Industry 4.0 or Industrial Internet of Things — What's Your Preference?

BY LUIGI DE BERNARDINI | TUE AUG 18 2015

In most cases, the terms Industry 4.0 or Industrial Internet of Things (IIoT) are used interchangeably. But these two terms, though referring to similar technologies and applications, have different origins and meanings. That's why I think it's important to understand the differences between Industry 4.0 and the "Industrial Internet of Things" and where our mindset and approaches best fit.

First, it is important to remember that the two terms were coined by totally different entities with different goals. Industry 4.0 identifies a German government initiative, which identifies with the fourth industrial

revolution—a revolution happening now. It follows the first revolution, which took place in the eighteenth century and was characterized by mechanical production; the second, born at the beginning of the twentieth century and characterized by mass production made possible by the use of electricity; the third, happened in the mid-twentieth century and linked to information technology.

The German government initiative is closely oriented to Germany, since the initiative's manifesto states: "The ultimate aim of Industry 4.0 is to safeguard a sustainable competitive advantage for the German manufacturing base. On one hand we have to train the German industry to build and install CPS (Cyber Physical Systems—hardware systems with embedded software) and, on the other, allow them to remain globally competitive." All this stems from the fact that the German government recognizes German industry's leading role in research and wants to ensure that this role will be maintained in the future and not affected by technological changes.

The concept of the Industrial Internet of Things is an industrial adaptation of the Internet of Things (a term whose exact origins are uncertain) and has many industry variations—from GE and its preferred use of the term "Industrial Internet" to Cisco with its use of the term "Internet of Everything". One of the more prominent organizations identified with the Industrial Internet of Things is the Industrial Internet Consortium (IIC), which was formed in 2014 with the support of GE, AT&T, Cisco, Intel and IBM. The IIC is a non-profit organization that aims to provide resources, ideas, pilot projects, and activities about IIoT technologies—as well as the security of those technologies. In its founding document, the IIC states its purpose is to "catalyze and co-ordinate priorities and enabling technologies in industry, academia and governments around the Industrial Internet."

As you can see, the players involved are very different. In the case of Industry 4.0, the principal players are the German Federal Government—through the Ministry of Education and Research and the Ministry of Economy and Research; the academic world, through the Fraunhofer Institute, the national academy of science and engineering, and the German Center of Research for Artificial Intelligence; and the private business world led by the three associations—BITCOM, VDMA and ZVEI. For the most part, Industry 4.0's main actors are primarily institutional.

With the IIC, the approach is predominantly business-oriented. The consortium has nearly 200 members, which are mostly private companies and some academic institutions in 12 different countries including India, China

and Germany. This distinction of origin and participation, albeit formal, carries with it a profound distinction of vision and approach.

> Industry 4.0 is focused specifically on the manufacturing industry and the goal of ensuring its competitiveness in a highly dynamic global market. The IIC is more focused on enabling and accelerating the adoption of Internet-connected technologies across industries, both manufacturing and non-manufacturing.

In my opinion it is clear that the two initiatives, although looking at a similar technological environment, differ more than might appear on the surface. This difference is important and will be amplified by the fact that the world of devices is only going to become more connected—ultimately to the point where each object, regardless of the industry in which it is used, becomes a source of data and information for cross industry purposes. The potential uses for data once analyzed within its specific industry of origin can be multiplied enormously when data from different fields are related, creating scenarios that are difficult even to imagine today.

For this reason, any initiative to promote the standardization of technologies and practices—as does Industry 4.0—albeit laudable and useful, is likely to be less effective in the long term because it is destined to chase a world that is changing faster than can be regulated.

For this reason I lean more toward the IIoT possibilities as pursued by the IIC. What do you think?

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