Shri Sant Gajanan Maharaj
College Of Engineering, Shegaon

IEEE
SSGMCE Students' Branch

HORIZON

VOLUME: XVI: ISSUE: 16 JANUARY 2020

By IEEE STUDENTS' BRANCH SSGMCE

https://edu.ieee.org/in-ssgmce/

IEEE Students' Branch

SHRI SANT GAJANAN MAHARAJ COLLEGE OF ENGINEERING, SHEGAON

STB 61661 WEB: http://ewh.ieee.org/sb/bombay/ssgmcecom EMAIL: ieee@ssgmce.ac.in

IEEE Officer's Team for year 2020-21

IEEE Management Team

Chairperson	:	Miss. Harshada Saraf (4U1)
Vice-Chairperson (Internal Affairs)	:	Mr. Yash Dalal (4S)*
Secretary	:	Mr. Vinayak Gawande (4S)*
Joint Secretary	:	Mr. Ashutosh Bhelonde (3U1)
Treasurer	:	Mr. Atharva Farkade (3U1)
Webmaster	:	Mr. Yash Kulthe (3U1)

IEEE Women in Engineering Affinity Group

Chairperson : Miss. Rutuja Kaikade (4U1)

Vice-Chairperson : Miss. Sakshi Arewar (4U2)

Secretary : Miss. Gauri Panpaliya (3N)

Joint Secretary : Miss. Gargi Tela (3R)

Technical Team:

Lead: Mr. Vedant Khandokar (3U1)

Mr. Vijay Saiwal (3U1)

Miss. Aakanksha Darvankar (3U1)

Miss. Arati Wadhe (3N)*

Event Management Team:

Lead: Mr. Prajwal Vijaykar (3N)

Mr. Ayush Sharma (3U1)

Miss. Payal Rathi (3U2)

Miss. Radhika Deshmukh (3R)

Membership Development Team

M.D. Officer : Mr. Prathamesh Edne (4U1)

: Miss. Varda Deshmukh (3U2)

: Mr. Bhushan Hajare (2U1)

Note: Team will be revised on 1st Sept 2020, once new members join IEEE.

**Subject to Renewal of IEEE Student Membership*

RISING AGE OF ARTIFICAL INTELLIGENCE

During the last three years, the rise of AI has been truly astounding. From highly sophisticated robots and driverless cars, to a wide range of “under the bonnet” techniques that use AI, the market in AI is predicted to explode. According to a new report from market research firm Tractica [1], it is likely to grow from $643.7 million at the present time, to $36 billion by 2025. This represents a 57-fold increase over that time period. Yet, this is only the beginning. Many people associate AI with robotics, but the applications and usage of AI is becoming vast. In this paper, I will briefly examine how AI is likely to impact on our lives in the future.

In the short term – the next 5-15 years –AI and robotics are likely to transform the workplace, making huge numbers of human jobs redundant. Robots don’t get paid, don’t get tired, and don’t demand better working conditions. This means that there are millions of robots likely to take the place of factory workers in the future. For example, Foxconn [5], a company that assembles Apple iPhone parts, is replacing 60,000 workers with robots. These are very different to the dumb robots that have been used in car plants to perform repetitive single task activities. They are more mobile, flexible, and capable of more general multiple tasking. They will also rapidly improve in the next decade. These changes will hit millions of workers very hard with some analysts forecasting 30% job losses in the UK alone over the next 15 years [6] . Of course, there will be jobs created but it will still lead to massive disruption because businesses will always seek efficient ways of working. The huge sums of money now spent on AI investment and research make this outcome inevitable – politicians will come under much pressure to find ways to mitigate these effects before it happens.

One possible suggestion, according to some, is that AI is going to generate massive wealth, so the tax receipts could be used to create a “universal income” for all citizens of working age. This could be substantial if the returns on AI automation are delivered.

In the medium term, we will have to get used to machines playing a much greater part in our lives through sharing the roads with driverless cars until the day comes when human drivers are an extinct species. There will also be robots, seemingly ubiquitous, performing all sorts of general tasks reliably. Human-AI relationships will develop as simulated personalities become more convincing and intelligent devices communicate with us in natural language similar to conversing with humans. There will inevitably, be many other examples of advanced AI that will become commonplace because machine intelligence algorithms will find uses in many applications.

