



Site Specification Management Using the RtPM Platform

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Outline

- The Need for Specification Management
- ProcessPoint
- ProcessPoint fit with RtPM
- Features
- Benefits
- Demonstration
- Summary

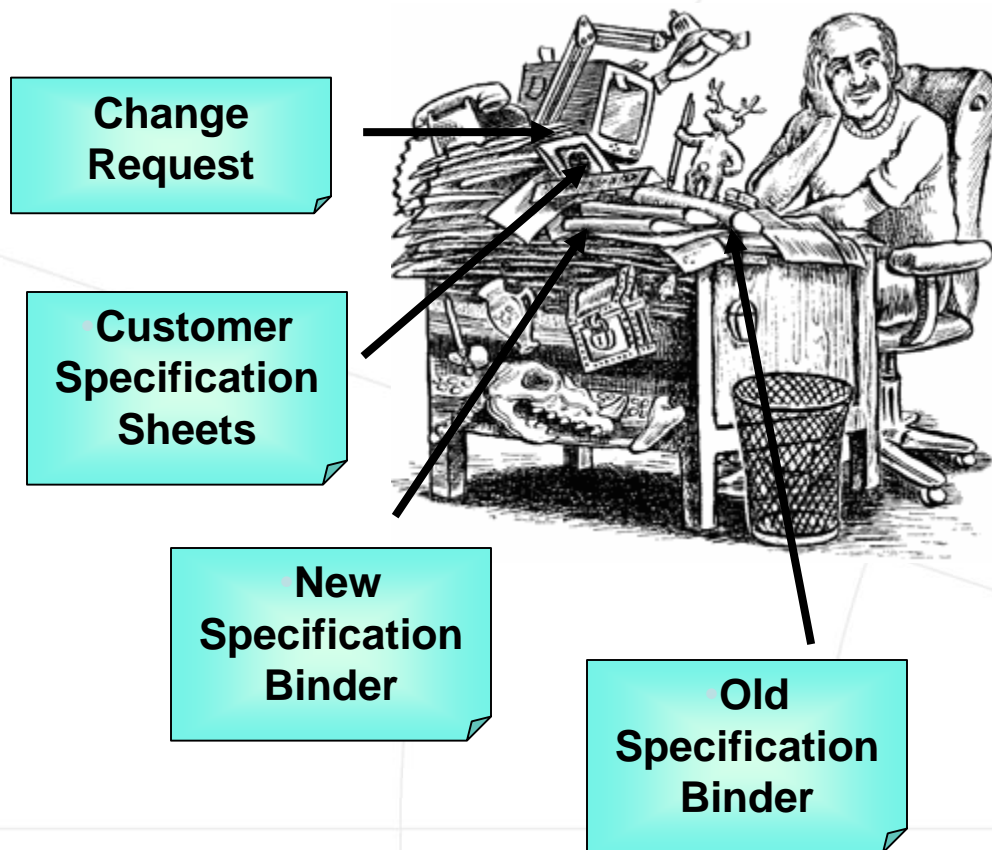
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Industry Challenges

- Product quality and consistency depends on managing lots of data
 - Formulations, bills of material, manufacturing instructions, quality and process limits
- Manufacturers need to produce and report according to specification
- Market demands manufacturing agility

The Need for Specification Management



- What has been approved?
- Do I have the most recent copy of the specs?
- Can I see the data differently?

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The Value of Specification Management



**Pulp and
Paper
Company**

Premium Photocopying Paper

Grade ID: FP20888 Grade Creation Date: Friday, March 25, 2005
Version: 0 Grade Modification Date: Thursday, March 31, 2005
Status: Developmental

