Kuwait 4th Flow Measurement Technology Conference
3-5 December 2019
Hilton Kuwait Resort
MAX GUTBERLET
GLOBAL GAS GROWTH MANAGER
HONEYWELL
MOVING TO TRUE PREDICTIVE MAINTENANCE FOR ULTRASONIC METERS
STATE OF THE MEASUREMENT NATION

- CONDITION BASED MAINTENANCE
- LIMITED TO SINGLE MANUFACTURER
- OR MULTI MANUFACTURER AND LIMITED DEPTH
- UNCERTAINTY CALCULATION WITH STATIC VALUES
- STATION LEVEL ANALYSIS
THIS DOES NOT MEAN CBM IS STUPID

RULE 1:
COMPARE GAIN CURVES OVER FLOW RATE

RULE 2:
TRACK PERFORMANCE LEVEL OVER TIME

RULE 3:
MAP PROFILE vs SYMISTRY and Cross-flow

RULE 4:
TRACK SPEED OF SOUND OVER TIME

SOURCE: CBM at SHELL UK, Steve Peterson, Shell, 2019
Honeywell Measurement IQ for Gas

- Multi Manufacturer Support
- Multi Device Type Support
- Line Uncertainty Support
- Mobile and Central Monitoring
- ISO17089-1 & BS7965 Compliant
- Scalability
SO YOU HAVE CBM NOW...

... SO WHAT?
MOVING FROM CBM TO PREDICTIVE (1)

A. THE METERING SKID
   TT, PT, USM, GC, FC

B. CONNECTED AND SECURE DATA GATEWAY
   Edge Device, VPN Tunnel

C. IDENTIFY & DIAGNOSE METERING ISSUES
   [AVAILABLE FROM ANYWHERE]

D. MOBILE APP.
   [FASTER AND EASIER]

E. DETAILED DIAGNOSTICS AND CONFIGURATION
   [HONEYWELL SERVICES SME]

WEB BASED CONNECTED METERING CONSOLE

Customer's Metering Technicians

Edge Device
VPN Tunnel

Level 1 Summary

Level 2 Insight

Level 3 Trending

Customer's Metering Technicians

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MOVING FROM CBM TO PREDICTIVE (2)

A. THE METERING SKID
   - TT
   - PT
   - USM
   - GC
   - FC

B. CONNECTED AND SECURE DATA GATEWAY
   - Edge Device with ML Model
   - VPN Tunnel

C. IDENTIFY & DIAGNOSE METERING ISSUES
   [AVAILABLE FROM ANYWHERE]
   - Measurement IQ for gas

D. HONEYWELL FORGE MACHINE LEARNING
   [CLOUD BASED DIGITAL TWIN]
   - Windows Azure
   - MACHINE LEARNING

E. DETAILED DIAGNOSTICS AND CONFIGURATION
   [HONEYWELL SERVICES SME]
   - SME
   - Web Based Connected Metering Console
   - Customer’s Metering Technicians

FIELD DATA

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OUR REQUEST TO YOU

WE HAVE A MOUNTAIN OF MEASUREMENT DATA

WE HAVE VERY LITTLE ROOT CAUSE ANALYSIS

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WHAT WE COVERED

- Condition Based Maintenance is improving
  - Multi manufacturer
  - Multi devices
- But the core question remains … what to do?
  - Build a model in the cloud
  - Requires not only measurement data but root cause intelligence
  - Run the model locally on site
- Work with Honeywell – and get first results in 2020
THANK YOU