



Editor's Point of View...

There is no denying that in the modern world, we are quite spoilt when it comes to technology. Many of us will even admit that it is something we simply can't live without now.

From speedy access to the internet on-the-go to the ability to instantly get in touch with almost anyone in the world by dialling just a few digits; recent technological developments have changed the way we live our lives.

However, has digital technology changed the way we live completely for the better or is there a downside to having almost everything at our fingertips? ***What's more – is it changing the way we live, think about and see the world?***

In the modern world, you cannot walk down the street, sit on a train or even eat at a restaurant without being surrounded by people with their eyes fixed on their smart phones, tablets and laptops. This isn't surprising as according to recent figures, global active internet users now total 3.175 billion. What's more, mobile users constitute half of the world population, with a huge two million smart phones being sold worldwide every single day.

Of course, our phones are now a far cry from what they used to be. We're now able to do more than just make a phone call. We check our emails, order our weekly food shopping, take photographs, listen to music, watch hours of videos; the list is endless!

As a user of digital platforms and a professional in the communications field, I see how quickly and effectively technology has opened doors, connected people from remote communities with the same interests, and provided new opportunities to women, vulnerable groups and especially to young people.

Technology has helped immensely to boost access to large amounts of information and has supported changes that have transformed our lives forever. The innovative potential of young people, combined with the power of technology, is already proving to be a powerful force on the road to achieving the Sustainable Development Goals.

Today, youth actively contribute to the creation of new jobs, economic empowerment of vulnerable groups, the promotion of better health systems and access to inclusive and quality education.

The business world is showing an increasing interest in the people side of change, and there is a very real reason for this companies are spending an increasing amount of their budget on technology and working to transform their operations to be more digital in order to provide a better experience for customers, employees, partners and suppliers while simultaneously creating a more efficient and effective business.

Regards,
Sohan Khemka

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EDGE COMPUTING



We are firmly in the cloud computing era, but more is being pushed to the “edge.” Those unfamiliar with the technical language of computer technology may be wondering what is edge computing and how is it reshaping data and networks. In this article, we’ll explain the next trend in big data and tell you what edge computing is.

Like the metaphorical cloud and the Internet of Things, the edge is a buzzword meaning everything and nothing. Over the years, we’ve seen paradigm shifts in computing workloads, going from data centres to the cloud and from the cloud to the logical edge of networks.

At its simplest, that’s what edge computing is: the processing and analysing of data along a network edge, closest to the point of its collection, so that data becomes actionable.

What Is Edge Computing?



Edge Computing is the practice of processing data near the edge of your network, where the data is being generated, instead of in a centralised data-processing warehouse.

Edge Computing isn’t a new concept, but the trends of cloud computing and machine learning have helped propel it. Edge computing is a form of distributed computing, which dates back to the 1960s. Distributed computing covers a broad range of technologies, but its earliest success stories could be considered local area networks and the first internet, ARPANET.

The Edge Computing we know today dates back to the late 1990s, when Akamai launched its content delivery network aimed at resolving web congestion. Akamai, like Cloudflare, operates an edge network with edge servers to deliver content closer to the source of the request.

Edge Computing is still considered a new paradigm, despite its history. That said, it continues to address the same problem: proximity. Moving the computer workload closer to the consumer reduces latency, bandwidth and overhead for the centralized data center, which is why it is a growing trend in big data.

Benefits of Edge Computing

By solving the proximity problem, you solve the latency problem. The on-device processing approach ensures that only non-critical data is sent over the network and that critical data can be acted upon immediately. That is important for latency-sensitive applications, such as autonomous vehicles, where having to wait milliseconds may be untenable.

The decentralized approach of edge computing also decreases bandwidth. Data processing starts at the point of collection and only the data that needs to be stored is sent to the cloud. That makes edge computing more efficient and scalable and reduces network load.



For instance, if you have multiple security cameras sending 1080p video over the cloud, that becomes a bandwidth problem. It's impractical and cost prohibitive.

Outage reduction and intermittent connectivity are also improved with edge computing because it doesn't solely rely on the cloud for processing. This can aid in avoiding server downtime, ensuring reliable operations in remote locations and avoiding unplanned downtime.

Theoretically, there is an additional layer of security with edge computing, too, because much of the data from IoT devices doesn't traverse the network. Instead, it stays at its point of creation. Less data in the cloud means there is less data to be in a breach or leak.

That said, there is concern about edge devices themselves being vulnerable. There is a history of less-than-secure IoT devices, and that says nothing of potential privacy concerns. Many consider such devices little more than expensive wire taps.

Real-time or near real-time data analysis as the data is analysed at the local device level, not in a distant data center or cloud;

Lower operating costs due to the smaller operational and data management expenses of local devices vs. clouds and data center;

Reduced network traffic because less data is transmitted from local devices via a network to a data center or cloud, thereby reducing network traffic bottlenecks;

Improved application performance as apps that don't tolerate latency can achieve lower latency levels on the edge, as opposed to a faraway cloud or data center.

Thanks to these advantages, many experts expect edge computing to become a mainstream technology during the next five to 10 years.