Quality Test Specifications

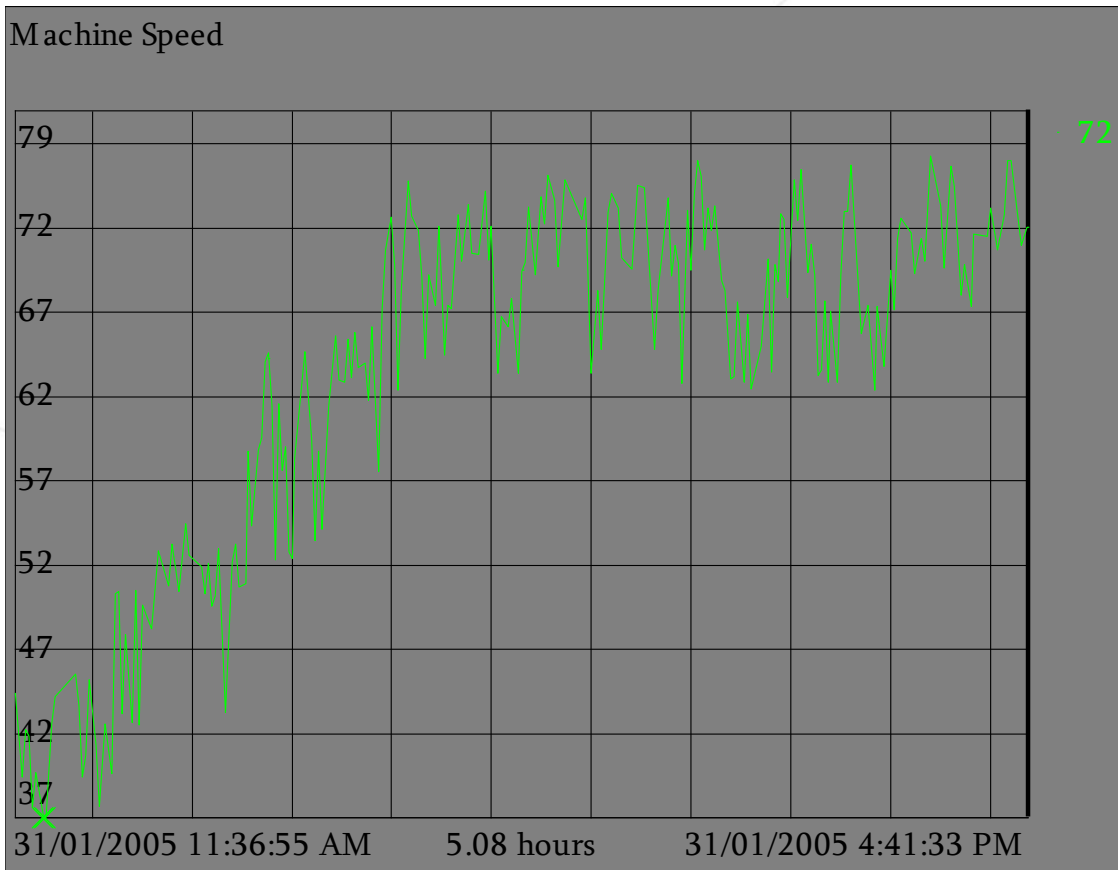
Property	MIN	Target	MAX	Test Method
Brightness	35	38	41	TAPPI-452
Density	0.8	0.9	0.9	TAPPI-411
Moisture	1	1.5	2	ANSI 1301.457s-1992
Basis Weight	30	32	34	TAPPI-410
Dirt	0	1	3	TAPPI-437
Opacity	20	25	30	TAPPI-425
Caliper	3.2	3.4	3.6	TAPPI- 411
Ash	5	8	11	TAPPI-413
Tensile Strength	40	45	50	TAPPI-273
Conditioned Weight	50	60	70	

- Up to date
- Approved
- On line
- Version management
- Displayed the way I need

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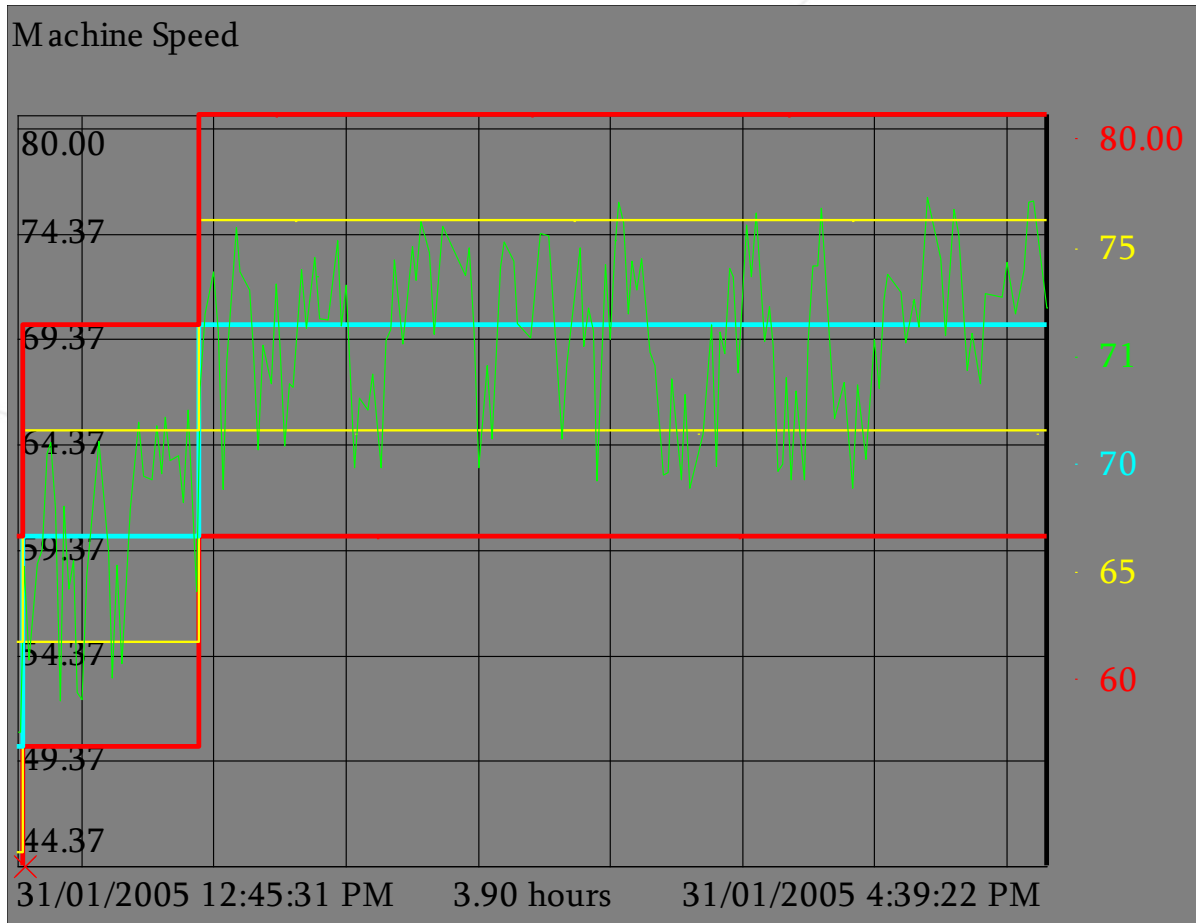


