

We have much to report since the last Journal of Innovation edition, but we also look with an excited eye to October when we will launch a public resource that will arm the world with new tools in the IIoT strategic arsenal. The experience and expertise of our members are captured and evolving in our foundational documents, testbeds, toolkits, demos and relationships with standards and industry groups around the world and most of this is published on our website. In October, we will launch a new interface to that library of knowledge, making it easy to find the resources we have developed and forge the paths from requirements to results, testing to commercialization, from architectures to standards, from evaluations to new business models and from on-line resources to IIoT experts. To leverage this library of knowledge, we will introduce a web-based toolkit to analyze and strategically plan your IIoT projects.

So you may see why we are excited! More information will be announced as we prepare for the launch at [IoT Solutions World Congress](#) (16-18 October) in Barcelona, Spain. To subscribe to the IIC newsletter, offering updates and opportunities to engage, please send an email to [info@iiconsortium.org](mailto:info@iiconsortium.org) with "Subscribe" as the subject line.

## Delving into the Industrial Internet Ecosystem

*By Stephen Mellor & Cheryl Rocheleau*

Ecosystems come in various sizes; they may be as small as a grove of trees or as large as a 23M acre boreal forest in Finland. Speaking of Finland, the IIC held its 2018 second-quarter member meeting May 21-24 in Helsinki, Finland. It was as busy and productive as usual, with 30 testbed sessions and 68 other sessions. The Ecosystem Task Group organized a successful business-to-business connection event called 'IIC Connect' that attracted 53 participants and resulted in 72 interactive sessions. Each session involves twenty-minute of networking between members to allow members to work together to find partnerships that fill gaps in their own offerings and to expand possibilities.

### THE EXTERNAL ECOSYSTEM & THE CRITICAL ROLE OF LIAISONS

Establishing universal interoperability in the Industrial IoT (IIoT) is a prerequisite for its proliferation. Unfortunately, ensuring interoperability is a complex endeavor. It is not a matter of agreeing on a small set of standards to rule the IIoT world, but about carefully orchestrating complex and partially competing protocols and standards on multiple levels. No single organization can deliver the one standard that solves all interoperability problems. You need an ecosystem to facilitate rapid discovery and development of the partnerships you need.

Vertical and domain-specific standards also play an important role. Not only are IIC Members and Testbed Partners working together, but the IIC is also focused on cooperation with international standards organizations. That notion extends beyond the IIC.

## IIC Liaisons

The IIC has 38 liaisons in place and conducted two recent joint workshops, both were open to the public:

- 2018-05-24: IIC/OSGi joint workshop, [Building Industrial Internet Solutions with OSGi](#) . The workshop followed the IIC member meeting in Helsinki. The goal was for the IIC's Liaison Working Group and the OSGi Internet of Things Expert Group to work together to gather requirements to tailor and extend OSGi specifications to address specific industrial internet scenarios.
- 2018-06-01: The [2nd IIC/IVI Joint Workshop](#), Sharing Use Case Information, was held in Tokyo, Japan. The workshop focused on sharing IVI and IIC use cases.

A coordinated group is working to identify which standards are or should be in use for the testbeds. This also extends the range of organizations with whom we might want to create a liaison for more formal work. For example,

- The Retail Operations Task Group is collaborating with the Object Management Group's Retail Domain Task Group, formerly the National Retail Federation (NRF) Association for Retail Technology Standards (ARTS) on developing and enhancing standards for the retail industry.
- The Automotive Security Task Group is engaging with automotive organizations to collaborate and identify requirements intended to influence standards activities.
- The Standards Task Group is working with testbeds and other groups to find the most pertinent standards and explore key standards' development organizations (SDOs).

## THE INTERNAL ECOSYSTEM

The collaboration between internal groups is also key. When you join the Industrial Internet Consortium, you and your organization are helping to create the future of an industry. With opportunities to participate in the IIC's 28+ testbeds, 35+ liaisons, thought leading publications, member meetings, public forums, more than 30 working, task, and contributing groups -- IIC membership empowers your company with brand-building, standards-influencing, best practices and processes for leveraging all aspects of the industrial internet. For technology updates and additional membership information please see:

- [The Industrial Internet Consortium Quarterly Progress Report](#)
- [The Industrial Internet Consortium Benefits of Membership page](#)

### REGIONAL TEAMS

Regional teams facilitate local IIC activities in native languages and overcome cultural and time zone differences to accelerate the adoption of the industrial internet. Two regional teams have been established so far; the [Indian Regional Team](#) (IRT) and the [German Regional Team](#) (GRT). The IRT held its first meeting on 2018-05-10 at the NASSCOM Center of Excellence in IoT in Bangalore, India. The IRT also hosted a [public forum](#) on the topic of Accelerating the Industrial Internet on 2018-05-11. The GRT, established in 2015, continues to conduct numerous activities with the goal of connecting German IIC members and supporting the IIC's visibility in the German market. During this quarter the GRT held a second workshop of the GRT IIC research group where results of the researchers and IIC artifacts were presented.

Regional teams are yet another example of ecosystem work. Contacts and more information about regional teams are available at the [Regional Teams site](#).

### TESTBEDS

Testbeds provide an environment for companies and multi-disciplinary stakeholders to team up, prove out complex systems and gain real-world experience. With 29 approved IIC testbeds and more in the pipeline, participants are generating best practices, recommendations and priorities for standards organizations. The meeting had 16 testbed-update presentations along with five concept testbed introductions and testbed platform presentations.

