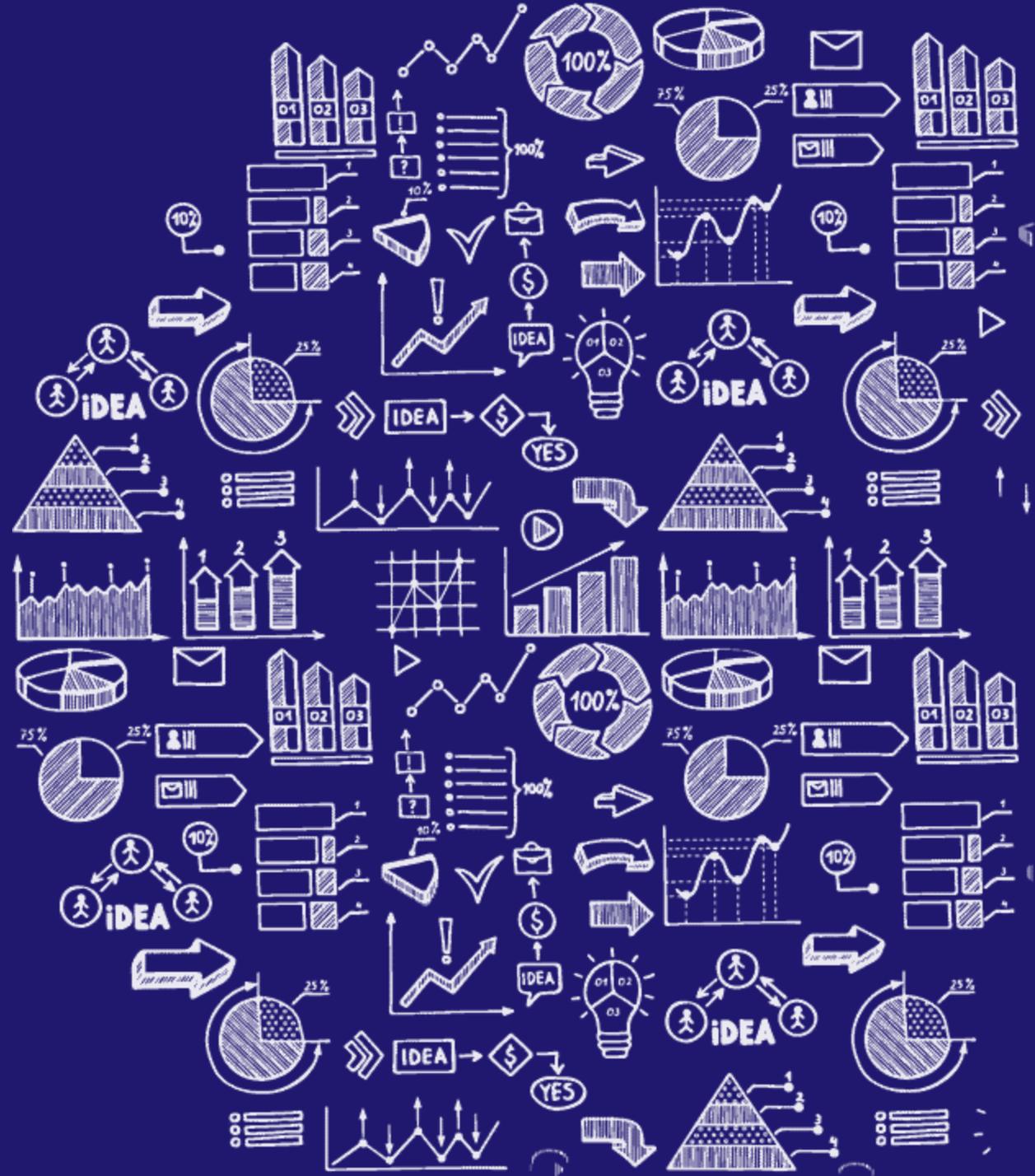


Visualization consolidated deck

PRODUCTION PERFORMANCE
MANAGEMENT – DIGITAL TWIN



A Pharma Enterprise increased yield of drug manufacturing by 2.6% using data analytics

Our client business objective was to **improve the yield quantity of the Drug product** manufacturing
Three months of historical data were available

