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Research Paper

Digital innovation and transformation

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ABSTRACT

Digitalization is the process for change in business strategies to provide and to fulfill better outcomes with the help of advanced digital technologies. Digital transformation is to create a new or improve the existing business to meet the goal of customers. This digital innovation has affected each area of business for example from healthcare or stock marketing. Due to easy accessibility and 24 X 7 availability, it is more accepted and popular among all sectors. Classical example for digital innovation in healthcare sector is wearable healthcare devices. Patients are more aware of their own readings and want it to record it for their own safety. Earlier the patient is used to visit at clinic and get it checked once a year or whenever something went wrong. But because of the easy technology access, it's easy to get information on online. And because of this patient becoming more aware and health cautious too. Latest example is pandemic covid19. Before this device pulse oximeter was not known in publicly, but now every home has one pulse oximeter. Other fields are banks, stock marketing, and industries. Banks are now adopted systems such as OTP (One Time Password), blockchain, UPI (Unified Payment Interface), because of which all transactions are easy, hassle free, and quicker, transparent as compared to traditional methods of visiting banks and doing all paperwork. So, this is digital innovation, and this is transforming the world towards new era. Artificial Intelligence is also now a days helping many sectors like health care systems. Likewise artificial intelligence early diagnosis is possible and bad prognosis is prevented. Now this artificial intelligence is also one of the examples of digital innovation and transformation of world towards the betterment. Revolutionary changes are happening due to innovations of various technologies. All these technologies are helping to improve business or industry or organization in every aspect.

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1. INTRODUCTION

Almost all sectors of business, company, industries have reached to the new face of marketing strategies that is digitalization. This new generation and entrepreneurs prefer digital technologies just in hope of more profit. Not only for profit but for it's also giving more availability and more scope to spread business at geographically long distance. To develop strong market position and to pick up rapid pace we must take help of digital technologies. In this last decade, this new concept of digitalization has grown up very fast. Previously it was time consuming, and pace of work was slow [1].

The term digital transformation is usually confused with two similar concepts that is digitization and digitalization. In simple terms digitization is the method of transforming information from analog or manual form into digital form- let us take an example of any field, hand written record are converted into computerized records [2].

By smart application of digital technology, many of the things can be done regularly. This application gives more improved outcomes. Digitalization is main base for digital transformation. The technology digital transformation makes it possible to imagine how you use your technology, people and process to move business forward in next successful step. In today's world digital transformation is nothing but conversion of manual record to analog with digitalized process in every aspect of business including supply chain, ERP, customer service and many more [3].

The reason for digital transformation for each company or business is different. Some of them want to fulfill the requirement of customers, some of them are behind the huge profit, or some are doing to it for giving the global platform for their business. Though there will be any reason, but result is superior, customer satisfaction survey is high. Greater is capability higher will be profit and innovation.

The whole concept of digital transformation includes a large variation of technologies. So the success of the business is totally depending upon the right application of the right technology which will give the desired outcome.

Similarly, one more new concept is taking very fast pace that is artificial intelligence. In healthcare sector, artificial intelligence has huge potential. Smart devices are much more useful for monitoring the patients in ICU or anywhere. With the help of artificial intelligence, we can sense early signs of development of complication and thus reducing bad prognosis. Cognitive burdens for every physician can be reduced up to some extent by introducing smart devices. Thus, it ensures patients too and they will get better treatment on base of early diagnosis.

Patients can monitor the health by wearable devices. For example, with the help of smart watches or smart phones patient can keep watch on steps or oxygen saturation or even blood pressure [4].

Likewise, the impact of digitalization is also seen on financial market. Some of online discount brokerage firm are having aim at making financial trading hassle free. Before the concept of digitalization people has to login and it was poor usability. Now a days such apps are available that they are pleasant and user friendly, they are more appreciated. Such type of apps are helping to increase stock marketing business and hassle free money transfer. Other usefulness is that the huge data which use to take several hours to complete all formalities now done with in some minutes. All this is possible only because of digital innovation and hi tech machines or app.

