IoT 2020
Business Report

The future of the Internet of Things:
From sensor to business sense
Table of contents

A new era of meaningful opportunities

Five predictions for the future of IoT

Four ways to realize immediate IoT value

How can organizations drive IoT at every level?

An ecosystem of partnerships and platforms

Three observations of success
The Internet-connected, Internet-dependent world already is upon us.

Connected sensors. Control from the field. An astounding level of granularity to real-time data.

Business decision-makers are taking note. What can a single chip embedded deep within a device do for the enterprise at large? In the recent Schneider Electric Global IoT Survey of more than 2,500 business decision-makers indicated that they believe IoT makes business sense. It will ...

- create new opportunities for their companies in the near future
- improve the efficiency of their businesses and others
- deliver long-term business benefits
- become the critical interface between companies and their customers

According to the survey, 70% of decision-makers see the business value of IoT.
2/3 of organizations plan to implement IoT solutions via mobile applications in 2016.

A robust network of connected devices. The cost of connected sensors has plummeted, allowing companies to deepen their digitization programs and leverage a highly mobile work force. IoT enables ...

• faster, more agile communication networks
• quicker adoption of cloud and edge computing
• advanced data analytics
• speedy delivery of meaningful information at the right time

The next wave of DIGITAL TRANSFORMATION
Taking the customer experience to new levels. Access to data — including previously untapped and highly granular data — and the ability to translate it into actionable insights is the hallmark of IoT. Expect:

• the transformation of customer service
• new opportunities to build brand/service loyalty
• highly enhanced customer satisfaction

63% of surveyed organizations plan to leverage IoT to better analyze customer behavior and improve service levels.
Meeting mission-critical computing needs. IoT will promote an open, interoperable, and hybrid computing approach, fostering collaboration on cybersecurity standards. As a result, IoT will ...

- flourish across systems, both at the edge and on premises, as part of both private and public clouds
- help end users adopt IoT solutions in the way that best suits their security and mission-critical needs
- offer those with legacy technology infrastructures a logical and manageable path forward, allowing them to transform over time
Innovations that
LEAPFROG INFRASTRUCTURE

Fueling disruptive innovation, IoT enables enterprises, cities, and emerging economies to work with systems of the past in ways that don’t preclude them from integrating systems of the future. Look for:

• new business models and spurred growth
• profitable and productive IoT-enabled services
• freedom from weighty, legacy infrastructure — particularly in emerging economies

IoT in use by country

This data is aggregated for all types of IoT use.

<table>
<thead>
<tr>
<th>Country</th>
<th>Currently use</th>
<th>Plan to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>52%</td>
<td>85%</td>
</tr>
<tr>
<td>Brazil</td>
<td>40%</td>
<td>53%</td>
</tr>
<tr>
<td>Spain</td>
<td>37%</td>
<td>52%</td>
</tr>
<tr>
<td>US</td>
<td>37%</td>
<td>51%</td>
</tr>
<tr>
<td>India</td>
<td>46%</td>
<td>43%</td>
</tr>
<tr>
<td>China</td>
<td>46%</td>
<td>44%</td>
</tr>
</tbody>
</table>
Solving societal and environmental issues. IoT empowers countries and their economies to respond to the biggest challenges facing our planet. Global warming. Water scarcity. Pollution. IoT can help the 195 countries that pledged their commitment to the COP21 agreement meet their objectives.

Optimism for IoT
Survey respondents identified the top societal benefits of IoT:

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved resource utilization</td>
<td>20%</td>
</tr>
<tr>
<td>Enhanced consumer experiences</td>
<td>12%</td>
</tr>
<tr>
<td>Connected living</td>
<td>14%</td>
</tr>
<tr>
<td>Changing the way we work and live</td>
<td>16%</td>
</tr>
<tr>
<td>Increased leisure time</td>
<td>10%</td>
</tr>
<tr>
<td>Reduced pollution</td>
<td>10%</td>
</tr>
<tr>
<td>Increased safety</td>
<td>18%</td>
</tr>
</tbody>
</table>

Enhanced consumer experiences
Increased leisure time
Reduced pollution
Increased safety

Optimism for IoT: Changed the way we work and live

Optimism for IoT: Improved resource utilization
Immediate IoT value: FOUR OPPORTUNITIES

01 Maximum energy efficiency and sustainability

02 Optimized asset availability and performance

03 Smart, productive, profitable operations

04 Mobile insight and proactive risk-mitigation

From energy savings to improved productivity ...
Energy and sustainability professionals, as well as IT and operations management leaders alike, must balance energy and operational efficiency at all times. Buildings, factories, global supply chains, cities. IoT gathers precise data from these environments, turning it into actionable information that enables:

- quick knowledge of the efficiency status of an individual machine on a production line
- the collection of operational intelligence through IoT and data analytics
- enhanced decision-making capabilities to prioritize projects
- the development of business strategies that drive profitability and performance within the context of sustainability

Do you know where your shoes and clothes come from? You should. The Sustainable Apparel Coalition (SAC) represents more than one-third of the global market share of the apparel and footwear industry. Leveraging Schneider Electric’s Resource Advisor™, it created a common approach to measuring and evaluating social and environmental sustainability throughout the retail industry’s supply chain.

IoT enabled SAC to turn cumbersome spreadsheets into a powerful, Web-based, user-friendly platform, thus encouraging greater adoption throughout the apparel and footwear industry.
IoT delivers value in asset availability and performance. Through predictive analytics, mission-critical machinery can operate continuously, avoiding costly shutdowns. It also can run more efficiently, using less power and performing within specifications, to extend product life.

