# Implementation of the Energy Management Information System (EMIS)

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# About ArcelorMittal

ArcelorMittal is the world's leading steel and mining company, with some 232,000 employees in more than 60 countries. ArcelorMittal leads in all major global steel markets, including automotive, construction, household appliances and packaging, with strong R&D and technology, as well as sizable captive supplies of raw materials and outstanding distribution networks.

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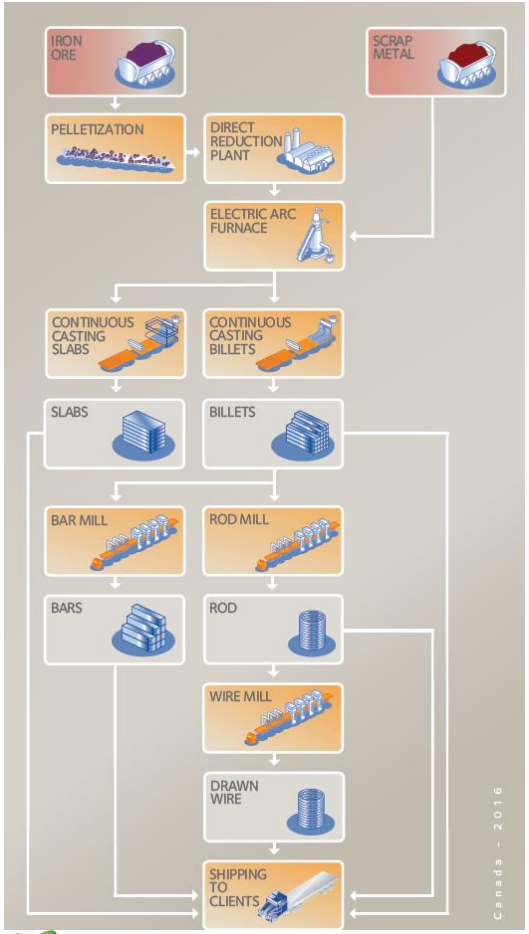



## ArcelorMittal
## Long Products Canada

Most important Canadian company in iron ore mining and processing.

Over 1,700 employees.

2 million tons of steel per year.

Iron ore is processed 6 to 11 times before it is finally used.