In the fields of Engineering, digitalization transformed these sectors to higher levels of success. There are many advantages of smart industries too like increased productivity of companies or industries, reduced manpower, reduced machine maintenance cost, reduced defects or technical errors and man made errors etc [5].

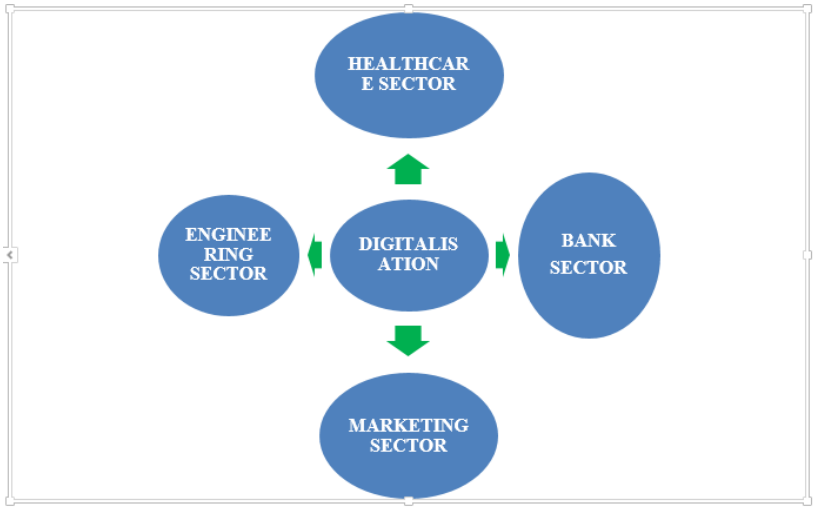

Figure 1. Digitalization in Different Sectors

1.1 Brief History of Concept of Digital Technology

Digital transformation is very fascinating and attractive terminology for this modern age. But actually, where it originated? The concept of digital who invented is very interesting history.

An American mathematician and engineer in 1948, Dr. Claude Shannon published an article "A Mathematical Theory of Communication", which is base for innovation of concept of internet, which we are using, in our day-to-day life. But that is not the end, some years later there was further piece of invention. The invention of microchip and semiconductor transistor in late 1950's, which is still now a days used, it is the main turning point in the world of digital technology. These are still used to enable analog computing to go digital form.

Approximately, in late 2000s digital innovation started spreading all over the world. In 2010, nearly every sector has started digitally transformed. Then onwards the digital innovation and transformation has taken up fastest pace [6].

1.2 Difference between Digitization, Digitalization, and Digital Transformation

1. Digitization means conversion of information from paper work to digit means in the form of bytes. It is the directly moving from analog to digit.
2. Digitalization is use of digital technologies in various ways to improve business, or process. This is possible with help of podcast, videos, online schools etc.
3. Digital transformation is the process of using different digital technologies to improve existing business strategies or process, culture, to meet the market requirement, customer satisfaction rate. Digital transformation is also used to create new ideas, or they help to innovate some technology furthermore and this again used for betterment of successful business in terms of profitability [3].

1.3 Need of Digital Transformation

Now in this modern era, it is very important to stay one-step ahead to keep business in market. Like for example education sector was on hold for some time during this lock down of pandemic, but after some month's online education started and taken up rapid pace. In addition, top of that many parents also agreed for the online teaching learning method, earlier very few people was in favor of online teaching. Another example is in IT sector work from home is allowed for many companies. Because of all internet and many other technologies globally it is possible to enhance the business [7].

- All these hi technologies are helping to grow business leaving behind the geographical distance. Previously which was difficult task. But thanks to all modern technologies with the help of which it is possible to access in corner of world.
- Digital innovation is essential for any company wanting to achieve long-term growth.