Gramener used Exploratory Data Analysis to understand various patterns
But since the key question was which operational and material parameters are important, we applied classification and regression models for rules and variable importance

Client has better visibility on which parameters are driving the yield of the product
This enabled them to target for their 'Golden' batch to achieve output of 117 kg against 114 kg per year previously

2.6%

Increase in achieving output

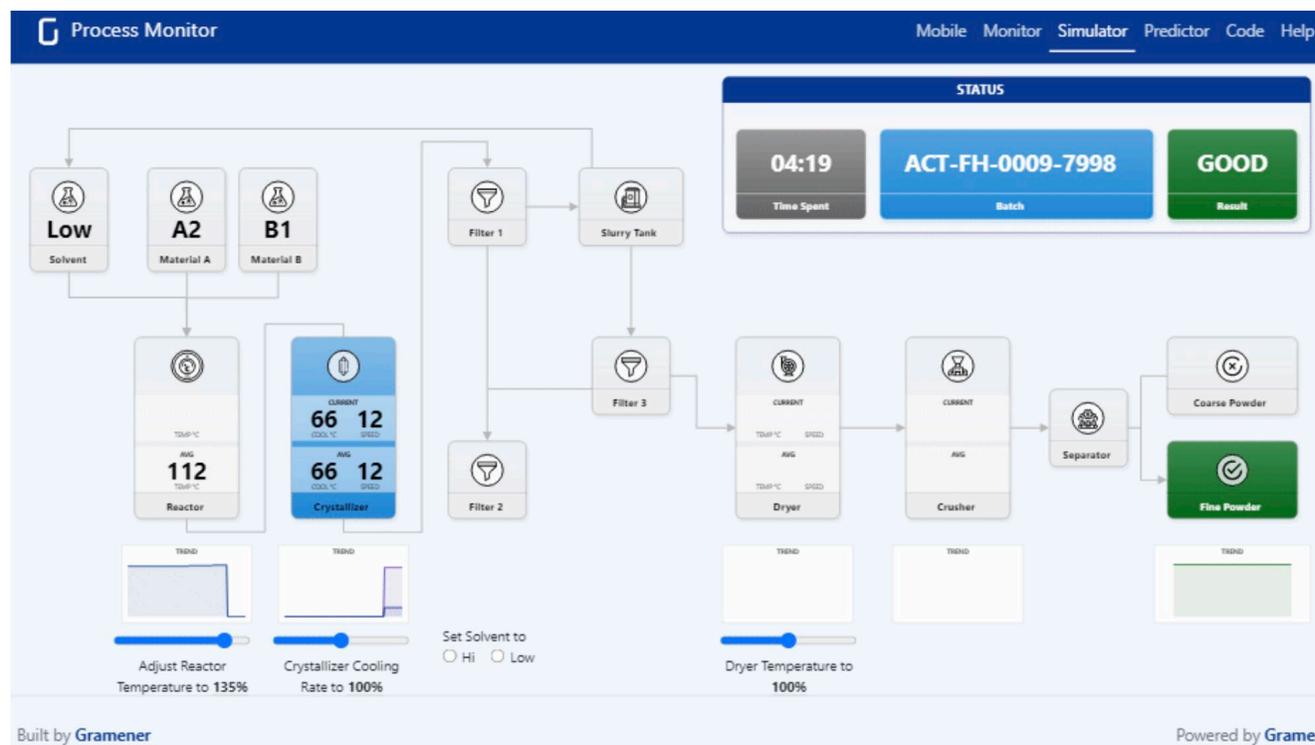
\$6M

Annual savings

Pharma process laid out from left to right. The raw material once blended pass-through multiple equipment for processing

The process parameters are passed through digital twin algorithm to understand the optimum operation range

Anomaly once detected raises alert in real time making supervisor aware to take pre-emptive actions



Process Digital Twin

A Pharma major achieved 67% reduction in operational time by machine parameters optimization

