

# GE

# Monitoring Solutions

# Alternative Energy

Donald S. Doan

Principal Engineer

GE Intelligent Platforms

GE INTELLIGENT  
PLATFORMS  
JUST GOT  
SMARTER

smart**signal.**

GE acquires SmartSignal ▶



imagination at work

AND, SMARTSIGNAL  
JUST GOT  
**MORE**  
INTELLIGENT



GE Appliances

GE Aviation

GE Energy

GE Healthcare

GE Lighting

GE Capital

GE Oil & Gas

GE Intelligent Platforms

GE Transportation



# Drive Innovation

How much energy will my wind farms generate tomorrow?

How can I improve fleet performance by 25%?

What assets should be included in our next outage?

**What if...**  
We could solve your toughest problem?

## Smart Grid

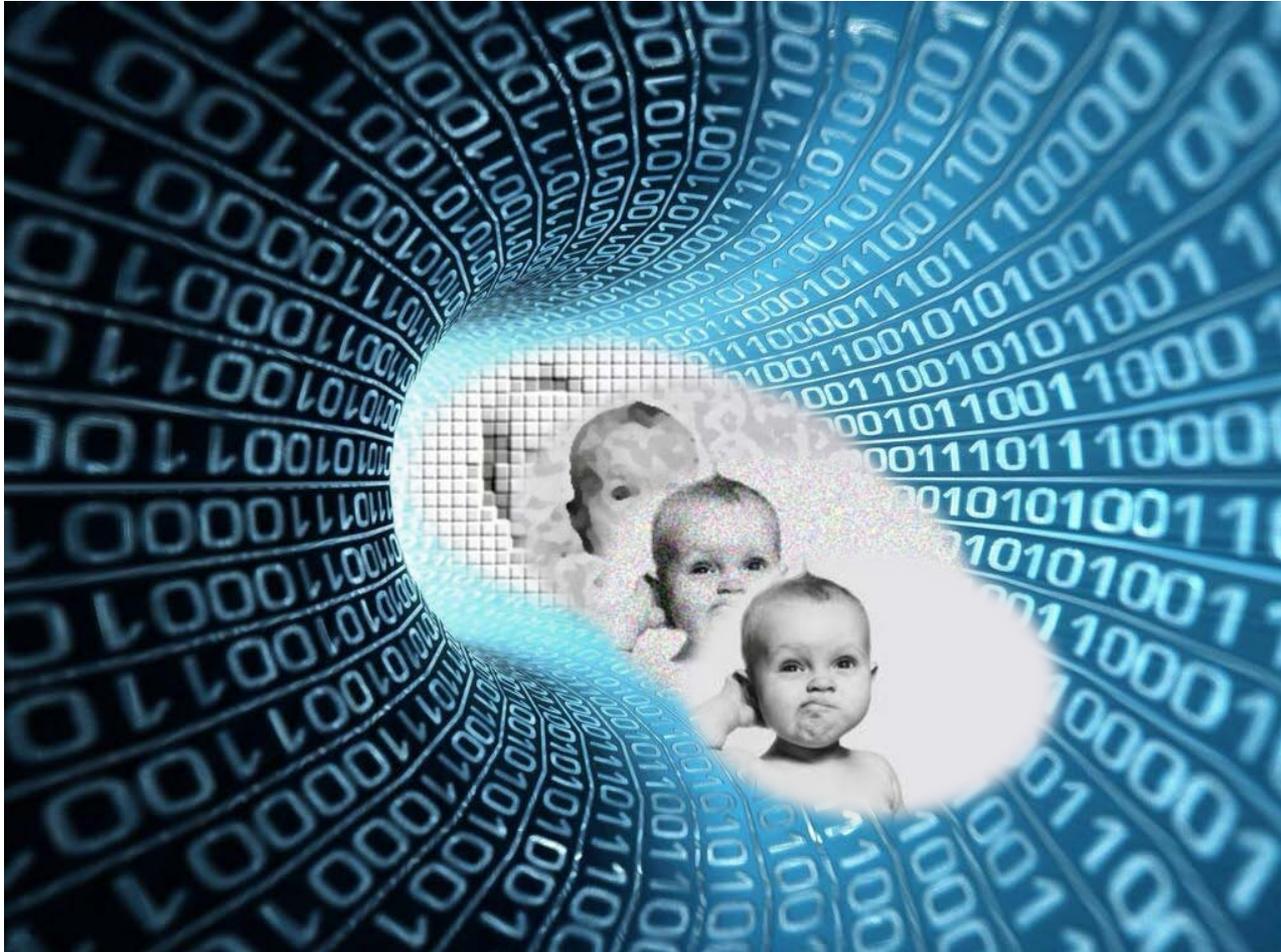
GE has developed real, smart grid solutions to address the planet's energy infrastructure needs and create an integrated, sustainable solution capable of handling power challenges for the next 100 years. Smart grid solutions improve performance; they are real and running. Intelligence and control improvements result in better ways to manage energy usage and control costs.

