Internet of Things and ERP



**Submitted by - Group 6**

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**Internet of Things**

The **Internet of Things** (IoT) is a scenario in which objects, animals or people are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. Today the pace of IoT market adoption is accelerating because of Growth in analytics and cloud computing and the proliferation of applications connecting supply chains, partners, and customers.

As prices of communication equipment and sensors continue to drop, organizations will be able to gather information from a wide range of devices. Devices will be able to send valuable information back to the seller or manufacturer. For example, a refrigerator may send a signal to the manufacturer indicating a detected malfunction. With this data, the manufacturer will be able to put measures to prevent the problem in other products in line. In another example, an air conditioner may be able to detect when it needs maintenance and send a message to the manufacturer, who can then initiate remote maintenance service. As a result, the customer will be happier and the manufacturer can save on the cost of doing business.

Research firm IDC estimates that by 2020, 40% of all data will be machine-generated, with 20 to 50 billion devices fuelling that growth.

**Role of internet of things in ERP:**

With IoT, ERP, CRM and other systems used by organizations will be seamlessly interconnected across devices, things and people.

In manufacturing, the challenge is to get the data to trigger a replenishment. With IoT, by coupling sensors and similar devices to the Internet, it’s very easy for re-order points to be instantly transmitted to suppliers’ ERP and CRM systems efficiently, securely, and without human intervention.

IoT can help the businesses understand how do customers use their products, How extensively do they use them, When do they use them and Why do they use them. In an attempt to find answers, it’s easy to spend a small fortune on marketing surveys and customer focus groups.

Equipment at customer premises, for instance, can report back to ERP and CRM systems if consumables are running low, or if maintenance might be required. More extensive data can be linked to proactive maintenance or fault-finding programmes.

**Applications:**

Sensors deployed across the electricity grid can help utilities remotely monitor energy usage and adjust generation and distribution flows to account for peak times and downtimes. But applications are also being introduced in a number of other industries. Some insurance companies, for example, now offer plans that require drivers to install a sensor in their cars, allowing insurers to base premiums on actual driving behaviour rather than projections. And physicians can use the information collected from wireless sensors in their patients’ homes to improve their management of chronic diseases. Through continuous monitoring rather than periodic testing, physicians could reduce their treatment costs by between 10 and 20 percent.

**Case: London Underground**

The London Underground is a public prompt transit system helping a large part of Greater London and portions of the home counties of Buckinghamshire, Hertfordshire and Essex.

Being large in size, the repair and maintenance of the system is a very complex operation. In order to address this problem Transport for London teamed up with Microsoft, Telent and CGI to install network supported sensors in CCTV cameras, escalators, public announcement speakers, Air conditioning and subway tunnels. These sensors allowed the central system to manage, monitor and automate individual tasks. All the manual monitoring processes could be streamlined and the equipment degradation could be spotted in real time. The IoT enabled system promises to improve customer service by 30% and reduce cost by 30%.

**Benefits:**

1. Costs can be reduced through improved asset utilization, process efficiencies and productivity (Ex: smart meters that eliminate manual meter readings) and service improvements (Ex: remote monitoring of patients in clinical settings).
2. Organizations can use real-time operational insights to make smarter business decisions and reduce operating costs
3. They can use real-time data from sensors and actuators to monitor and improve process efficiency, reduce energy costs and minimize human intervention

**Challenges:**

1. Lack of standards and interoperable tech­nologies: The sheer number of vendors, tech­nologies and protocols used by each class of smart devices inhibits interoperability and makes it difficult for organizations to integrate applications and devices that use different network tech­nologies and operate on different networks.
2. Privacy and security concerns: Deriving value from IoT depends on the ability of organizations to collect, manage and mine data. Securing such data from unauthorized use and attacks will be a key concern. Simi­larly many users might not be aware of the types of personally identifiable data being collected, raising serious privacy concerns. Organizations also need to be concerned about hacking and other criminal abuse.
3. Organizational inability to manage IoT complexities: While IoT offers tremendous value, tapping into it will demand a whole new level of systems and capabilities that can harness the ecosystem and unlock value for organizations.

**Article:** SAP: 'Internet of Things' is Future of Information Management, Smart Cities

Machine to Machine (M2M) technologies across a vastly expanded internet are the next step in information and data management. To do this, the Web will become much more than the Web we are familiar with today, becoming what SAP describes as the 'Internet of Things'. This is a concept that envisages a world where machines, people, ERP and CRM are all tied up with information sources like social media, and the capabilities to analyze and use that data where it is needed. Enterprises which adopt M2M technologies benefited by greater insight into business, faster responses, increased efficiency and productivity and increased collaboration. The biggest problems faced are lack of expertise and absence of network infrastructure.

**Video**: https://www.youtube.com/watch?v=Q3ur8wzzhBU