- Digital innovation is the use of technology to improve and advance existing processes within a business. Digital innovation can enhance customer satisfaction experience, enable new business models, strategies and provide the better opportunity to launch new products.
- Today, digital innovation is at the heart of every organization. You need to digitize internal operations to do things better, faster, and cheaper; find new ways to engage users; and bring new products and services to market. But driving digital innovation is hard work. Giving first preference to digital innovation will ensure that employer are always using new technology to provide old and new customers with a premium experience across various aspect of your business.
- Digital innovation will ensure that better outcome, best customer satisfaction, more profitable, time saving and cost effective.
- Digital innovation for non-tech companies is one of the most salient trends in the global marketplace today. Some big budget industries say for example mining, manufacturing railroads are adapting newer innovative technology to enhance safety, automation of task, better outcomes.
- Notable recent innovations in medical electronic engineering have come in robotics and augmented and virtual reality.
- In minimally invasive procedures, robotic tools are useful because they offer precision, flexibility, and extreme control. As a result of that surgeons can use automated high technologies which are innovated to perform surgeries that would otherwise be needlessly complex or impossible altogether.
- In medicine, virtual reality/augmented reality VR/AR is helpful for providing convalescent patients with an immersive way to participate in rehabilitation exercises. Artificial intelligence may be helpful in electrical engineers' jobs much easier in an industrial setting and trainings. Artificial intelligence gives more hopes in fields of engineering for industrial applications [2].

1.4 Three Key Elements of Digital Transformation

Digital transformation is much more ahead of simple adapting new technology, and it has to follow strategic approach that addresses three foundational elements. Those key elements are as follows

- **Physical:** the technology that helps to migrate the business away from manual and towards digitalized process. The transformation is from paper based manual record keeping to computerized data collection, application of technology such as robotics, artificial intelligence, machine learning are few examples of physical transformation.
- **Cognitive:** literal meaning of cognitive is involvement of mental process in gaining knowledge and comprehension of it. Therefore, in the digital transformation artificial intelligence, machine learning are the few examples of digital transformation where thinking or learning process is involved along with better outcome.
- **Cultural:** in digital transformation culture is involved because role of that particular worker or employee changes to adapt the new technology.

1.5 Benefits of Digital Transformation

There are many benefits of digital transformation, but few are as follows

- In detail analytical based actionable insights.
- Time taken for efficient process will be more faster
- Improved and increased work capacity
- Cost will be reduced

There will be good chances to blend the business process with next advanced version of automation, which can deliver increases value and meet expectation of customers. Many successful big companies have picked up the relationship selling over lead generation and also simplified the process of buying the product rather than engaging in traditional lengthy processes, the also doing collaborative success by running technology on behalf of customers instead of licensing technology that customers take in-house to implement and integrate to drive their own success [8].

1.6 Common Examples of Digital Transformation

1.6.1 The Following are Some Examples for how Digital Transformation Leads to Much More better Results among the Industries or Business

- **Manufacturing Companies:** In manufacturing, IoT can improve efficiency and profitability by enabling predictive maintenance and process improvements that reduce downtime and scrap while ensuring the production of high-quality goods.Now a days new technology such as AR that is augmented reality gives employees superior and less costly training sessions. Expert person who visits will not have to come physically so here cost is reduced in accordance to plane ticket.
- **Retail Marketing:** In retail marketing all modern digitalization devices are acting as platforms to create seamless increased customer satisfaction. Artificial intelligence, chatbots, and many other sophisticated data analyses are helping retailers to develop and deliver customized recommendations. Digital transformation helps to improve instore experience as well as creating an engaging interactive familiar environment and more hassle free customer service process.
- **Healthcare:** In healthcare sector more of digitalization more is benefit to patients, providers and payers along with this cost is much less. Virtual visits of doctors and electronic based medical record keeping are important modes of digitalization.
- **Smart Cities:** It gives better and safer quality of life in cities with blend of existing modern infrastructure and digitalization. Public safety to environmental sustainability, modern hi tech tools such as artificial intelligence, sensors, video analysis all are helping to transform towards better outcome.