From ships to skyscrapers steel is truly the fabric of life

Steel for round Edge Automotive Leaf Springs (REALS) →

Concrete Reinforcing Bar (Rebar) →

Special and Merchant Bar Quality (SBQ & MBQ) →

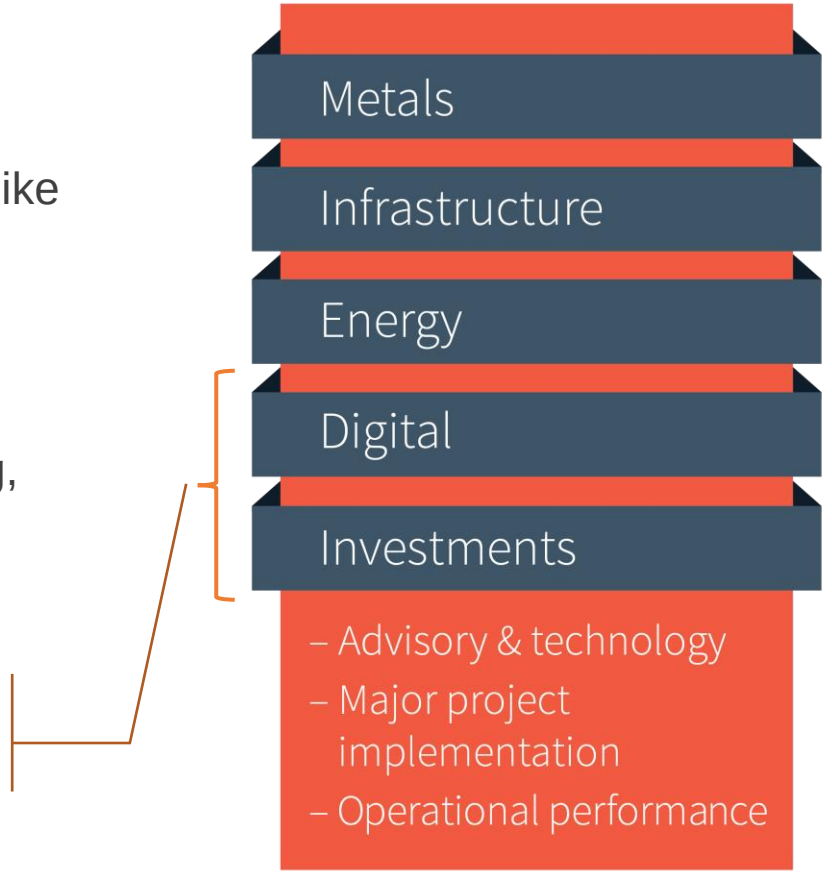
Wire Rod →

Drawn Wire →

# What is Hatch?

- Employee-owned; partners who think like owners
- In business for 6 decades
- Projects in more than 150 countries
- We are well known for our engineering, and have deep roots in technology development and innovation.

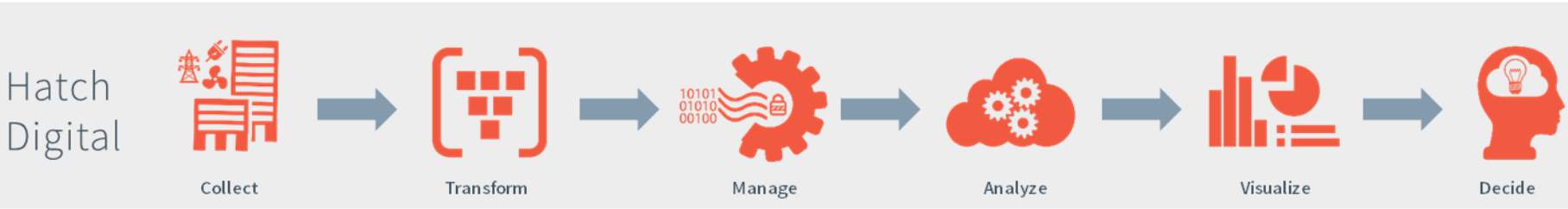
- Two additional sectors



# What is Hatch Digital?

- Combine our deep understanding of our clients' technologies,  business and operational processes

- Helping transform the metals, energy and infrastructure industries, by solving previously intractable challenges, with Advanced Digital Solutions



# Our Business Challenge

## Lack of Energy Management

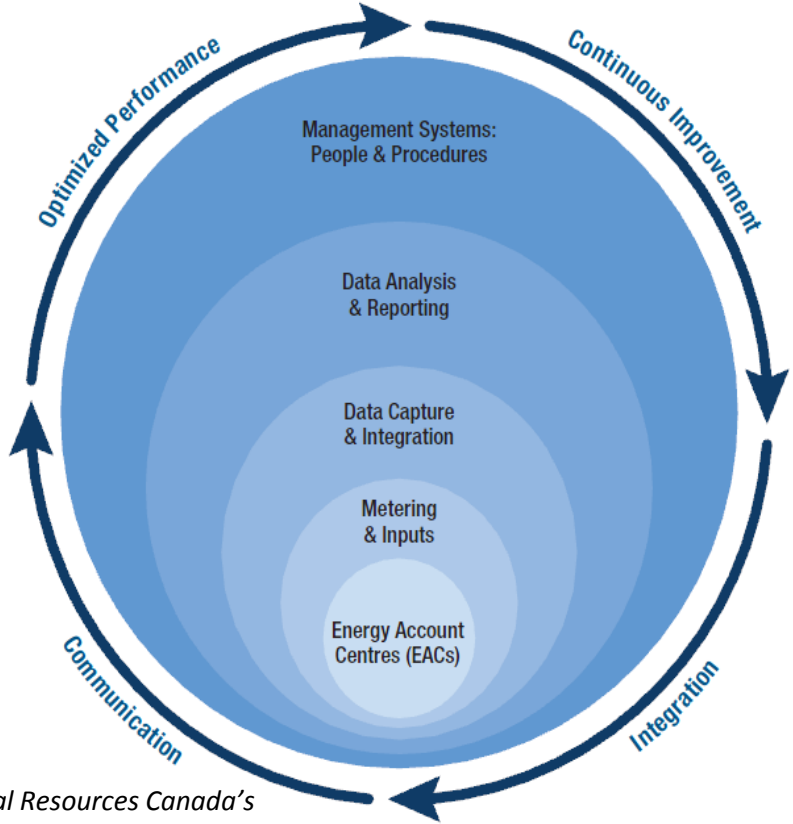
High costs in Gas and Electricity Consumptions
Insufficient knowledge of

