

The Impact of the Internet of Things on Financial Services



The Internet of Things (IoT) is shaping up to be among the early part of this century's most prolific and ubiquitous technological revolutions. We are seeing a rapid progression of IoT devices that can be seen across all walks of life. In less than three years, nearly everything we do on digital devices could be interconnected to other digital devices, giving rise to one of the most rapid IoT advances matched by adoption from consumers. In short, the IoT's impact on our daily lives will be significant and financial services organizations should start planning for these changes—the sooner the better.

Increasingly, digital devices—a car, appliance, computing device or wearable—will communicate directly with each other and potentially with other external entities. These interactions add value to the experience for the customers by correlating information. With an explosion of these devices and connections, banks and insurance companies will need to create valuable interactions by handling enormous amount of data in real time.

Seeing the Future Today: The Internet of Things

The Internet of Things is expected to have an enormous impact on every aspect of our financial lives—from banking to insurance, financial planning, health and fitness. Interconnected intelligent devices will become ubiquitous and fit seamlessly into day-to-day activities. Adopting IoT brings opportunity and challenges across all industries, with clear impacts on manufacturing, logistics, and life sciences. But how will IoT impact financial services organizations, and how can banks and insurance companies make the best of this emerging opportunity?

We believe insurance, healthcare and banking will provide the best opportunities for using the Internet of Things with new financial products and services. As we look out at the next two years, we are faced with quite a few unknowns on the exact impact of IoT on banks and insurance companies. There is preparation required to manage and embrace these upcoming changes. In this article, we highlight key challenges and opportunities for financial services firms.

How will the internet of Things impact us?	
1	Cisco estimates the size of the Internet of Things to be \$19 trillion
2	GE reports that as of 2013, the Internet of Everything had the potential to add \$10 to \$15 trillion dollars to the global GDP over the next 20 years
3	McKinsey Global Institute expects the Internet of Things will deliver \$6.2 trillion of revenue by 2025
4	The Institute of Electrical and Electronics Engineers (IEEE) estimates that future users will have up to 5 active addressable devices and as many as 25 passive devices
5	Research from IDC estimates that by 2020 more than 40% of all data worldwide will be comprised of data gleaned from digital devices communicating with one another

Sources:

1. Cisco CEO Pegs Internet of Things as \$19 Trillion Market, Olga Kharif, Bloomberg, January 8, 2014
2. Analyze This: The Industrial Internet by the Numbers & Outcomes, GE Reports, October 7, 2013
3. Mike Kavis, The Internet Of Things Will Radically Change Your Big Data Strategy, Forbes/Tech, June 26, 2014
4. IEEE Webinar, "Privacy and Personal Data in a Connected World 101"
5. Vernon Turner, et al., The Digital Universe of Opportunities: Rich Data and the Increasing Value of the Internet of Things, IDC, April 2014

7 Ways the Internet of Things Will Impact Your Business

1. Privacy

As IoT integrates within our daily lifestyle, the issue of privacy will be of utmost importance. The amount of data collected and the conclusions and interpretations gained by the data may create new and unknown risks. Financial services organizations will need policies and procedures to proactively address these risks while preparing a readiness protocol to deal with any exceptions. Data usage and retention policies will need to be revisited. The goal, of course, is to protect consumer privacy and adhere to appropriate regulations without sacrificing the utility of IoT data.

2. Security

Information gathered, shared, and acted upon must be secure for all parties. It's no secret that nearly any device connected to a network is prone to manipulation. Compromised devices will impact the overall IoT scenario and lead to undesirable consequences, including personal injury and financial risk. Most devices will be new and relatively untested in the real world leading to some level of behavioral uncertainty and its subsequent impact. Detailed recommendations from the FTC are available at ftc.gov¹.

3. Identity Management

As devices proliferate within the home, complex relationships among these devices and household members arise. Devices such as cars, fitness equipment, or home appliances may have multiple users. Yet users can also have multiple devices, including phones and wearables which might be calibrated for that specific user. Scenarios such as these require a clear understanding with regard to which user is using a particular device at that point in time. Insurance companies, for example, will need to confirm the identity of the insured driver. Traditional identity management solutions are not capable of handling these relationships and their associated complexities.

4. Interoperability

With the number of IoT devices being deployed, interoperability is a critical challenge that needs to be addressed. Companies are rushing to market with strategies to deploy and integrate these devices in cars, appliances, networks, computers, phones, wearables, and hardware. Without agreements on interoperability standards, the IoT experience will fail to deliver. There are many standardization initiatives but the process is expected to happen over time.

