RFID Supply Chain Coordination

How digital data makes everyone's job easier

Jon Andresen

President

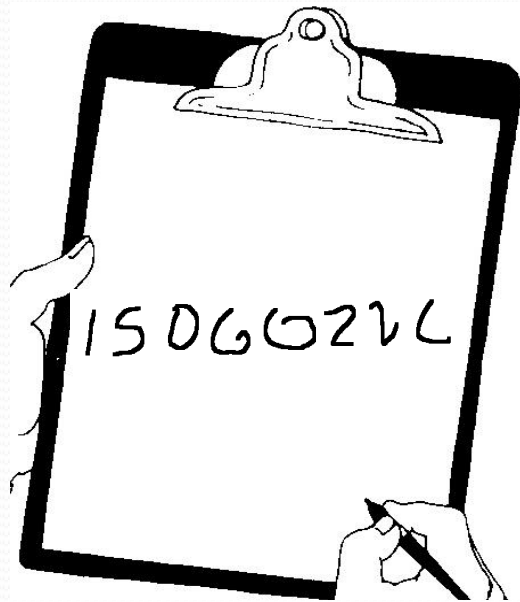Technology Solutions, LLC

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Overview and Introductions

- Panel of experts who are using RFID to make their business run better
- RFID allows Transparent Data Collection®
  - Speed improvements over 100 times faster
  - Bigger benefits come from data accuracy - not making mistakes

What Problem are we all solving?

- It's <u>not</u> a technology problem

- The problem is **bad data**

- Our solution is accurate, faster, easier data collection

Ever seen characters like this?

What's your interpretation?

Is this a problem in your company?

Data ?

What's this Number?
263265930

Part Number ?

Serial Number ?

Employee Number ?

Location ?

Order Number ?

SSN without the dashes ?

Does the person know ?

Does the computer know ? How??

This is a <u>NAKED</u> number with no intelligence whatsoever ! 5

Spec2000 uses Intelligent Data

Example of an Intelligent Number – same whether barcode or RFID

Spec2000 Serial Number showing the Text Element Identifier (TEI)

