**ecom**

A PEPPERL+FUCHS BRAND

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# ECOM INSTRUMENTS IN A NUTSHELL



- Established in 1986
- Pioneered the use of mobile devices in hazardous areas
- Developed the first mobile computer for hazardous areas
- For 20 years the sole manufacture zone 1 mobile phones
- ecom Mobile Worker concept and ecosystem
- 2017 acquired by Pepperl and Fuchs

GPS/RTLS receiver

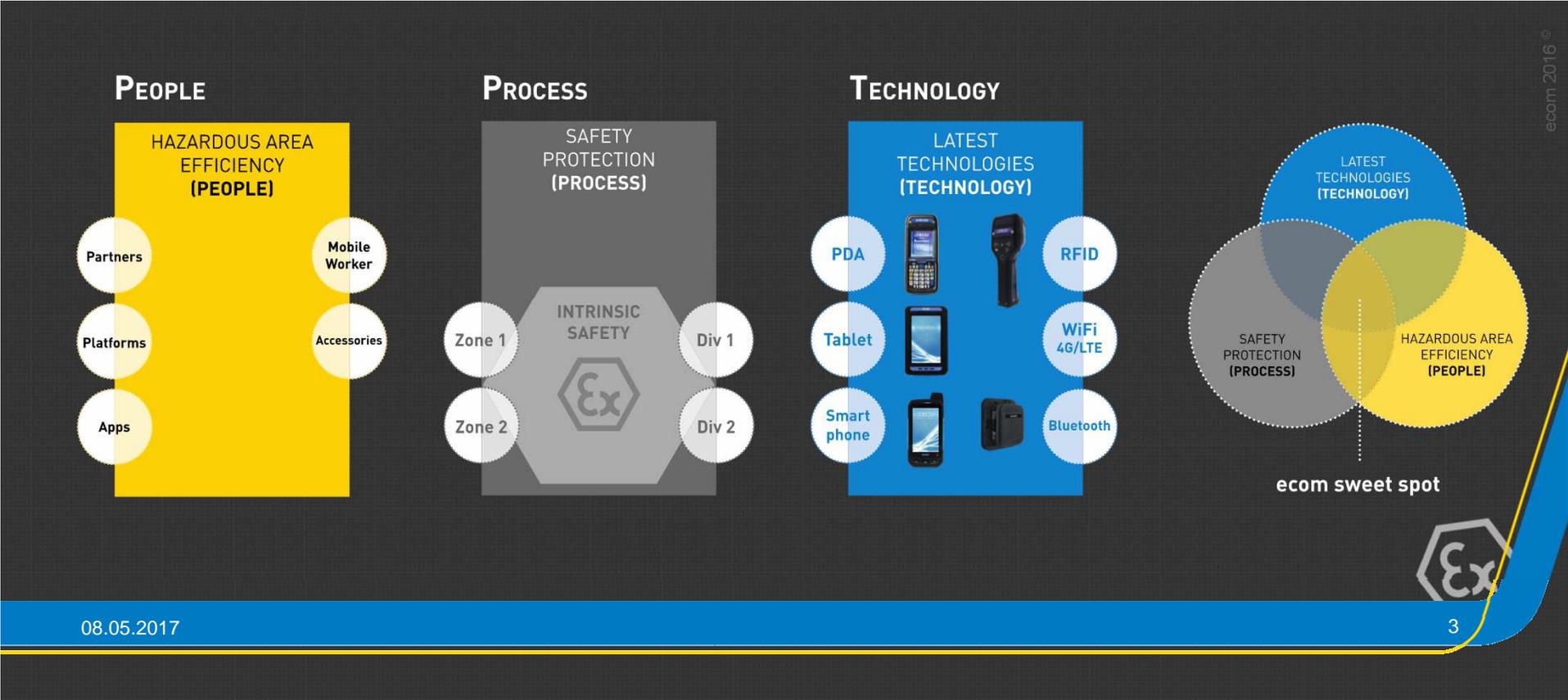Headlamp

Noise-cancelling headset

Personal gas-monitor

Mobile device (with optional camera/video)

