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The journal welcomes publications of quality papers on research in humanities, arts, science. agriculture, anthropology, education, geography, advertising, botany, business studies, chemistry, commerce, computer science, communication studies, criminology, cross cultural studies, demography, development studies, geography, library science, methodology, management studies, earth sciences, economics, bioscience, entrepreneurship, fisheries, history, information science & technology, law, life sciences, logistics and performing arts (music, theatre & dance), religious studies, visual arts, women studies, physics, fine art, microbiology, physical education, public administration, philosophy, political sciences, psychology, population studies, social science, sociology, social welfare, linguistics, literature and so on.

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4. If the manuscript is accepted following publication policies.

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PREFACE

"Research" is the key word that should be normalized among students entering Engineering studies invariable of their major or branch of study. Students who aim at a brighter career prospect should involve themselves in exploring possibilities of finding something new or upgrading features in the existing technologies. Firstly, they should be exposed to various theories that underlay inventions and discoveries and should gain comprehensive acquaintance with these engineering marvels. The knowledge gained from theoretical perspectives will lay a strong foundation for their empirical studies, help them to shape and develop new technologies that will serve the need of the common people.

With an objective to expose students towards theoretical research in recent technologies, the following topics were suggested and the each student was allowed to choose any one topic from the suggested topics.

- Artificial Intelligence at health care Industry
- Drone Technology for life saving activities
- Embedded technologies for Hospitals
- Energy Efficient Technology for day-to-day life
- Business Intelligence

The students collected the resources from authentic open access journals related to their chosen topic. The gathered information was tailor made in the form of a research paper with standard straplines. The whole process was guided systematically during the classes and fine-tuned by the editors soon after the plagiarism check. This initiation will not only add value to the student's resumes but also it will trigger interest in research and innovation.

The success behind this special issue of the journal is purely because of the student's interest in exposing themselves to research and their commitment to accomplish the same. My sincere thanks and gratefulness to the international editors for their tireless work and investing their personal time in grooming this research work. This project is made feasible only because of VIT's vision "Transforming life through excellence in education and research" and it's a blessing for teachers and students to be a part of this great institution.

Editor-in-Chief

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Aim & Objectives

Academic Excellence in research is continued promoting in research support for young Scholars. Humanities, Arts and Science of research is motivating all aspects of encounters across disciplines and research fields in an multidisciplinary views, by assembling research groups and consequently projects, supporting publications with this inclination and organizing programmes. Internationalization of research work is the unit seeks to develop its scholarly profile in research through quality of publications. And visibility of research is creating sustainable platforms for research and publication, such as series of Books; motivating dissemination of research results for people and society.

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CONTENTS

A STUDY ON COMPARITIVE ANALYSIS OF PAYMENT MODE IN E-COMMERCE DURING COVID - 19

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Abstract

Covid-19 (Corona virus) is a wellbeing pandemic that has altogether influenced the worldwide economy and generally changed society. The effects of Covid are generally obvious at the global business level because of the limitations on movement and versatility of work. This has required an enterprising standpoint for E-COMMERCE so as to get by in the current market condition. Just as the advancement in the different instalment modes. The review considers a wide meaning of online instalment, incorporating instalment strategies utilized in internet shopping and versatile instalment, for example, distant and nearness instalments. Furthermore, data identified with the effect of the (COVID-19) on advanced instalments overall is remembered for this report. Rate examination and various graphs were utilized to lead this exploration. This empowers a reflection on how the pandemic has affected distinctive expanding way of life of the general public. Proposals for acting in a more powerful and imaginative way are seen from the review.

Introduction

The spread of the COVID-19 pandemic is radically changing the manner in which we shop and make instalments. Contactless instalments got an extraordinary lift during the pandemic, seen by buyers as a cleaner approach to pay coming up. Shoppers are additionally evaluating new instalment strategies while buying from E-Commerce sites, and favour those techniques that have the most grounded assurance against extortion misfortunes. By and large, all out instalment volumes are required to diminish in 2020 because of misfortunes in movement and in-store portions, yet continue development in 2021 and advantage from the move to credit only instalments and internet shopping. When buying on E-Commerce sites during the pandemic, worldwide purchasers for the most part use charge cards and advanced wallets, despite the fact that there is likewise a solid variety in the manner customers in various nations pay on the web. For instance, more than 66% of computerized purchasers in Canada decided to pay with Visa when shopping internet during the episode, while UK purchasers favoured check cards and those in Italy picked advanced wallets like PayPal.

Background Study

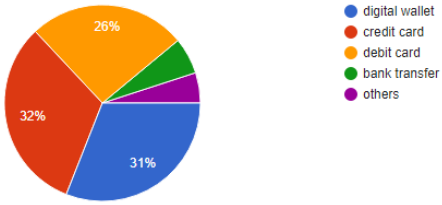
Instalment security was the top measure applied by online customers while choosing their top instalment technique, as per an April 2020 review. The portion of worldwide retail deals created by means of E-Commerce is ascending, subsequently, extended to arrive at 33% by 2024. Simultaneously, a few portions, including travel and carriers, encountered an extreme plunge due to COVID-19 in both on the web and disconnected channels. Online travel services, for example, Booking Holdings, Expedia Group, and Airbnb saw week after week convenience appointments plunge by finished - 90% during April 2020. Additionally, as indicated by a study of 1,000 vendors led by RedSeer, retailers accept that almost 50% of all advanced instalments at their stores are set to be through versatile based instalment modes, for example, UPI and wallets.

Research Methodology

The given report comprises both primary data collected from public survey conducted through Google forms and secondary data collected from relevant journals and articles.

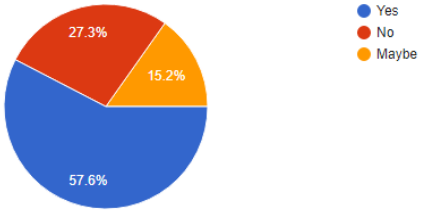
Analysis and Interpretation on Digitalisation and its modes

Which E commerce payment mode do you prefer?
100 response



The pie chart depicts Credit card with 32% and digital wallets with 31% are the most preferred modes of payments backed up by the debit card and bank transfers with 26 and less..

Do you think rural areas benefit from E commerce mode of payments?
99 responses

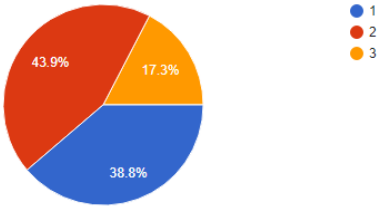


The chat depicts Rural areas as the effective users of Ecommerce mode payments with 57.6% respondents saying yes and 27.3 saying no with rest being unsure.