The Need for Contextual Data



- Is the product being made according to customer specifications?
- Is that increase good, bad or potentially dangerous?

The Value of Contextual Data



- Customer specs are being met
- Quality standards are being met
- Waste and rework are being minimized

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Do I Need Integrated Specification Management?

- ☑ I have equipment lines that run multiple products
- ☑ My business has many product codes to manage
 - From a Global Chemical Producer's website: ***"Note: product specification information is updated daily and may therefore be different from the specifications shown on any individual Certificate of Analysis."***
- ☑ A controlled change management procedure is important to my business
- ☑ My customers have different finished product requirements
- ☑ I have corporate quality initiatives to respond to

ProcessPoint

- Comprehensive product specification database
- System of record for specification information
 - Product properties
 - Quality limits
 - Product parts
 - Manufacturing procedures
 - Product history
 - Approval and electronic signoffs
- Provides contextual specification data to
 - Users
 - RtPM Clients
 - Other systems

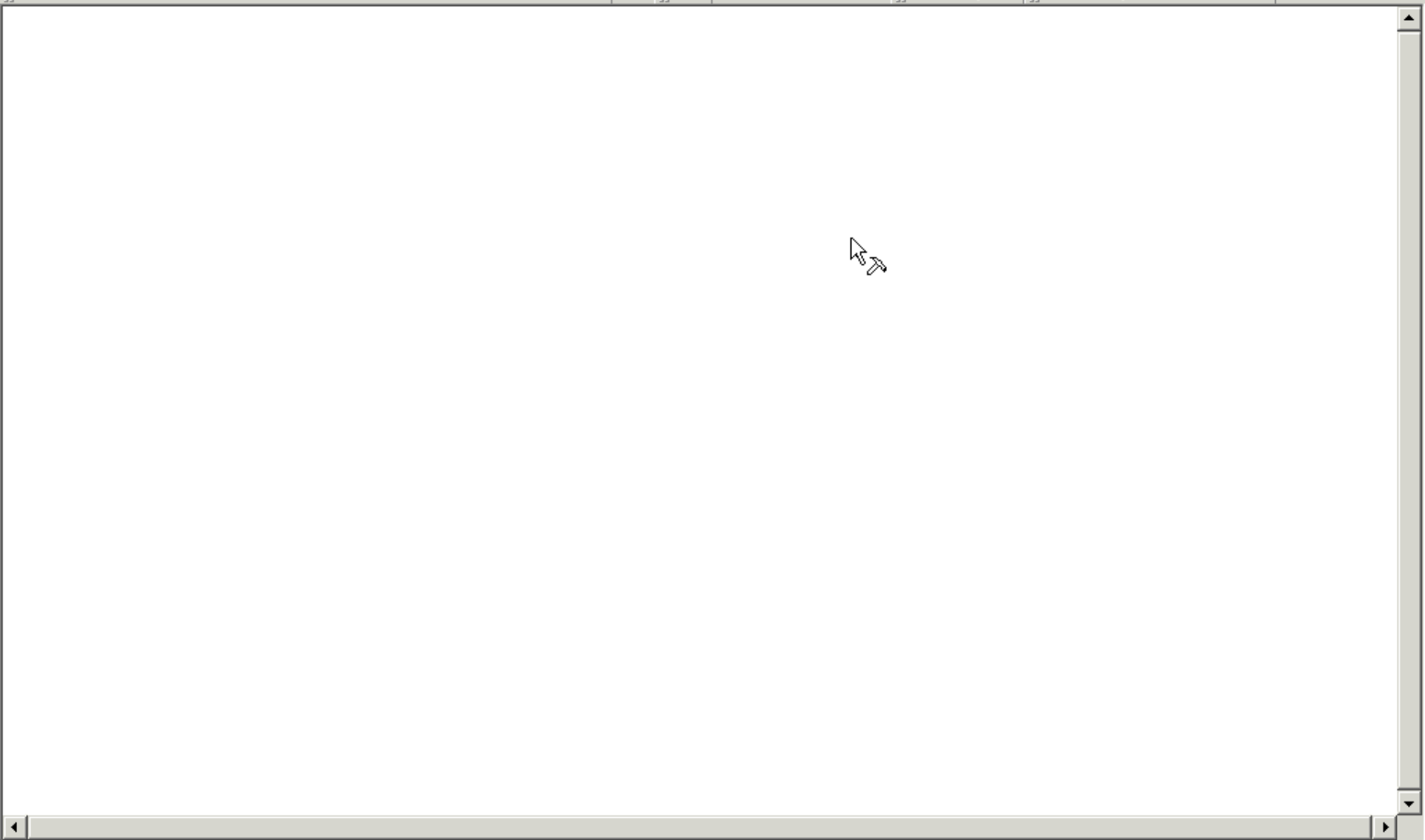
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ProcessPoint Fit with RtPM

