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Starter Kit Based on Intel® IoT Gateway

Intelligent IoT Gateway

End-to-End Solution

Simplified Sensor-Cloud Connexion

Accelerated IoT Application Development



Understanding the Internet of Things Opportunity

The Internet of Things (IoT) is one of the hottest technology topics in 2015 and will continue to be the subject of hype and conjecture for the next five years. Almost every IT and telecom vendor has an IoT strategy, backed up with an impressive set of slides.

Unfortunately, many also lack credible experience, demonstrate a lack of understanding of what constitutes IoT, will misrepresent the IoT stack (usually to give more credibility to their own product portfolios), and treat IoT as a homogenous technology that is equally applicable to different industries.

This report dispels some of these myths and draws on Ovum's unique expertise to provide an objective overview of IoT and the very different applications of IoT technology in different industries.

Ovum view

IoT is already a significant market, and is set to grow significantly over the coming years. The market will be driven by industries where IoT is already a reality, such as manufacturing and utilities. In these industries IoT will drive two different, but adjacent, outcomes.

On one hand, IoT will drive small improvements to existing processes: the bulk of IoT deployments will be about marginal efficiency gains. On the other hand, IoT will significantly disrupt the business models for these industries, as it promises to overhaul decades-old business processes, and introduces significant automation and new ways to interact with customers. IoT will be equally useful in other industries, such as oil & gas, but will have a much lower impact on business models.

At the other end of the scale, IoT is less certain to take off, but if it does it could completely change the face of some industries. IoT threatens to turn the insurance sector on its head, particularly in auto insurance, as the use of sensing can help insurers more accurately profile drivers and calculate risk premiums. IoT is not suited to all industries; education is one of these. With no assets to monitor, track, or automate, the number of use cases is severely restricted.

Key messages:

- IoT is poorly understood and misrepresented.
- Systems integrators will play a significant role in the first phase of IoT rollout.
- Industrial IoT will develop much faster than the smart home market.
- Technological changes and customer demands drive IoT proliferation.
- Falling costs push industrial sensing on the road to ubiquity.
- IoT helps the transformation to a customer-adaptive enterprise.
- Significant barriers to IoT deployment persist.
- Manufacturing offers the most compelling prospects; education the least.

To find out more about Ovum [Click Here](#)
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Daniel Dierickx
CEO & co-Founder
at e2mos
Acting Chief Editor



Dear Reader,

Here is what we selected for you.

Hope you will like it.

Enjoy.
Daniel

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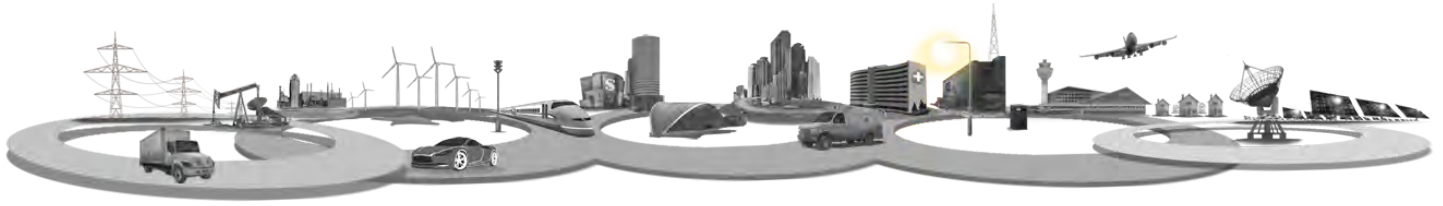
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ADLINK Announces Acquisition of PrismTech

Synergistic acquisition will strengthen ADLINK's Application-Ready Intelligent Platform (ARIP) business, software and systems capabilities and Industrial Internet of Things market reach



San Jose, CA – December 14, 2015 – ADLINK Technology, Inc., a leading global provider of cloud-based services, intelligent gateways, and embedded building blocks for edge devices that enable the Internet of Things (IoT), announces an agreement with PrismTech Ltd. concerning the 100% share acquisition of PrismTech Ltd. by ADLINK Technology based on the resolution of the board meeting held on December 14, 2105. The acquisition is expected to be completed shortly.

Established in 1992 and located in Newcastle, United Kingdom, PrismTech has about 70 employees with a very experienced software team, pioneering the development and implementation of Data Distribution Software (DDS) standards for the IoT. With this acquisition, ADLINK further strengthens their leading position for the fast growing industrial Internet of Things (IIoT) market place. The synergy of hardware and software allows creation of integrated edge platforms and solutions for all vertical markets ensuring accelerated time to market.

"Adding horizontal IoT stack expertise to ADLINK's portfolio creates a unique opportunity to fully leverage the Vortex software and build competitive platforms for the industrial IoT - it can be expected for those to emerge later in 2016," said Jim Liu, CEO of ADLINK. "Furthermore, the synergy of this acquisition will allow PrismTech to extend their reach and compete on a global basis with the current Vortex product and new developments. The complementary products of ADLINK and PrismTech with software and hardware provide all the building blocks for the next stage in IIoT development, addressing the issues of increasing complexity and mission critical operational and management data."

"The Vortex software is a great addition to ADLINK's SEMA and SEMA-cloud solutions," said Dirk Finstel, eVP of Modular Computing Segment of ADLINK. "To become a leader in industrial IoT in the verticals, we strive to provide the easiest to use IIoT platform solutions by enabling advanced edge-analytics and edge-management."

"This acquisition signals ADLINK's commitment to becoming one of the premier players in the IIoT application-ready intelligent platform market," added Lawrence Ross, CEO, PrismTech. "I'm convinced that the acquisition will prove to be very positive for our customers, employees and the future direction of our software products. We have built a robust IoT infrastructure and data-connectivity platform over the last few years in our award-winning Vortex product line, and ADLINK and PrismTech share a vision of the future and potential of the IIoT market. In addition to providing us with new levels of market footprint, stability and R&D investment, we believe this acquisition will also result in new innovative combinations of our products that can propel us to become the number one vendor in the vertical markets we jointly serve."

For more information about the two companies, please visit <http://www.prismtech.com> and <http://www.adlinktech.com>

About PrismTech

PrismTech's customers deliver systems for the Internet of Things, the Industrial Internet and advanced wireless communications. PrismTech supplies the software platforms, tools and professional services they need to build solutions with the required: platform coverage, performance, scalability, efficiency, flexibility and robustness. PrismTech's customers service many market sectors, including: industry, energy, healthcare, transportation, finance, aerospace and defense.

About ADLINK

ADLINK Technology is enabling the Internet of Things (IoT) with innovative embedded computing solutions for edge devices, intelligent gateways and cloud services. ADLINK's products are application-ready for industrial automation, communications, medical, defense, transportation, and infotainment industries. Our product range includes motherboards, blades, chassis, modules, and systems based on industry standard form factors, as well as an extensive line of test & measurement products and Smart Touch Computers, displays and handhelds that support the global transition to always connected systems. Many products are Extreme Rugged™, supporting extended temperature ranges, shock and vibration.