100 responses

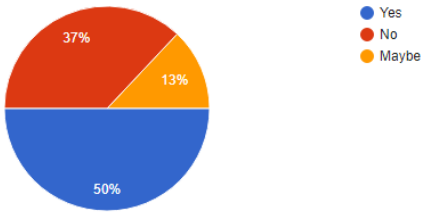
The chart depicts 36% consumer preferring to have blockhain as their next mode of payment whilst 36% (wider majority) remain un aware of blockhain.

How many payment subscriptions do you maintain?
98 responses



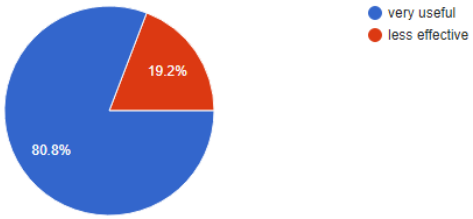
The chart denotes that 43.9% of the individuals out of 98respondents maintain 2 subscriptions seconded by 38.8 % of them holding only one subscription.

Do you prefer cash over digital payments?
100 responses



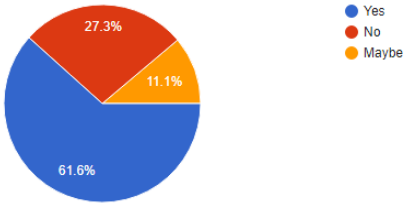
The up gradation of forward technology by the individuals is being evident in the given graph in which 50% of the public choose digital payment over cash, but the remaining 37% of the individuals are still with held due to other consequences .

How effective is digital loan payments during pandemic?
99 responses



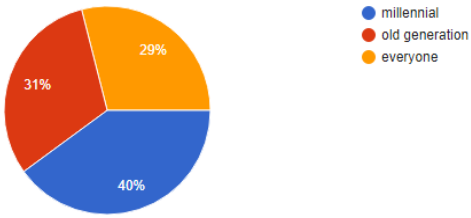
The pandemic has paved a way for payment modes and especially in the sector of loan payments . This is depicted by 80.8% individuals choosing it to be very useful during pandemic .

Will you prefer cash free environment post covid?
99 responses



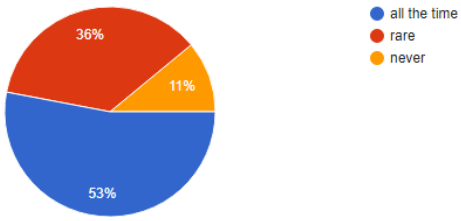
Post Covid is a depiction of forward looking future with up to date changes according to the growth of the society and hence cash free environment is supported by 61.6% of the public and 27.3% yet remaining hesitant.

Which generation often uses e commerce mode of transactions?



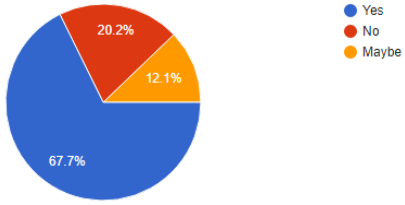
Before the pandemic E commerce mode of transactions were generally opted by the millennia's whereas the pandemic has pushed all the generations to use these payments efficiently .this can be noted as there can be seen only a smaller difference between the rates with millennial at 40% followed by old generation with 31% and everyone with at 29%.

How often are your payments rejected?
100 responses



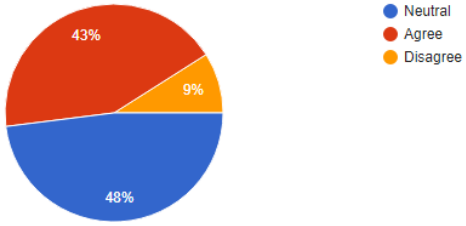
Payment modes are facing various thresholds despite of their robust development. 53% of the survey tend to face payment rejections often. 36 % of the individuals find it rare with only 11% having no trouble.

Do you see an increase in payments transactions post covid?
99 responses



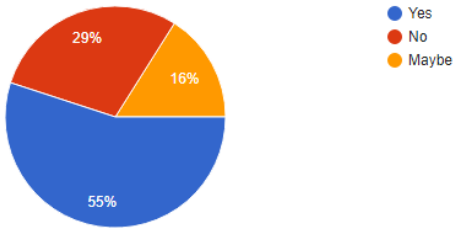
The graph depicts that 67.7 % of the survey are affirmative of the increase in digitalization of transactions post covid with only a few individuals ranging from 20.2 % and 12.1% stating no and maybe as their answers.

Are third party apps efficient?
100 responses



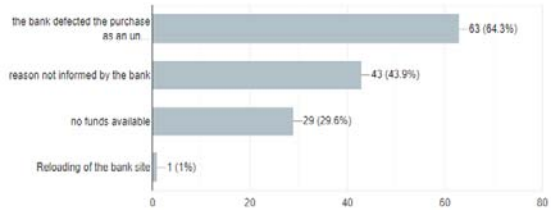
Third party apps have depicted to be neutral around a range of 48% and an 43 % agree and only 9% disagree with this statement. This is due to efficiency and reliability provided by the third party apps.

Do you support contact less payment?
100 responses



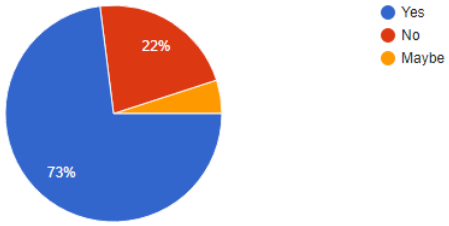
Social distancing has pushed the environment to have a mandated contact less payment which is also accepted by 55% of the individuals with yes as their answer and 26% saying no as their answer.

What are the reasons for payment rejections?
98 responses



The major issue faced by the public is the payment rejection in which 64.3 % refer it to be due to the bank defecting their purchases. And 43.9% have said that their issues remain un clarified by the bank.

Do you consider cyber fraud while making a payment?
100 responses



Improving Technological development has enriched ways for cyber fraud. This statement is backed up by the public accepting around 73% and only 22% showing an odd response. This situation should be curtailed to its minimum.

Finding and Recommendations from the research

Computerized instalments and advanced monetary forms are probably going to have a key part in the post-pandemic circumstance. As advanced instalments are contact-less they will be empowered by governments, and will probably observe a flood. This will likewise be supported by the gig economy and WFH circumstances.