- The PI System stores the complete history of what has happened in the process
- ProcessPoint stores the specifications that define how the process should run
- Like the PI System does for real-time data, ProcessPoint stores the history of spec data forever and allows it to be used in meaningful ways

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ProcessPoint Features

- Change management
- Web parts with role based displays
- Search features
- Integration with real-time manufacturing data
- Scalability

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Change Management Features

- Structured product definitions
 - Common set of quality, process and customer specifications
 - Side by side comparisons
- Version history with electronic audit trail
 - What changes were made?
 - Who made changes?
 - When were changes made?
 - Who signed off on the changes?
 - Are there any comments about why change was made?
- Electronic approval plans
 - Who approved new versions of products?
 - What items are awaiting my approval?

Web Parts

- Allow access to specifications
 - Across sites
 - Across departments
 - Across geographical business units
- Role-based displays
 - Users see the data they need in the format they want
- Robust security model
 - You define who sees any specifications

Search Functionality

- Easily find the data you need
- Construct detailed searches examining
 - Who authored specs
 - Values of specs
 - When specs were modified
 - Bills of material, manufacturing steps
 - Any other data defined on specification

Integration with Manufacturing Data

- One set of specifications
 - Quality, manufacturing, engineering, sales, other departments all looking at same data
- Real-time feedback to manufacturing
 - Increase product quality
- Automate creation of reports
 - Expedite product shipments

Scalability

- ProcessPoint is designed for scalability
- Successful installations include:
 - Single manufacturing line at a site
 - Enterprise-wide system with more than 50,000 raw material and product specifications with over 300 users spread across 10 countries

Sample Customer Application

- Application:
 - Pulp and Paper customer using PI, ACE, ProcessPoint and the PP COM Connector
 - Real-time adjustments to recipe blends and other production specifications
- Value:
 - Ability to adjust feedstock to achieve an optimized least cost formulation
 - Immediate visibility to the cost impact of recipe changes

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Sample Customer Application

- Application:
 - Customer using PI, BatchView, Data Entry Grid, AlarmView, SQC, ProcessPoint, PP COM Connector, ProcessBook
 - Quality and manufacturing specifications from ProcessPoint are integrated with real-time manufacturing data
- Value:
 - Visibility of adherence to manufacturing targets, in an environment with frequent grade changes
 - Improved quality and grade consistency
 - Ability to analyze and improve the process through product based alarming and SQC analysis

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Benefits

- Improved change management
- Quicker time to manufacturing
- Reduced waste
- Reduced product variability
- Higher quality and increased customer satisfaction
- Ability to analyze and improve manufacturing