In the U.S., where the term Artificial Intelligence was coined, and which has been a pioneer in the field since its inception in the 1950s, the Obama Administration led an inter-agency initiative last year on “Preparing for the Future of Artificial Intelligence.”20 This high-level initiative culminated with the release of a “National Research & Development Artificial Intelligence Strategic Plan,”21 as well as two reports.22 Historically, the U.S. Defense Advanced Research Project Agency (DARPA), and more recently the Intelligence Advance Research Projects Activity (IARPA), have provided long-term high-risk investment in AI, playing an instrumental role in most AI techno-scientific breakthroughs.Last year, the U.S. Department of Defense (DoD) unveiled its “Third Offset” strategy23 with a total five-year investment of $18 billion24. To maintain technological dominance, this macro-strategy plans on bringing AI and autonomous systems to the forefront of all U.S.

National governments have historically played, and will continue to play, a key role in spurring the rise of AI through the allocation of higher education, research & development budgets for defense, security, healthcare, science and technology (e.g. computer sciences, neuroscience, ICT), infrastructure (especially transport, energy, healthcare, and finance), and pro-innovation policies. AI is increasingly perceived as a source of technological dominance in the information age where cyber and physical worlds merge as hybrids, so more and more countries have or are in the process of releasing national strategies for AI.

The use of AI in robotics represents a small percentage of AI use today. However, robotics is a growing field and robots will increasingly play a role in our lives. In many cases, a robot simply provides the physical body for the type of AI systems explored in this report. However, this physicality, and the context in which AI-powered robots are used, may raise new challenges.

CLOUD INDUSTRY

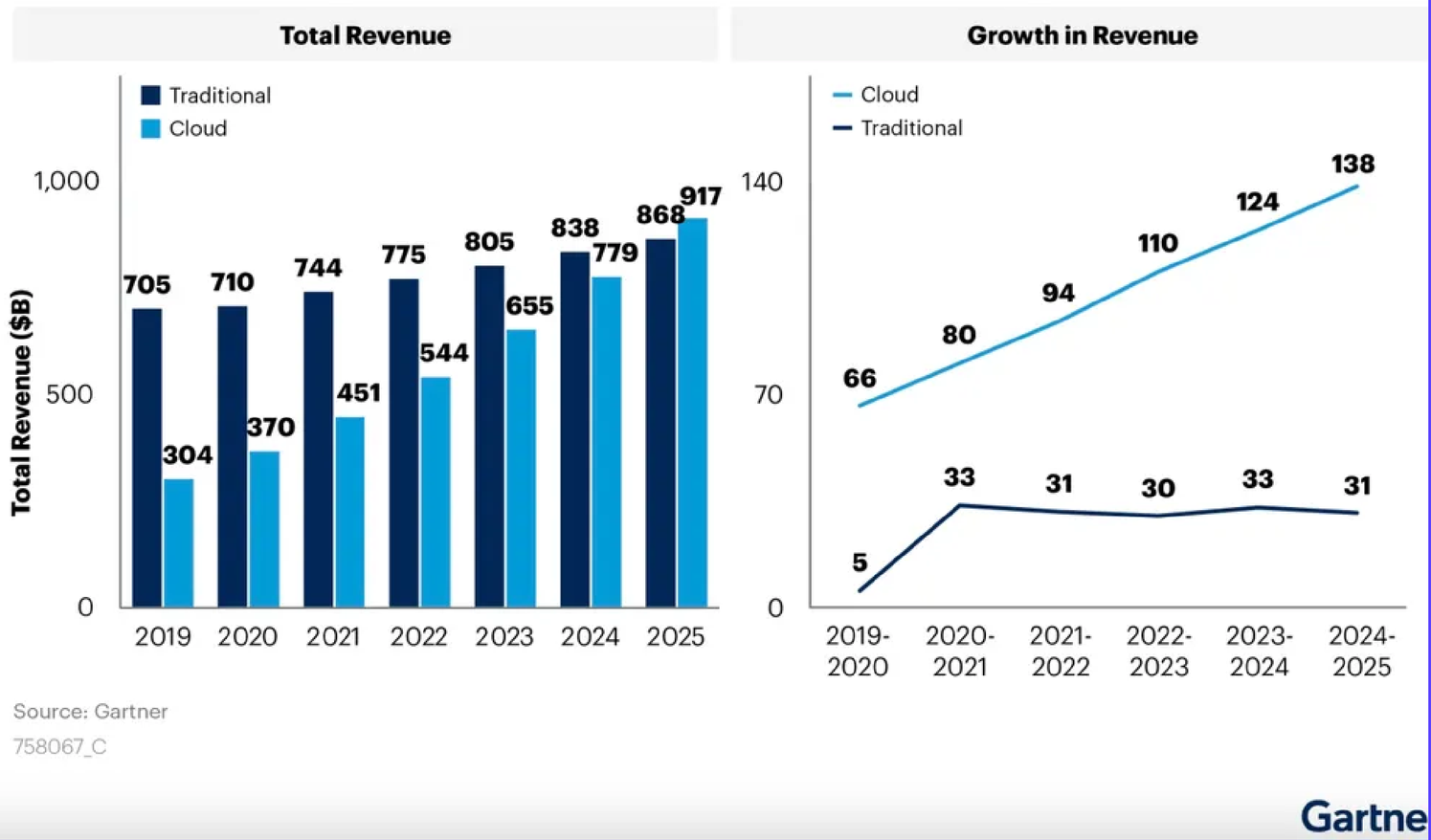
Cloud computing relies heavily on virtualization and automation technologies. Virtualization enables the easy abstraction and provisioning of services and underlying cloud systems into logical entities that users can request and utilize. Automation and accompanying orchestration capabilities provide users with a high degree of self-service to provision resources, connect services and deploy workloads without direct intervention from the cloud provider's IT staff.

