Smart Phones and QR Codes are Changing Physical Asset Management

Smart Devices and QR code technology offer an opportunity to simplify asset management by putting usable information into the hands of more plant employees needing the information.

In general, Smart Devices allow plant employees to easily check equipment condition, inspections, or repairs status and send equipment action request like condition entry, request for condition testing, and disconnects.
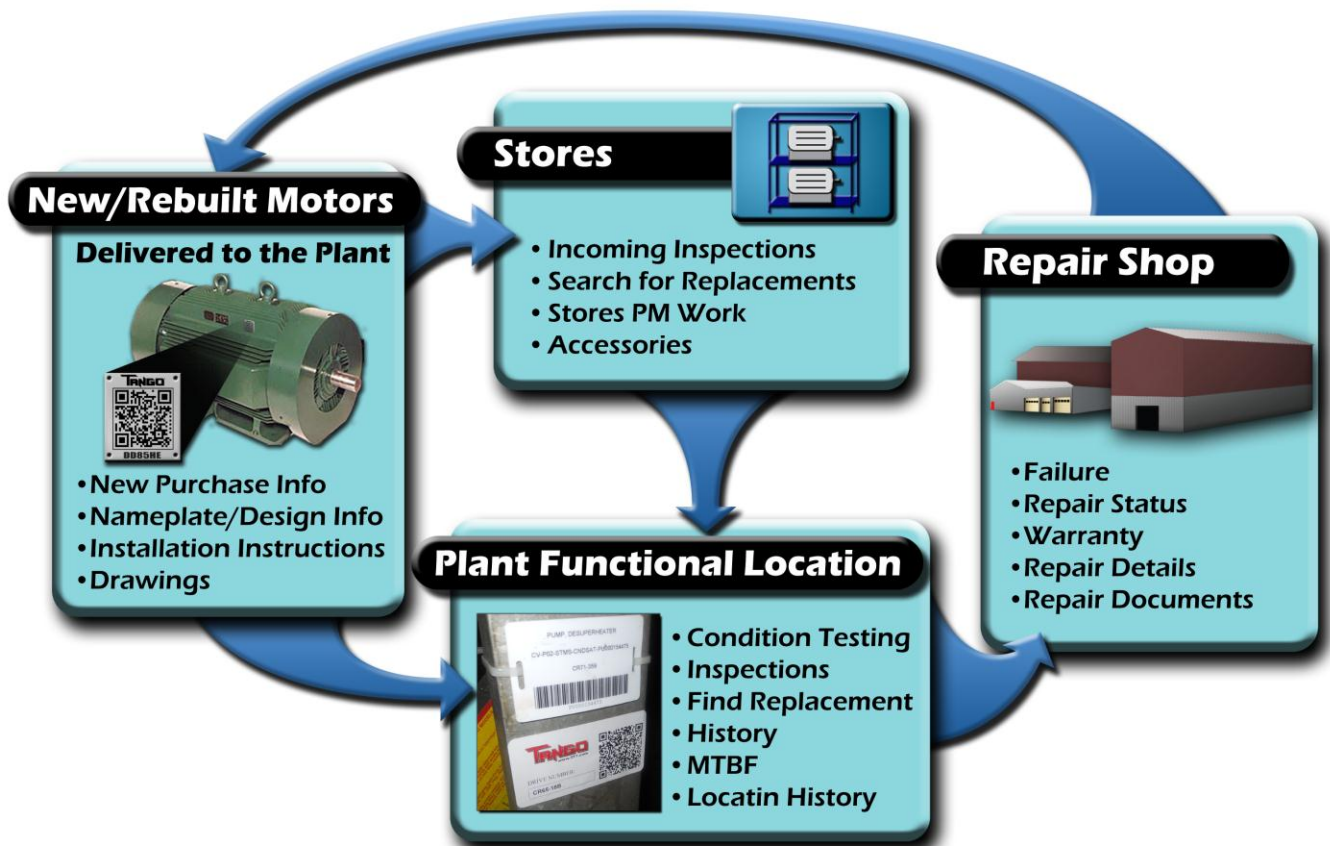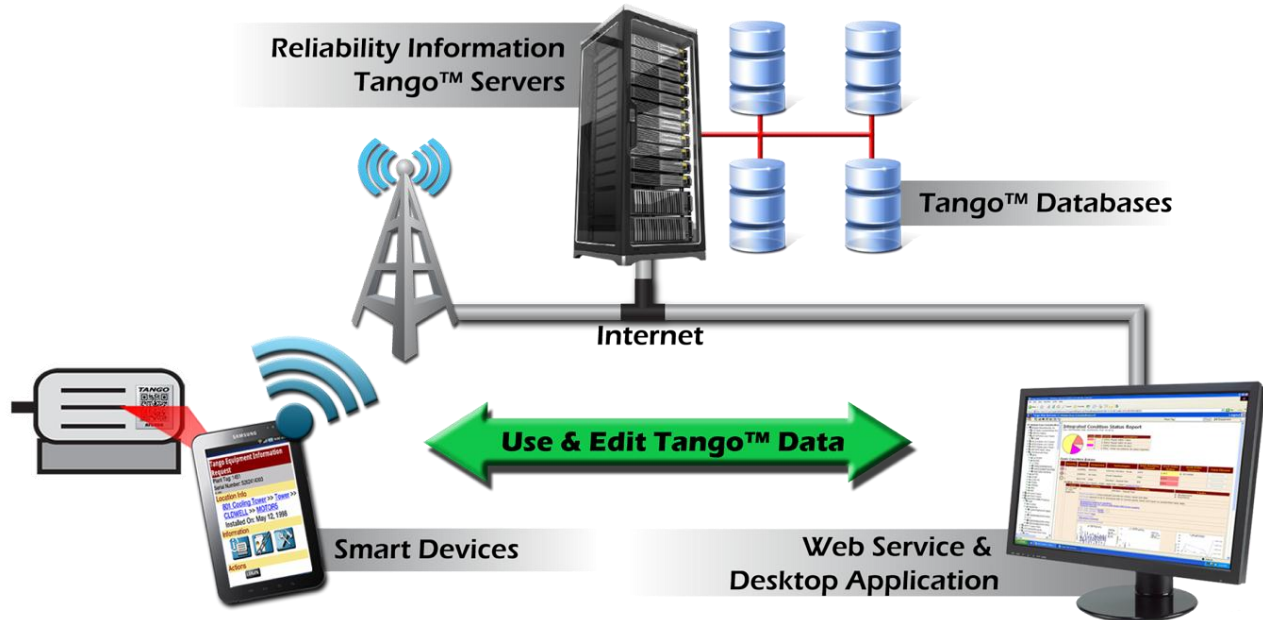
Some Uses for QR Codes and Smart Devices in Reliability Information Management

