Industry Challenges

What challenges does Artificial Intelligence and Machine Learning solve for connected medical equipment?

The pressure facing healthcare delivery organizations are well documented: increased regulatory oversight, financial challenges, heighten competition, and a shrinking talent pool to list a few. Most clinical engineering and imaging operations lack of visibility and predictability into machine performance drives a high degree of reactivity. Equipment failures cause downtime that eventually impacts the patient. Diagnostic imaging is one area that benefits from consolidating the data from a diverse array of equipment and then analyzing the data to predict failures and create proactive programs to equipment failures.

While many original equipment manufacturers (OEMs) offer the ability to centrally manage their machines in your facilities, the cost and limitations of these programs is largely focused on their specific modalities to help them manage only their fleet of machines. Organizations today need to manage uptime and utilization from a centralized console, as a fleet-wide view, across all OEMs and modalities, and most importantly benefit from data collected from multiple end points to anticipate and prepare for failures.

Value Statement

Glassbeam is disrupting the status-quo as a comprehensive fleet-wide analytics solution for analyzing machine uptime and utilization data in a single pane of glass providing richer analytics to improve the delivery of care.

Product Overview

Service Analytics provides insights into the working of a device, issues reported by the device, anomalies in its metrics and identifies impending part failures to increase machine uptime. Clinsights™ is an Artificial Intelligence (AI) based solution which utilizes data analytics to optimize machine uptime of high-end imaging equipment

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How does it work?

Key capabilities

Remote Monitoring

Improve visibility on fleet wide utilization metrics, optimize capital planning and staffing decisions, and hours of operation that in turn increase machine usage, analyze logs and perform root cause analysis

Real-time Environmental Monitoring

Provides dashboard and alerts to monitor compressor power, room temp/humidity, and chiller water temp In/Out.

Predictive Maintenance

Deploys Machine Learning (ML) and Artificial Intelligence (AI) models based on historical data to predict part failures, including CT tube failures to minimize unplanned downtime. Anomaly detection used to identify early warning trends.

System Health Dashboard

Enables service engineers to define complex rules on historical and current machine logs to identify issues signatures.

Plots historical trends and resolution steps based on knowledge base for issues detected in machine logs. Summarizes analysis to help service engineers decrease time to issue resolution.

Real-time Service KPI Dashboard via CMMS Integration

Eliminates manual effort and provides continuous measure for service team performance KPIs including Mean Time Between Failure (MTBF), Parts Replacement Rates, First Time Fix Rate (FTFR), and Mean Time to Resolve (MTTR). Combining CMMS data with machine logs provides more accurate information on these KPIs.

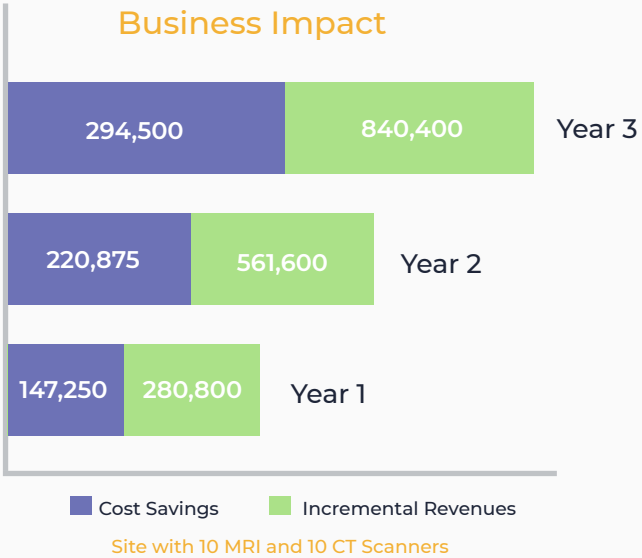
Clinsights™ Service Analytics enable heads of clinical engineering departments and bio-med engineers to perform remote monitoring on key machine parameters such as helium level, magnet pressure, cold head temperature compressor status, tube arcs and aborts on a per machine basis.

Examples include:

- Supply proactive and predictive alerts on part and system failures
- Perform root cause analysis with logs
- Create dash boards on demand

Proven ROI & Business Impact

Case Study



427% ROI

8 Months of Payback period

1,011 New Exams and Patients over 3 years

$1.7M Revenues recovered over 3 years

$662K Cost Savings over 3 years

Achieve 99% availability
Recover 37 hours of unplanned downtime per machine per year

