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IMPACTS OF IT INFRASTRUCTURE
IMPACT OF IoT on IT INSFRASTRUCTURE AND OPERATIONS

PREAMBLE

IoT – Internet of Things, the most trending and happening technology right now. It's a broad way to connect all devices like hardware, sensors, etc. to the internet. It's got applications in numerous fields like Transportation, Retail, Energy, Healthcare, Supply Chain, etc. To be precise, IoT is becoming a game-changer in the IT sector because of the tremendous increase of data and shifting the traditional paradigm to a more sophisticated one. It's not just adding new parameters to IT but also changing the way of the current IT industry by combining IoT, AI, etc. because the ease of accomplishing the task has become way easier and smarter by enabling automation, analytics, etc. So companies can enjoy automation by utilizing few resources and can focus on other aspects of improvement.

HOW IoT CAN IMPROVE IT OPERATIONS – PRIMARY SOURCE – AUTHOR VIEW

BY MARIA KOROLOV (CONTRIBUTING WRITER, CIO)

SOURCE : https://www.cio.com/article/3331198/how-iot-can-improve-it-operations.html

In this section, author has provided the IoT importance in IT Operations in a crafty way. The author discussed the importance of IoT in such a way that – IoT has taken the way to improve factors such as security, efficiency, productivity, etc. of IT operations and also mentioned about few IT Departments that's currently utilizing IoT as it's daily functioning like **CONSERVATION OF ENERGY COSTS** – The best example company provided in this sector was GOOGLE. Where the company stated that almost 40 percent of the energy is being saved in the company with the help of sensors by applying machine learning algorithms. Secondly, it's the **Datacenters,** where few humans will be monitoring the automation (Datacenter cooling controls) that almost save about thirty percent. **SERVER MAINTENANCE** – It's really tough for a normal human being to always be on the verge to check the server conditions. Because a server is something that does require continuous attention. So just imagine how much power would be wasted in this process? With the help of IoT, one can automate the process with the help of smart sensors that would actually monitor every single machine's power consumption and can give a signal about its status of being down or overloaded. **CONTROL ACCESS TO THE OFFICE** – The most traditional way of securing office access is by a key, but that's one section where it can be duplicated and shared. Later smart card readers came into the picture and still being used in most companies. But an IEEE member questioned its security. But also said that those would include biometric scanners that are actually centralized and provided with access rights with which only people with granted control can enter. **WEARABLES** – NFC (near field communication) is the one that came to the rescue when it comes to a smart wearable with which one can check out at the access points with just a tap that's authenticated. But when this comes to data/network access it needs more work to be done because it may cause a security breach. So due to which a secure centralized network has to established to unlock the devices at the workplace. **VIRTUAL ASSISTANTS** – This is the sector when IoT joins hands with AI, where employees for example can connect the smart wearable/device and can get access automatically when they go near that source, which is a smart AI enabler. WORK STATUS MONITORING – One of the most innovative section under IoT at the workplace. It's said that a real traffic light has been installed in a Chicago-based workplace indicating their work status. Where red color will come up when there are any issues or errors, yellow color when the work is in progress, and green color when everything works well. This an IoT-built device that was remade. **SMART CONFERENCE ROOM** – A literal IoT built device that tells whether a room is filled or not which is actually a motion detector that lets us know the room capacity count. Or may also use RFID to study the count. SMART KEGERATOR – It's common at the workplace to use the bar area for a short break. And one such IoT system was built that tells us the temperature of the keg and also the amount of beer left which is also connected to Alexa where they can

ask about it. So author primarily focused on aspects in IT such that how it's impacting their work, how automation is making work effective and also about effective resource consumption.

POTENTIAL GENERALIZED VIEW

SOURCES - IMPACT OF IoT ON IT INFRASTRUCTURE
BY ASHUTOSH KUMAR - https://www.intelegain.com/impact-of-iot-on-it-infrastructure/
BY HELP NET SECURITY -https://www.helpnetsecurity.com/2014/06/30/the-impact-of-iot-on-it-infrastructure/

These two sources primarily focused on overall aspects like the impact of IoT over the network, its security issues. So the chief points covered in these couple of links included concerns on how data is handled, secured in a network that is IoT enabled. Data is something that keeps growing exponentially on a daily basis which is one thing to be watched as a concern. Also provided a data transition figure, which almost increased 30 times more as compared to the year 2009. So in order to maintain such computers, devices, etc. on an IoT-based network, both the authors mentioned it as a key point that something has to considered seriously. Secondly, it's the network, in order to run such a humongous network of data generated by IoT it requires some serious computing and giant data centers, where the author mentioned that Agile networks will be able to rescue this as it does the data analysis. The major percentile of IT professionals is expected to depend on a network of IoT that will be a priority for almost all organizations in the future. This is also a good thing as it's a sign of automation but also a concern as it gives rise to network complexities, overhead costs, etc. because there will be a huge amount of data generated from sensors that have to be processed. And finally, it's data security, few experts consider IoT to be a threat since there are weak points in terms of Authorization, authentication, and Data Access. As the main picture here is INTERNET, hacking is something that would always follow this term. So authors mentioned that security is something to be watched out. So the primary source mainly focuses on the impact of IoT in various aspects of the IT sector. But the other two links in contrast discussed the chief concerns of usage of IoT. As a coin has both sides, the topic was well portrayed in these links by stating strong points of advantages and also weak links. So the sources had few points in common in portraying about network, but some points about concerns were included in the other two links by mentioning crucial points about its real-time usage and limitations.

MY VIEWPOINT

So considering all the points mentioned, one must consider the IoT growth in a balanced way, i.e. design and implement the usage in which it wouldn't cause any threat towards the company.

- Firstly it's the Data, as mentioned there will be tones of data to managed over the sensors for various uses in the office like Alexa, kegerators, etc. So the companies have to implement an efficient cloud or data center, etc. to manage such data without wasting the resources.
- Secondly it's the network, sometimes there will be devices that need multiples sensors and other devices to be connected for functioning. So for such cases, a dynamic network has to be built that will be reliable enough to predict the conditions and improve the functioning of data
- Thirdly, it's security and analysis. One thing that has to mainly watch is this wing. Even though a network is sophisticated, if it isn't secure enough, there's no point in implementing it in real-time. For example, consider an access point that's IoT enabled. If a system is developed in such a way that the access can be enabled through a mobile, so what if that mobile is stolen? So such situations must be handled by implementing tokenization, and other functionalities.
- Automation is something that everyone would like. Because a human job would be done by programming the sensors, and connecting them to respective hardware over internet like automatic doors, smart parking system, etc. But one must make sure that, complete automation would sometimes result in disasters if unnoticed. So one must make sure to keep an eye on a regular basis such that network isn't corrupted.
- Lastly, one must also consider the future shortcomings and requirements, because this may result in overhead costs, re-implementing the design. So one such design has to be made such that it fulfills all the technical aspects in terms of efficiency, effectivity, and functioning.