< | **SER** | space | **263265930** | **>** = XML data for modern databases

TEI

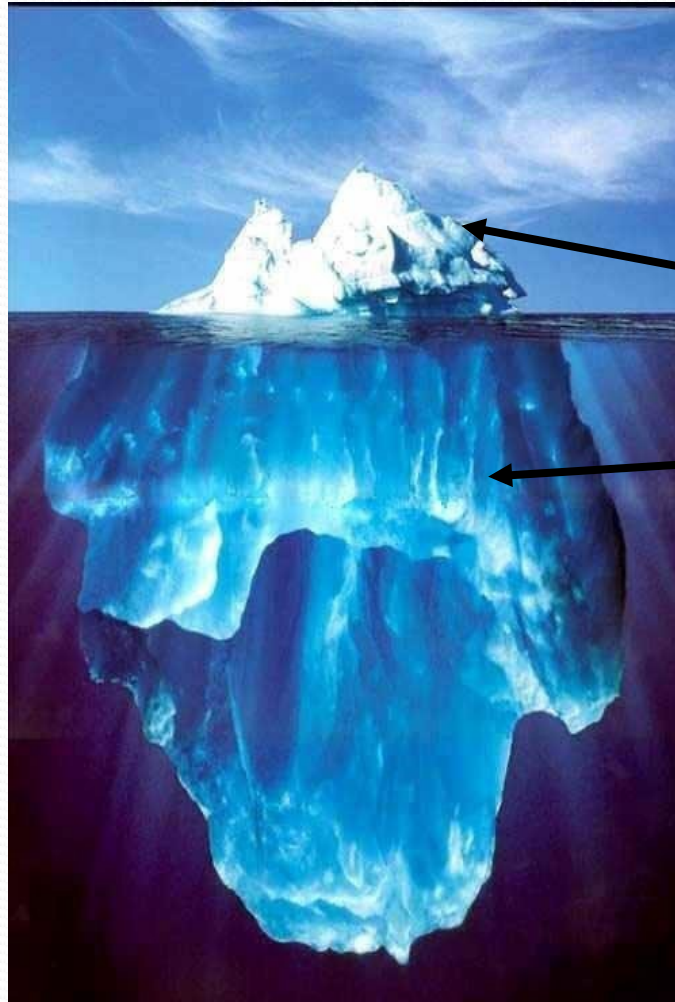4 characters

Serial Number

1→30 characters

Simple, plain text, WYSIWYG, easy for people - easy for computers

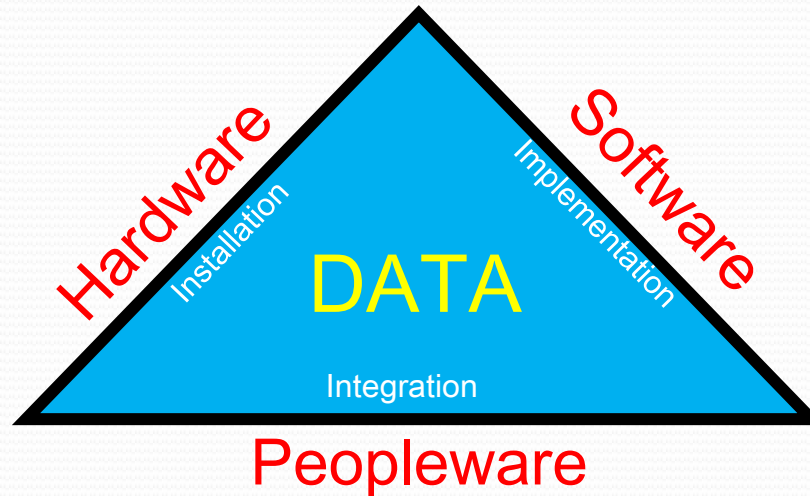# Why Use RFID/Barcode ?

To Avoid Errors !

Errors follow the Iceberg Principle

10%

If this is what you're seeing ...

90%

This is what you're _not_ seeing !

(and these errors will hurt you!)

Successful Project Implementation

But what is Peopleware?

- Good business process
- Bad business process
- Training - or lack of…
- Understanding of tasks

- Changing priorities
- Resource constraints
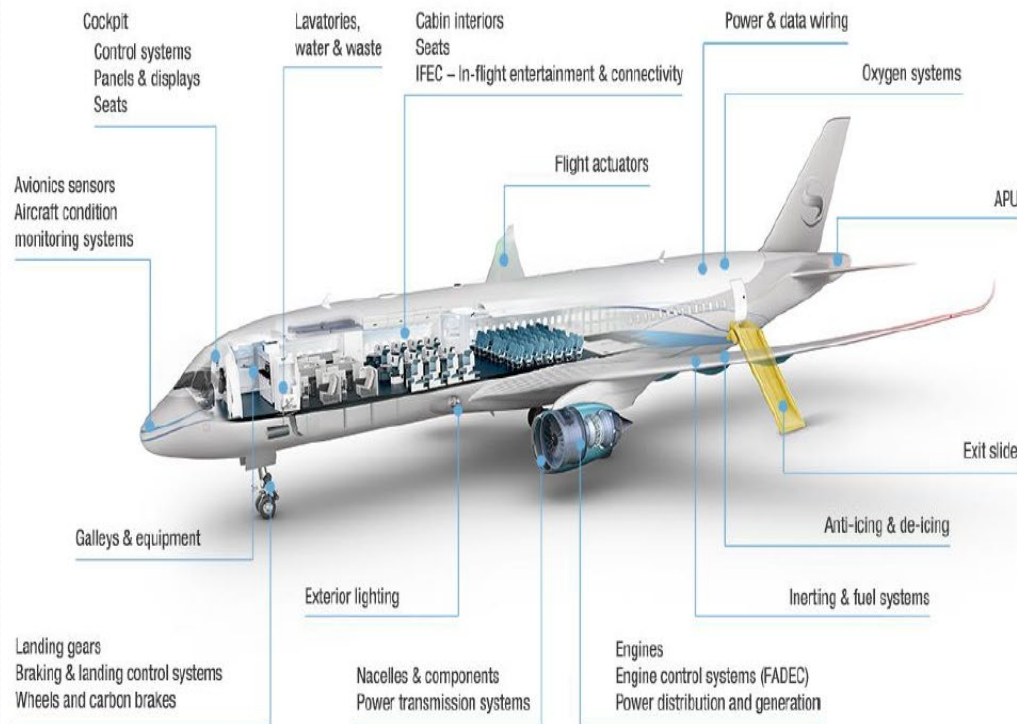- Money, leadership
- Communications