1.7 Key Steps for Digital Transformation

There are many things to consider about digital transformation. The ratio of success is directly depending on strategy of plan. With this right strategy of plan, customers, and employees both will get benefit when process is simplified. Following steps can help to develop plan.

- **Define Your Digital Vision:** Your first step is discovery, in which you identify why you're transforming and what you hope to achieve. This is the foundational element that will direct the rest of your steps.
- **Map Your Digital Journey:** Whatever any operation or intended for better outcomes, there should be always broad spectrum vision of how digitalization relates to process and what it make any difference in achieving desired outcomes. Vision and mission of manufacturing unit, industry or any business should be fixed to reach desired goal.
- **Determine Your Digital Maturity:** One can go for digital assessment and that can be helpful in determining the journey which lead towards improved version. This also aids to tell whether requirement of newly added modern technology implementation and adaption of it.
- **Review Digital Capabilities:** This means to identify any loopholes in the digital transformation, so that it can be improved by taking help of other or more modern smart technology, thus bridge the gap. The ultimate goal of any business or industry or any organization is to develop such a model where employee, people, data, process altogether work on integral platform that gives everyone to move toward with fast speed and better outcome [9].

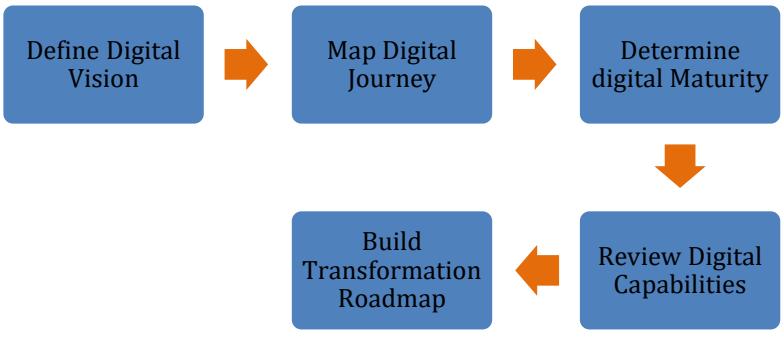

Figure 2. Key Steps for Digital Transformation

- **Build the Transformation Roadmap:** For foundation of roadmap, above mentioned steps will definitely help to achieve digital transformation. This roadmap should be clear to understand, everyone can act accordingly, and definite structure is needed to maximize the value while minimizing the risk.
- **Use of Cloud Application to Move towards Digital Vision:** All modern era technologies will help to improve the business strategies and will lead to better outcome. The only thing is to selection of right technology for right business or industry.

1.8 Impact of Digitalization on E-Commerce

The terminology electronic commerce business type referred to buying or selling goods or materials on online. When e commerce site initially introduced new in market, there was hesitancy from buyers as neither can they actually see the product quality, nor they can handle it. On top of this payment must be done in advance and waiting period was long.

But now because of digital transformation payment mode is done hassle free and easy check out for products and if anything went wrong then return policy is there so looking at all these helped to increase customer satisfaction rate. And concept of e commerce site in last decade was sprang up.

1.9 Different Ways of Impacting E-Commerce by Digitalization

1.9.1 Relation of AI with E Commerce

- Based on intelligent search analysis, E commerce get the ability to give offers on the product on which that customer is more likely to buy. Now this process is also taking the help of Artificial Intelligence mechanism. Customer satisfaction rate can be increased by taking feedback or enhancing the interactions by mail or SMS.

1.9.2 Availability for 24 X 7

- Various mobile devices such as tablet, laptop, and smartphone usage has been increased. So, it is an opportunity to make the use of this advanced digitalization for betterment of business. Because of various apps the market is 24X7 open, so with customer's convenient time, place, choice buying, or selling is made very easy. Because of invention of internet all these digitalization is made easy. Globally also there is no limitation for buying or selling the products.

