

Gaining Business Value from the Internet of Things

Daniel Kirsch
Principal Analyst
and Vice President

Judith Hurwitz
President and CEO



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Introduction

The Internet of Things (IoT) has the potential to drastically change the way products and services are developed, sold and consumed. The IoT is capturing the attention of executives who want to differentiate their offerings and value-add through connected solutions. IoT is providing companies with the ability to capture and analyze new types of data at faster rates than ever imagined. With the IoT market still in its formative stages, this is the right time for companies to understand how data from sensors and connected devices will impact their businesses. What is the potential for new revenue and how will IoT change the competitive landscape? Advances in technology including high-volume data storage, real-time analytics and cloud computing have led to explosive interest in IoT products and implementations. And IoT data analytics will change the way companies develop and manufacture products and redefine the way companies interact with their customers.

Companies in some industries have recognized the value of IoT for years, while other companies and market segments are only beginning to assess the potential applications and benefits of IoT. For example, robot-based IoT systems are already having a major impact on the manufacturing process and retail fulfillment in warehouses. In addition, cities across the world are becoming smarter, safer and more efficient by analyzing real-time information from connected IoT sensors and devices. Consumers are also making use of IoT data and analysis by utilizing a growing number of services based on data from connected personal and smart home devices. As technological capabilities increase and costs for connectivity, processing power and data storage decrease, we will see continued innovation and application of powerful IoT technologies.

Hurwitz & Associates conducted a survey, sponsored by Jabil, to better understand market priorities and expectations for IoT in the coming years. This report summarizes the results of the survey.

Defining IoT

IoT is a network of physical objects that are instrumented with sensors and/or software. Technology is embedded in these physical objects to enable communication and the transfer of data over the network. Communication between objects takes place without human intervention. The cloud may be used as a deployment capability for the transfer of data or communication may be strictly machine-to-machine. How has technology evolved to make IoT a reality? The advanced capabilities and dramatic increase in the use of smartphones is a critical factor along with advances in wireless technology, network communications, big data management, high-volume and real-time data storage, and analytics. The cloud supports the requirement for anytime and anywhere access. Ultimately, IoT implementations require that data be collected and analyzed at the right speed to produce meaningful information.

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Internet of Things Survey – Key Findings

Hurwitz & Associates surveyed U.S.-based companies across seven industry segments including retail, consumer electronics, commercial (smart buildings), residential (smart homes), consumer appliances, automotive and hospitality. Survey respondents represented a variety of business roles including R&D, operations management, developers and executives (CIOs, CTOs and CEOs). The majority of companies had more than 500 employees. All participants are either currently developing IoT solutions or expect to do so within the next 12-18 months.

The key findings from the survey are as follows:

- **Companies expect to gain a competitive edge from IoT within the next 12 months.** Nearly 90 percent of companies expect to see an increase in competitive differentiation in the coming year based on their IoT-related products and solutions. Companies are entering this market at a very fast rate. Approximately 80 percent of the companies we surveyed are currently developing IoT solutions. Many of these companies are still in the test or proof-of-concept stage and expect to move very quickly in order to bring products to market in time to see results within one year.
- **Cloud will be the primary delivery mechanism for communication of IoT data.** Early IoT implementations were typically designed to support a specific type of device or sensor. Data communication in these early implementations was often machine-to-machine based with tight coupling between the different elements of the IoT system. Current IoT solutions are being built to leverage the scalability, flexibility and speed that can be gained from using the cloud. Over 85 percent of companies are implementing IoT products that will leverage the cloud for data communication.
- **Top solution areas for IoT product development include retail, energy management and security.** Companies that participated in the survey are either currently developing or planning to develop IoT products across a wide range of solutions areas. Almost 40 percent of respondents report they are exploring IoT solutions for the retail industry. Other top solution areas include energy management and security, with approximately 32 percent of respondents reporting IoT projects in each of these sectors.
- **Business partnerships are strategic to the IoT design and engineering process.** Over 90 percent of respondents work with one or more partners to develop and manufacture their IoT solutions. Approximately 89 percent work with a design firm on the user interface and/or the device design. Fifty percent of companies responding to the survey consulted with an engineering firm on the industrial design of their IoT product.
- **Cost, performance and complexity are key concerns for IoT product development and implementation.** Respondents were asked to select their top three concerns related to IoT projects. Cost was rated as a key issue by nearly 50 percent of respondents. Performance and complexity were rated as key concerns by 29 and 28 percent of respondents, respectively.