# The Solution- EMIS

- A Performance Management tool to
  - Visualize and help understand the consumption of various types of energy and the associated cost
  - Identify and help justify opportunities and capital projects for energy reduction
  - Monitor the impact of energy projects on energy consumption and cost

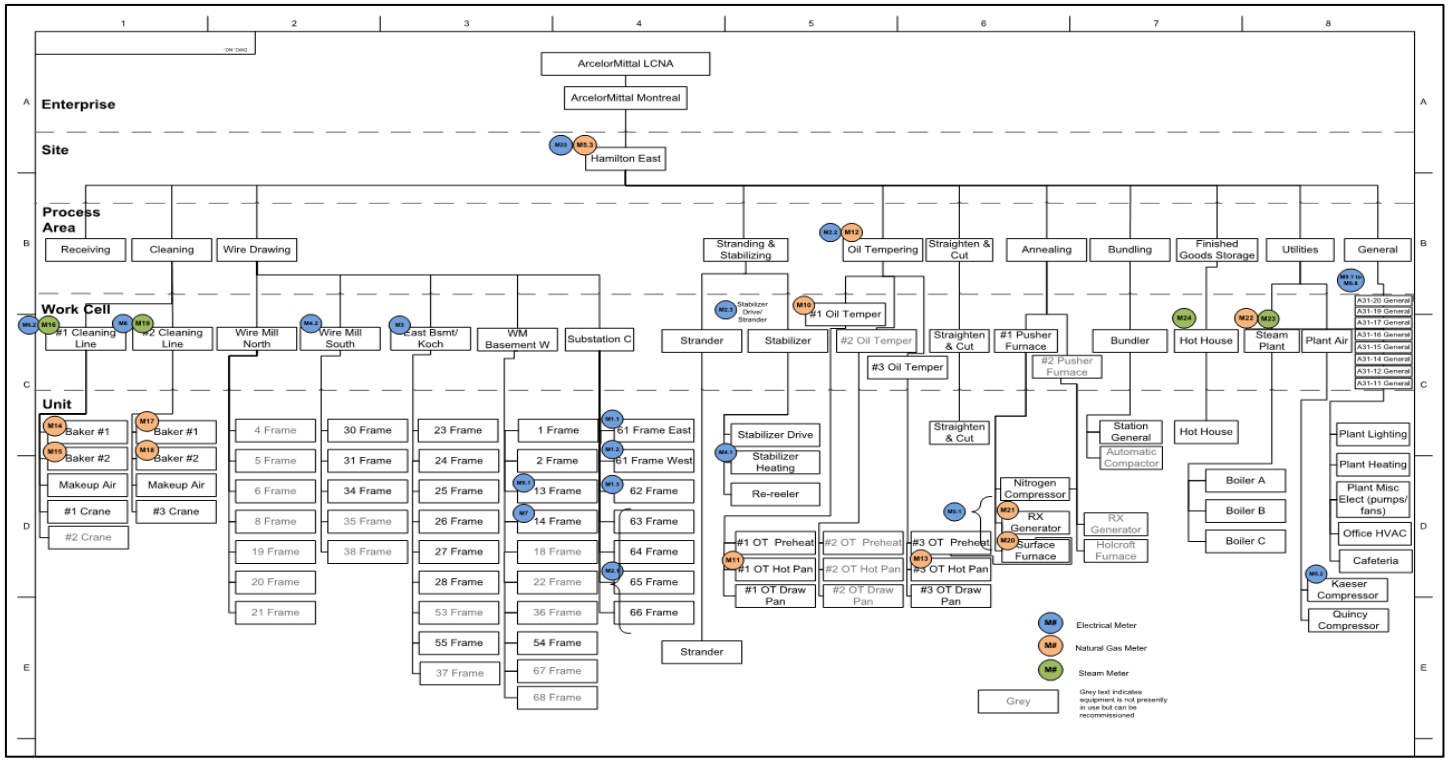
# Components of an EMIS

- Energy Account Centers
- Meters and Inputs
- Data Capture and Integration
- Data Analysis and Reporting
- Management Systems and Practices



