Engineering
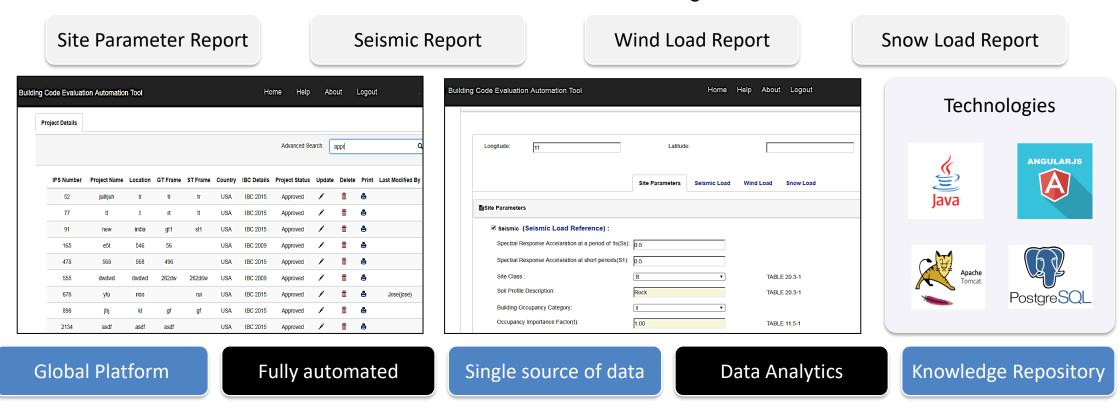
KBE Automation - Building Code Evaluation

Business Problem: Unavailability of single source of platform to evaluate key site load factors during ITO and OTR.
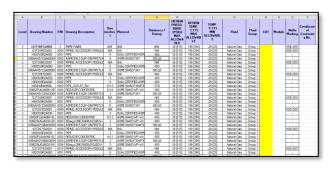
TCS Solution: A digital tool using Angular JAVA for evaluating Seismic, Wind, and Snow load factor for Gas, Steam Turbine and its accessories. Enables informed decision making based on site considerations.

Site Parameter Report	Seismic Report	Wind Load Report	Snow Load Report

Technologies

Global Platform	Fully automated	Single source of data	Data Analytics	Knowledge Repository

Automation of Pressure Equipment Directive (PED) BOM and Report

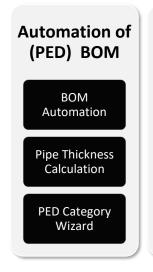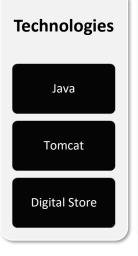## Move away from legacy manual processes to automated processes

Legacy Process

Excel Feed

Technologies

Automated Process

Automation of (PED) BOM	Report Generation	Technologies	Benefits
BOM Automation	Technical file Cover Sheet	Java	Improves productivity
Pipe Thickness Calculation	Material Pressure Validation report	Tomcat	Eliminates manual errors
PED Category Wizard	Simplified BOM	Digital Store	Eliminates manual efforts

Technical Publications – Performance Docs Automation Solution

End to end automation of technical contents management workflows related to product performance management

Wind Turbine Performance Documents (Power Curve & Noise Emission – 14 Variants)

Open Assigned Doc Workflow	Analyze Product & Customer Reqts.	Download Wind Load data sheet	Format Charts & Table formulae in Excel	Select correct doc Template	Populate Excel data in doc	Apply Style Guide	Quality CL Self Review	Approval Submission
Manual	Manual	Manual	Automated	Automated	Automated	Automated	Automated	Manual

700+ Docs / Year

Ui & Rule based Automation

60% Faster Response To Buyer

80% Manual Errors

75% Process Time

Collate — Collect all input data

Validate — Validate & Process data

Identify — Identify Correct template

Develop — Populate & Structure data in doc

Product Requirements (Rated Power, Rotor dia, Freq, Hub Height)

Customer Needs (Generic, Project Specific)

Wind Load Data from Performance Team

Final document (Power Curve / Noise Emission)

USD 1.5 MM Savings Delivered to a similar customer

Helps in Technical and Service literature creation and management across the business units

Automation of Piping Stress Analysis Report Generation

Business Problem

- Piping stress analysis for all critical lines of Gas turbine accessories for GE Power is being carried out in Autopipe and the final output will be in the form of a report (MS Word). For Report creation, it takes an average of 48 hours to generate the report.

- For complex piping, this report submission and reworking the report, any change done in the model during the review takes more time.

- Often, we face challenges in extracting Forces and moments, Critical nodes, and Displacement extraction.

- Currently, we manually analyze and enter the values from Auto pipe in the report. Every Report consumes more time for creation and update (If any) based on review comments.

TCS Solution

Developed an automation tool using VBA to capture Displacement, Forces & moment, and Critical Node directly from Autopipe output file (.CSV). Processing the key displacement data, consolidating them and generating results are automated as shown below.

- Result displacement in nodes with max values indicated with load cases.

- Critical nodes in dynamic analysis are identified and reported for corresponding modes and shapes.

- Forces and moments for required node indicated with load cases.

Business Value

- 3x faster turnaround time to make critical piping design modifications

- Improved quality as a result of 100% automation

- 80% cycle time reduction in report generation

$ 800K Savings for a similar customer