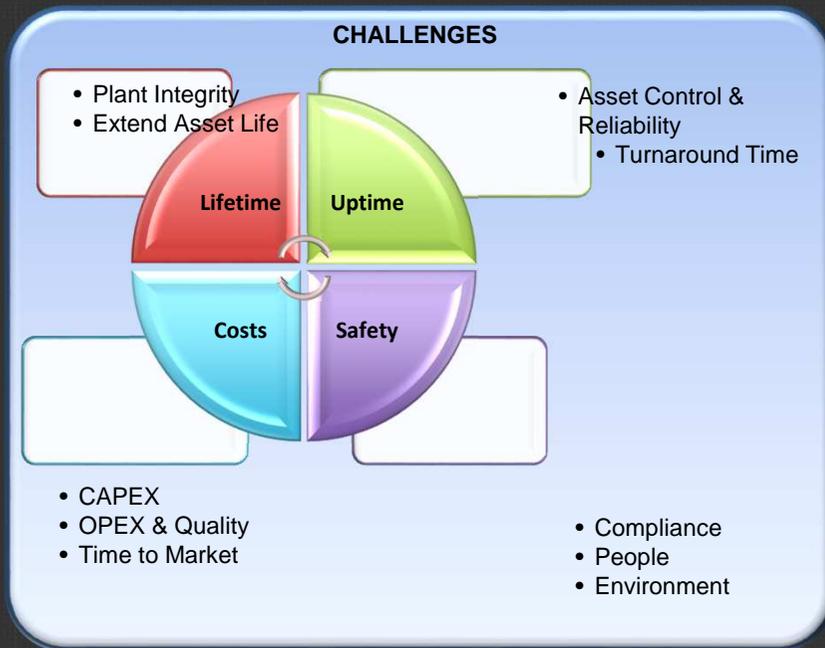Health sensor

# WHAT WE DO

## ECOM CAPABILITIES, KNOW-HOW & VALUE

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**PEOPLE**

HAZARDOUS AREA
EFFICIENCY
**(PEOPLE)**

Partners

Platforms

Apps

Mobile Worker

Accessories

**PROCESS**

SAFETY
PROTECTION
**(PROCESS)**

INTRINSIC
SAFETY

Ex

Zone 1

Zone 2

Div 1

Div 2

**TECHNOLOGY**

LATEST
TECHNOLOGIES
**(TECHNOLOGY)**

PDA

Tablet

Smart phone

RFID

WiFi
4G/LTE

Bluetooth

LATEST
TECHNOLOGIES
**(TECHNOLOGY)**

SAFETY
PROTECTION
**(PROCESS)**

HAZARDOUS AREA
EFFICIENCY
**(PEOPLE)**

ecom sweet spot

Ex

# Why go mobile?

# A NEED FOR CHANGE?

## … AND WHY NOW?



**CHALLENGES**

- Plant Integrity
- Extend Asset Life

**Lifetime**

- Asset Control & Reliability
  - Turnaround Time

**Uptime**

**Costs**

**Safety**

- CAPEX
- OPEX & Quality
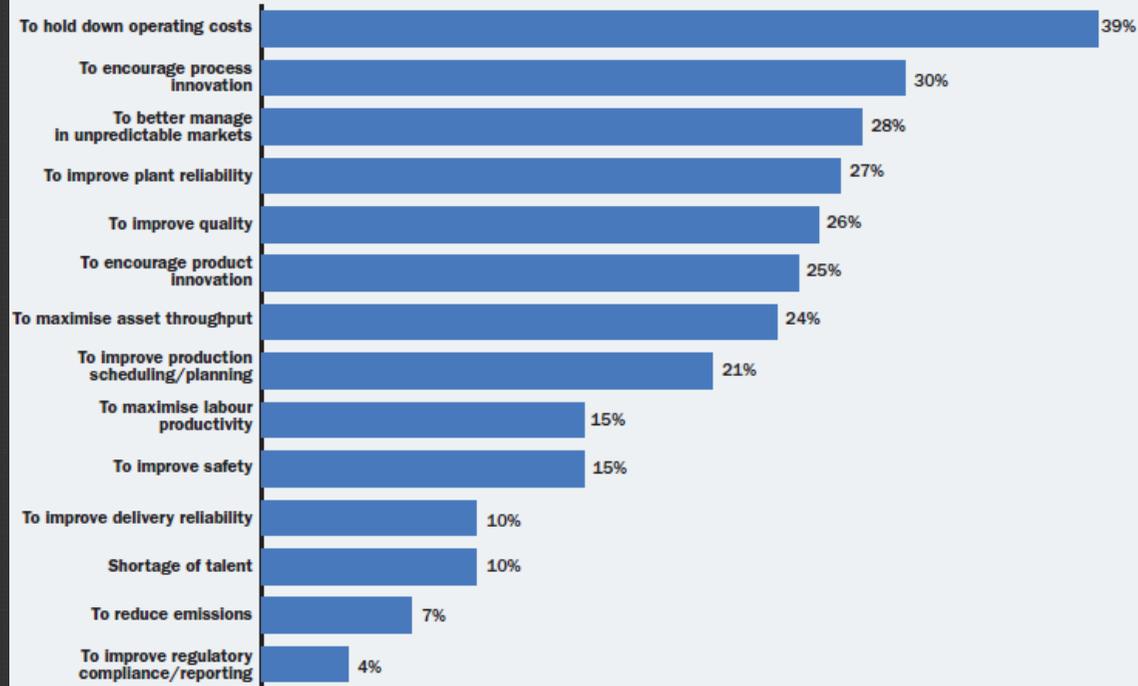- Time to Market

- Compliance
- People
- Environment

- Experience Drain

- Reduced workforce

- 3.5 productive hours in a 12 hour shift

- Asset Registers less than 40% accurate

- Actual TAR cost = 16% over allocated cost (on average) *Source: Asset Performance Networks*

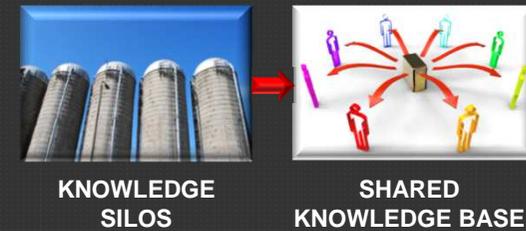Is industry adopting mobility?

# INDUSTRIAL MOBILITY

## … WHY IS INDUSTRY IMPLEMENTING MOBILITY?

| Reason | Percentage |
|---|---|
| To hold down operating costs | 39% |
| To encourage process innovation | 30% |
