



Putting Performance in Context

Keys to Closing The Performance Gap

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Todd Spencer, SmartSignal
Michael Saucier, Transpara

Today's Presentation

- Maureen Coveney
 - Putting Performance in Context, building on the OSIsoft Platform
- Todd Spencer
 - EPI*Center Early Warning, turning intelligence into action
- Michael Saucier
 - Mobile KPI, keeping the boss in the know

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What Happens When Equipment Fails to Perform?

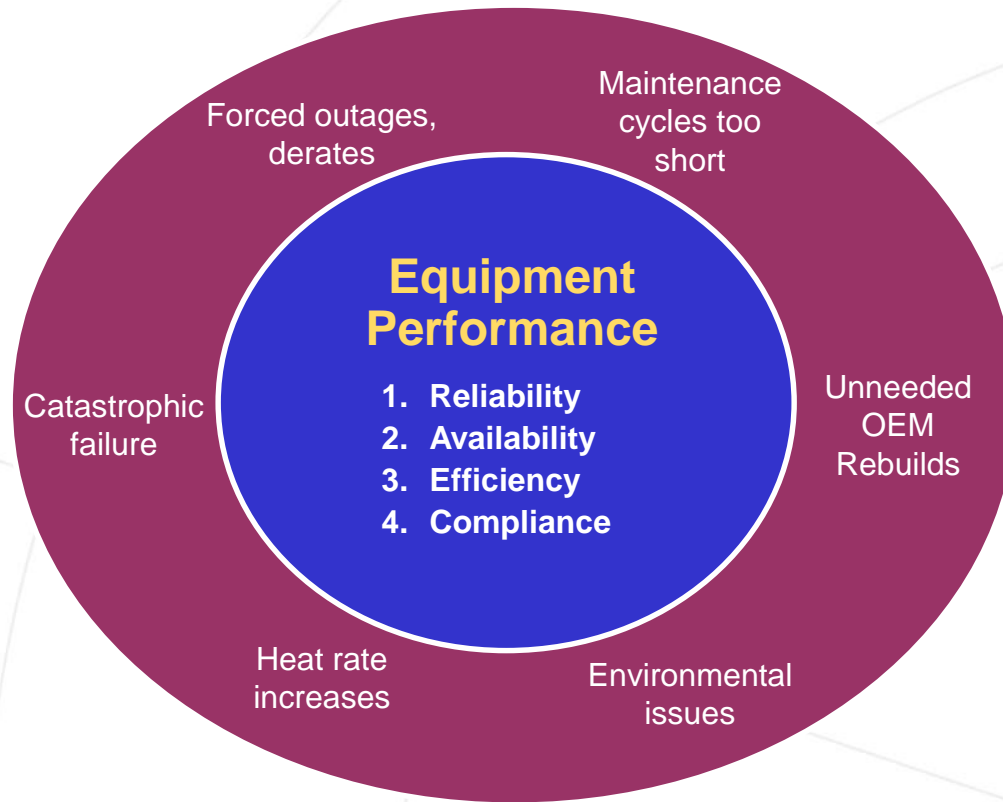
Equipment Performance

1. Reliability
2. Availability
3. Efficiency
4. Compliance

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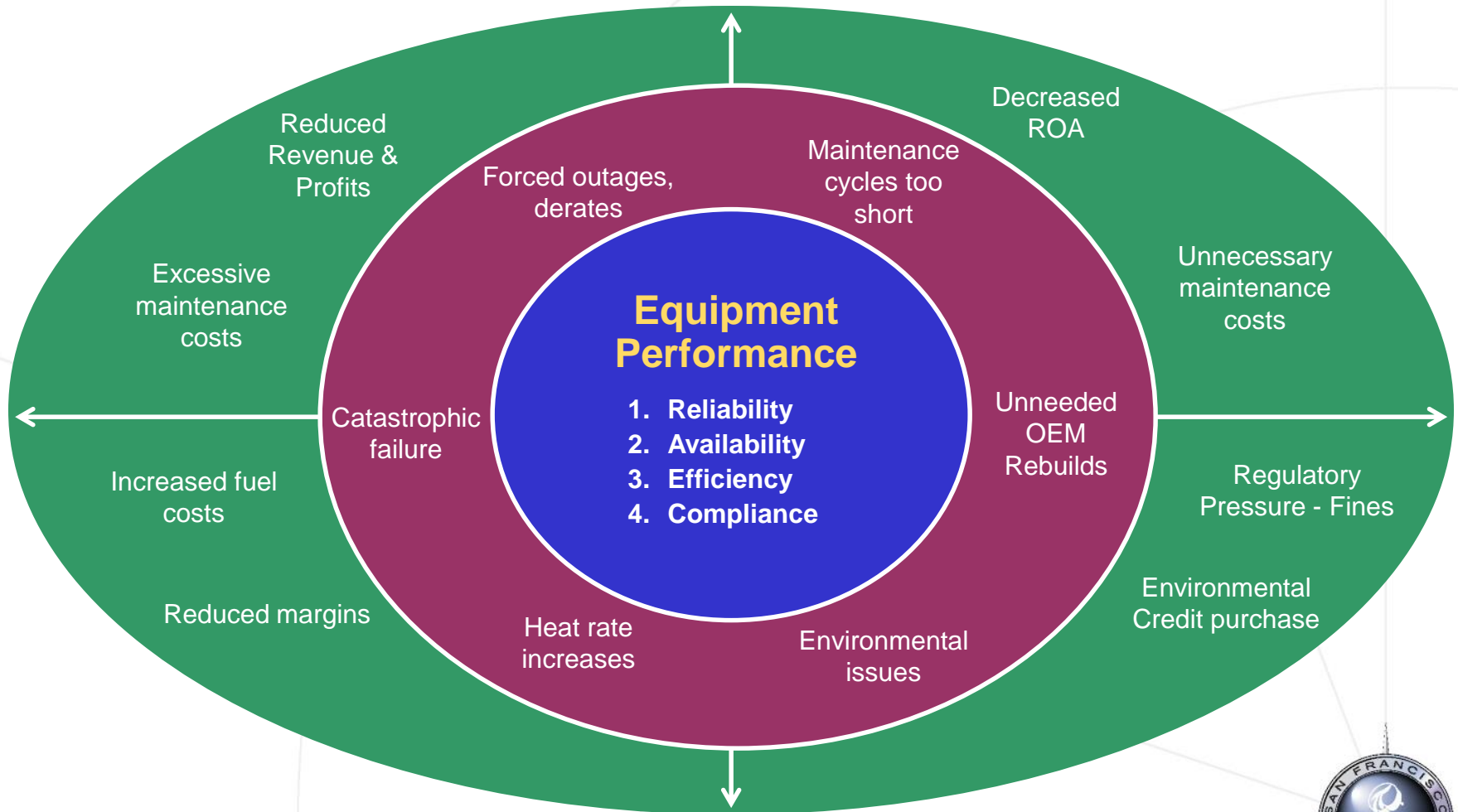
What Happens When Equipment Fails to Perform?