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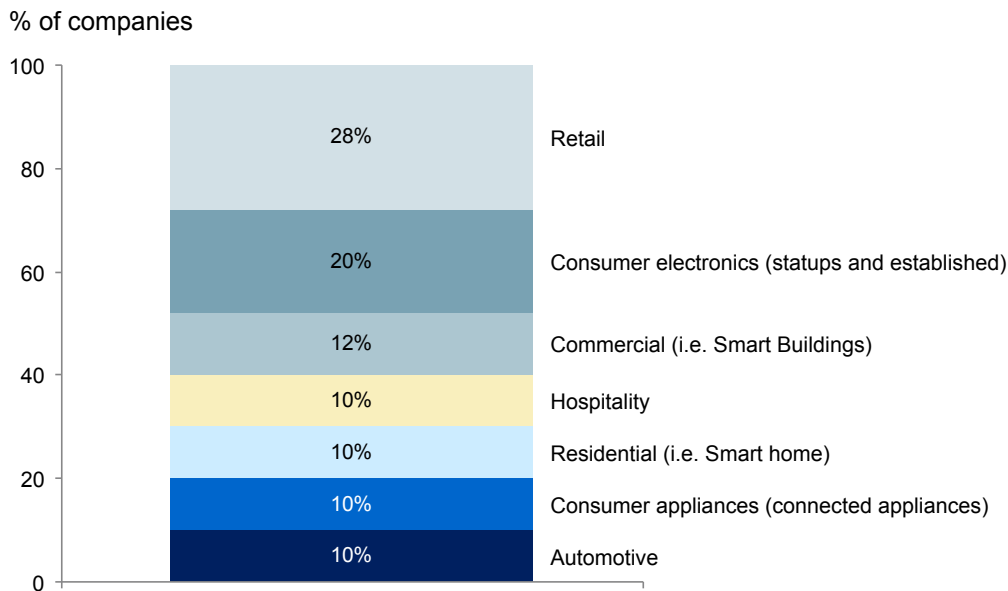


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Methodology and Results

Survey respondents were screened to ensure that they were involved (either currently or within the next 12-18 months) in developing IoT applications and solutions. In addition, respondents were required to be an employee or business owner of a company doing business in a cross-section of industries. Figure 1 illustrates the distribution of respondents by industry. We received 132 qualified and completed responses to the survey.

Figure 1. Distribution of Survey Respondents by Industry



Source: Hurwitz & Associates, 2015

The majority of companies responding to the survey reported involvement in manufacturing products such as retail point-of-sale systems, networking and telecommunications, consumer electronics, home entertainment, and computing and storage. A smaller number of companies reported alignment to manufacturing in the automotive, mobility, healthcare, defense, and robotics spaces.

The online survey covered the following areas:

- IoT products (solution area of stage of implementation)
- Impact of IoT on competition environment and business process
- Communication issues
- Partnership requirements
- Key concerns for IoT

