

F R O S T & S U L L I V A N

FROST & SULLIVAN BEST PRACTICES AWARD

INDUSTRIAL INTERNET OF THINGS CONNECTIVITY  
IN HEALTHCARE - GLOBAL

---

Product Leadership 2019



## Contents

Background and Company Performance .....	3
<i>Industry Challenges</i> .....	3
<i>Product Family Attributes and Business Impact</i> .....	4
<i>Conclusion</i> .....	6
Significance of Product Leadership.....	7
Understanding Product Leadership.....	7
<i>Key Benchmarking Criteria</i> .....	8
<i>Product Family Attributes</i> .....	8
<i>Business Impact</i> .....	8
Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices .....	9
The Intersection between 360-Degree Research and Best Practices Awards.....	10
<i>Research Methodology</i> .....	10
About Frost & Sullivan .....	10

## Background and Company Performance

### *Industry Challenges*

The Industrial Internet of Things (IIoT) (or Industry 4.0) is a concept that encapsulates device-to-device communication and connectivity, so that massive device deployments can talk to each other, share data bi-directionally, and thus empower better decision-making and informed action plans. In this framework, it is essential for machines and data to be connected. However, connectivity is not only between machines; it can be established between a partner as well as external facilities, or with relevant individuals outside the company's facility. Furthermore, with billions of connected devices expected to arrive in the world in the next 2 to 3 years, Frost & Sullivan notes that the importance of a critical component within the IoT ecosystem — connectivity — will only increase further.

Frost & Sullivan firmly believes that with cyber-physical system advancements transforming various industry sectors, IIoT is set to create a high impact quite soon. The Internet of Things (IoT) has garnered increased interest from a variety of industries such as manufacturing, healthcare, oil and gas, aerospace, utilities, metals and mining, retail, transportation, and agriculture for improving production efficiency and ensuring transparency in the supply chain. The automation wave is advancing along with functionalities and user-friendly software solutions, enabling multiple applications to respond to the rapidly changing demands of end users in various industries.<sup>1</sup>

Frost & Sullivan monitors how the healthcare industry is currently experiencing a powerful digital transformation. Hospitals leverage sophisticated equipment complete with sensors, software, pervasive networking, and mobile components to improve patient care. Nevertheless, the reality in most care settings remains that most medical equipment is not connected - creating administrative and patient care inefficiencies, cost overruns, medical errors, and longer recovery times.

Today, medical robotics and imaging systems help doctors perform delicate, complex procedures with accuracy, flexibility, and reliability. With healthcare providers utilizing these innovative solutions, patients recover faster, with less pain, and fewer complications. However, medical robotic applications, including surgical robotics systems, rehabilitation robotics systems, pharmacy robotics systems, and laboratory robotic systems, are extremely complex. Behind this complexity stands an architecture comprising numerous component systems that must work together seamlessly. In addition, the system must analyze and act on terabytes of accurate, real-time data, with zero fault tolerance. Medical professionals face obstacles to connect the imaging systems

---

<sup>1</sup> *IIoT Driving Manufacturing Innovations: Artificial Intelligence, Cloud Manufacturing, Internet Security, Cyber Physical Systems, Smart Sensors Drive Factories of the Future*, (Frost & Sullivan, September 2017).

to healthcare processes faster and more accurately for better patient care and outcomes.<sup>2</sup> The connectivity architecture behind these complex, highly available, highly performant systems is the enabling technology driving the next wave of connected healthcare products.

Frost & Sullivan believes that in order for connectivity providers to truly succeed, they must recognize fast-changing healthcare industry trends and maintain close relationships with industry participants - while also creating broad awareness about the innovations and providing a flexible connectivity framework for developing modern healthcare IIoT systems.