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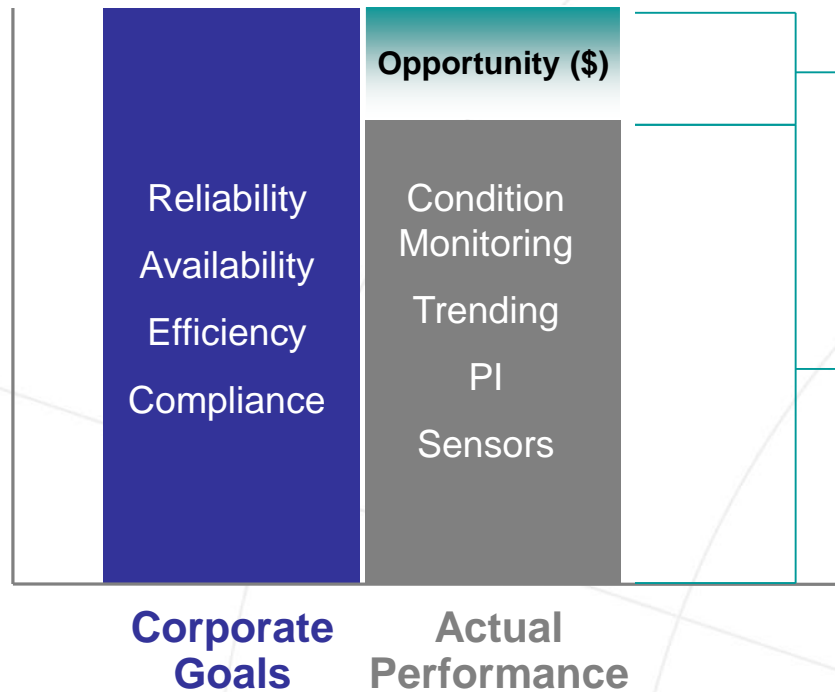
What Happens When Equipment Fails to Perform?



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The Performance Gap



...but there is still more benefit to realize!

Best practices take you a good portion of the way...

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Meeting the Challenge – Closing that Performance Gap!

- Access...connect to your data
- Organize...identify assets and relationships
- Transform...data into information via simple to complex calculations
- Display...through role-based, contextually significant and informed views
- (So that you can)
- Manage...before the incident occurs

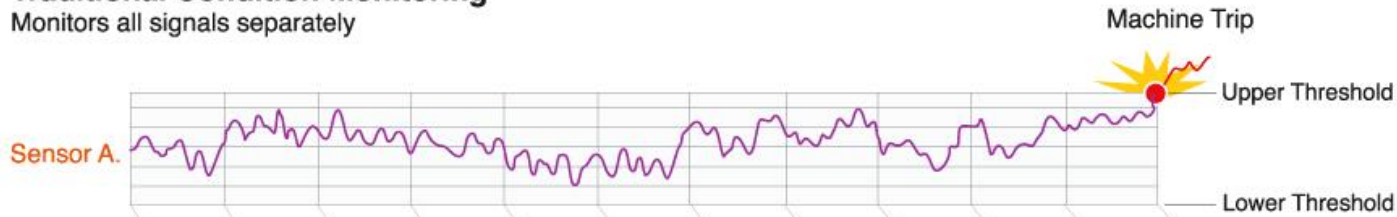
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SmartSignal — Early Detection

