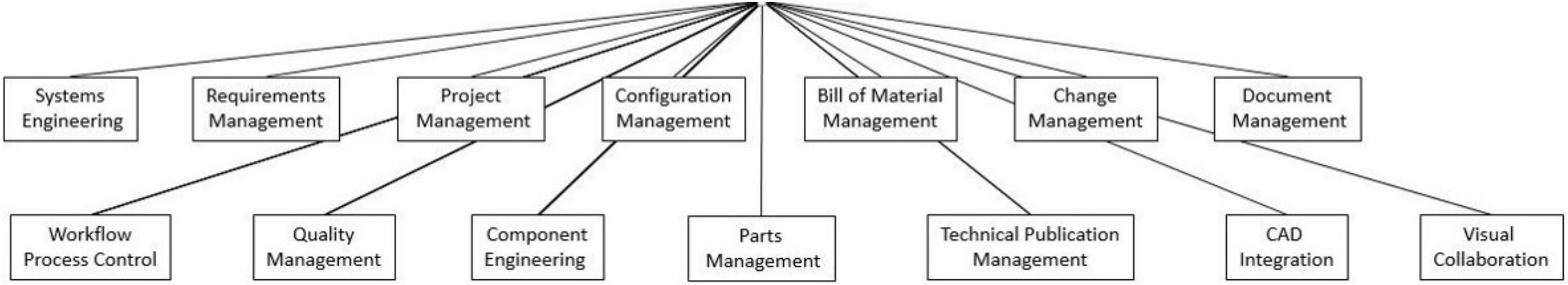
Application Business Modules, No-Code, Low-Code Development

Microsoft Azure



- Low-Code development platform business domain projected to grow from $6 Billion in 2108 to $15 Billion in 2020.

- Initial failure of Affordable Care Act application consumed 100 man-months
- Follow on Low-Code Affordable Care Act application production success consumed 5 man-months

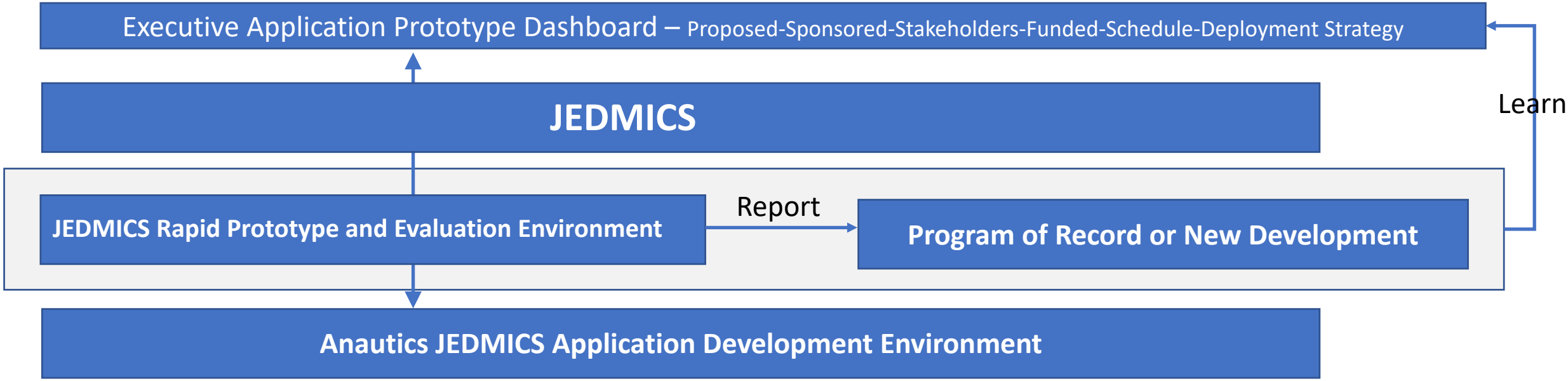
Digital Greenhouse

Video

https://youtu.be/ZWc__mxPBaU

AF Business Process Development Accelerator Program

Connect Small Business, Universities & OEMs for Digital Solutions



Floating JEDMICS Small Business Training Program

Air Force Small Business Offices Assist

Local Small Businesses Leverage Customer Contacts for Requirements Development

Wright Patterson	Tinker OC-ALC	Warner Robins ALC	Hill OO-ALC	Arnold	Eglin	Hurlburt	Maxwell	Edwards	Minot	Patrick	Travis
Local Small Businesses	Local Small Businesses	Local Small Businesses	Local Small Businesses	Local Small Businesses	Local Small Businesses	Local Small Businesses	Local Small Businesses	Local Small Businesses	Local Small Businesses	Local Small Businesses	Local Small Businesses