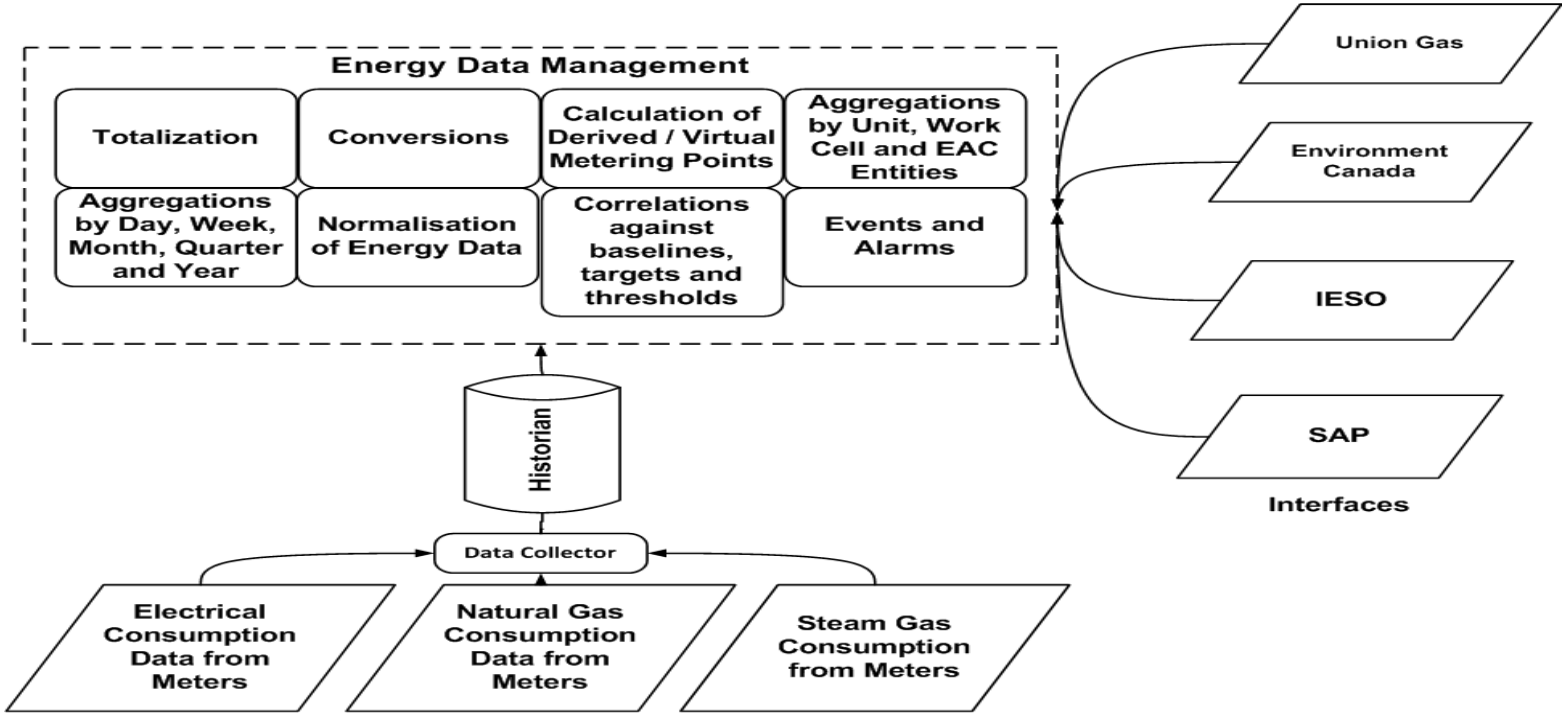

*Source: Natural Resources Canada's "Energy Management Information Systems Planning Manual and Tool"*