A major power utility in the U.S. is experiencing great success using IoT-enabled software to enhance asset performance through conditional monitoring and predictive analytics. With sensors on critical equipment throughout its operations, the utility has been able to translate data (such as temperature change patterns) into actionable information, preventing downtime and saving millions.

Thanks to the predictive modeling enabled by IoT, the utility initially saved over €397,000 in estimated avoided costs and ultimately uncovered opportunities to save more than €4.4 million.
IoT delivers the long-standing barriers between the worlds of OT and IT, opening up better ways to operate a business. Essentially every asset across an enterprise now has "a voice," shedding light on every corner of operations. Valuable information from field operations reaches the CEO suite for effective decision making.

Survey results: Perceptions of IoT

<table>
<thead>
<tr>
<th>Perception</th>
<th>Somewhat agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>IoT is something that could create new business opportunities for our company in the near future.</td>
<td>37%</td>
<td>34%</td>
</tr>
<tr>
<td>IoT is a great way to improve business efficiency.</td>
<td>37%</td>
<td>37%</td>
</tr>
<tr>
<td>IoT is something that will deliver long-term business benefits.</td>
<td>38%</td>
<td>37%</td>
</tr>
<tr>
<td>IoT will become the critical interface between companies and their customers.</td>
<td>36%</td>
<td>36%</td>
</tr>
<tr>
<td>IoT is potentially the biggest innovation in supply chain management since the Internet was invented.</td>
<td>37%</td>
<td>34%</td>
</tr>
</tbody>
</table>

As demand for its products grew, the New Belgium Brewing Company wanted to find a way to get more from its existing process rather than making large new investments in additional production lines. IoT-enabled manufacturing software lets the company analyze asset and production capacity utilization and overall equipment effectiveness in real time for quick decision making. A worthy investment.

"We decreased our machine downtime by more than 50 percent. We now have technicians on shift 24/7 addressing issues identified by the software."

Joe Herrick
Packaging Systems Manager
New Belgium Brewing Company

03 Smart, productive, PROFITABLE OPERATIONS

CHEERS TO IoT
One of the toughest jobs in any plant is troubleshooting and fixing machine problems. IoT facilitates a more user-centric plant. For example, dynamic QR code maintenance allows plant workers to access information about the product at their fingertips, thereby optimizing field service operations and productivity. The operator can know immediately what needs attention or service.

Carson City, Nevada (U.S.) public works department leverages IoT advancements to maintain and repair the city’s water, wastewater, transportation, landfill, vehicle fleet, and renewable power systems. Smart devices run software that provides centralized, real-time equipment status and job scheduling.

Managers and workers have found that the initial investment in digitization and IoT has made them more mobile, increased their situational awareness, and improved their responsiveness and efficiency.
The future of IoT is clear. But where can organizations begin? The Schneider Electric Global IoT Survey indicates that organizations are struggling with this question. No enterprise can just rip and replace existing IT/OT infrastructure.

HARNESS the possibilities in incremental steps.

How can organizations drive IoT AT EVERY LEVEL?

Innovation at every level makes it possible to harness the power and possibilities of the IoT revolution in incremental steps.

At every level Schneider Electric provides tailored solutions to its focus segments:

- Data Centers
- Buildings
- Homes
- Electrical Utilities
- Connected Products
- Cloud
- Local Control
- Apps, Analytics, and Services
BEST PRACTICES toward IoT integration

IoT integration, especially in the industrial world, requires incremental changes that supplement legacy investments while delivering significant transformation in business processes and results over time.

Survey respondents who plan to start using IoT in mobile applications within 6 months: 32%

01 Start small with pilot projects and stay focused.
02 Evaluate ROI before broadening project scope.
03 Make early strides with energy efficiency projects.
04 Integrate asset monitoring and management projects.
05 Move to comprehensive asset coverage within a dynamic network.
We have an opportunity to leverage IoT as our world becomes ...

More decentralized
50% of new capacity additions accounted for by solar PV and storage

More digitized
4x as many connected devices by 2020 compared to 2010

More electric
2x faster growth of electricity compared to energy demand by 2040

More decarbonized
62% of the economic potential of energy efficiency in buildings and more than half in industry remains untapped
Strong partnerships are essential to advancing IoT solutions.

IoT has many facets. Connectivity. The cloud. Big data. Cybersecurity. Industrial automation. Engineering. Integration. The list goes on. A dynamic ecosystem of partnerships and platforms that develops, implements, monitors, and services IoT solutions can lead to additional value more quickly and cost effectively than going it alone.

The power of COLLABORATION

An ecosystem of:
PARTNERSHIPS AND PLATFORMS

Industry leaders
Government and standards bodies
Academic institutions
Technology innovators
Three observations of success

01. Companies are piloting IoT initiatives to get more from their existing OT and IT investments and processes — and this approach is working.

02. Adopters are finding asset and energy management to be fertile ground for IoT initiatives that deliver meaningful results quickly and at relatively low cost.

03. Businesses are closing the gap between OT and IT and are gaining access to a rich new data set that will produce higher quality insights across the enterprise.

FROM SENSOR TO BUSINESS SENSE, IoT indeed has transformative value.

Looking ahead, IoT must be used to connect the entire enterprise to enable truly informed decisions that are made in collaborative, digital ecosystems.
To learn more about the transformational impact of IoT, explore this sampling of Schneider Electric™ white papers.

• The Industrial Internet of Things: An Evolution to a Smart Manufacturing Enterprise
• How the Convergence of IT and OT Enables Smart Grid Development

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