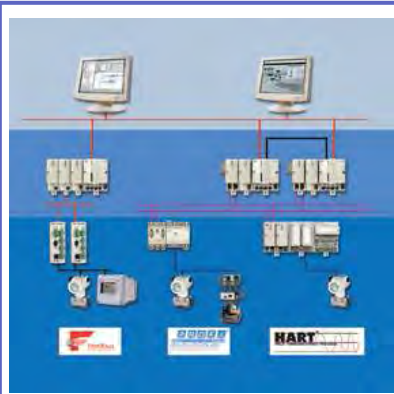


Gareth Johnston

# Profibus for Process Introduction March 17th



IndustrialIT  
Fieldbus  
Products & Solutions  
ABB



IndustrialIT  
enabled FDT  
CONNECTED

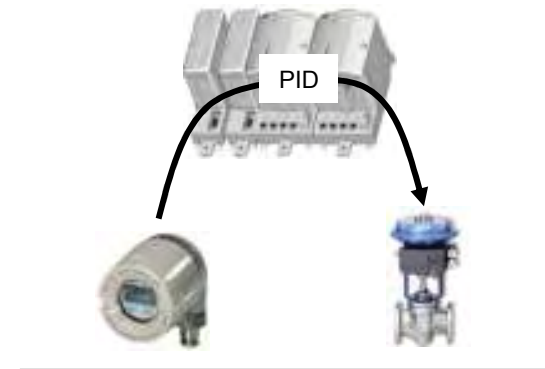


PROFI<sup>®</sup>  
PROCESS FIELD BUS  
BUS



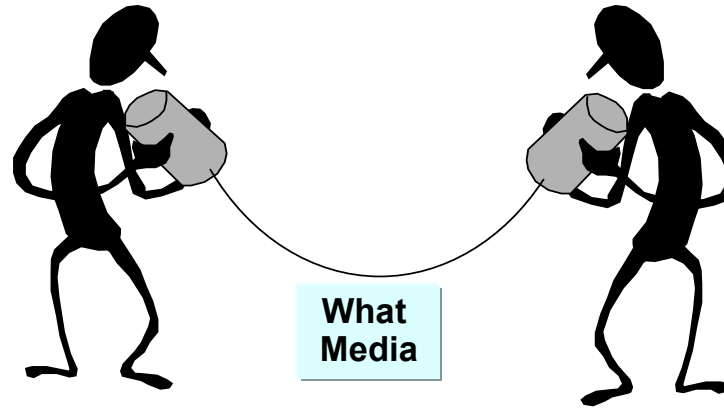
# Profibus for process introduction

- Measurement and Control devices
  - Pressure – Temperature – Flow – Positioners – Drives....
- Loop execution times ~ 250msec
  - Not high speed
- Use in hazardous areas
  - Simple low cost installation
- Power over the Bus
  - Reduce costs
- Remote access
  - Asset Management
- International standards (Profibus)
  - Reduce costs



# Profibus protocol

- Procedure
- Code of behaviour
- Set of rules



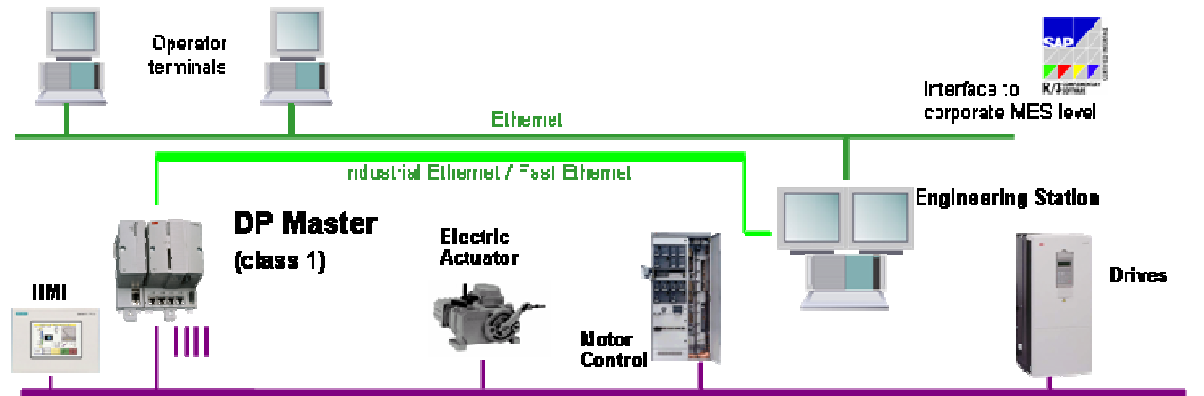
Yes! It is about half past nine@\*!

