



# Smarter Pharma with Predictive Analytics

Presented by

Danny Stout - Pre-Sales Professional, TIBCO Software  
Ken Horgan - Global Sales BioPharma, TIBCO Software

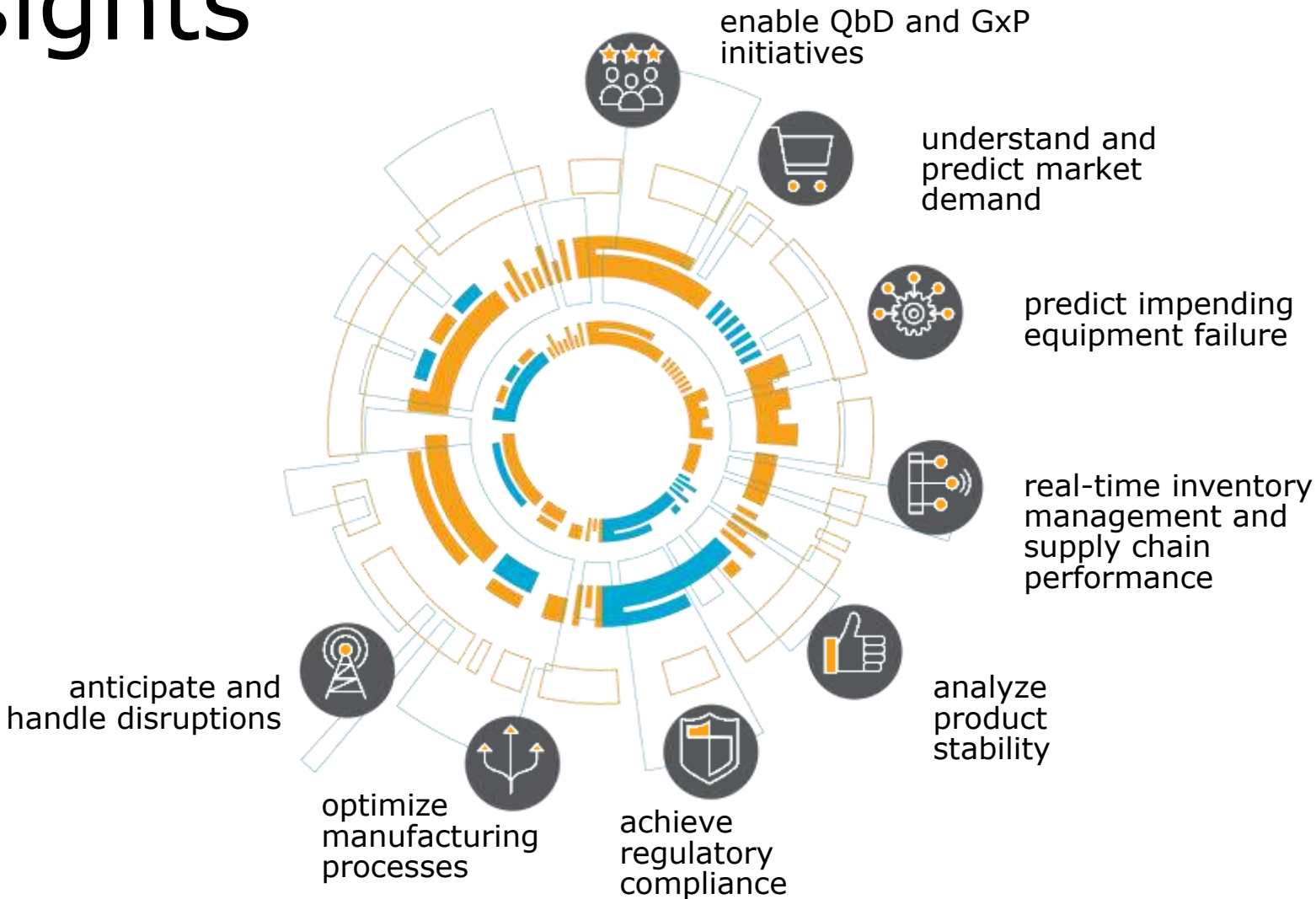


# Smarter manufacturing requires analytic insights

Manufacturing Intelligence means automated analytics to optimize processes, improve quality, and monitor suppliers.

Industry 4.0 requires automated Connected Intelligence to leverage data from possibly millions of sensors.

This drives competitive differentiation, customer satisfaction and business success.



