

EQUIPMENT HEALTH MONITORING IN ENTERPRISE FACILITIES USING TRAXXScoring™

A New Approach for Proactive Asset Management

1. Abstract

A key feature in TRAXX is TRAXXScore, a patented¹ asset benchmarking tool similar to a FICO™ credit score. The concept of benchmarking, used extensively in consumer finance, stock-market analytics and epidemiology, seeks to find *outliers* –objects in a large population which diverge or begin to behave differently than their peers. Working in a similar way, TRAXXScore analytics can often detect configuration and calibration errors, wasted energy and the onset of mechanical failure before traditional maintenance procedures can. The TRAXXScore concept can be applied to HVAC or refrigeration equipment, compressors, pumps and motors, or to any machine which consumes energy and produces work.

TRAXX has been widely deployed in large biopharmaceutical companies who use the tool to reduce maintenance and energy costs and extend asset life. In several cases, TRAXX has also been credited with avoiding millions of dollars products losses and irreplaceable research.

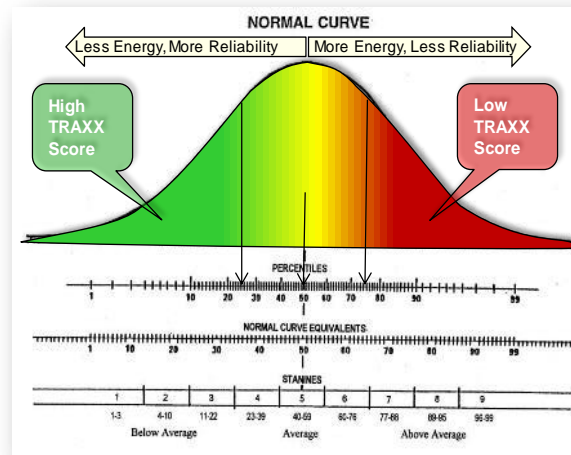


Figure 1. TRAXXScore

Since each new customer uses TRAXX differently, the new customer on-boarding processes begins by determining how TRAXX will be used to improve operations.

- What are the customers long-term goals for asset management? Is the goal energy conservation, reduced operating cost, extended asset life, risk mitigation (catastrophe avoidance) –or some combination? How will cost savings and payback be measured to assure achievement of goals?
- Do KLATUs wired, and wireless devices support the sensors and digital interfaces on the equipment to be monitored?
- What new benchmark scoring algorithms could be needed to support future applications?
- Are KLATU's existing IEEE network security protocols for data transport acceptable to IT?

¹ Patents 8,725,455, 10,337,964 B2. Other patents pending.



2. Why TRAXX and Why Now?

Some facility managers see TRAXX as a breakthrough technology because it provides a way to transition from basic monitoring and reactive *fail-and-fix* procedures, to proactive *predict and prevent* maintenance practices. Referencing a simple color code or benchmark score, it becomes possible to set priorities and allocate budgets to just assets needing repair, but also make asset retirement or replacement decisions based on a simple concept – TRAXXScore.

With more than 600 companies selling equipment into the biopharmaceutical industry, each offering their own cloud application, facility and IT managers are under increasing pressure to support dozens of *non-integrated* applications from multiple vendors. KLATU is an experienced IoT software and sensor networking company and TRAXX is a mature solution which is easy to deploy on existing IT networks, in conformance with the latest security protocols. TRAXX can manage all types and brands of equipment and it can integrate with existing monitoring systems via industry standard API's.

With TRAXX, significant improvements in asset reliability, uptime and energy savings can be achieved with payback from operational savings typically three years or less.