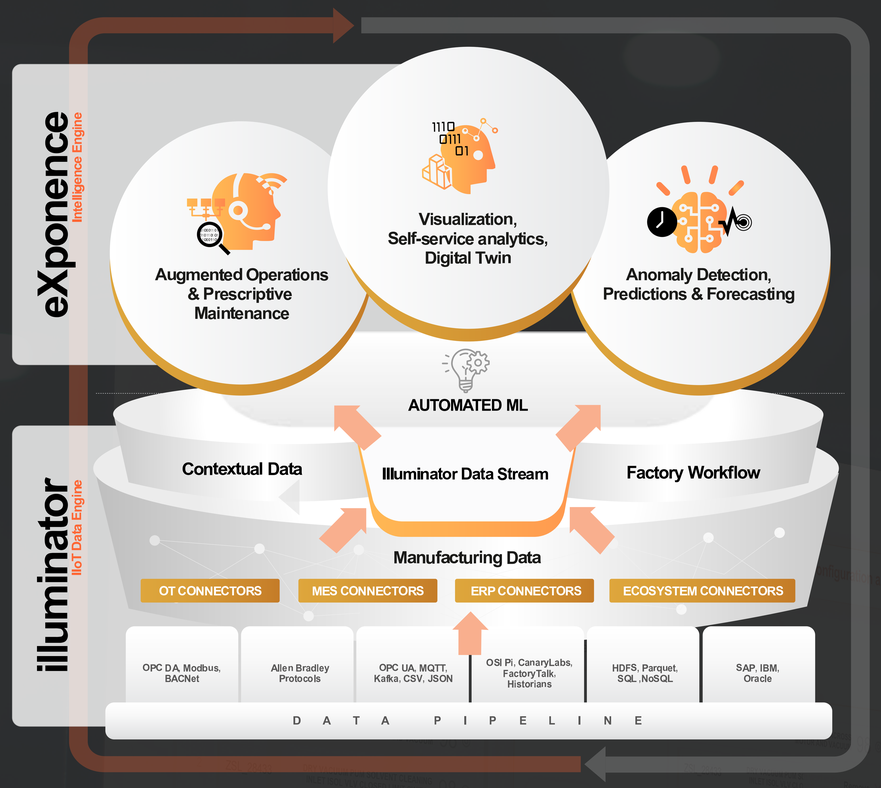
Quartic Platform

AI & IIoT for Smart Industry.



The Quartic Platform® is a complete system for developing AI enabled Smart Manufacturing and Industry 4.0 solutions. With the power of Machine Learning it allows you to modernize your existing OT for digital manufacturing or build a new Smart OT system.

The Quartic Platform is built on two main components: **illuminator™** and **eXponence™** each with a set of application modules. The Platform can be deployed completely on-premise or in a hybrid Edge-Fog-Cloud architecture.

illuminator™, an OT data lake, provides IIoT, OT, MES, and ERP data in dynamic context to intelligence applications in **eXponence™**. For expert users and data scientists, illuminator provides a fully integrated contextual data pipe to build AI applications with tools and libraries of their choice.

eXponence™ uses automated ML, a rules engine, and Complex Event Processing (CEP) to build the intelligence and provides visualization and communication of the intelligence. Visualization and communication functions can alternatively be performed with your legacy or new OT system by simply connecting the intelligence output from **eXponence™.**

While built using the most modern and powerful AI techniques and technology, the eXponence™ intelligence engine is intended for OT professionals and manufacturing subject matter experts; not data scientists and IT.

The Quartic Platform® allows you to build IIOT systems in accordance with the Industrial Internet Reference Architecture (IIRA, ISO/IEC/IEEE42010:2011)[1] and RAMI 4.0[2]

1. The Industrial Internet Consortium – The Industrial Internet of Things, Volume G1: Reference Architecture
2. Platform Industrie 4.0, RAMI 4.0 Reference Architecture; IIC:WHT:IN3:V1.0:PB:20171205 Architecture Alignment and Interoperability

quartic.ai

Quartic.ai

Smart Industry. Delivered.

Put the Power of AI in the hands of your subject matter experts.

Your best path to sustainable and scalable Smart Industry solution.

Smart Industries, Delivered.

quartic.ai

Quartic Platform
AI & IIoT for Smart Industry.

illuminator™
IIoT Data Engine

Asset Harbor: Data Abstraction and Context

For a single process unit, site or the enterprise, AssetHarbor™ provides continuous extraction of context from multiple data streams.

Process operation, both batch and continuous are abstracted in the context of an asset. The Illuminator™ data pipe then allows publish-subscribe access to the attributes of asset objects for building smart applications. Intelligence and insights created using MetaTrainer™, Reckon or external applications is added to the asset objects using extensible attributes. The reference data models can be custom, asset-oriented standards such as ISO14224 or manufacturing oriented such as ISA95.

Illuminator™ OT Data Lake and Data Pipe

Illuminator™ ingests data streams from multiple sources and protocols for a common reference.