Conclusion

There is no doubt that the post-pandemic era will be the era of digital payment modes. Social distancing rules from the current pandemic could be with the world for years. Countries lagging in digital payments should proactively build out their identity, Internet and banking infrastructure. People without access to digital payments not only miss out on a tool to ensure quarantine measures during outbreaks but also the benefits of financial inclusion and ever more digitized global trade beyond COVID-19. China's path to enabling digital payments should provide some lessons to other countries eager to follow suit. It is also important, especially for smaller countries, to build a domestic payments system based on global standards that is interoperable with the rest of the world to actively participate in the global economy. As a result, the digital payment mode will be a blessing in disguise for the small merchants.

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ARTIFICIAL INTELLIGENCE AT HEALTH CARE INDUSTRY

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Introduction

(Anveet Pannu, 2015) Artificial intelligence is the subset of computer science which deals with giving computers or machines the ability to act like humans, to collect knowledge, learn and reason about knowledge to solve complex problems. AI gives a huge emphasis on perception, reasoning and action and this helps make machines smarter and a lot more useful. AI has progressed to a point where it offers reals practical benefits in many of it's applications, in rapidly increasing number of fields. It has been observed that artificial intelligence is playing an increasingly important role in the field of research and future intelligent machines have been claimed to replace human capabilities in many fields. AI has many advantages over human intelligence as it is more consistent, can be documented, ease of duplication and it's performance in tasks which have shown to be much faster and better than when done by humans. AI has been proven useful in many areas such as understanding language, learning and adaptive systems, problem solving, perception, modeling, robotics and has also been implemented in many games. (Sandeep Reddy et.al.,2019) In periods of the past the potential of AI couldn't be realized due to the lack of computational power, data and funding. The implementation of AI helps reduce errors that have been somewhat inevitable by humans. However, in today's era, there is access to high computational power, funding and data accumulated by research. It has been considered to have a huge impact of the fourth industrial revolution.

(Sandeep Reddy et.al., 2019) Clinicians and other professionals face unusual pressure due to the change in demographic, administrative requirements, limited workforce as well as the increase in morbidity and the increase in technological and medical information. The action of delivering health care has been highly complex with the health care infrastructure implemented in several countries due to administrative burdens and constraints faced in resourcing. The clinicians do not have access to a lot of medical data of the patient and monitoring patients is not always an easy task. Diagnosing diseases is also a difficult task in many cases and a late diagnosis may cause deterioration in the patient's health status.

The proliferation and implementation of technological devices that record medically relevant data such as the person's heart rate, exercise patterns, sleep patterns, blood pressure and heart rate have been increasing and this helps collect data that may help in medical tasks. Linking machine learning algorithms to electronic health records can help to retrieve and access records in a better and efficient method. (Fei Jiang et.al., 2017) Heath services can also use AI to support clinical scheduling and patient prioritization. It also helps to predict the length of stay of the patient leading to the ability to accommodate patients better and more efficiently. The use of digital medical records and proliferation of smart phones and fitness monitoring devices has created greater access to medical records and has increased the potential of AI to monitor patients. AI also helps diagnose many diseases in their early stages and makes personalized clinical decisions for its treatment based on the medical data provided. AI has been concentrated in the field of health care for assisting in the diagnosis of leading causes of death for which an early diagnosis is crucial. AI also helps to reduce the number tests administered to the patient

and sometimes even eliminates the tests. Even though artificial intelligence has many benefits, it's data base ha\s to be well optimized and updated for it to work somewhat perfectly. (Sandeep Reddy et.al.,2019) With rapid advances in AI technology, and betterment of access to high computational power, funding and data accumulated by research. AI could implement in many other fields and has a huge potential for cost saving, better quality in service and improved time efficiency.

Literary Survey

(Deekshaa Khanna, 2018) AI has been recognized to have great potential in the medical field as it can store a lot more data than any medical journal, textbooks or medical papers. It also has the ability of accomplishing the task within a short time interval. Data Management is a vital role of Artificial Intelligence where it is responsible for gathering, storing, processing and tracing the source of data. Data in the field of healthcare in generated in large volumes on a daily basis and this can be sued to help in tasks given to the software/Machine. It can be equipped with self- improving algorithms that helps the machine/software to be more efficient and more accurate.

Artificial intelligence is also greatly beneficial in discovering the potential of new drugs, reducing the drug discovery time using machine learning algorithms. The use of AI can not only discover the potential of new medicine but also can also analyze its applications in medicine. The use of AI has helped discover drugs in less than a day whereas it would take months or even years of effort for humans to do the same. An example for the use of AI for the discovery of drugs was during the spread of the Ebola virus where AI systems were able to generate two viable medicines within a day.

(GuoguangRong, et.al., 2020) In the area of improving quality of life for elderly and disabled people, robotic systems have had significant improvements. Human-Machine Interfaces are trained with specific image processing steps to recognize facial expression as commands. This allows people with disabilities to control machines using their facial expression with sensors attached to their body. Ambient Intelligence Systems like RUDO which helps people who are blind work in fields such as informatics and electronics. AI can also help people with personalized dietary restrictions and suggestions not only during crucial stages such as maternity but also simple day to day tasks by providing restrictions and suggestions related to fitness and well-being. AI also helps the disabled and seniors with machines such as prosthetics with fall detection systems which can reduce fall risks and complications. This type of technology has also helped people who are mute to speak. The implementation of "ambient intelligence" in homes can provide elderly people with activity awareness and assistance which can not only help in quality of life but might also help increase help in increasing their lifespan.

(Curtis P. Langlotz, et.al., 2018) AI can be also used to process medical images such as MRI's (Magneticresonance imaging). The main purpose of medical imaging is to create tools that take the form of decision support systems that give imaging professionals actionable advice to improve patient outcome by giving a fast and accurate diagnosis and alsoproviding a prognosis. The main difficulty in medical image research is the lack of standard and accessible imaging data. AI requires high quality, labeled, curated and publicly available data to progress in this field. Health care organizations worldwide have control of a vast amounts of data that could be used as data to train machines. But most of these data are not publicly available and the the accessible imaging data that is publicly available is often unusable as they might not be curated or organized and also may be anonymized and maybe not even from a viable source. To overcome this, effective methods are provided to AI for research that use find-able, accessible, interoperable and reusable (FAIR) principles for scientific data management and stewardship. The data accumulated from, this process is then compiled and used for research or in decision support systems.