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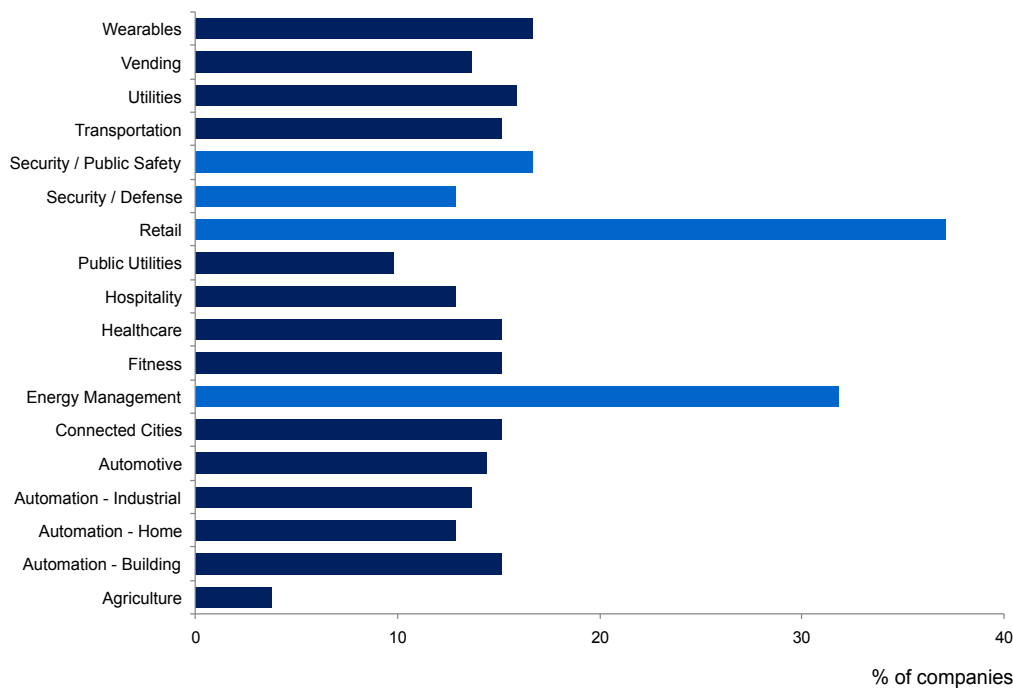
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IoT Products (solution area and stage of implementation)

The potential for IoT products to redefine markets and the business/customer relationship is so great that forward-thinking companies are exploring solutions outside traditional industry boundaries. Companies are exploring opportunities for creating new types of product functionality that can redefine and revolutionize the customer experience – such as gyms creating fitness applications to drive enhanced workout experiences for their members. Survey respondents are exploring a broad spectrum of IoT solution areas as illustrated in Figure 2. Retail and energy management are the top solution areas, with 40 and 32 percent of respondents respectively reporting projects in these areas. Investment in security IoT projects is also high, with 15 percent of companies exploring projects in Security (Defense) and 15 percent in Security (Public Safety).

Many companies are exploring IoT projects in more than one solution area and...companies in every industry segment included in the survey are developing IoT solutions for the retail market.