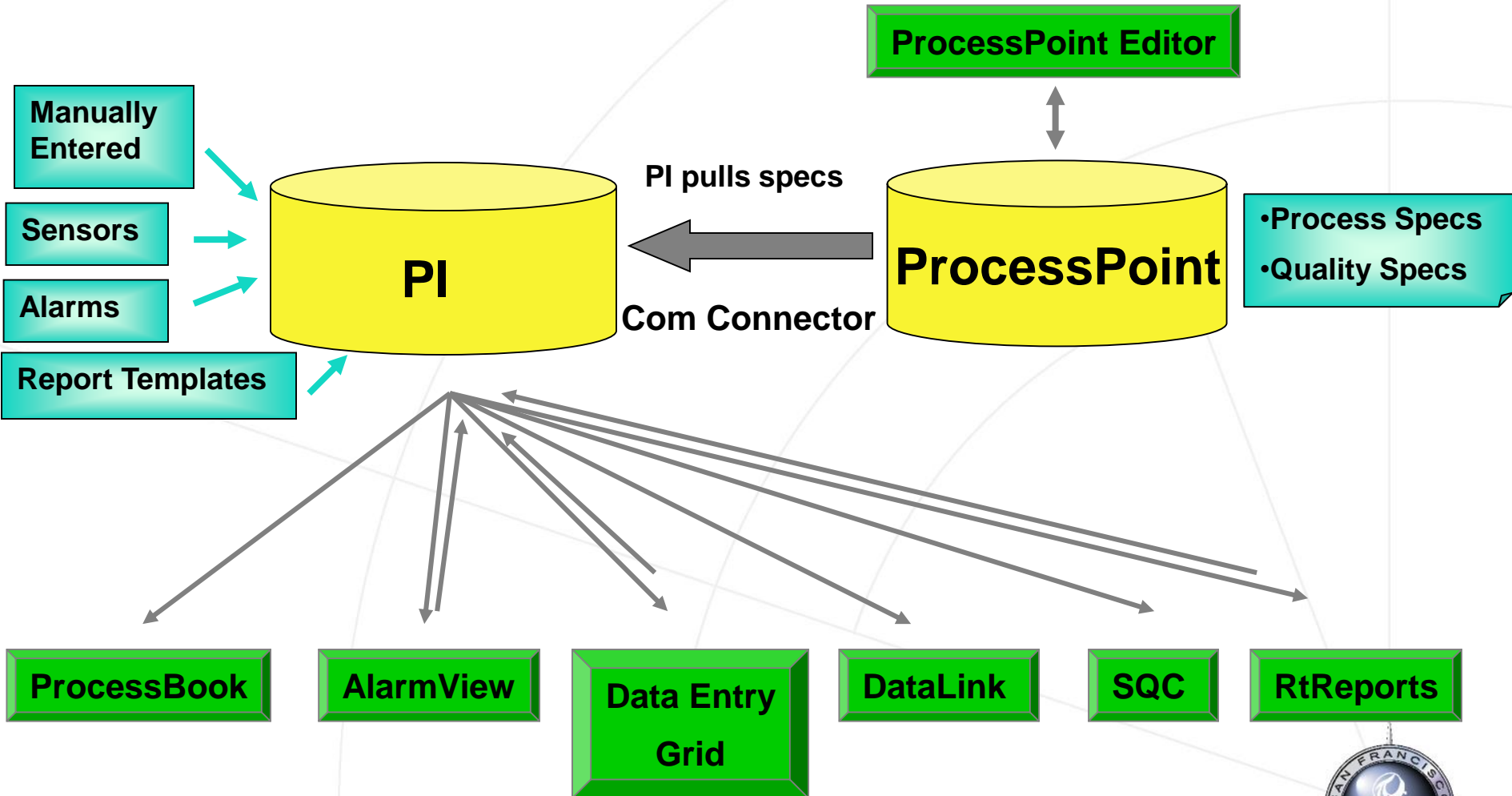
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Demonstration Scenario

- Pulp and paper example
- Quality specifications
 - i.e. Opacity, Ash, Basis Weight
- Process specifications
 - i.e. Machine Speed, Steam Flow, Material Feed Rates
- Specification data used to provide context to real-time manufacturing data

Demo Components



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Product Specifications: ProcessPoint

Demo Description

- 10 Quality parameters with:
 - Minimum, Target, Maximum
- 10 Process parameters with:
 - URL, UAL, TGT, LAL, LRL
- Version management
- Electronic audit trail

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- Items
- Library**
- Approvals
- Search Results

The main workspace displays a diagram of a 'Mixing' process. On the left, a tree view shows the project structure: Items, Library, Actions, Approval Plans, Attributes, Item Classes, Pick Lists, Units of Measure, Approvals, and Search Results. The 'Mixing' process is represented by a central node with two input nodes above it and one output node below it. To the right, a detailed process configuration window is visible, showing various parameters and options. The OSIsoft logo is in the top left corner of the workspace, and the text 'ProcessPoint Editor' is at the bottom.

