CLAIMS

1. A tuning system [10] for improving operation of a plant [12a-12n], the tuning system [10] comprising:

a server [14] coupled to the tuning system [10] for communicating with the plant [12a – 12n] via a communication network [16];

a computer system [18] having a web-based platform for receiving and sending plant data related to the operation of the plant [12a-12n] over the network[16];

a display device [20] for interactively displaying the plant data;

a reconciliation unit configured for reconciling actual measured data from the plant [12a-12n] by comparing data received from a process model based on a set of predetermined reference or set points; and

a prediction unit configured for determining trustworthiness score of the process model by weighing differences between all reconciled measured data that are cumulatively collected over a predetermined period of time and corresponding predetermined threshold values, using an analytic technique, and thereby creating a scoring model based on at least one plant operational parameters, the scoring model serves as a basis for adjusting and tuning the process model,

wherein the reconciliation unit [22] performs a heuristic analysis against the actual measured data and the performance process model result using a set of predetermined threshold values

2. The tuning system of claim 1, wherein the reconciliation unit [22] receives the plant data from the plant [12a-12n] via the computer system [18] and the received plant data represents the actual measured data from equipment in the plant [12a-12n] during a predetermined time period.

3. The tuning system of claim 1, further comprising an interface module [24] configured for providing an interface between the tuning system[10], a database [26] storing the plant data, and the network [16].

4. The tuning system of claim 1 wherein the scoring model is updated with a weighted trustworthiness score, and the current process model is adjusted or tuned based on the scoring model.

5. The tuning system of any of claims 1-3, further comprising an optimization unit [30] configured for optimizing at least a portion of the plant [12a-12n] based on a trustworthiness score of a plant model, and

wherein the optimization unit [30] defines an objective function as a user-defined calculation of a total cost of the operation during a particular process, including materials consumed, products produced, and utilities utilized, subject to at least one constraint.

6. The tuning system of any of claims 1-3, further comprising an analysis unit [32] configured for determining an operating status of the plant [12a-12b] based on a least one of : a kinetic model, a parametric model, an analytical tool, and a related knowledge and best practice standard.

7. The tuning system of claim 6, wherein the analysis unit [32] determines a target operational parameter of a final product of the plant [12a-12n] based on at least one of: an actual current operational parameter and a historical operational parameter.