GE Transportation RFID

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Agenda

- Introduction and team structure
- Logistics pilot and other RFID projects
- Lessons learned

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Introduction

What is GE?

- 305,000+ employees worldwide
- $398 billion in market capitalization

Infrastructure

Healthcare

Transportation

NBC Universal

Energy

Commercial Finance

Consumer Finance

Advanced Materials

Consumer & Industrial

Equipment Services

Insurance

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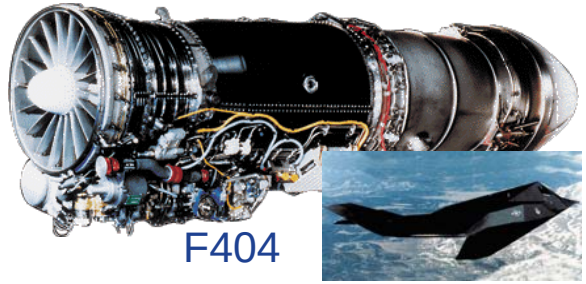
- 32,000 employees worldwide
- $13.5 billion in revenue in 2003

AC 6000

AC 4400



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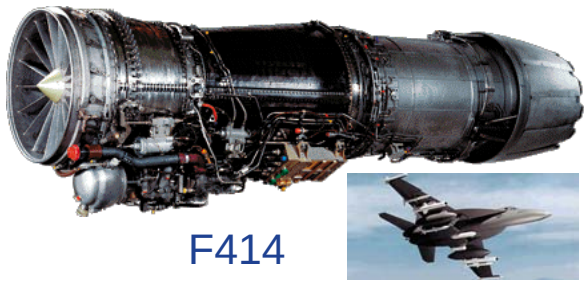

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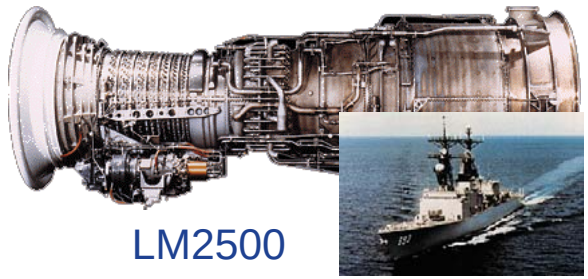

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GE 90

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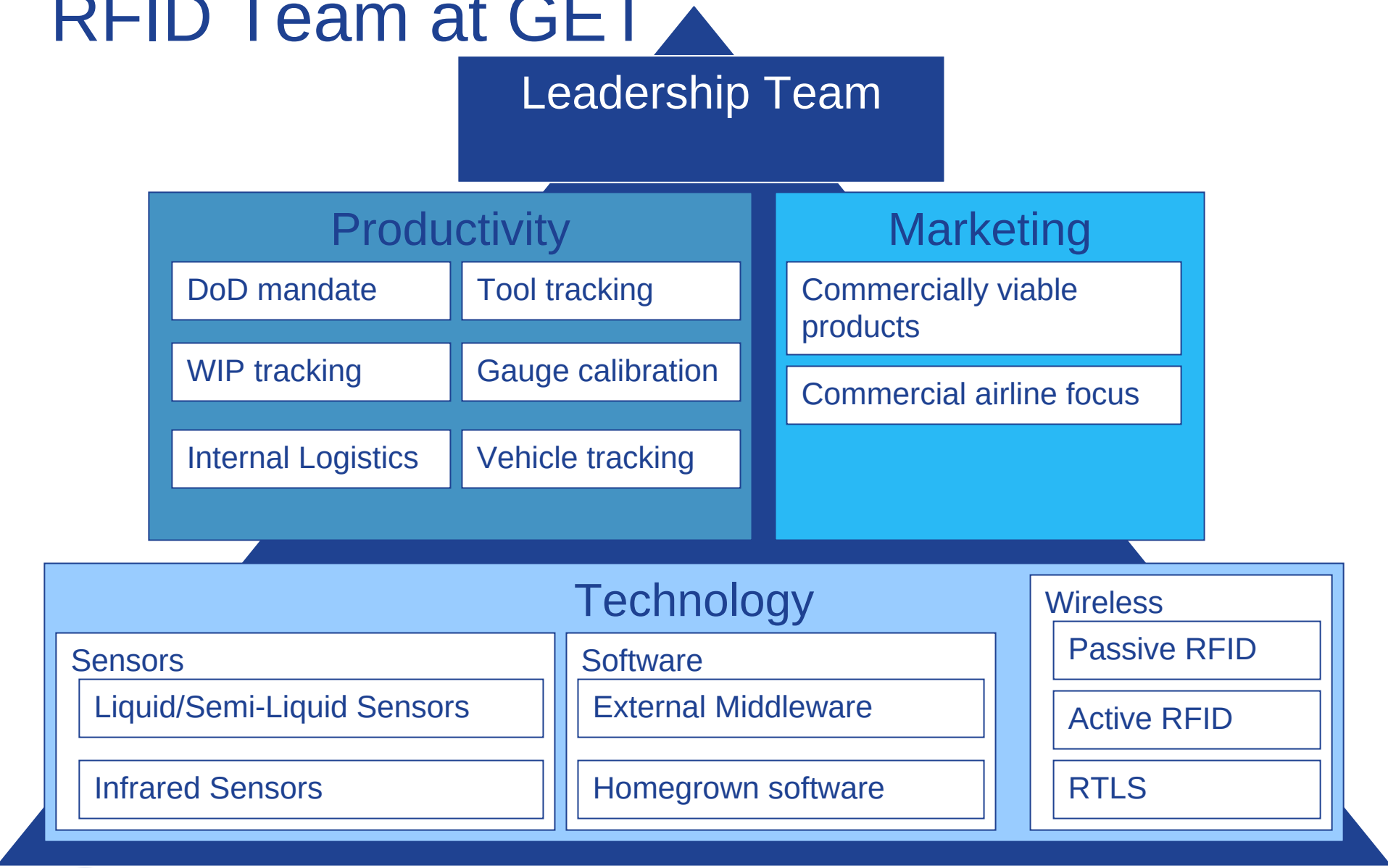
RFID Team Structure