The [Testbed Working Group](#) recently announced the new [Optimizing Manufacturing Processes with Artificial Intelligence Testbed](#) for the Manufacturing: Industrial Automation (automotive components) market segment. Wanxiang Group is the testbed lead and its supporting members are CAICT (China Academy of Information and Communications Technology), China Unicom, Dell EMC, Thingswise and Xilinx.

### PUBLICATIONS

Four new resources were published since the March edition of the Journal of Innovation. Two publications specifically highlight testbed insights while two white papers elaborate on security concepts and are built on concepts of the [Industrial Internet Security Framework](#) (IISF).

#### Testbed Insight Papers

The IIC [Time Sensitive Networking \(TSN\) for Flexible Manufacturing Testbed](#) published [Time-Sensitive Networks for Flexible Manufacturing Testbed: Characteristics of Converged Traffic Types](#). The paper describes industrial traffic types that the IIC TSN for Flexible Manufacturing Testbed supports and enhances the traffic type descriptions from the IEEE 802.1Q specification.

IIC members Real-Time Innovations (RTI) and Wipro Limited, leaders of the [Communications & Control Testbed for Microgrid Applications](#) testbed supported by IIC members Cisco and National Instruments, published the [Synchronized and Business-Ready Microgrid](#) insights paper.

## White Papers

The Security Working Group published the [Endpoint Security Best Practices white paper](#) that describes the best practices that equipment manufacturers, critical infrastructure operators, integrators and others can reference to implement the countermeasures and controls they need to ensure the safety, security and reliability of IoT endpoint devices. An executive summary of this paper is found in this June 2018 edition of the Journal of Innovation.

The [Security Maturity Model: Description and Intended Use](#) white paper builds on concepts identified in the IISF and provides a path for IoT providers for evaluating and enhancing their security mechanisms. This white paper is the first of two documents covering the security maturity model (SMM) and provides an introduction to the SMM. The second document will be a practitioner's guide and provide details on the SMM.

## WEBINARS

Ten [webinars](#) were published during the second quarter and four more are upcoming. You may receive notification about the upcoming webinars by subscribing to the IIC [BrightTALK channel](#) or subscribing to our "IIC Updates" distribution list.<sup>i</sup>

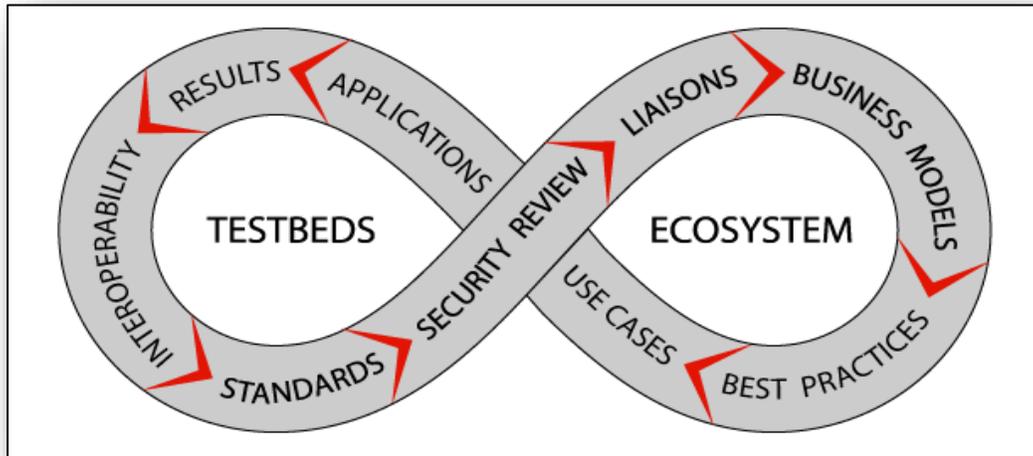
The most recent webinar, "[Applying Industrial IoT for a Business-Ready Microgrid](#)" discusses new approaches to address operational challenges by integrating communications and control technology directly to the power grid.

Nine webinars were presented as a part of the first [IIC Virtual Summit](#) conducted on 2018-04-09 in honor of World IoT Day. IIC members came together to present the Webinars, sharing overviews of foundational technologies needed for the advancement of IIoT in business and vertical industries. Over 600 people have views the events featured on that day. The Virtual Summit and all webinars are available, on-demand, [here](#).

## GLOBAL EVENT SERIES

The IIC's Global Event Series (GES) events extend ecosystems by partnering with key organizations around the globe and presenting thought-leading advancements to accelerate adoption of the industrial internet. The events are open to the public. Our [second GES event](#), held at Nokia's Executive Experience Centre in Espoo, Finland on 2018-05-25, focused on IIoT Energy and Efficiency. Experts addressed topics in areas of energy and utilities, energy efficiency, smart mobility and smart cities.

The [third quarter GES event, the ITS Forum](#), is planned for 2018-09-14 and will be co-located with [Hannover Messe Fair USA](#). IIC member, B&R Automation, will also be hosting a networking reception at their booth at IMTS, adjacent to our GES event. We hope to see you in Chicago!



*The IIC Ecosystem at Work*

## CONCLUSION

The challenges of the IIoT are massive. IIC members have discovered that pulling an ecosystem together with the shared purpose of seeking and testing transformational business outcomes is a worthwhile endeavor. As a result, we have a lot of things going on, and we're moving quickly. One member recently commented after his first meeting that it "exceeded his wildest expectations". This could be you! We welcome and encourage new member participation and invite you to join us.

Return to [IIC Journal of Innovation landing page](#) for more articles and past editions.

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