Cloud computing has been around for several decades now, and today's cloud computing infrastructure demonstrates an array of characteristics that have brought meaningful benefits for businesses of all sizes.

Building the infrastructure to support cloud computing now accounts for a significant chunk of all IT spending, while spending on traditional, in-house IT slides as computing workloads continue to move to the cloud, whether that is public cloud services offered by vendors or private clouds built by enterprises themselves. .

much as half of spending across application software, infrastructure software, business process services and system infrastructure markets will have shifted to the cloud by 2025, up from 41% in 2022. It estimates that almost two-thirds of spending on application software will be via cloud computing, up from 57.7% in 2022.

Figure 1: Sizing Cloud Shift, Worldwide, 2019 – 2025

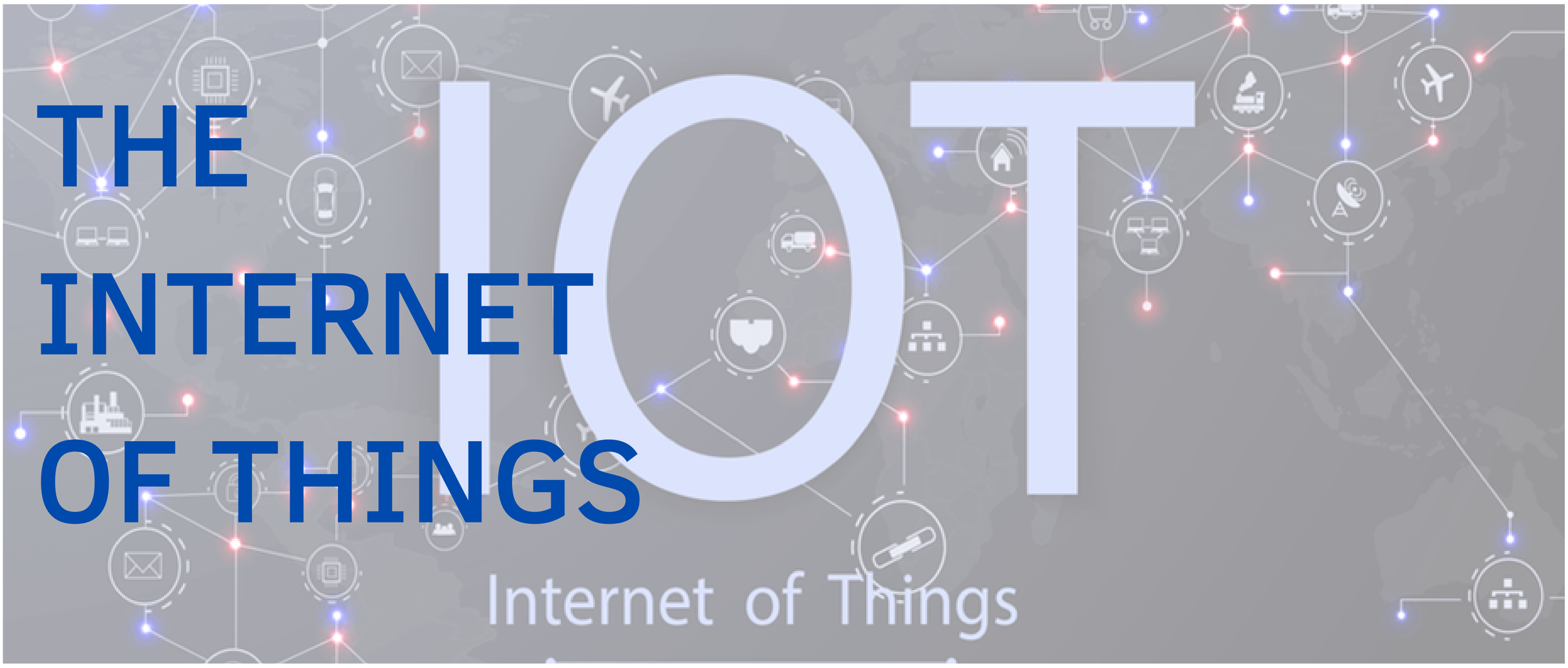


Characteristics and advantages of cloud computing

- Self-service provisioning.
- Workload resilience.
- Migration flexibility.
- Broad network access.
- Multi-tenancy and resource pooling.
- Pay per use.
- Elasticity
- IT governance.

Cloud computing is not necessarily cheaper than other forms of computing, just as renting is not always cheaper than buying in the long term. If an application has a regular and predictable requirement for computing services it may be more economical to provide that service in-house. Some companies may be reluctant to host sensitive data in a service that is also used by rivals. Moving to a SaaS application may also mean you are using the same application as a rival, .

