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**Internet of Things (IoT)**

**Internet of things (IoT):** is establishing Internet connectivity into physical devices and everyday objects where these devices can interact with other devices over the Internet, and they can be remotely monitored or controlled. The Internet of Things is a new hot buzzword in the technology platform. It is the addition of electronics and software in any device that is not usually acknowledged computerized in nature. It gives devices a capability to network and communicates with other tools to deliver more value. The Internet of Things (IoT) is mixing the physical world with the digital, wherein everyday objects are fixed with technology like sensors and Wi-Fi to achieve a unique online identity and be able to communicate with their external environment. This network of “smart” devices offers several benefits for society, businesses at large, and individuals, including improved business process, improved quality of life, increased safety, reduced waste, and new income opportunities. The Internet of Things (IoT) represents the most significant technology wave for years to come. According to recent research, it is prophesied that there will be 25-50 billion connected devices excluding tablets, smartphones, and PCs, by 2020 that will change every phase of our lives. It is expected to make around $US4-$US11 trillion per year in the economic purpose.

**How does the Internet of Things affect digital, IT, and technology workers?**

As the Internet of Things continues to increase, forward-thinking technical professionals will enjoy a sign of challenging and compensating job opportunities. Coders and developers having the right mix of the Internet of Things skills and experience will command big stags. Multiple other job roles are in demand in the Internet of Things space; these include:

* Business Intelligence Specialists with skills in sensor predictive analysis, data analysis, and data center management;
* Cyber Security Specialists to manage complexity in IP-enabled devices;
* User Experience (UX) and User Interface (UI) Designers to develop active, user-friendly interfaces;
* Mobile Application Developers to manage smart objects controlled with mobile devices like wearable, tablets, and smartphones;
* Computer Hardware Engineers to design and develop the actual electronics at the heart of the Internet of Things movement; and
* Networking Pros to manage embedded sensors used by smart devices to communicate with their environment.

**Implications of Internet of Things (IoT):** Major implications of Internet of things (IoT) are:

* **Increased very faster:** vehicles are collected to the Internet of Things verify faster these days, in that case, cars would probably inform drive about traffic. Automation like this will increase the efficiency of process and productivity.
* **Huge data:** with increasing Internet billions of sensors connected together in an exciting thought, but data is continually generating. The industry has to manage how data will be selectively stored and retrieved.
* **Security:** The Internet of Things combines a lot of things to make things easier, but such things must not fall into wrong hands because sometimes it is thrilling to ask a coffee maker to brew at morning with an alarm, but it is very easy to intruders to come into your house by using the Internet of Things data breach.
* **Privacy:** 10 years ago all things are not connected to the Internet. But today organizations are concerned about users to bring mobiles, due to inherent connectivity.

**Changes need to be done to improve the** Internet of Things **security:**

* Create a separate? Unique network
* Don't connect devices until you need them
* Choose good passwords
* Update your firmware
* Beware of cloud services
* Track and assess your devices.

Being in the technology field, what I feel in general, product liability means seller or manufacturer is to be liable to sell defective products. The product liability challenge embedded in the Internet of Things, which includes a to z devices like from smart coffee pots to medical devices. It will be going to be a big problem in the future. The hazards allegedly associated with these device malfunctions like fire, burn, shock, and laceration, chemical exposure sometimes-even death. One of the biggest things is the product is designed in a manner in which software can malfunction if the software is not updated up to date.

The reality is technology is very powerful, like all technologies it is also neutral by nature. Only how we use will determine whether it is good or evil. Like other technologies before, the Internet of Things has that power to improve the quality and lifetime of our life but it doesn't mean that it will not be used for harm. So it's our responsibility to be secure.

**Digital defects:** Yes there some digital defects like,

For instance, considering software, not all bugs are vulnerabilities and not all vulnerabilities can be exploited. Clearly delineating with these concepts, across these software/firmware and applying some appropriate changes are necessary.

It may also be very important to establish the absence of which security features, in some contexts, should be considered as a defect. Establishing standards around the Internet of Things is a major step forward in resolving when the absence of certain security features.'

All of these various definitions will have to be able to cope with some technological change over time so as to remain relevant and effective. For instance, the definition of ‘adequate’ security measures is likely to change over time as common or best practices evolve in line with technological change. (For instance, bugs that allow for SQL injections, or lack of measures to mitigate SQL injections, might have been considered as non-defective in 1994 but is unlikely to be widely considered as such in the present day).

Data has not generally/normally been considered property. But as a result, when malfunctioning software or hardware has occasioned the corruption of data, strict products liability has not been applied. However, people are living to continue to be virtualized ad value continues to be created by data, as a conception of digital assets. It's not the first time that such a designation has occurred.