| To better manage in unpredictable markets | 28% |
| To improve plant reliability | 27% |
| To improve quality | 26% |
| To encourage product innovation | 25% |
| To maximise asset throughput | 24% |
| To improve production scheduling/planning | 21% |
| To maximise labour productivity | 15% |
| To improve safety | 15% |
| To improve delivery reliability | 10% |
| Shortage of talent | 10% |
| To reduce emissions | 7% |
| To improve regulatory compliance/reporting | 4% |

SOURCE: ICIS/Accenture

*"Instant access to work-related data, anywhere, anytime, can improve productivity by 1 hour per day per worker, on average."*

*Source: CIO Insight study*

**KNOWLEDGE SILOS**

**SHARED KNOWLEDGE BASE**

# Mobile computing 1999-2013

# ECOM HARDWARE 1999-2017

## MOBILE COMPUTING

| Ex-HPC 46 Zone 1 | Ex-IT700 Zone 1 | Palm m515-Ex Zone 1 | i.roc x10 Zone 1/21/M1 CID1 | i.roc x20 Zone 1/21/M1 CID1 | CN3x ATEX Zone 2/22 | CN4x ATEX Zone 2/22 | i.roc Ci70 -Ex Zone 1/21 CID1 | Cx7x ATEX Zone 2/22 | Tab-Ex® Series Zone 1/21 / DIV 1 |
|---|---|---|---|---|---|---|---|---|---|



| 1999 | 2002 | | 2004 | 2006 | 2009 | 2010 | 2013 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|



Pad-Ex 01
Zone 2 / DIV 2

| | Pocket PC 39a-Ex CID2 | | | | V100-Ex2 Zone 2/22 | PS336-Ex Zone 2/22 | Z710-Ex Zone 2/22 | Tab-Ex® Series Zone 2 / DIV 2 | |
|---|---|---|---|---|---|---|---|---|---|