ADLINK
TECHNOLOGY INC.



PRISMTECH

Silicon Labs Acquires Telegesis, a Leading Provider of ZigBee Modules

Acquisition Accelerates Company's Roadmap for ZigBee® and Thread-Ready Modules and Strengthens Leadership in IoT Mesh Networking

AUSTIN, Texas--(BUSINESS WIRE)--Silicon Labs (NASDAQ: SLAB) has announced the acquisition of Telegesis, a leading supplier of wireless mesh networking modules based on Silicon Labs' market-leading ZigBee® technology. A privately held company founded in 1998 and based near London, Telegesis has established itself as a ZigBee expert with strong momentum in the smart energy market, providing ZigBee module solutions to many of the world's top smart metering manufacturers.

This strategic acquisition accelerates Silicon Labs' roadmap for ZigBee and Thread-ready modules and enhances the company's ability to support customer needs with comprehensive mesh networking solutions ranging from wireless system-on-chip (SoC) devices to plug-and-play modules backed by best-in-class 802.15.4 software stacks and development tools. Telegesis modules integrate the antenna and provide a pre-certified RF design that reduces certification costs, compliance efforts and time to market. Customers can migrate later from modules to cost-efficient SoC-based designs with minimal system redesign and full software reuse.

The market for ZigBee modules is large and growing. According to IHS Technology, 20 percent of all ZigBee PRO integrated circuits shipping today are used in modules, and ZigBee module shipments are expected to grow at a compounded rate of 24.6 percent between now and 2019.

Telegesis exclusively uses Silicon Labs' ZigBee technology in its module products, which are deployed in smart meters, USB adapters and gateways for smart energy applications. Additional target applications include home automation, connected lighting, security and industrial automation. The modules come with Silicon Labs' rigorously tested, field-proven EmberZNet PRO ZigBee protocol stack, which sets the bar for ZigBee stack reliability and has been deployed in more connected products than any other ZigBee PRO stack. Telegesis also offers comprehensive development and evaluation kits to help developers streamline their ZigBee-based applications.

"The addition of Telegesis's successful module business strengthens Silicon Labs' position as the market leader in mesh networking solutions for the Internet of Things," said James Stansberry, senior vice president and general manager of Silicon Labs' IoT products. "The combination of Telegesis modules, Silicon Labs mesh networking SoCs, best-in-class 802.15.4 software stacks and easy-to-use wireless development tools provides customers with a seamless migration path from modules to SoCs and from ZigBee to Thread-based networks."

Telegesis's leadership in the ZigBee module market complements Silicon Labs' 11 years of experience in developing, certifying and shipping standards-based mesh networking solutions. As strategic partners, both companies share a deep understanding of not only 802.15.4 mesh networking technology but also the certification process.

"The Telegesis team is truly excited to become an integral part of Silicon Labs," said Ollie Smith, director of business development at Telegesis. "Together, our hardware and software engineering teams will drive innovation in wireless mesh networking while giving customers a flexible choice of module and SoC-based designs leveraging both ZigBee and Thread technology."

About Telegesis

Founded in 1998 and based near London, Telegesis is a market-leading ZigBee module specialist offering a wide range of 2.4 GHz IEEE 802.15.4 modules based on Silicon Labs' EM35x and EM358x mesh networking SoCs. Available in a variety of formats and form factors, the modules can be easily integrated into mesh network designs without complex software engineering or RF expertise. A strategic Silicon Labs partner and a member of the ZigBee Alliance since 2004, Telegesis is also a contributor member of the Thread Group and has been collaborating with Silicon Labs in the development of Thread-ready modules.

Silicon Labs

Silicon Labs (NASDAQ: SLAB) is a leading provider of silicon, software and system solutions for the Internet of Things, Internet infrastructure, industrial automation, consumer and automotive markets. We solve the electronics industry's toughest problems, providing customers with significant advantages in performance, energy savings, connectivity and design simplicity. Backed by our world-class engineering teams with strong software and mixed-signal design expertise, Silicon Labs empowers developers with the tools and technologies they need to advance quickly and easily from initial idea to final product. www.silabs.com



Intelligent IoT Gateway Starter Kit

End-to-End Solution from ADLINK

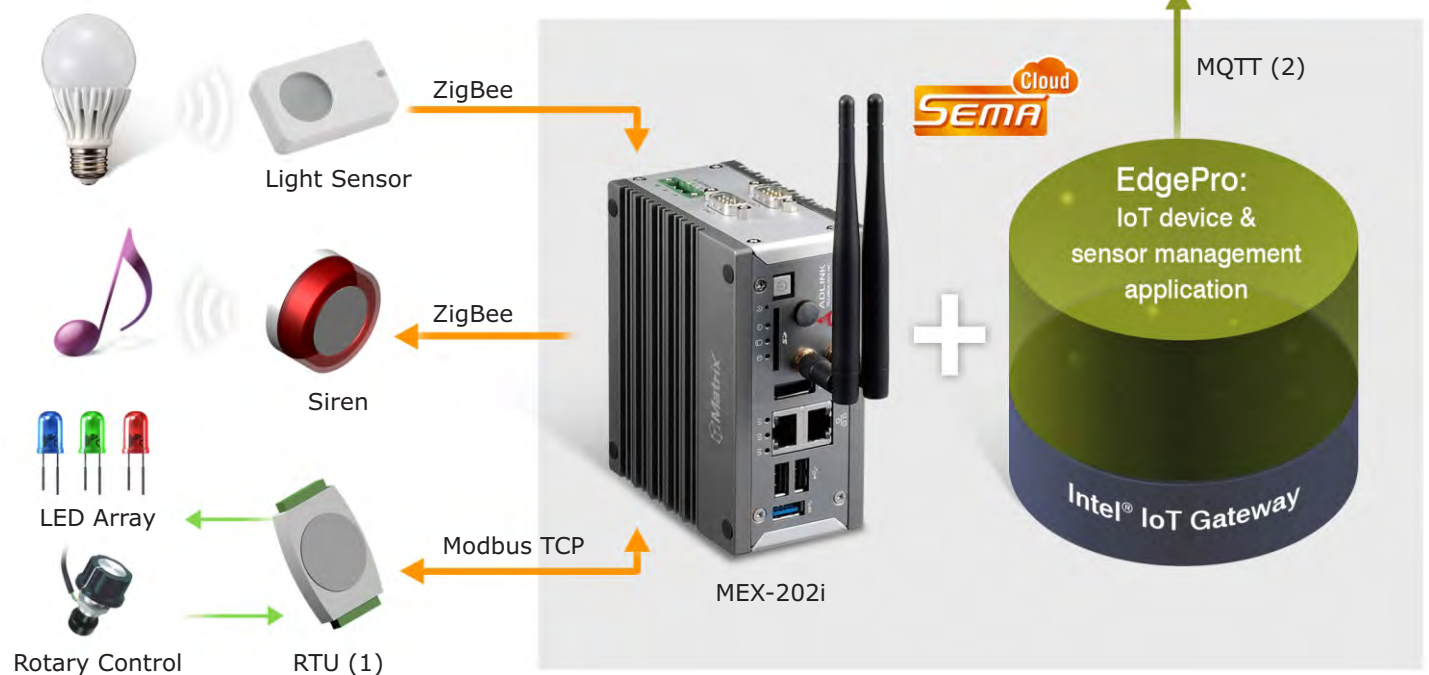
The Starter Kit contains Intelligent IoT Gateway MxE-202i, EdgePro IoT Device and Sensor Management Application based on Intel® IoT Gateway