1.10 Impact of Digitalization on E-Learning

Apart from above types now a days one more method is added that is nothing but E Learning. Every teacher, learner, or educators has two opinions about E Learning that is its advantages and disadvantages like its well said that every coin has two sides. Advantages are time saving, transport charges of student are not there, easy accessibility etc.

And if we think of disadvantages then it is mostly related to health. Online classes or E Learning has some limitation according to pediatricians, health care workers, because many health related problems are emerging now a days due to prolonged exposure to computer. For example, school children are suffering from obesity due to lack of physical inactivity, sitting in front of laptop or tablet for long time like for hours together, play time is reduced or even it is totally absent in some areas due to covid19. Eye accommodation complaints are increased now a days due to prolonged exposure to laptop screen or mobile screen. Itching of eyes, redness of eyes, watering of eyes dryness of eyes etc. Such type of eye complaints has started more because screen light has UV rays which are affecting eyes [10].

One thing now a days ophthalmologist has to advice their patients that while working on PC or during online classes, person forget to blink. Actually, blinking is involuntary process, and it is useful as it distributes tear fluid equally on eye, but when we are engorged in working on PC or continuous staring look on screen cause dryness of eyes, and this dryness is because we do not blink frequently. Laziness in attitude has more developed among the school students. Various skin diseases are emerging because for months together that student is not exposed to sunlight, and on one fine day sudden exposure to sunlight and to mud or dust causing irritation and itching sensation. So, these are some examples for prolonged use of online classes or E Learning [4].

1.11 Digital Transformation in Engineering

In Digital era, many systems or applications are getting changed day by day according to requirements and all people are used to it. Here are some examples which we can refer in Digital Transformation

1.12 Biometric Identification Systems

1.12.1 Finger Print Recognition

Previously one register is getting kept at main door or at department level to log attendance of an employee so that when employee comes in an office, member or security person can keep record of employee's attendance. After this, many companies started process to give employee an iCard through which they can register attendance. Now the situation is different as biometric attendance system is introduced.

There are finger print scanners which get placed at the entrance or the common area. Employee needs to be put his/her finger on machine which was used for registration and that's it, machine will detect and log employee's log in or log out time.

Biometric scanner records the data and keeps in data file. When user logs in, machine identifies which person is asking access. Attendance task is more realistic now and these systems are also getting used to give permissible access to people for particular area.

1.12.2 Face Recognition

Nowadays it is common in android or iPhone devices to unlock your phone using face recognition module. We don't need to enter password; we just need to enable face recognition functionality on phone. This feature keeps your device and data safe and hence privacy is getting maintained.

If we consider only phone, it does not have massive database. It only saves and recognizes one user of the device.

In case of Facebook or security checking by government organizations, all images get saved in database and software helps to identify people by their facial landmark. In current situation, we can find this kind of feature in Facebook or Google as it suggests names of your contact list by recognizing faces on their webpages.

1.12.3 Home Automation

It will be more common in future to control your AC temperature, Lights, Electric pumps using apps from your phone. Already people from western countries and Europe have started home automation using apps. If user forgets to keep Air Conditioner off while leaving home, there is no need to worry. Using simple features on apps, user can turn off AC, lights, pumps from remote place.

User needs to simply connect devices to the internet which are having functionality to connect. If connected, users can set certain temperature of AC at specific time or while returning home. Many products are introduced in market to keep home tasks easier. In Europe, people use PLCs (Programmable Logic Controller) or other controllers to automate most of the tasks like switching lights to ON or OFF as per Day-Night time or if person is entered in house.

1.12.4 Voice Recognition Enabled Devices

It is habitual for many people to use Alexa or Google for assistance. We just need to say a command and then devices will reply or act accordingly. Many things get easier because of these devices.