**By considering all these things the manufacturer should do these things to avoid product liability, like**

* Mandatory security assessments,
* A bill of materials for every device,
* End of life dates for devices,
* Required technical criteria.

I can't give my resources as url because it is against CHEGG rules but I can tell you get it, search these terms on Google and click the first result, "implications of the Internet of Things quora","Tips to secure the Internet of Things devices”, "the Internet of Things risks and dangers”, " Internet of Things Product Safety, and Product Liability" The main harms of Internet of Things is security, which means how much secure we are from hackers, if we can solve them by above precautions we can stop consumers being hacked.

**Backgrounds and motivation of Internet of things (IoT):**

When thinking of the Internet of things (IoT) consider the idea, “any device capable, can be interconnected with other devices.” The Internet of things is ripe for new and creative ideas to add to the tasks already in use. Think then simultaneously signaling your coffee maker to turn on and start brewing coffee, and an alarm waking you at 5 AM in the morning. Imagine your printer knowing when you are finishing on paper, and automatically ordering more, the watch on your wrist telling you “where” you have been the most prolific, while at work. The Internet of things (IoT) can be used to make such things as transportation networks. Smart cities can use it to decrease waste and maximize the cost-effective use of energy.

**Motivations**

**Marketing automation:** Mobile customer engagement, geolocations, etc. are all creating a network of knowledge about customers’ preferences, locations, intentions and buying patterns. Of course, this degree of location-based knowledge needs to strike the right balance between user privacy, services to that user and the timely delivery of useful products.

**Ubiquitous sensors:** on everything it is already here the Internet of Everything and the wearable revolution.

**Supply Chain Analytics:** delivering just-in-time products at the point of need. Necessarily, everything is a customer (including machines, automobiles, manufacturing plants, ATMs, etc.), and the Internet of things is waiting, monitoring, and watching for a product need to arise.

**Ubiquitous networks:** personal Wi-Fi on the mobile phone and every other device. Everyone wants and needs to be connected.

**Real-time applications**

**Home automation (smart home):** which include lighting, heating, and air conditioning, media and security systems. Benefits like ensuring lights and electronics are turned off automatically. It assists those with disabilities and elderly individuals.

**Media and health care:** the internet of medical things is an application of IoT for medical and health-related purposes which lead to the creation of digitized healthcare system, connecting available medical resources and healthcare services. Specialized sensors can also be equipped within living spaces to monitor the health and general well being of senior citizens. Some hospitals have begun implementing smart beds to detect when they are occupied or when a patient is attempting to get up.

**Transportation:** here all aspects of the transportation system are covered (i.e., the vehicle, the infrastructure, the driver or the user). Dynamic interaction between these components of the transport system enables interns and extravehicular communications, smart traffic control, smart parking, safety and road assistance, etc. Sensors such as Global Positioning System, humidity, temperature, send data to the Internet of things platform and then the data is analyzed and then sent further to the user. This way user can track the real-time status of the vehicle and can make appropriate decisions.

**Manufacturing:** the term Internet of things is often encountered in the manufacturing industries referring to the industrial subset of the Internet of things. The Internet of things (IoT) can realize the seamless integration of various manufacturing devices equipped with sensing, identification, processing, communication and networking capabilities. It opens the door to create a whole new business and market opportunities for manufacturing.

**Agriculture:** Internet of things (IoT) also plays a significant role in farming such as collecting data on rainfall, temperature, wind speed, humidity, soil content, pest infestation, etc. This can help in making informed decisions to improve minimize risk and waste, quality and quantity, and reduce the effort needed to manage crops. For example, farmers can now control moisture from afar and soil temperature and even apply Internet of things-acquired data to precision fertilization programs.

**Latest development trends and potential directions of the Internet of things (IoT)**

More connected and more devices: The rapid proliferation of the Internet of things (IoT) in the past three years has resulted in billions of interconnected devices as the user continues to stay hooked to more contrivances. The number of connected devices increased exponentially every year. More Internet of things (IoT) devices will enter the channels, more than ever before. As the Internet of things (IoT) continues to expand we will undoubtedly see an expansion in devices connected to the network in different areas in consumer markets and business.

**New hope for security (Internet of things and Block chain Convergence):**

Security will be the major challenge that necessitates being addressed. As the world becomes frequently high-tech, devices are easily targeted by cyber-criminals. Security surely is a significant concern, and vulnerabilities need to be addressed. The block chain is new hope for the Internet of things (IoT) Security. The astounding conquest of Crypto currency, which is built on Block chain technology, has put the technology as the flag beneficiary of seamless activities, thereby decreasing costs and doing away with the need to believe a central data source.

**The need for skills in the Internet of things (IoT) big data analytics and artificial intelligence (AI) will increase:**

Integrating Internet of things (IoT) data channels with AI to retrieve on demand analytical insights has already gained momentum nowadays and will grow exponentially in future.

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