OSIsoft.

USERS CONFERENCE 2014

The Power of Data

DECISION READY IN REAL-TIME

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AGENDA-***"Thoughts on Paper"*: Forest Products - Pulp and Paper- Morning.**

- 9:30 AM: ***Introductions and Welcome –*** Jim Black OSIsoft LLC. Industry Principal Forest Products Industry

- 9:30 –10:15: ***Keynote: Fire Side Chat with the CIO of Evergreen Packaging-*** *"Why Evergreen Packaging moved to an Enterprise Agreement with OSIsoft."* (45 min.)

- 10:15-10:45: ***PI then…PI NOW- From Historian to Enabling the Enterprise in Real Time*** –Jim Black, will review how the PI system has evolved from an historian to enabling decisions across the enterprise…*in real -time.* (30 min.)

- 10:45-11:00: Break

- 11:00- 11:30: ***Advanced Analytics- Use Cases Spanning the Value Chain-*** Gopal Gopalkrishnan will showcase the way AF and EF can be used to create data models that support discovery through visualization and analysis. He will demonstrate examples for building decision support models across the value chain: saw mills, advanced analytics in mill operations (sheet break analysis) and operations downstream of the mill; paper converting operations. (30 min.)

- 1130 – 12:00: ***Lofty Ways to Gain New Insights from PI data (it's in the cloud!)*** – Dr. Roger Tembreull from NewPage's mill in Escanaba Michigan will share how the capabilities of PI supported with IP Leanware's "BrainCube" cloud-based analytics improved performance across unit operations affected by the mode of operating brown stock washers. Taking a systemic approach to operating brown stock washers has significantly reduced operating costs 'mill-wide'. IP Leanware is a new partner with OSIsoft and is in the process of migrating their architecture to take advantage of OSIsoft's PI Connected Services; cloud connect offerings. (30 min.)

- **12:00- 1:15 Lunch**

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AGENDA-*"Thoughts on Paper":* Forest Products -Pulp and Paper- Afternoon.

- 1:15 – 1:45: ***From Real Time to Future Time-*** John Hume and Frank Card from Verso Paper in Jay, Maine will share their experiences as a long time EA customer. Recent initiatives include system rationalization and a shift of the value proposition of PI from data in real time into assessing value to data at a future time. As an EA their unbridled access to real time data is reshaping the way mill is using data and these new uses are transforming the way they are running their business. (30 Minutes)

- 1:45-2:15: ***Implementing an Effective Energy Management Program:*** Katherine van Nes, P. Eng, PMP with Hatch Engineering will present 'best practice' examples of how to integrate disparate procedural, physical, and information systems into an effective Energy Management System. She will share examples from work at Ford, Molson's Breweries, Resolute Paper, Kodak, Cascade Paper, Daishowa, and others. By attending this session you will- (1) gain insights on how to approach this type of project, (2) develop an understanding of the potential sources of ROI,and (3) understand how to relate your energy initiatives to the themes of environmental protection and sustainability. (TBD-Substitute Speaker: Mark Collins- President EkhoSoft)

- 2:15-2:30- Break

- 2:30-3:15- ***The Journey Starts with the First Step- Getting Started:*** Martin Bryant, Senior Field Services Engineer, OSIsoft will share how an OSI hosted *AF FASTART* workshop accelerates your ability to address many of the challenges we face in this market. Martin will describe the nature of the workshops- including his experiences in helping early adopters within the pulp and paper industry apply these upgrades to continually improve and 'future proof' the capabilities of their PI systems.

- 3:15-3:45: ***The Roundtable Discussion:*** *What did you learn today? "How Can OSIsoft Help You Align the Capabilities of PI NOW to Address the Challenges Facing this Industry…Today and Tomorrow"* Facilitated by Martin Bryant, Jim Black and Gopal Gopalkrishnan.

- 3:45- 4:00 ***Closing Comments*** = = >

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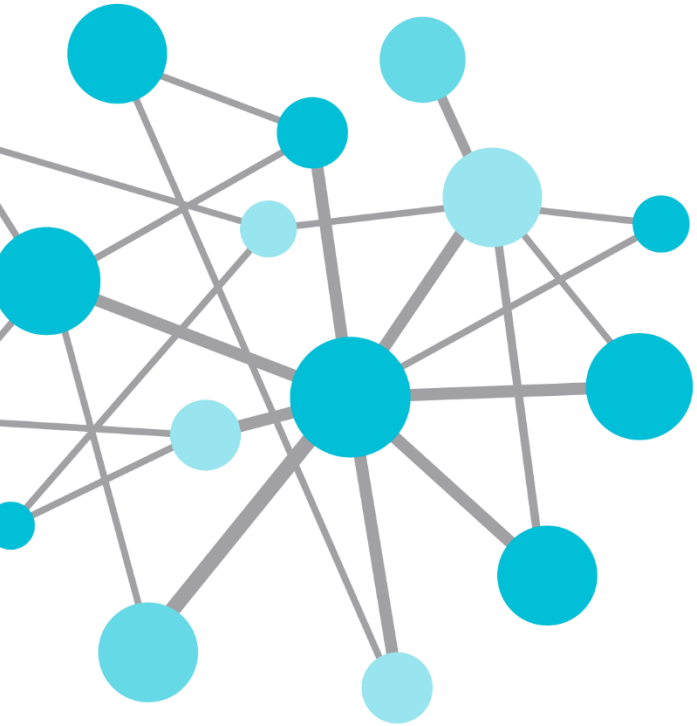

PI then…PI NOW- From Historian to Enabling the Enterprise in Real Time

Presented by

Jim Black, Ph.D.
Industry Principal- Forest Products Sector
OSIsoft, LLC

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Why Enable the Enterprise in Real Time ?

- Move Decisions from Mill-wide to Enterprise-wide
- Manage Assets--> Manage the Value Chain
- The Big Deal about Big Data
- Real time data + events = KPI's about assets!
- Reengineering Data Uses= Profit Improvement
- Think BIG, Start small , start ***NOW***

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PI- The Industry Standard for Decisions Made in Real Time

✓ Rock-Tenn, Verso, Evergreen, KC – Enterprise Accounts

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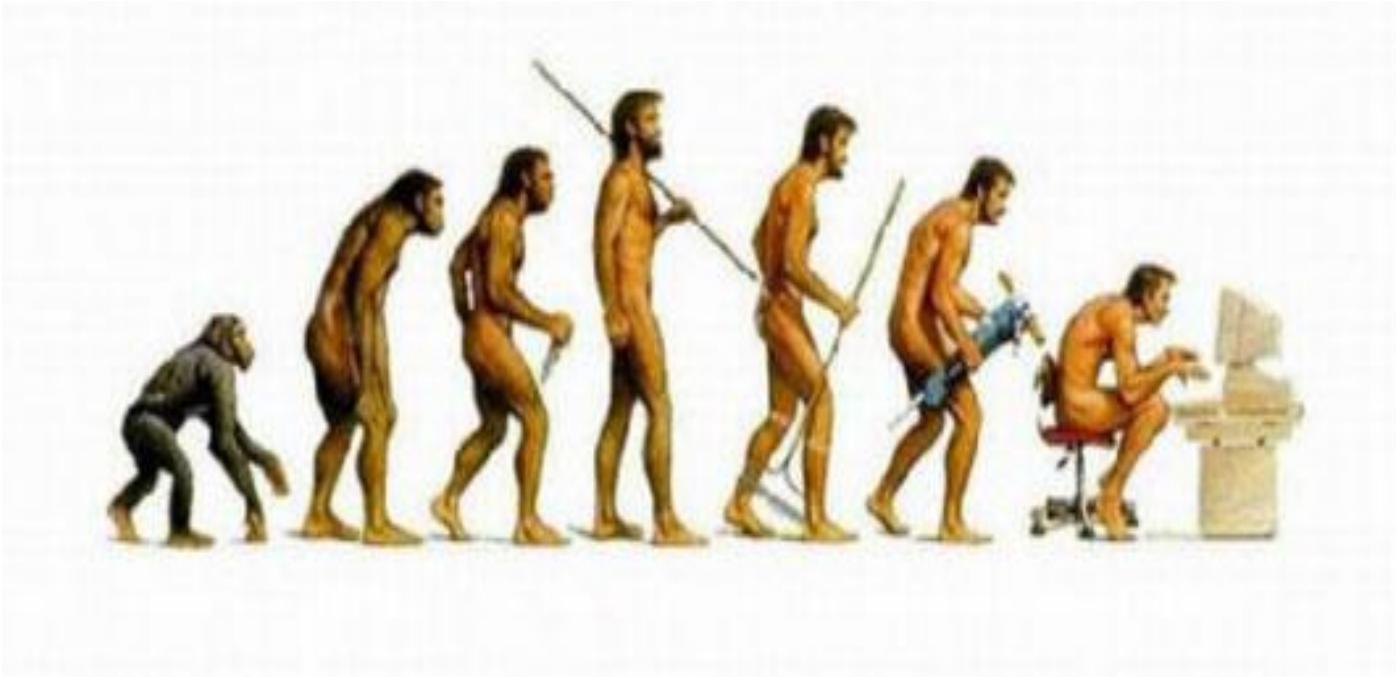
The PI System Evolves Over time



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PI then…

Plant

- Business Unit
- Process
- Machine

Historian

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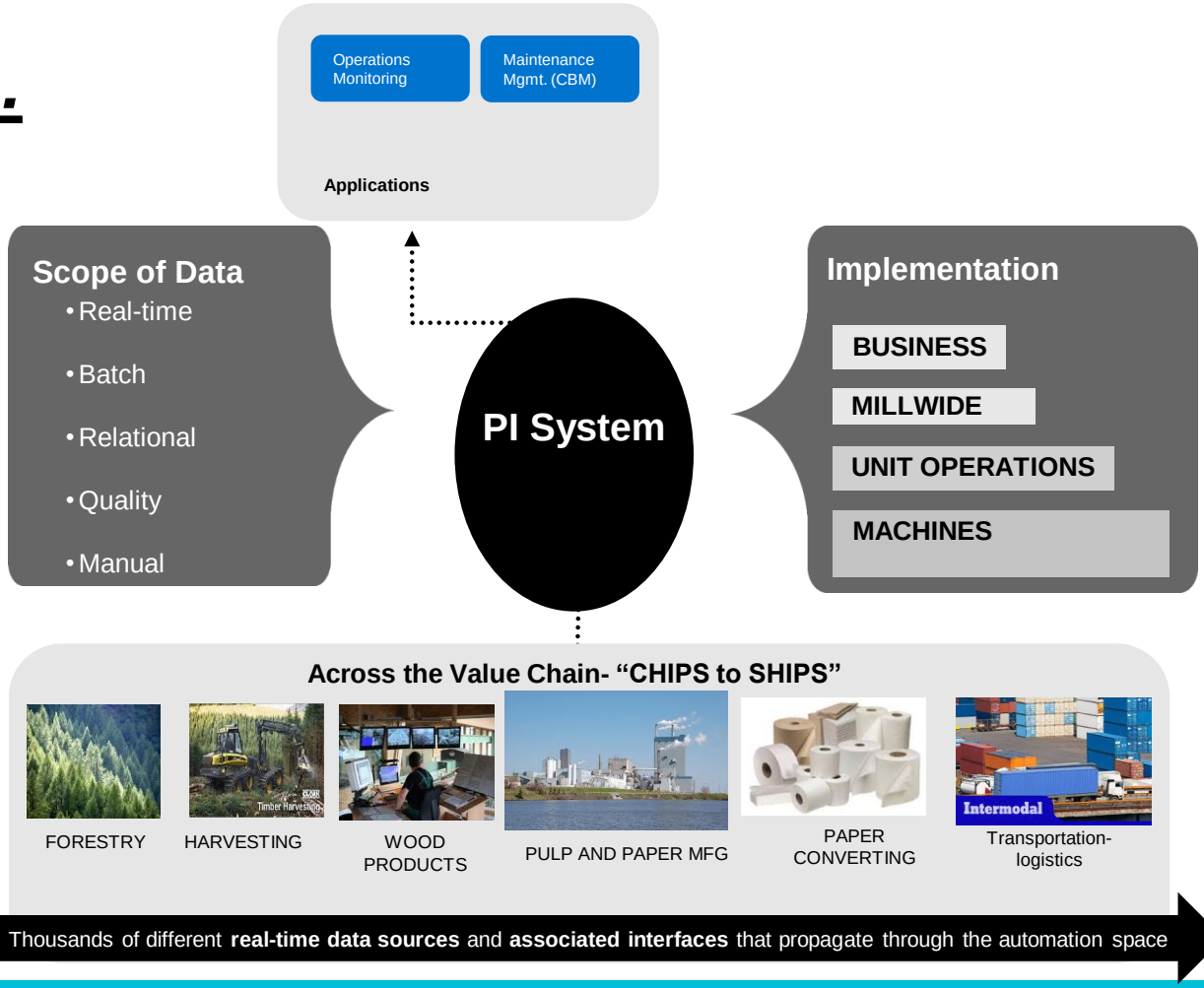
PI then…



