

Bharat Light & Power

Unlocking Value @ the speed of real time...

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Chief Development Officer



OSIsoft.
REGIONAL SEMINAR 2014
The Power of Data
DECISION READY IN REAL-TIME
I N D I A

BLP Vision

To improve the quality of life of people by providing clean energy at an affordable price

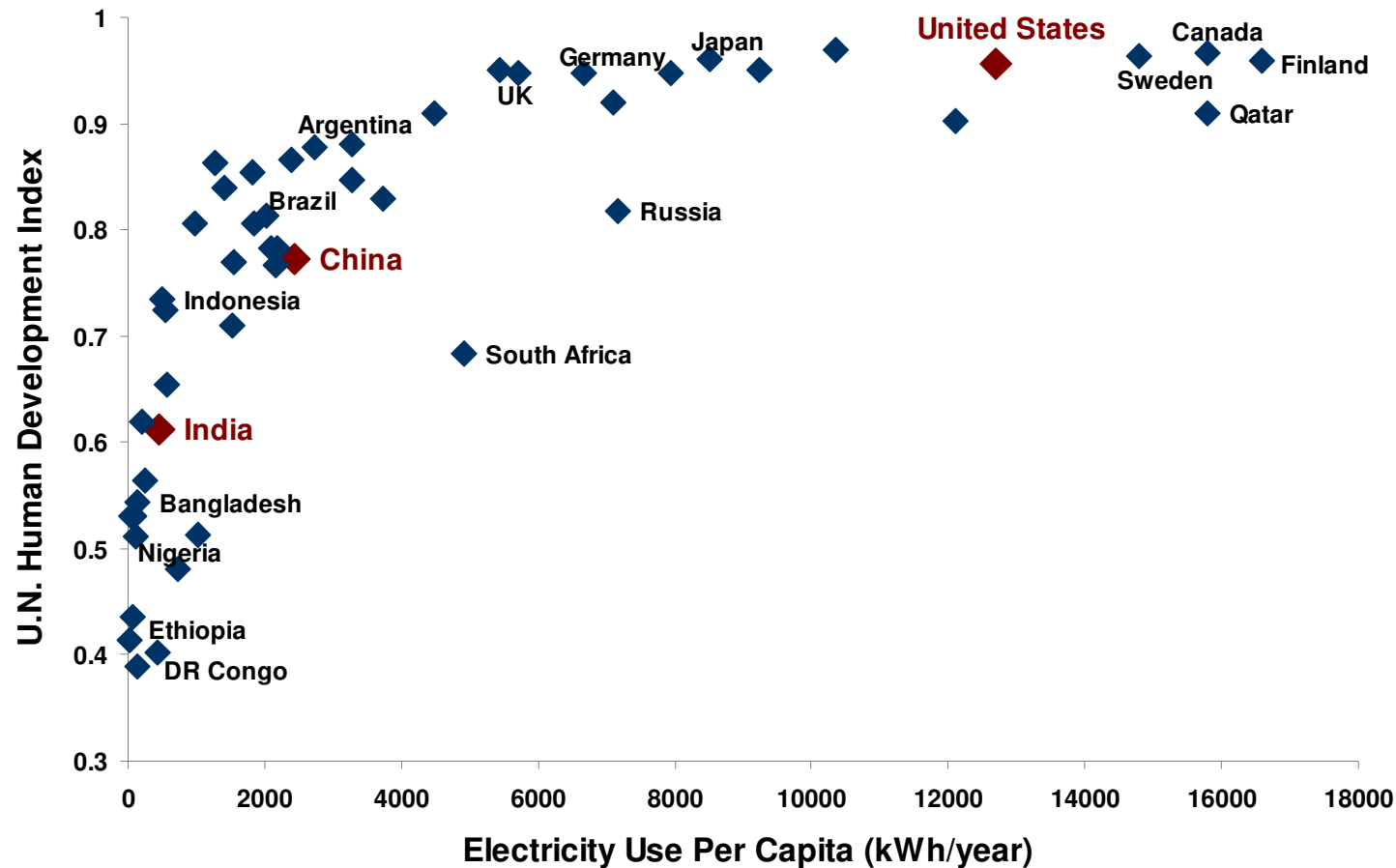


To provide world class services by leveraging Big Data and Analytics for the energy & utility sector



Challenges of the Renewable Industry

United Nations links affordable energy to quality of life



Source: CIA World Fact Book 2009, United Nations Development Program's Human Development Report, 2009.