We are building a re-imagined power grid with: Real. Smart. Solutions.

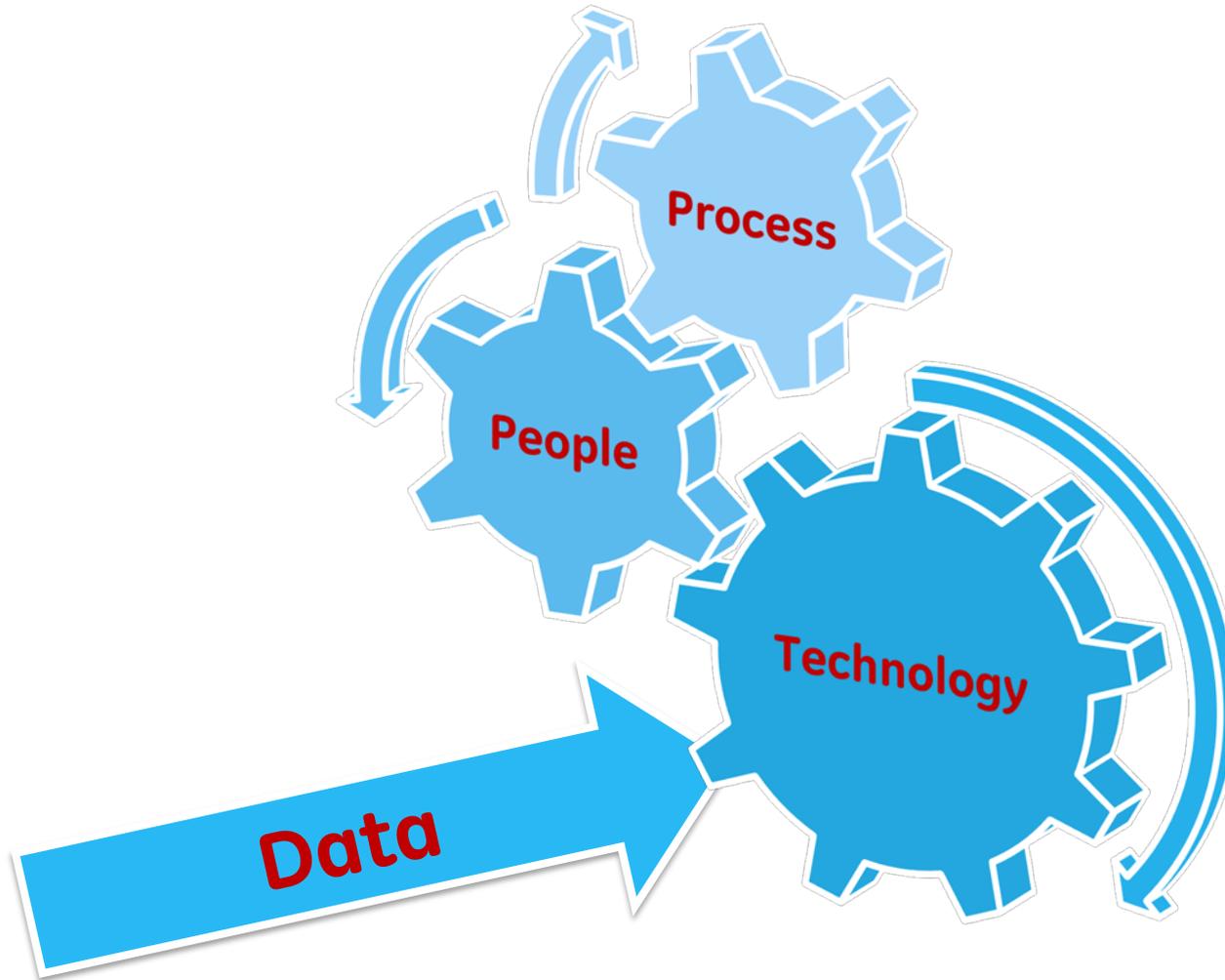