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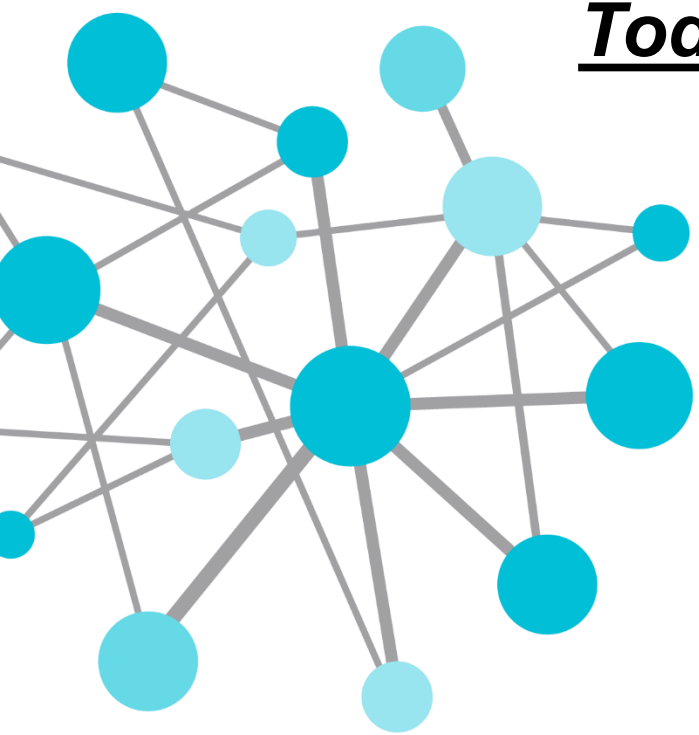

Today's Challenges…

- 'Contextualize' data against assets and events
- 'Visualize' to Discover Relationships
- 'Analyze' in self serve mode
- 'Collaborate' across organizational boundaries

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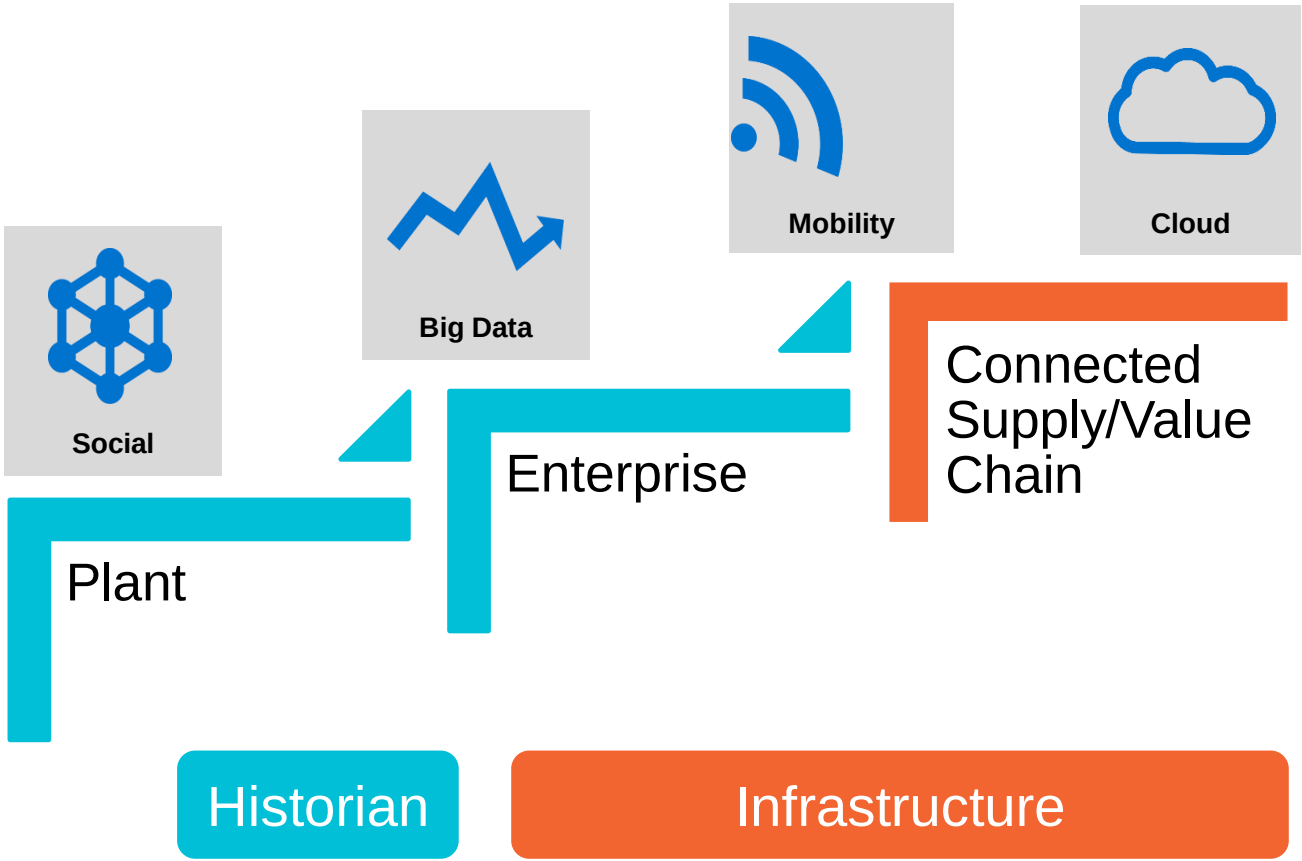
PI NOW…Enabling the Enterprise in Real TIME…



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PI NOW…

Operations Monitoring | Maintenance Mgmt. (CBM) | Energy Mgmt. | Asset Optimization

Applications

SAP, salesforce, ORACLE

ERP-Business Process

Microsoft, COGNOS, sas

Individual/Organizational Analytics & Visualization, Collaboration

Scope of data

- Real-time
- Batch
- Relational
- Quality
- Manual
- Structure/Asset
- Web
- Applications
- Maintenance
- Relevant ERP

PI System

Implementation

- SUPPLY CHAIN
- ENTERPRISE
- REGION
- TERRITORY
- PLANT
- UNIT
- MACHINE

FORESTRY

HARVESTING

WOOD PRODUCTS

PULP AND PAPER MFG

PAPER CONVERTING

TRANSPORATION-LOGISTICS

Thousands of different **real-time data sources** and **associated interfaces** that propagate through the automation space

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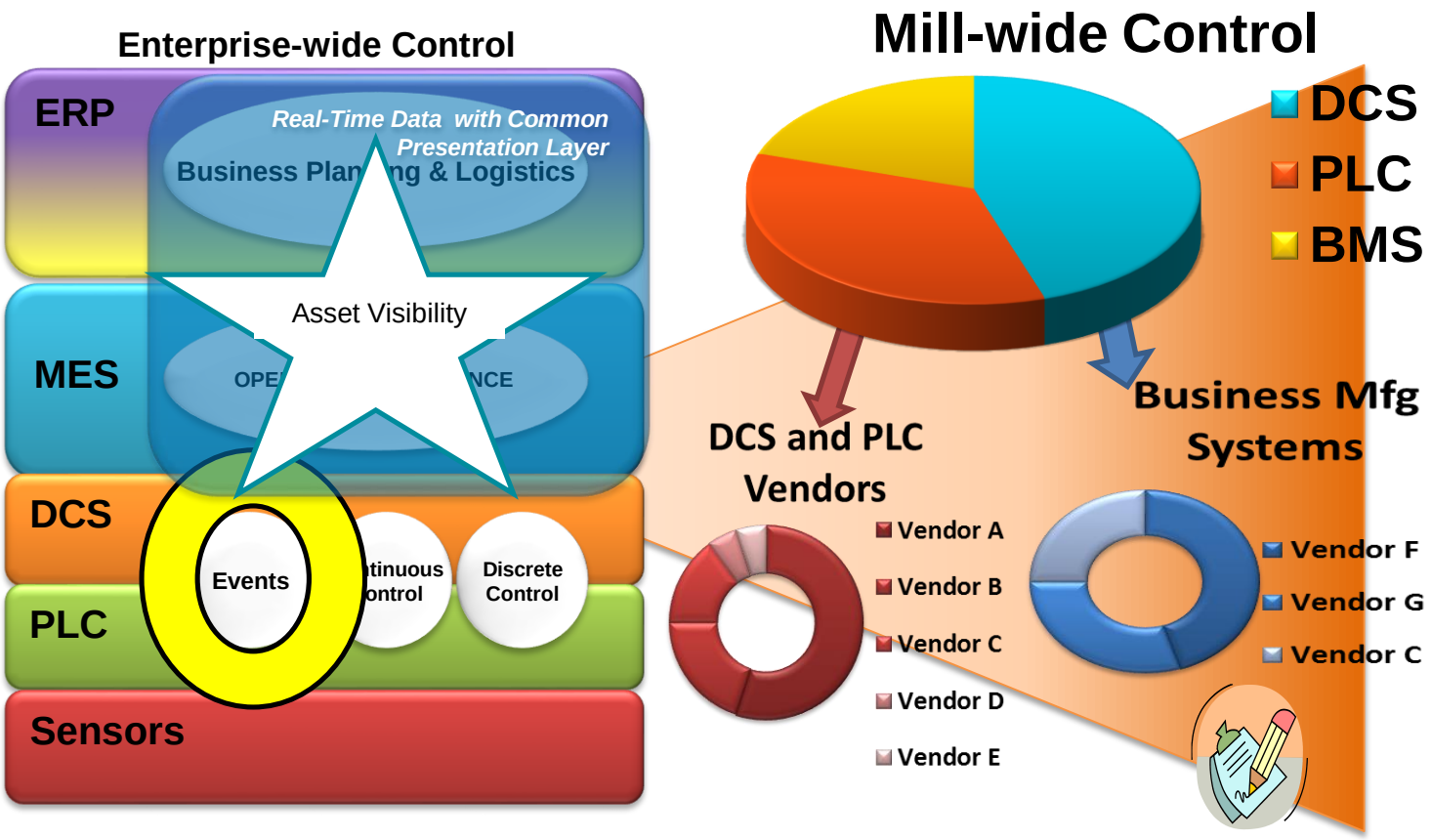
Millwide + Data About Assets + Events Everywhere= 'Enterprise-wide'…



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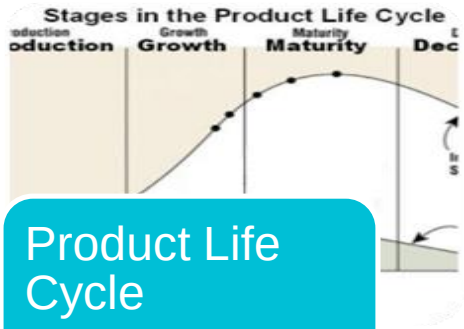
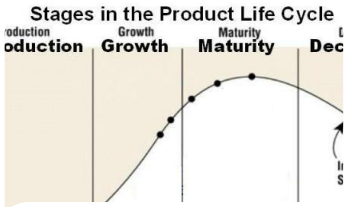
Analysts Infer Our Supply Chains are Obsolete

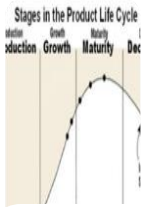


Product Life Cycle

- Reduced 12-46%



Smaller Grade Runs



More Grade Changes

- Integrated Supply Chains are inflexible (1)
- Asset Performance Less predictable

- Innovation is occurring in companies that reimagine their supply chain…<as knowledge gained is delivering results> (2)