Language



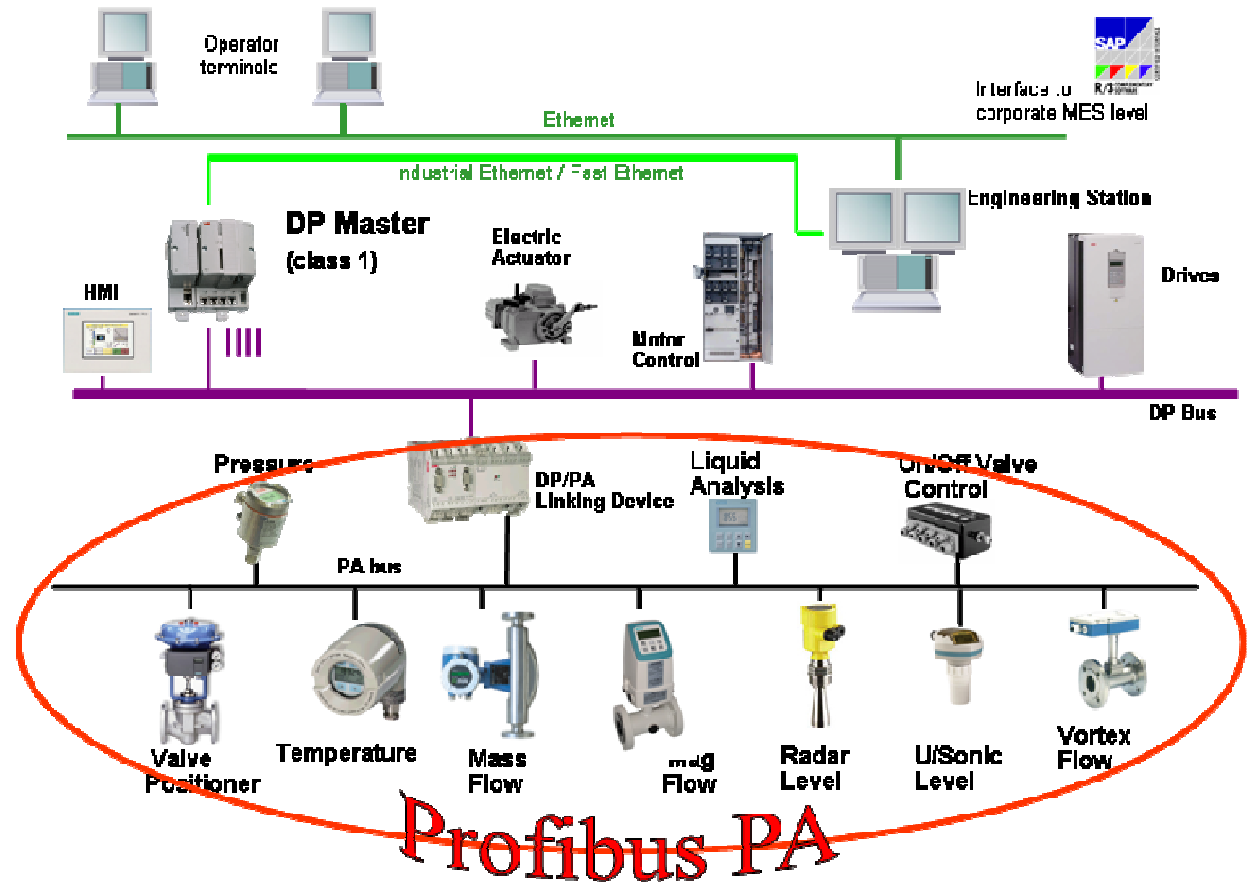
# Profibus DP

- Profibus is the protocol used for communication
  - Media
  - Who talks and when
  - Language
- Profibus DP
  - Copper, Fibre optic
  - PLC level (controls the network access)
  - Complex externally powered devices
  - High data throughput
- Factory Automation applications