Examples of Edge Computing



CLOUDFLARE®

Edge computing has emerged with the proliferation of IoT devices and has been deployed in different circumstances. The network edge depends on use case. It could be a cell tower, a smartphone, an IoT device or a self-driving car.

If it helps, you could think of it as a baseball field. At the pitcher's mound is the centralized cloud and, farther out, in the outfield, is where the "edge" resides. Along that edge are edge devices. In between, there may be edge servers, edge gateways or micro data centres that help facilitate local processing and reduce round trip data times to the cloud.

Autonomous vehicles may be the best example of why edge computing is important. Self-driving cars are replete with hundreds of sensors collecting data and, for processes such as collision detection, the vehicle can't wait seconds for cloud processing. It has to be able to process that data instantly and make a decision.

What's more, industry giants, such as Intel, estimate that self-driving cars will produce 40TB of data a day by 2020. Toyota predicts that the car-to-cloud data stream will reach 10 Exabyte's per month by 2025. All that data being beamed to the cloud is expensive and unnecessary, not to mention unsustainable by current networks.

Trends in Digital Technology Platform



The world is moving faster, so as our technology. Gone are the days when the organizations relied heavily on the traditional way of doing business where things were moving at slow paced. Then the world of digital technology comes into the picture that gave the much-required wings to the business to expedite the overall process. These days, we are talking about Cloud Computing, Artificial Intelligence, Machine Learning and many more advanced technologies that taking our business to a new height.

We have moved from the boring trunk calls to the latest mobile technology which does not only allow us to make instant calls from any place at any time but also we can see each other with video calls, making the world so small in its true sense.

The social media platforms are another evidence of our progress in the world of digital technology. Imagine how it is possible to send, share the messages, pictures, and videos to our friends and family in no time just by clicking few buttons.

Let's see some of the examples of digital technology platforms that are helping in the growth of our business.

What's Trending on Digital Technology Platforms?

Leaders in the industries are now realizing the power of digital technology platforms. **The organizations like Google, Amazon, and others few are known this power much before.** That is the reason their business model mostly relied on

Platform-based services. According to a report from Accenture, 81% of executives say platform-based business models will be core to their growth strategy within three years.

Let's talk about some of the incredible digital technology platforms which are trending currently and have the potential to grow your business in the upcoming years.

Artificial Intelligence



Artificial Intelligence is the revolutionary function of the computer system with human intelligence to make computers performs the tasks which normally require human intelligence like speech recognition, decision-making and visual perception using the reasoning, learning, and problem-solving abilities.

Organizations are widely using this break-through technology in various fields such as making intelligent robots, handwriting recognition, diagnose the patient, speech recognition, strategic games etc. Companies like Google and Apple are working a step further to develop driverless car and personal assistant application Siri respectively.

Machine Learning

Machine learning is the competency of the software to perform a single or series of tasks intelligently without being programmed for those activities. Organizations are looking forward to

5G Technology

Radio technologies have evidenced a rapid and multidirectional evolution with the launch of the analogue cellular systems in 1980s. Thereafter, digital wireless communication systems are consistently on a mission to fulfil the growing need of human beings (1G...4G, or now 5G). So, this article describes the 5G technology emphasizing on its salient features, technological design (architecture), advantages, shortcomings, challenges, and future scope.



What is 5G – Technology??

If we look back, we will find that every next decade, one generation is advancing in the field of mobile technology. Starting from the First Generation (1G) in 1980s, Second Generation (2G) in 1990s, Third Generation (3G) in 2000s, Fourth Generation (4G) in 2010s, and now Fifth Generation (5G), we are advancing towards more and more sophisticated and smarter technology.



The 5G technology is expected to provide a new (much wider than the previous one) frequency bands along with the wider spectral bandwidth per frequency channel. As of now, the predecessors (generations) mobile technologies have evidenced substantial increase in peak bitrate. Then — how is 5G different from the previous one (especially 4G)? The answer is — it is not only the increase in bitrate made 5G distinct from the 4G, but rather 5G is also advanced in terms of –

- High increased peak bit rate
- Larger data volume per unit area (i.e. high system spectral efficiency)
- High capacity to allow more devices connectivity concurrently and instantaneously
- Lower battery consumption
- Better connectivity irrespective of the geographic region, in which you are
- Larger number of supporting devices
- Lower cost of infrastructural development
- Higher reliability of the communications

As researchers say, with the wide range of bandwidth radio channels, it is able to support the speed up to 10 Gbps, the 5G Wi-Fi technology will offer contiguous and consistent coverage – “wider area mobility in true sense.”