All information proprietary Anautics, Inc

Air Force JEDMICS Business Process Development Accelerator Program

Prototype Development Environment

Weapon System Program Offices

Problem, Need or Idea

Requirements developed by user subject matter experts and Agile Software Development Team

Prioritized User Stories

Raid Process Development

Open-source Business Modules
Low/No Code Application Development

- Systems Engineering
- Requirements Management
- Project Management
- Configuration Management
- Bill of Material Management
- Change Management
- Document Management
- Workflow Process Control
- Quality Management
- Component Engineering
- Parts Management
- Technical Publication Management
- CAD Integration
- Visual Collaboration

Iterative
User Test and Evaluation
Iterative Process Revisions
User Approval

Migrate

- No Software or Hardware Procurement Requirement
- Low Code/No Code Prototype Development Software
- Program Offices provide User community Subject Matter Experts
- Services Funded via SBIR Phase Two or Phase Three Contract Task Orders
- Prototype Task Orders less than $100K, Less than three months
- Permanent 5 Person Agile Software Development Team, Local Dayton
- Executive Dashboard Reporting, Project Status Updates, Backlog Prioritization

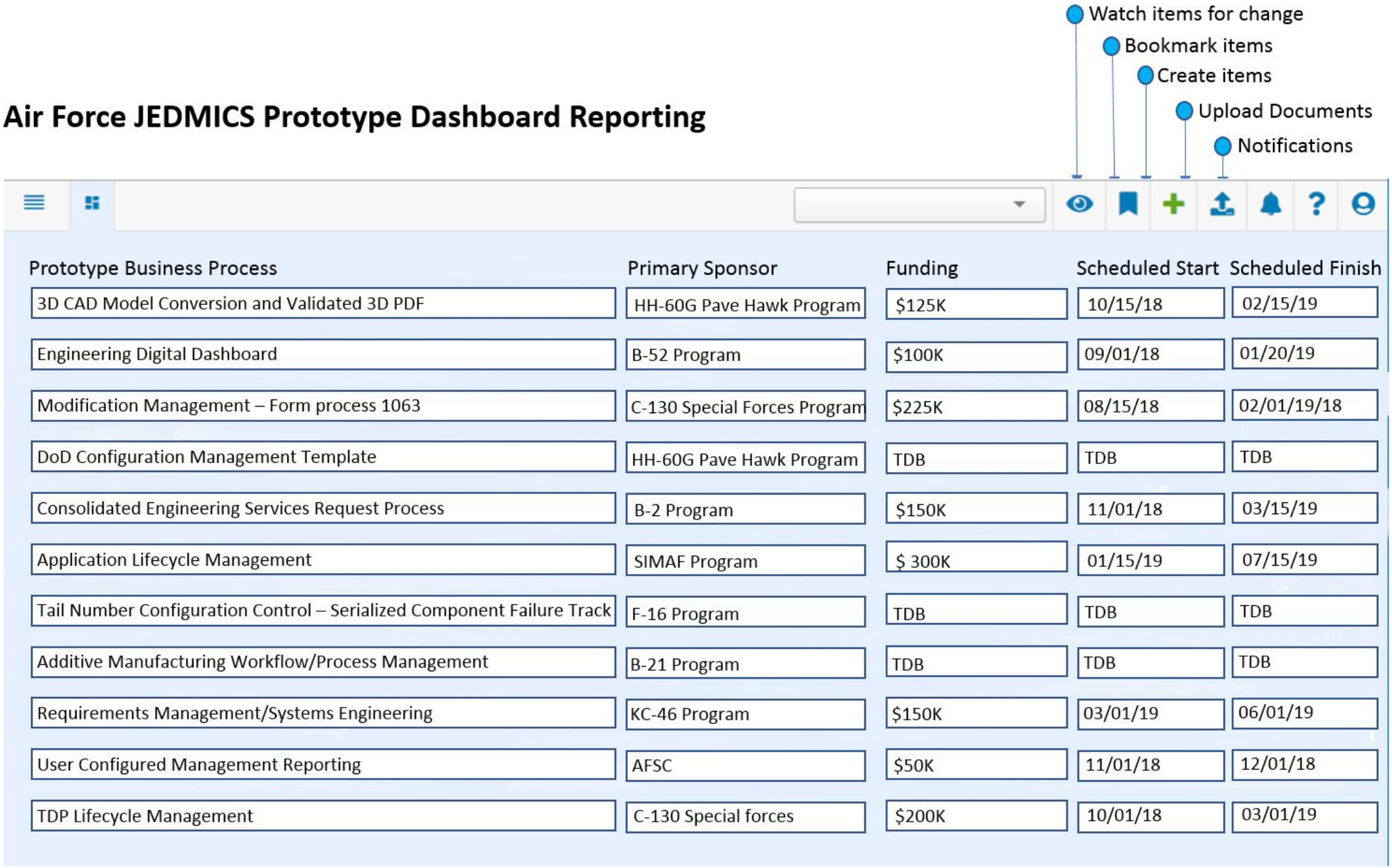
Program Office Application Test and Review Environment