Cost savings
Reduced spend on consumables and part replacements

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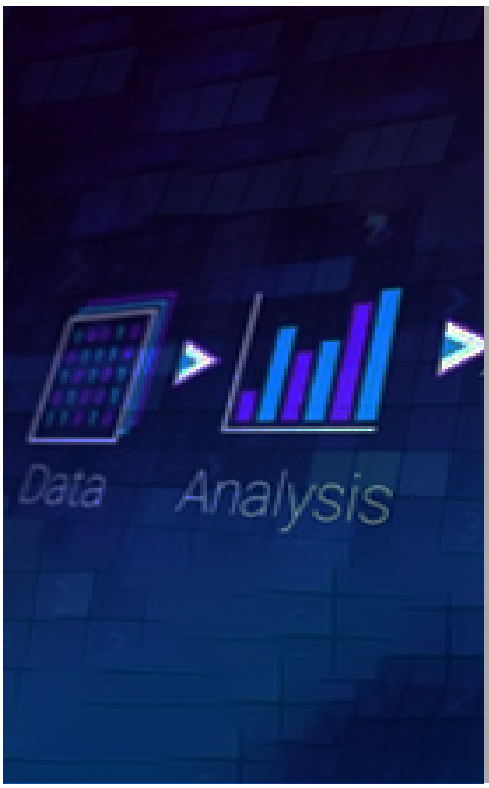
Features and Benefits



Single pane of glass

True 360-Degree Operation View

Provides consolidated data from multi-vendor to manage multi-modality fleet

Machine Health Check

Increased Uptime

- Get accurate details on the health of every CT Tube in your facility
- Get the best diagnosis possible on the state of your MRI machine before it shuts down

Proactive Alerts based on Expert Rules and AI

Multi-Modality Multi Manufacturer Enterprise Services

- Hundreds of pre-defined rules and ability to customized new rules
- Hundreds of machine learning models continuously looking at all parameter that matter

Machine learning algorithms triggered alerts

Moving from Noise to Action

Proactive and Predictive alerts to avoid unplanned downtimes increasing patient satisfaction by reducing exam duration delays and removing process gaps

Table 1. Features and benefits

The Glassbeam Advantage

Understand Operator Training Needs

With machine learning we can begin to understand what is the typical time it takes to do an exam and then how many exams in your fleet are you not doing within that range.

Here you can understand training issues: are certain operators taking longer than others or maybe older machines are taking longer to do certain exams verses other or perhaps faulty machines require a restart to the exam or a redo in order to complete the exam. Clinsights™ solution can identify the root cause and track change over time.

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Service Analytics Dashboard

Move Unplanned downtime to Planned Maintenance

The business driver here is to convert the unplanned downtime into the planned downtime based on the prediction and data analysis we provide, which ultimately leads to the higher utilization of the machine which impacts the bottom line of the hospital.

Glassbeam solution for the Service Analytics market, powered by AI/ML, is a game changer for the healthcare industry dramatically shifting the economics of a typical facility's machine downtime ratios between unplanned and planned windows. This shift happens by providing "smart maintenance" with proactive alerts, predictive notifications, prescriptive recommendations, driven by an advanced Rules engine. We deliver dashboards on multiple data sources at massive scale providing richer analytics to improve the delivery of care.

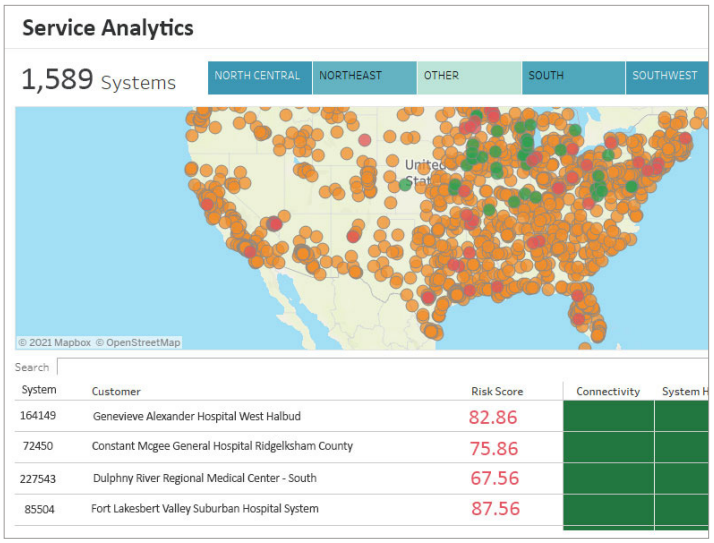

Figure 2. Detailed geographic view of entire fleet on a grid Determine asset risk (high, medium, low alerts)

- Recover millions of dollars in lost revenues by increasing machine uptime to 99% and above.
- Apply rule-based anomaly detection and alerting for field engineers to take proactive and predictive action.
- Optimize capital budgets for expensive imaging modalities by tracking asset utilization across the entire fleet
- Benchmark utilization by viewing aggregated time taken per procedure, machine, operator, and facility.

Glassbeam

Glassbeam is disrupting the status-quo as a comprehensive fleet-wide analytics solution for analyzing machine uptime and utilization data in a single pane of glass. We are the premier machine data analytics company bringing structure and meaning to complex data generated from any connected machine in the Industrial IoT industry.

Our next generation cloud-based platform is designed to transform, analyze, and build Artificial Intelligence applications form multi-structured logs, for proactive/predictive maintenance. We proudly partner with Smart hospitals to provide a true competitive advantage in delivery of care.

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