- Items
- Library
- Approvals
- Search Results**

Type	Name	Status	Author	Last Modification	Data C
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Product Specifications: ProcessPoint

Demo Description

- 10 Quality parameters with:
 - Minimum, Target, Maximum
- 10 Process parameters with:
 - URL, UAL, TGT, LAL, LRL
- Version management
- Electronic audit trail

Value

- Capture the data important to your process
- ProcessPoint stores the complete product
- Powerful change management capabilities
- Spec data distributed to users, RtPM clients & other systems

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Process Monitoring: ProcessBook

Demo Description

- Real-time process data from PI
- Specification context data pulled from ProcessPoint with COM Connector
- Snapshot and historical data shown
- Limits update automatically when product code changes on equipment

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File Edit View Insert Tools Draw Arrange Window Help

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OSisoft Pulp and Paper Company
 Fine Paper Machine Number 1



Current Grade: FP20888
 Current Reel ID: 85021

Furnish Ratio

Virgin	20	<div style="width: 29%; background-color: green;"></div> 29	40		VFF SQC
Recycle	50	<div style="width: 62%; background-color: green;"></div> 62	70		RFF SQC
Broke	2	<div style="width: 4%; background-color: green;"></div> 4	10		BFR SQC

Machine Setup

Reel Speed	1750	<div style="width: 1772.6%; background-color: green;"></div> 1772.6	1950		Reel SQC
Steam Flow	3300	<div style="width: 3477.6%; background-color: green;"></div> 3477.6	3700		StFI SQC
Coat Weight	42	<div style="width: 47.0%; background-color: green;"></div> 47.0	50		COAT SQC

Refining Power (kW/ton pulp)

Recycle	10	<div style="width: 32%; background-color: green;"></div> 32	50		RRP SQC
Virgin	55	<div style="width: 61%; background-color: green;"></div> 61	95		VRP SQC

Additives (%)

TiO2	2.5	<div style="width: 4.82%; background-color: green;"></div> 4.82	6.5		TiO2 SQC
Starch	3.5	<div style="width: 6%; background-color: green;"></div> 6	11.5		Starch

Process Monitoring: ProcessBook

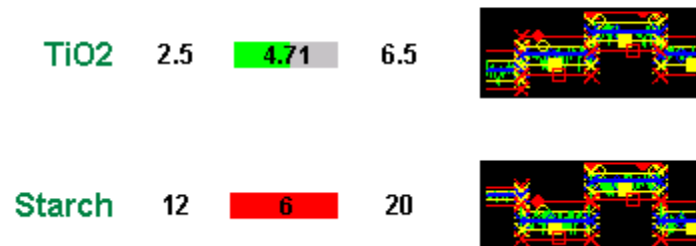
Demo Description

- Real-time process data from PI
- Specification context data pulled from ProcessPoint with COM Connector
- Snapshot and historical data shown
- Limits update automatically when product code changes on equipment

Value

- Instant feedback to operator when manufacturing is outside of limits

Additives (%)



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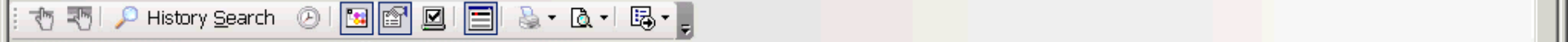


Respond to Process: AlarmView

Demo Description

- Product based SQC Alarms
- Alarm limits come from ProcessPoint
- Operators can enter reason codes or comments when violations occur

PI AlarmView



Alarm Hierarchy

Alarm Groups

- localhost
 - Mill X
 - OSI Paper Mill
 - R0101

Current Alarms - \\localhost\OSIMill

Display alarm conditions since:
*1h

Display alarm conditions during unit batch for this PI Unit:

Apply

Alarm	Condition	Prio...		Start Time	Sequence Start
SQC.Virgin Refiner Power	OneSideofCL	0		3/26/2006 8:55:06 PM	3/26/2006 8:54:36 PM
SQC.Starch %	OutsideOneSi...	1		3/26/2006 8:55:06 PM	3/26/2006 8:55:06 PM
SQC.Reel Speed	OutsideTwoSi...	2		3/26/2006 8:54:36 PM	3/26/2006 8:54:26 PM

Respond to Process: AlarmView

Demo Description

- Product based SQC Alarms
- Alarm limits come from ProcessPoint
- Operators can enter reason codes or comments when violations occur

Value

- Product based alarming
- History of alarm events with reason codes allow for post-production analysis and improvement

Enter Manual Values: Data Entry Grid

Demo Description

- Quality tests are performed on the product and results are manually entered
- Specification data from ProcessPoint
- Manually entered data inserted into PI