Fail
Return to Prototype Development Environment

Approve
Migrate to Air Force JEDMICS Production Environment

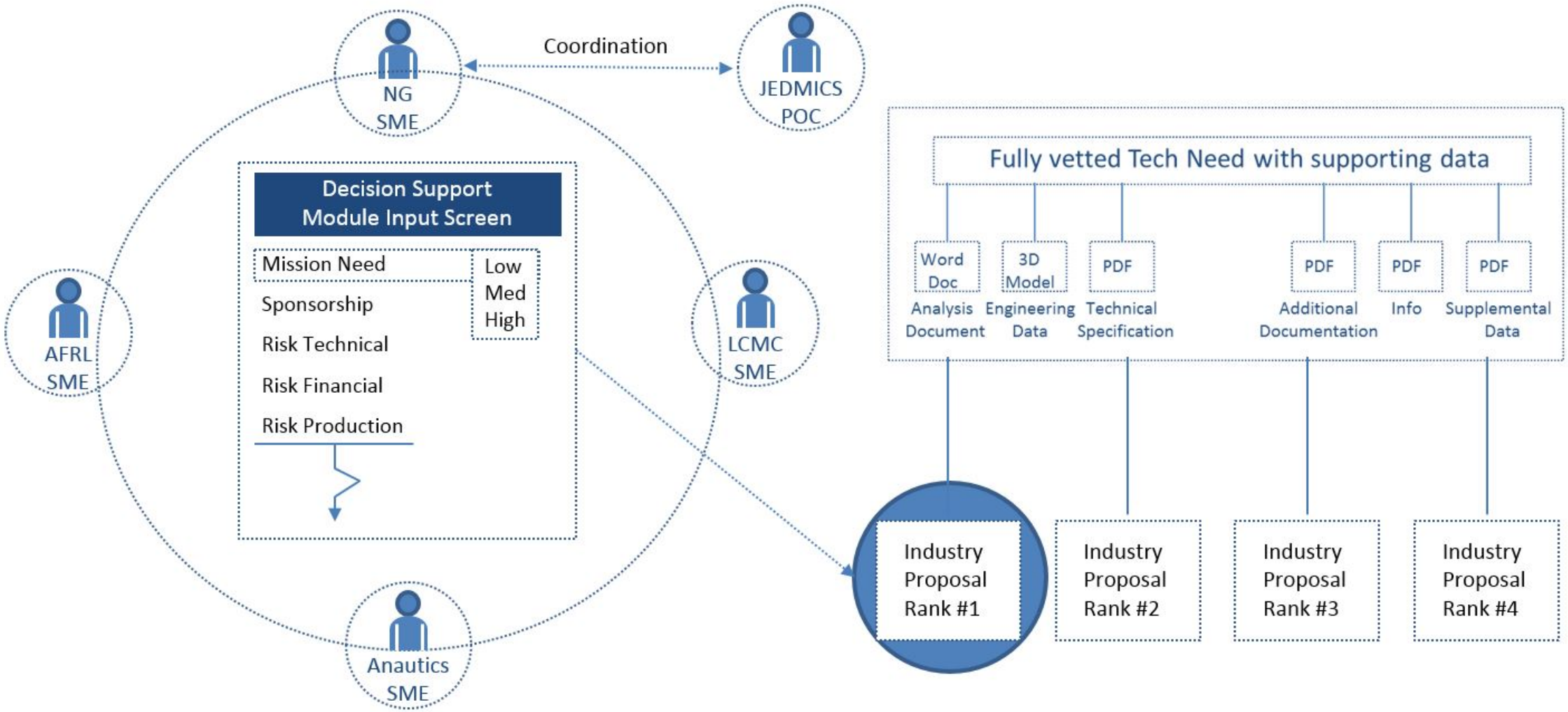
Approve
Use as Template to Develop in Enterprise Logistics Systems
PLM-ERP-MRO