## *Product Family Attributes and Business Impact*

### **Bringing Innovative Connections into the Healthcare Industry**

Headquartered in Sunnyvale, California, Real-Time Innovations (RTI) is a leading IIoT connectivity company. With its commitment to innovation, RTI provides its flagship RTI Connex DDS software framework that streamlines connectivity across a complex architecture of systems. RTI Connex DDS can deploy in various mission-critical systems which include autonomous vehicles, innovative energy systems, medical devices and imaging, oil and gas, robotics, and ocean-going ships and defense.

Connex DDS is the first connectivity framework that can meet demanding IIoT requirements. Based on the data distribution service (DDS) standard that defines a “databus”, RTI Connex DDS software allows applications to exchange data in real time and provides non-stop availability and security. Furthermore, it brings numerous remarkable features, such as efficient high-bandwidth data distribution for increased throughput and reduced latency. Several standardized frameworks and platforms specify DDS, easing use in many industries. RTI also offers a safety certification pathway to reduce risk, time, and project costs.

By leveraging its expertise, Frost & Sullivan appreciates how RTI properly brings IIoT concepts to connected healthcare. The Connex DDS software connects proprietary machines, software, and mobile devices. It also enables information flow for real-time decisions, from the operating room to telemedicine. IIoT design principles provide the bedrock to code secure and interoperable systems that exchange data in near real time without failures - while operating within regulatory compliance.<sup>3</sup>

Connex DDS can build and link healthcare applications, regardless of architecture or operating system. From surgical robots to medical imaging to connected care, Connex

---

<sup>2</sup> RTI, *Secure Medical Robotics to Improve Patient Outcomes*, <https://www.rti.com/connect-secure-medical-robotics-improve-patient-outcome>, (Accessed January 2019).

<sup>3</sup> *Connecting Healthcare with Connex DDS*, <https://www.rti.com/industries/healthcare/healthcare-iiot>, (Accessed January 2019).

DDS dynamically connects systems and data in real time. It acts as a single solution to address the spectrum of demanding data-connectivity requirements with full visibility into data-in-motion, plug-and-play interoperability between systems and system components, as well as scalability for increasingly large and complex systems.<sup>4</sup>

### Leveraging a Customer-focused Approach

Frost & Sullivan believes that RTI's market and technology leadership is a result of aligning its remarkable capabilities and resources to create integrated system solutions. RTI's goal is to provide competitive, tailored solutions that get to the heart of problems and generate sustainable business value for its customers. The company prioritizes mutually beneficial partnerships. For instance, RTI's partnership with GE Healthcare CLEARLY exemplifies this effective cooperation, as GE leverages Connext DDS as a common connectivity platform across many classes of intelligent machines — from simple oximeters to large CT imaging systems. The collaboration enables both performance and functionality, while making GE's connected care vision a reality.

*"GE Healthcare is leveraging the RTI Connext DDS-based architecture to connect medical devices, edge-based analytics as well as mobile and wearable instruments."*

— Matt Grubis, Chief Engineer for Mobile Digital Health Solutions, GE Healthcare

This customer-oriented approach adds incredible value to the user's operations and contributes to their effective and sustained success. The company continues its vital growth and heavily invests in research and development to meet emerging demands. With a remarkable can-do attitude, the company faces even the most pressing challenges in the industry when providing custom-tailored solutions built under the highest standards.

Notably, RTI partnered with DocBox, who develops an innovative clinical process management solution for hospitals to help clinicians eliminate medical mistakes and improve overall clinical processes. RTI's Connext DDS supports DocBox with secure, interoperable device connectivity, allowing the point of care consolidation of device alarms, health, and status. Additionally, it enables decision support to utilize data streams from various medical devices.

*"RTI Connext DDS met all our initial needs, and continues to grow with us — whether we're handling expanding amounts of data for 12 patients, or 200."*<sup>5</sup>

—Tracy Rausch, DocBox Founder

---

<sup>4</sup> Ibid.

<sup>5</sup> *RTI in Healthcare*, [https://info.rti.com/hubfs/Datasheets/RTI\\_Datasheet\\_20003\\_Healthcare\\_V18\\_Web\\_0718.pdf](https://info.rti.com/hubfs/Datasheets/RTI_Datasheet_20003_Healthcare_V18_Web_0718.pdf), (Accessed January 2019).