migrating existing data or apps to the cloud might be much more complicated and expensive. And it seems there is now something of a shortage in cloud skills, with staff with DevOps and multi-cloud monitoring and management knowledge in particularly short supply. In one report, a significant proportion of experienced cloud users said they thought upfront migration costs ultimately outweigh the long-term savings created by IaaS. .



THE INTERNET OF THINGS

The Internet of Things or IoT is the extension of the power and interconnectivity of the internet between physical objects or "things” in order to receive and transmit data.

In other words, it is the network of devices such as smartphones, computers, smart thermostats, security systems all the way to your google home mini. As more devices become available to the market, the list of devices that are included in the IoT is always growing.

It’s a concept that impacts the way we live every single day. As The connection to the internet becomes more vital every day, it’s important to understand the IoT as it is the system that heavily impacts our lives.

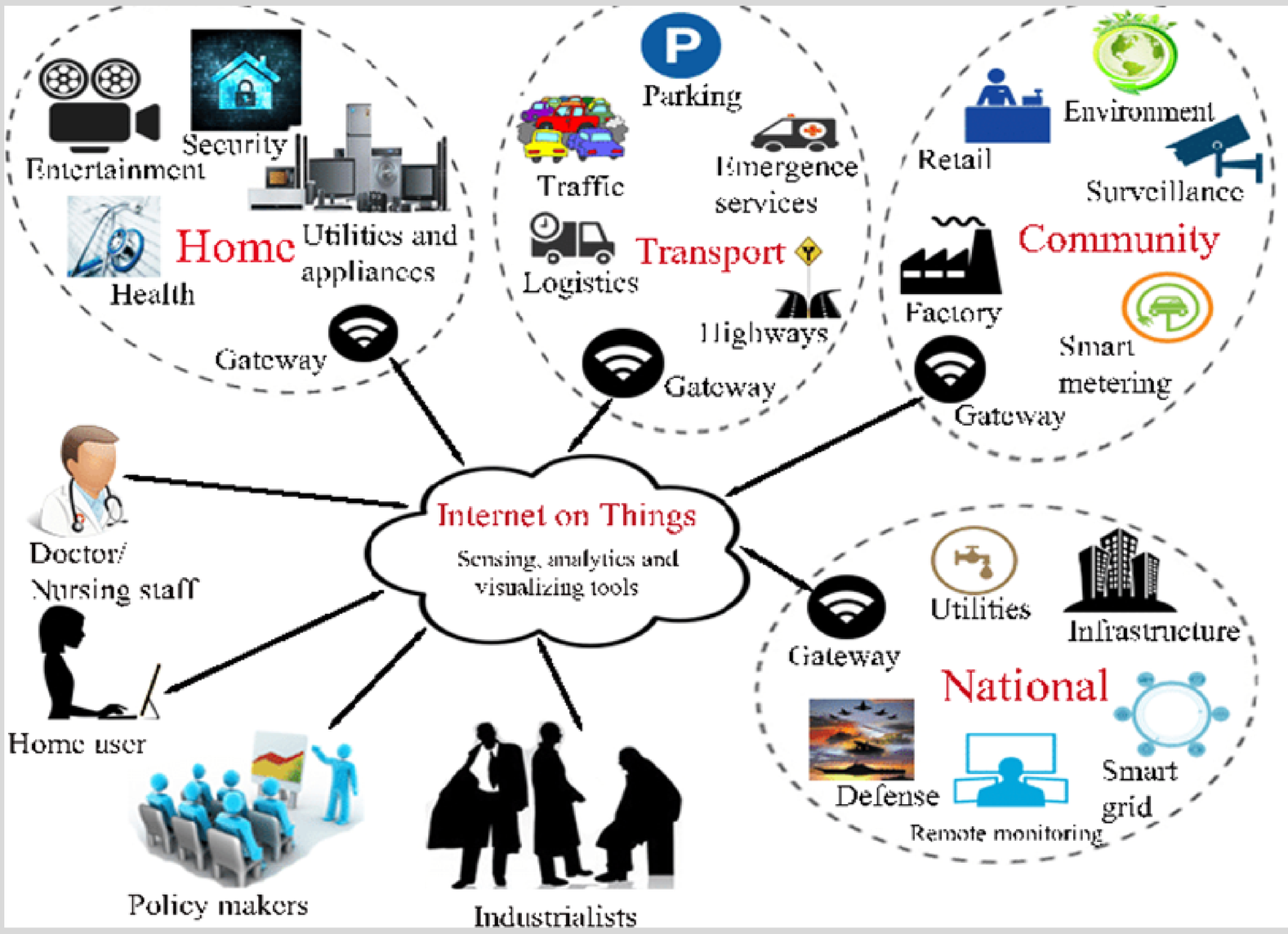
The very beginning of the IoT started out with the addition of sensors and intelligence to basic objects. This discussion began throughout the 1980s to 1990s. The earliest stages of this may have begun previous to these years as the first electric telegraphs were developed in the late 1830s. Radio voice transmitters, wireless technologies.