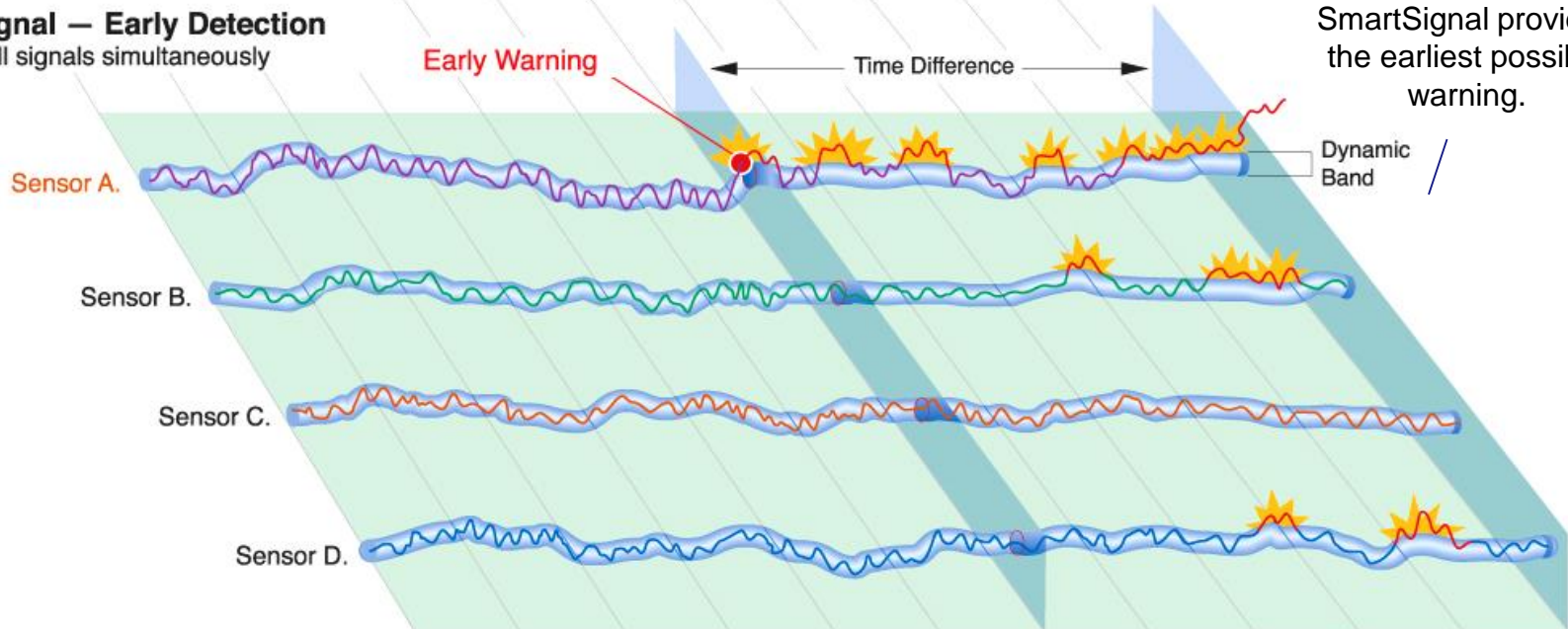
Traditional Condition Monitoring

Monitors all signals separately



SmartSignal — Early Detection

Monitors all signals simultaneously



By creating a dynamic band around each sensor value in real time and correlating it to other sensor values, SmartSignal provides the earliest possible warning.

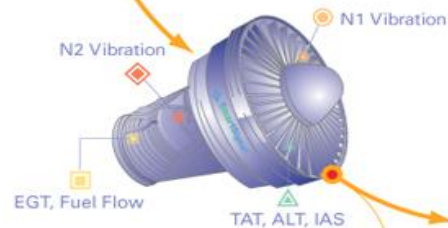
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How EPI*Center Works

EPI*Center collects a “snap-shot” of sensor values that make up an asset model.

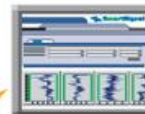
Robust, Real-Time Alerting of Impending Problems



Personalized Empirical Model

Removes Effects of Normal Operation

Determines if Operations is Abnormal



Associates Deviations with Known Problems



The Diagnostic Rules Engine sees if the alert represents a known pattern or if it meets the pre-established criteria for being promoted to “incident” status.

Creates a personalized empirical model of normal asset performance using a statistical “snapshot.”

Removes the effect of normal operation by subtracting *estimated* from *actual* values to generate “residuals”.

Compares the residuals using a patented statistical technique. In the case of significant deviation, EPI*Center issues an “alert”.