5. Collaboration

To fulfill their potential, IoT devices, including enabled devices, will need to communicate within context among each other and among users. Once interoperability issues are resolved, these devices can effectively communicate information and embrace the role of a value added device. At a technical level, interactions among devices are less complicated than contextual IoT communication with users. Information has to be collated logically and subsequently lead to an action from a device or a user post validation. Over time, devices will become more intelligent and shoulder some of the basic decision making. Until then, it could be risky to have IoT devices initiate actions without a level of governance.



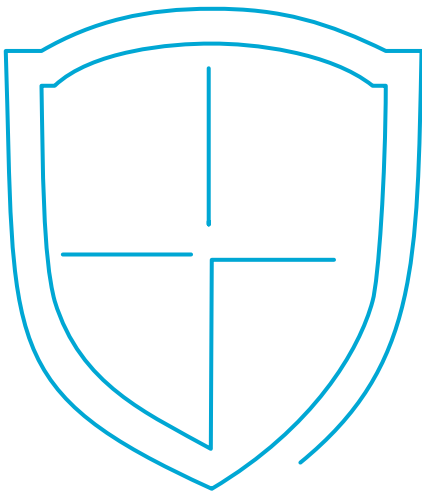
¹ <https://www.ftc.gov/news-events/press-releases/2015/01/ftc-report-internet-things-urges-companies-adopt-best-practices>

6. Personalization

We expect personalization to be among the most beneficial outcomes of the IoT era. As information is captured and shared within context, it has more relevance to banks or insurance companies. A product and more targeted level of service and support can be offered based on this information, which would lead to better customer experiences and lower costs. There will be a significant impact in the healthcare industry where these devices can aid in prevention and cures.

7. Reliability

Although IoT devices have not been tested over time, they are becoming mainstream. This has led to a level of uncertainty in their operational reliability in certain scenarios, posing noteworthy challenges to both consumers and financial services organizations. Fundamental scenarios in which devices break down and malfunction will need to be addressed and resolved. For critical scenarios, such as auto accidents, water leaks, fire, or monitoring health conditions, there needs to be a resolution and backup plan in place.



Challenges & Opportunities for Financial Services Firms

The Internet of Things will provide some unique challenges and opportunities for financial services institutions.

Healthcare

A large number of companies from outside the healthcare industry, including Apple, are deploying devices that will monitor all aspects of an individual's health. In the past few years, we have seen devices evolve from general fitness tracking to additional health monitoring. As the IoT evolves, these devices will become increasingly intelligent and sophisticated and could eventually help determine if an intervention may be necessary to prevent life-threatening conditions.

As this process matures, health insurance companies will be better prepared to help patients manage or prevent chronic conditions such as diabetes. This could lead to reduced costs for both patients and healthcare companies and the structure of health insurance premiums could change. An additional impact on insurance premiums may be based on the lifestyle of each individual—for example, a person who exercises regularly. This will lead to dynamic pricing for healthcare premiums which could fluctuate based on the current activities of each individual. While premiums won't necessarily change daily, certainly it will be possible to adjust premiums at weekly or monthly intervals based on actions taken by the patient.

Auto Insurance

Within some mature markets, cars and/or drivers are being configured with a tracking device so the insured can pay for the actual number of miles driven and driving behavior rather than pay an annual premium. For an insurance company, the challenge will be in forecasting revenue.

Home Insurance

With intelligent devices tracking water leaks, carbon monoxide levels, fire, and smoke, a home is expected to be safer. This, in turn, will lead to lower premiums, although probably not as dynamic as health or auto.

Data Management

For all industries, the data impact on organizations will be the most significant. There are multiple dimensions to collected data that is processed and acted upon in real time. Devices could be calibrated in certain scenarios to send data in a constant stream over a long duration. The data challenges include the volume, validity, and veracity of information leading to a revisit on storage, processing, and retention approaches. Addressing data management will be a challenge to any organization since it will require a separate approach to handle each scenario.

Customer Support

With the proliferation of devices and the large volume of data flowing from these devices, customer support processes will need to be revisited. For example, if a customer calls to understand a revision on his auto insurance premium, customer support must be able to explain the reason for change. These interactions will require access to historical data, and an understanding of the impact of this data on the customer's costs and/or services. In addition to service calls, customer support will need to field calls related to deployed devices. These could be functional or technical in nature and require a specialized skill set.



Investments

To better understand customer behavior and provide more personalized service, many financial services organizations are deploying IoT devices for their customers. For example, some auto insurers are providing tracking devices for customers to put in their car. This approach will breed challenges in monetizing these devices, but will also lead to tangible benefits.

Organization Preparedness

Banks and insurers need to prepare employees to create products and services that align with smart devices. This will be a paradigm shift in the way financial services institutions currently create products and services, service existing customers, and set pricing.



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