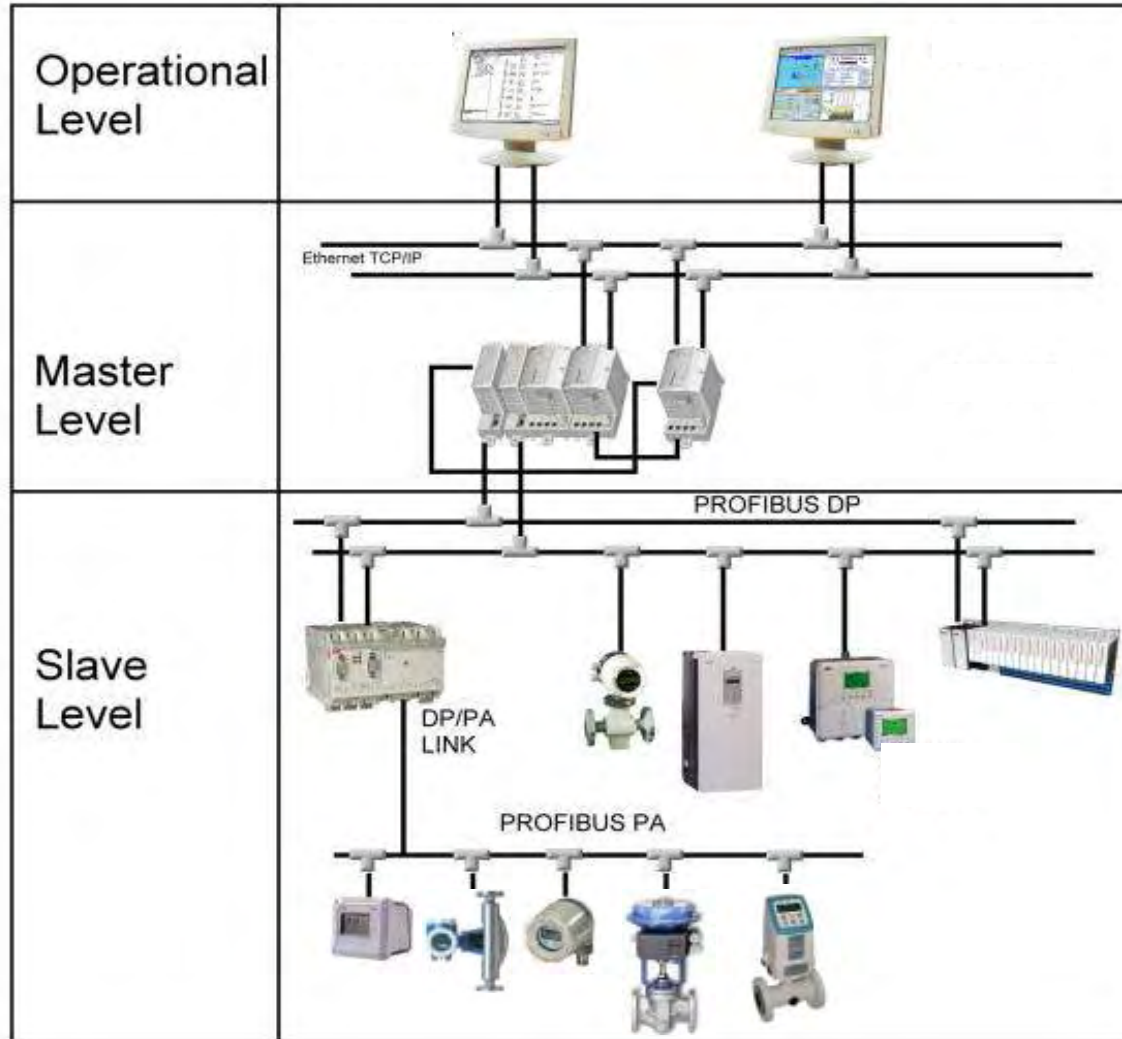


# Profibus PA

- Profibus is the protocol used for communication
  - DP and PA use the same language
- PA
  - Copper only
  - Instrument level
  - Power over the bus
  - Designed for use in hazardous areas
  - Added remote access for asset management
- Process automation applications



