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The Industrial Internet: The Modern Day Technological Revolution

Common wisdom has it that the Internet Revolution has radically changed everything about our lives: not only from how we take care of our finances to how we shop, get news and communicate. But did it really change that much? In many cases, the Internet hasn't changed our lives as much as we think. In 2014 as in 1974, medical monitoring devices and medical robotics are largely disconnected. Real-time jet engine monitoring against global performance metrics simply does not exist. Smart energy grids are the toast of standards organizations everywhere, but they still don't exist at the vast scale that our electrical grids currently do. And while the *Industrial* Revolution changed manufacturing forever, the *Internet* Revolution has failed to do so – until now.

The Internet of Things vs the Industrial Internet

Many people have heard the term “Internet of Things (IoT)”. “IoT” conveys the idea of driverless cars and Apps on your smartphone. In fact, the IoT was made for the consumer with little focus on how it can be applied to industry.

The “Industrial Internet” – or “Cyber-Physical Systems” or “Industry 4.0” as it is also known – takes the idea of the IoT a step further. It is where the Industrial Revolution meets the Internet Revolution. What the Internet Revolution hasn't changed, the Industrial Internet will – automatically and rapidly. The Industrial Internet gives us a low-cost, high value way to integrate information based on widely distributed sensors, smart machines, big data and real-time analytics.

An Industrial Internet world will feature alarm clocks that wake you up at the precise time needed to make a flight by synchronizing with both the airlines and the traffic pattern monitors on the way to the airport. It will allow airplanes and jet

engines to figure out what maintenance is imminent and already have parts ordered and ready to be installed before any issues take the plane out of commission.

It means that all medical devices hooked up to a patient to measure blood oxygen levels, heart rate, etc. will be able to integrate all data in order to determine a patient's overall wellbeing. The oil and gas industry will benefit from the Industrial Internet by being able to drill more accurately and fix any problems before they become full blown issues that halt operation.

The Industrial Internet will lead to transformational business outcomes in all industries, making production and work in all industries more cost-efficient as well as allow better decision making based on advanced analytics.

With the advent of an Industrial Internet-connected world, software developers will find that new products must be capable of integrating with software products from other organizations. To date, this work has largely been disjointed and

disconnected. What has been missing is a shared vision and organization that sets policies and recommendations for common building blocks for all aspects of the Industrial Internet: architectures, interoperability platforms, security, standards and so forth.

What is the Industrial Internet Consortium?

On 27th March 2014, AT&T, Cisco, General Electric, IBM and Intel banded together to form the Industrial Internet Consortium, an open membership organization to systematically address the challenges of making the Industrial Internet a reality and promote a common vision. As of this writing (October 2014), the IIC has 90 member organizations.

Overall, 21 countries in Africa, Asia, Australia, Europe, North America, the Middle East, and South America are represented (with all of DACH represented: Austria, Germany and Switzerland.) The IIC gives organizations – from large, international corporations to small indus-

Organizational Structure of the Industrial Internet Consortium

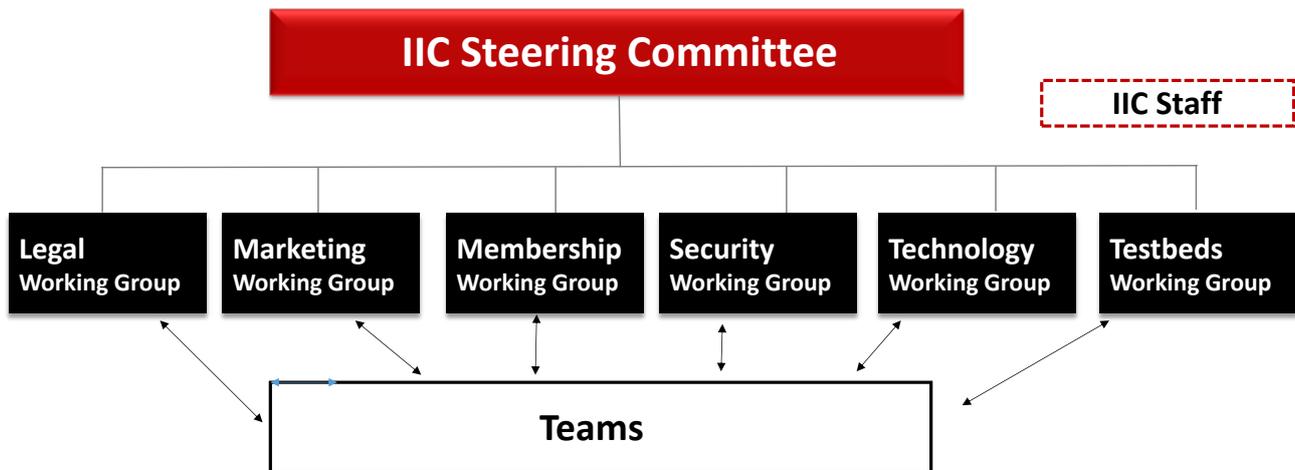


Abb.: Organizational Structure of the Industrial Internet Consortium

try; and from academia to governments – the opportunity to come together to collaborate on setting the priorities in establishing and forwarding the growth of the Industrial Internet, as well as create use cases and testbeds that will demonstrate the capabilities of the Industrial Internet.

Although the IIC is being managed by the Object Management Group® (OMG®), of which I am Chairman and CEO, the IIC is not a standards organization. Rather, our members are looking to catalyze and coordinate the priorities and enabling technologies of industry – and in the future, we will present standards recommendations to a number of liaison standards

organizations including OMG, OASIS and others (see [figure](#)).

We at the IIC see software development becoming important to enable the growth of the Industrial Internet – not the other way around. As the technology evolves, so too will the Industrial Internet itself.

The IIC Testbed Working Group is working on further developing software to enable the Industrial Internet by identifying specific testbeds to work on. These testbeds are controlled experimentation platforms that implement a specific use case and produce testable outcomes to determine if an implementation has expected results – meaning disruptive new products and services that will transform markets.

They can be simulations or models and can last from anywhere from 12 to 60 months in duration, and can be local or worldwide. Though our initial testbeds work is not ready to be publicly shared at this writing, we cannot wait to share the results with you in the next few months!

We are very proud of what we have accomplished in the first year since our founding and are excited for the great work that is expected to come out of the IIC Working Groups in the next few months. Visit our website, www.iiconsortium.org, to learn more about, and stay up to date with IIC activities and projects. ■