Features

- Provides a complete IoT connection solution for accelerated IoT application development
- Equipped with MxE-202i (Box Computer) dual-core Intel® Atom™ SoC processor E3826 IoT Gateway on Wind River® IDP XT 2.0
- Preloaded ADLINK EdgePro IoT device & sensor management application
- Easy configuration with user-friendly administrator interface and dashboards
- Includes light sensor, siren output, Modbus TCP module, and accessories

Simplified Sensor-Cloud Connection

Accelerated IoT Application Development



(1) RTU: Remote Terminal Unit

(2) MQTT is a machine-to-machine (M2M) "Internet of Things" connectivity protocol

The Starter Kit includes:

- MxE-202i with dual-core Intel® Atom™ SoC processor E3826 IoT Gateway on Wind River® IDP XT 2.0 + 8G SD card
- Preloaded ADLINK EdgePro IoT device & sensor management application
- WiFi/BT Kit (pre-installed)
- ZigBee / 802.15.4 Module USB Adapter
- Modbus RTU module
- ZigBee wireless light sensor
- ZigBee wireless siren
- Rotary control
- LED array
- Ethernet cable
- 40W AC/DC adapter

More Technical info [Click Here](#)

Datasheet [Click Here](#)

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AT&T Sees Phenomenal Momentum in the Internet of Things (IoT) in 2015

More Than 300 IoT Deals Signed in 2015; 25 Million Connected Devices as of 3Q

2015 was not only the year the Internet of Things (IoT) made it into the dictionary, but it was also the year IoT began to truly transform the way we work and live every day.

AT&T signed more than 300 deals this year, across the U.S. and abroad, to connect devices across the automotive, shipping, industrial, health care, home security and smart cities sectors.

About 25 million connected devices^[1] are now on the AT&T network, a year-over-year increase of more than 25 percent when compared to 3Q 2014. In the 3rd quarter alone, we added a record of more than 1.6 million connected devices. Of that number, 1 million were connected cars.

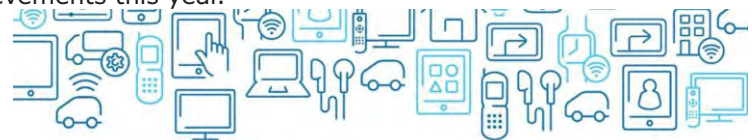
"This year was pivotal for IoT. We saw, and are continuing to see, tremendous global interest and adoption from virtually every industry," said Ralph de la Vega, CEO, AT&T Mobile and Business Solutions. "Our IoT solutions help you monitor cargo, homes, vehicles and containers around the globe. You can connect light posts and water systems, wheelchairs, trash cans and soil. Connectivity is changing how companies operate and how people interact. Just wait until next year. We think 2016 will be the year when IoT becomes an indispensable part of our daily lives as consumers, governments and businesses fully embrace all it has to offer."

Glenn Lurie, president and CEO, AT&T Mobility added, "We continue to set ourselves apart from other carriers in the IoT space. We invested early and continue to invest in IoT platforms - pushing innovation through industry collaborations and development of new uses cases for IoT that solve real problems."

Lurie discusses his thoughts on the biggest achievements this year.

Infographics

Leadership
Connected Car
Fleet



25 million connected devices

More Connected Cars Hit the Road in 2015



Drivers value services that improve their driving experience, and wireless connectivity is key. A July 2015 global study by Ericsson and AT&T Drive Studio found that nearly 80% of car buyers globally would put off a new car purchase by a year to get connected features from their preferred brand.

In addition, we're leading the industry, working with 9 top automakers. We have 5.8 million connected cars on the AT&T network as of the 3rd quarter, and expect to connect more than 50% of all new connected U.S. passenger vehicles by year-end.

Here's a snapshot of our major connected car news and initiatives from 2015:

Announced an agreement with Subaru to provide 4G LTE connectivity for Subaru's STARLINK in-vehicle connectivity system. It delivers improved personal safety and security services to vehicle occupants.

Announced a new multi-year agreement with Jaguar Land Rover, North America, LLC, to bring high speed internet to Jaguar and Land Rover vehicles in North America.

Announced an agreement with Audi of America, in which all 2016 model-year Audi vehicles equipped with Audi connect® will come with AT&T 4G LTE or 3G connectivity.

Launched the ZTE Mobley Wi-Fi hotspot and Car Connection 2.0 service using a plug-in device that works with most cars 1996 and newer. With more than 160 million cars on the road in the U.S. today that have on-board diagnostic ports (OBDII), people now can enjoy many connected car services right from their smartphone.

Connecting Business to Improve Processes

Businesses are also realizing the benefits of IoT. They can connect factory equipment, global shipping containers, farm gear, industrial ovens, fleets or remote workers. IoT helps reduce operational costs, automates processes and saves time.

[1] Consists primarily of machine-to-machine devices as well as prepaid tablets.

AT&T Sees Phenomenal Momentum in the IoT in 2015

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Examples of significant business activity this year:

Maersk is using our IoT technology to track shipping containers and keep perishable contents at the desired temperature. Our agreement with Maersk is one of the largest Industrial IoT deployments of its kind.

We're working with Rockwell Automation to deliver a solution that lets Rockwell Automation's customers securely collect, manage and act on data, such as maintenance or malfunction alerts from global industrial equipment. The IoT solution makes machines smarter.

Roof Monitor™ is using our IoT technology to offer Roof Sensor™, which monitors live loads of water and snow on the roofs of low-sloped buildings and informs businesses of potential risk. Roof Monitor is also using Edge Defense™, an intricate safety mat system with internal sensors that alert individuals in real-time when the perimeter of a roof is breached.

Helping Cities Tap Into the Power of IoT

With more than a century of working with local cities, we're helping communities across the country realize the benefits of IoT:

We launched a Smart Cities Organization inside AT&T with committed resources and IoT expertise.

We're connecting utility grids, smart meters, water management systems, lighting and city infrastructure to increase efficiency and decrease waste of resources.

In addition to the millions of connected devices directly connecting to our cellular network, we also manage data from millions of other smart meters that connect indirectly over our network through wireless gateways.

We're building alliances with key organizations leading the charge including:

The Smart Cities Council and the Dallas Innovation Alliance to help build smart cities around the world.

UC Berkeley, Caltrans and AT&T Labs are exploring how data can help reduce traffic congestion and improve urban planning.