1. Enter immediate problem notification

2. Display installed equipment name plate and design information such as bearing ID, brush data, breaker settings

3. Display documents like manuals, installation procedures, lube procedures, lockout/tagout

4. Search for replacements in stores

5. Display previous and current condition entries

6. Define an action for selected equipment such as disconnect, test, clean

7. Display previous repair shop results

8. Send email about equipment/location

9. Update equipment state > install, stores, send to repair

10. Initiate an inspection route

How Does a QR Code Work?

QR Code or "Quick Response" codes contain information and instructions that can be decoded by a smart phone and implemented as an action on the phone.
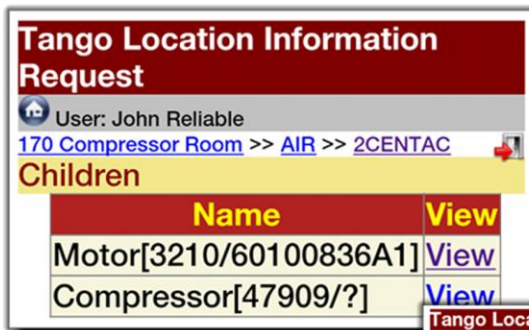
Location QR Tags:

Display and enter asset or component functional location information.

Assigning the QR Code to the asset functional location allows viewing the list of components for the asset and allows navigation to component details. Tango™ components are equipment, such as; motors, gearboxes, breakers and values.

When a location QR is scanned, users can view condition linked documents, such as lockout/tag out procedures and panel drawings. If the user logs in, condition or condition assessment information may be entered.

Tango Location Information Request

User: John Reliable

170 Compressor Room >> AIR >> 2CENTAC

Children

Name	View
Motor[3210/60100836A1]	View
Compressor[47909/?]	View

See Equipment Info
(see next section)

View Condition History
for predictive maintenance entries

Tango Location Information Request

User: John Reliable

170 Compressor Room >> AIR >> 2CENTAC >> Motor

Installed Equipment
Plant Tag: 3210
Serial Number: 60100836A1
Mfg: General Dynamics
Installed On: Jun 17, 1997

View

Actions

Condition Assessment Assignments

Task	Technology	Started On	Assessment State	
170 Compressor Vibe	Vibration - Route	Jul 06, 2011	No Condition Assessment *Not Assessed*	Assess

Function Location

Linked Documents

- Lockout Procedures
- Drawings
- Procedures
- Alignment/Balance Procedures

Enter Open Asset Task Information

PUMP, DESUPERHEATER

CV-P02-STMS-CNDSAT-PU000154475

CR71-359

PU000154475

DRIVE NUMBER:

CR65-18B

Equipment QR Tags:

Display and enter specific asset information and identify replacements in stores.

