Framework Overview

Asset Performance Excellence (APEx)™

Helping manufacturers get the most from their capital investments

Cognizant

Challenge the way you work today. Lead the way tomorrow.

Cognizant's Engineering and Manufacturing Solutions practice works with manufacturers and owners of heavy assets and production equipment to improve asset utilization and capital efficiency, bringing the vision of the "Internet of Things" to life.

The Internet of Things is full of promise

We live in amazing times. The Industrial Internet of Things is changing the landscape of discrete manufacturing and companies are sponsoring large-scale digital transformation agendas. We believe that the real digital transformation occurring today is actually a physical transformation, in which every day physical products, processes, and place are infused with digital technology to the point where you may not even know it's there.

As a leader in helping clients with digital transformation, Cognizant believes that a new approach is necessary – one that weaves together four unique skillsets: business strategy, design thinking, industry expertise, and technology delivery. In addition, bringing IP and solution accelerators to the table is important, such as our APEx (Asset Performance Excellence) framework, which has been honed over multiple engagements with discrete manufacturers over time.

Cognizant Asset Performance Excellence (APEx™)

Helping clients use sensing and analytics technology to realize the promise of smart, connected products and connected ecosystems

Cognizant APEx is a framework used to accelerate the discovery and development of a sensing and analytics infrastructure that is right for the customer's specific physical context. To realize the promise of the IoT, clients need to understand the contours of the physical environment – of the product, the process, and even the place in which the sensing infrastructure is to be built. APEx helps clients make the things they sell smarter, and their production equipment more intelligent. Companies partner with us on core parts of their product portfolio, utilizing APEx to optimize the heavy assets used in production, as well as to outfit their heavy asset products with a sensing and analytics infrastructure that can enable the creation of valuable new services for the end-customer. As a solution accelerator, APEx is an example of the type of proprietary IP that Cognizant has developed across engagements and brings to clients in order to collapse time-to-market and reduce project risk and cost. APEx provides a starting point for and serves as a guidepost along the customer's IoT roadmap.

Using APEx, Cognizant builds connected systems. Our Industrial Operations Group uses the framework on Industrial Internet of Things (IIoT) applications for the manufacturing, logistics, consumer packaged goods, communications, technology and life sciences industries.

The APEx approach defines three successive levels of maturity to help clients make the most of their capital equipment along four towers: Maintenance Excellence, Operational Excellence, Service Excellence, and Business Excellence.

APEx Roadmap

	Maintenance Excellence	Operational Excellence	Service Excellence	Business Excellence
1.0	OEE Calculation and Maintenance Dashboards / Remote Monitoring of Asset Parameters	Plant Information Model & Production Dashboards / Integration with MES, ERP and EAM Systems	Collaboration and Knowledge Management	Enterprise Dashboards / Global View, Plant Views and Asset views
2.0	Inventory and Spare Part Optimization	Production Planning and Scheduling	Safety & EHS Management	Regulatory or Standards Compliance
3.0	Asset Performance as a Service	Planning & Production	Service Lifecycle Optimization	Optimized Business Process Models

With APEx, Cognizant can help client executives answer questions like:

- How can I optimize production with a smaller asset base?

- How can I get a view of asset data, including location and maintenance history?

- How can we see asset performance history overlaid against work history and capacity planning data?

- Is there a way for us to manage expensive capital equipment better and more cost-effectively?
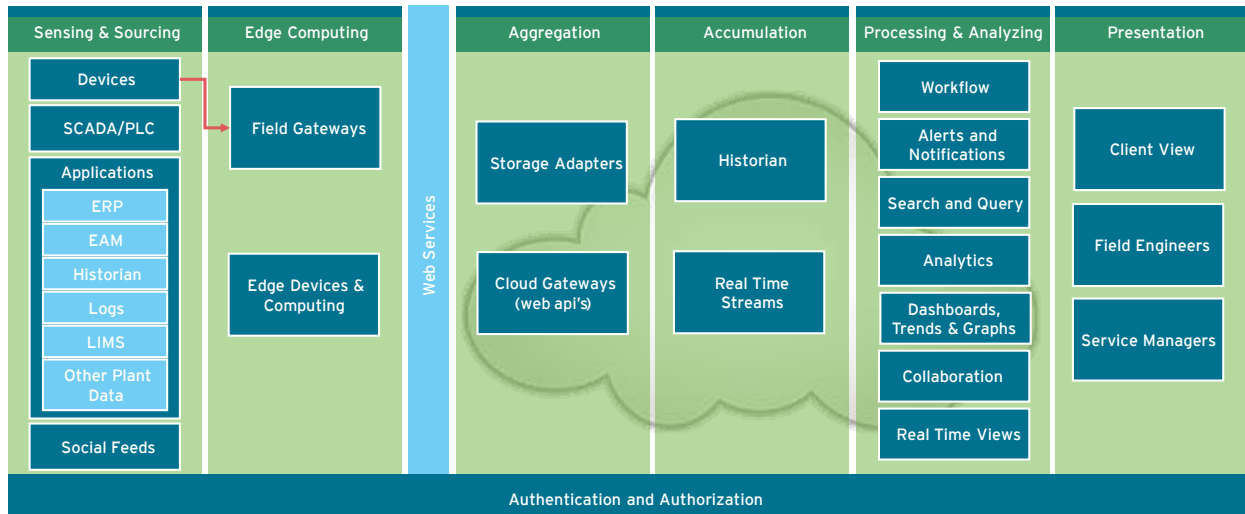
APEx Use Cases

