



Ensuring Interpretability of ML Technologies for Predictive Maintenance on Operating Nuclear Plants

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Changing the World's Energy Future

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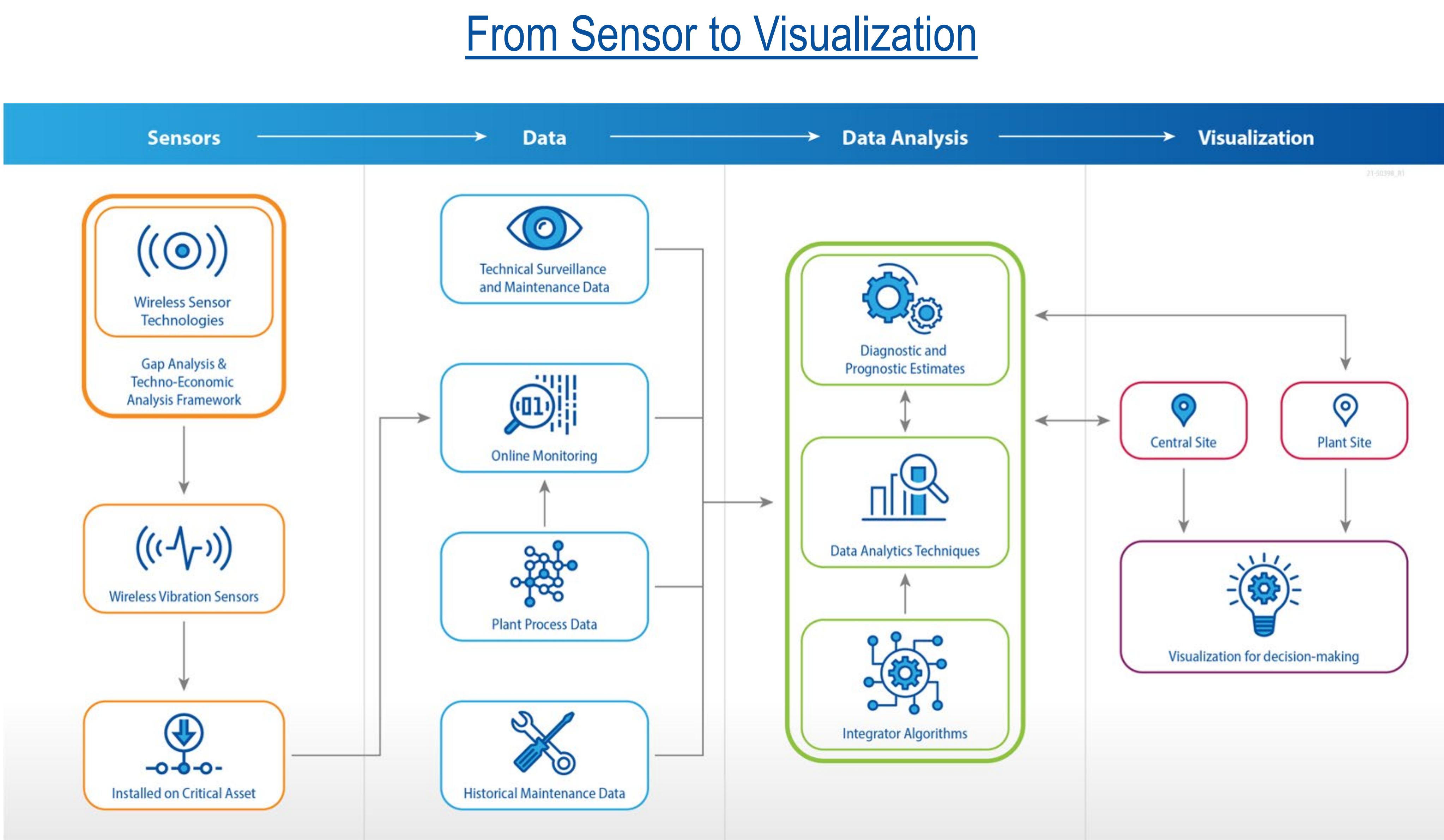
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- In collaboration with Public Service Enterprise Group (PSEG) Nuclear LLC, an initial demonstration was performed on the technical basis of a circulating water system to mitigate a waterbox fouling problem.
- A user interface is being developed with this collaboration to integrate machine learning (ML) outcomes with explainability in a user-friendly fashion.
- The app is intended for use by maintenance & diagnostics analysts, and a reduced version of the app is shown below.



Can you make the right call? Should you perform maintenance or not?

Communicating Outcomes and Explaining How

1. Machine learning diagnosis
2. Prediction of plant variables
3. Ability to select between variables of interest and data sets, including:
 - High confidence Faulted
 - Medium confidence Faulted
 - Healthy
4. Feature importance for diagnosis
5. Current value within historical context
6. Trends tab showing all variables as well as their forecasts.