(Mary K. Obenshain, 2004) The SEMMA (sample, explore, modify, model, and assess) method is well implemented in data collection and analysis for making the data usable for AI on its many applications. When the system comes across a lot of data, it comes across patterns. The question that arises in the systems are questions such as what causes these patterns? A large number of techniques are available and can be used including traditional statistics and regression. Some market analysts use visualization as a modelling technique. One technique of analyzing the pattern cannot be used for all data provided to AI for analysis. If only a few methods are available, the data should be taken with due care to select the method of modelling the data rather than changing the data for making it capable for a certain method of data analysis.Neural network models were observed to give better and more accurate that the traditional methods such as regression. And after analysing these patterns, the data is then assessed which helps with choosing the best option out there according to the data provided and is suitable for the machine to 'learn' from and give a personalised output based on the data of the problem given to it.

(Thomas Davenport, et.al., 2019) Physical robots are well known by know, given that the installations of robots had crossed a number of 200,000 robots each year at 2015. They perform pre-defined tasks such as shifting, welding and assembling objects and manufacturer plants, companies or warehouses. Recently, robots have come to be a lot more collaborative with humans in their pre-defined tasks and due to this, it has also been easier to train robots/machines to perform desired tasks. They are becoming more and more 'intelligent' through training them and AI capabilities are being keeping on expanding. Making it possible for robots to do medical tasks such as delivering medicines, performing surgery with high precision and much more. Surgical robots, initially approved by the United States of America in the year 2000, provide great help imroving their ability to see, be more precise, to create minimally invasive cuts and to stitch wounds with minimal errors. But these machines do not operate on their own. They work on the command to the professional practicians who take the necessary decision on when these technologically advanced machines are to be used.

(Jianxing He, et.al., 2019) A problem that comes with the implementation of AI in health care is accountability. If at all any error any adverse event occurs, who is responsible? The implementation of AI will undoubtedly alter the relationship the practician and the patient. In case of decision support systems, the responsibility is the practician. But if the practician had nothing to do with the decision and the task was completely taken care by Artificial Intelligence and does eventually replace human decision, who is held accountable for an unfortunate event that occurs due to the decision? There could be multiple people who could be proposed to be held accountable - The Vendor of the machine/software, the developer, the sources of training data, the board members of the hospital could also be held accountable. The accountability has already started shifting from blaming the system and its faults rather than blaming individuals who may be responsible. The same approach could be taken for the responsibility of events occurred due to implementation of AI.

(Sandeep Reddy, et.al., 2019) Clinicians generally, have not been very good at adopting to new technological methods as they rely on old methods that have been tried and are highly trusted. The introduction and implementation will for no doubt, encounter resistance even if the AI application/machine has progressed very well and has been proven to work very efficiently and with very less errors in doing their tasks and also be more effective in research. The developers not only need to test the application and algorithms of AI but also needs to be tested for its implementation and design with the help of clinicians. Many practicians also believe that AI will eventually replace human physicians. Even though there is a slight possibility that AI might take over, this might not be the case as AI uses data based on up-to date medical information

with the help of human practice and helps the practicians take decisions, monitor the patient and perform many other actions and take action only if the professional practician gives the robot/ machine or the software the command to do so.

Advantages

1. Helps diagnose chronic diseases in its earlier stages which could save the life of the individual carrying the disease.
2. Helps in discovering and delivering on new drugs for specific conditions.
3. Helps in diagnosing diseases with a lower error rate.
4. Helps in operation of machinery which could have drastic effects if not operated properly. AI can operate the machine with higher precision and accuracy which is crucial while using these types of machinery.
5. Helps in the prognosis of diseases and estimating a time for revival or a time of survival.
6. Helps in generating a more open-source health record and syncing information from many devices towards healthcare.
7. Helps save time and costs by diagnosing and eliminating many of the tests that would be taken by a doctor and hence streamlining the process.
8. Virtual nursing helps in patient monitoring, reminding the patient of certain tasks and also helps solve the patient's questions about the treatment.
9. AI can identify and highlight mistakes in treatments, workflow inefficiencies and helps avoid unnecessary patients hospitalization and re-admission.
10. AI helps predict outcomes in the future but scanning the patient's routine medical data and generates data such as who could have heart attacks or strokes within the next 10 years.

Conclusion

AI in healthcare is highly beneficial in improved a patient's quality of life. AI can outperform doctors in many fields such as diagnosing, surgery, etc. Even though the implementation of AI in healthcare might be highly beneficial for patients, doctors and even receptionists, it will for sure face resistance as AI might potentially 'replace' the jobs of doctors, but this is not the case as AI is helping the doctors and not replacing them. Another cause for the resistance might be the loss of privacy as the data will be shared across multiple devices from multiple facilities such as hospitals, medical clinics, etc. AI cannot be completely implemented at this stage due to the lack of digital data and AI needing plenty of data to begin its work at healthcare. And keeping aside these factors, implementing AI would not only require proof that AI works effectively in healthcare but will also require the inputs from all stakeholders and evidence from analysts that it will be worth the investment. Implementation of AI in the field of healthcare will not only provide help to doctors during their work but will also prove to be very helpful in times of shortage of hospital/clinic staff.

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FUTURE OF MEDICAL SCIENCE

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Introduction

Nilsson, N. J. (2014). *Principles of artificial intelligence*. Morgan Kaufmann.

Nilsson, N. J. (2014). Well, many activities that are performed by human minds such as writing software programs, solving mathematical problems, engaging in logical reasoning, learning new languages or even driving a vehicle are said to demand intelligence. Over several years computers are evolved to able to perform such activities. Moreover there are computers that can contribute in medical spheres, plan the synthesis of complex organic compounds, solve biquadratic equations, analyze electronic circuits, comprehend common human languages or even write computer programs to fulfill the required demands. Computers like these are said to have "Artificial Intelligence "to some extent.

The development of these devices are said to come under the field of Artificial Intelligence. This work has had largely an empirical and engineering orientation. Creating from a rough structure but growing body of computational techniques, AI devices are developed, withstand several tests and are therefore improved. This well developed process has introduced and evolved many AI devices of wide applicability revolving around our lives.

Szolovits, P. (Ed.). (2019). *Artificial intelligence in medicine*. Routledge.

Szolovits, P. (Ed.). (2019).The field of medicine requires critical help in various aspects. Our rapidly growing need of higher quality of healthcare demands higher knowledge of medical science which leaves the physician with inadequate time to devote to one particular matter and therefore struggles to cope up with the most recent developments in their respective field. Due to the insufficient time the case is mostly left in the hands of the physician's unaided skills and memory. Only in a scarce situation can the person refer to an external source. Years of training in the field can make the physician to keep numerous things in mind which in turn can prove to be helpful but the limitations of human brain is known to all. This opens wide possibilities for Artificial Intelligence to be introduced in the respective field to assist practitioners to further exceed their limits.