# ECOM MOBILE PHONES 1994-2017

## COMMUNICATION



Top row (1994–2015):

- Ex-Handy 01 — Zone 1
- 6150 -Ex — Zone 1
- ME 45 –Ex — Zone 2
- Ex-GSM 01 EU — Zone 2/22
- Ex-Handy 05 — Zone 1/22
- Ex-CDMA 02 — FM C1D2
- X.com 200 -Ex — Zone 2
- Ex-Handy 06 — Zone 1/21
- Ex-Handy 07 — Zone 1/21
- Ex-Handy 08 — Zone 1/21
- Smart-Ex / Ex-Handy 09

Timeline: 1994  1996  1999  2002  2003  2006  2007  2008  2009  2010  2011  2012  2013  2015

Bottom row:

- Ex-Handy 02 — Zone 1
- Ex-Handy 04 — Zone 1
- 23xx –Ex (CDMA) — C1D2
- Ex-GSM 01 US — C1D2
- X.com 4/5/6 — Zone 1/21 Zone 2/22
- Ex-GSM 02 — Zone 2/22
- X.com H20a -Ex — C1D2
- X.com 21x -Ex — Zone 2
- Ex-GSM 07 — Zone 2/22

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# HAZARDOUS AREA MOBILE SOLUTIONS 1999-2013



- Hardware typically used as a point solution for a single software application
- Software "hard coded", less flexible and more expensive
- Solutions largely disconnected/offline due to the cost of connectivity
- Often little collaboration across departments when selecting and implementing solutions
- Front runners adopted an "all or nothing" approach
- Inspection applications accounted for more than 90% of deployments

# WHAT BENEFITS DID PLANTS SEE?

- Return on investment usually under 6 months
- Reduction in inspection man-hours of 30-45%
- Dramatic improvement in data quality and consistency
- Lower administration costs due to reduced manual data input
- Reporting in some cases reduced from several weeks to same day
- Greater visibility of assets and condition

Where are we today?

# HARDWARE

- Modern OS support multiple applications
- Data capture, paperless workflows and communication
- 4G connectivity
- GPS
- Supports HF RFID
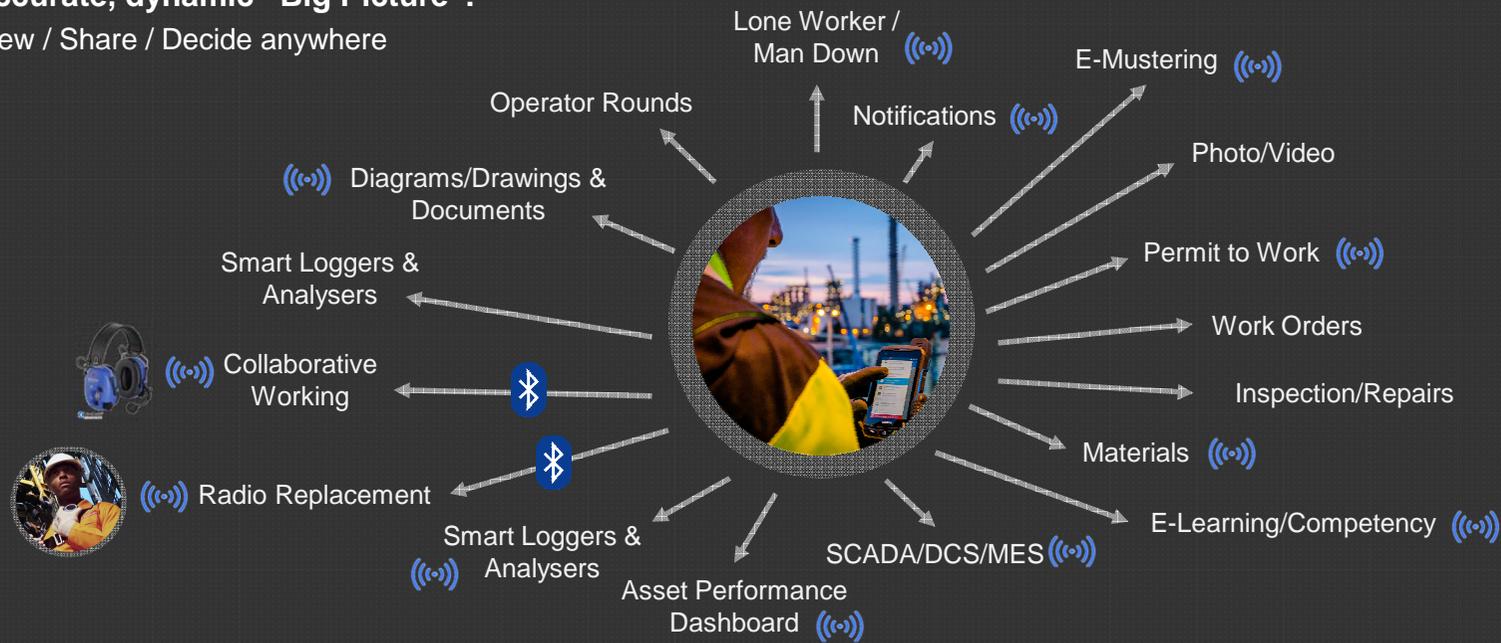- Integrated camera
- Low cost