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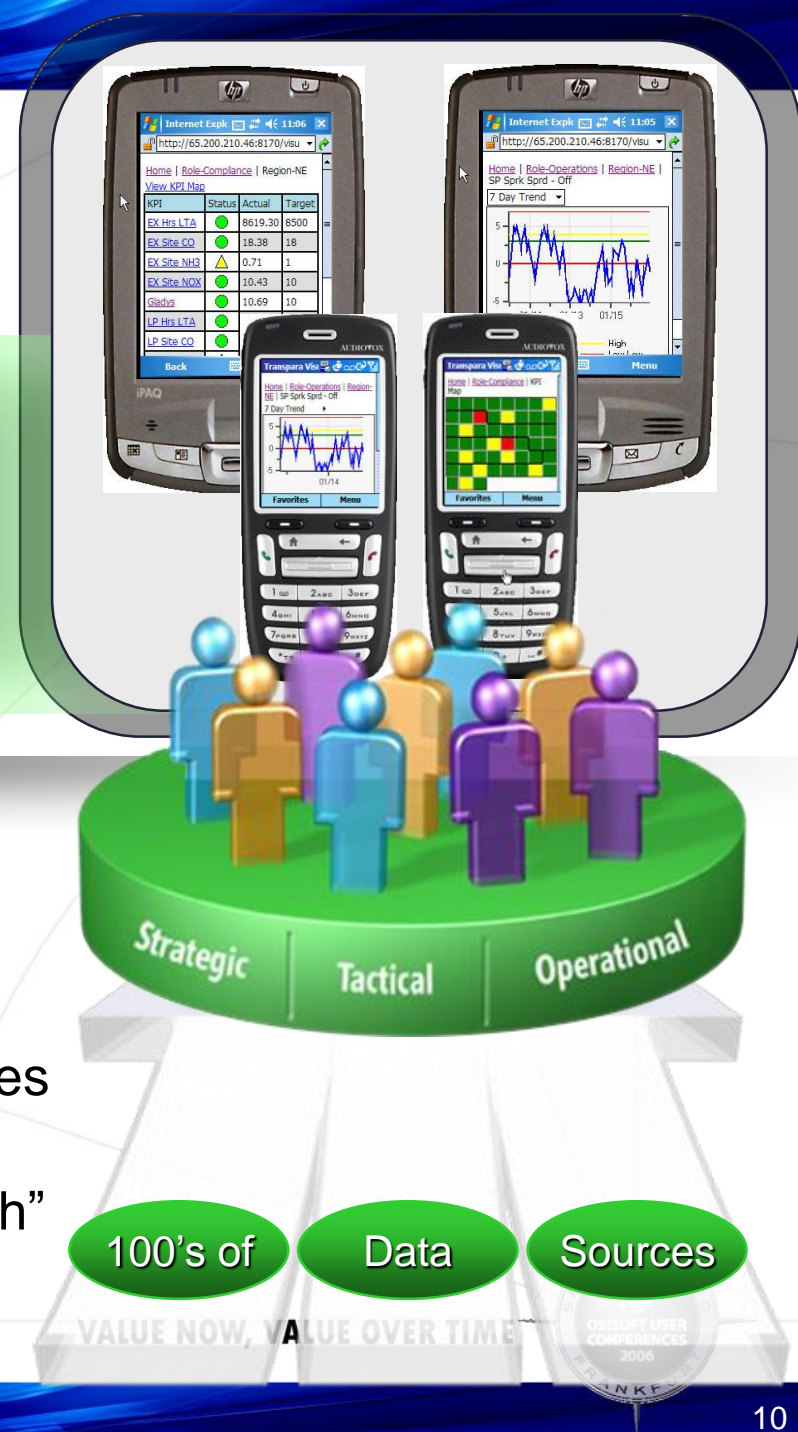
Transpara

Visual KPI

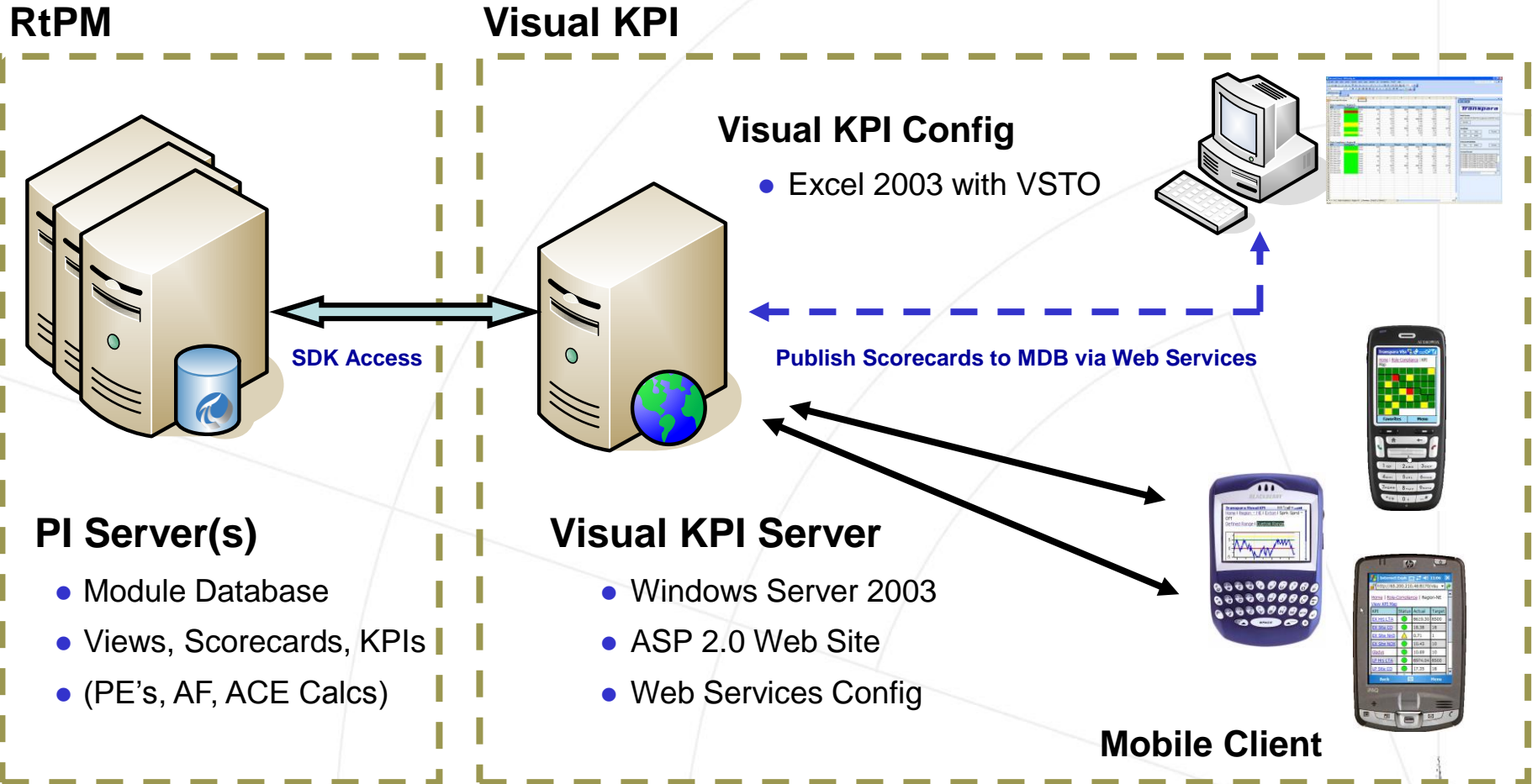
Adds value to OSIsoft RtPM by delivering Scorecards, KPI Maps and Real-time trends to Mobile decision makers with 100% configuration