# Energy Account Centers (EACs) and Metering

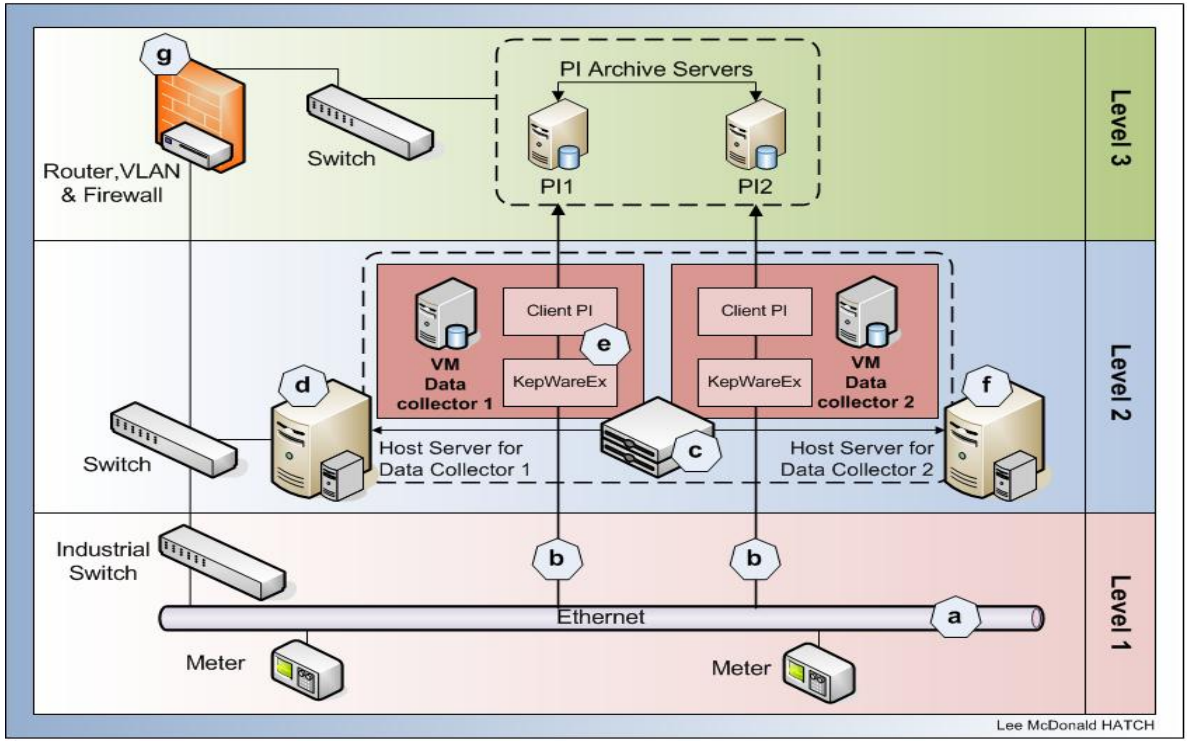



- Cleaning
- Wire Drawing
- Stranding & Stabilizing
- Oil Tempering
- Straighten & Cut
- Annealing
- Bundling
- Finished Goods Storage
- Electrical General
- Natural Gas Unaccounted

# Data Capture and Data Analysis



# EMIS Architecture



# Implementation of EMIS

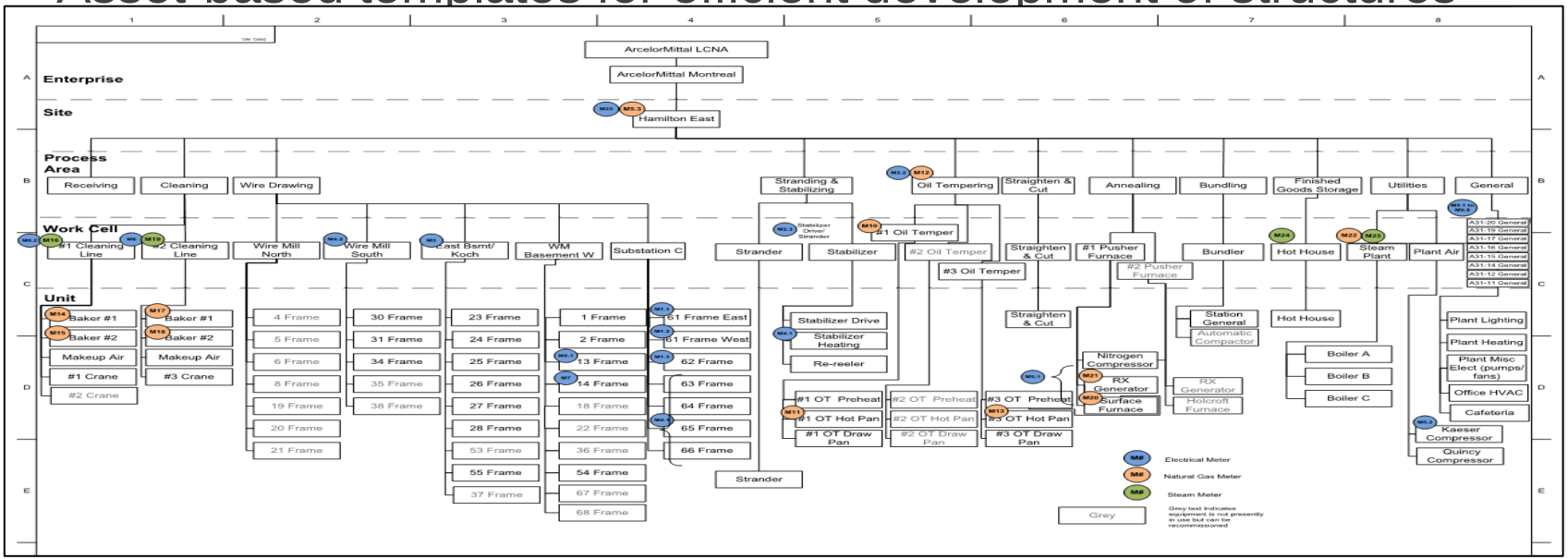
- OSIsoft PI was identified as the platform for:
  - Capturing and historizing all metering data
  - Provide hierarchical organization for EACs and meters
  - Perform analysis/calculations/conversions for metering data

