Advant Engineering Workplace epitomizes ABB’s approach to automation project engineering. The system serves as a platform for all the tools needed to manage, design, engineer, install, commission and maintain industrial automation plants with Advant OCS with maximum productivity and quality.

It addresses the needs of both the engineering and maintenance phases, which means that it offers important benefits to both application-development and plant-maintenance engineers. In other words, it has much to offer throughout the entire life-cycle of plants and automation systems. Those who have adopted it say: "It's a real teamwork-enabler".

**Manageability through object orientation**

The system is object-oriented, meaning that each application project is broken down hierarchically into components - called Advant Objects - and that only those details that are relevant at each level are visible there. The ultimate level of detail can be chosen arbitrarily but in practice, it tends to be determined implicitly and simply by what the tasks of installation, commissioning and maintenance require.

Typical Advant Objects at the lower levels are individual signals, I/O boards and plant components such as limit switches, temperature sensors, motors, solenoid valves, etc.

The plant structure can be viewed from a number of angles to facilitate navigation, e.g.:

- a locational angle, depicting locational relationships among Advant Objects and indicating where in the plant items are installed,
- an open control-system angle reflecting where and how objects fit into the automation system, and
- a plant-functional angle, identifying functional relationships among objects, e.g. which functions are part of others and which exist alongside one another.

This top-down approach is one that most application engineers are perfectly comfortable with. However, Advant Engineering Workplace also supports bottom-up engineering for maximum flexibility. It does so by permitting import of object data and creation/editing of Advant Objects into a "project pool", pending insertion by drag-and-drop into the project structure at any suitable later stage.
Aspects, a way to extract the relevant

However, which object details are relevant varies from discipline to discipline. That is why Advant Engineering Workplaces supports multiple aspects of every object at every level. So that the fitter, the electrician, the control system configurator and the commissioning and maintenance engineers can obtain the information they need individually for each impending task, no more, no less.

Finally, aspects offer different views of its data to facilitate extracting subsets of information to suit different tasks. For instance, graphic application programs represent one view, program listings another.

Aspects and views make it easy to extract the relevant information at every step. Here a motor drive object being opened in the form of an AMPL program, an electrical circuit diagram and a textual specification.
Structure Builder: the main navigation tool

Structure Builder is the main data navigation tool of Advant Engineering Workplace. It provides functionality such as:

- project structure creation and maintenance by means of data management functions such as Create, Import, Delete, Cut, Copy, Paste, Move, etc.,

- project structure navigation and searching, making it easy to find the Advant Objects one is looking for and thereby the engineering data associated with them, and

- access to data and thereby to appropriate editing tools. These editing tools can be industry-standard software such as:
  - MS Word for producing documents,
  - MS Excel for handling lists of different kinds, and
  - MS Access for storing engineering data, as well as more specialized software like
    - Function Chart Builder for control system configuration,
    - Electrical Diagram Builder for computer-aided electrical design (based on AutoCAD), and
    - On-line Builder for on-line system (re)configuration and fault tracing.

Progress on a broad front

Advant Engineering Workplace is a highly scaleable multiclient system which is based on Windows NT. It is as feasible for workgroups of only two or three people as for several tens of people. Its graphic visualization of projects makes it easy to see what they consist of, what remains to be done - and to communicate this to others. The moment new contributions are made to the body of engineering data in the project structure they become instantly available to all other project members to build on. That is why the system promotes teamwork for progress on a broad front.

The full import/export capabilities of the associated editing tools are available, which means that useful engineering work done previously - and elsewhere - can easily be made use of again. For the same reason, it is easy to exchange engineering work with others, not necessarily working on Advant Engineering Workplace stations.

When time schedules are tight and more resources have to be deployed to meet critical deadlines, you can’t have a better assistant than Advant Engineering Workplace.
Application program generation by ‘drag and drop’

Advant Engineering Workplace supports the development and re-use of standard solutions, e.g. in the form of circuits and Function Blocks in AMPL, the graphic application programming language used throughout Advant OCS with Master software. These program circuits and program elements only require project-specific parameter values to become operational. So the quickest way to create ready-to-run AMPL programs for objects, be they motor drives, control valves or temperature control loops, is to import parameter lists, created in just about any text editor or spreadsheet application, specifying the desired library objects and parameter values.

The process is as easy as reading these few lines.

But of course, more often than not, all the data required to fully specify each Advant Object is not available at the same point in time. In such cases one simply imports what’s available at one time and supplements with the remainder at another. It’s that simple.

Another time-saving possibility is to assign the desired program circuits to AMPL programs by drag and drop.

This is high-speed, high quality automation project engineering, Advant Engineering Workplace style.
Fast and easy data retrieval

Structure Builder offers powerful search and navigation functions to help you find the engineering data you need when you need it.

- You can click your way through the project structure to any Advant Object at any level. Click to open the desired engineering data. When inside the host application, choose Print to commit it to paper.
- You can search for Advant Objects in a multitude of ways to find what you are looking for effortlessly.
- Once you have found your object you have access to all its aspects to view, print or edit engineering data.

So if/when an alarm occurs in the plant finding answers to questions like "Where is the device involved installed?", "What does it do?" and "How does it tie into the control system?" is as easy as searching for the device concerned and looking up its relevant aspects.
Designed for maximum engineering efficiency and quality

Advant Engineering Workplace is designed to help engineers build and maintain industrial automation plants more efficiently, at lower costs and with better engineering quality. It does so by providing an integrating platform for all the disciplines, tools and tasks involved, throughout the life-cycles of these plants.

In short, Advant Engineering Workplace helps industrial automation engineers do a better job faster.

Advant Objects manage all the aspects of your plant and process devices.

Advant Engineering Workplace helps industrial automation engineers do a better job faster.
ABB is a global electrical engineering group which is active in many areas associated with the generation, transmission, distribution and use of electrical power. The ABB Group comprises 1,000 companies in 140 countries.

ABB Automation and Drives is one of the world’s largest suppliers of industrial automation and drive systems, products and services. The company uses its unique global resources to provide the highest level of customer value through industry-leading technology and cost-effective, industry-specific application knowledge with an uncompromising commitment to quality.