Air Force JEDMICS Prototype Dashboard Reporting



Prototype Business Process	Primary Sponsor	Funding	Scheduled Start	Scheduled Finish
3D CAD Model Conversion and Validated 3D PDF	HH-60G Pave Hawk Program	$125K	10/15/18	02/15/19
Engineering Digital Dashboard	B-52 Program	$100K	09/01/18	01/20/19
Modification Management – Form process 1063	C-130 Special Forces Program	$225K	08/15/18	02/01/19/18
DoD Configuration Management Template	HH-60G Pave Hawk Program	TDB	TDB	TDB
Consolidated Engineering Services Request Process	B-2 Program	$150K	11/01/18	03/15/19
Application Lifecycle Management	SIMAF Program	$ 300K	01/15/19	07/15/19
Tail Number Configuration Control – Serialized Component Failure Track	F-16 Program	TDB	TDB	TDB
Additive Manufacturing Workflow/Process Management	B-21 Program	TDB	TDB	TDB
Requirements Management/Systems Engineering	KC-46 Program	$150K	03/01/19	06/01/19
User Configured Management Reporting	AFSC	$50K	11/01/18	12/01/18
TDP Lifecycle Management	C-130 Special forces	$200K	10/01/18	03/01/19

JEDMICS
Business Process Automation
Selection Process



Initial Prototype Topics

Technical Data Management

Mil-Spec-31000 TDP Management
- Help Assisted TDP Requirements Definition
- TDP Contents and Quality Verification
    - Available to both Contractor and SPO
- JEDMICS Ingestion of TDP

Configuration Management (Tail Number)
- Data Relationship Management
- Change Control
- Status Accounting

Released Data Management
- 3D Model QA and Conversion to 3D PDF
- Legacy Data Analysis and Quality Assurance
- JEDMICS Ingestion
- Data Relationship Management

Process Automation

Consolidated Engineering Services Management
- 202 Process
- 107 Process
- 339 Process

Technology Development and Insertion Process
- Requirements Definition
- Prioritization
- Capability Development
- Approval

Modification Management
- 1067 Process

Non Destructive Inspection

Additive Manufacturing

Collaborative Product Support
(Agile Methodology)

- Field Maintenance Control responsible for documenting discrepancies
- Field Maintenance Shop responsible for system repair and component removal and replacement
- Depot Engineer responsible for SME Support and technical data management
- Depot Equipment Specialist responsible for SME support and Technical Order sustainment
- Depot Shop Floor Planner responsible for work control documents
- Depot Shop Floor Supervisor responsible for production output

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Assign data management responsibility to data owners

Photo

System data responsibility – APU (*auxiliary power unit*)

Data Owner is responsible for configuration management and design control of assigned component and all associated documentation.

Data Owner
- Engineer
- Equipment Specialist
- Shop Forman
- Maintenance Supervisor

System ..... Part Number CAGE Code SM&R Code

Components .....
- CAD File
- Neutral File Format (3D PDF)
- Part Drawing
- Specifications
- Safety Documents
  - Technical Orders
    - Work Control Documents

Parts .....

Data owner job performance based on quality of service provided to customers.
- Component and repair parts data supports down stream business domains.
  - Procurement, PHS&T, and MRO.
- Response to engineering service requests.
- Design Change processing and completion.

Implement a SBIR/STTR/RIF Accelerator Program

SBIR Primary Challenges

- Cannot obtain ATO for production deployment
- Cannot commercialize DoD funded application

JEDMICS SBIR Solution

- Air Force SBIR program office publishes business process automation topics and specifies JEDMICS prototype development environment
- Anautics facilitates software development training and provides prototype development environment
- Completed prototype is evaluated for production deployment
- Approved prototypes migrated to JEDMICS production environment (rapid transition to ATO certified environment)
- Anautics leverages Microsoft Azure partnership to assist in commercialization by listing application on the Azure Marketplace website.