Let's take an example of car driving. Suppose driver is only there inside the car and needs to check nearest petrol pump. There is Infotainment unit placed inside car which helps driver or co-passenger to check nearest fuel stations available using Map functionality. Device will show and re-route to nearest fuel station if driver selects or gives command for it.

In day to day life, we are not able to recall some answers or information. Alexa or Google mini/Siri enabled devices will connect to cloud data and reply within second.

1.12.5 Video Streaming Apps

People are used to see video contents on phone nowadays. There are many apps which provide contents like movies, serials, sports, kid's entertainment, news, etc. Streaming apps give flexibility to users to see their favorite contents whenever they want. This transformation removed dependency of having antennas or set top boxes to be kept at your home. Anywhere, anytime users can access shows they want and entertainment purpose is getting solved.

1.12.6 Online Ticket Booking Apps

Before almost 15-20 years, all were manually trying to book tickets by going to the counter of bus stop, railway station, theatre, concert, sport stadiums, etc. Online booking service using webpage was introduced first to reduce long queues and to provide good service, all started liking this service. Now in recent times, many apps are developed which gives convenience to users for checking availability of ticket and timings. User just needs to book a bus ticket, railway or air ticket and pack the bag as per booking [11].

1.13 Cloud Computing

People started using mobile phones to communicate with each other. Later cameras were introduced in phones. So people use camera phone to capture and save their memories into phone by using camera functionality. For saving those pictures, SD memory card was required. Nowadays this card is not required as Cloud has changed the concept. Clouds are basically the servers which are accessed over the internet. So now if mobile is connected to internet and user has synched his/her device to cloud, mobile automatically uploads all pictures and required data on cloud so that not any data can be lost. This invention helps users to access data till they delete from cloud. Similarly, Gmail or many mail service providers are giving facility to users to store their data on cloud [12].

Nowadays many of the music apps use cloud service for giving access to many songs. We can just simply click or search which song we want to listen, and app plays that song. This removed dependency of copying songs on computers, laptops, tablets or mobiles. Cloud computing is the availability of computer system resources, especially data storage and computing power, without direct active management by the user. In examples, we saw that cloud creates huge impact for accessing images, songs, mail, etc. People outside or inside companies use different apps which use cloud service [13].

Now in engineering term, if we want to save database e.g. consider one big company which is having 1 million members in it. Now office locations might be different of same company. In this case, information of one employee should be access to all locations. This can be happened using cloud computing. In this case, company will take help of cloud computing. Company will maintain one database which is accessible to all locations and hence the purpose will get solved.

Similarly any user can log in to any machine using cloud computing as his information is stored on common database [14].

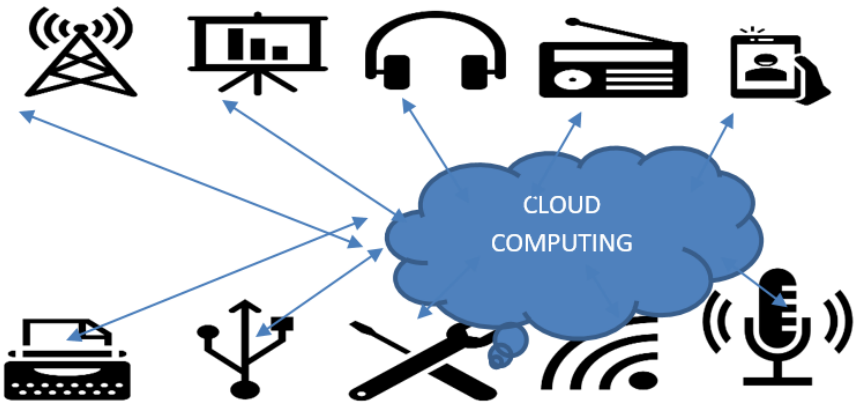

Figure 3. Cloud Computing in Relation with Different IoT

So much of the information can be stored in any machine using cloud computing and it is used as common data base. Innovation of cloud computing itself is big thing for transformation from old fashioned record keeping to digitalization [15].