RFID Team at GET



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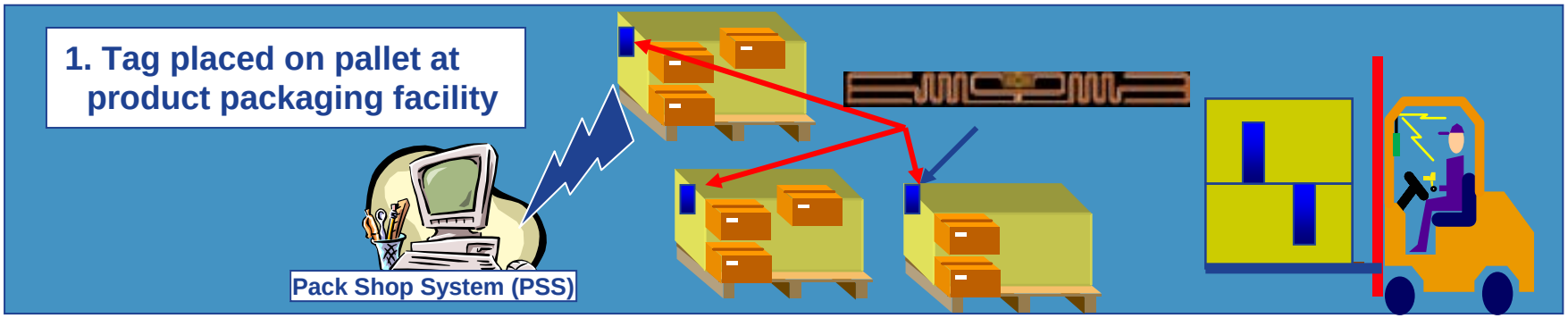
Logistics pilot