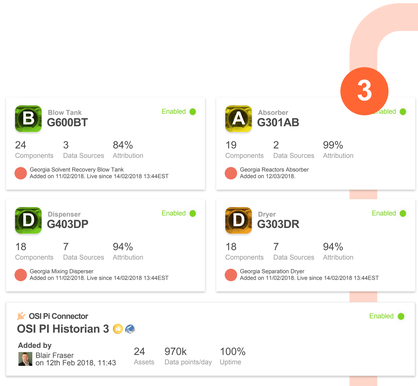
This low-latency, high availability publish-subscribe data pipe provides access to real-time abstracted to build AI applications with eXponence™ and serves as an OT data Lake.

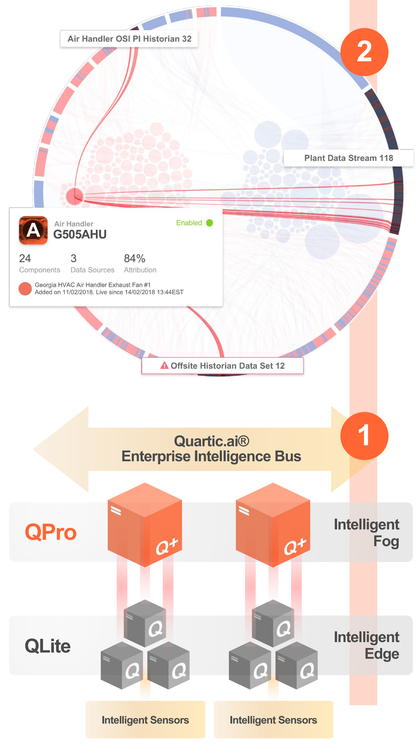
Advanced users and data scientists can connect with illuminator™, for contextual abstract data types to use machine learning tools and libraries of their choice and eliminate data integration needs to speed up deployment. Connectivity with Illuminator™ is possible using Kafka Pub-Sub, Illuminator API or SDK.

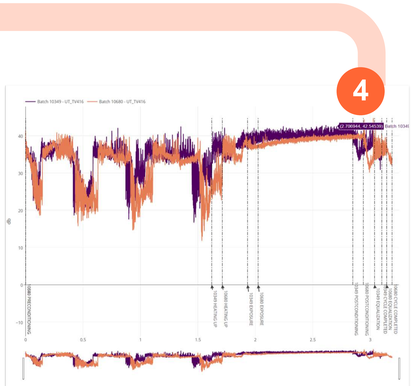
Qnnect: Data Integration Architecture

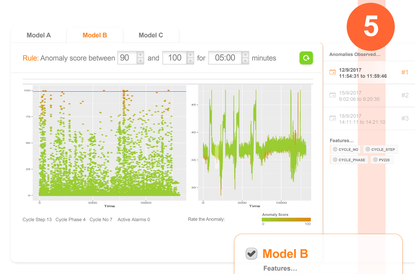
Qnnect is a complete, distributed edge and fog, hardware agnostic, software system for IIoT.

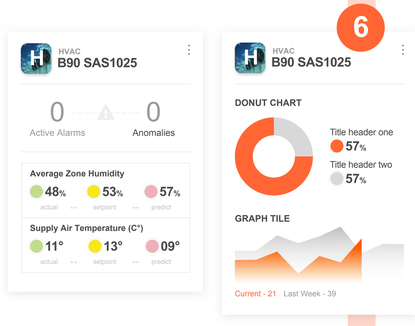
Edge Gateways (Qlite) connect to sensor networks, PLC's, and other edge devices using legacy and modern protocols. Fog nodes (QPro) connect to multiple QLites to create a scalable, layered architecture aligned at each ISA95 level. QRelays may be used between levels to comply with ISA99/IEC62443 zones. Endpoint security and data encryption provide an additional layer of security. Distributed storage and compute allow execution of machine learning on Fog and Edge nodes.











eXponence™
Intelligence Engine

ContexAlyze: Pattern Discovery and Analysis

Understanding your data in the context of operations and asset condition behavior is a critical step to define, design and develop machine learning (ML) applications.

The flexible visual analytics in ContexAlyze allow you to apply your expertise to discover the important patterns and features to build and validate your hypothesis for ML design. You can perform multi-variable pattern searches, create and store event frames, and perform cohort analysis; for batch processes, perform reference and golden batch analysis. You can also collaborate on data discovery with annotations and snippet sharing.

MetaTrainer™: Automated Machine Learning for SME's

A fully automated machine learning (ML) tool for industrial subject matter experts (SME)

MetaTrainer™ allows the user to focus on their expertise to build AI applications with no need for any coding or programming. ML is used to generate feature significance, but the user can make feature selection based on their domain knowledge. Multiple models are trained and scored in parallel, recommending the ideal model to be then deployed on real-time data. Visual interpretability of model outputs provides clear understanding further increasing trust and adoption of AI.

Reckon: Logic and Calculations
Quartic View: Insights, KPI's and collaboration

Reckon is used to build insights, KPI's and alerts on real-time process and condition data, and the output of machine learning algorithms. Its highly visual, easy to use interface allows creation of simple logic and calculations or highly advanced equations without any scripting or coding.

Quartic View is a flexible, modern insight visualization tool to represent equipment health, operational performance KPI's. Workflow status of actions from insights and alerts generated by machine learning and logic can also be visualized with intuitive and impactful visualization widgets. A variety of widget elements like dashboard tiles, charts and messaging queues can be used from a of widgets.