As part of the National Institute of Standards and Technology's Global City Teams Challenge, we teamed up with IBM and Mueller Water Products to create a new smart energy solution to help cities save water.

Connected Devices Lead to Health Improvements

From the hospital to your wrist, we're helping healthcare pros stay in touch with their patients. IoT also empowers people to take control of their health.

We launched more than 14 new wearable devices this year. Many of those help you track your everyday activities and take control of your health and wellness.

We're working with Dr. Lynda Chin of the Institute for Health Transformation at the University of Texas System to develop technology that provides personalized diabetes care outside the doctor's office.

Our Remote Patient Monitoring solution is a cloud-based service that monitors patient's vital signs after they leave the hospital.

Tools to Help Make IoT Implementation Easier

- **Highly Secure Global SIM:** A system that allows AT&T to provide wireless connections virtually anywhere in the world (200+ countries and territories).

- **AT&T Control Center:** A platform that enables easier device certification, activation and ordering, as well as setting up solutions and underlying connectivity.

- **AT&T Drive Platform:** A connected car platform offering a modular, global solution that lets automakers pick and choose what services and capabilities are important to them.

Flow Designer: A new cloud-based visual development tool aimed at speeding the development time required to build new IoT applications.

- **M2X Data Service:** A managed service for developers that helps them create new IoT applications. It includes a cloud-based data store that makes it easier to collect, analyze, and share time-series data from connected devices. The platform is already in-market supporting 8,000+ developers.

- **IoT AT&T Foundry in Plano:** An innovation center dedicated to digitizing the physical world through sensors and connected devices. The AT&T Foundry team works with customers to bring their ideas to reality as quickly as possible.

- **AT&T Labs Advanced Technologies:** Goes beyond today's current solutions to invent disruptive technologies that will drive future innovations.

- **IoT Hackathons:** AT&T hosted 22 IoT focused hackathons in 2015 with an overall attendance of more than 3,000 participants.

With IoT pervasive across all of these industries, connecting things from cars to pacemakers, it's essential to keep security top of mind. AT&T is using its expertise and leadership in IoT to continually advise manufacturers, partners, and vendors to architect and connect devices in a highly secure manner. We are also committed to continuing the education of business leaders on keeping the IoT highly secure, and providing solutions that help them to do so.

*AT&T products and services are provided or offered by subsidiaries and affiliates of AT&T Inc. under the AT&T brand and not by AT&T Inc.

Microchip's LoRa® Wireless Module is World's First to Pass LoRa Alliance Certification; Ensures Interoperation of Long-Range, Low-Power IoT Networks

Stack-on-Board RN2483 Named Golden-Unit Reference Module for All Future Certifications; Makes it Easy to Tap the Long Range and Low Power of LoRa Wire



CHANDLER, Ariz., Dec. 17, 2015 [NASDAQ: MCHP] — Microchip Technology Inc., a leading provider of microcontroller, mixed-signal, analog and Flash-IP solutions, today announced that its RN2483 LoRa® module is the world's first to pass the LoRa Alliance's LoRaWAN™ Certification Program. See <https://www.lora-alliance.org/>. The RN2483 module was independently tested by Espotel's accredited test laboratory to meet the functional requirements of the latest LoRaWAN 1.0 protocol specification, for operation in the 868 MHz license-free band. This ensures that designers can quickly and easily integrate their end devices into any LoRaWAN network. The LoRaWAN standard enables low-data-rate Internet of Things (IoT) and Machine-to-Machine (M2M) wireless communication with a range of up to 10 miles, a battery life of 10 years, and the ability to connect millions of wireless sensor nodes to LoRaWAN gateways.

To learn more about Microchip's LoRa products, go to: <http://www.microchip.com/LoRa---121715a>. And, check out how easy the RN2483 module is to use, at Microchip's Embedded World booth (Hall 1: Booth 1-510).

"The launch of an accredited certification program is a key step toward the LoRa Alliance's mission to standardize an open specification for secure, carrier-grade, low-power wide area networks (LPWAN). We are proud to be the first and only company to have a module certified to the LoRaWAN 1.0 specification," said Steve Caldwell, VP of Microchip's Wireless Product Division and chair of the LoRa Alliance Strategic Committee. "This Certification Program will provide assurance to end customers that their application-specific end devices will operate on any LoRaWAN network, which is a crucial requirement for the global deployment of the IoT using LPWANs."

"Microchip was well prepared for certification testing, and Microchip's engineers had a very professional and meticulous approach during the test execution," said Jouko Nikula, the product owner of Espotel's LoRaWAN test services. "Espotel will also use Microchip's RN2483 module as a benchmark product when further developing the LoRaWAN certification, interoperability and performance testing in our test and research laboratory."

Before the certification program was launched, Microchip's LoRa development team had performed extensive verification and interoperability tests with all of the major LoRaWAN network infrastructure vendors, and so was already considered to be the golden unit within the LoRaWAN ecosystem. Peter Kaae Thomsen, CTO of the leading LoRa Core Network provider OrbiWise, confirmed that the RN2483 module has already been adopted as the reference device used for testing their UbiQ Network Solution.

Gartner predicts that there will be 25 billion connected things in use by 2020. While the IoT market is explosively growing, developers are challenged to establish a simple, robust infrastructure with their limited resources. They are demanding a solution that requires a minimum total cost of ownership and is easy to design, with short time to market, great interoperability and nationwide deployment. Microchip's 433/868 MHz RN2483 LoRaWAN module is a European R&TTE Directive Assessed Radio Module, accelerating development time while reducing development costs. Additionally, it combines a small module form factor of 17.8 x 26.7 x 3.0 mm with 14 GPIOs, providing the flexibility to connect and control a large number of sensors and actuators while taking up very little space.

The RN2483 module comes with the LoRaWAN protocol stack, so it can easily connect with the established and rapidly expanding LoRa Alliance infrastructure—including both privately managed local area networks (LANs) and telecom-operated public networks—to create Low Power Wide Area Networks (LPWANs) with nationwide coverage. This stack integration also enables the module to be used with any microcontroller that has a UART interface, including hundreds of Microchip's PIC® MCUs. Additionally, the RN2483 features Microchip's simple ASCII command interface for easy configuration and control.

The RN2483 module resolves the age-old wireless developer's dilemma, where they had to choose between longer range and lower power consumption. By employing LoRa technology, designers can now maximize both; while reducing the cost of additional repeaters. Additionally, the RN2483 provides them with the ability to secure their network communication using AES-128 encryption.

With its scalability, robust communication, mobility and the ability to operate in harsh outdoor environments, the RN2483 is well suited for a broad range of low-data-rate wireless monitoring and control designs. Example IoT and M2M applications include: Smart Cities (street lights, parking, traffic sensors), Energy Measurement (electricity/water/gas smart meters), and Industrial/Commercial/Home Automation (HVAC controls, smart appliances, security systems, lighting).

About Espotel: Espotel (<http://www.espotel.com>) is a leading provider of development and test services for embedded systems and industrial internet applications.