India Growth Trends...

**Growing
Population**



**Increasing
Consumption**



**Greater Energy
Security**



**Environmental
Concerns**



... Creates Big Challenges

Statistics from Wind Industry

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CAPEX cost per MW - 7 crores

OPEX cost per MW YOY – 15 lacs

Units generated per MW per annum – 22 lacs*

Approx annual revenue/MW – 1.1 crores

Total Installations in India - 20GW

Total Installations Globally - 320GW

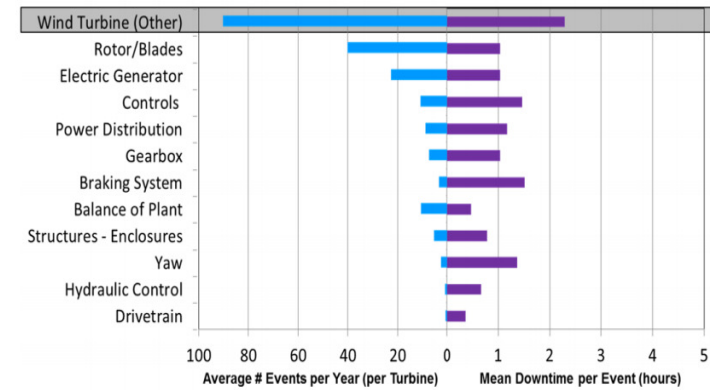
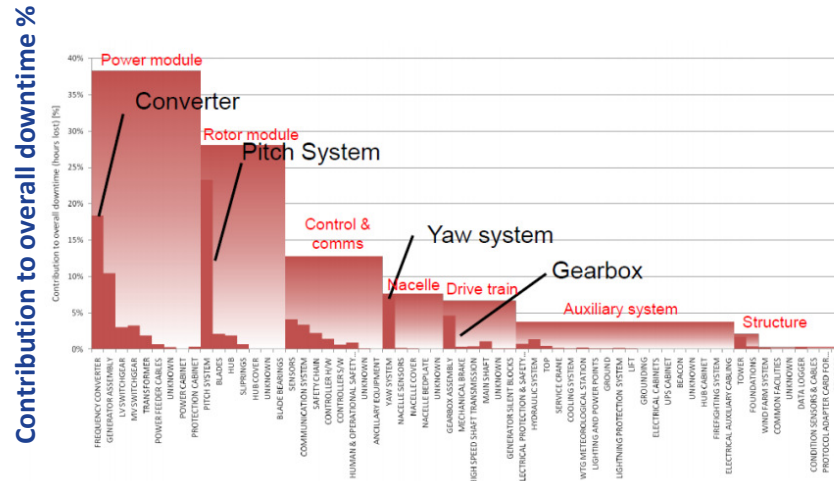
If a 2 MW WTG is down for 3 months in peak wind season it can result a loss to the tune of 1.25 crores in a span of 3 months

What will you rely on to protect your investments??? [Link to Video](#)

Calculated at 25% PLF and PPA of Rs 5/Kwh, all numbers in INR

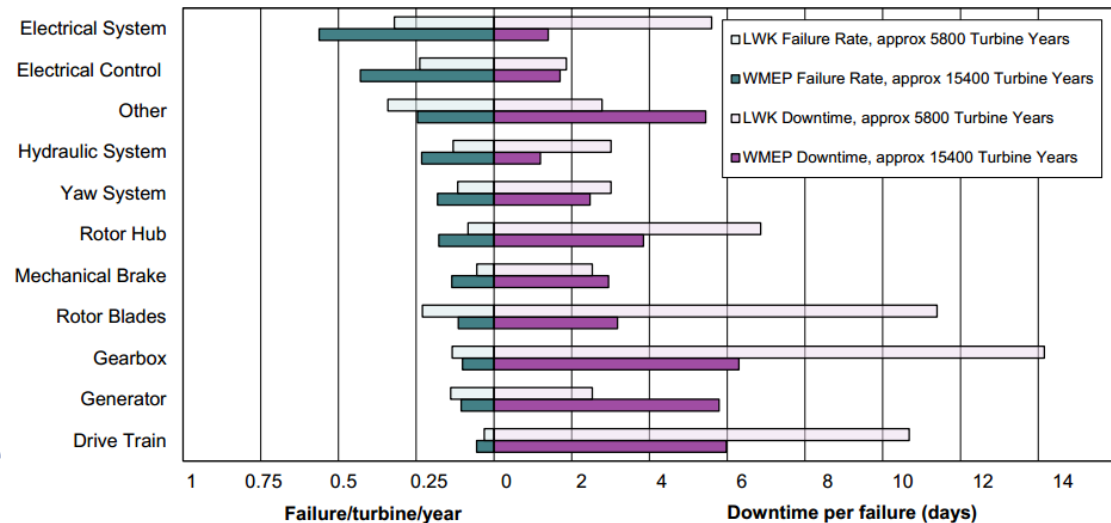
Downtime...the dreaded word!