(1)-Outlook No 1- 2012,Accenture

(2) The Innovation Dream, Paper 360(January/Feb- 2013).G.Ronald Brown

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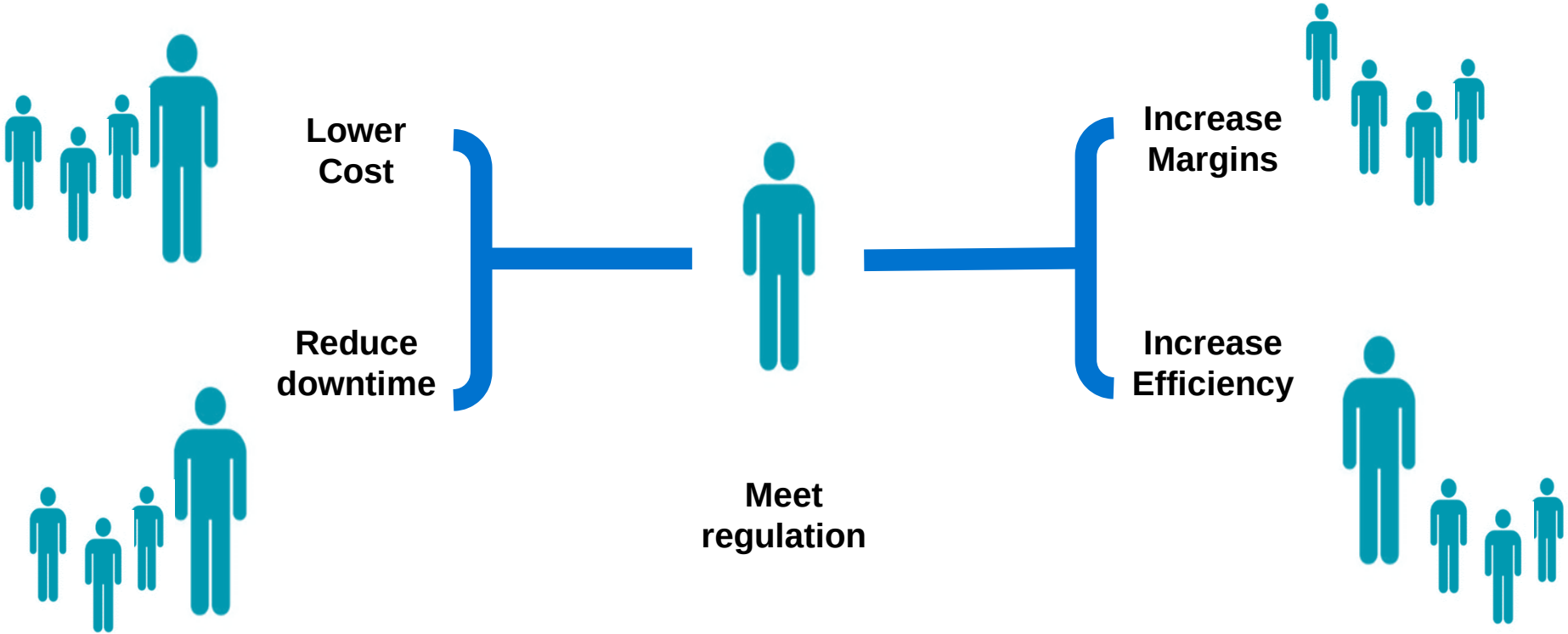
Achieving Business Objectives Requires Collaboration



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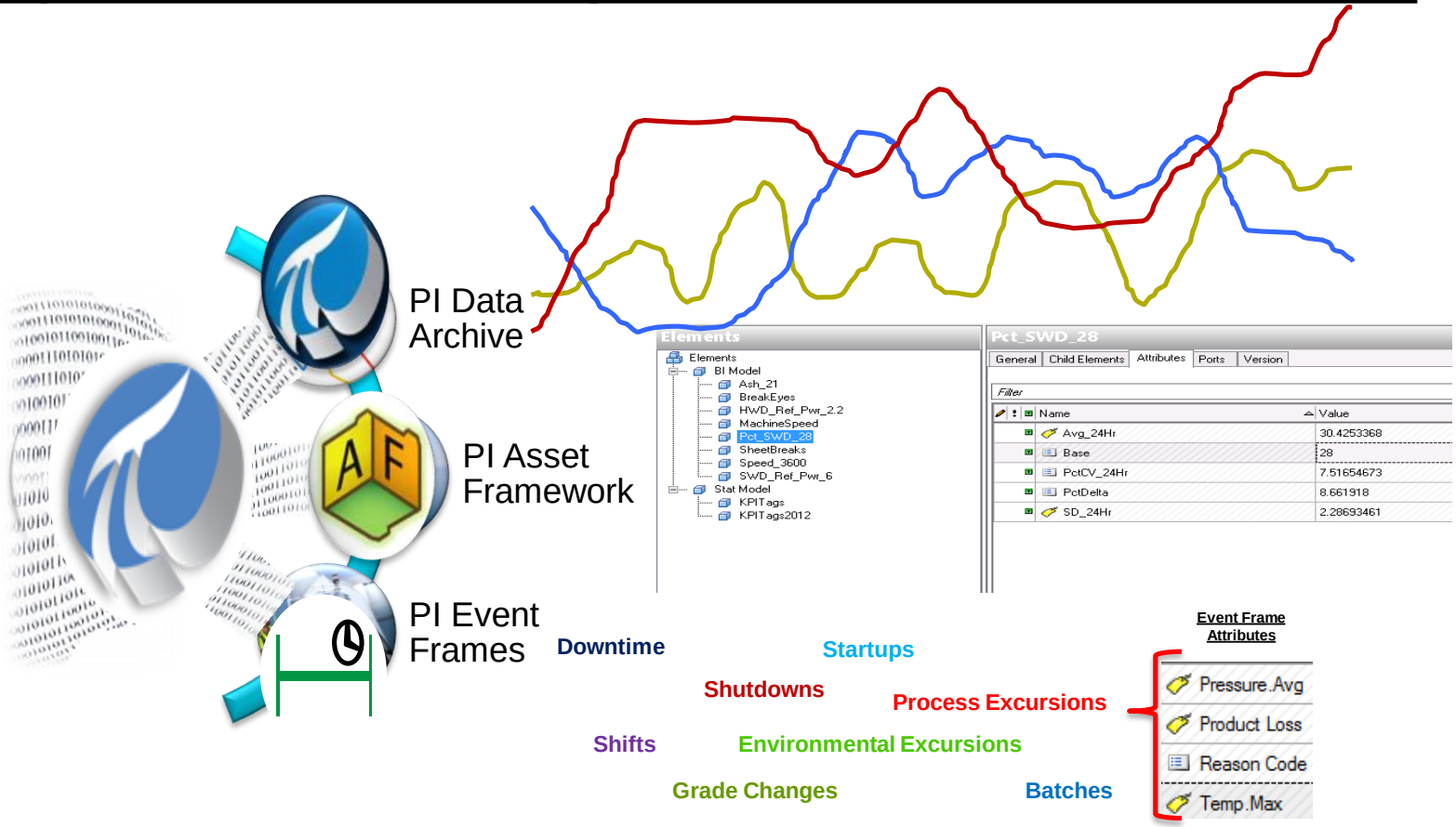
The PI System Enables Integration and Contextualization



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Supports Visualization

- Powerful tools
- User friendly
- Mobile
- Multiplatform
- Push relevant events to the end user

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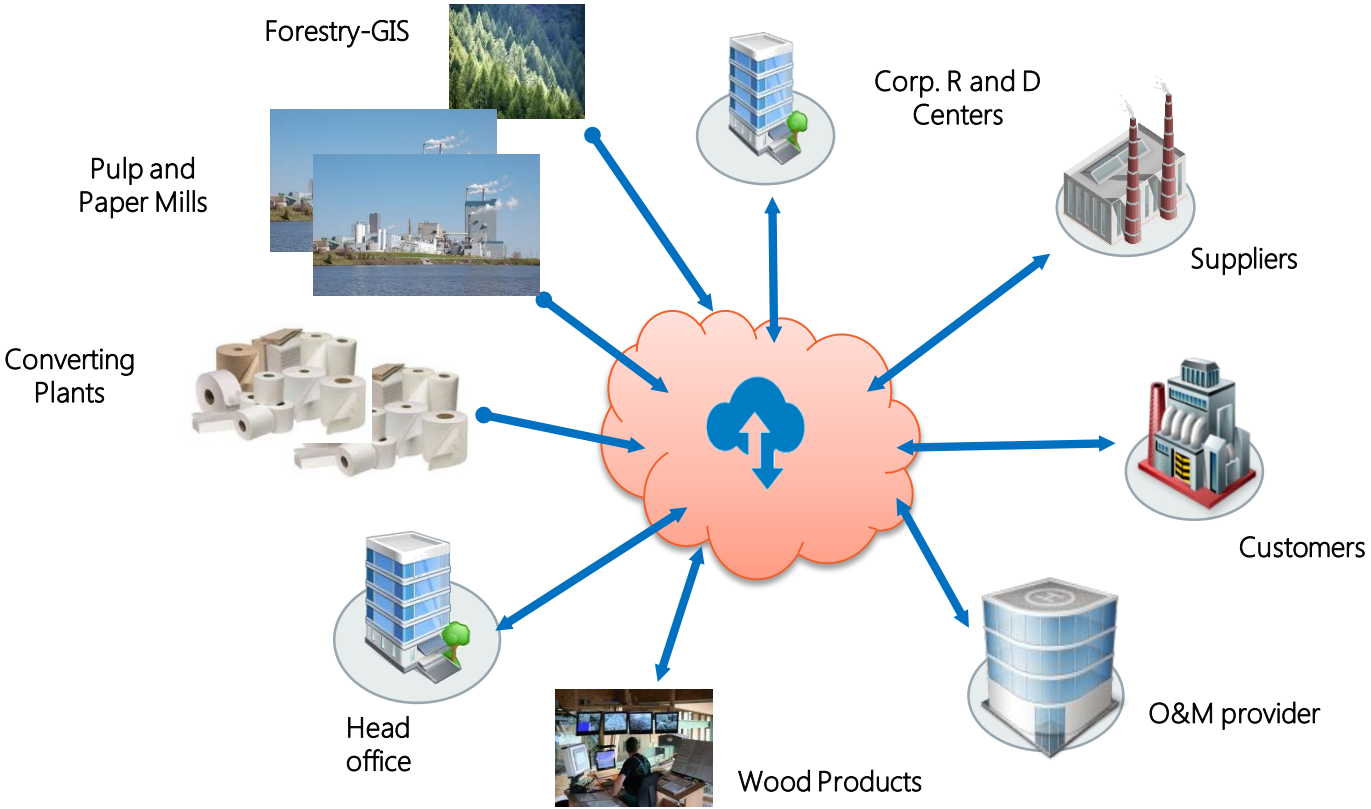
Collaboration via An Integrated Value and Supply Chain



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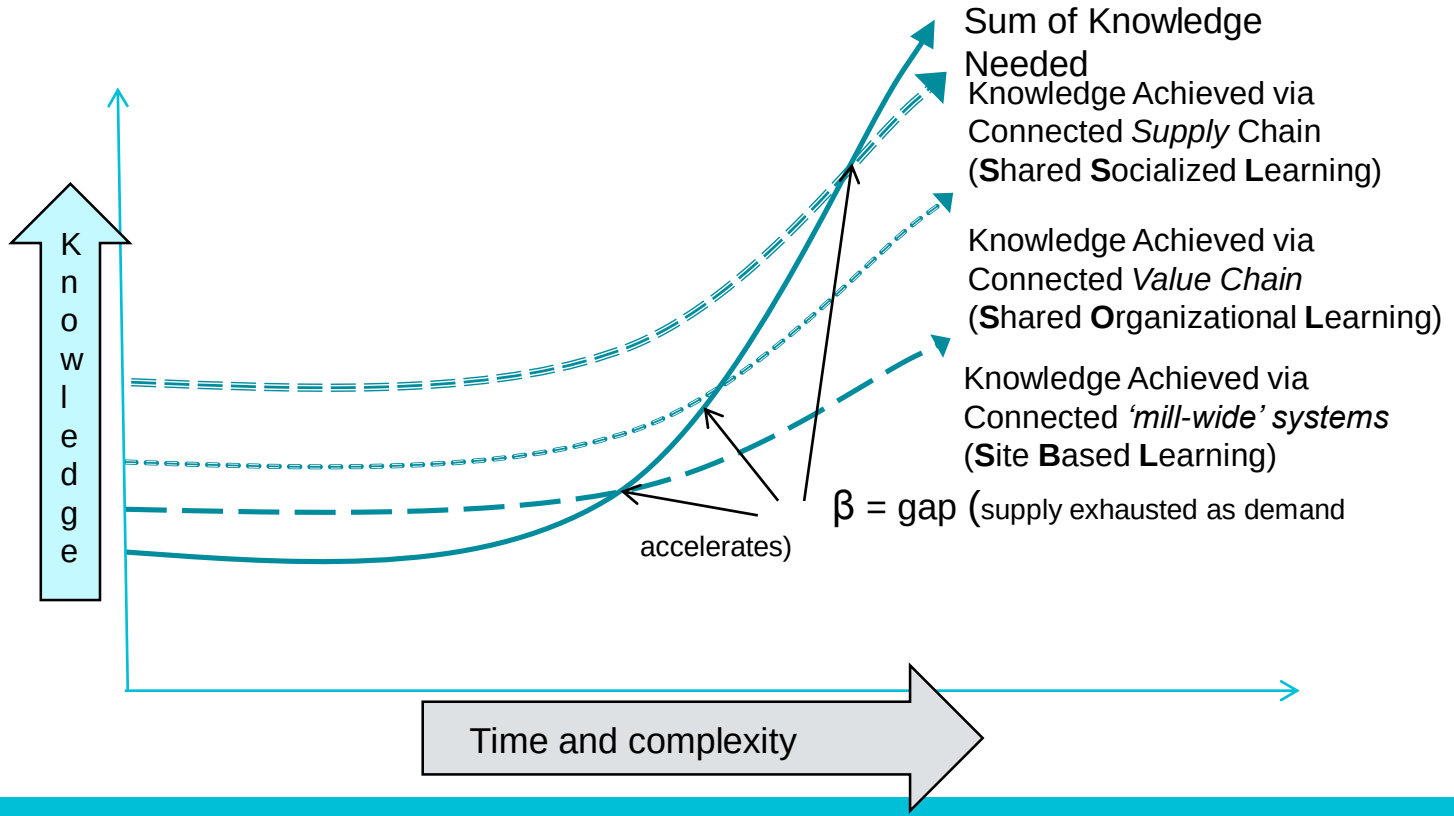
Where is the Value?...Data Drives Innovation!