IoT in Healthcare - Facing the Biggest Hurdles

The world we are living in is what a fiction writer would have imagined a couple of decades ago – thanks to the constantly morphing concept of IoT.

The Market for IoT in Healthcare is supposed to increase by 56% each year

Every possible aspect of our life today has been touched by the golden fingers of smart devices. Medicine and healthcare is one of the prime areas that have been influenced heavily by the miracles of IoT.

Health tracking wearables are already in trend, aren't they? Totally loved, adopted, sold and bought by health freaks! The market for wearable technologies in healthcare is expected to exceed by \$2.9 billion in 2016. Well now, as IoT moves into mainstream medicine, we talk about the application of IoT in a plethora of use cases concerning entities that are active in demanding, producing, manufacturing, implementing and utilizing modern medical boons.

The medical industry is sort of a puzzle board, fitting in a number of scattered pieces, all involved in separate roles across the complete healthcare value chain.

Hospitals, we could say is the front-end service provider which caters directly to end users. Previous to the installation of smart equipments in hospitals, the rope passes through equipment manufacturers, logistic people, the ones who integrate the smart back-end to bring intelligence into dumb devices, the ones who see that the connection between equipments and the data environments they operate in, are always up dated with the latest information string and a lot more.

Bringing such a scattered requirement base together, putting each piece at its perfect position and setting things to work is a difficult process – way more difficult than having a wrist wearable collect pulse rates.

This paper talks about a myriad of such challenges that IoT implementers face, exclusively in the medical industry. It also talks about how such challenges can be dealt with, within the optimum deployment of resources. We hope it gives you a comprehensive idea of the subject.

Please note that detailed technological processes that are results of in-vitro testing are beyond the scope of this paper. It only discusses the most prevalent challenges for IoT makers and ways they can look towards to solve them.

400,000	88 out of every 100	US\$ 12,000	US\$2.7-6.2 Trillion
People in US alone, die because of treatment latency and other medical errors that can be easily prevented by proper utilization of IoT and data monitoring algorithms	US doctors wish to be able to monitor their patients remotely	Is the amount that can be saved (per patient annually) by Real time remote disease management	Will be the potential impact of IOT on global economy by 2025

Technical Paper from Volansys Technologies
Authored on: Aug 14, 2015 by Ashim Goldar [Download](#)

Improving Transportation Safety, Efficiency, and the Customer Experience with the Internet of Things (IoT)

Digital information has become the life blood of the transportation industry with networks of computer chips and sensors integral to nearly every aspect, including public transport, fleet management, surveillance, ticketing, passenger information, etc. Today, most systems operate in relative silos, but this is changing as municipalities see the compelling benefits from improved information sharing.

This is what the Internet of Things (IoT) is designed to do: provide the connectivity, security, interoperability, analytics, and monetization capabilities that enable intelligent transportation.

Information in the right hands at the right time opens the door to all sorts of possibilities. In the case of buses, real-time passenger count data allows fleet operators to better optimize timetables to ensure sufficient numbers of buses are scheduled on heavily-travelled routes. Analytics software can provide scheduling suggestions based on passenger patterns correlated to the time of day, holidays, local events, weather, etc. Vehicle diagnostic information helps operations crews perform preventive maintenance, as in making a preemptive repair (e.g., replace brake pads, worn tires) to avoid a breakdown or an expensive major repair.

Up-to-date timetables on information displays give passengers en route a higher level of customer service.

But standing in the way of shared transportation information, much of the existing infrastructure is made up of many decades-old systems, and getting them all connected to an IP network could take considerable effort.

Helping overcome this issue, IoT-based solutions from Kontron* and Intel are designed to make it easier for legacy and new systems to communicate with each other so municipalities can take advantage of the power of data-driven transportation. Blueprint of 8 pages from Intel / Kontron [CLICK HERE](#) for Download

Open Interconnect Consortium Increases Membership with UPnP Forum Agreement

Move Consolidates Standards Efforts for IoT

November 23, 2015. Portland, Oregon – Today, the Open Interconnect Consortium (OIC) announced it would be acquiring substantially all of the assets of the UPnP Forum. In exchange, OIC will offer membership to UPnP Forum members. The agreement will streamline and consolidate efforts around both organizations' technologies and infrastructure, leading to increased alignment on standardization for the Internet of Things (IoT). Specific membership transfers will be announced after the transaction closes at the end of 2015.

Gartner predicts that there will be 21 billion IoT-connected devices in use by 2020; by that time, there must be an accepted common standard in place to ensure these devices are able to communicate and operate in the capacity they were designed for. This asset transfer with UPnP Forum is the OIC's latest step in ensuring interoperability.

"UPnP Forum pioneered the networking software protocols fundamental to today's Smart Home," said Mike Richmond, executive director, Open Interconnect Consortium. "The Open Interconnect Consortium is looking forward to working with our many new members to streamline specification development for the next generation of IoT-connected devices."

"We're thrilled to join the Open Interconnect Consortium and have the opportunity to leverage their industry-leading technology in UPnP's already massive suite of market-ready devices," said Scott Lofgren, president of UPnP Forum. "UPnP devices play a unique role in the Smart Home that will dramatically enhance OIC's effort."

OIC will form a new UPnP Work Group to maintain the UPnP specifications, and certification tools within the overall OIC organization. OIC will offer legacy UPnP certification for a fee to companies who choose not to join OIC.

"Fragmentation amongst Internet of Things protocols and standard bodies has been one of the hurdles for wider industry adoption. Developers need to work together to ensure compatibility among protocols. VDC believes that OIC's acquisition of the UPnP Forum's assets is a positive step in building out the necessary infrastructure to deliver the promise of IoT," said Christopher Rommel, VDC Research.

For more information on the Open Interconnect Consortium, including its cloud-native architecture and industry-leading IP policies, please visit: <http://openinterconnect.org/>

About UPnP Forum

UPnP Forum is a global alliance of more than 1,000 industry-leading organizations working to enable device-to-device interoperability and facilitate easier and better networking in the home and beyond. The Forum promotes the adoption of uniform technical device interconnectivity standards and certifies devices conforming to these standards. UPnP Forum is an impartial group enabling member companies to participate and develop extensions to the UPnP Device Architecture, which defines how to use the Internet Protocol (IP) to communicate between devices, and Device Control Protocols (DCPs), which are services between devices. Members of UPnP Forum include market leaders in computing, printing and networking, consumer electronics, home appliances, automation, control and security, and mobile products.

More: <http://www.upnp.org/>

About Open Interconnect Consortium

The Open Interconnect Consortium, a Delaware non-profit corporation, is being founded by leading technology companies with the goal of defining the connectivity requirements and ensuring interoperability of the billions of devices that will make up the emerging Internet of Things (IoT).

