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IOT Market Impacts of the Russia-Ukraine War

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ABSTRACT

A new paradigm called the Internet of Things (IoT) has transformed traditional living into a high-tech lifestyle. These changes brought about by IoT include smart cities, smart homes, pollution control, energy conservation, smart transportation, and smart industries. Many important research projects and investigations have been carried out in an effort to advance technology through IoT to fully realize the potential of IoT, there are still numerous obstacles and problems that must be resolved. These difficulties and problems must be taken into account from a variety of IoT perspectives, including applications, difficulties, enabling technologies, social and environmental implications, etc. This review article's crucial objective is to offer a thorough discussion from both a technological and sociological standpoint. Also, the article brings into light the existing literature and illustrated their contribution in different aspects of IoT. Moreover, the importance of big data and its analysis with respect to IoT has been discussed. This article would help the readers and researcher to understand the IoT and its applicability to the real world.

Keywords- Russia-Ukraine war, IoT, Echonomy, NATO

INTRODUCTION

The term Internet of Things (IoT) describes a network of physical and virtual devices that are able to communicate autonomously with each other using the Internet Protocol (IP). The physical devices are embedded with sensors, software and connectivity capabilities that enable them to collect and exchange data over the internet. Its scope encompasses a wide range of use cases from household objects to more complex industrial applications. IoT is progressively becoming an important aspect of our life that can be sensed everywhere around us. In whole, IoT is an innovation that puts together extensive variety of smart systems, frameworks and intelligent devices and sensors (Fig. 1). Moreover, it takes advantage of quantum and nanotechnology in terms of storage, sensing and processing speeds which were not conceivable beforehand. Extensive research studies have been done and available in terms of scientific articles, press reports both on internet and in the form of printed materials to illustrate the potential effectiveness and applicability of IoT transformations. It could be utilized as a preparatory work before making novel innovative business plans while considering the security, assurance and interoperability

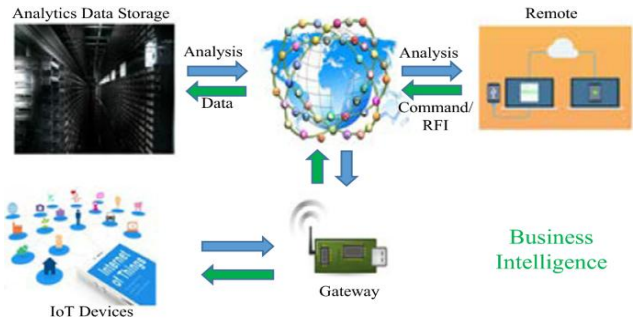

Fig no. 1 - Basic Model of IoT

A great transformation can be observed in our daily routine life along with the increasing involvement of IoT devices and technology. One such development of IoT is the concept of Smart Home Systems (SHS) and appliances that consist of internet based devices, automation system for homes and reliable energy management system [3]. Besides, another important achievement of IoT is Smart Health Sensing system (SHSS). SHSS incorporates small intelligent equipment and devices to support the health of the human being. These devices can be used both indoors and outdoors to check and monitor the different health issues and fitness level or the amount of calories burned in the fitness center etc. Also, it is being used to monitor the critical health conditions in the hospitals and trauma centers as well. Hence, it has changed the entire scenario of the medical domain by facilitating it with high technology and smart devices. Moreover, IoT developers and researchers are actively involved to uplift the life style of the disabled and senior age group people.

IoT has shown a drastic performance in this area and has provided a new direction for the normal life of such people.

IoT has also shown its importance and potential in the economic and industrial growth of a developing region. Also, in trade and stock exchange market, it is being considered as a revolutionary step. However, security of data and information is an important concern and highly desirable, which is a major challenging issue to deal. Internet being a largest source of security threats and cyber-attacks has opened the various doors for hackers and thus made the data and information insecure.