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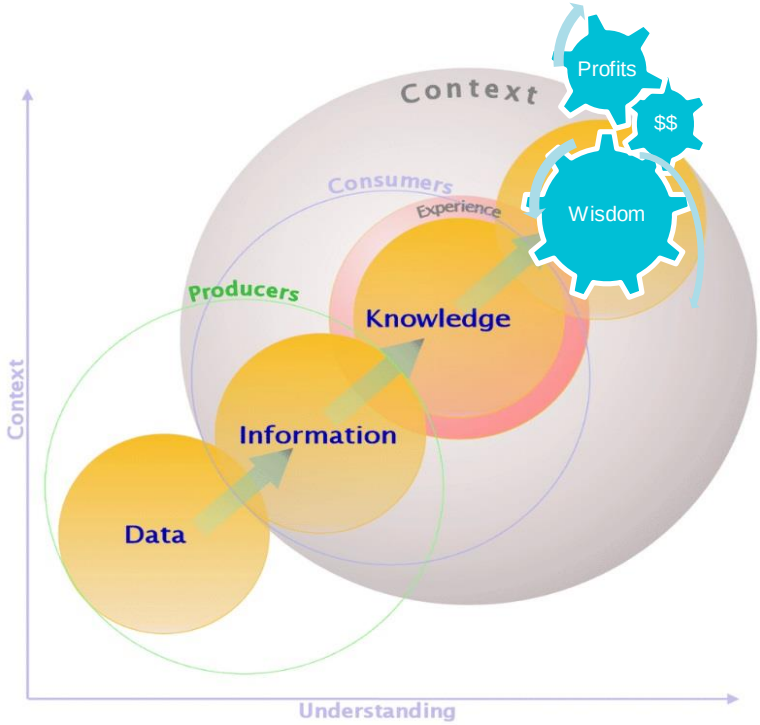
Steps to Innovation-

Convert Data -> Information ->Knowledge!

*Expand the **interplay** of data producers and information consumers…*

*Collaborate around analyzing **data**…in the **context** of solving a problem…*

*Expands the knowledge base about **managing assets!***



http://www.itisbi.org/wp-content/uploads/2012/05/Data-Information-Knowledge-Wisdom.gif

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WHY Focus on Assets?

We benchmark on asset based metrics!

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Economic Opportunities 'Hide' Inside BIG DATA (about assets)

- Decrease Energy Usage: 2-8%
  - Energy cost at $70/bbl, 1000 TPD, $500/ton, Kraft process 6% decrease - $1M/yr
- Increase Production- Reduce Lost Time (visibility): 1-5%
  - At 1000 TPD and $500/Ton using 3.5% increase – 1 yr savings = +$6M /yr
- Increased Yield: Decreased Material Consumption: 2-4%
  - For 1000 TPD mill and RM = 40% of total costs – $2M/yr
- Decrease Chemical Usage: 1-4%
  - Chemical usage assumed 10% fixed cost using 3% decrease = $500K/yr
- Improve Operational Efficiency: Reduce Emergency Maintenance 10-15%
  - Assume a $2/ton reduction in maintenance costs: $730K/yr

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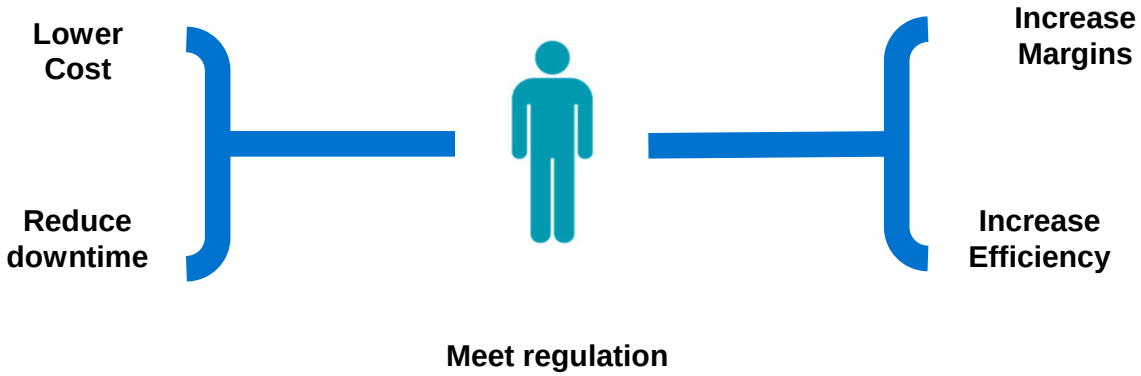
Analyze Production Data with an 'Expedia-like' Experience?

Starts with a question…

…about meeting a Business Objective

…pertaining to asset performance



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STEP 1: Asset Visibility…

What Questions Do You Want to Ask Your Assets?

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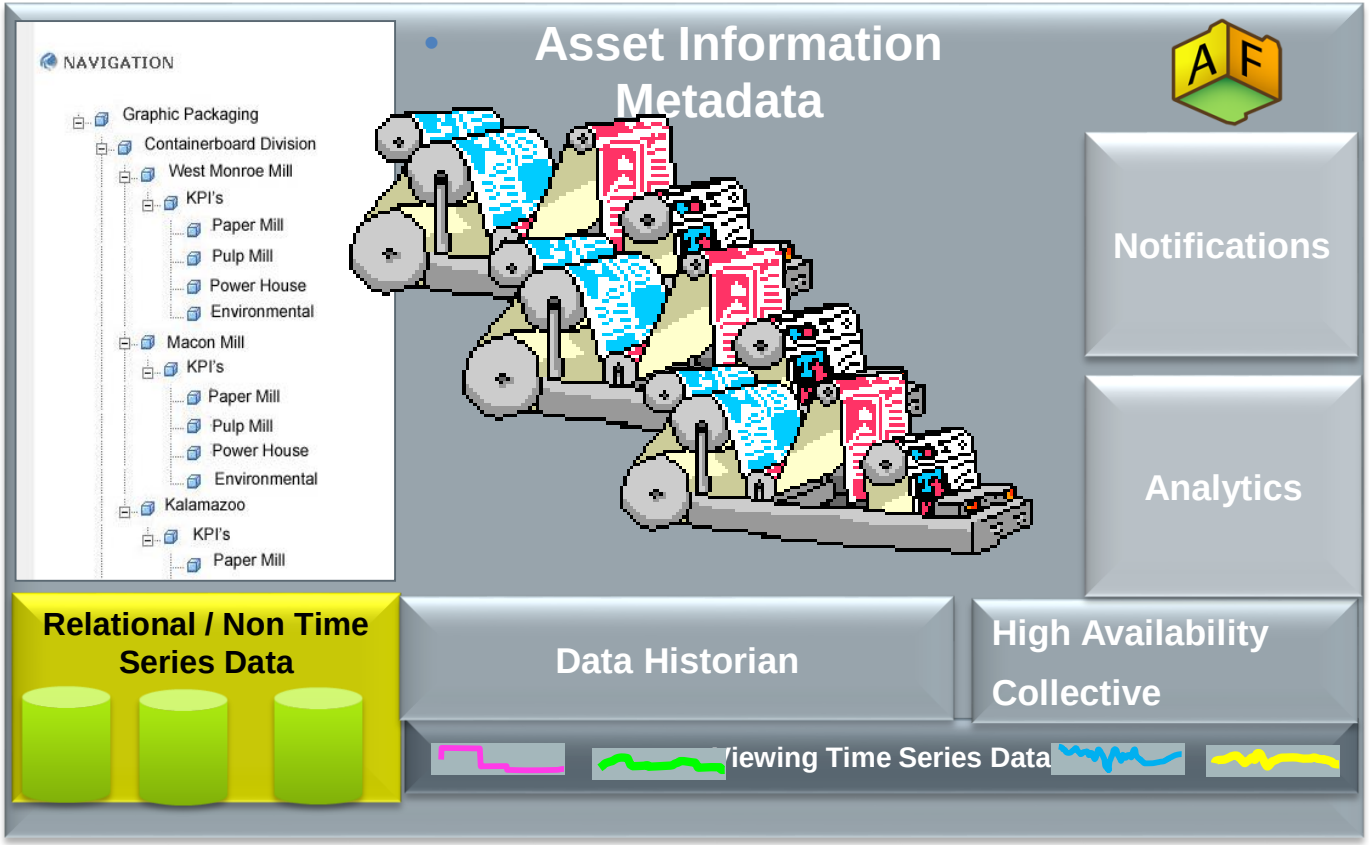
STEP 2: Define Data about Assets



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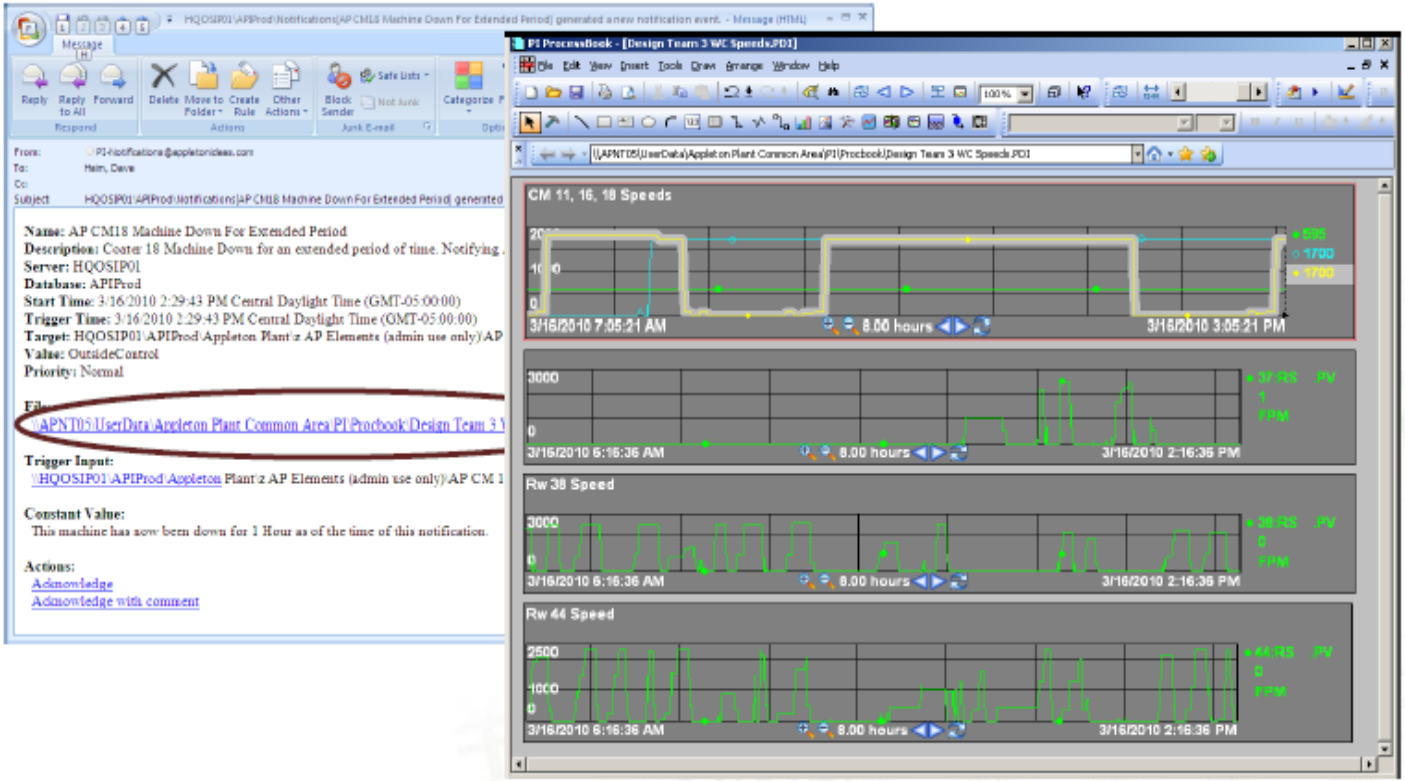
STEP 3: Manage Asset Performance…Notifications