- ★ Delivers Key Performance Indicators through any Windows Mobile device
- ★ Adds detailed drill-down by providing high fidelity, long-term history
- ★ Supports hundreds of real-time data sources and over 60 different mobile devices
- ★ Gives stakeholders “one version of the truth”

Transpara



Visual KPI Architecture



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Scenario in Action...

- *Setting* - “True to life” industrial operation
- *Characters*
 - Bob – Operations Analyst
 - Marla – Component Health Expert
 - Tyler – Plant Manager
- *Scenario* - early warning systems detect potential failure communicated to the characters throughout the organization
- ...*let us see what happens...*

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Bob Paulson – Operations Analyst

- Scene 1
 - Receives an e-mail and explores a potentially abnormal event on the Watch List.
- Scene 2
 - Creates a a work order to mitigate the problem.
- Scene 3
 - Dismisses incident and moves on with his day.

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What You Saw

- The OSIsoft Platform supplies the sensory data and drill down for additional analysis
- To this we add the power of SmartSignal EPI*Center early warning and Transpara Visual KPI mobile monitoring, both of which leverage key OSIsoft Platform components

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Enabling Infrastructure

- EPI*Center leverages
 - PI
 - Analysis Framework
 - SmartSignal
SmartConnector
 - ProcessBook
 - RtWebParts
- Visual KPI leverages
 - PI
 - Module Database
 - PEs, AF, ACE calcs
 - SDK

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SmartConnector

- XML based connector
- Accesses SmartSignal's web service to query asset definition in the EPI*Center Workbench
- Imports structure into Analysis Framework's metadata database, creating AF templates
- Now the user can drag and drop templates to easily create ProcessBook views
- SmartConnector will re-synchronize and update template definitions as the configuration changes in Workbench

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Analysis Framework (Data Directory)

- Organization of your data – 1000s of points
 - According to naming convention
 - In the way that you would like to use it in displays and applications
- Organizes relational and complex data with your PI data
 - Your domain knowledge is reuseable (centralized)
- Replaces programming with configuration
- Protects your investment in your displays, reports, and applications

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Putting Performance in Context

- ...is as simple as
 - Importing an asset structure into AF and remaining synchronized with the system of record
 - Configuring asset attributes
 - Organizing process objects
 - Defining and configuring role-based information views and KPIs