Figure 2. IoT Solution Areas under Development

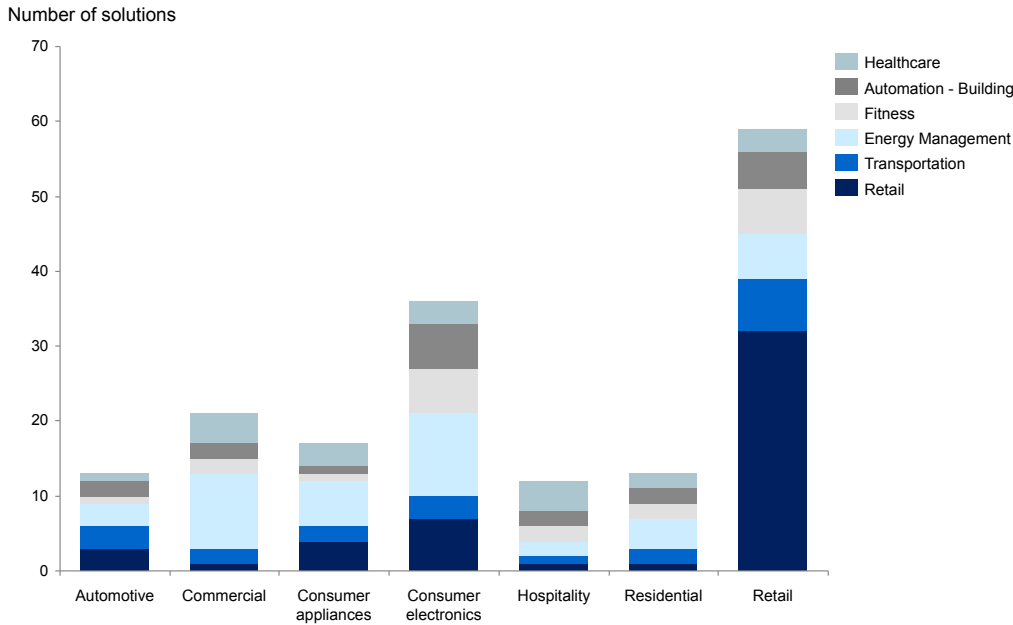


Source: Hurwitz & Associates, 2015

Many companies are exploring IoT projects in more than one solution area and there is some overlap between industries and solution areas. For example, companies in every industry segment included in the survey are developing IoT solutions for the retail market. The other solution areas that have participation across all industry segments include building automation, energy management, fitness, healthcare, retail and transportation. Figure 3 shows the number of IoT projects by solution area for respondents from each of these industries.



Figure 3. Distribution of Solution Areas by Industry



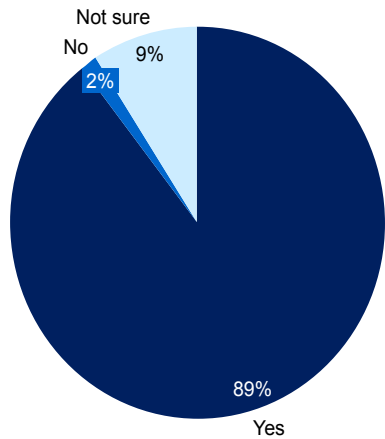
Source: Hurwitz & Associates, 2015

Survey respondents are highly optimistic about how their IoT offerings will help them increase competitive differentiation.

Impact of IoT on competitive differentiation and business process

Survey respondents are highly optimistic about how their IoT offerings will help them increase competitive differentiation. As illustrated in Figure 4, 89 percent of companies surveyed believe their IoT initiatives will help them gain a competitive edge within the year.

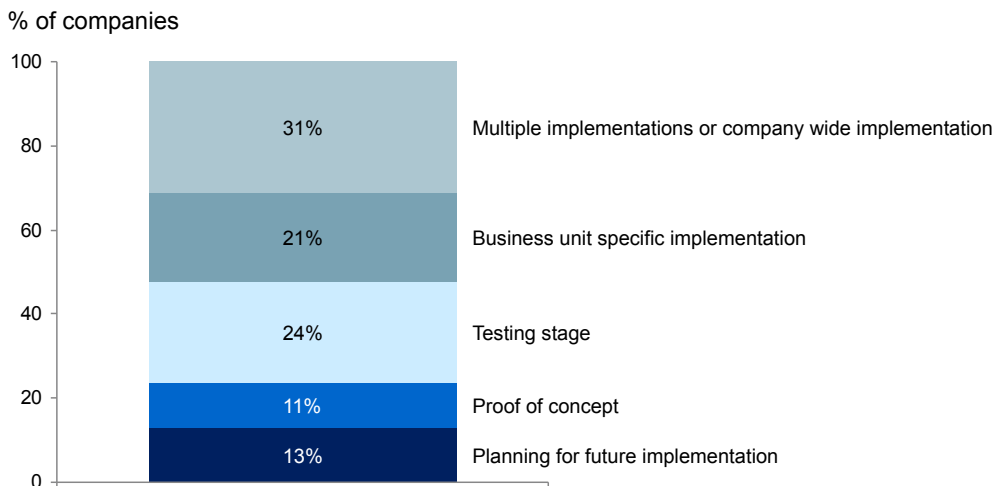
Figure 4. Companies Expecting to Increase Competitive Differentiation Within 1 Year