While following market trends, RTI always focuses on its customers and builds a strong and lasting relationship with them. As such, the company runs its RTI Labs project. This approach allows RTI customers to receive a free program that allows early access to new technology — including software projects, downloads, and tools. As a result, RTI Labs participants can leverage these projects to optimize their IIoT systems with the latest technical capabilities and updates, and it gives them the opportunity to participate in RTI product development, while sharing feedback via the RTI Community Forum — all with the common goal of providing more value-added innovation.

Frost & Sullivan believes that a company cognizant of both broader industry trends and on the ground customer challenges is well-positioned to achieve market leadership. Through exceptional product quality and commitment to innovation, Frost & Sullivan independent analysis concludes that RTI meets these challenges to deliver the best customer value.

## *Conclusion*

While the Industrial Internet of Things (IIoT) concept facilitates everyday operations for the healthcare industry, there is a growing need to connect a wide range of devices and analyze unprecedented amounts of data in real time.

Responding to this challenge, Real-Time Innovations (RTI) provides the connectivity framework for developing modern healthcare IIoT systems with its powerful Connex DDS, the first connectivity software for the demanding requirements of the IIoT environment. Connecting advanced medical machinery, software, and mobile devices to enable information flow for real-time decisions, Connex DDS contributes to improved patient outcomes through around-the-clock connected care, faster emergency response, and reduced medical errors — thus creating impressive value across the healthcare landscape.

With its remarkable Connex DDS and impressive commitment to innovation, Real-Time Innovations earns the 2019 Frost & Sullivan Global Product Leadership Award



## Significance of Product Leadership

Ultimately, growth in any organization depends upon customers purchasing from a company and then making the decision to return time and again. A comprehensive product line, filled with high-quality, value-driven options, is the key to building an engaged customer base. To achieve and maintain product excellence, an organization must strive to be best-in-class in three key areas: understanding demand, nurturing the brand, and differentiating from the competition.



## Understanding Product Leadership

Demand forecasting, branding, and differentiating all play a critical role in finding growth opportunities for a leading product line. This three-fold focus, however, must be complemented by an equally rigorous focus on pursuing those opportunities to a best-in-class standard. Customer communications, customer feedback, pricing, and competitor actions must all be managed and monitored for ongoing success. If an organization can

successfully parlay product excellence into positive business impact, increased market share will inevitably follow over time.

### *Key Benchmarking Criteria*

For the Global Product Leadership Award, Frost & Sullivan analysts independently evaluated two key factors—Product Family Attributes and Business Impact—according to the criteria identified below.

#### *Product Family Attributes*

##### **Criterion 1: Match to Needs**

Requirement: Customer needs directly influence and inspire the design and positioning of the product family.

##### **Criterion 2: Reliability and Quality**

Requirement: Products consistently meet or exceed customer expectations for performance and length of service.

##### **Criterion 3: Product/Service Value**

Requirement: Products or services offer the best value for the price, compared to similar offerings in the market.

##### **Criterion 4: Positioning**

Requirement: Products or services address unique, unmet need that competitors cannot easily replicate or replace.

##### **Criterion 5: Design**

Requirement: The product features an innovative design, enhancing both visual appeal and ease of use.

#### **Business Impact**

##### **Criterion 1: Financial Performance**

Requirement: Overall financial performance is strong in terms of revenues, revenue growth, operating margin, and other key financial metrics.

##### **Criterion 2: Customer Acquisition**

Requirement: Product strength enables acquisition of new customers, even as it enhances retention of current customers.

##### **Criterion 3: Operational Efficiency**

Requirement: Staff is able to perform assigned tasks productively, quickly, and to a high quality standard.

##### **Criterion 4: Growth Potential**

Requirements: Product quality strengthens brand, reinforces customer loyalty, and enhances growth potential.