IOT IS INCREDIBLY IMPORTANT FOR BUSINESSES AS IT PROVIDES

- DATA TO IMPROVE SYSTEMS
- INFORMATION TO IMPROVE WORKFLOW
- GIVES TEAMS INSIGHT ON PROCESSES SUCH AS MACHINE PERFORMANCE TO DATA COLLEC TION
- EASY TRANSFERS BETWEEN DIFFERENT DEVICES
- ABILITY TO RECOGNIZE PATTERNS AND PROBLEMS

The very beginning of the IoT started out with the addition of sensors and intelligence to basic objects. This discussion began throughout the 1980s to 1990s. The earliest stages of this may have begun previous to these years as the first electric telegraphs were developed in the late 1830s. Radio voice transmitters, wireless technologies, and other data acquisition software helped feed into the idea of a network of connected devices. In 1982, a modified Coke machine was created at Carnegie Mellon University as the first “smart appliance”.

Different styles of processors that were available during that time were cheap to make and cheap to harness the power and were constantly being disposed of. The development of RFID tags and IPv6 were necessary steps towards the overall development of the IoT. The term “Internet of Things” was coined in 1999 by British technologist Kevin Ashton. He was a founder of the Auto-ID Center at MIT. However, at the time, devices were still not up to the standard of this network vision and did not come to be until about a decade later. Using local ethernet, students at the university could view drinks that were stocked in the machine and see if they were cold or not.



IoT can help companies automate certain processes which can ultimately reduce labor costs, reduce waste, and improve deliverables. Tasks that don't require a physical person but can be done without as many extra expenses through an IoT solution can benefit a company greatly. These deliverables can range from information and data internally as well as provide transparent visibility into the distribution of products to consumers. As companies continue to grow their network and business.

since they provide such major benefits to companies and can keep businesses competitive in their marketplace.By establishing a base IoT and growing from there, companies set up a base of devices that help improve processes and data information transfers. Manufacturing businesses gain a huge competitive edge by using IoT solutions that help streamline product line monitoring. This can aid in the detection of machine failure so that it can be avoided or at least prepared for. Automotive industries can utilize IoT solutions to greatly improve their business.

In addition to similar sensors and tracking like manufacturing companies, the automotive industry can benefit in the detection of the failure of vehicles that have already been produced. Logistics and transportation systems benefit from the variety of IoT. As many vehicles are traveling carrying inventory, sensors can help monitor their activity and the variance of transportation with vehicles can hinder a company when they are not using IoT.

Smart devices, augmented reality, virtual reality, automated machines, and wearable tech to name a few are becoming more widely available to the public. More devices are being supported as solutions for many scenarios, which makes the possibilities of their support endless.

Referred from:

www.bbvaopenmind.com

www.techtarget.com

www.thedailyplaniot.com

www.internetofthingsagenda-techtarget.com