1.14 Virtual Reality and Augmented Reality

AR and VR are another examples for digital innovation and transformation of world toward betterment. The concept of augmented reality is combination of real things that exists in world and virtual world. It is because of involvement of different sense organs such as visual, auditory, somatosensory. It is accurate 3 D version of real along with virtual world. Technology used in augmented reality helps to improve natural environmental and gives perceptually rich experiences. If this augmented reality is implemented in smart phones or tablet or laptop then the surrounding world information in which we live becomes interactive and digitally manipulated [16].

Augmented reality can be applicable in industrial manufacturing, medical field, E Commerce, architecture. Cosmetics Company say for example lipsticks may be tried virtually and shade is selected [7].

1.15 Impact of Virtual Reality and Augmented Reality on Education

In the education sector augmented reality and virtual reality plays very important role to understand the concept of the topic. In healthcare sectors it's very easy to understand different anatomical positions and with the help of augmented reality the concepts of physiological functions are easy to understand [17].

1. **Gaining Immersive Experience:** to understand the topic concept deeply virtual reality helps to students as well as creates deep knowledge. This will lead to permanent gaining of the knowledge.
2. **Hands on Learning:** some years ago actual frog dissection was done in school biology practical. But thanks to augmented reality and virtual reality these dissections are done virtually without actually not dissecting animal and not harming the any living animal. This also prevents spreading of diseases.
3. **Training Sessions are Made Easy:** some of the professionals require training session for saving life, but actual giving the training like real life scenario is too dangerous and not ecofriendly too. For this situation let us take one classical example of job of fire fighter. In this case giving the training with the help of virtual reality or augmented reality is much more feasible because actual giving the training is next to impossible and the person who is taking training is in directly taking risk for life as he might be facing some situations in which he does not know what protocol he must follow. So now in this case it is easy to give training under these two headings that is augmented reality and virtual training.
4. **Field Trips Can Be Possible:** for school purpose visit to pole is very much easy because of the augmented reality. Walking on moon as astronaut made easy, thanks to augmented reality. This also helped in point of cost effectiveness. History lovers will be easily visiting museums, monuments under the technology of augmented reality.

1.16 Effect of Virtual Reality and Augmented Reality in Healthcare Sector

1. **Finding Vein for IV or for Injections:** For giving intravenous injections doctor or nurse can easily visualize the main vein or alternative vein.
2. **Best Option in Training of Surgeries:** Everyone knows that when it comes to any operation precision makes the point. So, to make this precision and perfectness surgeons should go under training. So now augmented reality provides good technology for such type of training. On top of that no one is harmed, no one is bleeding, no mistakes so, no question of legal point to be raise.
3. **Study of Anatomy and Functioning of Body Physiology Made Easy:** By combination of real and virtual images it is very easy to show actual location of organ in body, or vein in body. Other example is to study the interior structures of brain and spinal cord made very easy because of augmented reality.
4. **Augmented Reality in Dentistry:** Artificial Intelligence software helps dentist to build precise crown or caps.
5. **Line of Treatment for Patients:** Virtual Reality helps to plan in advance complex surgeries for example neurosurgical procedures. In cases of PTSD-Post Traumatic Syndrome or Stress Disorder

situation similar recreated and patient is slowly exposed in virtual world but this is strictly done by expert team at their therapy centers. Immersive virtual reality is useful to distract the patients when anesthesia or sedatives are contraindicated [1].

1.17 Digital Transformation and the Challenges

Each and every organization, industry, business faces some but similar challenges, few are as follows:

- The perceived complexity of migrating legacy systems
- Lack Of knowledge for new technologies
- Additional costs of adding new technology
- Uncertainty about which technology is the right technology
- Difficulty knowing how to engage the organization in change
- Worry about security issues

For many organizations, industry, business challenges are simply knowing about where they start and how they start or end. Choosing right technology for instance will reduce difficulty faced during digitalization.