Source: Hurwitz & Associates, 2015

Just over half of the companies surveyed are in the implementation phase of their IoT solution. As shown in Figure 5, 31 percent of companies have multiple or company-wide implementations, while 21 percent have a business unit-specific implementations. The expected rate of growth in IoT product development is very high for the companies surveyed. Even though there are many projects still in early stages of development (48 percent in proof of concept, testing, or planning stages), these companies are working on a tight timeline and expect to successfully bring products to market very quickly. However, it is clear that the product development and implementation cycles need to be shortened dramatically, if companies expect to show some competitive differentiation in the next 12 months.

Figure 5. IoT Project Implementation Stage



Source: Hurwitz & Associates, 2015

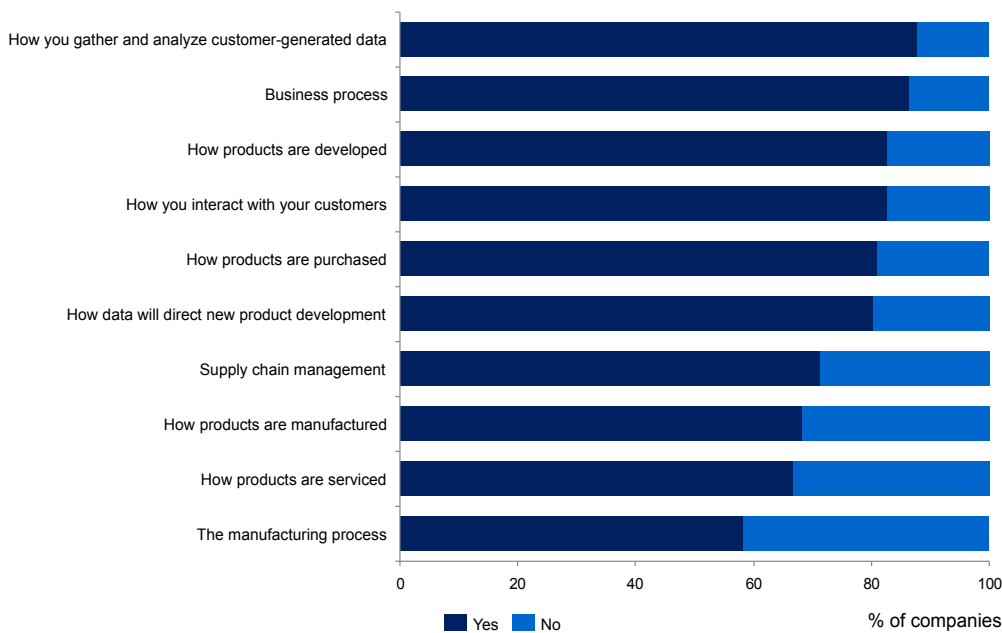
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Survey respondents were asked if they expect IoT to have an impact on many different aspects of business process, product development and manufacturing, supply chain management, and the customer experience. The majority of respondents expect the impact of IoT to be felt across many areas of the business. In fact, as shown in Figure 6, at least 60 percent of respondents expect IoT to change every area covered in the survey. The areas where the most respondents expect to see IoT-related changes include, gathering and analyzing customer data, business process, and development and purchase of products.

