Eliminate the Paper, Analyze the Data
Implement a Mobile Rolling PM Application

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Educational Data Systems, Inc.

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About EDSI

Founded in 1979 and headquartered in Dearborn, Michigan, EDSI is a national workforce development, customized training and consulting company intertwined with one common thread: helping people and companies in transition.
Who we’ve helped!
Key Take Away

- How to design and develop a simple mobile application to collect inspection and maintenance data in real time

- Deploy the mobile application solution across the organization

- Mine the data produced to more efficiently manage assets and people
Transit agencies are required to inspect all passenger rails cars are before they are put into service – each and every day.

The inspection is valid for 24 hours.

The only way large transit agencies can assure compliance is to inspect their entire fleet before morning pull out.
Time and Resources

All rail cars inspected in a short period of time
Paper Based Process

- Hard copy inspection reports
- Only verifies inspection completed
- “If” entered into asset management system, data is limited
- No analytics limiting resource management opportunities
Time and Resources

Staff batch entering reports
Staff waiting in line to enter data into a kiosk
Yard Congestion

- Passenger rail car fleets are expanding to meet demand
- Yard space and maintenance facilities are **not** expanding
Rail cars inspected here tonight . . .

. . . may be inspected here tomorrow night.
The Business Goal

Transition to a true 24 hour daily inspection cycle to:

- efficiently manage yard space
- comply with rolling stock inspection requirements
- manage human assets
The Business Goal

- Collect preventative maintenance and inspection data at point of use in real time
- Provide mechanics with technical information and other resources
- Maximize the time mechanics spend working on rolling stock.
1. Effectively manage the 24-hour inspection window by:
   - Knowing exactly **when** an inspection is completed
   - Knowing exactly **where** an inspection is completed
2. Gather inspection data in real time
3. Utilize inspection data
The Solution

Mobile inspection application

Real Time Dashboard
Mobile Application

- Designed for use on any mobile device
- Streamlines data gathering
- Mimics the inspection steps, not the data forms
- Utilizes simple drop down menus and limits text entry
- Enables the use of photos attached to inspection defects
- Pushes data real time to supervisor dashboard
The Dashboard

![Dashboard Image]

<table>
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<th>No</th>
<th>Action</th>
<th>Yard</th>
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The Dashboard

- Displays in real time all inspection activity
- Enables quicker response to time to maintenance issues – reducing delays
- Data mining opportunities are endless
Actual inspection complete date and time being recorded – restarting the clock and inspection window

Inspection issues identified in real time; resolution recorded in database

Inspection data collected and shared across the system
From this . . .

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**COMMENTS**

**EMPLOYEE #** | **PRINT NAME** | **SIGNATURE** | **OCCUPATION** | **DATE**
---|----------------|---------------|-----------------|-------
|                | DEPUTIE ROLLINS |               |                  |       |
|                |                |               |                  |       |
|                |                |               |                  |       |

**SUPERVISOR NAME**

---

**To this**

---

**INSTRUCTIONS:**

- Each unit must be inspected once in each 24-hour period and a report made on this form whether needing repairs or not.
- The units found defective must be indicated here by placing an (x) mark on the space provided, and a separate report made on Form ME-9 (24).
- A (+) mark to indicate ob signal system has been validated and is operational and that all appropriate cables, switches, and breakers are cut-in and sealed.

**The following units were inspected by the undersigned during the period of time indicated above and all were found without defects except those marked by a (x).**

**LOCATION:**

**DATE:** 11/01/16

**TIME:** 07:49:16

---

**TRAINING DATE**

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**Comments:**

**S. NO** | **EMPLOYEE #** | **PRINT NAME** | **SIGNATURE** | **OCCUPATION** | **DATE**
---|----------------|----------------|---------------|---------------|-------
| 1            | Stewart Gonzalez |               |               | Carman       | 07/24/18 |
| 2            | Christopher Stammans |           |               | Electrician | 07/24/18 |

**Employee #:**

**Supervisor Name:**
And More

DAILY REPORT OF UNITS INSPECTED
MAINTENANCE OF EQUIPMENT DEPARTMENT

Instructions:
* Each unit must be inspected once in each 24 hour period and a report made on this form whether needing repairs or not.
* The findings must be indicated here on by placing a (x) mark on the space provided, and a separate report made on Form ME 9 (26).
* A (✓) mark indicates the cab signal system has been validated and is operational and that all appropriate lights, switches, and breakers are cut-in and sealed.

The following units were inspected by the undersigned during the period of time indicated above and all were found without defects except those marked by a (x).

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<td>Casma</td>
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<td>2</td>
<td></td>
<td>Christopher Mannino</td>
<td>Electrician</td>
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Train no 1-223
Train no 4-456
Train no 7-709

Detailed Inspection Report:

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<th>TRAIN NO</th>
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<th>INSPECTION TYPE</th>
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<td>Parking Brake</td>
<td>Disk Brake</td>
<td>Emergency position on controller handle does not engage</td>
<td>Defect Reported</td>
<td>Steven Gonzalez</td>
<td>04/02/2018 at 5:00 pm</td>
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<td>Cab Signal Test</td>
<td>Visual Inspection</td>
<td>Cab signal equipment</td>
<td>Defect Reported</td>
<td>Christopher Mannino</td>
<td>04/02/2018 at 5:54 pm</td>
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<tr>
<td>8009</td>
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<td>Cab Signal Test</td>
<td>Visual Inspection</td>
<td>Cab signal equipment</td>
<td>Defect Reported</td>
<td>Christopher Mannino</td>
<td>04/02/2018 at 5:54 pm</td>
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<tr>
<td>456</td>
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<td>Brake Test</td>
<td>Emergency Brake Initiator</td>
<td>Master Controller brake indicator on TOD not activated</td>
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<td>Brakes Shoe worn (defective)</td>
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<td>Christopher Mannino</td>
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</table>
Utilize the Cloud – Interface with Asset Management

Agency Asset Management Servers

Agency Firewall

DMZ Read Only Database

Push Inspection Data

Push Work Order Data

Push Work Order Data

DMZ Read Only Database

CDMI Application Database

Push Inspection Data

CDMI Mobile Application

CDMI Mobile Application

CDMI Mobile Application

CDMI Supervisor/Administrator PC

CDMI Supervisor/Administrator PC
Implement

- Keep it simple – change is hard
- Start small – think big!
- Engage users – what’s in it for them?
Same concept can be used for any asset inspection:

- Rail cars
- Locomotives
- Wayside equipment (signals, power, etc.)
- Track
- Transit buses
- Shop equipment
- Auditing and Quality Control
thank you!
Kenneth Mall
Managing Director – Workforce Consulting
EDSI

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