LITERATURE SURVEY

IoT has a multidisciplinary vision to provide its benefit to several domains such as environmental, industrial, public/private, medical, transportation etc. Different researchers have explained the IoT differently with respect to specific interests and aspects. The potential and power of IoT can be seen in several application domains. Figure 2 illustrates few of the application domains of IoTs potentials.

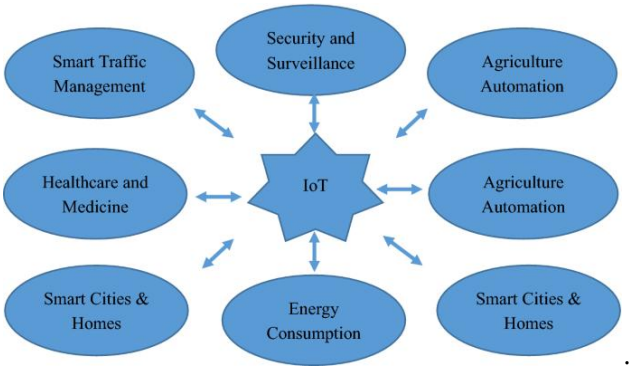

Fig no. 2: Some of the potential application domains of IoT

Various important IoT projects have taken charge over the market in last few years.

Modeling Approach/ Market Size

The market size is determined through a combination of top-down and bottom-up approaches. We use annual financial reports of the market-leading companies and industry associations, as well as third-party studies and reports to analyze the markets. To estimate the segment size for each country individually, we use relevant key market indicators and data from country-specific industry associations, such as consumer spending, internet penetration, 4G coverage, and current and historical developments. This data helps us estimate the market size for each country individually.

Forecasts

In our forecasts, we apply diverse forecasting techniques but primarily exponential smoothing. The selection of forecasting techniques is based on the behavior of the relevant market. The main drivers are the GDP and the level of digitization

RESULT

The Internet of Things is one of the technologies driving Industry 4.0 and it's not a surprise that the market is seeing a CAGR of over 16% over a 10-year-period (2018-2028) show in (fig 3.1). Even as the global semiconductor shortage has slowed down in (fig 3.2) the market supply and growth from the pre-pandemic levels, the demand for smart solutions ranging from industrial to security use cases is still on the rise. With revenues of more than US$141 billion in 2022, the U.S. is the market leader, followed by China, which is the leading manufacturer of IoT devices shown in (fig 3.3).

The Internet of Things market growth coincides with the development of other important technologies, such as 5G and cloud computing. The deployment of 5G communication standards paves the way for a faster and smoother connection among smart devices.

Moreover, cyber security remains a big challenge, which can have significant effects both on personal and professional levels. As more data is collected and transmitted from one device to another and stored in the cloud, the challenge of securing the data and assuring privacy is more present than ever.

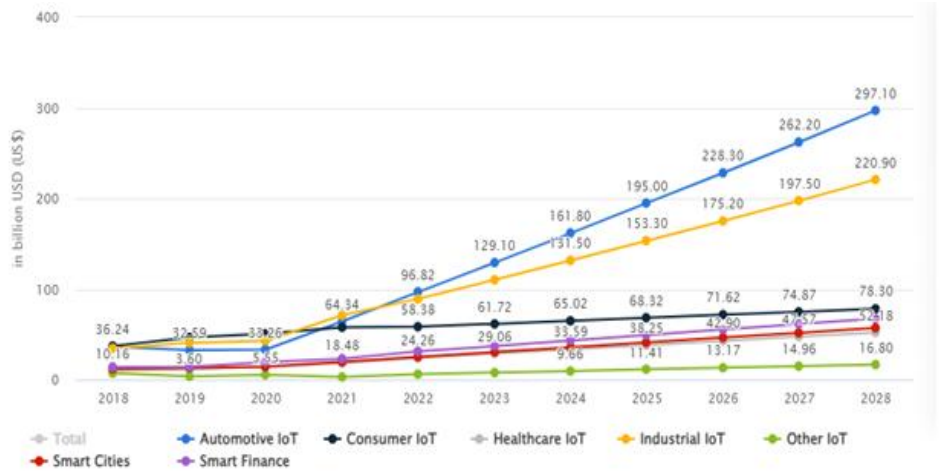

Fig No. 3.1 : Data Shown is Using Current Exchange Rates and Reflects Market Impacts of the Russia-Ukraine War