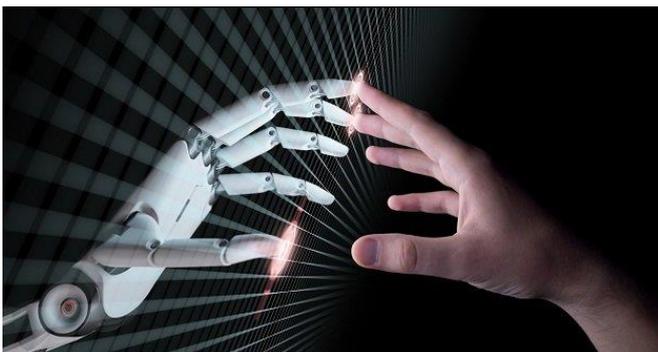
5G - Challenges

Challenges are the inherent part of the new development; so, like all technologies, 5G has also big challenges to deal with. As we see past i.e. development of radio technology, we find very fast growth. Starting from 1G to 5G, the journey is merely of about 40 years old (Considering 1G in 1980s and 5G in 2020s). However, in this journey, the common challenges that we observed are lack of infrastructure, research methodology and cost.

The Digital Twin Technology

The Digital Twin Technology

The Digital Twin Technology is one among the top 10 strategic technology trends named by Gartner Inc. in 2017. Digital Twin concept represents the convergence of the physical and the virtual world where every industrial product will get a dynamic digital representation. Throughout the product development life cycle, right from the design phase to the deployment phase, organizations can have a complete digital foot print of their products. These 'connected digital things' generate data in real time, and this helps businesses in better analyse and predict the problems in advance or give early warnings, prevent downtime, develop new opportunities and even plan better products for the future at lower costs by using simulations.



How Do Digital Twins Work?

Digital Twins, the virtual counterparts of the physical assets are created as digitalized duplicates of machines/ equipment or physical sites using sensors. These digital assets can be created even before an asset is built physically. To create a digital twin of any physical asset, the engineers collect and synthesize data from various sources including physical data, manufacturing data, operational data and insights from analytics software.

Applications of Digital Twins

Digital Twin concept is the next big thing in most of the business sectors, which helps in accurately predicting the current state and future of physical

Assets by analysing their digital counter parts.

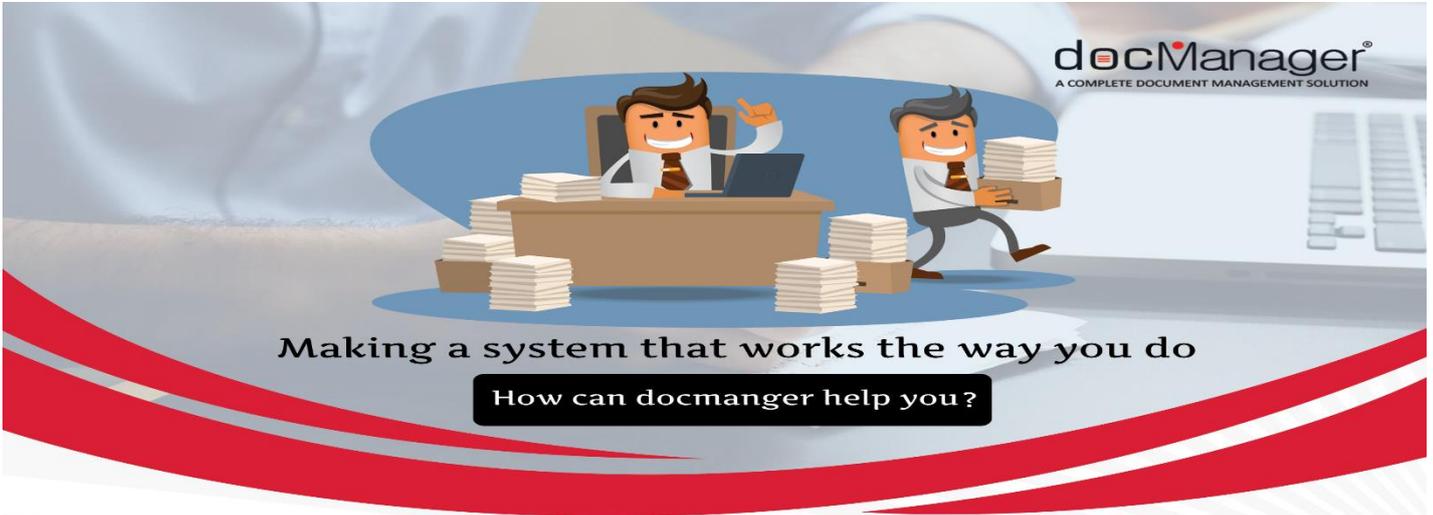


We have started seeing the major applications of Digital Twins in the following sectors.

- Manufacturing:** Digital Twin is poised to change the current face of manufacturing sector. Digital Twins have a significant impact on the way products are designed manufactured and maintained. It makes manufacturing more efficient and optimized while reducing the throughput times.
- Automobile:** Digital Twins can be used in the automobile sector for creating the virtual model of a connected vehicle. It captures the behavioural and operational data of the vehicle and helps in analysing the overall vehicle performance as well as the connected features. It also helps in delivering a truly personalized/ customized service for the customers.
- Retail:** Appealing customer experience is key in the retail sector. Digital twin implementation can play a key role in augmenting the retail customer experience by creating virtual twins for customers and modelling fashions for them on it. Digital Twins also helps in better in store planning, security implementation and energy management in an optimized manner.

**Title Verification Code: GUJENG16187
Issued by Registrar of the Newspaper
for India, New Delhi**

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