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# Smarter Manufacturing Use Cases



## Sales & Marketing

Understand market demand, predict customer behavior



## Supply Chain

Forecast demand, optimize inventory, monitor suppliers



## Manufacturing Operations

Real-time equipment and process monitoring



## Product & Process Quality

Statistical process control, yield management, and reliability analysis



## Field Service & Support

Predictive maintenance, warranty analytics, and field service optimization



## Research & Development

Predict successful designs and processes



## Regulatory Compliance

Standardize, automate, and monitor QbD and GxP initiatives



## Dashboards & Reports

Collaborate and share insights across the organization

# One stop shop for manufacturing insights



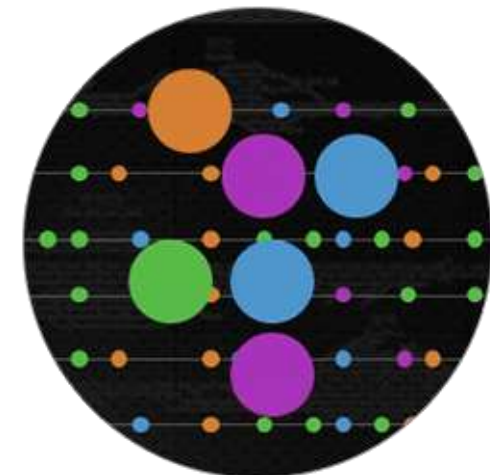
BI & ANALYTICS

AI-driven visualization to gain insight to find actionable insights



DATA SCIENCE

Create analytics that can predict the future based on history



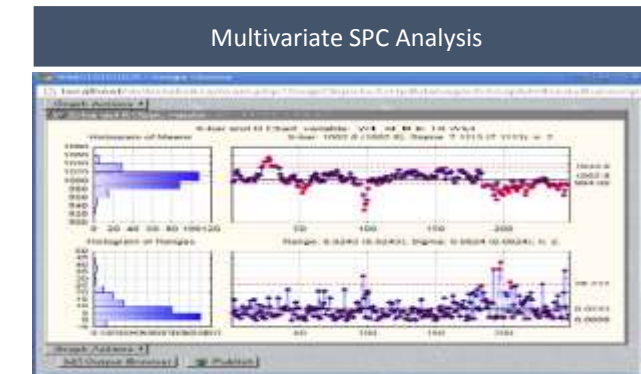
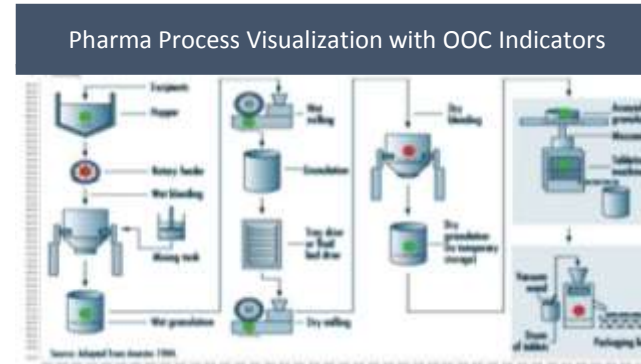
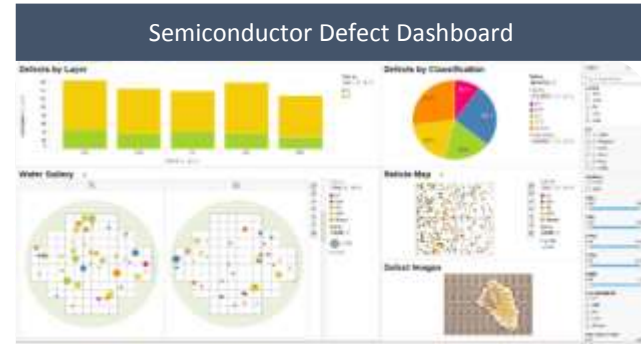
STREAMING ANALYTICS

Dynamic analytics and AI, to take action on real time streaming data

# Smart Data Viz, Dashboards & Reports

Quickly visualize and reveal hidden patterns in your data

- Deliver interactive dashboards
  - Engineers & execs and drill down to understand process excursions
- Visualize process flows
  - Overlay process flow visualizations with out of control indicators
- Standardized reports
  - Deliver standardized reports backed by powerful analytics