File Edit View Insert Tools Draw Arrange Window Help

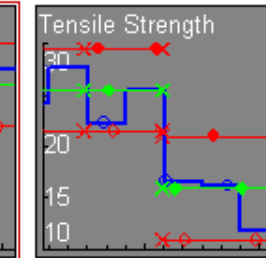
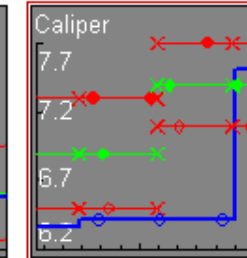
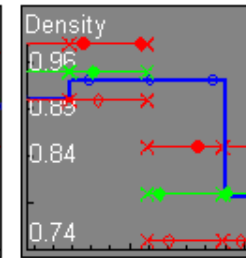
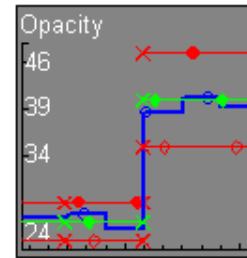
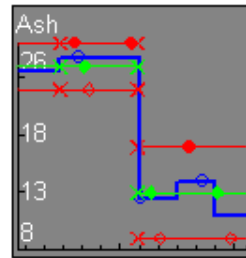
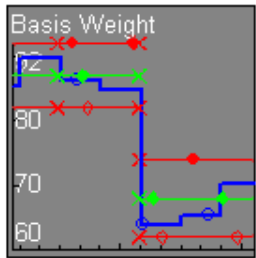
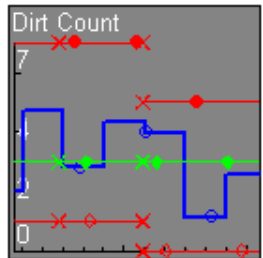
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OSisoft Pulp and Paper Company Lab Data Entry Sheet



Grade	FP77350	FP77350	FP69251	FP69251	FP69251
ReelCode	85021	85021	85021	85020	85021
State	Running	Complete	Complete	Complete	Complete
Start Time	3/30/2006 11:09:23 PM	3/30/2006 10:49:47 PM	3/30/2006 10:29:20 PM	3/30/2006 10:09:19 PM	3/30/2006 9:48:54 PM
End Time		3/30/2006 11:09:23 PM	3/30/2006 10:49:47 PM	3/30/2006 10:29:20 PM	3/30/2006 10:09:19 PM
Basis Weight	70.17593	65.29605	84.89371	89.68946	88.95786
Dirt Count	2.591089	1.146507	4.331105	4.750884	5.562984
Ash	11.0294	13.94761	24.8	23.6	23.48776
Opacity	39.1597	40.1087	26.16324	27.5	25.95368
Density	0.7958016		0.92	0.9	0.91
Caliper	7.518352		6.42	6.37	7.2
Tensile Strength	11.88733	16.62842	25.54384	27.68932	22.84832



Enter Manual Values: Data Entry Grid

Demo Description

- Quality tests are performed on the product and results are manually entered
- Specification data from ProcessPoint
- Manually entered data inserted into PI

Value

- Manual data is stored in PI Archive
- Users get immediate feedback when manual data is out of spec

Analysis and Improvement: DataLink

Demo Description

- Side by side comparison of key quality and process values
- Quality and process specification limits from ProcessPoint
- Manufacturing data from PI

Quality vs. Process Analysis

Get Data Clear localhost

Unit: PM1 Product: Process: Broke Fiber Furnish %
 Between: * and: *-8 Hours Quality: Moisture

Reel Data				Process Variable +			Quality Variable		
ID	PRODUCT	START TIME	END TIME	High	Low	Broke Fiber Furnish	High	Low	Moisture
85020	FP77350	3/29/2006 22:03	*	10	2	5.0	24	20	22.1
85021	FP69251	3/29/2006 21:43	3/29/2006 22:03	23	15	18.1	18	12	13.3
85020	FP77350	3/29/2006 21:23	3/29/2006 21:43	10	2	5.5	24	20	22.1
85021	FP69251	3/29/2006 21:03	3/29/2006 21:23	23	15	18.5	18	12	13.5
85020	FP77350	3/29/2006 20:43	3/29/2006 21:03	10	2	5.4	24	20	22.6
85021	FP20888	3/29/2006 20:23	3/29/2006 20:43	13	5	8.6	2	1	1.4
85020	FP77350	3/29/2006 20:03	3/29/2006 20:23	10	2	5.4	24	20	22.9
85021	FP77350	3/29/2006 19:43	3/29/2006 20:03	10	2	5.2	24	20	23.2
85020	FP77350	3/29/2006 19:23	3/29/2006 19:43	10	2	5.2	24	20	20.3
85021	FP77350	3/29/2006 19:02	3/29/2006 19:23	10	2	5.6	24	20	21.8
85022	FP69251	3/29/2006 18:42	3/29/2006 19:02	23	15	18.4	18	12	13.4
85021	FP77350	3/29/2006 18:22	3/29/2006 18:42	10	2	5.4	24	20	23.1
85021	FP20888	3/29/2006 18:02	3/29/2006 18:22	13	5	8.4	2	1	1.2
85020	FP20888	3/29/2006 17:42	3/29/2006 18:02	13	5	8.7	2	1	1.2
85020	FP77350	3/29/2006 17:22	3/29/2006 17:42	10	2	5.7	24	20	20.8
85020	FP77350	3/29/2006 17:02	3/29/2006 17:22	10	2	5.7	24	20	20.8
85021	FP77350	3/29/2006 16:42	3/29/2006 17:02	10	2	5.5	24	20	22.3
85022	FP69251	3/29/2006 16:22	3/29/2006 16:42	23	15	18.6	18	12	15.3