Holzinger, A., Langs, G., Denk, H., Zatloukal, K., & Müller, H. (2019). Causability and explainability of artificial intelligence in medicine. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, *9*(4), e1312.

Holzinger, A., et.al,(2019).Artificial Intelligence is one of the most crucial field of computer science which deals with enormous number of real life problem solving programs and devices that learn and think like people, one of which deals with medicine and healthcare industry. There is a growing demand of AI approaches in healthcare which is turning out to be trustworthy, reliable, explainable and resourceful. Procedures and models are necessary to comprise the machine decision making process to enhance and reproduce new ways for both learning and knowledge extraction process. The techniques we tend to inculcate in our programs mimic those of our clinical informants.

This really gives us an edge as: First, the applicability and the functioning of the software can be easily understood by the experts. Second, as we intend to duplicate the functioning of an expert we can find out the extent of the accomplishment of our goal. Finally, the collective minds of computer scientists and physicians involved in building the

computers can develop expert computers that can provide aid to geographical places where there is lack of resources or individuals with proper knowledge, enable physicians to understand better by providing vital resources which human memory cannot possibly restore and to test AI theories in real world domain and provide ways for further research in AI.

Literary Survey

Hamet, P., & Tremblay, J. (2017) There are multiple definitions for Artificial Intelligence but what does 'intelligence' truly signifies is a bit controversial. The coupling of the machine capabilities along with human alike features clearly imply that researchers thought of them as related. Use of Artificial Intelligence for the benefits in health care industry was initiated in 1970's due to the growing needs and upcoming researches in the field. The computer science techniques began to reach its limits where it could be interpreted in a way such that it can solve real world complex issues. Researchers in both fields- Healthcare as well as Computer Engineering began to put mutual efforts to develop models that could enhance the function ability of the physicians. This led to the introduction of Artificial Intelligence in Medicine (AIM).

Patel, V. L.,et.al,(2009) Artificial Intelligence in Medicine (AIM) is a branch of artificial intelligence which is entirely based on the study, development and research in the biomedical field. It was the result of the Dendral Project 12 which comprised a team of biomedical researchers along with AI researchers. By the intellectual use of programming influences in traditional manner of both physician's care and medical knowledge it was able to succeed. Modern Healthcare Industry is widely constituted by AIM. Researcher are still developing measures to condition better and safer medical care so as to finally eliminate the need of one on one physician's sessions.

Stefanelli, M. (2001). AIM has brought upon a positive impact on both patients along with physicians. It provides not only faster but more accurate results than most of the traditional healthcare service. Doctors do not have to remember as they used to and can work on higher level cognitive skills related to patients. Research in medicine or other operations by AI has put biomedical scientists forefront in the field. Medical studies has a very long history and dates back to centuries and thus, maintaining all the data can be challenging which is tackled by AI and can be easily accessed through it. The human like thinking capabilities along with precession and speed of the computer really takes the standards of heathcare higher and the accessibility by the physicians really easier. Digital consultations, drug creation, detecting mental conditions, machine assisted surgeries etc was made possible by AIM.

Coiera, E. W. (1996).Even though it has made magnificent researches in medical field, most physicians were still not ready to inculcate AI in clinical practices. There were many contributing factors such as they had pressure as well as insufficient time for the physicians to indulge with computers or they were worried of the fear to keep up their knowledge with the upcoming technology. Majority of the physicians were orthodox and would not trust the technology which provided a major challenge for AIM and as a result most of the systems were used as a tool for medical education. Complex procedures like surgeries could not be operated by AI models as they were seen unreliable by the physicians. They could not think logically like humans and can miss facts resulting in incomplete treatment of the patient. The other major challenge was being cost effective as these models could be really expensive than the traditional manner.

Artificial Intelligence is a growing science which has applications in almost every field including medicine. It has wide function ability in this field such as data management, drug discovery, diabetic management, digital consultation etc. along with some drawbacks and challenges. Still many physicians doubt its capabilities and yet still there are scientists who believe AI will bring evolution in this field. It is a slow process but by persistent efforts of

researchers, they can overcome the challenges and bring about drastic changes in the field of medicine.

Applications of Artificial Intelligence in Medicine

People in remote areas can't be treated and situations can get fatal as it is impossible to get access of qualified healthcare in time. World Health Organization (WHO) claims that there is an 18.1 year gap in life expectancy between richest and poorest countries due to lack of adequate healthcare services. Technology of AIM can provide to be very beneficial in these areas to create much safer environment.

AI accumulates the credentials of a patient such as medical history, current symptoms, hereditary genetic diseases etc. so that physicians can make much more accurate diagnosis and treat their patients better. By the help of AI's well furnished database, physicians can predict early potential health risks and can start treating them before it becomes a serious issue.

AIM is capable to identify the biomarkers that are able to identify the health issues in the human body. This saves a ton of time which could turn out to be a turning factor in saving a person's life. It is indeed cost efficient as it excludes the need of several lab tests to identify the cause which costs quite a fortune.

AI Surgical System allows for performing critical and quite accurate movements. Thus, complex procedures are conducted with minimal pain, proper hygiene, blood loss, and low risks of side effects. Studies display that patients tend to recover much quicker after the operations with the assistance of AIM than using traditional procedures.

The implementation of Antibacterial Nanobots helps clear the patient's blood from infections before or after being operated. Furthermore, AI facilitates surgeons with real-time information regarding the patient's current state of health.

There are alternatives that are intelligent enough to identify possible markers on radiology images and with the help of AI, physicians do not have to worry about clinical notes, managing appointments or tracking patient's care recommendations. In essence, the benefits of AI in healthcare are as numerous as the applications for which it is designed and utilized.

Conclusion

Artificial Intelligence in Medicine has a lot to offer to the medical field and is still being developed and is constantly evolving yet it has some limitations which is the reason why it is not being implemented all across the globe. In the last 10 years India has increased the use of technology in medical field by about 80 percent. India as a developing country is starting to understand the importance of AIM and is trying to implement it at most. There is no doubt that AIM is the stairs to the future of medicine.