imagination at work

# How Does Data Make Us Smart?



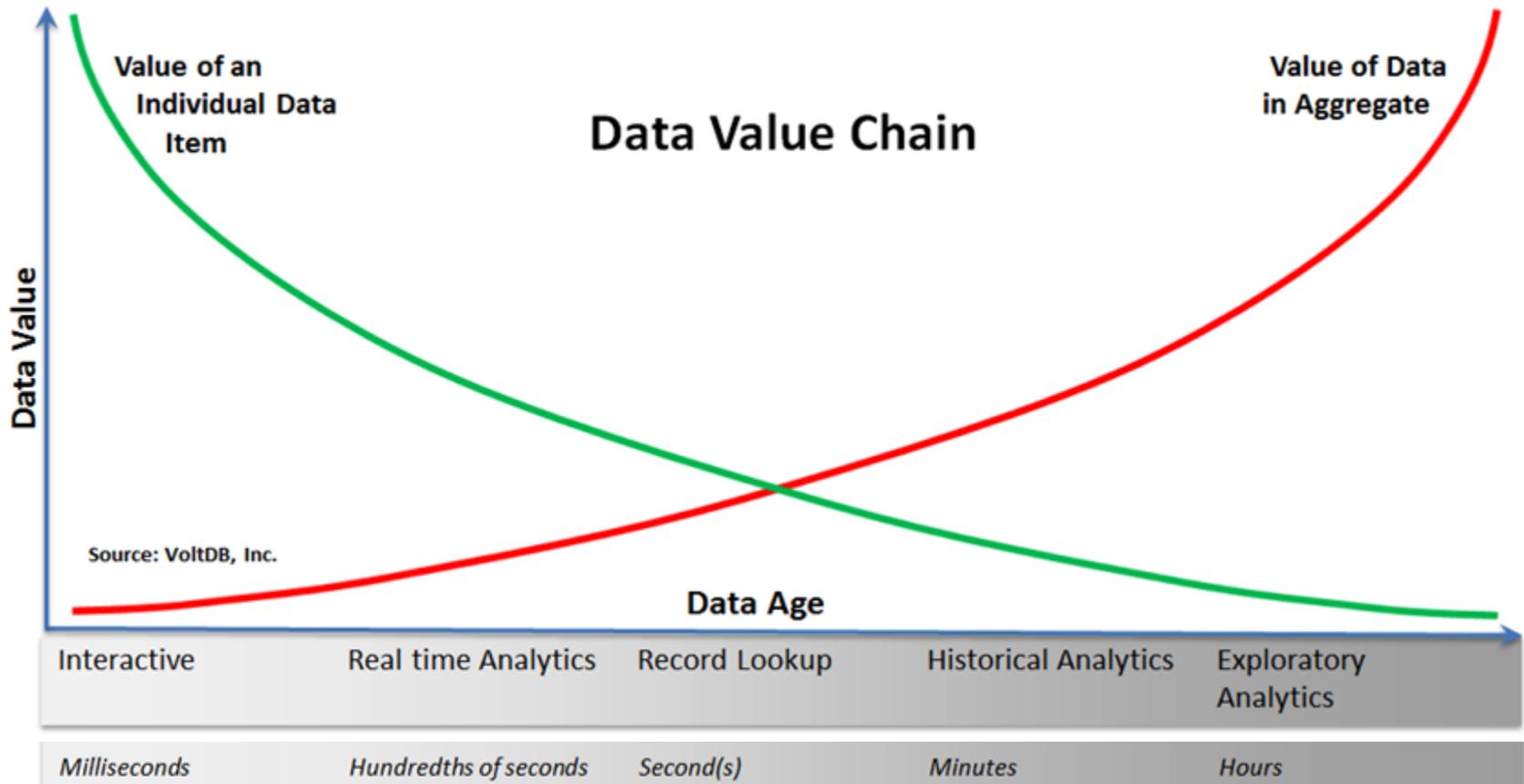
# What do we need?