Analysis and Improvement: DataLink

Demo Description

- Side by side comparison of key quality and process values
- Quality and process specification limits from ProcessPoint
- Manufacturing data from PI

Value

- Detect out of spec patterns
- Link process conditions to finished product quality

Process Improvement: Real-time SQC

Demo Description

- Real-time SQC charts configured with:
 - URL spec tag set as upper spec limit
 - UAL spec tag set as upper control limit
 - TGT spec tag set as center line
 - LAL spec tag set as lower control limit
 - LRL spec tag set as lower specification limit

File Edit View Insert Tools Draw Arrange Window Help

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12.3



OSisoft Pulp and Paper Company
 Fine Paper Machine Number 1



Current Grade: FP77350
 Current Reel ID: 85022

Furnish Ratio

Virgin	20	<div style="width: 31%; background-color: green; height: 10px;"></div> 31	40		VFF SQC
Recycle	50	<div style="width: 55%; background-color: green; height: 10px;"></div> 55	70		RFF SQC
Broke	2	<div style="width: 5%; background-color: green; height: 10px;"></div> 5	10		BFR SQC

Machine Setup

Reel Speed	1750	<div style="width: 1833.5%; background-color: green; height: 10px;"></div> 1833.5	1950		Reel SQC
Steam Flow	3300	<div style="width: 3581.7%; background-color: green; height: 10px;"></div> 3581.7	3700		StFI SQC
Coat Weight	42	<div style="width: 45.4%; background-color: green; height: 10px;"></div> 45.4	50		COAT SQC

Refining Power (kW/ton pulp)

Recycle	10	<div style="width: 32%; background-color: green; height: 10px;"></div> 32	50		RRP SQC
Virgin	55	<div style="width: 67%; background-color: green; height: 10px;"></div> 67	95		VRP SQC

Additives (%)

TiO2	2.5	<div style="width: 4.48%; background-color: green; height: 10px;"></div> 4.48	6.5		TiO2 SQC
Starch	3.5	<div style="width: 8%; background-color: green; height: 10px;"></div> 8	11.5		Starch

Process Improvement: Real-time SQC

Demo Description

- Real-time SQC charts configured with:
 - URL spec tag set as upper spec limit
 - UAL spec tag set as upper control limit
 - TGT spec tag set as center line
 - LAL spec tag set as lower control limit
 - LRL spec tag set as lower specification limit

Value

- Statistical calculations performed automatically
- Determine:
 - Do limits reflect operating capabilities?
 - Can specification limits be tightened?

Certificate of Analysis: RtReports

Demo Description

- Report templates stored in PI
- PI provides real-time quality data
- ProcessPoint provides specification data

1 Report — 2 Context — 3 Generate

Search				
Report Filter Conditions				
Report Name	Version	Description	Template Status	RunTime
<div style="border: 1px solid gray; padding: 5px;"> <p>Report Type Case</p> <p>Name <input type="text"/></p> <p>Version <input type="text"/></p> <p>Template Status <input type="text"/></p> <p>Author <input type="text"/></p> </div>				
1				

Certificate of Analysis: RtReports

Demo Description

- Report templates stored in PI
- PI provides real-time quality data
- ProcessPoint provides specification data

Value

- Automate generation of Certificate of Analysis
- Expedite shipment of finished product

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Demo Summary

- ProcessPoint adds specification context to RtPM clients
 - ProcessBook
 - PI SQC
 - AlarmView
 - Data Entry Grid
 - PI DataLink
 - RtReports

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Summary

Drive Operational Efficiency

- Standardized data model and structured environment for controlled change management
- All users access the same set of product specifications for process and quality parameters

Accelerate Decision Making

- Provide visibility of specification data to real-time displays and data analysis tools
- Enable automated compliance reports

Enable Performance-Driven Manufacturing

- Less time managing specs and more time improving the process
- Improve product quality and consistency
- Reduce waste and rework

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