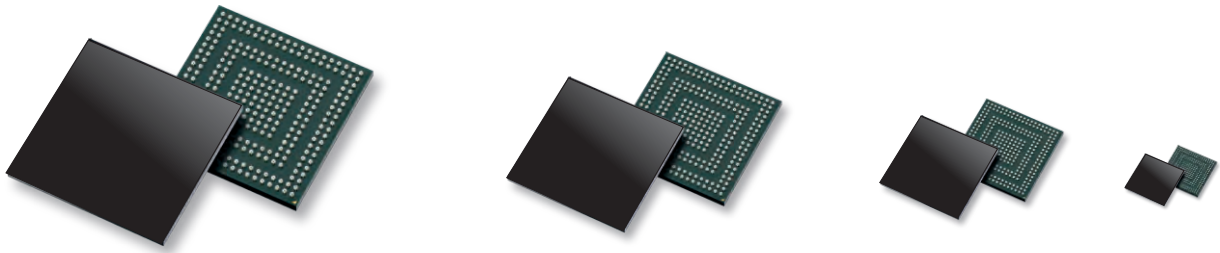
More: <http://openinterconnect.org/>



IoT Market to Boost Scale of Multicore MCU Shipments by Staggering 1.3 Billion Units by 2020

ABI Research Examines Multicore versus Single-Core MCUs in Various IoT Verticals

According to a new market study by ABI Research, a leader in technology market intelligence, the IoT market will be responsible for 150 million unit shipments of multicore microcontroller unit (MCU) chips in 2015, with that number to rise to an impressive 1.3 billion units by 2020, a 54% CAGR. Industrial IoT, wearables and smart home are the current key market drivers, with the majority of the future growth coming from the smart home industry, which will represent 450 million of the total multicore MCU shipments, accounting for 36% of market share by 2020. This growth will be driven by more integrated connectivity and sensor processing hubs and an ongoing shift toward implementing innovative software solutions.



Read ABI Research's Market Opportunities for MCUs/MPUs in IoT report: <https://www.abiresearch.com/market-research/product/1023033-market-opportunities-for-mcus-mpus-in-iot/>.

"Traditionally, device manufacturers tend to use multiple single-core MCUs to handle a device's multiple sensor functions and connectivity solutions," says Malik Saadi, Vice President of Strategic Technology at ABI Research. "While this trend continues to be a dominant strategy due to the design simplicity, faster prototyping and time to market of single-core MCUs, such an approach yields products with little or no flexibility for over-the-air updates, resulting in limited product lifespans."

To accommodate future IoT applications, network scalability, interoperability, embedded intelligence and, most importantly, energy-efficiency are necessary components for the next generation of IoT devices. Such requirements will afford future devices the flexibility to provide longevity and handle constant updates, while making it a necessity to integrate a multicore MCU. Subsequently, the multicore MCU will empower intelligent software to support innovative features and advanced functionalities, such as sensor fusion or artificial intelligence.

There are already well-established low-power, low-cost multicore MCUs available on the market, many of which include integrated connectivity, such as Wi-Fi, Bluetooth and IEEE 802.15.4, as well as various MEMS sensors, such as accelerometers, gyroscopes, temperature and magnetometers. Some MCU vendors, such as Freescale and Texas Instruments, are strategically preparing for the future by proactively adopting strategies for multicore MCUs, targeting heterogeneous connectivity and sensor functions. Others, however, such as STMicroelectronics and NXP, are lagging behind, partially due to their heavy focus on legacy products and clients, which, in most cases, do not require advanced capabilities and do not involve innovative software solutions.

Moving forward, it is fundamental that MCU suppliers support as many connectivity and sensing solutions into a single MCU as possible in an effort to boost scale and optimize cost, silicon area, power consumption and future integration of smart functionalities. IoT device manufacturers, in turn, will need to customize their products, using various connectivity and sensing functions available in the market, to enable a multitude of advanced features and adapt to the various and rapidly changing market requirements.

"MCU manufacturers will need to shift strategy toward developing multicore, multi-function MCUs, whereas IoT product manufacturers should select the most efficient MCUs to produce devices able to mix and match different connectivity and sensing solutions available in the market," concludes Saadi. "This choice will be detrimental to the success of future products."

These findings are part of ABI Research's IoE Semiconductors Service (<https://www.abiresearch.com/market-research/service/ioe-semiconductors/>), which includes research reports, market data, insights and competitive assessments.

Bosch is making the car an active part of the internet

Safer, more efficient, and more relaxed mobility

- Comprehensive connectivity expertise for the car – and beyond
- A wide range of solutions for corporate and private customers
- Connectivity is the key to electrified and automated driving



These days, we could hardly conceive of life without the internet – and soon that will be true of internet in the car as well. "Connectivity is the key to electrified and automated driving – and to lots more besides," says the Bosch board of management member Dr. Dirk Hoheisel. "Connected vehicles are safer and more efficient, and make life easier." In the future, online connectivity will mean that drivers have access to information about things such as congestion, accidents, and wrong-way drivers, as well as on where to find free parking spots and charge spots – which they can reserve and pay for straight away. Cars are also turning into multimedia centers as Bosch facilitates continuous access to online music services, social networking sites, and a wide range of smartphone apps.

Like few other suppliers of technology and services worldwide, Bosch is excellently positioned to exploit the possibilities of the internet of things. For example, Bosch is developing connected solutions for smart homes, energy supply, industry – and of course mobility. This lays the groundwork for innovative solutions: in one current test scenario, for instance, the car's navigation system is used to automatically turn up the heating at home shortly before the vehicle arrives.

Connectivity is the prerequisite for electrification and automation

Bosch expects that as many as 15 percent of all new vehicles will have an electric motor in addition to a combustion engine by 2025. It also expects to see highly automated driving on freeways soon after 2020. Both trends rely heavily on connected solutions. For example, the Bosch Group's software and systems unit has developed an app that makes it significantly easier to reserve the charge spots of different providers and pay for the electricity. Up to now, doing this would have required a different customer card for each provider. Now all drivers need is a smartphone, the app, and a PayPal account. Receiving real-time traffic information also enables a connected electronic horizon function, which tells connected vehicles what to expect around the next few bends. This helps hybrid and electric vehicles make better use of the recuperation function and thus increase their range. In addition, navigation systems can optimize route planning. The information also contributes to vehicle safety. For instance, if several vehicles report an intervention from the ESP system at the same point, the system can refer to the weather data and conclude there is black ice present, warning the drivers following on behind. What's more, information about things such as speed limits, temporary construction sites, or the location of a traffic jam allows automated vehicles to anticipate events and ease off the gas in plenty of time. This makes for a more relaxed and efficient driving experience. For Hoheisel, there is no doubt that "connected cars have the edge."