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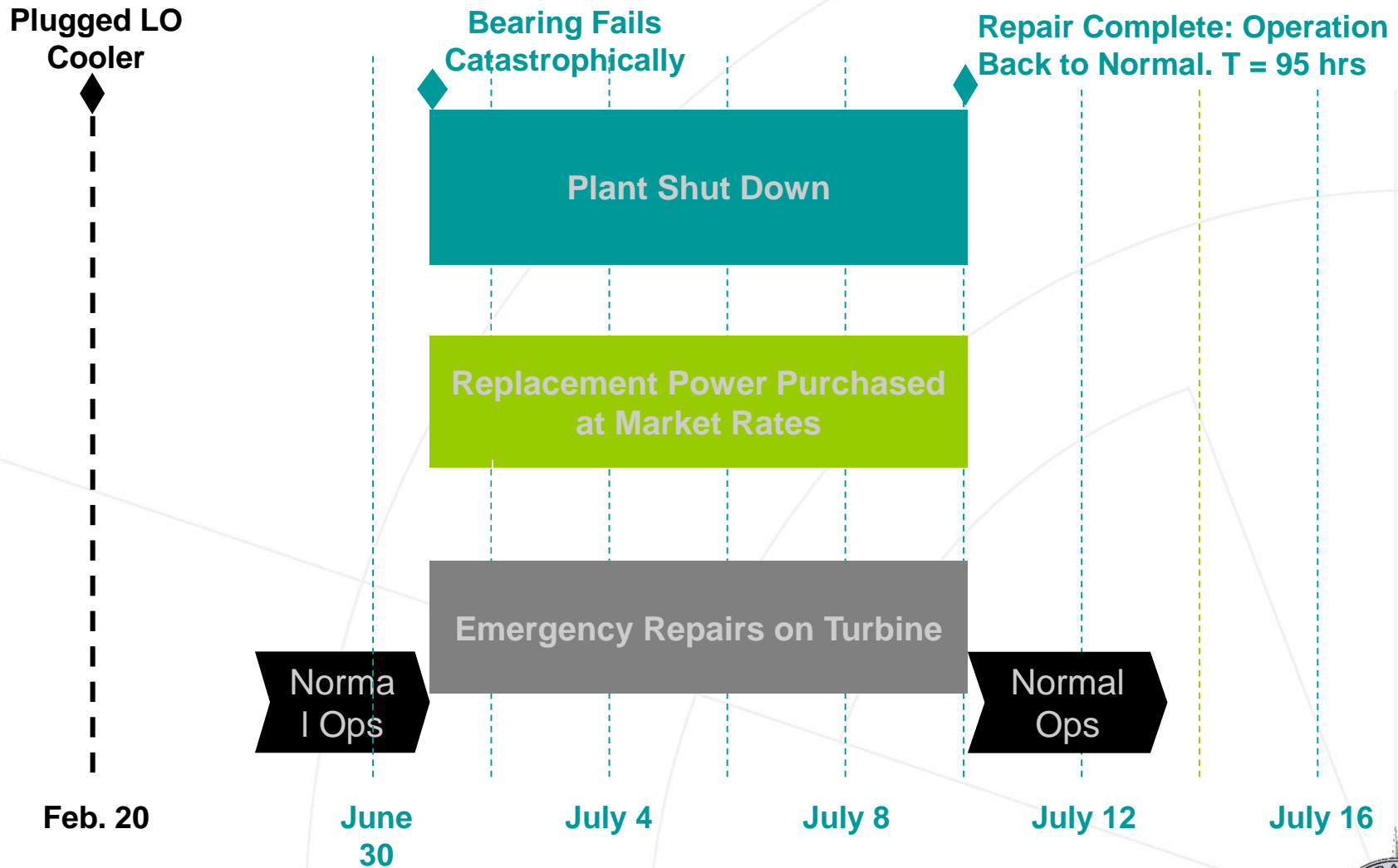
Platform Roadmap Concepts at Work

- Simple
 - User experience is configuration-oriented, intuitive (drag and drop for process views), role-based
- Enterprise Aware
 - SmartConnector ensures synchronization with Enterprise systems of record
 - Easy to deploy and manage
- Highly Available
 - Context fidelity is ensured through the HA PI solution

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Failure Scenario: No Early Warning



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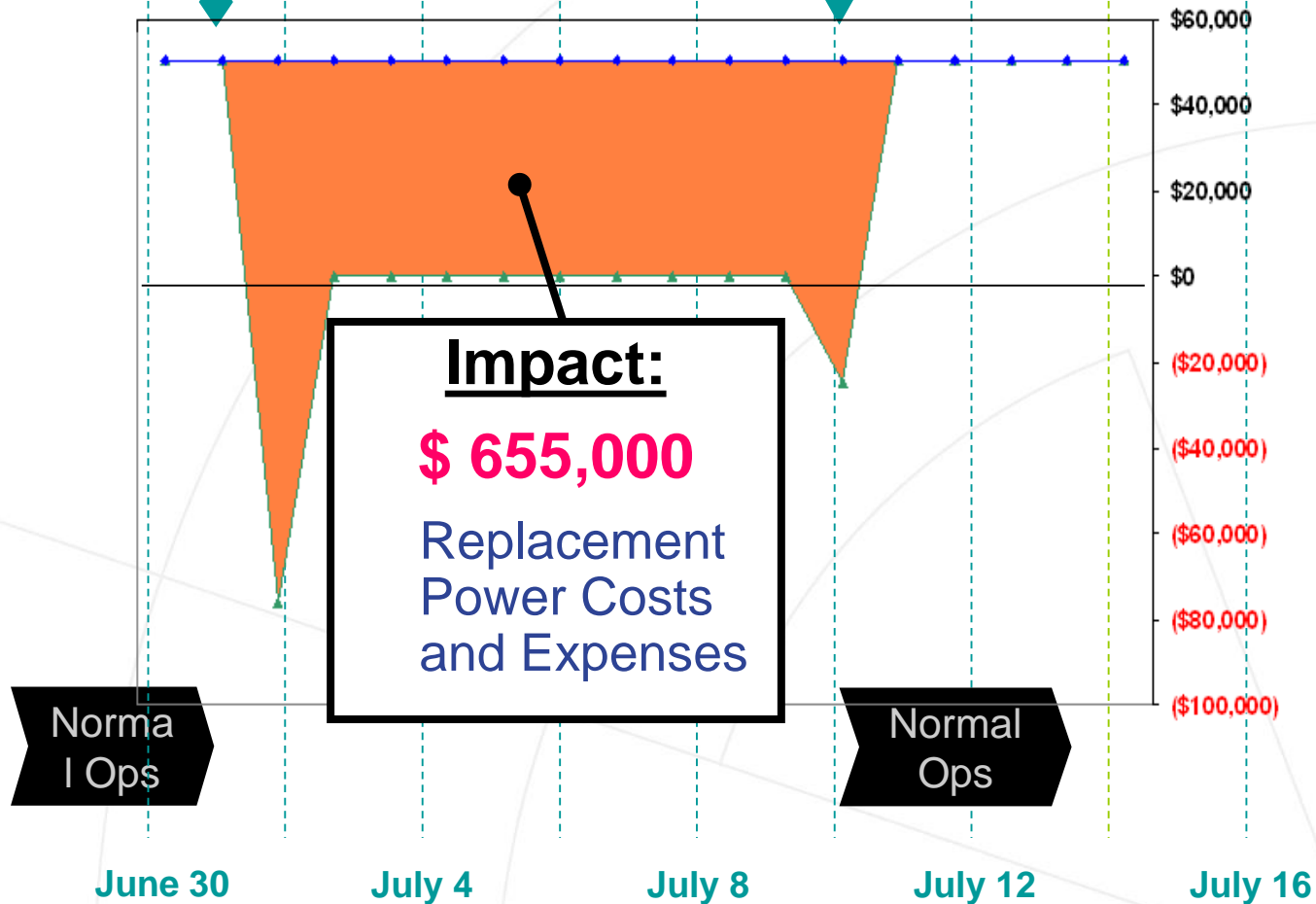