Paper Machine Scheduling and Emergency Planning



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Example: Conversations with A Paper Machine

- Organize Assets and Events into a data model that is Enterprise-wide
  - Microsoft PowerPivot/Power View (Sheet Breaks)
  - KPIs and Dashboards
  - Data Mining (decision trees, cluster analysis etc.)
  - ProcessBook & DataLink
  - Business Integration

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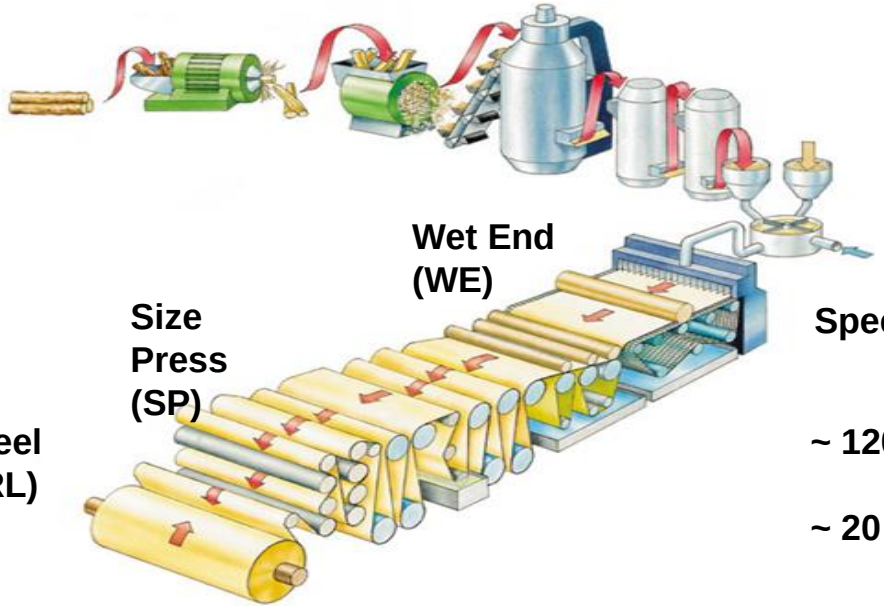
An Asset with a Sheet Break Problem



Speed: 3400 linear feet/min
~ 35 mph

~ 1200 breaks in 2012

~ 20 to 30 minutes/break

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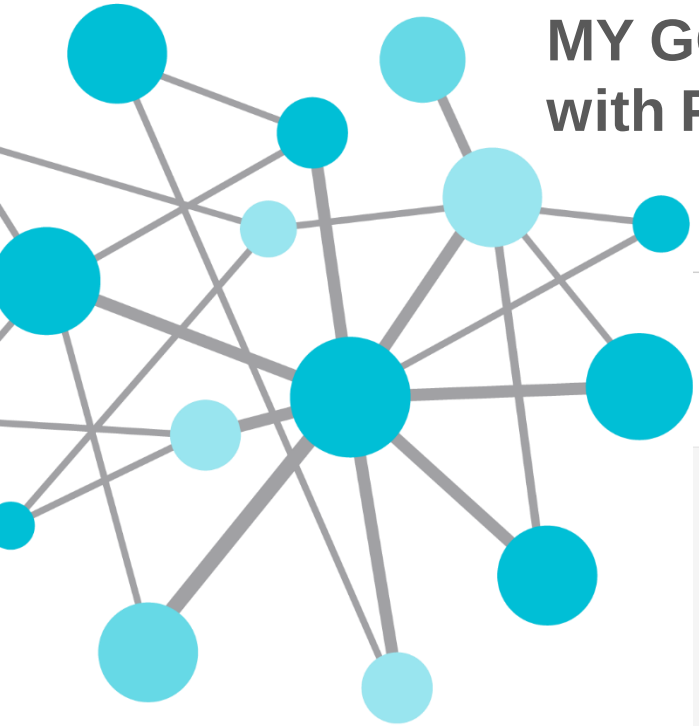
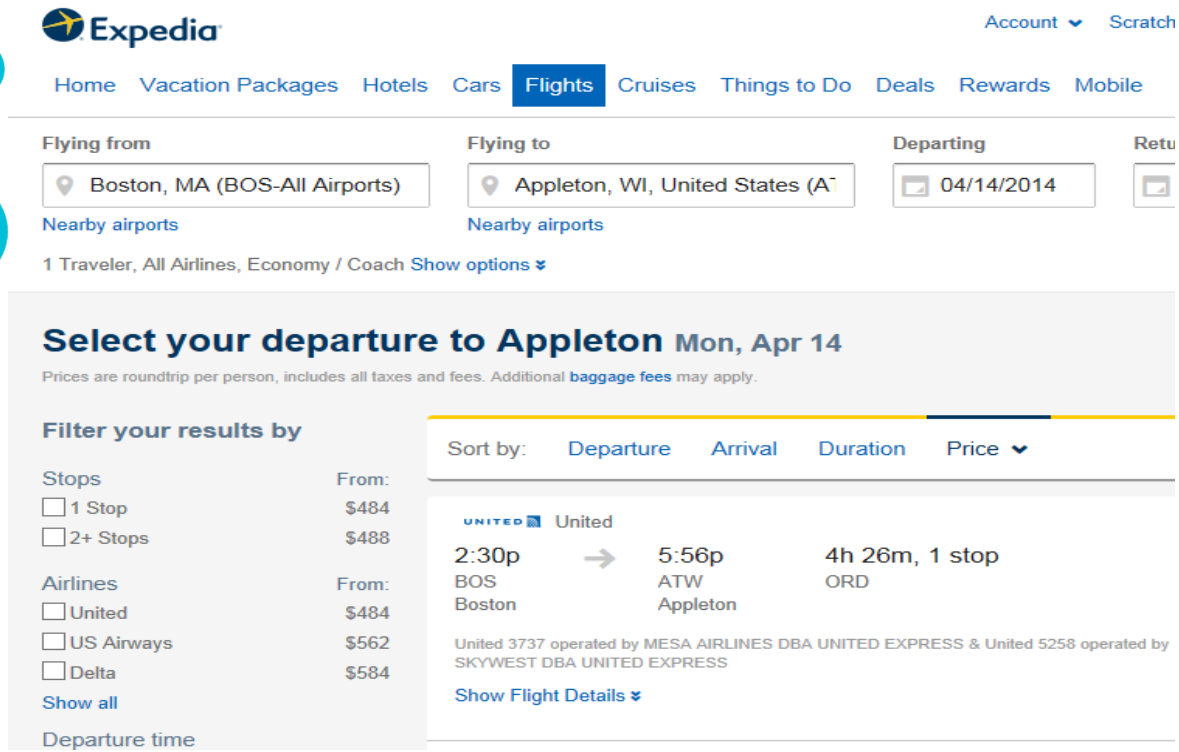
MY GOAL?-Get an “Expedia-like’ Experience with Production Data?





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A Talk with my Paper Machine…

- What is the distribution of your sheet breaks?
- Where do the most sheet breaks occur?
- Can you answer those questions with data on the month, by day of week, by hour etc.
- Does one shift treat you better than others? AM shift vs. PM shift?

Good questions but I honestly don't know…its hard to tell…I have lots of data but getting to the root cause and sorting all the relationships is difficult

OK so maybe this is BIG DATA? Anyway I see this is tough to sort out…

- What would you consider to be some of your best moments?

My best moments are when I can run 72 hours with 2 or less sheet breaks/day in SP+WE

- How many Good Moments have you had this past year? *Not enough*
- Any idea when that may have occurred? *Seems like years*
- Do you have a handle on what a 'Good' vs. 'not-so-Good' fingerprint of the operating variables looked like during those good times?

Margins are tight so they 're moving the process so fast to stay profitable I honestly do not have a clue

- If I can analyze these 'Good' moments do you think they can guide you to a more stable and capable process model for happy days in the future? Yep

That would be great!

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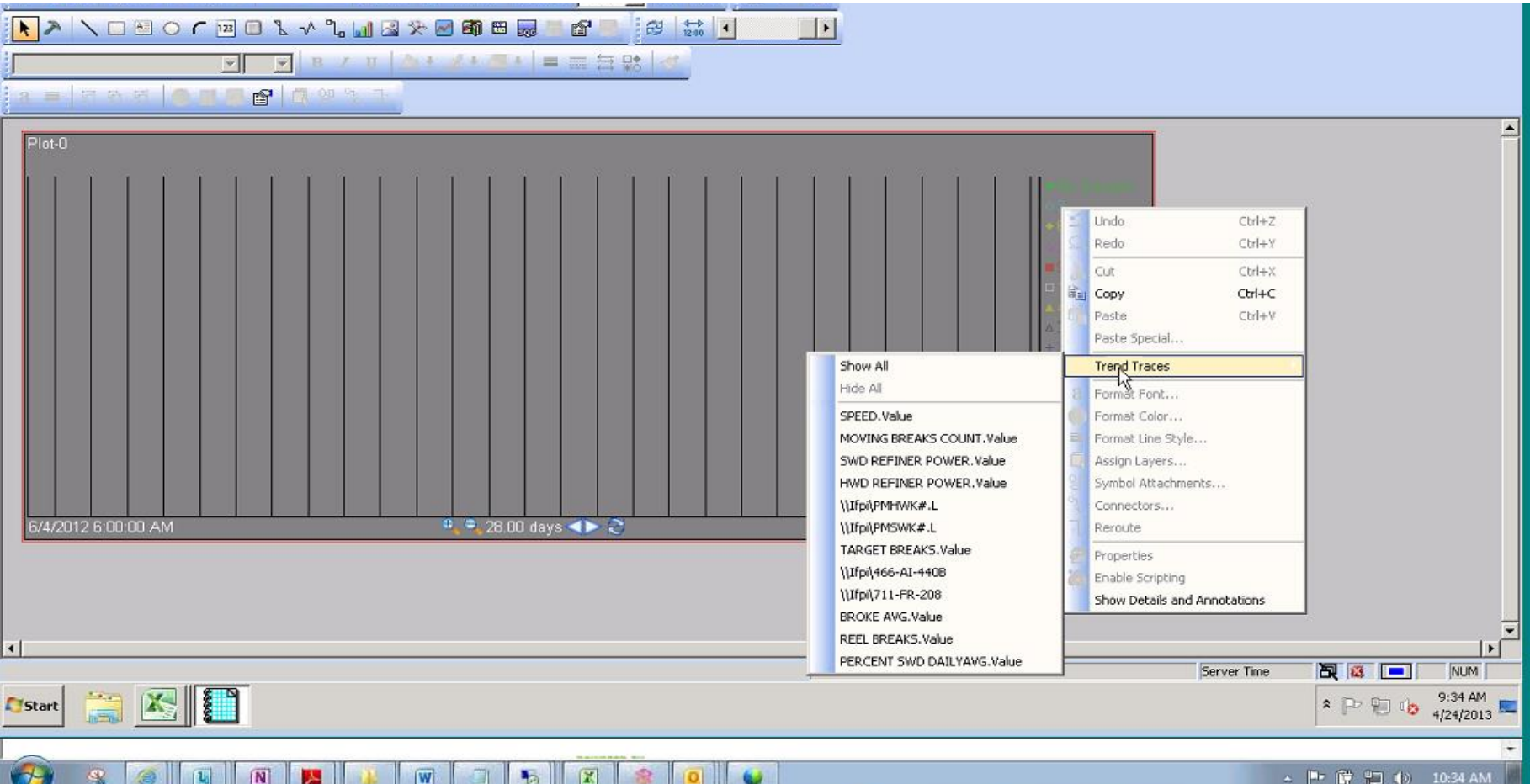
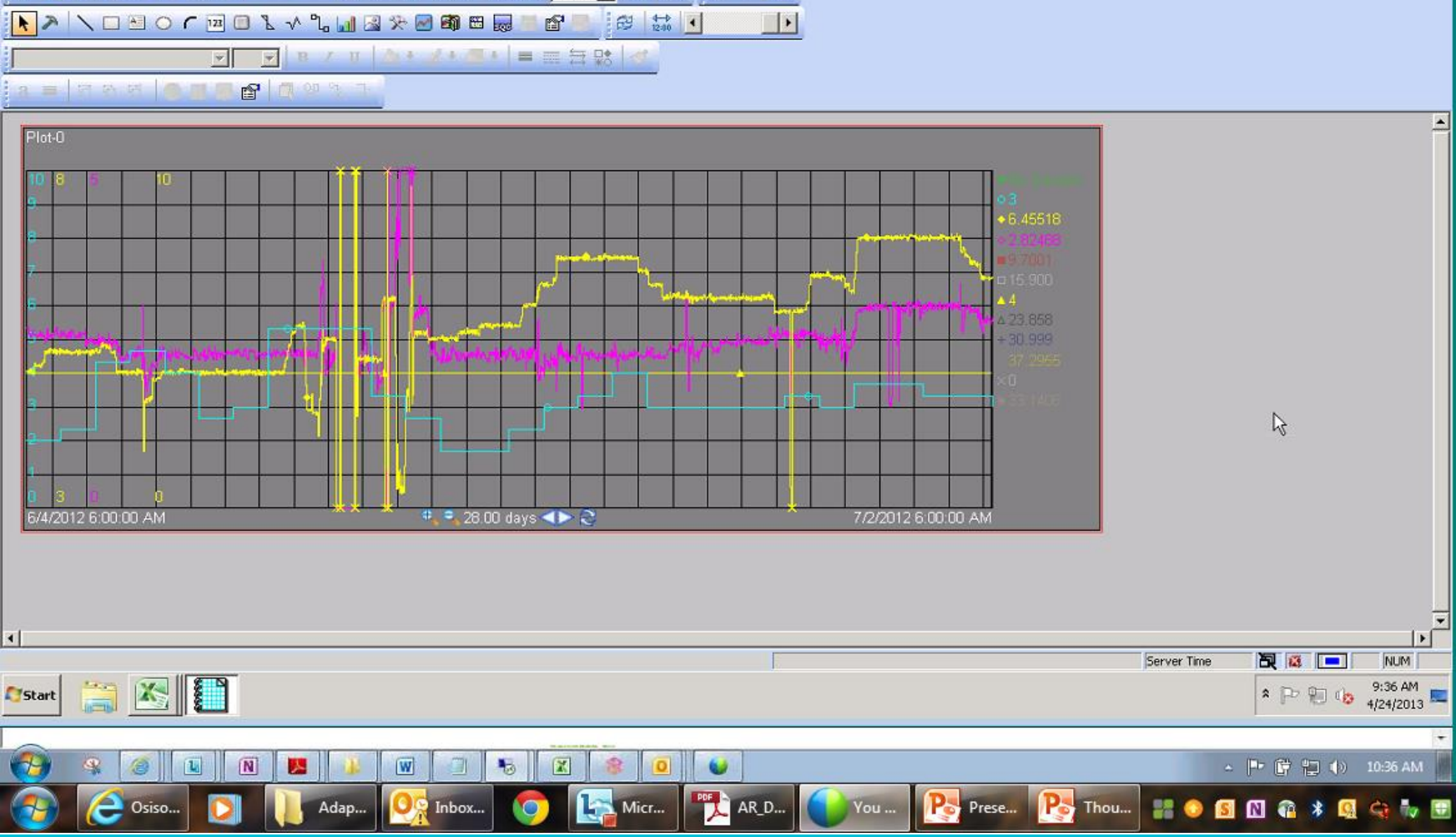
PAST "BEST" PRACTICE- Analysis of Sheet Breaks on PM 6