Using a smartphone or connectivity control unit to access the internet

To connect the car with the internet, Bosch pursues two main approaches. First of all, the driver's smartphone can be used. MySPIN is an integrated solution that allows Android and iOS devices to link up to vehicles' infotainment systems. An array of apps can then be conveniently operated from the vehicle's central display. Second, Bosch offers the connectivity control unit (CCU) as a command center within the vehicle. The CCU receives and transmits information using a wireless module equipped with a SIM card. It can also determine the vehicle's position using GPS if desired. It is available both as original equipment and as a retrofit solution which can be connected up to the vehicle's electrical system via the on-board diagnosis (OBD) interface. The CCU sends vehicle operating data to a cloud server, unlocking a variety of potential services. This is a perfect application for the Bosch IoT Suite software platform provided by the Bosch Software Innovations subsidiary. The Bosch IoT Suite unites devices, users, and companies to make it as easy as possible to offer attractive services – including Bosch services.

Solutions for business customers cut servicing costs and times

Connected fleet management is a service aimed at fleet operators. The solution uses the CCU to securely transmit journey and service data to Bosch servers for analysis. Companies can use the collected data to help plan operations, lease agreements, and service and repair visits with more precision. This cuts operating costs and reduces time out of service. In the future, Bosch will put augmented reality to use in workshops, enabling a sort of X-ray under the hood. When a repair-garage worker takes a tablet computer and holds it under the hood, the tablet's camera image is overlaid with comprehensive additional information and repair instructions for precisely the area being displayed. The mechanic can manipulate the overlaid objects via the touchscreen and call up additional information. This makes poring through service handbooks a thing of the past. A Bosch server provides all the detailed data online.

... see next page

Bosch is making the car an active part of the internet

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Smartphones provide the basis: Drivelog Connect and wrong-way driver alert

Drivelog Connect, provided by the Drivelog mobility portal, is a connectivity solution that is also suitable for older cars. All it requires is a compact wireless module, or "dongle," and a smartphone app. It can then offer tips on how to drive more economically, present error codes in an easily understandable form, and contact a towing service and garage in the event of a breakdown. And finally, a digital logbook helps company car drivers with their bookkeeping.

In Germany alone, radio stations broadcast some 2,000 warnings about wrong-way drivers on the country's freeways every year. More than half such incidents end – fatally, in the worst case – before the vehicle has traveled just 500 meters. However, it takes several minutes for warnings to be broadcast over the radio, by which time it is too late. Bosch is developing a new cloud-based wrong-way driver alert system, which will be able to warn drivers within ten seconds or so. As a pure software module, it can be inexpensively integrated into existing infotainment systems or apps. To detect wrong-way driving, the cloud-based function compares the vehicle's actual movements with the permitted direction of travel. Information about this is stored in a web-based database. If the two sets of information clash, both the wrong-way driver and oncoming cars are alerted. The function will be available as soon as 2016.

Connected components permit predictive diagnostics

Bosch is increasingly drawing on "Industry 4.0" techniques in developing and manufacturing its products. The goal is to connect each component so that it can seamlessly communicate manufacturing, test, and operating data about itself. This is opening up new possibilities: to take a current example from preventive diagnostics, it is already possible to use a connectivity control unit to gather operating data from a diesel injector throughout its service life and reconstruct its operation online from the cloud. If the data indicate signs of wear or a change in operating conditions, a modified version of the operating map can be automatically released, again online. It is also possible to immediately arrange a service visit and order a replacement part if the customer so desires. These analytical data are also an important source of information for the development of future product generations and for optimizing the manufacturing process.

IoT Security Research Study, HP Enterprise

- Privacy concerns
- Insufficient authentication
- Insufficient authorization
- Lack of transport encryption
- Insecure Web interface
- Insecure software and firmware

The internet of things is here

Few revolutionary technologies have created new value pools, displaced incumbents, changed lives, liquefied industries, and made a trillion dollar economic impact. That is, until the internet of things (IoT) sprang to life. Today, the next big thing is embedding sensors, actuators, and traditional low-power systems on chips (SoCs) into physical objects to link them to the digital world.

Report Overview

Suddenly, everything from refrigerators to sprinkler systems are wired and interconnected, and while these devices have made life easier, they've also created new attack vectors for hackers.

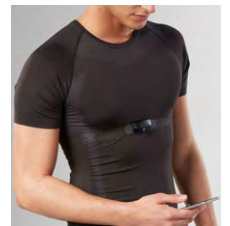
These devices are now collectively called the internet of things (IoT). IoT devices are poised to become more pervasive in our lives than mobile phones and will have access to the most sensitive personal data such as social security numbers and banking information. As the number of connected IoT devices constantly increase, security concerns are also exponentially multiplied.

A couple of security concerns on a single device such as a mobile phone can quickly turn to 50 or 60 concerns when considering multiple IoT devices in an interconnected home or business. In light of the importance of what IoT devices have access to, it's important to understand their security risk. **Download the report [HERE](#)**

8 Reasons Why Wearables Are Happening Now, Jabil

In the mid-90s everybody was talking about wearable computing. Engineers and researchers from the world's technical universities, institutions and schools suddenly found themselves able to connect with other like-minded thinkers through the Internet.

This, combined with other factors in the technology industry, made wearable computing the hot new thing. Concepts were created, prototypes built, presentations were held everywhere from the International Symposium on Wearable Computing (ISWC), but it never quite took off.



1. Undefined market

Then: Many concepts got a lot of media coverage and some hit it home with large sums of VC money to spend. But while the media loved every new gizmo, that enthusiasm and interest didn't translate into consumers buying products. Very few of the MP3-jackets or pager belts were ever sold. Most wearables of the late 90s and early 2000s were constructed tech-first and struggled to gain interest from a consumer base at-large.

Now: There's an ever-increasing interest in knowing more and people want to base their actions on data. According to market analyst Gartner the body-monitoring market is expected to reach \$60 billion in 2020.

2. Integration (cables, connectors, no BT, etc.)

Then: Combining electronics with textiles, let alone full integration to one product, had not reached the needed maturity yet. Methods for running power and/or a good signal within a garment by other means than coated cable were developed but not yet available on a commercial scale. Wireless data transfer was coming up big time on mobile devices, but it was still too power-hungry for wearables, which could not accommodate the needed mass of batteries.

Now: Clothing+ has had garment-integrated signal transfer systems in commercial mass-production since 2011. Bluetooth Low Energy has dominated wireless products since 2010.

3. Power management

Then: 15-20 years ago the mobile revolution had familiarized people with recharging their devices. But in the early 2000s a mobile device potentially lasted weeks on one charge. Without touchscreens or mobile Internet the power consumption could be reasonably handled by the battery technology of the day. Restrictions in that same battery technology also meant wearable product concepts couldn't include much wireless data in order to maintain any kind of reasonable operating time. While the now ubiquitous daily recharging would have been just barely acceptable 15 years ago for a wearable it was still not possible.

Now: The energy density of batteries has improved a lot since the early 2000s, but at the same time the device ecosystems have become more intelligent – wearables are piggy-backing off a smartphone or a Wi-Fi network for the short time they need to be connected to the internet and so they can get by with less battery capacity.

