

# The Evolving Nature of the Internet of Things



The Internet of Things, or IoT, has already significantly changed the way that we live. Not too long ago, the concept of a smart home wherein various systems were connected to make the lives of its inhabitants easier existed almost exclusively in the world of science fiction. The way that the IoT is being used is constantly evolving and changing to make our lives run more smoothly.

The average consumer is used to thinking of the IoT as something that exists largely in a customer-facing fashion with smartphones, smartwatches, and digital voice assistants like Alexa and Siri working together intelligently. However, while there are plenty of products available for public purchase that rely on and help to build the IoT, much of the real benefit of the IoT is found in the world of industry and business working behind the scenes to improve nearly every facet from production to delivery, and even customer satisfaction and retention. The Industrial Internet of Things, or IIoT, for example, includes smart buildings that optimize the manufacturing process and predictive maintenance that prevents delays due to the need for unexpected repairs while also increasing worker safety.

The IoT can also be used by businesses to improve overall customer satisfaction in a number of ways. The IoT relies on, and in turn generates, an enormous amount of data in its function. Much of this data is generated by the user's various devices, and that data can show a company how and when a customer is using products or services and what they are using them in conjunction with. This ultimately results in the ability for businesses to generate incredibly personalized experiences for customers based upon the mountains of data available to them, while also allowing companies to potentially solve customer issues before they even arise.

While the IoT is revolutionizing the world of industry, the IoT is doing just as much heavy lifting for businesses on the customer-facing front. Aside from the amazing opportunities for customer personalization that IoT application provides, it can also result in stronger customer relationships and increased customer loyalty. Specifically, the insights that the IoT data stream provides companies allows them to predict what a customer may or may not want, and in essence allows a company to really see a customer as a human being in the way that they act and react to their product or service.

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Mastering the IoT requires that businesses understand exactly how to use the huge amounts of data generated by the IoT in an effective manner. In order to do that, businesses are relying more and more on experts in the field of data analytics, machine learning, and artificial intelligence to get the job done. While many assume that as the world becomes more automated the need for human input will slowly fade away, however, in reality, this new frontier is simply changing what sort of jobs are needed, not outright removing them from the equation.

The fact of the matter is that whether or not the robots are going to come for all of our jobs decades down the road, we can use technology like the IoT to make things safer and easier for people working today. For example, the data generated by the IoT can be used by long-haul truck drivers to instantaneously warn other drivers in the fleet of potentially dangerous road conditions or accidents as they occur. Event stream processing systems can also allow companies to act on safety issues in real-time, implementing analytics to turn IoT data into something actionable that could potentially save lives.

The future of business is being shaped by the IoT, creating huge demand for professionals in new industries like data science, data security, and user interface design. Additionally, the IoT is creating new professions like medical robot technologists and agricultural technologists who blend together this exciting new technology with older professions like surgery and farming to create a new, more efficient world. The IoT is also increasing the ability for companies to allow workers to work from home remotely, doing away with the need for traditional brick and mortar offices which increases worker satisfaction and also has a positive environmental impact as it reduces the need to commute or power an entire office building.

One of the more visible ways that the IoT will change the way that the world works is through its marriage to the rising autonomous vehicle movement. While it is exciting to think about a future wherein we no longer have to drive ourselves around, many consumers are reticent to embrace self-driving vehicles out of safety fears. These fears are not totally unfounded as there have been various instances of self-driving cars being involved in serious accidents.

These accidents, however, can be mitigated even further with the implementation of the IoT. Eventually, standards will be set across the board for all self-driving cars in regards to how they communicate with one another while on the road. The huge amounts of data generated by various sensors in self-driving vehicles as well as the potential to connect with existing technological systems could significantly improve safety for both drivers and pedestrians.

Companies are already working on solutions for making self-driving vehicles safer, from optimized sensors that process LIDAR, sonar, radar, and optical signals to machine learning algorithms that turn all of that data into a useful state. Once there

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is a standardized method with which these smart cars can communicate with one another, the data shared between them will create a massive pool that can then be quickly analyzed to ensure that fatal accidents become few and far between.

The IoT is not a perfect system that will enable us to live unfettered lives of luxury. It is, however, a useful tool that is revolutionizing the world of business and industry, changing how we approach work and helping to keep us safer as we embrace a more automated world. There is no telling how far the IoT will reach, but the practical applications that it has today should be more than enough to keep people excited for the future.

