Glossary of digital terms

An IA Digital knowledge resource

Talk the language of Industry 4.0 through extending your understanding of exactly what digitalization terminology means

ABB's Industrial Automation Digital business operates at the very cutting edge of enterprise digital transformation and new-age principles such as Artificial Intelligence, Machine Learning, IoT, Big Data and analytics – all in the industrial context.

Industrial digital transformation is at a nascent stage in its evolution and requires a deeper industry-wide understanding. This glossary aims to provide a quick insight into the various buzzwords making rounds of the industry today in the context of digitalization.

Glossary

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z

A

TERMS COVERED

(Data) Adapters
See (Data) Connectors / Adapters

AI (Artificial Intelligence)
Systems that are capable of taking decisions or providing insights, including predictive insights, based on received inputs and defined contexts

ALM (Asset Lifecycle Management)
Combination of processes to manage an asset throughout its lifespan with focus on maximizing its efficiency while ensuring that it is maintained and operated in a cost-effective manner till its end-of-life stage

Analytics
The science of identifying and interpreting patterns in data in order to derive insights for use in data computation and statistics

APM (Asset Performance Management)
A structured approach to improving the reliability and availability of physical assets while minimizing risk, operating costs and increasing personnel safety

Application (or “app”)
Software offering (which can also be provided as SaaS) targeting a specific function or use case

ABB Ability™ Genix, an AI-driven industrial analytics offering, aggregates data from a wide array of existing systems using pre-built data adapters

ABB Ability™ Genix harnesses Industry 4.0 technologies, especially AI and analytics, to create actionable insights from cross-functional data

The digitalization and data-driven transformation of Asset Lifecycle Management is one of the key outcomes of ABB Ability™ Genix

A range of pre-built apps for value creation across operations, asset integrity, safety and supply chain optimization form part of ABB Ability™ Genix

Examples of apps in ABB Ability™ Genix include System Anomaly Detection and Opportunity Loss Manager which address key challenges

B

TERMS COVERED

Big data
Very large data sets drawn from diverse sources and aggregated for analysis to identify patterns and trends

Among other cutting-edge technologies used by ABB Ability™ Genix for digital transformation is the ability to capture and analyze big data

C

TERMS COVERED

Cloud / cloud computing
Computing resources, including storage, software product programs and applications, made available to users on demand over the Internet

CMM (Collaborative Management Model)
Comprehensive framework to manage all important processes through streamlining and control

Cognitive computing
Computerized models which mimic human thought process to produce insights in situations where input may be vague

Cold data
Data which is not accessed frequently or is inactive and retained for a long period of time

(Data) Connectors / adapters
Software interfaces that enable automated extraction of data residing in one system by another, thereby making it available to be filtered and transformed into an appropriate format for querying or analysis

CPAS (Collaborative Process Automation System)
A framework that allows for integrating disparate systems with the aim of harnessing inputs from all sources for achieving operational excellence

CPM (Collaborative Production Management)
Method of creating a unified workflow from data and functional layers to enhance collaboration across functions

CRM (Customer Relationship Management)
The process and data-driven systems designed to help manage and maintain customer relationships (including marketing, sales pipelines, lead management) to deliver actionable revenue growth data

Cybersecurity
Use of diverse tools and techniques to protect systems, networks, computer programs and applications from cyberattacks

ABB Ability™ Genix is a solution which can be installed on cloud, on premise or in a hybrid model to cater to diverse operational and security preferences

ABB Ability™ Genix uses the power of cognitive computing across various models to enable next-generation analytics and insight creation prowess

The architecture of ABB Ability™ Genix has been structured for complete cybersecurity and data protection requirements from edge to enterprise

D

TERMS COVERED

Data fabric
Framework for easing management of data by integrating inputs from disparate cloud and on-premise sources, and using data architecture, services to enable rapid digital transformation

Data lake
Unified repository acting as the single source of all raw data from diverse systems and transformed data, used for reporting, analytics and artificial intelligence / machine learning related activities

Data model
Representative model that helps organize data elements and define their relationship to each other, to the properties of physical assets. For example, it may specify how an asset data element is composed of several other elements which represent operating parameters, spares availability, last maintenance date, etc.