# A NEW CONNECTED VISION

… ENABLING NEW LEVELS OF INTEGRATED VISIBILITY & AUTOMATION

PLAY VIDEO ▶

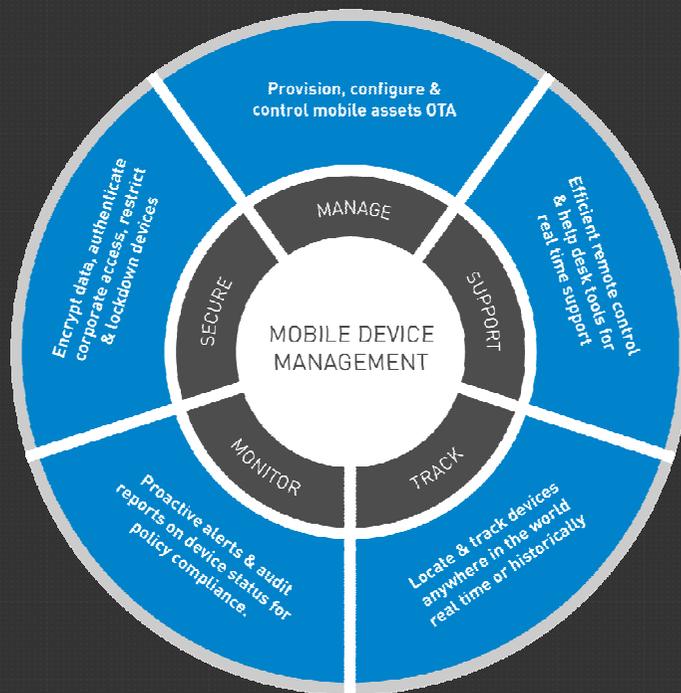**Accurate, dynamic "Big Picture":**

View / Share / Decide anywhere

Lone Worker / Man Down

E-Mustering

Operator Rounds

Notifications

Photo/Video

Diagrams/Drawings & Documents

Permit to Work

Smart Loggers & Analysers

Work Orders

Collaborative Working

Inspection/Repairs

Materials

Radio Replacement

E-Learning/Competency

Smart Loggers & Analysers

SCADA/DCS/MES

Asset Performance Dashboard

08.05.2017

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# MDM

## Mobile Device Management



**Mobile device management (MDM) is the administrative area, dealing with deploying, securing, monitoring and integrating mobile devices.**

The intend is to optimize the functionality and security of mobile devices within the enterprise, while simultaneously protecting the corporate network:

- Enroll, provision, configure and manage devices individually or by a group over-the air (OTA)
- Restrict users to allowed applications only.
- Monitoring device status for policy compliance
- Containering; a secured area for business apps supports BYOD
- "Silent installation"
- Single-Sign-On (SSO)
- Certificate Management

# CONNECTIVITY

- 4G Networks

- Roaming IoT connectivity

- Private LTE networks

- Plant wireless networks

- Bluetooth beacons

- GPS

# SOFTWARE

- People are starting to think "apps" not "programs"
- Application development platforms allow flexibility and quick deployment
- Configurable, solution evolves with the business
- Greater collaboration between software vendors (sharing APIs)
- Reduced cost and Software as a Service (SaaS)