##### **Criterion 5: Human Capital**

Requirement: Company culture is characterized by a strong commitment to product quality and customer impact, which in turn enhances employee morale and retention.



## Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analysts follow a 10-step process to evaluate Award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

STEP	OBJECTIVE	KEY ACTIVITIES	OUTPUT
1 <b>Monitor, target, and screen</b>	Identify Award recipient candidates from around the globe	<ul style="list-style-type: none"> <li>Conduct in-depth industry research</li> <li>Identify emerging sectors</li> <li>Scan multiple geographies</li> </ul>	Pipeline of candidates who potentially meet all best-practice criteria
2 <b>Perform 360-degree research</b>	Perform comprehensive, 360-degree research on all candidates in the pipeline	<ul style="list-style-type: none"> <li>Interview thought leaders and industry practitioners</li> <li>Assess candidates' fit with best-practice criteria</li> <li>Rank all candidates</li> </ul>	Matrix positioning of all candidates' performance relative to one another
3 <b>Invite thought leadership in best practices</b>	Perform in-depth examination of all candidates	<ul style="list-style-type: none"> <li>Confirm best-practice criteria</li> <li>Examine eligibility of all candidates</li> <li>Identify any information gaps</li> </ul>	Detailed profiles of all ranked candidates
4 <b>Initiate research director review</b>	Conduct an unbiased evaluation of all candidate profiles	<ul style="list-style-type: none"> <li>Brainstorm ranking options</li> <li>Invite multiple perspectives on candidates' performance</li> <li>Update candidate profiles</li> </ul>	Final prioritization of all eligible candidates and companion best-practice positioning paper
5 <b>Assemble panel of industry experts</b>	Present findings to an expert panel of industry thought leaders	<ul style="list-style-type: none"> <li>Share findings</li> <li>Strengthen cases for candidate eligibility</li> <li>Prioritize candidates</li> </ul>	Refined list of prioritized Award candidates
6 <b>Conduct global industry review</b>	Build consensus on Award candidates' eligibility	<ul style="list-style-type: none"> <li>Hold global team meeting to review all candidates</li> <li>Pressure-test fit with criteria</li> <li>Confirm inclusion of all eligible candidates</li> </ul>	Final list of eligible Award candidates, representing success stories worldwide
7 <b>Perform quality check</b>	Develop official Award consideration materials	<ul style="list-style-type: none"> <li>Perform final performance benchmarking activities</li> <li>Write nominations</li> <li>Perform quality review</li> </ul>	High-quality, accurate, and creative presentation of nominees' successes
8 <b>Reconnect with panel of industry experts</b>	Finalize the selection of the best-practice Award recipient	<ul style="list-style-type: none"> <li>Review analysis with panel</li> <li>Build consensus</li> <li>Select recipient</li> </ul>	Decision on which company performs best against all best-practice criteria
9 <b>Communicate recognition</b>	Inform Award recipient of Award recognition	<ul style="list-style-type: none"> <li>Present Award to the CEO</li> <li>Inspire the organization for continued success</li> <li>Celebrate the recipient's performance</li> </ul>	Announcement of Award and plan for how recipient can use the Award to enhance the brand
10 <b>Take strategic action</b>	Upon licensing, company is able to share Award news with stakeholders and customers	<ul style="list-style-type: none"> <li>Coordinate media outreach</li> <li>Design a marketing plan</li> <li>Assess Award's role in future strategic planning</li> </ul>	Widespread awareness of recipient's Award status among investors, media personnel, and employees

## The Intersection between 360-Degree Research and Best Practices Awards

### *Research Methodology*

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree-view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry participants and for identifying those performing at best-in-class levels.

### 360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS



## About Frost & Sullivan

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best-in-class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation, and implementation of powerful growth strategies. Frost & Sullivan leverages more than 50 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on six continents. To join our Growth Partnership, please visit <http://www.frost.com>.