Our Supply Chain Panel

- The **OEM** – Joe Reeves, Safran Evacuation Systems

- The **MRO** – Joyce Polkjinghorne for HRD Aero Systems

- The **Airline** – Chad Moran, United Airlines

Joe Reeves
Safran Evacuation Systems

- Boosting Air Transport performance through a variety of systems and equipment

Safran Evacuation Systems Products
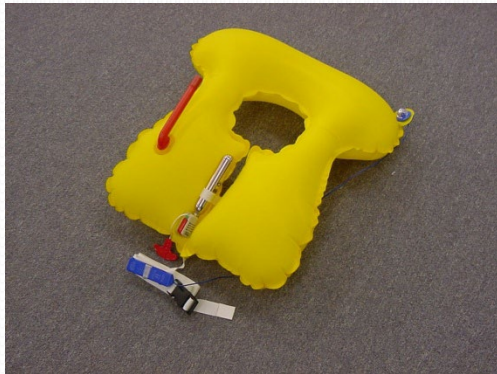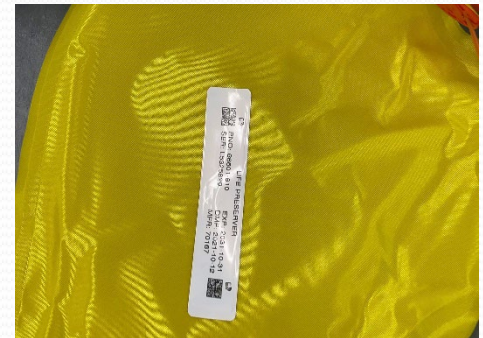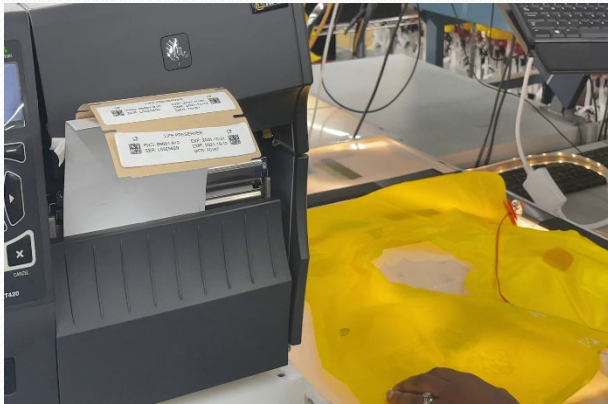
Slides – Rafts - Vests

Safran Evacuation Systems - OEM Vest Tagging

- Started using RFID on Vests in 2011
  - Tags printed and encoded using a PC and RFID printer
    - 2D barcode for induction optional
  - Meets all FAA requirements for on-aircraft safety
    - General Application Specific tests
      - Adhesion
      - Qualified Optimal Position for read range
    - Passing flammability test is most difficult
- Now tagging all production vests in Liberty, MS facility
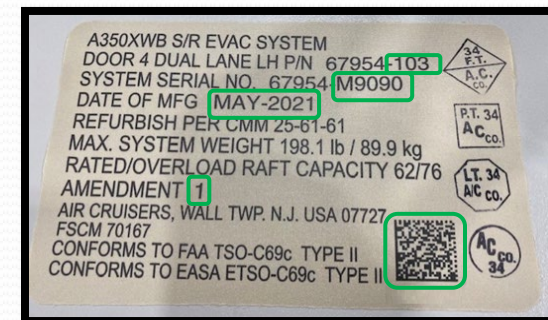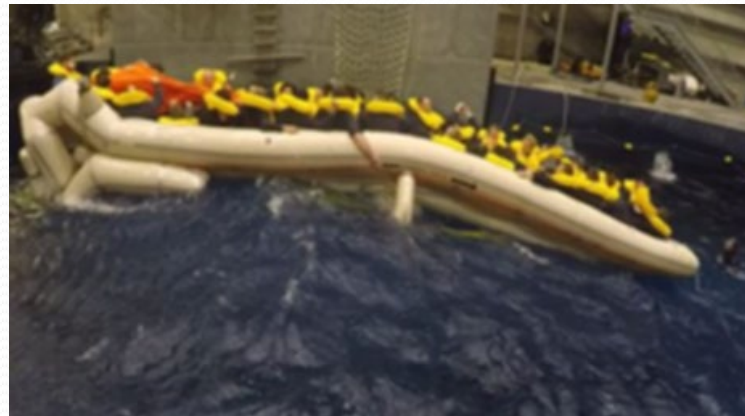 - High volume tagging capacity and capability