# Implementation of EMIS

- Ekhosoft (Third Party OSIsoft partner) was identified as the platform
  - Interface with external data sources (Environment Canada, Union Gas)
  - Dynamic visualization of energy consumption, energy conservation measures (ECMs), etc.
  - Energy Reports

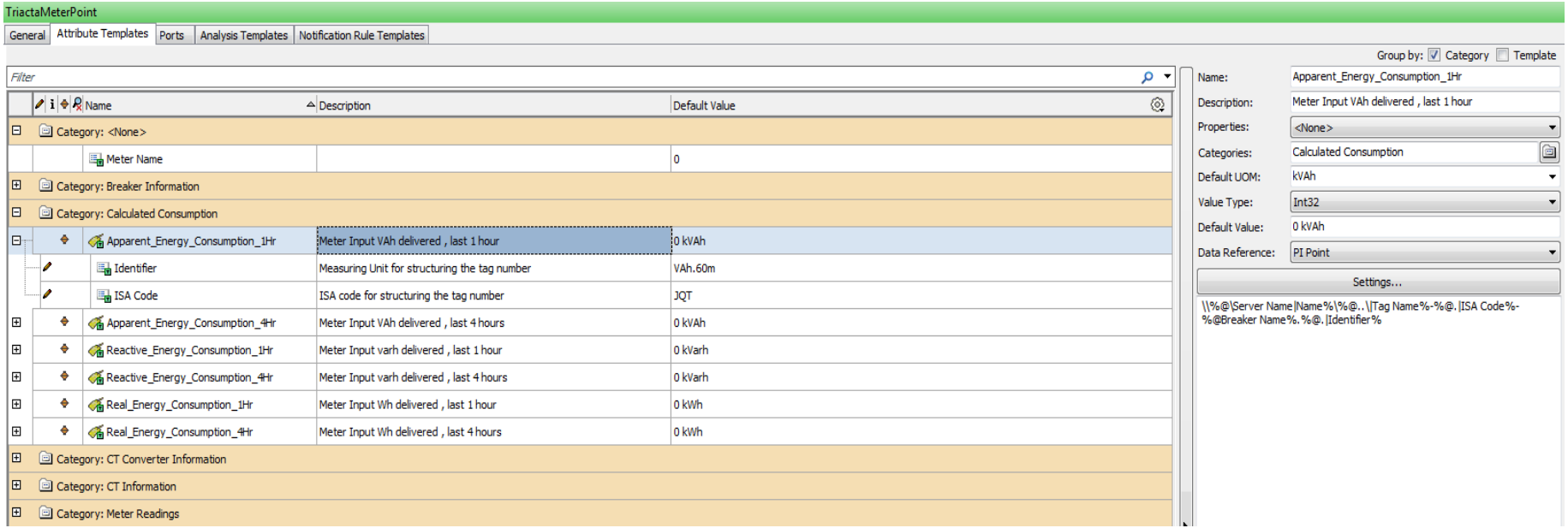
# The Merits of PI AF in the EMIS Implementation

