
Glossary of Terms

Process Automation System Vision White Paper

Term used	Definition
5G	In telecommunications, 5G is the fifth-generation technology standard for broadband cellular networks. Due to the increased bandwidth, it is expected the networks will increasingly be used as general internet service providers (ISPs) for laptops and desktop computers and will make possible new applications in internet-of-things (IoT) and machine-to-machine areas.
ABB Ability™ Edgenius	ABB Ability™ Edgenius is the digital enabler for automation offerings. It connects cloud and control environments for advanced data aggregation and analysis to improve operations. For real-time performance requirements, customers run applications on Edgenius, taking advantage of the flexible, fast, near-the-data-source analysis engine.
ABB Ability™ Genix	ABB Ability™ Genix is a modular, IIoT and analytics suite, which brings together real-time operations data from OT, engineering design parameters from ET, transactional data from IT and locational information from geospatial systems in a contextualized manner. Applying advanced industrial AI capabilities and domain expertise, it leads users to new insights to optimize operations.
ABB Ability™ Symphony® Plus	ABB Ability™ Symphony® Plus is a simple, scalable, seamless and secure distributed control system (DCS) that delivers total automation with a flexible architecture for central and geographically distributed applications. It is designed to maximize plant efficiency and reliability through automation, integration, and optimization of the entire plant.
ABB Ability™ System 800xA	The ABB Ability™ System 800xA is used in many industry sectors to oversee and control a wide range of processes. It extends the scope of traditional control systems to include all automation functions within a single operations and engineering environment. This means that ABB Ability™ System 800xA is not only a Distributed Control System (DCS) it's also an HMI SCADA, electrical control and power management system, a safety system and much more. The collaborative environment of ABB Ability™ System 800xA delivers a plant wide overview that enables operator effectiveness and asset optimization.

Term used	Definition
ABB Adaptive Execution™	ABB Adaptive Execution™ is a new, agile method to industrial project execution to help customers adapt to challenging market conditions. It integrates expert teams, new technologies, agile processes, shared learnings, and proven methodologies into a single, streamlined project execution experience for all stakeholders involved in major capital investment projects. Up to 40% capital expenditure reduction is expected, delivery schedules are expected to be compressed by up to 30%.
AI (Artificial Intelligence)	Systems that are capable of taking decisions or providing insights, including predictive insights, based on received inputs and defined contexts.
App (Application)	Software offering (which can also be provided as SaaS) targeting a specific function or use case.
AR (Augmented Reality)	Augmented reality is an interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory and olfactory.
Aspect Object	Aspect Object technology, relates all plant data, the Aspects, to the specific plant assets, the Objects. This technology enables one click navigation, efficient engineering and presentation of the right information in the right context to the right user. Different aspects enable every user to zoom in on the information they are interested in without having to cut through obstructive clutter to get to it.
CapEx (Capital Expenditure)	Capital expenditures (CapEx) are funds used by a company to acquire, upgrade, and maintain physical assets such as property, plants, buildings, technology, or equipment.
Cloud / cloud computing	Computing resources, including storage, software product programs and applications, made available to users on demand over the Internet.
Core	The term core or core automation in relation to the NAMUR Open Architecture (NOA) is the mission critical system to not be affected as NOA provides ways to increase openness outside of the automation pyramid. In a wider sense, core vs. extended (applications) also describes the difference between the most stable and critical parts of the automation system vs. the extended functions that should be more frequently updated or where innovations shall be introduced.

Term used	Definition
COTS (Commercial off the Shelf) products	Commercial off-the-shelf or commercially available off-the-shelf (COTS) products are packaged or canned (ready-made) hardware or software, which are adapted aftermarket to the needs of the purchasing organization, rather than the commissioning of custom-made solutions
Cyber security	Use of diverse tools and techniques to protect systems, networks, computer programs and applications from cyber attacks.
Data diode	A data diode (also referred to as a unidirectional gateway, deterministic one-way boundary device or unidirectional network) is a network appliance or device allowing data to travel only in one direction
DCS (Distributed Control System)	A control system that regulates a process (manufacturing, chemical or other) from a series of strategic positions in the processing plant, as opposed to from a single, centralized control unit. Distributed control systems (DCS) originated in continuous process industries (e.g., refineries) and integrate distributed automation controllers, networks, application servers, workstations and other components necessary to build a complete automation system.
Digital 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.
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.
ESG (Environmental, social, and corporate governance)	Environmental, social, and corporate governance is an approach to evaluating the extent to which a corporation works on behalf of social goals that go beyond the role of a corporation to maximize profits on behalf of the corporation's shareholders.