Failure Scenario (\$): No Early Warning

Plugged LO
Cooler

Bearing Fails
Catastrophically

Repair Complete:
Operation Back to Normal

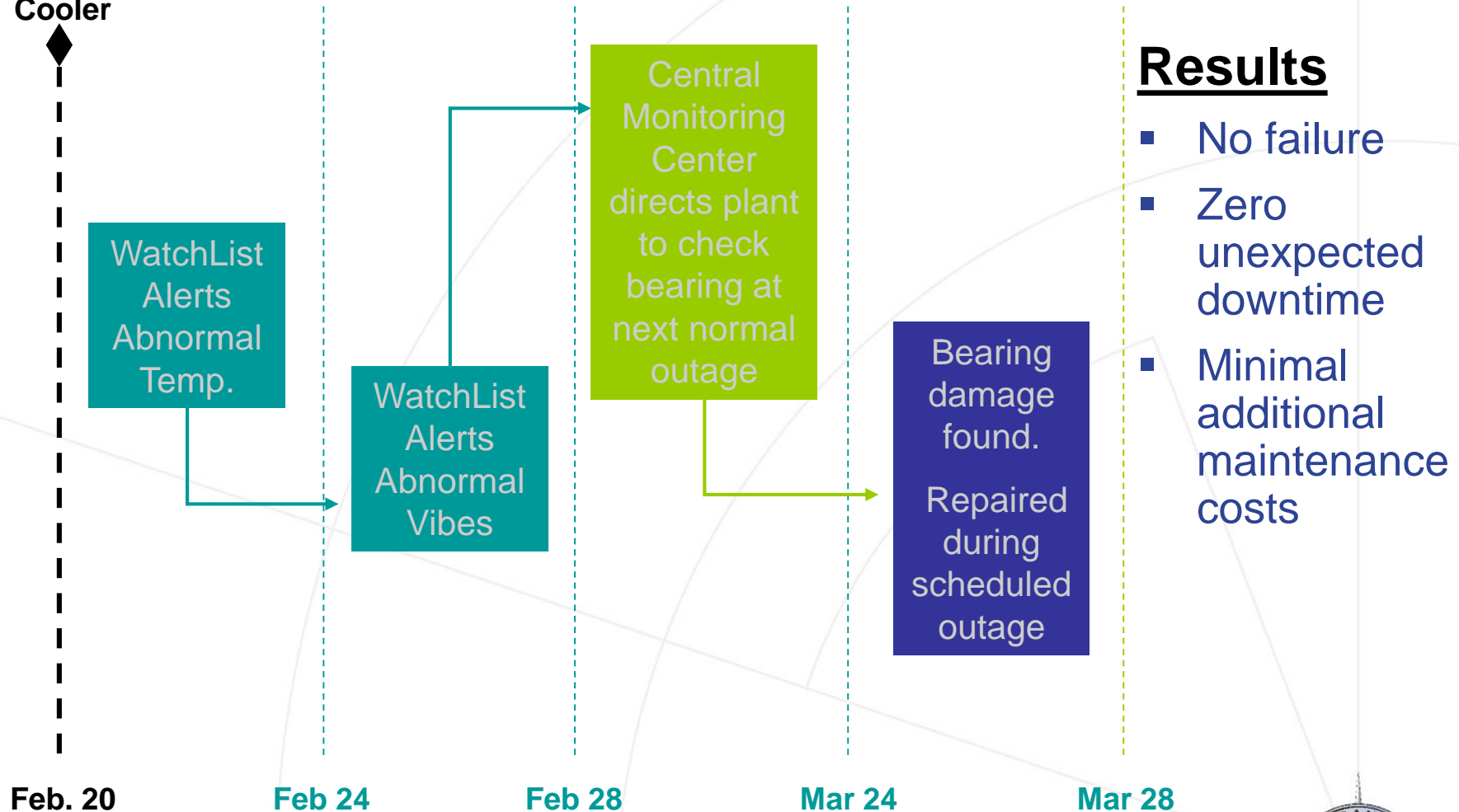


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Result of Real-time Performance Management