Figure 6. Areas where IoT will Impact the Business



Source: Hurwitz & Associates, 2015

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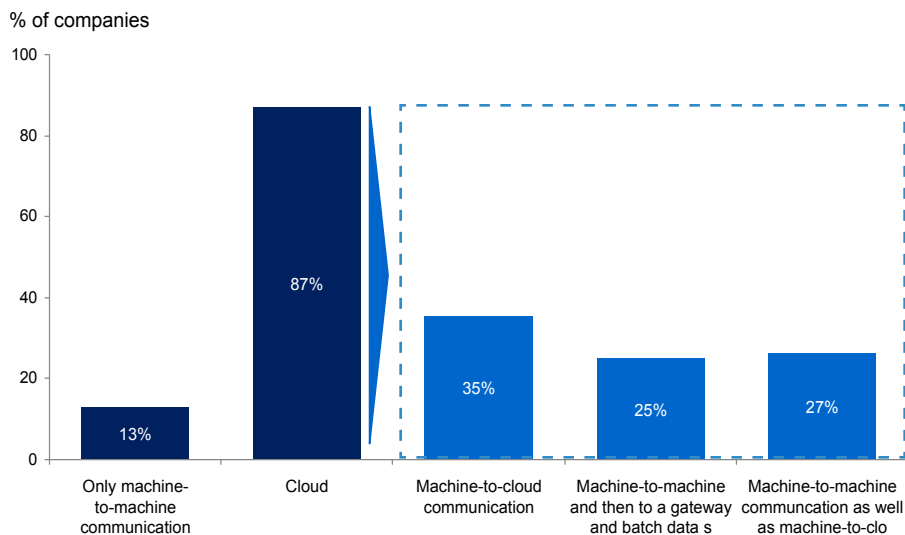


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Communication Issues

IoT products have the potential to fundamentally change the way many companies define the business they are in and how they relate to customers. This incredible potential is based on how huge amounts of real-time data will be collected, stored, shared, managed and analyzed. IoT data does not live in isolation. The cloud is emerging as the primary deployment model for the data. As shown in Figure 7, a small percentage of companies will use only machine-to-machine communication for their IoT solution. The overwhelming majority of companies surveyed (87 percent) will leverage the cloud for IoT data communication, calling on key cloud vendors such as Amazon Web Services to support cloud requirements.

Figure 7. IoT Product Communication



Source: Hurwitz & Associates, 2015

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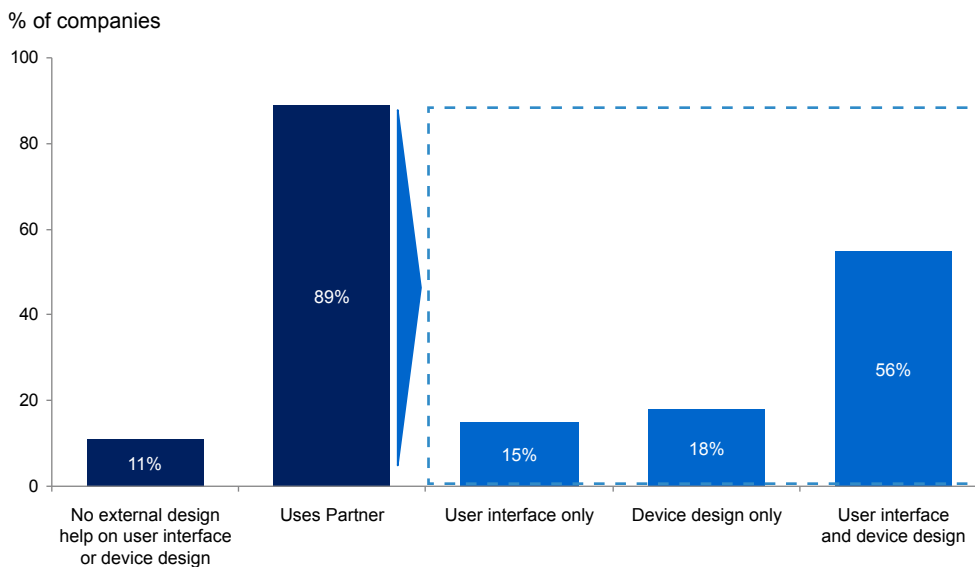
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Partnership Requirements

Businesses are partnering to implement IoT strategies. Outside design firms will play a significant role in helping companies achieve success with IoT. Over 90 percent of respondents work with one or more partners to develop and manufacture their IoT solutions. For many companies, entering into the IoT market requires that they redefine their traditional manufacturing processes. In order to innovate at speeds required to achieve first-to-market advantage, partnering with an organization that already has experience in IoT development not only makes sense – it's critical. Companies also need to ensure that their products have an elegant design that is optimized for ease-of-use and user satisfaction. As shown in Figure 8, approximately 89 percent of companies surveyed work with a design firm on the user interface and/or the device design. In addition, 50 percent of companies responding to the survey consult with an engineering firm on the industrial design of the IoT product.