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Failure rate & downtime

Failure/turbine/year and downtime from two large surveys of land-based European wind turbines over 13 years



*source:NREL

- Electrical systems had highest failure rate.
- Gearboxes caused longest downtime per failure.
- 75% faults caused 5% downtime and 25% faults caused 95% of downtime

Predictive analytics can reduce downtime drastically...

Industry Characteristics

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Long term assets



Selective OEM's



Limited accessibility



High CAPEX driven



High capital spare parts
Small margin in OPEX



Suboptimal Intelligence



Challenges in Training on site employees



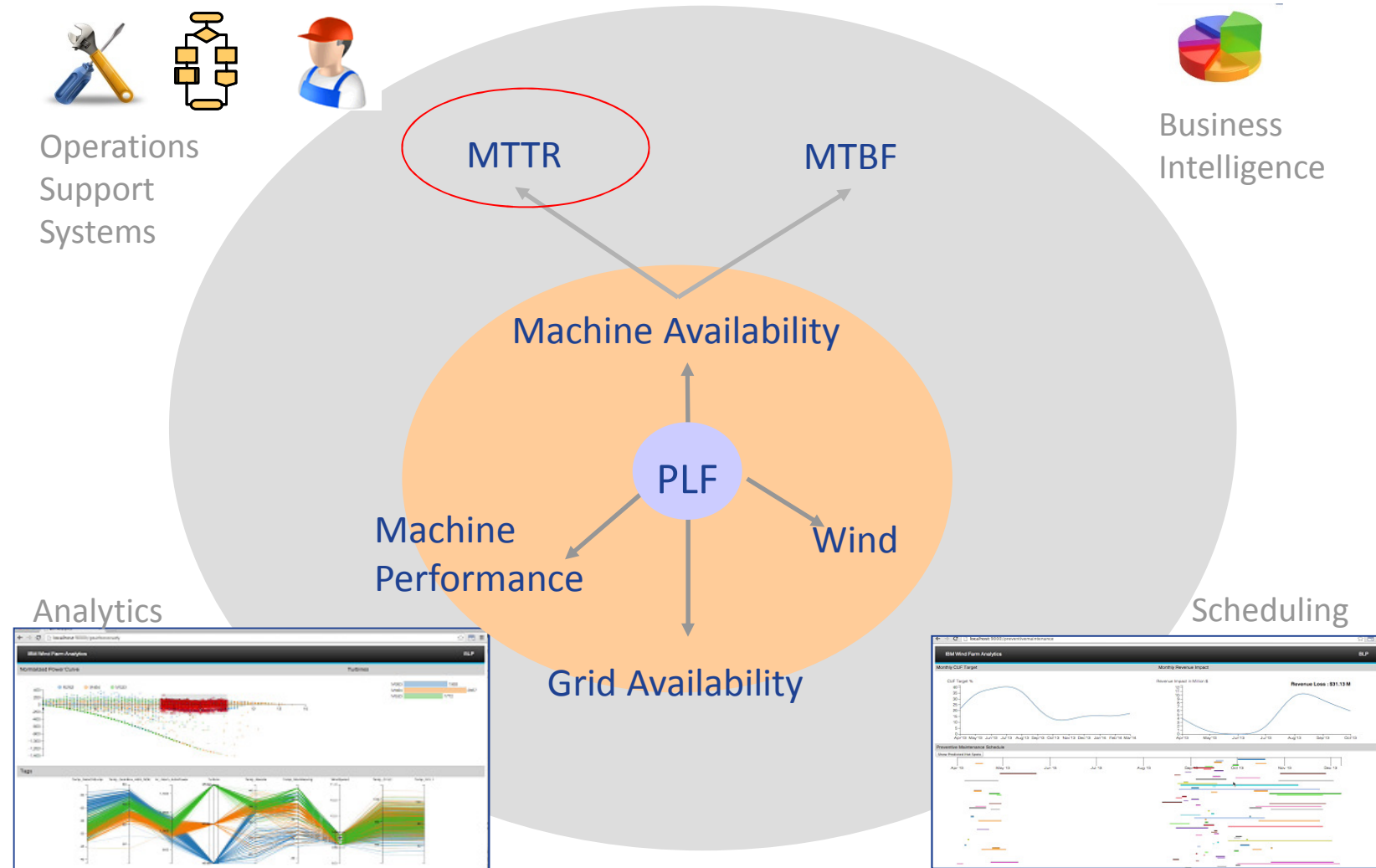
Assets located in remote locations



Operations Excellence ... Need of the hour

Operational Levers

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Our Approach

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- Real time
- Robust, scalable
- Single source of data access
- Secured back up

- Turbine Behavior
- Audits / Inspections
- Inventory management

- Data mining
- Visualization
- Predictive Algorithms

- Improve Generation
- Prevention of breakdowns
- Increase Reliability and Performance

Right data and getting the data right to enable better decisions !