RFID Life Vest Tagging Process

Slide and Raft Tagging

- Started using RFID on slides/rafts in 2014
- Now tagging the majority of slides/rafts for all fleets
  - Tagging in our NJ, and Mexico facilities
  - Moving from high memory tags to low memory (2kb tags)
    - Using handheld readers for High Memory
    - Improved Read Range with 2kb tags
  - Next Advancements
    - 2D Matrix Printing on Textile Fabric Name Plates
    - Embedded Life Part (ELP) data is next advancement in RFID
      - Captures child part data without multiple tags
- Safran MROs around the world are also using RFID when they refurbish slides/rafts

Slide & Raft Process

A350 Slide Deployment Test

Parts are run functionally and data verified before each shipment

Joyce Polkinghorne

(Chair, ATA Spec2000 RFID Taskforce)

for Albert Leon
HRD Aero Systems, an MRO

HRD overhauls various components for airline customers

HRD AeroSystems - MRO overview

- HRD began using RFID to tag emergency equipment for airline customer in 2019
- HRD tags fire extinguishers, vests, and other emergency equipment for airline customers
- A PC and RFID printer are used to print/encode data on tags
- Tag is customized to the client like other required paperwork
  - Tagging is done on both new and overhauled life vests
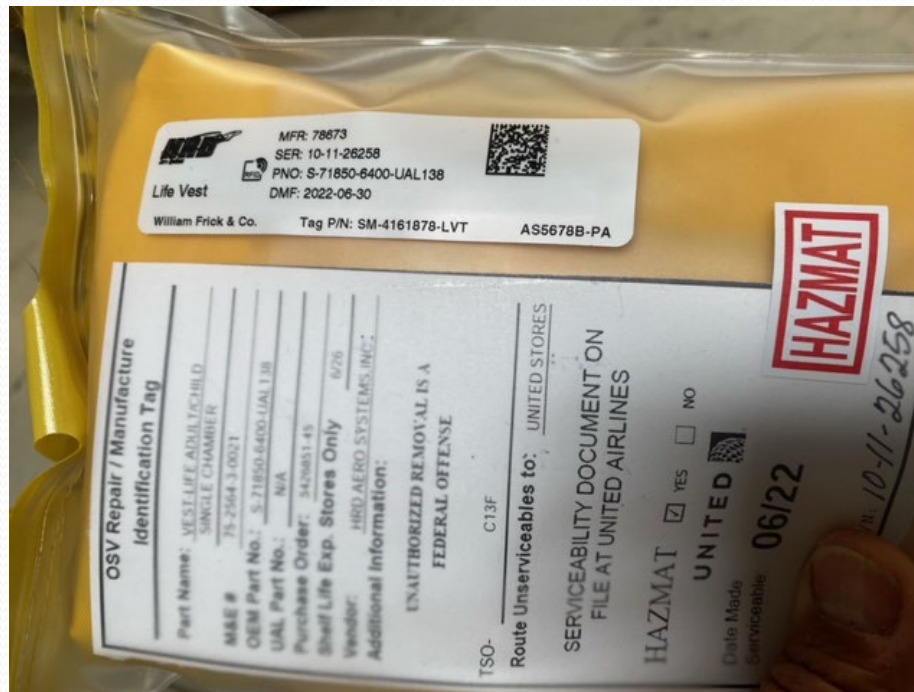
Receiving Vests for Overhaul

Then they are Inflated for 24 hours

RFID printer to tag customer articles

Vest with RFID tag

MRO Benefits

- RFID and the use of digital data saves significant time
- RFID and the use of digital data saves significant errors and re-checking data for official records
- RFID can be used for tracking an order through the repair process
  - HRD is actively pursuing expansion of RFID throughout their processes
- Data can be used for analysis – to anticipate customer need
  - predict large volume of items that will need overhaul, or percentage of items that will fail testing & require replacement