An Equipment QR Code allows the user to view the equipment nameplate and design parameters, documents, history and to enter actions and movements.

TANGO
DD85HE

MTX400

Equipment Properties
User: John Reliable
Plant Tag: 3210 *Installed*
Serial Number: 60100836A1
Equipment Properties

Property	Value
Frame Size	585WSY
Model Number	????
Motor Mfg	General Dynamics
Plant Tag	3210
Power	500 HP
Serial Number	60100836A1
Speed	3600 RPM
Voltage - Stator	460 V
Air Gap	0 in
Bars - Rotor (cnt)	0
Resistance - Stator	0 Ohms
Service Factor	1.15
Slots - Stator	0
Stock Number	
Target MTBF (days)	0
Temp - Max Rated Ambient	40 °C
Variable Freq	
Weight	0 lbs

Tango Equipment Information Request
User: John Reliable
Plant Tag: 3210 *Installed*
Serial Number: 60100836A1
Equipment Properties

Location Info
170 Compressor Room >> AIR
>> 2CENTAC >> Motor
Installed On: Jun 17, 1997

Information

Actions

Function Location

Tango Linked Documents
User: John Reliable
Plant Tag: 3210 *Installed*
Serial Number: 60100836A1
Equipment Properties

	Type
Motor Photo	Asset Component Diagram
Motor Wiring Diagram	Engineering Drawing
Motor Manual	Service Bulletin
AC Repair Specification	Specification

Open Equipment Notes

Remove Equipment

Open Historical Equipment Notes

Send Email Report

Equipment History Report
Plant Tag: 3210 *Installed*
Serial Number: 60100836A1
Equipment Properties

Days Installed vs (Equipment) Installation Number

Start	End	Days	Type	Condition Entries	Remarks
Aug 13, 1992	Jun 11, 1997	1763	Install (1)		*Removal:* DRIVE END BEARING FAILURE
Jun 11, 1997	Jun 14, 1997	3	Repair		*Send:* REPLACE BEARINGS FROM OLD #1 CENTAC MOTOR
Jun 17, 1997		(5245)	Install (1)		

Equipment Repair Cost History

Roundslogging QR Tags:

Periodic inspection/lube route or operator rounds task.

Tango™ may be used to collect route based equipment trends and observations, typically collected with operator rounds, lube routes and PM inspections.

DD85HE

Tango Rounds Logger
Route Name: 104 Hot line Cranes - Monthly

104 Hotline
> Cranes
>> 7120019
>>> SBRDG
>>>> Inspect Brakes
Point: 1 of 137
Status: `Not Measured`

| Pick Item From List | ▼ |

[Save]

Select Status or Measurements

| Prev. | Next | | Done |

Pick Item From List	⦾
OK	⦾
Needs Attention	🟢
N/A	⦾

Tango Rounds Logger
Route Name: 104 Hot line Cranes - Monthly

104 Hotline
> Cranes
>> 7120019
>>> SBRDG
>>>> Inspect Brakes
Point: 1 of 137
Status: `Measured`
Value: `Needs Attention`

| Needs Attention | ▼ |

[Save]

Add Status

Condition Entry Request ✕
Reference Code:
| 8675309 |
Comment:
| Brakes worn |

Save

Save Measurements and Enter Condition Entry Request Info

Save Condition Entry Request

Equipment Traveler:

Provide easy reliability management for critical stores.

The Tango™ Equipment Traveler may be printed by a Repair Vendor and returned with the repaired component.

At the plant, the user can scan the QR code and view:

- **Repair/Failure Information and History**
- **Assign component into stores**
- **Remove components from stores**
- **Enter incoming test and periodic storage PM's**

Tango Equipment Traveler

Scan the QR code to the left with your smart phone for details about the equipment or enter the text just below the QR Code to search for this piece of equipment.

TA0RG1

Property	Value
Frame Size	585WSY
Model Number	????
Motor Mfg	General Dynamics
Plant Tag	3210
Power	500 HP
Serial Number	60100836A1
Speed	3600 RPM
Voltage - Stator	460 V

Equipment Type: Motor - AC Induction
Equipment Class: Motors

Generated on Jan 18, 2012 at 14:31:40

Rebuilt Motors
- Nameplate/Design Info
- Installation Instructions
- Drawings

Stores
- Incoming Inspections
- Search for Replacements
- Stores PM Work
- Accessories

Repair Shop
- Failure
- Repair Status
- Warranty
- Repair Details
- Repair Documents