Benchmarking from other Industries

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How can data analytics be applied in the hotel industry?

- Hotel Industry Trends
- Personalized marketing & website optimization
- Revenue Management
- Energy Consumption
- Investment management



CASE STUDY

McLaren uses high-speed data analytics to gain Formula 1 edge

- Deploying telemetry to capture data
- Around 160 sensors in each car
- Using HANA to do real time analysis
- This data is processed and pumped to garage on the spot and main control room



What's on trend this season for the fashion industry? Big data

- Determine the goal and scope of the sentiment analysis
- Create a data dictionary for tracking sentiments like good, bad etc
- Show the output through graphs, charts, and dashboards
- Sentiment analysis can be used to infer customer preferences



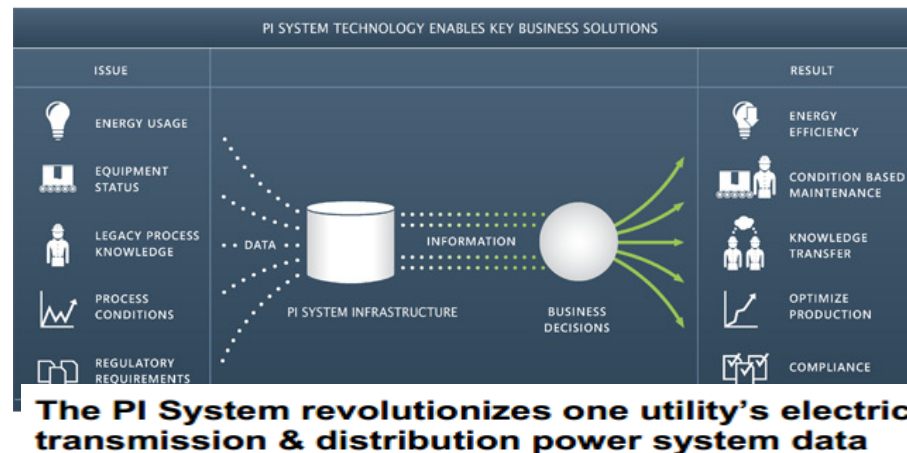
Role Of OSI Soft in BLP's Journey

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Key drivers:

Scalable, Reliable & Technologically Advanced

- Global & Industry benchmark study
 - 80% of nuclear power generators in the USA use the PI System
 - 18 of the top 20 wind generation producers worldwide use the PI System
- Technological Superiority
- Strong Support
- Diversified user community across various sectors



