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The World of Open Standards

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This column will try to shed some light into the world of open standards. It will try to clarify what 'open' really means in the context of e.g. open control, open automation, open integration, open source and open standard.

What are open standards?

In the past standards were mostly used to harmonize existent technologies or to define interfaces between different technologies. New is with the so called 'open standards' that they are just created for the definitions of new technologies. The Internet standards (e.g. HTML) or fieldbus standards like DeviceNet or PROFIBUS are typical open standards. For instance, **the IEEE has defined** an 'open system' in the following way:

> **"An open system provides capabilities that enable properly implemented applications to run on a variety of *platforms from multiple vendors, interoperate* with other applications, and present *a consistent* style of interaction with the user"**

That means the underlying open standard must have the following characteristics:

- vendor-neutral: independent from any single proprietary interest

- consensus-driven: controlled by a group of vendors and users

- open-specified: distributed widely in the form of standards

- freely available: the specifications are available at no or low cost to any interested party.

These criteria allow us to differentiate between real 'open standards' and so called 'industrial standards'. So it is evident that the prefix 'open' is very often used in a misleading way. A viable open standard must make sure that the products based on that open standard are interoperable. This is mostly done by several independent test and certification instances.

Industrial standards are mostly defined by market shares of proprietary products which are not based on an open specified standard. Industrial standards can be changed without any notice by their owner.

Why are open standards important ?

Open standards are important for end users, because the users are able to choose vendor independance between different interoperable products, that means they are not bound to a single source. Additional benefits for the vendors are also better acceptance in the market for their products. That fact is especially important for small or medium sized companies because open standards don't know 'prefered customers'.

Some examples for truly open standards in the automation industry today:

- fieldbus standards: ASI, ControlNet, DeviceNet, Foundation Fieldbus, INTERBUS, PROFIBUS,...

- communication standards: IEEE 802.3, IEEE 802.3.u (100Mb/s), TCP/IP, Internet standards,

- object oriented data communication: CORBA, RT CORBA,

- programming standards: ANSI C, IEC 61131-3,

- operating system standards: OSF, POSIX,

- hardware standards: IEEE P966 (PC, ISA bus), PC/104, PC104plus, PCI, CompacPCI, VME

Open standards are mostly living standards which can be modified or renewed under consensus. For instance, the RS485 is an old standard but the technology behind it currently allows transmission speeds greater than 35Mb/s. The good old RS232 standard allows more than 10Mb/s today!

We know also competing open standards like ETHERNET vs. TOKEN RING or CompactPCI vs. VME. Competition works very well for improvements of underlying technologies and for the end users.

Open standards are in general an important property of our industrial culture. The Internet standard shows how big their impact can be. So we should take care that key standards should always be a property of the public.

So far some basic statements about open standards. The next column will discuss the relationship of the open source movement and open standards. It will also include some useful internet links.

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