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ENERGY EFFICIENT TECHNOLOGY: SOURCES AND PURPOSE

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Introduction

Bradford M ills, Joachim Schleich, ENERGY POLICY 49, pg: 616-628, 2012, Energy Efficiency means something that last long for a period of time and requires only less energy. So many technologies have been introduced to save energy in a effective way. Energy efficiency in residential (household) sector has gained about 19 percent of final energy consumption in the most recent years but 7 percent of energy saving has to be acquired from household energy efficient appliances. Some effective policies have been introduced that can increase both conservation and technology adoption in energy efficiency. These policies may be simple but very productive. Switching off lights, adjust your room temperature, put lid on pots (this can save upto 30 percent energy cost), LED light bulb can increase 20 percent energy cost) etc. can improve energy efficiency practices. These simple and effectual knowledge towards energy conservation are linked to household characteristics.

A B Raffe et.al (2001) Energy efficiency plays a important and vital role in climate change. Greenhouse Gas is the product of population, economic activity and energy use. Instead of using carbon, as a intensity of energy, use of other renewable or nuclear fossil fuel can increase energy efficiency. Many policies have been imposed which targets to increase energy productivity and to decrease carbon intensity of energy. Recent policy proposals include the purchase of energy productive equipments like electric and natural gas heat pumps, natural gas water heater and fuel cells. Extensions were also been proposed for fuel-using vehicles produced by electricity and hybrid power. These policies have also achieved green house gas reduction at very low cost.

Magnus Moglia et.al (2018) Reducing household energy use is related to impacts from human activity. Household is the one which makes decision whether to adopt an efficient product. The residential sector has used 30 percent of worldwide energy use around the world. The main strategy to adoption of energy efficient technology is consumer behaviour. Energy efficiency mainly involves lighting, heating, ventilation and air-conditioning. Consumer behaviour is to make humans to have different choices and make them use the product to the maximum .Carbon di oxide emission from residential energy are expected to increase by 38 percent around 2050. The Organization for Economic Cooperation and Development (OCED) has proposed policies to promote energy efficient technologies. OCED has focused more on low income household to make different choices and to ensure their needs and necessities. Thus, process of adopting energy efficient technology depends on diversity of population, economic and social influence.

Gianluca Trotta, ENERGY POLICY 114(2018), pg: 529-539, Improvements are required to bring out drastic change in energy efficiency. World Energy Council (2016) has decided to ensure that such improvement should focus on decarbonise energy system and that energy is affordable. Studies have proved that variation in energy consumption cannot be explained by infrastructural design. Scholars have suggested that reduction in household energy cannot be achieved only by retrofitting finance building. Energy efficiency decision- making is a complex process and has to be characterized by many factors,

both individual and contextual. The US government has prioritized to reduce carbon emission at least 80 percent by 2050 (1990 baseline). High levels of energy efficiency can improve one person's health, bring safety and comfort and also lower maintenance cost. Household energy demands for production service such as space cooling, heating, lighting but in a complex way, technological adoption, energy saving behaviour and psycho logical origin elements. 'Energy saving behaviour' means daily practice of household which focus on a specific reduction of their own use. 'Energy efficient investment' involves energy efficiency appliances and energy efficient retrofits. Energy efficiency investment means purchasing energy efficient appliances such as freezers, dishwashers, dryers, kettles, irons, toasters etc.. Energy efficient retrofit investment is used to indicate structural improvements of a house.

Huma Mazher et.al(2020) Communication is a way through which data can be transmitted from one device to another. Communication is practiced with wired communication but now it has been shifted to wireless. The requirement of network access can be accomplished with free network. It requires energy to enhance the performance of network, to support large application.

Energy efficiency in wireless communication does not have a drastic change in energy consumption but still it availability makes life easier. Energy efficiency meets greater need and demands, communication increases, energy released also increases. Researchers has proposed so many valuable methods on how to save energy using technology .This paper consists of energy efficiency use in different sector,namely, residential sector, heating sector and lighting sector. Furthur, discussed about the cause and prevention of carbon emission through renewable resources. And, then about biomass and its extraction methods.

Literary Survey

Heating: Its Demand and Development

Stefan Arens et.al (2020) Temperature is a main important feature in heating. The energy demand for heating is significantly higher than cooling. This energy demand for heating can be achieved using these considered technologies, namely, solar collectors which convert radiation to heat, combined heat and power plants(CHP) which utilize waste heat of thermodynamic cycle or electrochemical process, electrical immersion heaters which convert electricity to heat and heat pumps which also converts electricity to heat but uses more energy compared to others. Energy consumption of buildings shares a notable amount of total energy. The major factors are location and size. Moreover, the number of residents, energy consumption and space influence the heating demand..Certain building heat demand known as heating energy intensity has been lowered drastically. Around 1975, German buildings require 200KWh/m^2a but the demand has decreased to 50KWh/m^2a. Solutions for the major affecting demands can be achieved by use of immersion boilers which cost n reduction compared to heat pumps, replacement of old generation district heating that make use of steam and heat. The usage of water around 50 degree Celsius reduces system loss and increases heat efficiency. Current research has been dealt with electrolyzer technology which supplies fuel cell, extends functionality of hydrogen storage. Other studies mention the insulation of heat on a specific building. Heat pumps with supple electricity demand can increase power quality. Other than waste heat, heat can be produced by biomass and heat pump. Waste heat produce low cost although a heat pump releases less CO_2. Domestic hot water demand consumption assumed to increase from 2000 to 2050. Heat pump technology brings improvement since they are more efficient.

Lighting and Electricity

Cartsen Dortans et.al (2020) Renewable electricity generation and electrification are important in the transition of low carbon energy . So many organization found it problematic when electricity demand occurs in morning and evening in winter in many countries. Peak residential electricity demand tends to increase electricity generation and network

capacity. Production of electricity needs to have a prior balance in capacity of supply demand and also the risk of wasting economic profits. More efficient household appliances could reduce the demand of electricity. They also could reduce the demand of transmission of network capacity, reduce the need of carbon emission and also reduce over capacity in renewable system. As example light emitting diodes (LED) have swiftly reduced in price and provide good amount of reduction in electricity. With high latitude and temperature, energy demand in New Zealand to meet winter peaks are produced fossil fuelled generators. Average demand of electricity in 2017 has varied from 3.8GW to 6.2GW. Usage of electricity in residential sector is 32% and usage of lighting is 4% of total energy. Introduction to energy efficient lighting system in New Zealand has reduced peak electricity demand by 4%. Residential Baseline Study (RBS) includes the lighting stock proportion from 2015 to 2029. RBS assumes that the use incandescent lights and LEDs has increased by 46% of residential lighting in 2015. In order to know the use of lighting system, we need to actually calculate when the lighting is used. It is assumed that total energy consumption will reduce by 2.9GW around 2029. Higher penetration power could easily reduce electricity demand but requires generation during winter periods. As the world moves forward, it is important that we meet the requirements within the limits by adopting efficient appliances.