1.18 Future of Digital Transformation

Digital transformation is changing how people work, play, and live, and there is no indication that transformative process is slowing. Many innovations in digital technologies will gives the opportunity for any organization or business to create better value for customers and improves the peoples living means.

- Adapting the digital transformation to current business challenges and strategic plan along with objectives are crucial for success ratio. Implementation of such modern technologies will ensure any business or industry to remain in race of competition and will give more customer satisfaction rate. Global business is increased and with profit in terms of increased turnover of business [18], [19].
- Let the business is belonging to any field or sector all will always face the challenge with competition approaching from all directions. Use of interconnected smart products will always create more values in any sector.

  Digital transformation is revolutionary in each sector say for example banking, marketing, Ecommerce, Healthcare, Engineering. Employers adapting smarter ways to for spreading their business [5].

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Author Contributions Statement

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Dr. Rita Sangtani		✓		✓		✓		✓	✓			✓		✓

C: **C**onceptualization
M: **M**ethodology
So: **So**ftware
Va: **Va**lidation
Fo: **Fo**rmal analysis
I: **I**nvestigation
R: **R**esources
D: **D**ata Curation
O: Writing- **O**riginal Draft
E: Writing- Review& **E**diting
Vi: **Vi**sualization
Su: **Su**pervision
P: **P**roject administration
Fu: **Fu**nding acquisition

Conflict of Interest Statement

The authors declare that there are no conflicts of interest regarding the publication of this paper.

Informed Consent

All participants were informed about the purpose of the study, and their voluntary consent was obtained prior to data collection.

Ethical Approval

Not Applicable.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

REFERENCES

[1] Healthcare and Knowledge Management for Society 5.0: Trends, Issues, and Innovations by Vineet Kansal, Raju Ranjan, Sapana Sinha, Rajdev Tiwari (30 Jan 2022)
[2] AI & IoT for Smart City Application by Rabindranath Shaw, Ankush Ghosh, 2022
[3] Digital Transformation-Build Your Organization's Future For The Innovation Age By Lindsay Herbert (Bloomsbury) Dec 19 2017
[4] Driving Digital Strategy-A Guide to reimagining Your Business by Sunil Gupta July 24th 2018
[5] Driving Digital Transformation-Reshape The Future of Your Business by Raktim Singh February 4th 2021
[6] History In Digital age by Toni Weller 2013
[7] The VR Book-Human Centered Design For Virtual Reality by Jason Jerald, PhD. Oct 2015
[8] Augmented Reality And Virtual Reality-New rends In Immersive Technology by M Claudia tom Dieck, Timothy H. Jung, Sandra M. C. Loureiro 2021
[9] Artificial Intelligence for Business-A Modern Business Approach by John Medicine September 11th 2019
[10] Artificial Intelligence by Naresh Kumar and Sunil Kumar(Satya Prakashan) 2016
[11] Human Compatible-Artificial Intelligence and The Problem Of Control by Stuart Russell October 8, 2019
[12] Artificial Intelligence In Healthcare By Adam Bohr, Kaveh Memarzadeh(First Edition June 21, 2020)
[13] Leading Digital Turning Technology Into Business Transformation—Harvard Business Review Press by George Westerman, Didier Bonnet, Andrew Mcafee, Oct 14, 2014
[14] https://www.inap.com/blog/7-incredible-examples-of-augmented-reality-technology/
[15] https://innolytics-innovation.com/what-is-digitalization/
[16] https://medicalfuturist.com/augmented-reality-in-healthcare-will-be-revolutionary/
[17] https://hitconsultant.net/2020/06/29/augmented-reality-and-virtual-reality-companies-to-watch/#.YZ_CXtBBxaQ
[18] https://medcitynews.com/2019/09/the-benefits-of-ar-in-healthcare/
[19] https://healthmanagement.org/c/healthmanagement/

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