Chad Moran
United Airlines
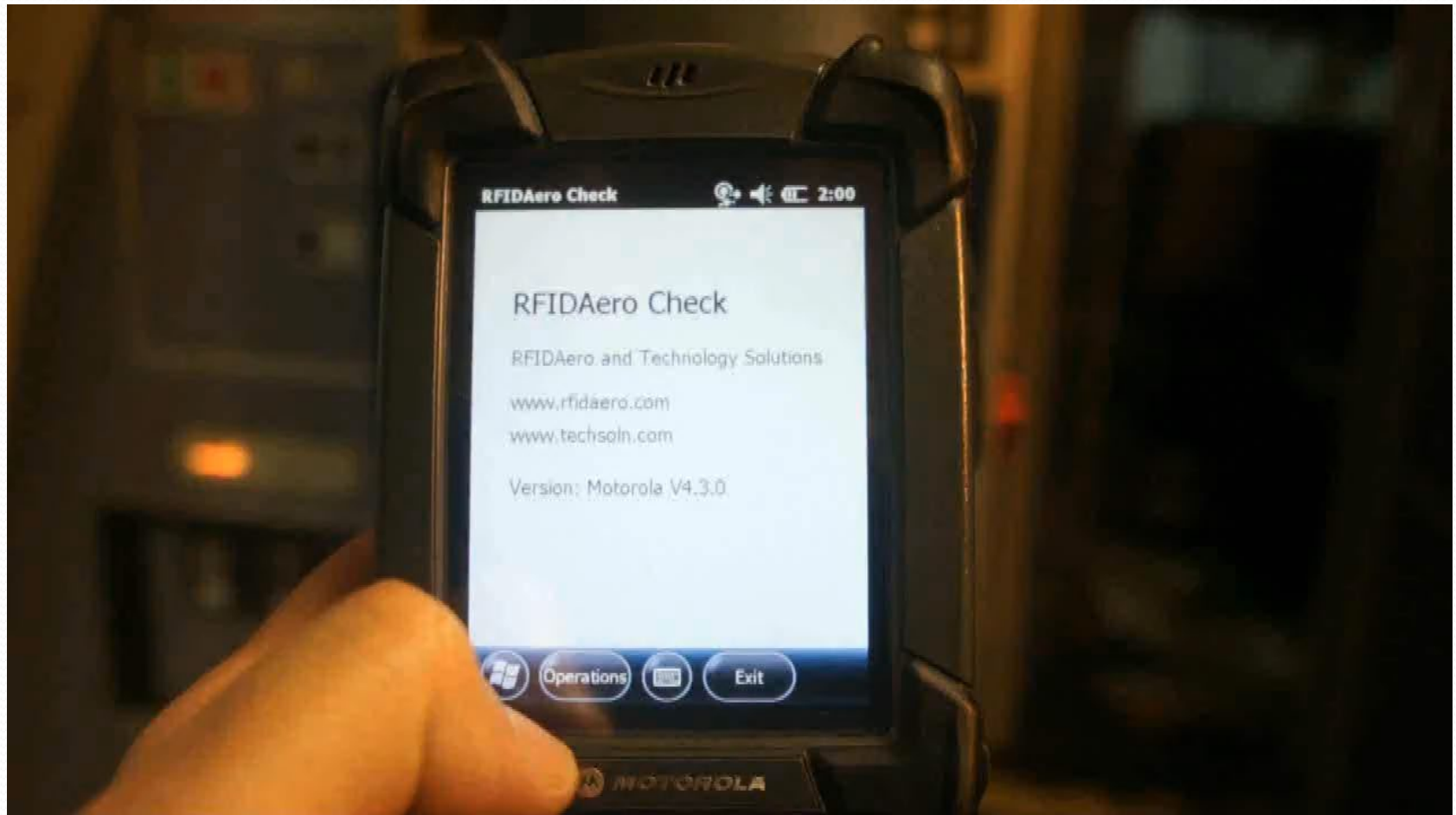
United Airlines RFID History

- United started considering RFID in 2009

- Purchased first RFID solution in 2013

  - Started tagging vests on aircraft

  - Personnel/priorities changes delayed things until 2017

United Airlines Current RFID Status

- United has 810 aircraft RFID-tagged for life vests and over 600 aircraft with other emergency equipment tagged

- Next phase will involve tagging oxygen generators, fixed ELTs and other cabin items

- Started RFID-tagging of tools in select toolrooms in 2019

- Benefits are:

  - Forecasting equipment in advance

  - Ease of checks and ability to save manhours

  - Additional layer of validation/ visibility

Vests Being Checked on 767-300 using RFIDAeroCheck

254 vests checked: Manually: 4 hours   **Using RFID: 35 seconds and Mechanics love it!**

United Airlines Next Steps

- With RFID, United can forecast purchasing equipment instead of waiting to find expired/expiring equipment on the line/base

- Slides, ULDs and Ground Service equipment continue to be future items we would like to tag at United Airlines

- Working with vendors/OEM to get tags up to the current standard are key to success for the airline industry

Using RFID across Supply Chain

- **OEM** putting RFID (digital) data on parts is critical first step
- Encourage your **suppliers** and **MROs** to use digital data
- The end customer (**airlines**) need digital data
  - To not make mistakes
  - To gather accurate data 100X faster
  - To improve their efficiencies and remain competitive

- As other – uncontrollable - costs go up, we all need to use available tools like RFID to make our business more efficient.

Thanks for your attention!

Any questions or comments?

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