Residential Energy: CO_2 Emission

Raza et.al (2019) Emission of carbon di oxide depends on many factors, one of them is residential energy. This emission brings out vast change in weather. There is a significant influence of residential energy consumption on environmental degradation. Renewable energy plays a essential role in the reduction of carbon emission. Residential energy rapidly increases on daily basis, hence carbon emission also increases. This may lead to global warming. The relationship between residential energy and carbon emission is directly proportional, that is, as energy increases, emission also increases. The economic progress may slow down because of environmental degradation. 80 % of energy is consumed by the world through fossil fuels such as oil and coal. Construction of buildings can cause deforestation which also leads to carbon emission. Many countries such as Korea, Japan, Germany follow strict rules and regulations to reduce green house gas emission. These countries consume 36.9% of total energy of the world. Once the income of the economy of developing country increases, awareness regarding environment also increases, so people will demand upstanding environment which results in law enforcement. Another positive way is when residential energy increases on a particular area, carbon emission also increases. Since residential buildings use high amount of electricity, residential energy act as a prime contributor to CO_2 Some technologies such as carbon capture and hydraulic storage also converts these carbon emission to resourceful energy, so that less amount of energy being released. Domestic companies should use go-green products. Renewable energy consumption helps to minimize carbon emission

Wireless Network: Energy Harvesting

Yi Han Xu et.al (2019) Wireless body area networks(WBAN) has greatly attracted both industry and academia to introduce a hopeful technology. The main application of WBAN is to monitor the signals of human body and transmit the sensory data to users. WBAN consists of battery driven body sensors and one hub (mobile phone). WBANs has great significance in designing energy efficient resource. One of energy saving technology is energy harvesting technology in which it enables the devices to store energy from other sources. These energy sources are thermal, locomotion and electromagnetic wave. Energy neutral operation which has energy harvesting powered by WBAN have the ability to achieve special operation. Human body has two different bio-energy sources these include bio chemical sources and bio mechanical sources. Bio chemical sources convert electrochemical to electricity for body sensors while bio mechanical energy convert electrochemical to electricity from locomotion of body. The main goal of WBAN is to

maximize the energy efficiency. WBAN batteries are difficult to replace but can be improved by synchronizing nodes. Investigation in several works for energy saving technology were proposed which include cross layer resource allocation, power control and protocol design. But these technologies cannot ensure WBAN to achieve optimization level. Researchers have proposed transmission rate scheme to guarantee the transmission rate. The core idea of simulation can improve energy efficiency of body sensors.

Energy Consumption

Yanming Zhang et.al(2018) Energy consumption is one of the interesting issues these days due to cost of energy and global regulation. Energy saving in manufacture process is required to protect the environment. Several researchers have performed multi objective of process parameters to minimize power consumption. Machinery accuracy is an important indicator for manufacturing of green. Wire electrical discharge machining (WEDM) is used in the manufacture of aerospace components, molds and medical apparatus. During WEDM process input energy mainly transfer by radiation method . Most of the energy is transferred to cathode,anode and dielectric heat conduction. Productivity affects energy consumption, decreases the machining time. Magnetic field in WEDM transfer energy to work which leads to material removal and energy savings. The deformation tends to decrease magnetic field intensity and machining efficiency. WDEM enhances machine structure and thermal deformation. It also improves discharge waveforms. Overall energy is in the form of thermal energy(80%), the residue in electrical energy. Recent studies have uncovered the use of magnetic field. These magnetic field will increase the efficiency, current density and also benefit the machining process.

Biomass

Geon Soo Ha et.al(2020) Micro algae is considered as a important source in the production of biofuels. Lipids in algae can be converted to biodiesel. Improving biofuel production in a efficient way, pretreatment and extraction methods can be used. One is microalgal cultivation. The strains of microalgal were cultivated in flask containing10 % inoculums and it is kept under fluorescent light for two weeks, proteins, carbohydrate and lipids will replicate using bligh, phenol sulfuric acid and dyers method respectively. Another treatment is ultrasound and microwave. The strains were harvested and adjusted to the suspension of water for microwave and ultrasound pretreatment. Next is carbohydrate fermentation, in this the biomass was cooled to room temperature and the pH of microalgal is adjusted and added to cellulose enzyme suspension for performing fermentation. Next is protein fermentation which is performed in serum bottles after carbohydrate fermentation. Higher alcohols were removed by distillation and experimented using gas chromatography. Lastly, lipid transesterification in which the leftover biomass containing lipid was absorbed using a chloroform solvent. Methanol and chloroform was added to biomass and then centrifuged. The effect of each treatment is to destruct the microalgal cells. Gas chromatography is used to analyze higher alcohols. Biofuel contains bioethanol, higher alcohols and biodiesel. Damaged cell walls of microalgal will accelerate hydrolysis and bioavailability during fermentation. The important property in the production of biomass is based on algal fatty acid profile. Microalgal biomass usage has some limitation due to their physiological properties. The maximum utility of biomass would help in the process of cost reduction.

Advantages

1. Increase in energy efficiency can reduce the emission of green house gases(GHG) and other pollutants.
2. Improve in energy efficiency can reduce individual utility bills and maintain stable electric bills.
3. Energy efficiency can create job opportunities which can easily meet the growing demand.
4. By reducing the demand for electricity through energy efficiency can provide long-term benefits.
5. Energy efficiency helps in increase in the diversity of nature.
6. Energy efficiency can save most of the finite resources which takes long time to regenerate.

7. Using simple methods to reduce the use of energy can improve its energy efficiency like installing thermostat, replace light bulbs, use of power strips, change your room temperature.
8. Membrane filtration is one method which leads to increase potential in reduction and also reduced energy consumption.
9. Heat pumps and thermal vapour compression are different methods in energy efficiency technology which can reduce the usage of energy for different purposes.
10. Energy efficiency technology has brought national security to different nations because it can reduce the imports of energy from foreign.

Conclusion

Energy is the capacity to do work so it is very important that we consume and produce energy in an efficient way. The production of energy sources can be achieved by renewable, fossil and nuclear. Energy is important for every single living organism on Earth as it is essential to life, sun is the source of all energy, it produces light and heat which leads to the production of electricity. Renewable energy are energy resources which are part of our environment. To support the economy and also to build better life, use of energy is responsibility. Energy sector has provided people with opportunities and protection over the past 60 years. Reducing waste through energy resource is an easy and efficient way to avoid depletion of ozone layer and environmental degradation. It is as much as important as saving the energy resources which are part of our environment. It is the easiest way to save money and energy. Production of energy resources may cost high but it is important that every resident in the world is supplied with energy resources. Save energy using simple and easy methods which can easily reduce the impact on environment.