Term used	Definition
ET (Engineering Technology)	Systems which contain design information such as drawings, specifications and limits.
Ethernet I/O Field Kit	The Ethernet I/O Field Kit is a powerful, flexible and intuitive application that optimizes configuration and commissioning of I/O loops without the need for control application or process controller hardware. Automated loop checks can be performed simultaneously on multiple smart devices, reducing required man-hours by more than 90%.
Ethernet-APL (Advanced Physical Layer)	Ethernet-APL is the ruggedized, two-wire, loop-powered Ethernet physical layer that uses 10BASE-T1L plus extensions for installation within the demanding operating conditions and hazardous areas of process plants. It enables a direct connection of field devices to Ethernet-based systems in a way that process industries can benefit from a convergence of their OT and IT systems.
Freelance	Freelance Distributed Control System is a full-fledged distributed control system that combines the advantages of DCS and PLC: the small footprint of a PLC, together with the full functionality of a DCS.
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.
Hybrid Cloud	Hybrid cloud refers to a mixed computing, storage, and services environment made up of on-premises infrastructure, private cloud services, and a public cloud with orchestration among the various platforms.
I/O (Input/Output)	Abbreviation for Input and output, referred as industrial I/O modules which are critical industrial network components that deliver input signals from a field device, such as a sensor or actuator, to a controller. These modules then route output commands from the controller back to the device.
IIoT (Industrial Internet of Things)	The Internet of Things (IoT) applied to industrial / manufacturing environments.
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.

Term used	Definition
Information Model	<p>An information model in software engineering is a representation of concepts and the relationships, constraints, rules, and operations to specify data semantics for a chosen domain of discourse.</p> <p>Typically, it specifies relations between kinds of things, but may also include relations with individual things. It can provide sharable, stable, and organized structure of information requirements or knowledge for the domain context.</p>
IoT (Internet of Things)	The global network connecting any smart object.
IT (Information Technology)	The practical business application of computing for storage, retrieval, transmission and treatment of data or information.
IT/OT convergence	<p>IT/OT convergence is the integration of information technology (IT) systems with operational technology (OT) systems. IT systems are used for data-centric computing; OT systems monitor events, processes and devices, and make adjustments in enterprise and industrial operations</p>
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.
MODBUS	<p>Modbus is a data communications protocol originally published by Modicon in 1979 for use with its programmable logic controllers. Modbus has become a de facto standard communication protocol and is now a commonly available means of connecting industrial electronic devices.</p>
Modular Automation	<p>Modular Automation is an enabling technology for a Plug & Produce concept, where a production cell is designed in modules. Such modules have local automation and can in some cases run fully autonomous.</p> <p>The process automation is based on several intelligent modules being orchestrated by a modular enabled process control system (DCS). Intelligent modules can easily be added to existing automation due to modular enabled DCS.</p>
MTP (Modular Type Package)	<p>A standardized description of the XML file describing the module in its automation aspects to the orchestration, such as the services provided by the module, the communication, a human machine interface (HMI) description and maintenance information. The format has been agreed to be extended markup language (XML), as it is a common generic data format.</p>
NAMUR	<p>NAMUR is an international user association of automation technology and digitalization in process industries. NAMUR represents interests of more than 150 member companies.</p>

Term used	Definition
NAMUR Open Architecture	The NAMUR Open Architecture (NOA) aims to make production data easily and securely usable for plant and asset monitoring as well as optimization.
On-premise (installation)	Software installed and run on computers located within the premises of the organization / plant (as opposed to a being run from a remote location or in the cloud).
OPAF (Open Process Automation Forum)	Open Process Automation Forum: OPAF is an international forum of end users, system integrators, suppliers, academia, and other standards organizations working together to develop a standards-based, open, secure, and interoperable process control architecture. Open Process Automation is a trademark of The Open Group.
OPC UA	OPC Unified Architecture is a cross-platform, open-source, IEC62541 standard for data exchange from sensors to cloud applications developed by the OPC Foundation
OpEx (Operating Expenditure)	An operating expense is an expense a business incurs through its normal business operations. Often abbreviated as OPEX, operating expenses include rent, equipment, and inventory costs.
OT (Operational Technology)	Use of computers to monitor or alter the physical state of a system, such as the control system in process industry.
P&ID (Piping and Instrumentation Diagram)	A piping and instrumentation diagram is a detailed diagram in the process industry which shows the piping and process equipment together with the instrumentation and control devices.
PaaS (Platform as a Service)	A cloud service available to customers as an on-demand managed platform on which to deploy and run applications.
PA-DIM (Process Automation Device Information Model)	PA-DIM is a manufacturer independent Information Model with a structured hierarchy for standardized data access for devices. A Device (Asset) has Set of Signals (Functions) e.g., Process Variables, which are based on OPC UA Part 100 Devices (DI-model).
Plug & produce	Plug and produce is an information intensive process that requires from both the devices being plugged and the system a structured information exchange about the operational context and associated constraints.

Term used	Definition
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.
Select IO	Select I/O is an Ethernet based single channel I/O solution for ABB Ability™ System 800xA that offers full redundancy down to the Signal Conditioning Module. Each signal coming from the field is conditioned individually with the Signal Conditioning Module (SCM) for both process and safety applications.
TSN (Time Sensitive Networking)	Time-Sensitive Networking is a set of IEEE 802 standards that define mechanisms for the time-sensitive transmission of data over deterministic Ethernet networks.