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Figure 8. Percent of Companies Using a Partner for IoT Design



Source: Hurwitz & Associates, 2015



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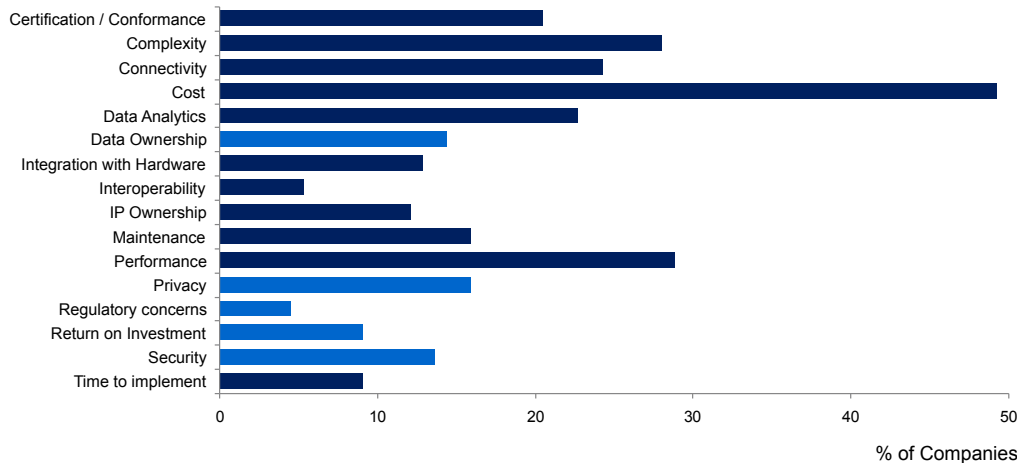
Key Concerns for IoT

Survey respondents do not expect success with IoT projects to come easily. They were asked to select their top three concerns from the issues shown in Figure 9. All of these issues are important concerns for at least some of the respondents. In fact, 14 out of the 16 potential issues listed were designated a top three concern by at least 10 percent of the survey respondents. Nearly 50 percent of respondents rated cost as a top concern while performance, complexity, data analytics, and connectivity were each selected as top concerns by 23-29 percent of companies.

Although security does not rank as high as some of the other concerns, IoT products can only be successful if security is a top priority. Survey respondents were asked to provide more details on how their company was ensuring that their IoT devices were secure. An operations executive from a company in the hospitality industry that is exploring IoT said: "Security is very important to our company. The delay in implementing IoT technology is because of the worry of securing our organization's data. Investments in the best technology will have to be made." Other respondents routinely mentioned the use of multi-factor security systems, network security, data encryption (especially with data in movement) as well as physical security like RFIDs and fingerprint scanning.

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Figure 9. Key Concerns for IoT Projects