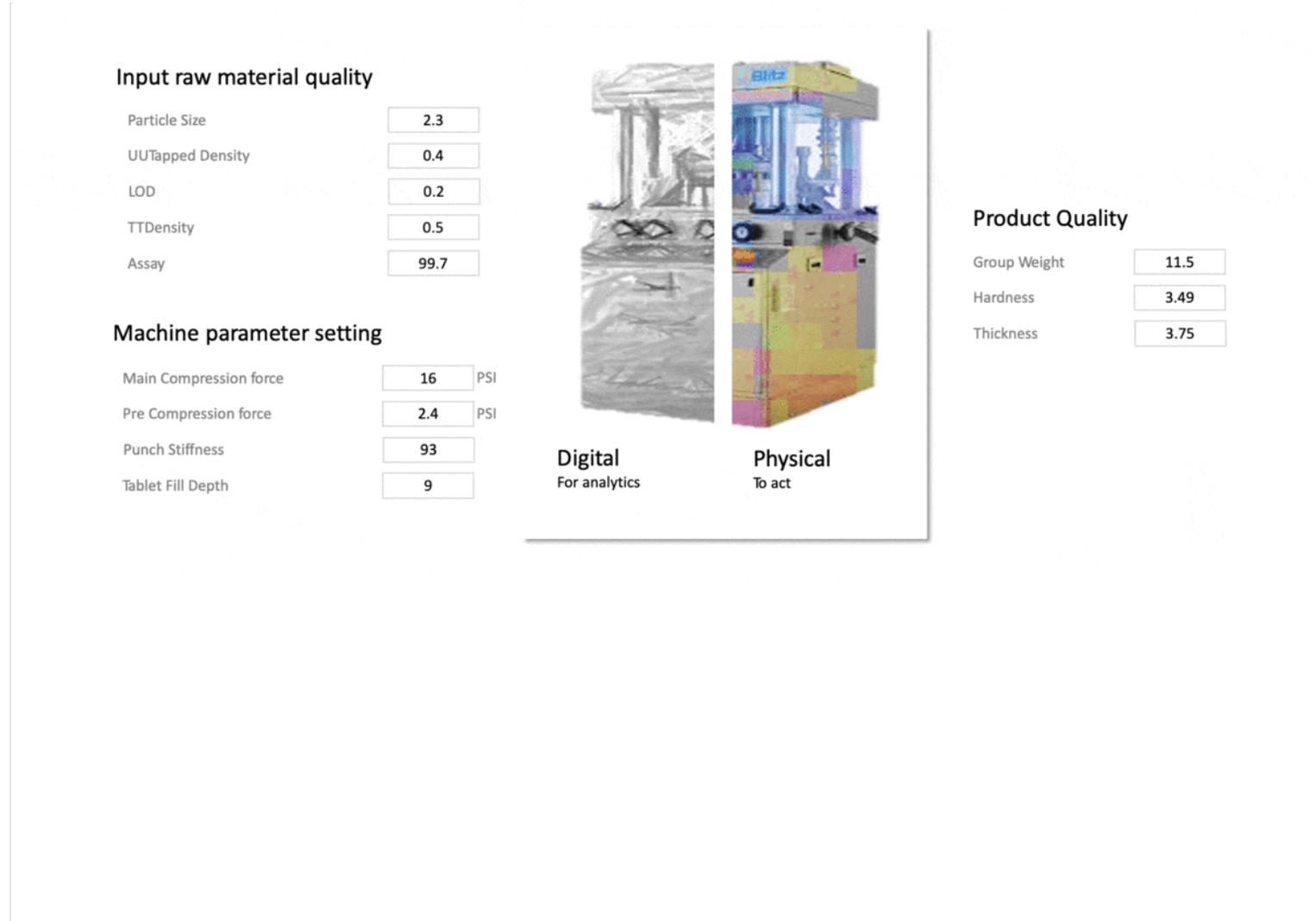
Our client business objective was to predict the quality of the tablet based on the compressor machine parameters and input raw material quality attributes. One-year historical IOT data from compressor, input material quality attributes and tablet quality attributes were available.

Gramener used classification models (SVM, Random Forest, Decision Tree, Ada Boost, XG Boost) for higher predictive accuracies

The model is operational. Every time, when compressor is to be setup the operator uses model to achieve tablet desired hardness, thickness and group weight

67%

Reduction in operational time



Gramener
Insights as Stories

Thank You