Step 1- ID Data…





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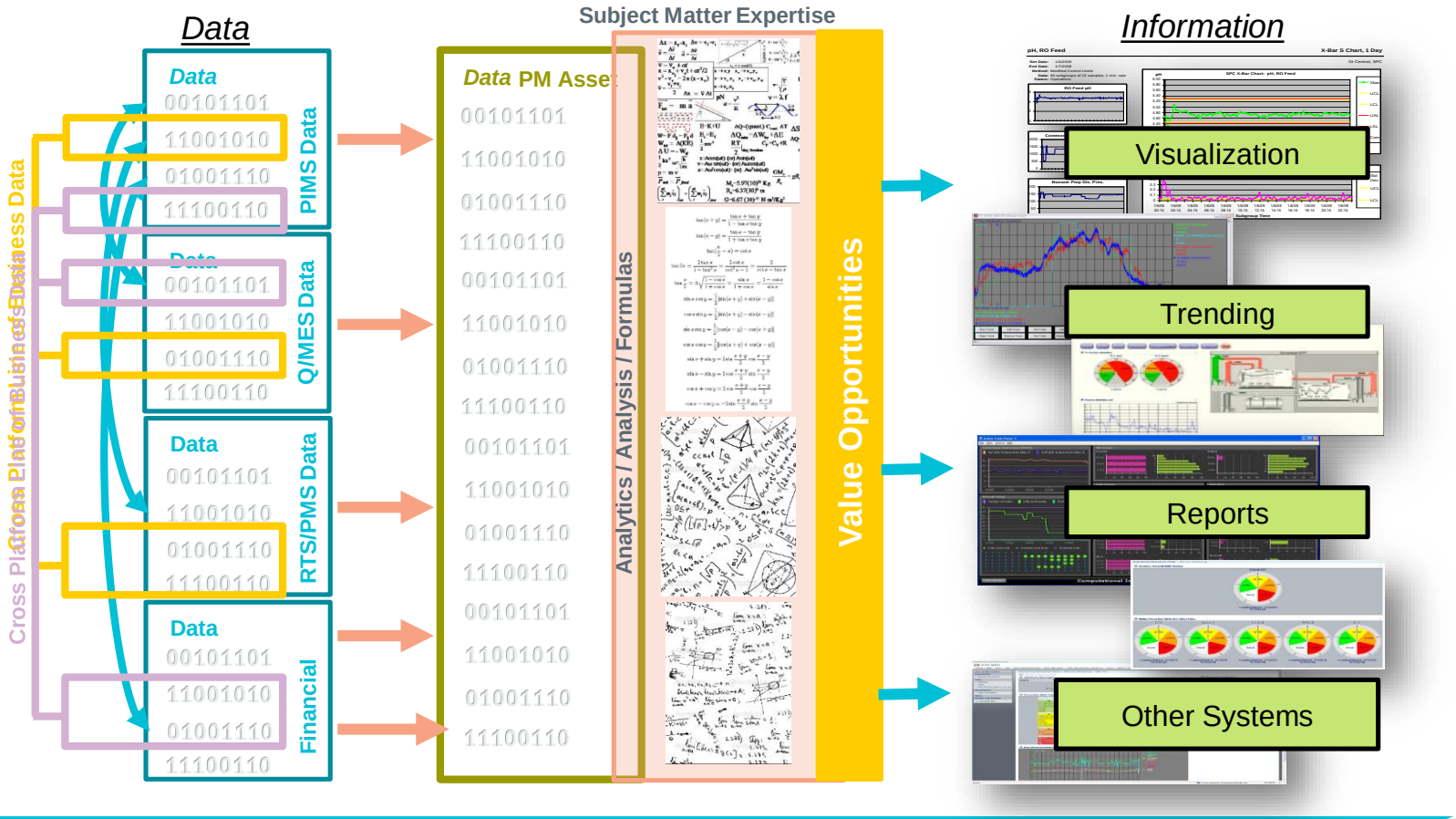
BEST PRACTICES: Real Time Enterprise- Asset Centric Views of Data



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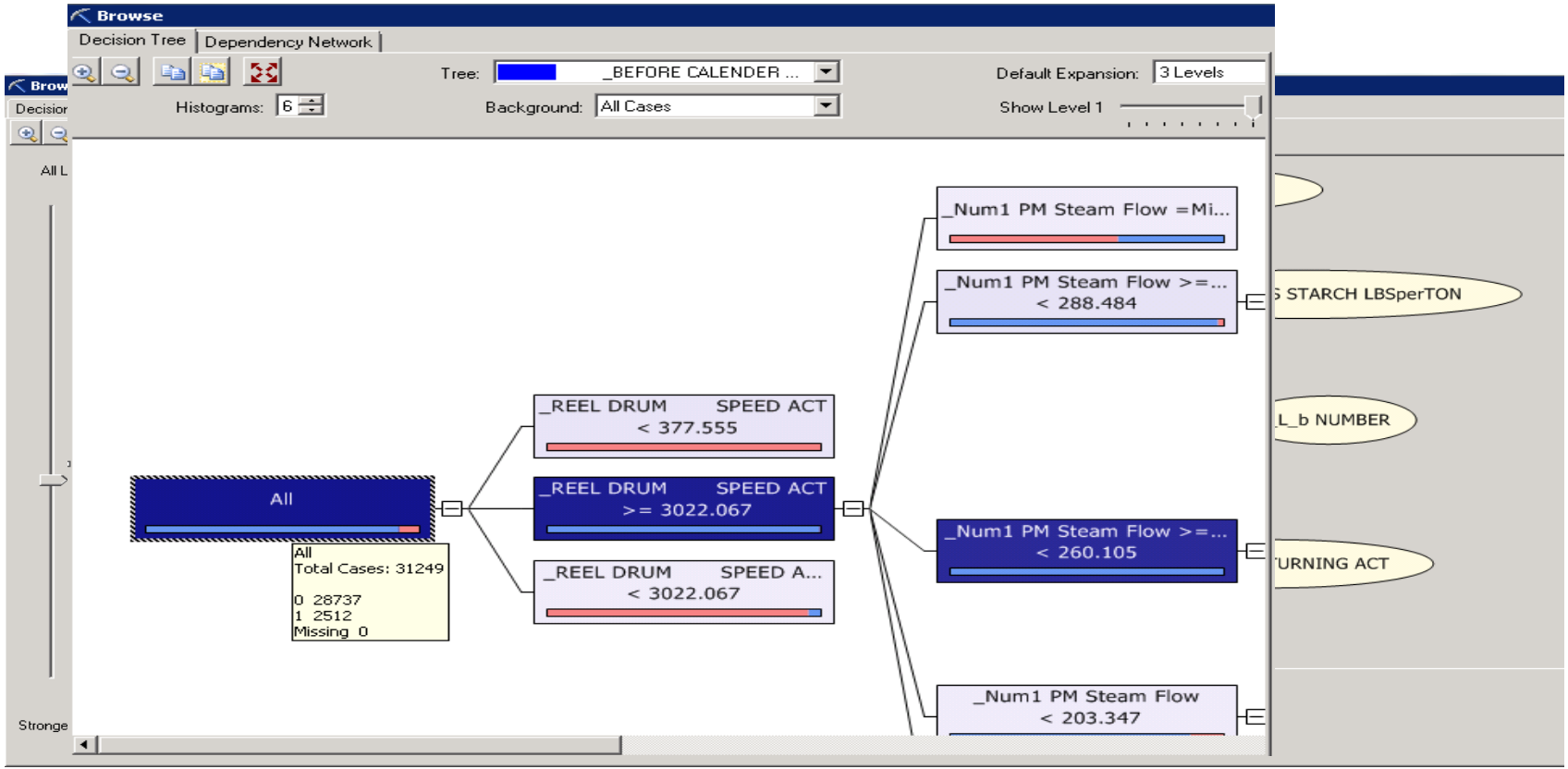
Data Mining and Data Modeling with Microsoft Tools