## HOW IS PROJECT DELIVERY CHANGING?

o

- Large increase in the number of proof of concept
- IT, Chief Technology officers and CIOs developing industrial mobile strategies
- Project teams adopting more agile approach to secure "quick wins"
- Leasing and Opex spend avoiding Capex  (HaaS, SaaS, leasing, dTAssS)
- Collaboration across departments (IT, Operations, Procurement)
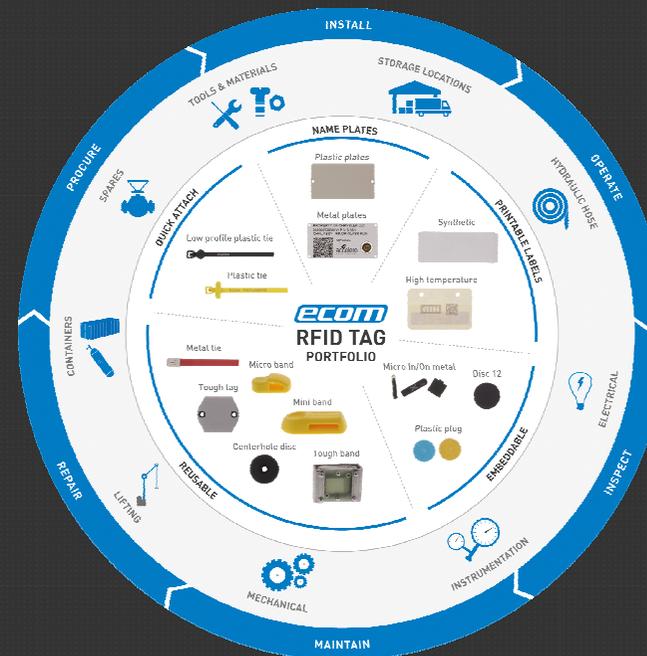- Carriers implementing delivery models similar to consumer hardware

# RFID Tags

RFID Portfolio at a glance

**Enhancing RFID to improve safety and productivity in potentially hazardous areas.**

The use of RFID technology within the workplace is becoming more prevalent to quickly and accurately identify equipment, tools, parts/spares, locations, and even people.
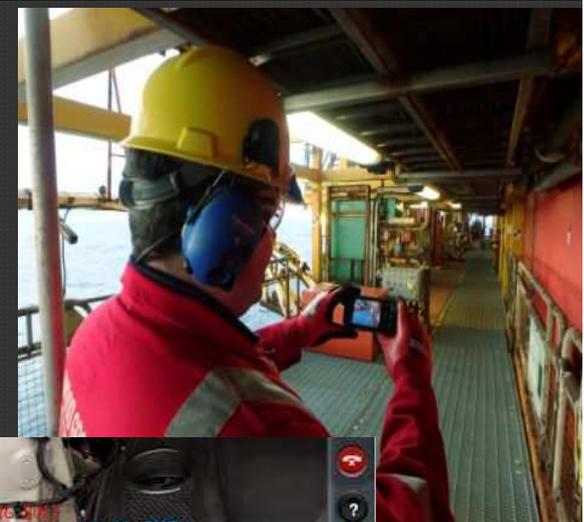
# MY TOP APPLICATION TO SECURE A QUICK WIN ON SITE

## VIDEO STREAMING AND COLLABORITIVE WORKING

- Stream HD video from plant even with 3G as coverage
- Share drawings and annotate in real time
- Collaborate with experts worldwide
- Remove the need for specialist to travel to site
- Control a remote smartphone or tablet from your desktop

# PROJECT APPLICATION

- Deployed 2013
- First large deployment of tablets hazardous areas in the world
- Disconnected solution with Wi-Fi hotspots
- SAP notifications processed from the field
- Software integrated with SAP back end
- Original tablets still in use today

# WHERE ARE WE GOING?

TRENDS TO WATCH

- Cognitive computing
- Narrowband IoT
- Enterprise mobility and automation consolidate to become "digital"
- Internet of People
- Voice recognition

Thank you for your attention