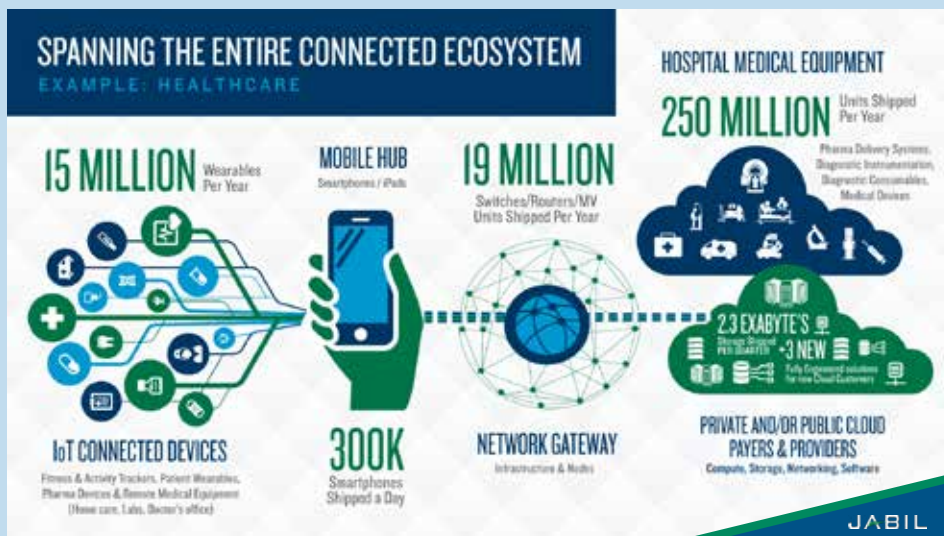


Source: Hurwitz & Associates, 2015

Jabil's approach to IoT

Jabil is a global design, supply chain and manufacturing services company with a focus on product design, development, industrialization and integration of IoT solutions for 250 of the world's biggest brands. The company covers every aspect of the IoT value chain, as illustrated in Figure 10, including devices, smartphones, network infrastructure, and the cloud. As a hardware designer, builder and integrator, Jabil conducts customized, end-to-end consulting, integration and on-going maintenance from discovery and architecture to building, testing and deployment of IoT solutions.

Figure 10. How Does Jabil Deliver Value



Source: Jabil, 2015

Jabil is a trusted partner for companies across multiple sectors, most of which are seeking to “connect” their “things.” Companies in these sectors are looking to improve customer experiences and at the same time increase revenue. Jabil’s focus is on the following sectors: healthcare and medical devices, auto, fitness and leisure, energy, industrial equipment, packaging, retail, smart buildings, hospitality venues, amusement parks, sports venues and large retail.

Jabil offers customers and partners a holistic distribution and delivery solution. The company’s partners benefit from support that covers all aspects of product design and development, product integration, installation services, ongoing monitoring and maintenance, and assistance with supply chain management.

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Conclusion

The results of our survey show that companies are looking beyond their typical areas of expertise when developing IoT solutions. For example, some Jabil clients in the hospitality industry have developed wearable devices that allow customers to access rooms and pay for meals – these types of solutions drive convenience and efficiency and build closer connections to their guests. To quickly create new IoT offerings, it is therefore important for organizations to create partnerships with companies like Jabil that have broad cross-industry and cross-solution experience.

Our research indicates that companies are placing strong emphasis on creating deep, strategic IoT partnerships. For example, the vast majority of companies engage with one or more partners to fulfill IoT requirements. These companies are very concerned about the cost and complexity of developing IoT solutions. We believe partnering with an experienced solutions integrator such as Jabil is one way to decrease both risk and time to market.

In summary, organizations are beginning to realize that failing to implement a compelling IoT strategy will leave them at a major competitive disadvantage. These companies are leveraging the cloud to ensure the scalability, flexibility, power and speed that are critical for IoT data communication. It is also clear that most companies aren't implementing their IoT strategies on their own. Many organizations are looking to manufacturing solution and cloud technology partners to collaborate on building IoT products with elegant design features and highly efficient technical capabilities. Hurwitz & Associates believes these types of partnerships can extend the value of IoT for companies acting on the IoT imperative.

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About Hurwitz & Associates

Hurwitz & Associates is a strategy consulting, market research and analyst firm that focuses on how technology solutions solve real world customer problems. Hurwitz research concentrates on disruptive technologies, such as Big Data and Analytics, Cognitive Computing, Security, Cloud Computing, Service Management, Information Management, Application Development and Deployment, and Collaborative Computing. Their experienced team merges deep technical and business expertise to deliver the actionable, strategic advice clients demand. Additional information on Hurwitz & Associates can be found at www.hurwitz.com.



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35 Highland Circle • Needham, MA 02494 • Tel: 617-597-1724
www.hurwitz.com