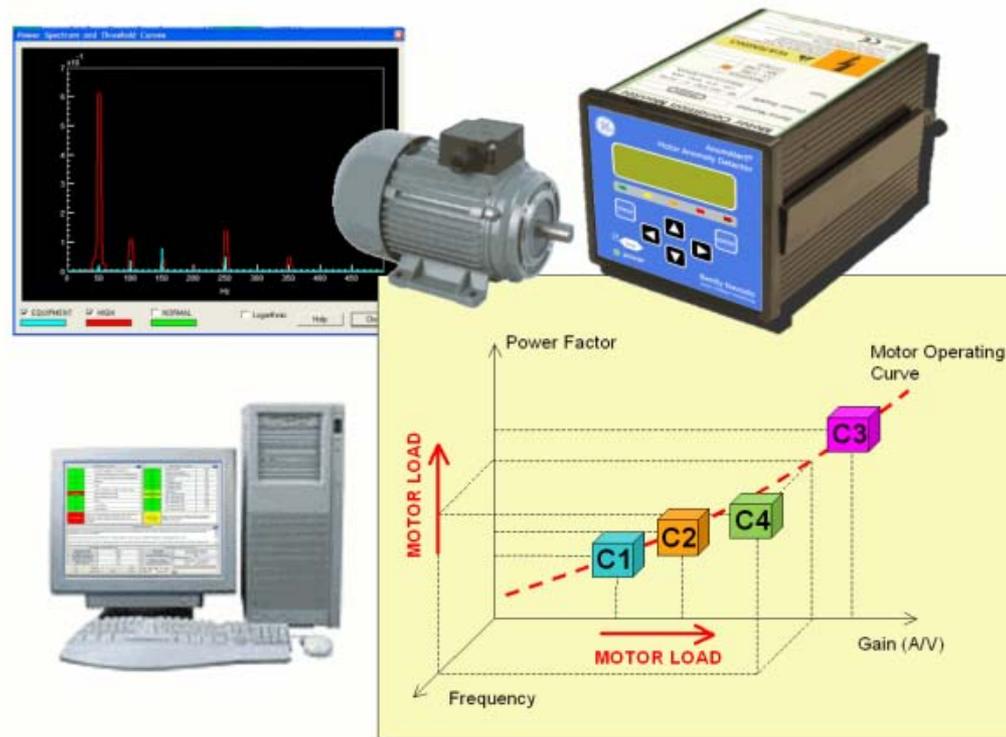
# How do we get there?

- **Technology**
  - Predictive Analytics
  - ADAPT
  - AnomAlert
  - Data Historian
- **People**
  - Remote Monitoring and Diagnostics
  - Engineering Services
  - Routine Services
  - Upgrades
- **Process**
  - Integrate GE's technology through Workflow into your processes.