Plugged LO
Cooler



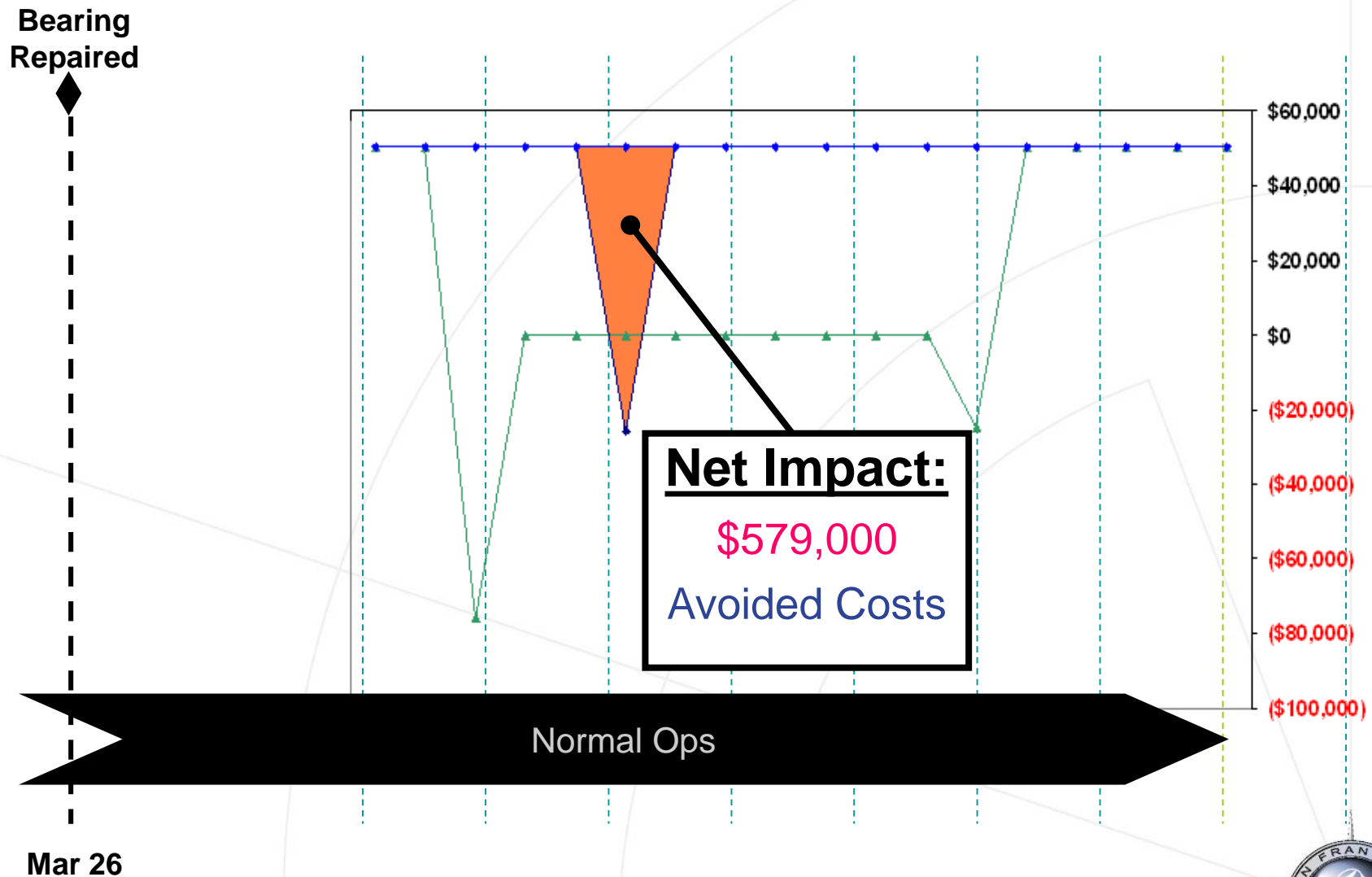
Results

- No failure
- Zero unexpected downtime
- Minimal additional maintenance costs

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Failure Scenario (\$): With Early Warning



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Putting Performance in Context

- Moves an industrial operation from *reactive* to *proactive*, increasing effectiveness and minimizing manpower and material costs
- Extends benefits throughout the organization
 - Process Optimization, Dispatching, Trading
- “Builds upon the Foundation”, *leveraging your investment in PI*

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For More Information

- Visit SmartSignal's exhibit pod
- Visit Transpara's exhibit pod
- Experience Analysis Framework, iViews, and RtWebParts at the Learning Lab
- Attend sessions on Wednesday
 - Foundation, 1:00 pm
 - iViews, 10:00 am
 - RtWebParts, 2:00 pm
- Visit OSIsoft Developers at the Product Expo

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Questions?

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