## Tasks

### Questions on the text

**Please answer the following questions in complete sentences giving as detailed information as possible:**

1. According to the text, IoT is so much more than smartphones and Alexa. Explain briefly, where IoT can be found today and what benefits it brings with it.

There are plenty of products available for public purchase that rely on and help to build the IoT; however the primary real benefit of the IoT is found in the world of industry and business working behind the scenes to improve nearly every facet from production to delivery, and even customer satisfaction and retention. The IoT relies on, and in turn generates, an enormous amount of data in its function. Much of this data is generated by the user's various devices, and that data can show a company how and when a customer is using products or services. IoT enables businesses to generate incredibly personalized experiences for customers based upon the mountains of data available to them, while also allowing companies to potentially solve customer issues before they even arise.

2. How can IoT help businesses to improve their relationships with their business partners? Give examples from the text.

IoT provides opportunities for customer personalization, it can also result in stronger customer relationships and increased customer loyalty. Specifically, the insights that the IoT data stream provides companies allows them to predict what a customer may or may not want, and in essence allows a company to really see a customer as a human being in the way that they act and react to their product or service.

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### 3. Explain briefly, how IoT will affect the workplace.

The kind of jobs required will change. We can use technology like the IoT to make things safer and easier for people working today. For example, the data generated by the IoT can be used by long-haul truck drivers to instantaneously warn other drivers in the fleet of potentially dangerous road conditions or accidents as they occur. Event stream processing systems can also allow companies to act on safety issues in real-time, implementing analytics to turn IoT data into something actionable that could potentially save lives.

The future of business is being shaped by the IoT, creating huge demand for professionals in new industries like data science, data security, and user interface design. Additionally, the IoT is creating new professions like medical robot technologists and agricultural technologists who blend together this exciting new technology with older professions like surgery and farming to create a new, more efficient world. The IoT is also increasing the ability for companies to allow workers to work from home remotely, doing away with the need for traditional brick and mortar offices which increases worker satisfaction and also has a positive environmental impact as it reduces the need to commute or power an entire office building.

### 4. What does IoT have to do with autonomous vehicles?

Road accidents, however, can be reduced with the implementation of the IoT. Eventually, standards will be set across the board for all self-driving cars regarding how they communicate with one another while on the road. The huge amounts of data generated by various sensors in self-driving vehicles as well as the potential to connect with existing technological systems could significantly improve safety for both drivers and pedestrians.

Companies are already working on solutions for making self-driving vehicles safer, from optimized sensors that process LIDAR, sonar, radar, and optical signals to machine learning algorithms that turn all of that data into a useful state. Once there is a standardized method with which these smart cars can communicate with one another, the data shared between them will create a massive pool that can then be quickly analyzed to ensure that fatal accidents become few and far between.

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## Vocabulary

- I. Please read the text again and find the following words/phrases. (The words/phrases are not listed in the same order as they appear in the text).

Vocabulary	Expression in the text	Line
Part/aspect of something	facet	
Basically/essentially/fundamentally	In essence	
Not totally/completely	Not outright	
Alongside/in combination with/in cooperation with	In conjunction with	
To reduce gradually/ to become less important	Slowly fade away	
Understanding/perception	The insights	
Reluctant/reserved/do not like the idea of something	reticent	
Accept/take on board	embrace	
To do something about something/to react to something	to act on	
Alleviate/lessen/reduce the impact of something	mitigated	
Uncommon/infrequent/scarce	few and far between	
Cooperation with/collaboration with	Its marriage to	
Groundless/without evidence/unproven/baseless	unfounded	
Freed/unregulated/autonomous	unfettered	

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## Vocabulary

II. Please explain the following words/phrases taken from the text. Your explanations should be based on the context of this text:

1. Predictive maintenance (line 24)

To be able to foresee necessary work or updates on machines/equipment in advance therefore saving downtime and consequently money.

2. Heavy lifting (line 35)

The real work required to do something. It usually implies that this work is not easy and requires a lot of time and effort.

3. This new frontier (line 48)

This new area/field of technology

4. Traditional brick and mortar offices (line 64-65)

Office buildings where people physically work rather than remotely from home

5. Across the board (line 76)

Wide ranging/comprehensive/extensive