# PROFIBUS DP - PA

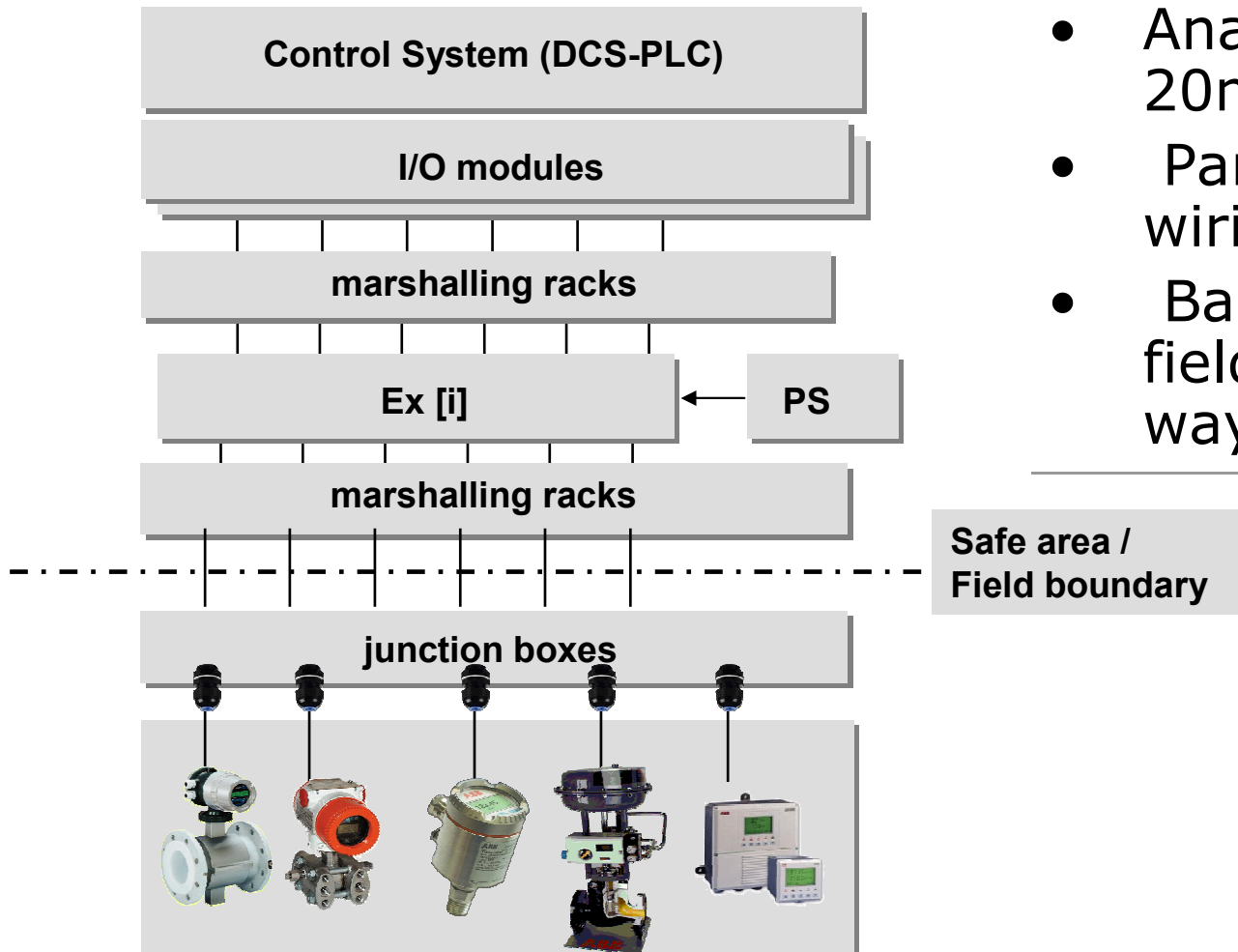


PLC's – Controllers  
Need GSD file

High speed – Externally powered  
Slaves

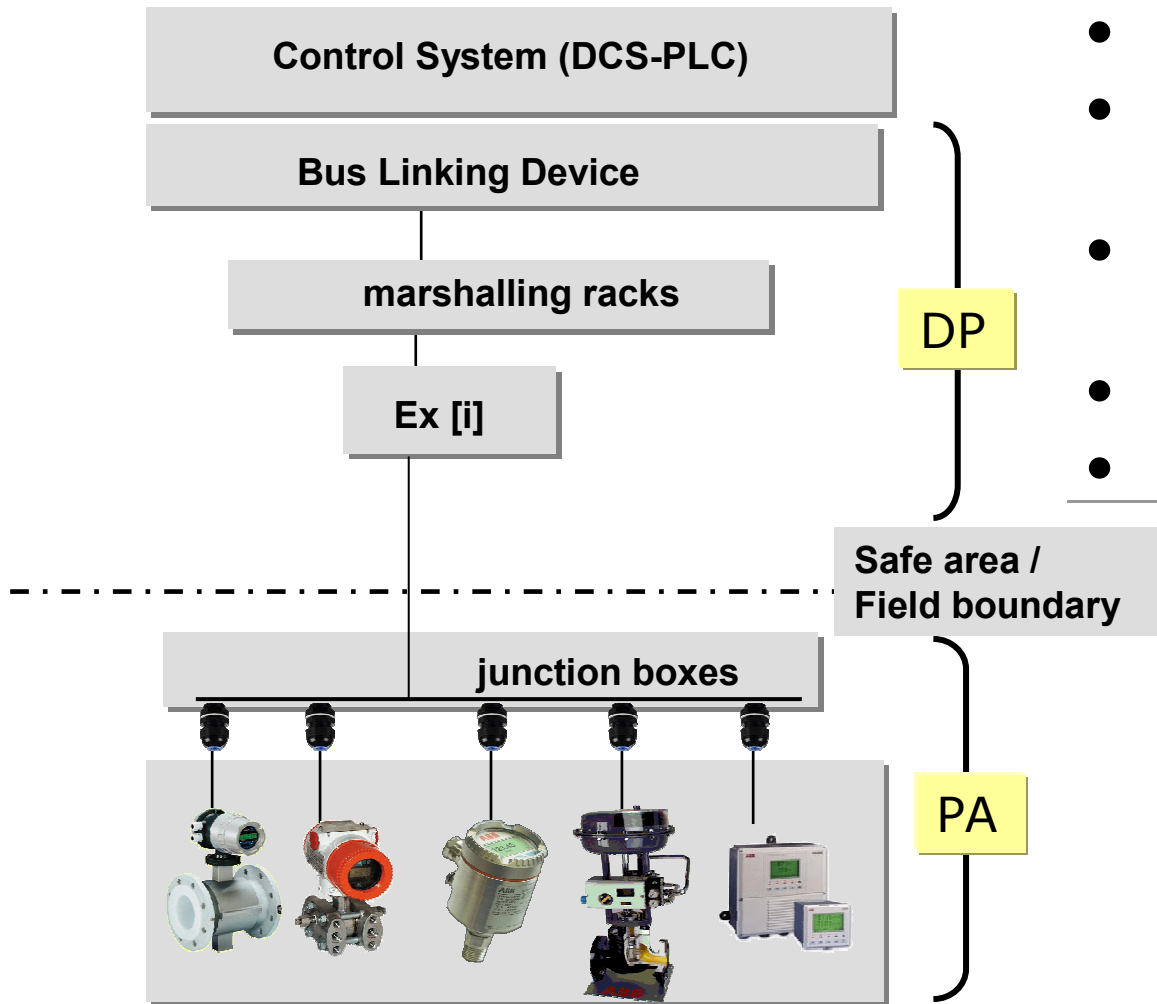
Loop powered Slaves

# Why PA - Compare to traditional



- Analogue transmission 4-20mA
- Parallel equipment and wiring