- Asset-based templates for efficient development of structures



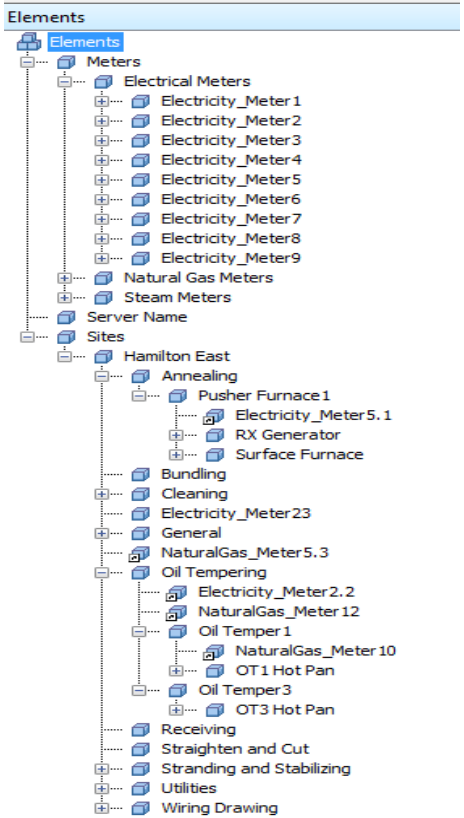
# The Merits of PI AF in the EMIS Implementation

- Dynamics reference to PI Tags (cutting development time)



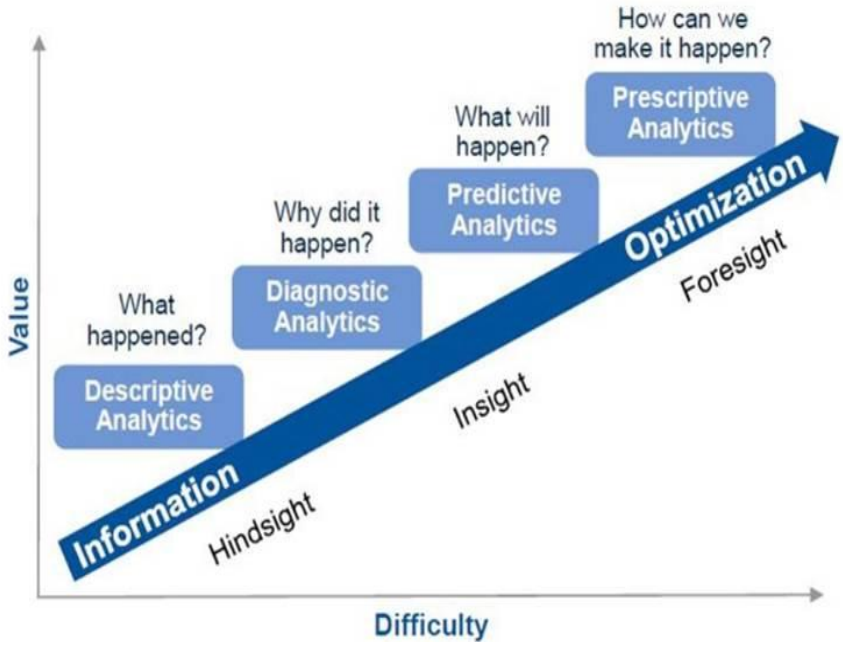
# The Merits of PI AF in the EMIS Implementation

- Various views/hierarchies for asset representation for various groups
  - Asset hierarchy - organizing assets by their type and functionality
  - Process hierarchy – organizing assets (references) according to their association with the process area
  - Additional hierarchies can be added – foundation for the implementation of other initiatives (for instance: Condition-based Maintenance)



# Future Opportunities

- Integration of EMIS with Machine Learning and Analytics platforms;
  - Advanced statistical data analysis
  - Pattern recognition and predictive analytics



# PI-AF for Energy Management Information System

ArcelorMittal

**ArcelorMittal Long Product Canada**

Want to know if all the energy getting in its Wire Plant is efficiently used

## CHALLENGE

Understanding how different forms of energy are consumed (where, when, why and how)

- Connect right data sources to get required data
- Having the right data to under the consumption
- Organize data in the right context

## SOLUTION

Integrated Energy Management Information system

- Collect and historize all energy data into one system
- Develop template-based calculations and analytics
- Visualize consumption of different forms of energy using third Party vendor

## RESULTS

Opportunities for energy saving and improvements

- Better knowledge of energy consumption
- Identify opportunities and initiatives for energy conservation
- Set the foundation for further improvements using PI AF

# Questions

Please wait for the **microphone** before asking your questions

State your **name & company**

# Please remember to…

Complete the Online Survey for this session

# Contact Information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Merci

谢谢

Danke

Спасибо

Gracias

# Thank You

감사합니다

ありがとう

Grazie

Obrigado

Optional: Click to add a takeaway you wish the audience to leave with.