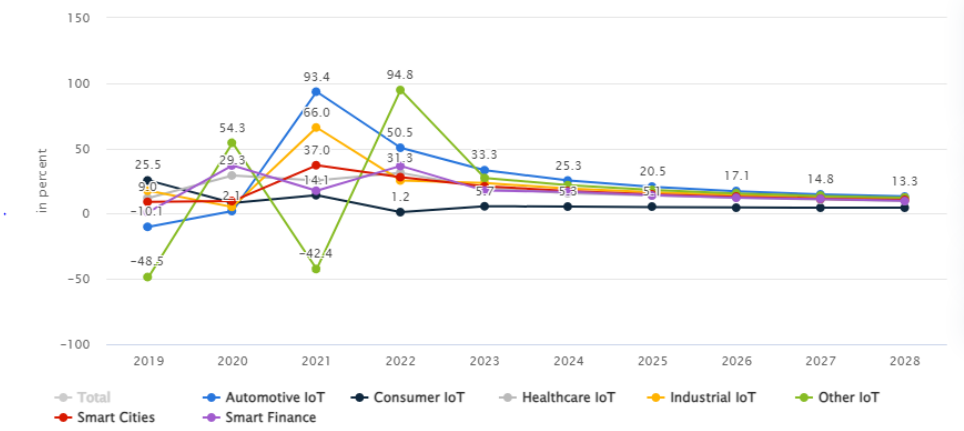

Fig No. 3.2: Data Shown Is Using Current Exchange Rates and Reflects Market Impacts of the Russia-Ukraine War

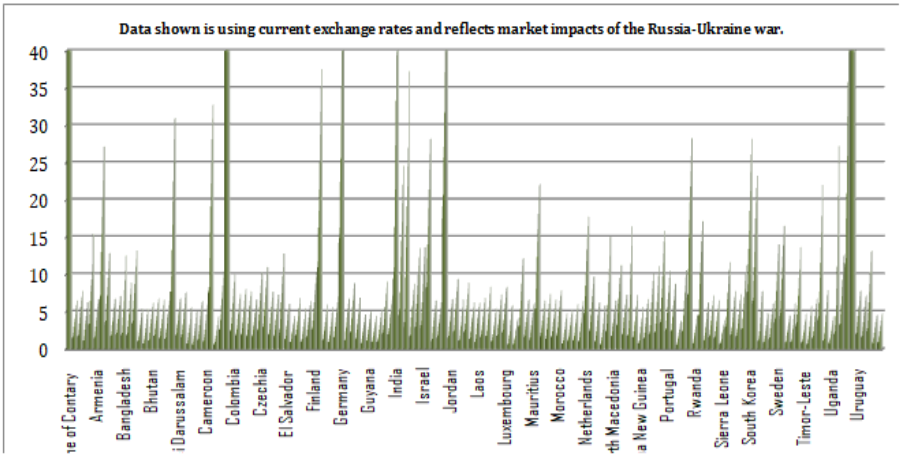

Fig No. 3.3: Data Shown Is Using Current Exchange Rates and Reflects Market Impacts of the Russia-Ukraine War

CONCLSION

In this survey article, we presented the result which is given below:

- Revenue in the IoT market is projected to reach US$405.40bn in 2023.
- The largest market within IoT is Automotive IoT with a projected market volume of US$129.10bn in 2023.
- Revenue is expected to show an annual growth rate (CAGR 2023-2028) of 14.27%, resulting in a market volume of US$790.00bn by 2028.
- In global comparison, most revenue will be generated in the United States (US$172.30bn in 2023).

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