DCS (Distributed Control System)
Process-specific or plant-wide computerized control system architecture with autonomous controllers interfacing with plant or machinery distributed across the system but with central supervisory control

Device provisioning
Process of providing a connected device with all authentication including code, credentials and certificates it needs for unique identification on a cloud solution

DevOps
Combination of software development and IT operations to reduce development lifecycle of systems and contribute to regular deployment of new versions to the cloud

Digital system twin
Digital duplicate of physical equipment, systems and devices which are overlaid with sensor information to provide real time (or near real time) information

Digitalization
Use of digital technologies and principles to harness data and transform operational processes, engagement and interaction between a company and its customers; and create opportunities to maximize revenue and profitability

ABB Ability™ Genix uses pre-built industry data fabrics and data models backed by a cognitive data lake to offer a rapidly implementable solution

The ABB Ability™ platform is ABB's offering to help industries accelerate their adoption of contemporary technologies and move to digitalization

ABB offers next-generation Distributed Control Systems (DCS) including ABB Ability™ System 800xA and ABB Ability™ Symphony® Plus

E

TERMS COVERED

EAM (Enterprise Asset Management)
The process of managing physical assets through their lifecycle with focus on maximizing asset life, improving efficiency, reducing cost of operations, safety risk and impact on environmental sustainability

Edge
Software and hardware running near the source on premise, securing the connection between the cloud, control systems and smart devices; and acting like an application execution platform

Edge computing
Processing data near the edge of the network, where data is being generated instead of relying on the cloud; leading to enhanced responsiveness and helping save bandwidth consumption

Enterprise-grade
Products and / or solutions that integrate and scale in terms of users, departments and domains within and across organizations

ERP (Enterprise Resource Planning)
An integrated system, comprising diverse software modules, used to plan and control all processes of an organization, including supply chain, manufacturing, service and support activities such as finance and accounts

ET (Engineering Technology)
Systems which contain design information such as drawings, specifications and limits

Enterprise Asset Management is made effortless through the power of analytics, AI and actionable insights enabled by ABB Ability™ Genix

ABB Ability™ Edgenius, the edge computing offering from ABB combines with ABB Ability™ Genix to enable a scalable edge-to-enterprise solution

ABB Ability™ Genix is an enterprise-grade solution which ingests and analyses data from diverse sources to enable cross-functional insights

ABB Ability™ Genix uses data being generated from diverse existing sources including ET to use comprehensive data input for analysis and insight creation

F

TERMS COVERED

Fog

Fog
Network architecture type where a large proportion of computing and storage is done through edge devices; with further segregation to identify links to be pushed to the cloud and data for use in edge-level analytics

ABB's IA Digital solutions offer varied deployments – on-premise, on-cloud, hybrid –using various methods including fog computing to power solutions

G

TERMS COVERED

Geospatial data

Geospatial data
Data and information having an implied or direct association with a location identified using geographical coordinates

ABB Ability™ Genix uses all types of data, including geospatial data, to create a rich and diverse data source for comprehensive analytics and insight creation

H

TERMS COVERED

Historian
Software that records data along a time progression scale, ensuring that data from diverse processes can be stored efficiently and accessed rapidly

HMI (Human Machine Interface)
An integrated system of hardware and software that allows humans to provide input and receive results from machines, HMI works on the principle of translating user input into signals for machines to understand and translating return signals back for the user

HTTPS (Hypertext Transfer Protocol Secure)
Secure communication over a computer network or the Internet for authentication of accessed website and to protect the privacy, integrity of exchanged data

ABB's IA Digital offerings have pre-built connectors for historians, from third party systems and ABB systems such as ABB Ability™ Symphony® Plus

TERMS COVERED

IoT (Internet of Things)
The global network connecting any smart object

IIoT (Industrial Internet of Things)
The Internet of Things (IoT) applied to industrial / manufacturing environments

Industrial AI
Application of Artificial Intelligence (AI) to industrial processes and application of technologies to address industrial pain points for customer value creation, productivity improvement and insight discovery

Industry 4.0
Fast emerging utilization of automation and data technologies in manufacturing processes which include industrial internet of Things, cloud computing, cyber-physical systems, cognitive computing and artificial intelligence, amongst others

Information model
An information model is a precursor to a data model, contains diverse pieces of information about an entity and is used for definition of common terminology

IT (Information Technology)
The practical business application of computing for storage, retrieval, transmission and treatment of data or information

ABB's IA Digital products, including ABB Ability™ Genix, use the power of IIoT, Industrial AI and other Industry 4.0 technologies comprehensively

The ABB Information Model collects data in a standardized format to monitor, manage and analyze IIoT devices, systems and processes

ABB Ability™ Genix is the powerful coming together of IT expertise with domain knowledge, capabilities and industry understanding

M TERMS COVERED

(Software) Marketplace
An online forum where a single seller or combination of sellers (through an operator) gets connected to buyers for diverse software

MES (Manufacturing Execution System)
Use of information systems to connect, monitor and control complex manufacturing systems so data flow, management can be used for process execution improvement, resulting in productivity and yield enhancement

ML (Machine Learning)
Use of artificial intelligence to build ability in systems to automatically learn based on events and experience, without any additional programming input

Multi-tenant
Architecture where one software and its supporting infrastructure is used by multiple customers

MOM (Manufacturing Operations Management)
Set of systems used to manage the complete manufacturing process through combination of software for production management, analysis, quality assurance, compliance and other key efficiency-enabling functions