4. Manufacturing

Then: Say you still managed to come up with a product concept, which had acceptable battery life and you called it a wearable even if it really was only a mobile device sewn in the liner of a jacket. Where would you have it manufactured? The manufacturing companies of the day were fully booked with mobile devices and were not interested in investing in and setting up a never-before-attempted production line with textiles. Garment manufacturers are traditional and were frightened by the mere notion of introducing electronics with totally different lead times, quality requirements, tolerances and seasonal fluctuations into their world. Nobody would make your product.

... see next page

8 Reasons Why Wearables Are Happening Now, Jabil ... from previous page

Now: Clothing+ has been developing and improving a dedicated e-textile mass-production environment since 2003. The uniquely fine-tuned manufacturing site further scaled when Jabil acquired Clothing+ in June 2015 and combined the Clothing+ experience with Jabil's global manufacturing and supply chain power.

5. Distribution/retail/sales/support

Then: OK, so you dealt with the mass production issue and somehow managed to have a number of products made. Now, where would you sell it? Webshops were not yet a developed sales channel and consumers were not yet familiar with online shopping to the scale of it being a viable way to move product. Clothing retailers were not interested in having to educate their staff in electronics to sell an intelligent garment. Electronics retailers were interested, but again they weren't geared up for selling a garment and answering to questions about which detergent to use, can I wash it with such-and-such pants or how do I get a ketchup stain off the display/microphone/cables?

Now: Not only has the internet given retailers and consumers new channels to connect through but brick-and-mortar stores have also become more familiar with the latest trends that merge electronics and garments. The ubiquitous nature of technology in people's daily lives combined with it being a standard component to the average athlete's training regime has crafted a dialogue to discuss these technologies in a setting consumers are both familiar and comfortable with.

6. Maintenance/washability

Then: Technology wasn't advanced enough to accommodate consumer demand for machine washability. Copper cables would snap, connectors would fail and casting it all in resin would just make it heavy, thick and unserviceable.

Now: Clothing+ has developed tests to verify machine washability for smart garments over more than 10 years and has a library of materials, connectors and components to construct and manufacture e-textiles for a wide range of requirements in sports, wellness and healthcare.

7. Lifespan/Recycling

Then: So you sold a jacket with wearable tech anyway and somehow your consumer dealt with the washing issues, too. In 6-12 months that expensive jacket is still fine, but the electronics are hopelessly outdated. Would the customer send back the jacket to you for an update? Is your system simple enough for the consumer to update the jacket themselves if they get sent a new device? The different life expectancy of the garment and the device poses a problem which relates to many of the issues with which you thought you had already dealt.

Now: Industry standards like connector interfaces and Bluetooth make products compatible over many device generations.

8. The smartphone

Then: Innovators struggled to work around this plethora of issues 15-20 years ago and most could offer no real solutions to the problems facing wearables. However, even if they had managed to navigate the setbacks and propose a solution newer innovations like the smartphone would've rendered most early concepts useless. The smartphone offers a hub that wearables can leverage and tether to, solving many issues and changing the landscape of wearable devices.

Now: Wearable technology works in perfect symbiosis with smartphones. Apps can be an extension of the device or even completely function as the user interface. Wearable to smartphone is conveniently handled by Bluetooth, and mobile wireless data or Wi-Fi provides internet connection when needed.

We've come a long way and made staggering progress in only 15 years. Textile-integrated electronics are commercially available around the world and the market is growing. The sports & fitness segment is leading with exercise applications, to be followed by medical & healthcare applications for comfortable long-term health monitoring. These markets will continue to expand further into everyday life, giving people new views into their health. Finally, all the building blocks are there, and the near future is primed with opportunity for wearable technology and sensor garments.

Key Events



Cable
Congress 2016

28-30 June 2016

Double Tree Hilton, Warsaw

[MORE](#)



13-14 April 2016

Crowne Plaza, Palo Alto

[MORE](#)

Key Whitepaper

**Industrial IoT
Wireless Connectivity
WhitePaper**



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Gartner Says 6.4 Billion Connected "Things" Will Be in Use in 2016, Up 30 Percent From 2015

Analysts to Explore the Value and Impact of IoT on Business at Gartner Symposium/ITxpo 2015, November 8-12 in Barcelona, Spain

Gartner, Inc. forecasts that 6.4 billion connected things will be in use worldwide in 2016, up 30 percent from 2015, and will reach 20.8 billion by 2020. In 2016, 5.5 million new things will get connected every day.

Gartner estimates that the Internet of Things (IoT) will support total services spending of \$235 billion in 2016, up 22 percent from 2015. Services are dominated by the professional category (in which businesses contract with external providers in order to design, install and operate IoT systems), however connectivity services (through communications service providers) and consumer services will grow at a faster pace.

"IoT services are the real driver of value in IoT, and increasing attention is being focused on new services by end-user organisations and vendors," said Jim Tully, vice president and distinguished analyst at Gartner.

Enterprises to Bolster IoT Revenue

"Aside from connected cars, consumer uses will continue to account for the greatest number of connected things, while enterprise will account for the largest spending," said Mr. Tully. Gartner estimates that 4 billion connected things will be in use in the consumer sector in 2016, and will reach 13.5 billion in 2020 (see Table 1).

Table 1: Internet of Things Units Installed Base by Category (Millions of Units)

Category	2014	2015	2016	2020
Consumer	2,277	3,023	4,024	13,509
Business: Cross-Industry	632	815	1,092	4,408
Business: Vertical-Specific	898	1,065	1,276	2,88
Grand Total	3,807	4,902	6,392	20,797

Source: Gartner (November 2015)

In terms of hardware spending, consumer applications will amount to \$546 billion in 2016, while the use of connected things in the enterprise will drive \$868 billion in 2016 (see Table 2).

Table 2: Internet of Things Endpoint Spending by Category (Billions of Dollars)

Category	2014	2015	2016	2020
Consumer	257	416	546	1,534
Business: Cross-Industry	115	155	201	566
Business: Vertical-Specific	567	612	667	911
Grand Total	939	1,183	1,414	3,01

Source: Gartner (November 2015)

In the enterprise, Gartner considers two classes of connected things. The first class consists of generic or cross-industry devices that are used in multiple industries, and vertical-specific devices that are found in particular industries.

Cross-industry devices include connected light bulbs, HVAC and building management systems that are mainly deployed for purposes of cost saving. The second class includes vertical-specific devices, such as specialised equipment used in hospital operating theatres, tracking devices in container ships, and many others.

"Connected things for specialised use are currently the largest category, however, this is quickly changing with the increased use of generic devices. By 2020, cross-industry devices will dominate the number of connected things used in the enterprise," said Mr. Tully.

About Gartner Symposium/ITxpo

Gartner Symposium/ITxpo is the world's most important gathering of CIOs and senior IT executives. This event delivers independent and objective content with the authority and weight of the world's leading IT research and advisory organization, and provides access to the latest solutions from key technology providers. Gartner's annual Symposium/ITxpo events are key components of attendees' annual planning efforts. IT executives rely on Gartner Symposium/ITxpo to gain insight into how their organizations can use IT to address business challenges and improve operational efficiency.

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