# How do we get there



# Beyond SCADA – Electrical Current Analysis



# Increasing resolution – Gearbox monitoring



# All that data / SCADA/Motor/Gearbox what to do?

## Predictive Diagnostics

*Adding Value to your Data*

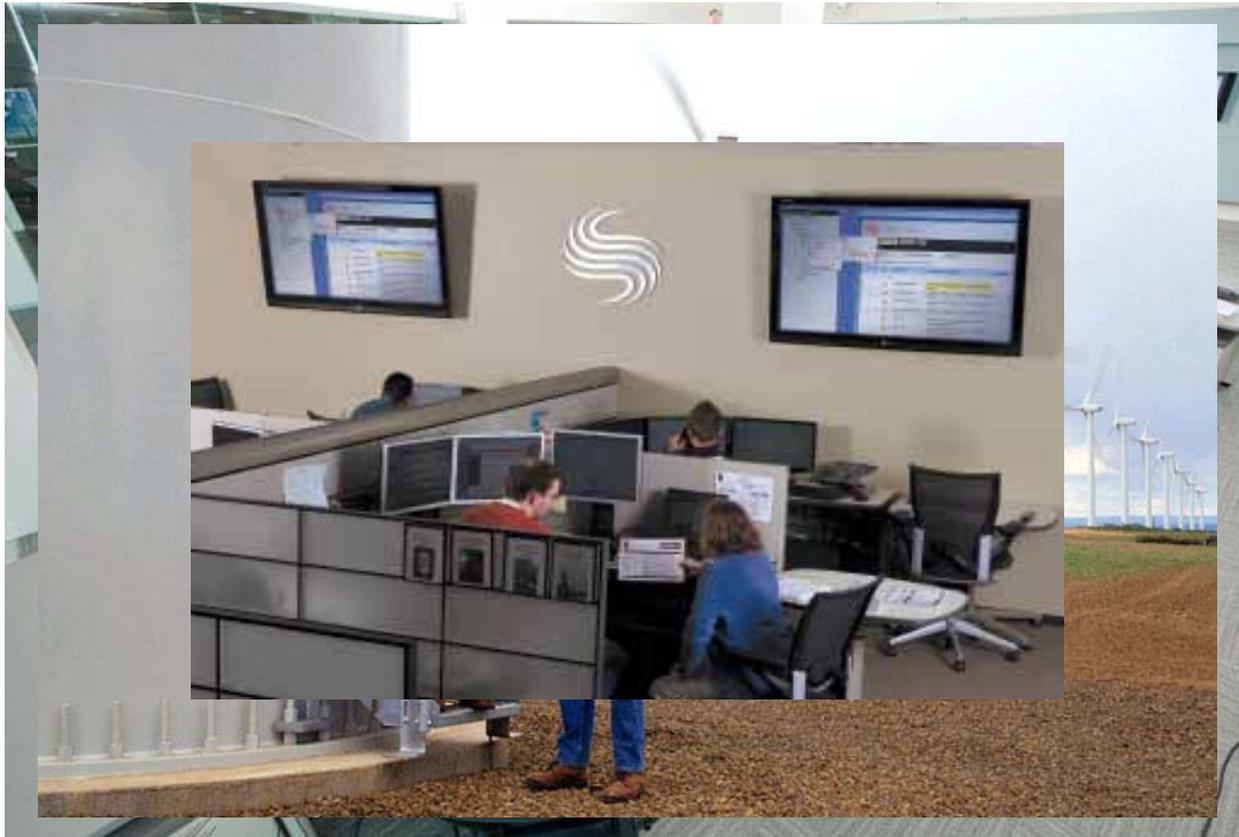
The screenshot displays a software interface for predictive diagnostics. On the left is a 'Hierarchy Explorer' tree with a 'Main Advisory View' and 'Hello, Don' greeting. The central area features several charts: a large chart for '(BRG\_1\_VIB\_1X\_ORBIT\_ELLIPTICITY\_RATIO\_SSC) - BRG\_1\_VIB\_1X\_ORBIT\_ELLIPTICITY\_RATIO\_SSC, Case 1 DE Bearing Vib 1X Orbit Ellipticity Ratio, ,', and smaller charts for '(BRG\_1\_VIB\_HOR\_1X\_PHASE\_UNWRAPPED) - BRG\_1\_VIB\_HOR\_1X\_PHASE\_UNWRAPPED' and '(BRG\_1\_VIB\_VER\_1X\_PHASE\_UNWRAPPED) - BRG\_1\_VIB\_VER\_1X\_PHASE\_UNWRAPPED'. On the right, a data table is visible with columns for values and an 'Update' button.