- Logistics
- Fuel consumption optimization
- Emissions management
- Yield optimization
- Health & safety assurance

- Energy management
- Client management
- Predictive maintenance
- Inventory management
- OEE Improvement
- Field Force Optimization

- Monitoring & Diagnostics
- Supply Chain Optimization
- Outage Management

APEx enables Asset Optimization

We understand the unique nature of the physical environments that need to be instrumented. Using APEx, we build IoT solutions that scale. APEx enables predictive maintenance that can sharply lower cost of ownership and avoid unexpected downtime.

APEx Reference Architecture

The APEx reference architecture depicted below outlines the various layers of an IIoT solution, from the sensing infrastructure at the edge, through to the IoT cloud for Aggregation, Accumulation, and Processing, and finally to the presentation layer so that Field Engineers and Service Managers can act upon new sources of instrumented asset data.

Sensing & Sourcing	Edge Computing	Web Services	Aggregation	Accumulation	Processing & Analyzing	Presentation
Devices	Field Gateways		Storage Adapters	Historian	Workflow	Client View
SCADA/PLC					Alerts and Notifications	
Applications					Search and Query	Field Engineers
ERP					Analytics	
EAM						
Historian	Edge Devices & Computing		Cloud Gateways (web api's)	Real Time Streams	Dashboards, Trends & Graphs	Service Managers
Logs					Collaboration	
LIMS					Real Time Views	
Other Plant Data						
Social Feeds						

Authentication and Authorization

APEx in Action
Cross industry case studies

Industrial equipment rental company: We are helping a client create new track-and-trace capabilities on heavy equipment rentals.
Results include:

- Helped reduce downtime and minimize lost revenue from under-utilized assets
- Behavioral and usage data on how customers use the equipment is fed into a highly-scalable analytics platform and produces insights for predictive maintenance
- Opens the door to new new leasing and equipment-sharing models that better serve customers and increase addressable market.

Oilfield services company: We helped this company instrument its submersible pumps to more effectively extract petroleum from the ground.
Results include:

- Reduced maintenance costs through elimination of the need to send a technician onsite for firmware upgrades
- Increased transparency across a fleet of installed pumps in a site, improving operational command
- Opened the door to the future "digital oil field" that could transform the company's global operations.

Food packaging company: We helped this company instrument industrial equipment used in food packaging to open the door to value added services and more efficient asset utilization.
Solutions include:

- Gathered data and provided insights that enable the company to understand equipment performance
- Optimized processes based on asset conditions
- Proactively identified and helped prevent service bottlenecks
- With new sensing and analytics infrastructure, the company expects to reduce costs, while at the same time, new customer services increase revenue opportunities.

Why Cognizant?

A global presence. A world of resources.

Cognizant Digital Works connects you to Cognizant's global, collaborative workforce, which includes:

More than 100 delivery centers worldwide

We map to your global footprint so your Cognizant team is always at hand, speaks your language and shares your business culture. Proximity also helps you ensure business continuity and manage costs.

200,000+ employees

We give you access to the best talent worldwide—talented, cross-disciplinary teams with deep vertical expertise, extensive cross-industry experience and firsthand knowledge of the emerging world of business.

Strategic partnerships

Cognizant's relationships with the world's leading companies help us expand our service offerings and deliver comprehensive solutions to your business and IT challenges.

Wherever you are, we work there.
Whatever your industry, we understand it. And no matter where you're going, we can help you get there.

KEEP CHALLENGING™

LET'S TALK

Are you ready to leverage digital for your business? Learn more about Cognizant Digital Works.

Contact us today at
bedigital@cognizant.com

LEARN MORE

Cognizant has been named a "Leader" in "The Forrester Wave™: Business Transformation Consultancies, Q3 2015." The report analyzes changes that companies require to embrace digital business.

Read the full report at
cogniz.at/1XDBNdN

ABOUT COGNIZANT

Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process services, dedicated to helping the world's leading companies build stronger businesses. Headquartered in Teaneck, New Jersey (U.S.), Cognizant combines a passion for client satisfaction, technology innovation, deep industry and business process expertise, and a global, collaborative workforce that embodies the future of work. With over 100 development and delivery centers worldwide and approximately 233,000 employees as of March 31, 2016, Cognizant is a member of the NASDAQ-100, the S&P 500, the Forbes Global 2000, and the Fortune 500 and is ranked among the top performing and fastest growing companies in the world. Visit us online at www.cognizant.com or follow us on Twitter: Cognizant.

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