## Reusable workflow



Understand details, assign causes & actions



Audit trail of changes

Sequence	Time Stamp	Computer	User	BEV/SS User	Category	Action	Old Value	New Value	Misc	Person	First Code	First Val.	Last Code	Last Val.
1	1/5/2006 9:00:06 AM	FEAMES-HP	FEAMES-HP Administrator	Admin	Document	Logging Enable	None	Yes						
2	1/5/2006 9:00:05 AM	FEAMES-HP	FEAMES-HP Administrator	Admin	Data	Change Cell	3	100		1	10	1	10	
3	1/5/2006 9:00:30 AM	FEAMES-HP	FEAMES-HP Administrator	Admin	File Spec	Change File Long Name	Foreign car lock 'top'	='d'200						
4	1/5/2006 9:00:31 AM	FEAMES-HP	FEAMES-HP Administrator	Admin	Data	Recalculate Formula				1	1	100	1	
5	1/5/2006 9:00:37 AM	FEAMES-HP	FEAMES-HP Administrator	Admin	Document	Undo			Multiple					

# Reusable Data Science

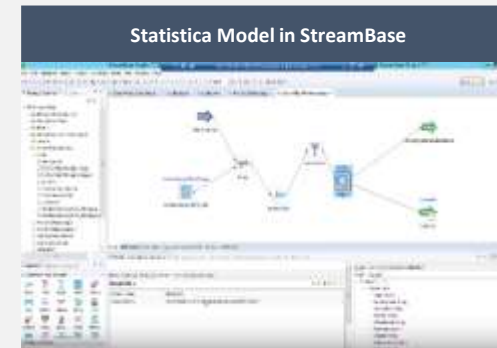
Standardize and ensure analytic best practices

- Create reusable analytic and data prep workflows
  - Embed best practices and standards into workflows, built once, reuse many times
- Rapidly respond to process excursions
  - Drill down for more detail understand causes, and assign actions
- Ensure validation
  - Electronic signatures, version control audit trails

# Streaming Analytics

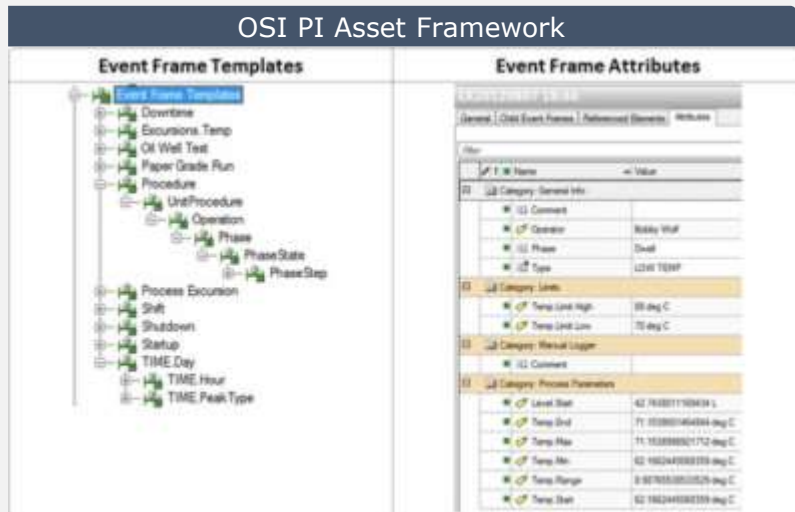
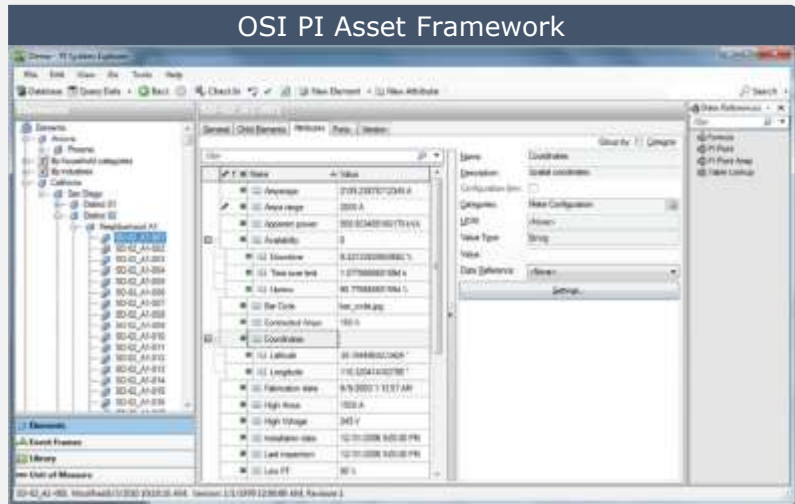
Take action on real-time streaming data

- Monitor processes and real time data streams
  - Respond to excursions in real time
- Predict future events from real-time streams
  - Predict and take preventative measures
- Integrate with existing systems
  - Leverage existing investments and increase ROI with analytics