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Implementation Highlights

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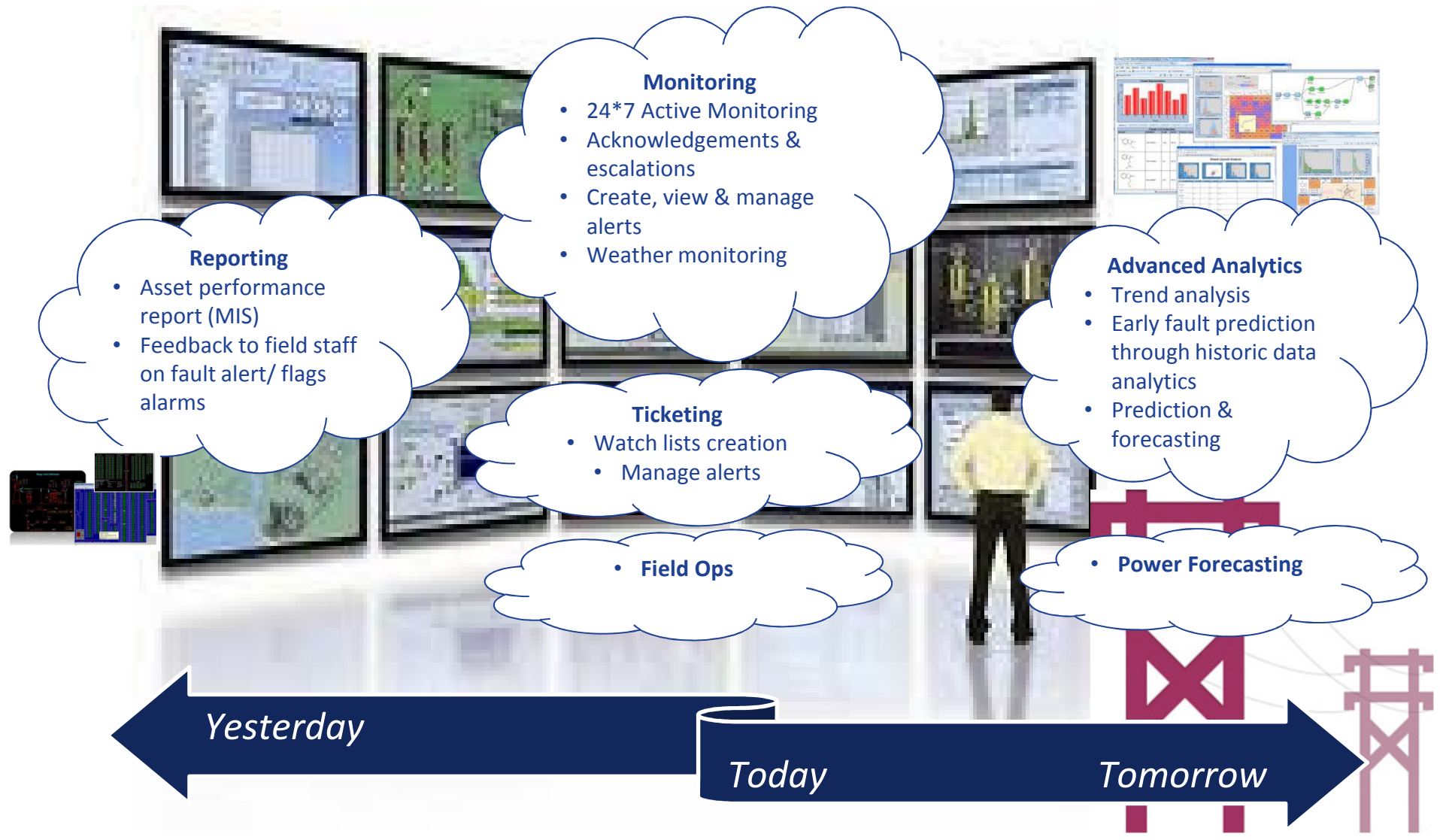
- First of its kind to develop the overall platform in real time data analytics for renewable sector
- First to put the infrastructure in Cloud
- Integrated all farms in a span of 6 months including both solar and wind technologies
- First farm took 3 months for integration, presently reduced it to 2-3 weeks for end to end integration
- More than 75 tags per turbine per second are being collected using PI system

Other Partners



Services Capabilities

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Closing Thoughts

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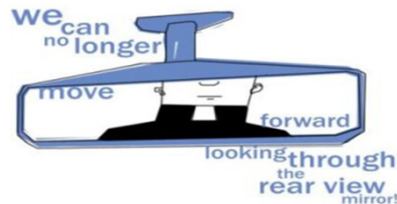
Keep checking your wallet constantly

Implementation results of a cohesive team



Innovation happens at Intersection

Reviews not in power point but from Systems!



Don't drive looking at rear view mirror



Thank You!



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