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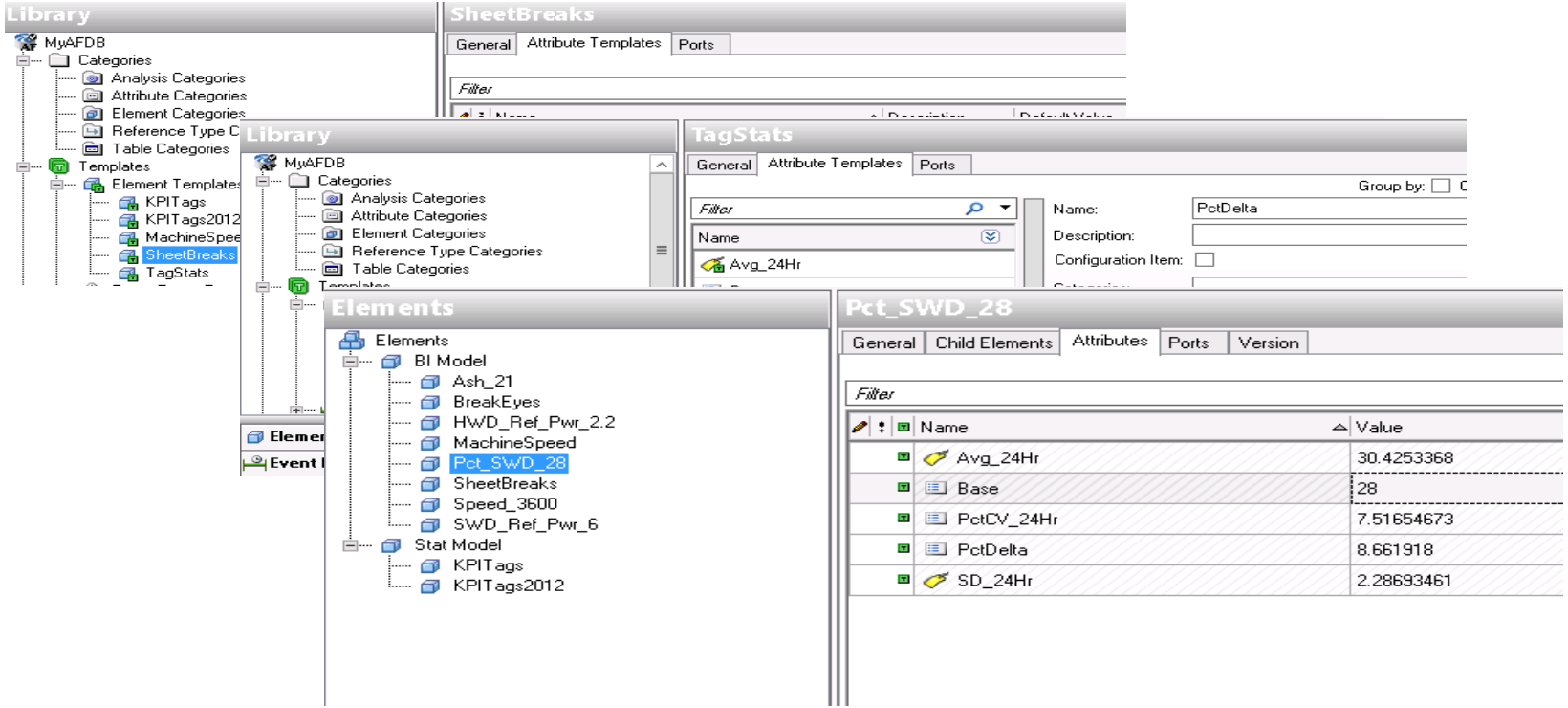
Traditional Approaches could not answer all the questions…

So we created a data model based on assets and events



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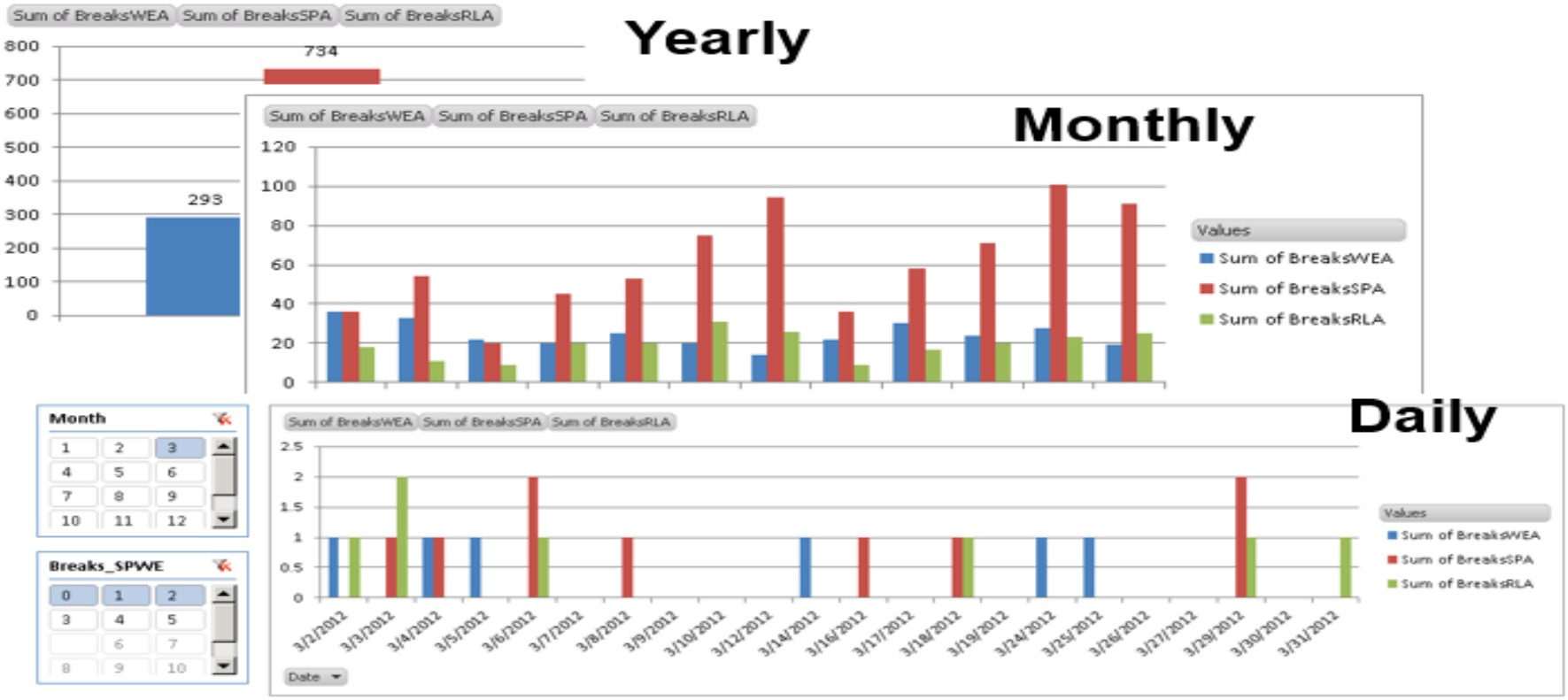
Sheet Break Analysis



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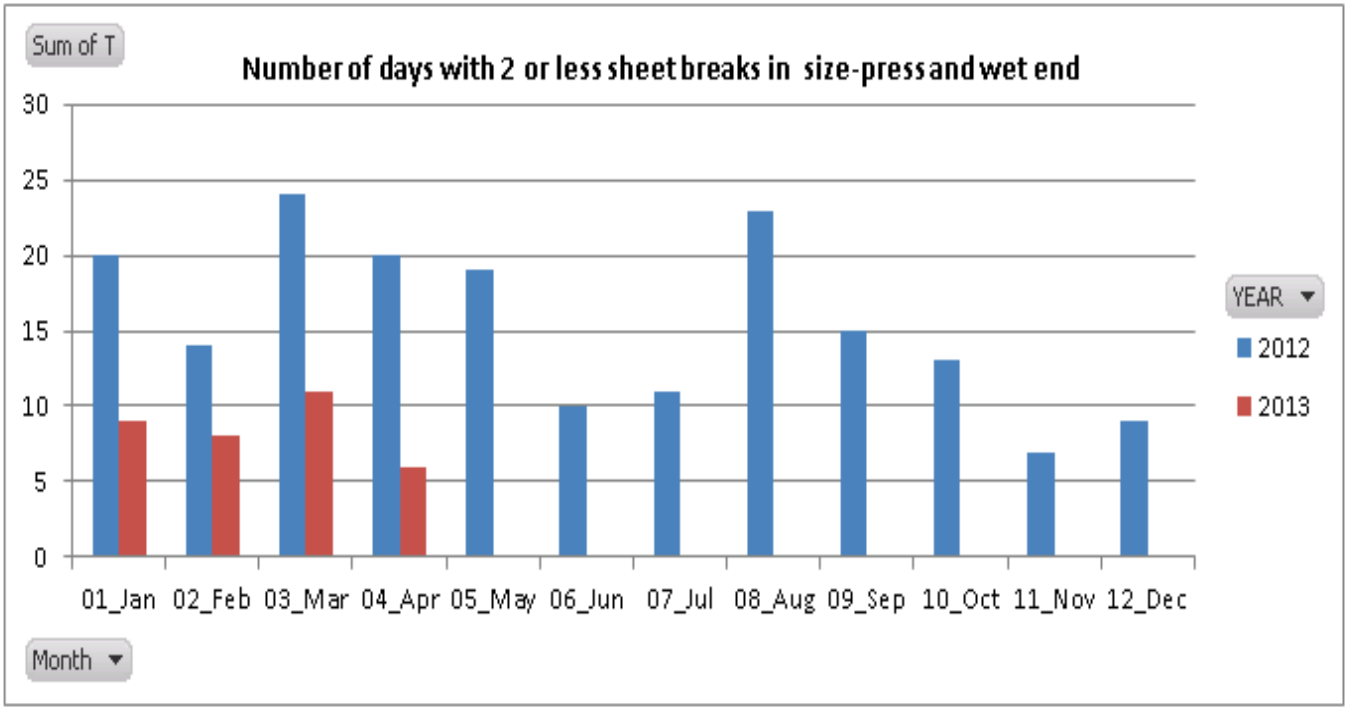
Sheet Breaks into Context : March vs. March



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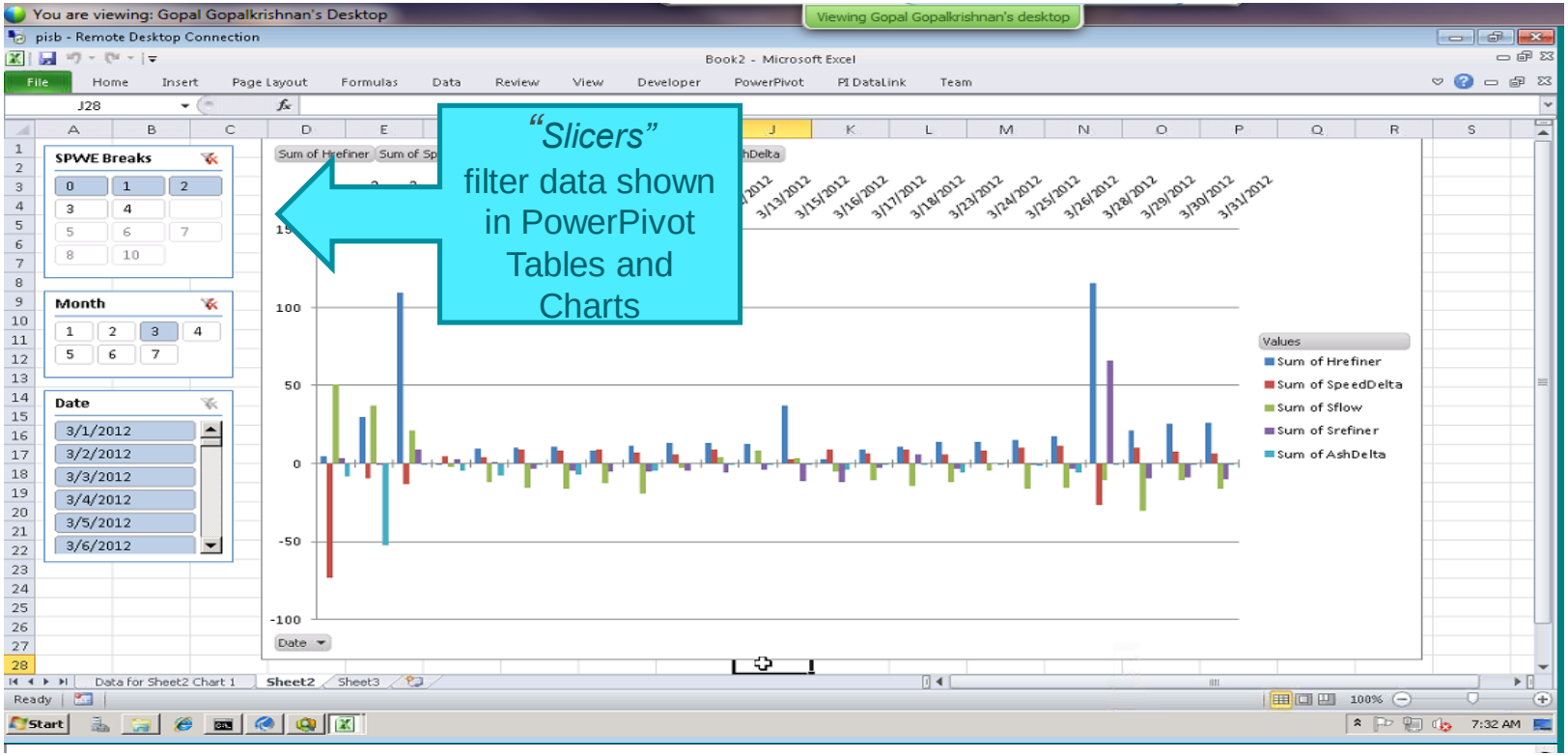
March 2012 was The BEST Month in More than 3 years!