Value 1	Value 2
33.47	1,595
34.87	4,397
53.07	9,380
19.40	176
02.03	8
23.73	192

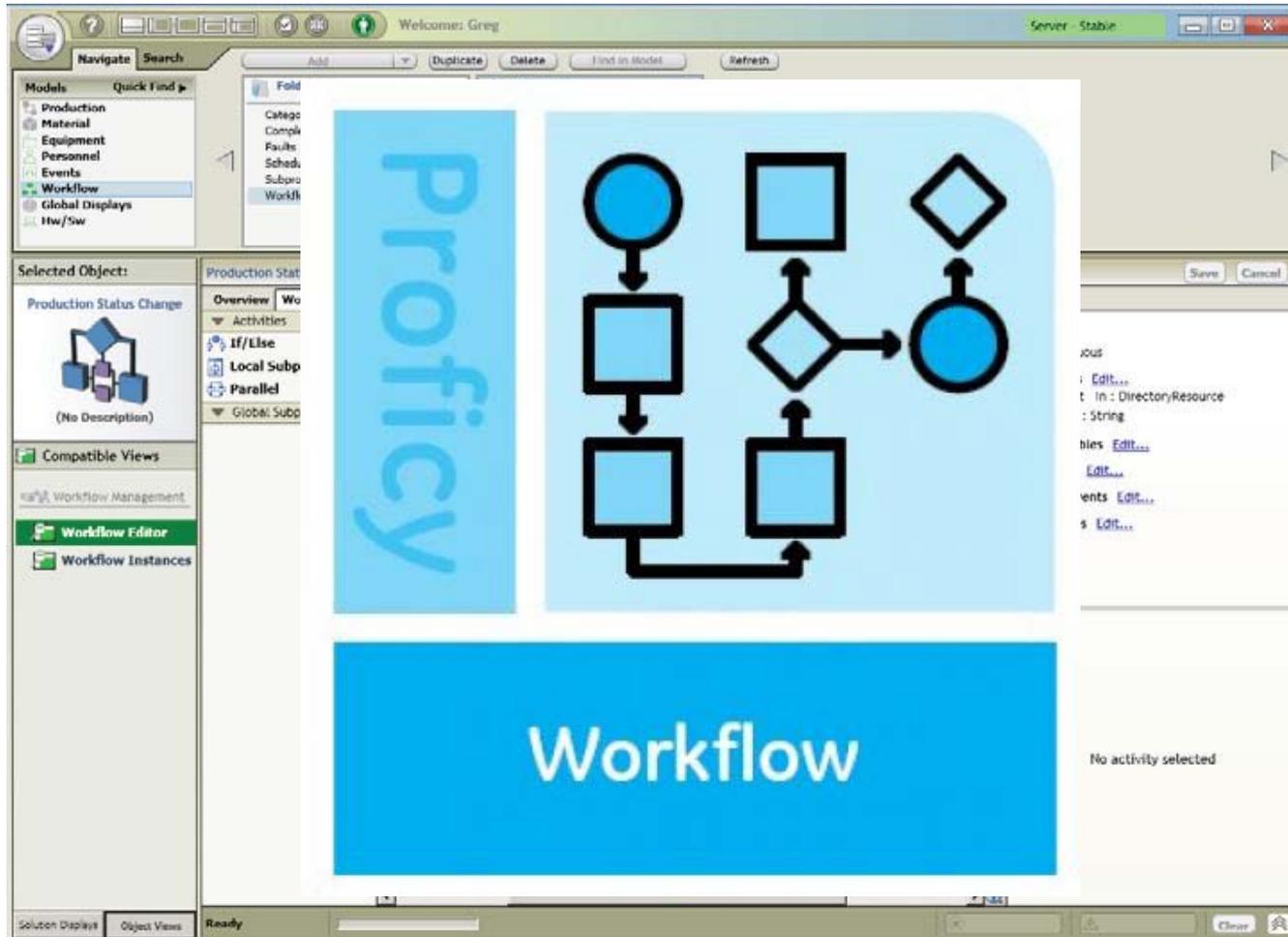
Protec

analysis

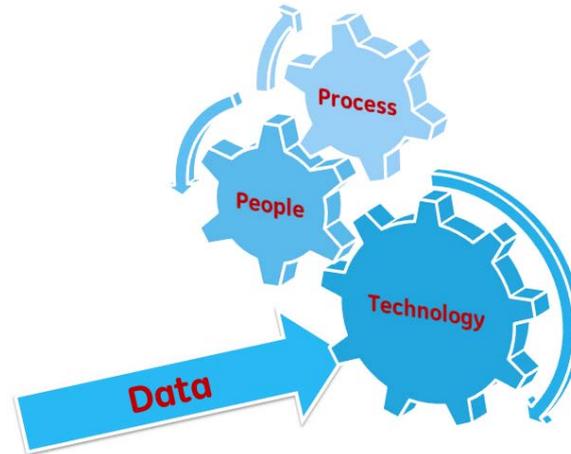
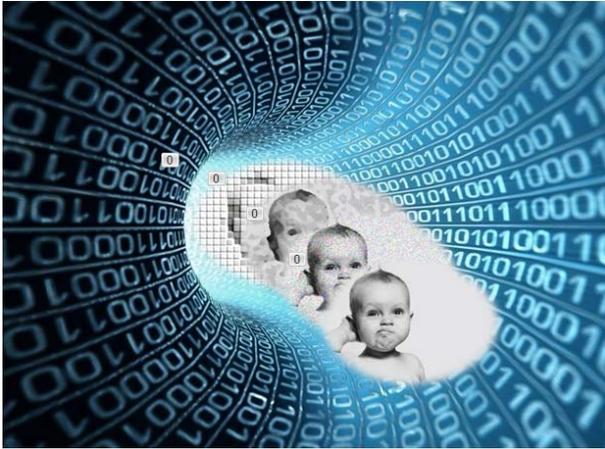
# The People: Remote Operations & Maintenance Package



# The process that ties it together







- Technology
  - Predictive Analytics
  - ADAPT
  - AnomAlert
  - Data Historian
- People
  - Remote Monitoring and Diagnostics
  - Engineering Services
  - Routine Services
  - Upgrades
- Process
  - Integrate GE's technology through Workflow into your processes.





imagination at work