- Basic Functionality for field devices with one way communication.

# PA equivalent



- Digital only transmission
- Multidrop Instrument connection
- Enhanced device functionality
- PA to DP Linking Device
- EX solution (fieldbarrier)

# CapEx savings

## Cost and weight saving calculation

Example area: 100 x 100 meter area with 250 I/O

### Traditional multicore installation

20 core screened multicore cable:

420 gram/meter £3/meter

20 lengths x 50 meters = 1km = **420 kg = £???**

Marshalling / **=Approx 3,000 Terminations**

### Profibus installation

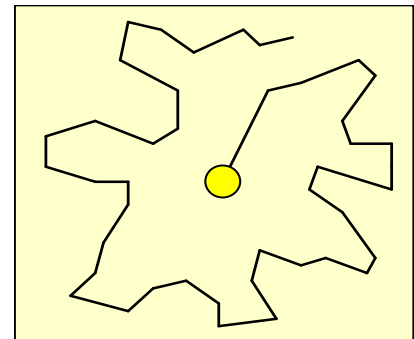
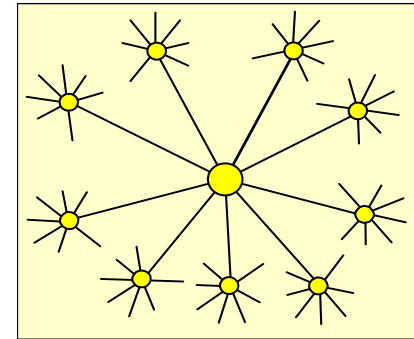
2 core screened twisted pair