Tag the materiel outbound



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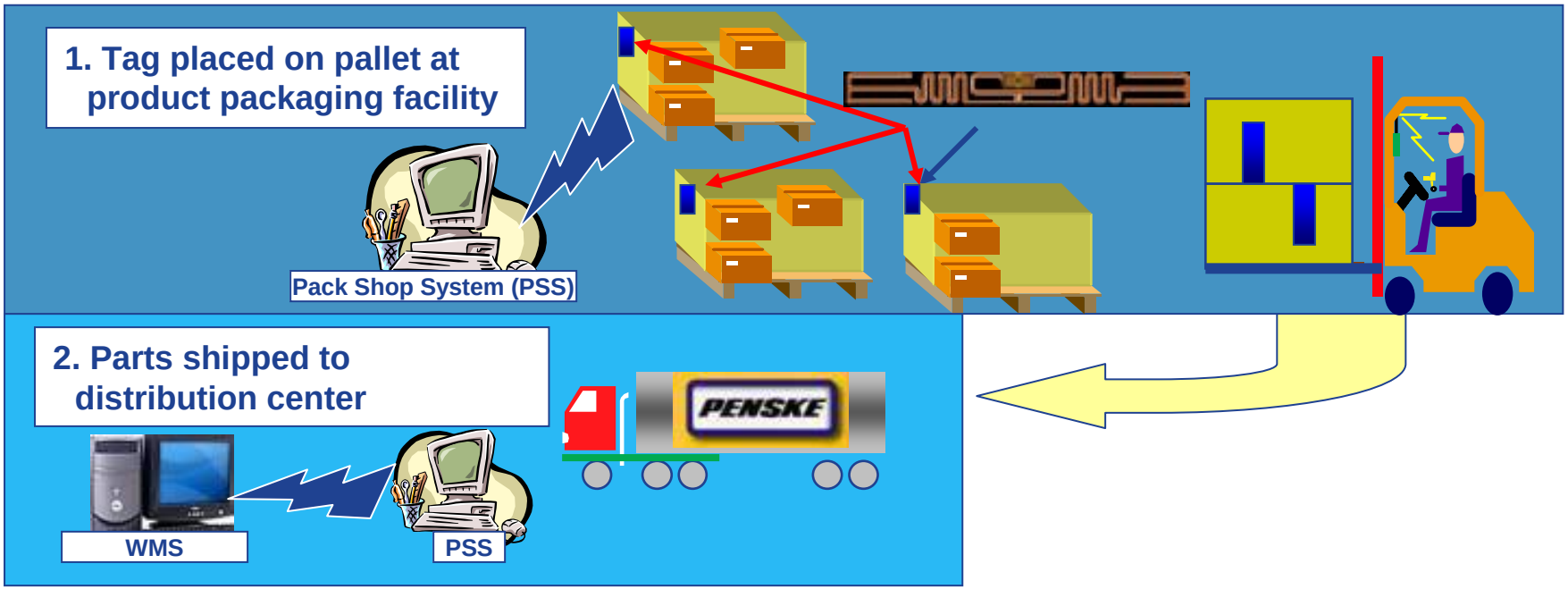
Send advanced ship notice to destination



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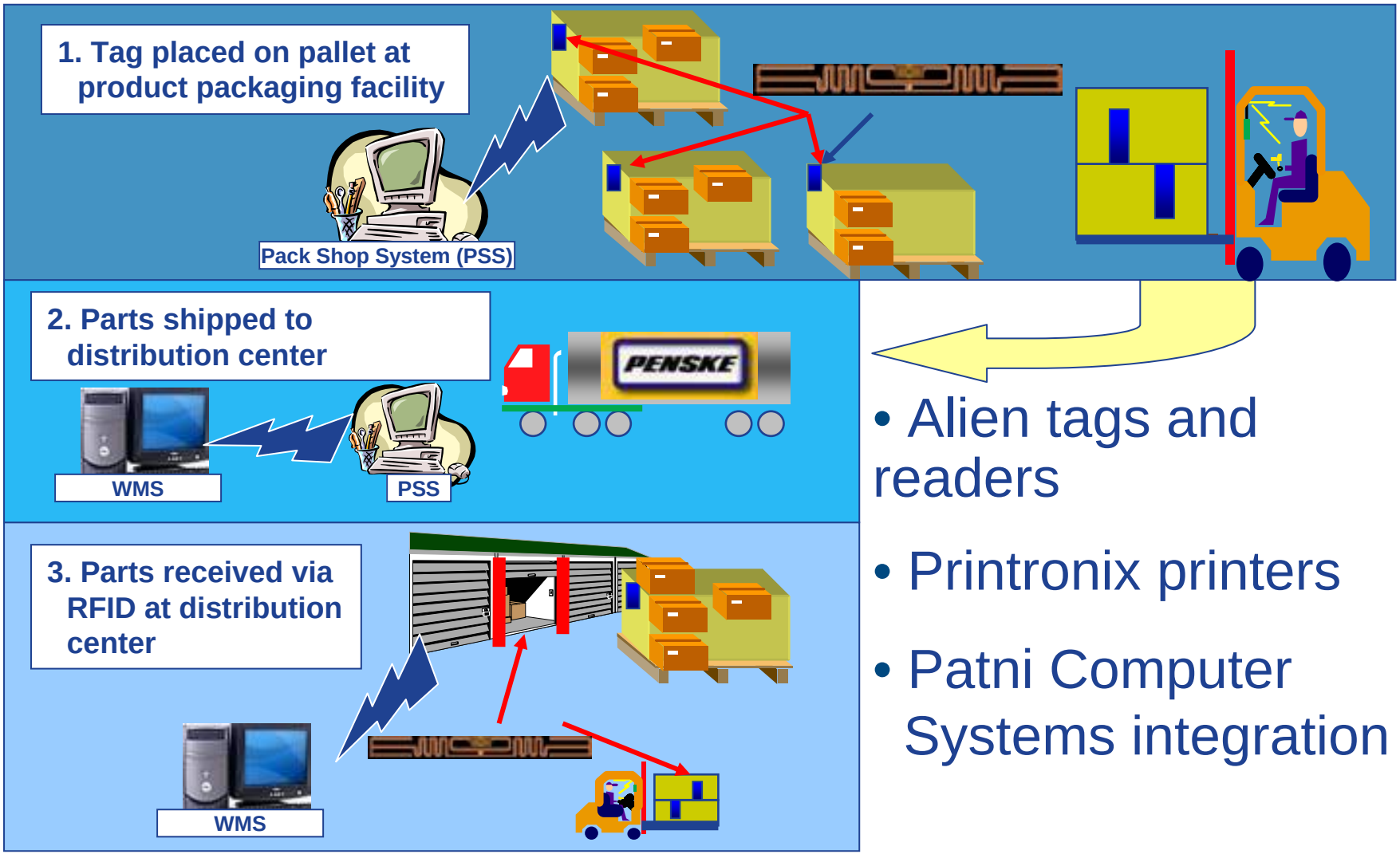
Receive RFID-enabled materiel