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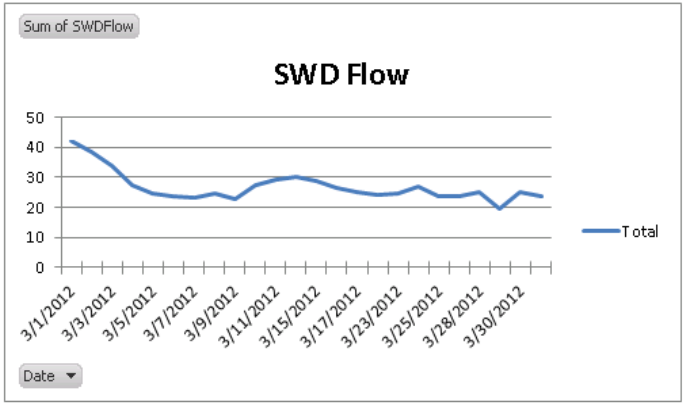
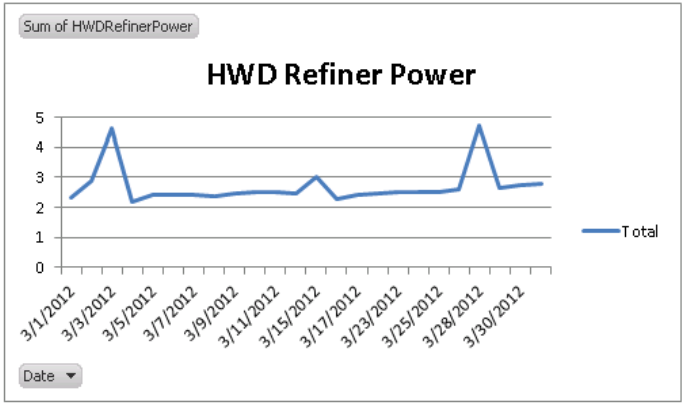
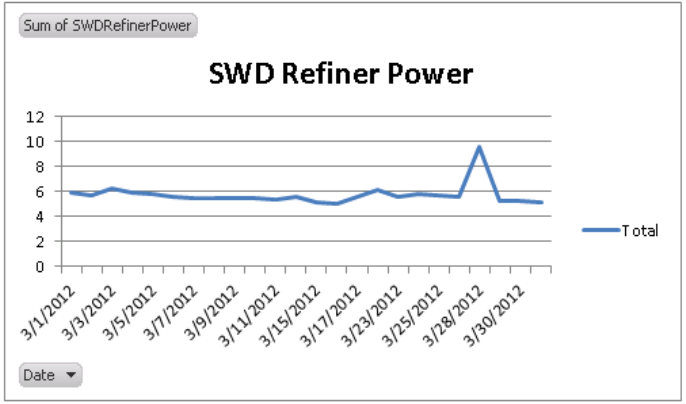
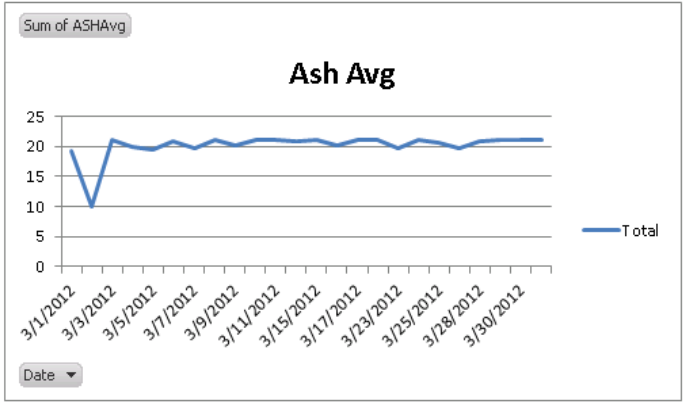
What Characterized PM 6 Runnability in March









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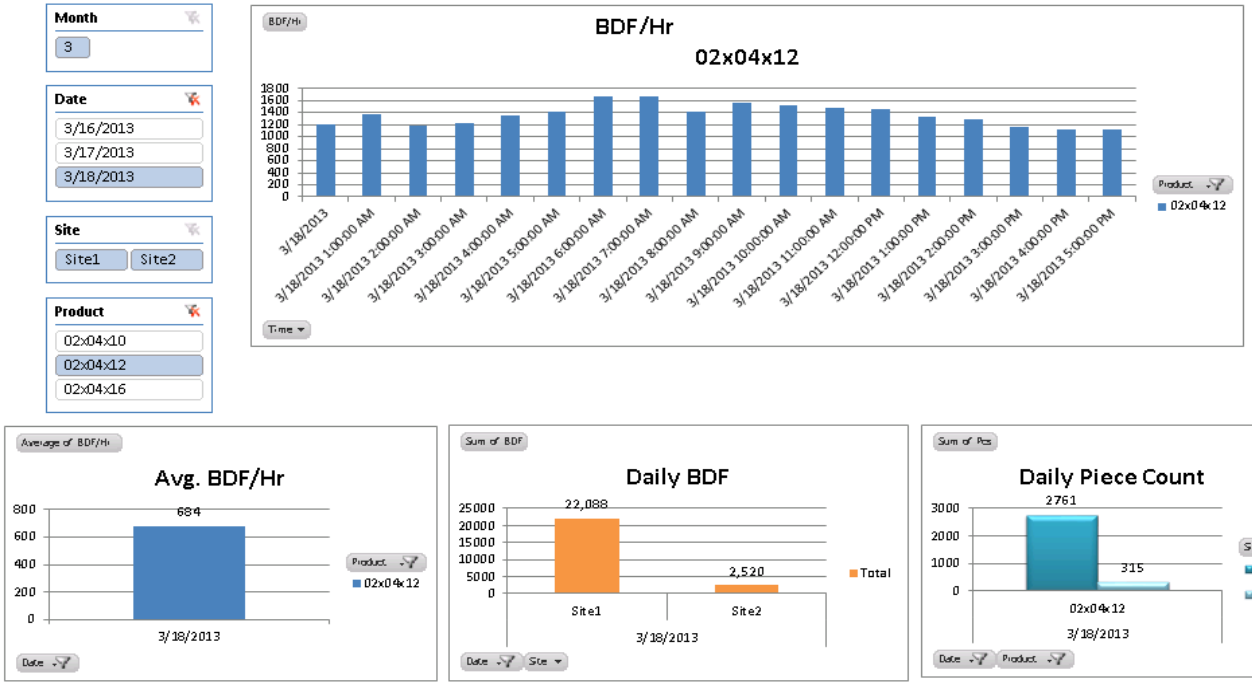
Same Tools Applied Upstream in the Value Chain: A Saw Mill



BDF= board-feet

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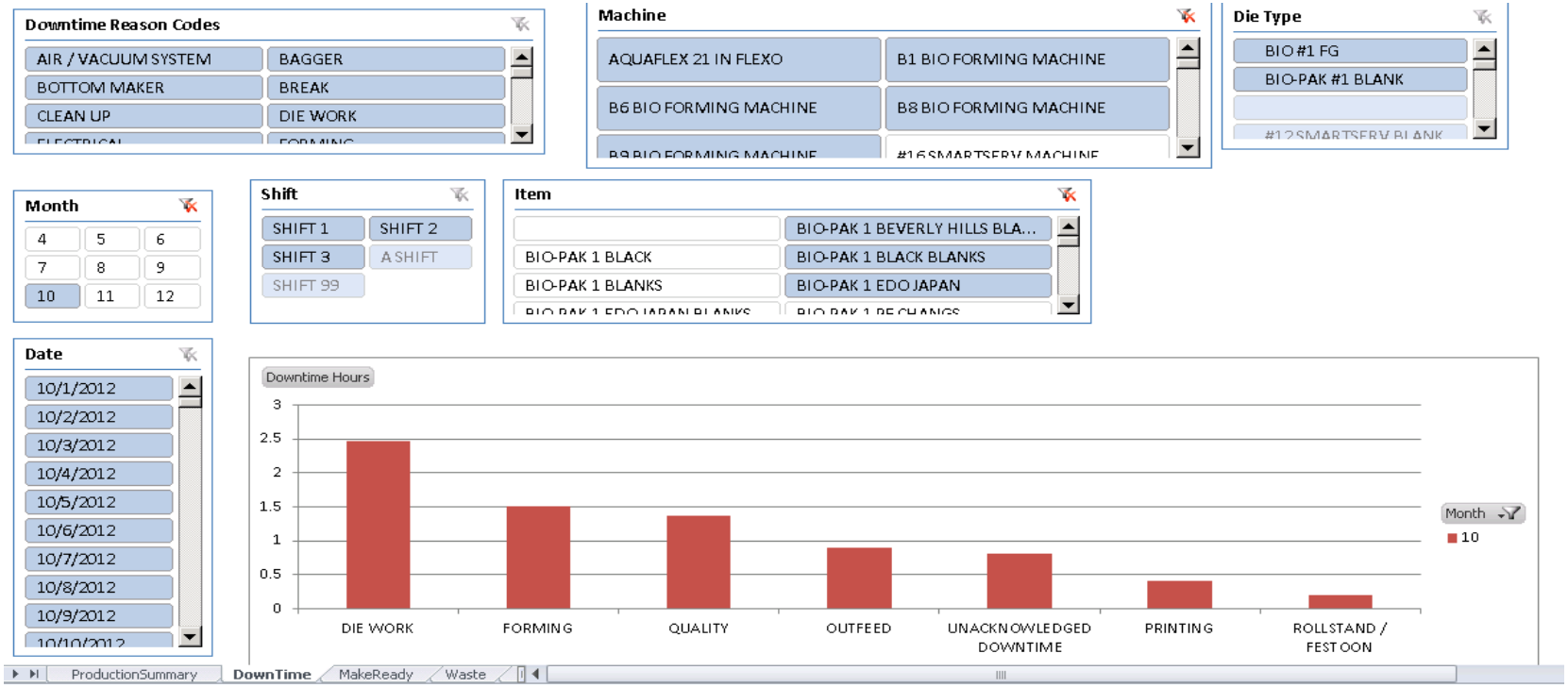
Same Tools Applied Downstream in the Value Chain: Converting Plants



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Next Steps: Enable an Enterprise that can ADAPT…

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THINK BIG…Start small … START *NOW*…

Workshop to Asset Based PI

- …OSI can ***coach*** you through the use of the integrated asset based PI tools
- …OSI can help you ***focus*** on a specific problem or subsystem,
- …OSI can show you a ***methodology*** to re-use what you have in an AF platform…adopt PI displays, reports, and analyses that have broader application in your organization
- …OSI can help you establish ***discipline*** and increase ***collaboration***.

A new way to learn a new way to use PI.

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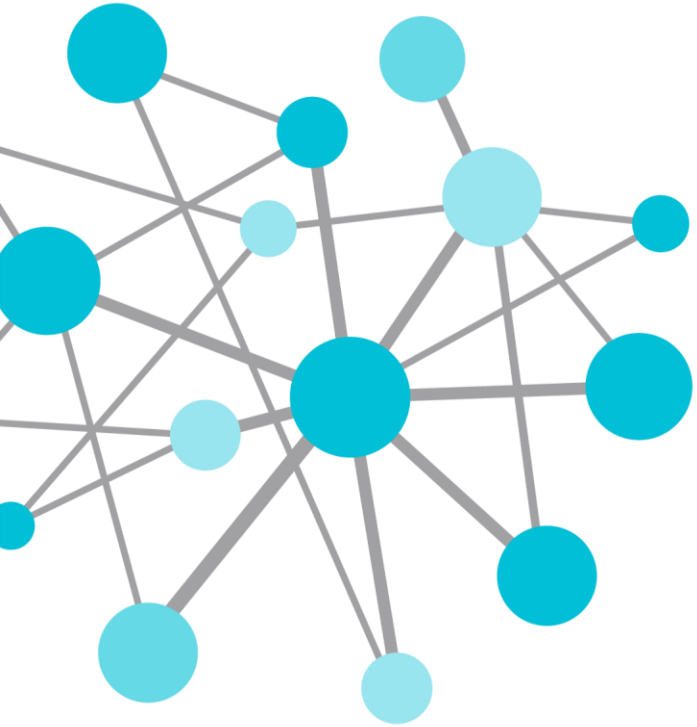

THANK YOU

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