ABB Ability™ Marketplace is a single seller marketplace for software applications, acting as a “one stop shop” from catalog management to invoicing

Machine Learning is an integral component of the various technologies used by ABB Ability™ Genix to generate actionable insights

ABB’s IA Digital offerings help integrate diverse existing systems, including MES and MOM, for rapid implementation and wide coverage of value

TERMS COVERED

Overall Equipment Effectiveness
On-premise
Open standards
Operational Technology

OEE (Overall Equipment Effectiveness)
Measure of utilization effectiveness of a manufacturing equipment compared to its potential

On-premise (installation)
Software installed and run on computers located within the premises of the organization (as opposed to a being run from a remote location or on the cloud)

Open standards / open architecture
Software that is available freely for adoption, implementation, integration and updates

OT (Operational Technology)
Use of computers to monitor or alter the physical state of a system, such as the control system in process industry or the control network for a rail system

ABB Ability™ Genix provides industries with the flexibility to implement a solution that is on-cloud, on-premise or hybrid, based on their preference

ABB Ability™ Genix is built on an open architecture, allowing for rapid implementation through adapters for third party systems in a completely secure manner

ABB's IA Digital offerings, including ABB Ability™ Genix and ABB Ability™ Edgenius, allow for deep integration with OT systems

P

TERMS COVERED

PaaS (Platform as a Service)
A cloud service available to customers as an on-demand managed platform on which to deploy and run applications

PAM (Plant Asset Management)
Management of assets and equipment at the plant level

Platform
The base on which different computer programs run and which acts as the environment in which such programs and systems are executed

PLC (Programmable Logic Controller)
A rugged industrial-grade digital computing device employed for control of manufacturing processes including assembly lines and automated equipment; and deployed in situations requiring easy deployment, high reliability and fault diagnosis capabilities

PLM (Product Lifecycle Management)
Managing a product through its life stages including conceptualization, development, deployment, growth, stability and end-of-life

Point solution
Solution to address a specific problem or use case, developed in isolation and used to address one issue or build agility in service implementation

An example of PaaS is Microsoft Azure, for building, testing, deploying, managing applications, services through Microsoft-managed data centers

ABB Ability™ Platform is an integrated industrial platform, which uses ABB's expertise to build applications and solutions for specific industries

ABB offers a wide range of PLCs to support high availability, extreme environments, condition monitoring, motion control or safety requirements

ABB Ability™ Genix helps industries move away from an environment of point solutions with an integrated, enterprise-grade platform + suite

R

TERMS COVERED

Release
Launch of the final version of an application, which may be preceded by alpha and beta versions of the application

RoA (Return on Assets)
Measure of profitability arrived at by calculating quantum of profits *vis-à-vis* investment into an asset

ABB has had a long-standing commitment to industries maximizing their RoA; and this forms a key area of focus in ABB's IA Digital products as well

S

TERMS COVERED

SaaS (Software as a Service)
On-demand, subscription-based access to software without the need to invest into licenses in perpetuity and for use, delivery over a central network such as the Internet

SCADA (Supervisory Control and Data Acquisition)
Control system framework which uses peripheral devices such as PLCs and PID controllers to manage process or equipment at plants

SCM (Supply Chain Management)
Controlling and monitoring flow of goods / services and covering the entire chain from raw material to final product, with a focus on streamlining the supply chain for maximized value propositions and competitive advantage

Sensor
Device used to collect and transmit performance data from an equipment by converting a physical phenomenon into an electrically measurable signal

(Software) Solution
Packaged offering of PaaS / SaaS applications within a multi-tenant instance typically targeting a specific industry use case

(Software) Suite
Several software programs bundled together, which may have interoperable features or be completely divergent in use but share common outcome objectives

System anomaly detection
Solution which enables monitoring, prediction and diagnosis of the condition of one or multiple assets or a complete system of assets, based on defined targets and thresholds

ABB's IA Digital products integrate with sensors to monitor and draw trends from real-time data such as temperature, humidity, etc.

ABB Ability™ Genix is a suite that uses industrial analytics and AI to help industries unlock value across 5 pillars that define operational excellence

Automated system anomaly detection is a key feature offered by ABB Ability™ Genix, with predictive alerts to ensure minimized downtime

T

TERMS COVERED

Time series

Time series (data)
Data points arranged in sequence with their successive order used to draw control system trends or event information

Using time series data of source systems + own data modelling techniques, ABB's IA Digital offerings draw progression trends to create insights

W TERMS COVERED

Warm data
Data that is analyzed frequently but not required on a constant basis and is typically retained for a short to medium time period

WMS (Warehouse Management System)
Software systems that help companies control warehouse operations from raw material to shipment, including receipt, inventory management and pick-up with workflow management and auditing capabilities

Supply chain optimization is a key value pillar of ABB Ability™ Genix and integration with WMS is used as part of a broader process to achieve this