- Alien tags and readers
- Printronix printers
- Patni Computer Systems integration

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Overview of other RFID projects at GET

Projects in the Pipeline

Department of Defense RFID policy

- Passive RFID tags on all cases and pallets

Tracking Test Enabling Hardware (E.G Engine Dollies)

- Active RFID tags on test hardware
- Readers on forklifts/buildings

Tracking fleet vehicles (E.G. lift trucks, security vehicles)

- Wireless bridges on lift trucks
- Readers on buildings

Torque wrench control

- iButtons to input data into IT systems

Manufacturing – Work in Progress (WIP) tracking

- Active tags to track work in progress through checkpoints
- Passive tags to track WIP

Gauge calibration

- Proprietary technology to track gauge usage

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Projects in the Pipeline

Logistics – Assembly pull system

- Passive RFID tags on kits from distribution center to assembly
- Create pull trigger system from RFID events

Large WIP tracking

- Active RFID or Real-time Locating System to track platforms
- Visibility into bottlenecks

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Lessons learned

Lessons learned

Main areas

- Engagement and procurement
- Technical
- Business process ownership and change

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Lessons learned [Continued]

Engagement and procurement

Engagement

- Detail competencies that are needed
- Check references
- Lots of work can be done in-house

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Lessons learned [Continued]

Engagement and procurement

Procurement

- Get details on roles and responsibilities
- Scope RFP to exactly what you need
  - Don’t gold plate
  - Define your terms – you cannot get too simple
- Prove out via pilot, then pay

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Lessons learned [Continued]

Technical

Architecture

- Technology is changing
  - ePC tags 64bit, 96bit, UHF Gen II
  - Middleware vs. reader functionality
- Downstream costs
  - Edge servers
  - Maintenance, support
  - Software
- Middleware
  - Be aware of misinformation
  - Assess true functionality needs
  - Engage core IT group early for standards

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Lessons learned [Continued]

Technical

- Readers
  - Least difficult to implement
  - Challenging to procure all product in the industry
- Tags
  - Ownership of defective tags – printer vs tag manufacturer
  - Cost and conservation of tags in testing
  - Durability
  - May need to place in multiple places to ensure reads

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Lessons learned [Continued]

Technical

- Printers
  - Test thoroughly and test many
- Systems integration
  - Most lengthy and costly piece
  - Completely new – expect challenges
- Other items
  - Identify special cases during planning
  - Mounting fabrication is expensive
  - Site survey for dock door inbound is NOT complex
  - Ensure power, network connectivity and resources are available

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Lessons learned [Continued]

Ownership and change

- Low volume, lean shop = tough ROI
- UID prioritization vis-à-vis resources
- Cross-functional communication
- Completely different mind set for shop floor and operators
- **Keep things cheap – much will be obsolete in a year**

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