42 gram/meter £1/meter

Approx 500 meters of 2 core = **19kg = £?**

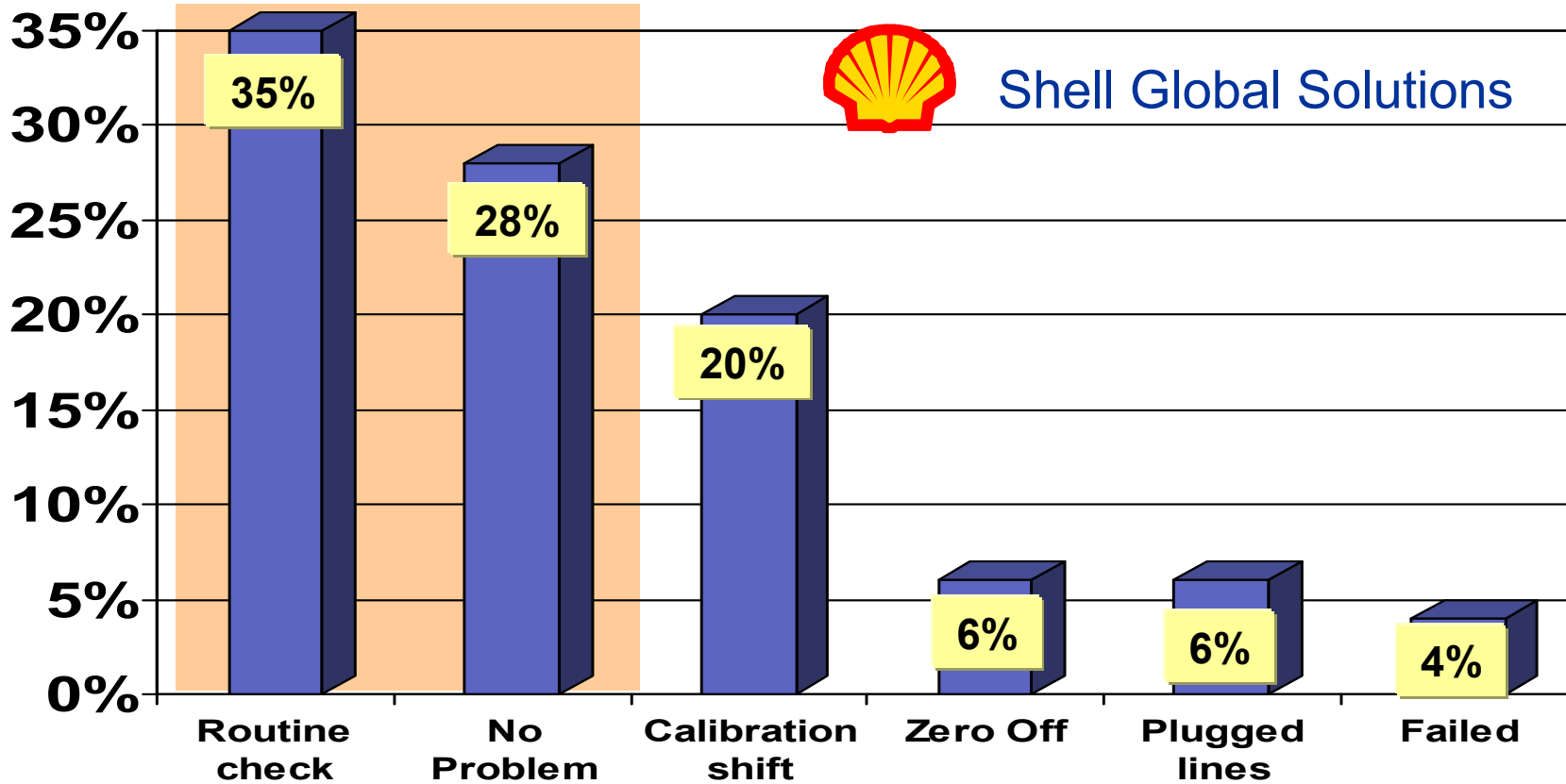
No marshalling racks / min junction boxes /

min cable tra **=Approx 500 Terminations 6x less**



# OpEx savings

## Potential for Predictive Maintenance with pressure transmitters



**63% of instrument maintenance labor results in no action taken -> waste of resources**

# Profibus DP and PA

- Connection of Measurement and Control devices to host systems
- Profibus DP and PA use the same language
- Profibus PA provides power over the bus and guidelines for use in hazardous areas
  - Reduces costs
- Remote access allows for condition monitoring and asset management

# Agenda

## 10:00 Introduction

Mark McCormick

## 10:10 PROFIBUS for Process Introduction

Gareth Johnston

## 10:30 Profibus components (Connectors – Linking devices – Hazardous areas)

Mark Cargill

## 11:10 Coffee

## 11:30 Project design and management

Tony Grassby – E&H

## 12:10 Commissioning a PROFIBUS segment

Mark McCormick

## 12:50 Lunch

## 13:50 PROFIBUS maintenance and fault finding - Demonstration

Andy Verwer – MMU

Steve Dickinson – P&F

## 14:30 Remote access to diagnostic information - Demonstration

Andy Smith – E&H

## 15:10 Diagnostic drill down to CMMS – Demonstration

Gareth Johnston – ABB

Ian Stevens - ABB

## 15:50 Summary and Questions - Close

Gareth Johnston – ABB



**Power and productivity  
for a better world™**