# OSIsoft PI System Asset Framework Integration

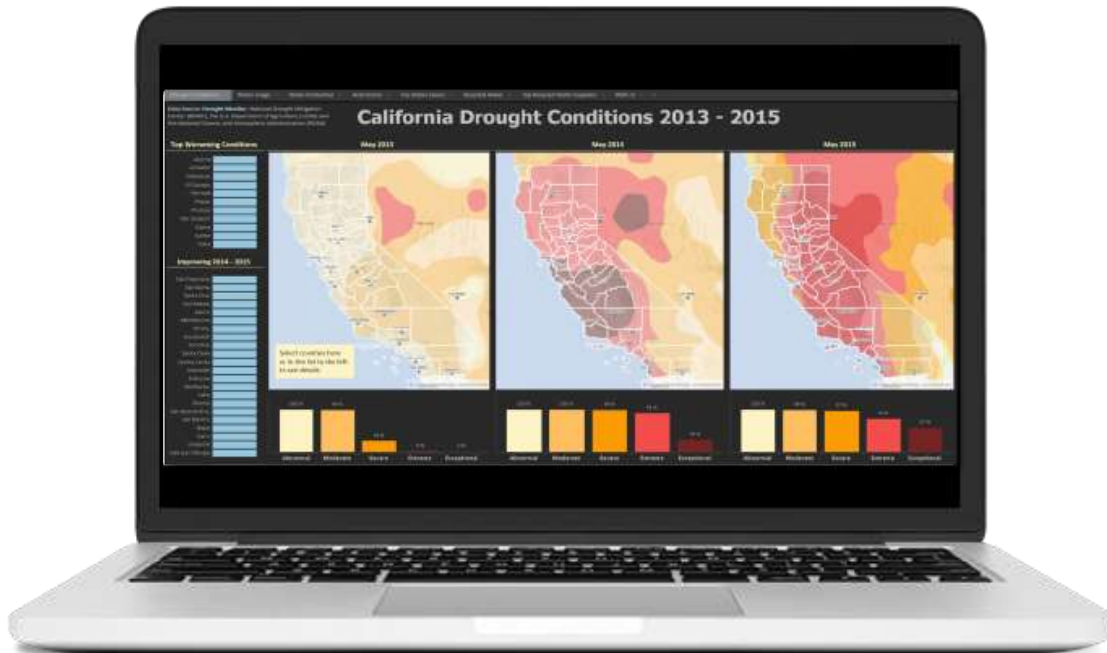
Apply visual, advanced, and streaming analytics and on OSIsoft PI Data



- Connect and integrate data from OSIsoft PI System
  - Apply advanced analytics and visualizations on OSIsoft PI Data
- Aggregate data with OSIsoft PI Data for more effective analytics
  - Combine data from multiple systems for more effective analytics



# World-class manufacturing technologies

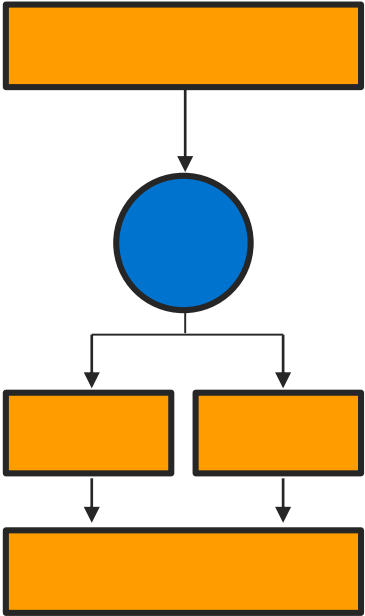


**Visual  
Analytics:**  
Spotfire, Live  
DataMart

**Advanced  
Analytics:**  
TERR,  
Statistica

**Streaming  
Execution:**  
StreamBase,  
BusinessEvents

# Manufacturing Insight through Predictive analytics, advanced AI, and dynamic visualizations



Smarter Manufacturing and Industry 4.0  
Fueled by TIBCO Analytics

## **Danny Stout**

[dstout@tibco.com](mailto:dstout@tibco.com)

Pre-sales Professional  
TIBCO Software



## **Ken Horgan**

[khorgan@tibco.com](mailto:khorgan@tibco.com)

Global Sales Pharma  
TIBCO Software



# Questions

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



State your **name & company**

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감사합니다

Danke

谢谢

Merci

Gracias

**Thank You**

ありがとう

Спасибо

Obrigado