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WILL AI REPLACE HUMANS IN HEALTHCARE INDUSTRY?

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Introduction

Jake Frakenfield (2020), Artificial intelligence often referred as AI basically means programming computers to think,act and perform activities and functions like human beings. They are supposed to behave as human in both man-made and natural environment. They are trained to exhibit qualities such as problem –solving, reasoning and learning. Mostly people tend to believe artificial intelligence as robots and so as represented in novels and movies. It tends occupy a major part of our life without our knowledge. Now-a-days we see artificial intelligence becomes used in all the sectors such as healthcare industry, used in operating patients, assisting surgical procedure, an app in which we play games like chess and ludo with computers and even cars like Tesla which are self-driven. This is even used by banking and financial sector and it deals with large amount of data. It has a major role is health sector.

Dr.Pooja Roa volume 18(2018), India is one of country which has a scope for new invention and innovations but lacks due to poor internet connections. Due to this unequaldistribution in healthcareindustry and less investment in health sector there is no improvement in terms of the new technology and methods. Rapid development in AI can help to a greater extent. But still now in spite of the technology advancement medical records are still paper based not digitalized and radiology films till day use films. Healthcare is not that quick to adopt the changes and completely digitalize. Here hospitals in private sectors are switching to full-fledged digital services but hospitals in public sector fail to do so. And major challenge faced by Indian Healthcare system is that medical education does not hold importance to research work.

Samantha McGill (2020), It is becoming difficult is maintain a large amount of data of patients as a results healthcare system are considering to step forward towards AI. And they are even concerned regarding the security and privacy of the patient's medical records. According to the statistics about 91 percent of the healthcare representatives have believed that AI will help in patient care. The top concern is the regarding privacy as about 75 percent believe that it is not safe. But still about 86 percent of them believe that AI can be implemented after taking adequate steps with regards to data privacy.

Artificial Intelligence is used the health care industry in the following aspects such as (1) Patient's care, (2) At performing surgery, (3) Biomedical research, (4)Biomedical information processing, (5) Disease diagnosis, (6) Medical Image Analysis, (7) Detection of clinical error.

Literary Survey

Artificial Intelligence for Patient's Care

H.Fouad (2020), et.al, AI will be an important source for assistance system. AI and IoT combined collect data and decide about assistance. AI can present analyze the present conditions of the patient and predict the further condition and assistance the treatment on that basis. AI with IOT sensors can predict the temperature, heart -beat, oxygen saturation levels, pulse, body mass index, track physical activities such as number of steps walked in a day, cycling records and assistant accordingly. A healthcare mobile application is collect which primarily aims to collect all the medical information of the patient from the core so that it can give an accurate analyze of the patient's health. All the collected information is refined with respect to

iterative golden section optimized deep belief neutral network. The AI based tool which helps in prediction of the information related to the health of the patient is MATLAB tool. This application ensures that the result it gives is mostly precise with minimum errors. Most of the hospitals have valuable life saving data and case history of patients. Some of the apps are introduced which help in online doctor consultation. It has some of the limitations also. If a wrong input is given computer interprets it in a wrong way. It may lead to some other complication for the patient.

Artificial Intelligence at Surgery

PhilBritt **(**2019), Robots which are programmed along with artificial intelligence are now-a-days assisted the surgeon at operations. And the success rates have fairly come out good. Experts suggest further may witness more such operations. Successful examples include a robot with AI technology assisted an operation at Maastricht University Medical Center in Netherlands in the year 2017 where a suture small blood vessels (size ranging from 0.3 millimeter to 0.8 millimeter). AI helps the surgeons track the activities which are happening during the complex surgery procedure. Dr.John Birkmeyer, who is the chief at sound Physicians, suggests that AI helps surgeons to perform surgeries with greater efficiency. It helps in treating both acute and chronic diseases. It assists surgeon to plan about all the pre–operative and post-operative procedure. Specific algorithms performall the functions. It can find the pattern and give a well defined and best procedure for surgery. They have superhuman habits to perform the activities at great speed and accuracy.

Artificial intelligence in diagnosis

Discovering is a never ending process .As a result with discovering new types of viruses and bacteria, infections led to new types of diseases coming into light. So, to treat these infections new medicines are being discovered with the help of Artificial Intelligence. This is helping the population to stay healthy. AI can diagnosis the disease efficiently. With the technological advancements AI will be more proficient to diagnosis and suggest possible treatment options also. AI can't definitely replace doctors but help them in the best possible ways. So far AI no medical drugs were discovered using AI technology but Pharmaceuticals Company are planning to launch this technology to. They are closely working with hospital and monitoring the patient's case history data so that an effective technology can be invented. AI used the technology of complex algorithm programming skills to diagnosis the defect. AI technology should know the functioning of the cell and how the cell reacts when it a drug acts on it. Various new methods to treat cancer, nervous system disease, cardiovascular disease, liver disease were analyzed using AI. It inputs based on the problem may be helpful for the doctor. Limitations include wrong diagnosis when sufficient information is not provided. They may lead to doctors taking wrong inputs. This wrong suggestion of the AI may lead to a life-threatening issue for patient.

Artificial intellegence in medical image scanning:

Xioli Tang (2019), MRI scanning, X-Ray Scan, CT Scan etc have a part of medical since past few decades. AI in medical image scanning is used in both diagnoses as well as in therapeutic. AI has been programmed to identify complex image pattern of radiology. It can identify the minute injured part which is impossible to see with naked eye. AI is programmed to an extent that it can identify stage wise images and examine them. Magnetic Resonance Imaging commonly referred as MRI, Ultrasound, sonography, Computer Tomography (commonly called as CT), Positron Emission Tomography (PET) as byproducts of AI. It can automatically recognize radiology flow. It can analyze image at the faster rate than medical professionals. It can supply a huge data that might help doctors to work more precisely. It can even measure the organ structure and indicate the risk factors. Large amount of information supply can help doctor to diagnose the defect. Hence adoption of

AI in medical image scanning has made the diagnosis process easier and precise.

Artificial Intelligence in Drug Development (Cancer Treatment)

Lintet**.**al (2018), AI has different contribution in anti-cancer drug treatment plan.AI is used in the research of anti-cancer where it in employed to drug development and drug activity. There are different types of canner with different reaction modes. AI helps in revealing data inputs through screening procedure about the way a cancer cell react to the drug. An integrated algorithm was developed for the same. AI is used in chemotherapy. Here it mainly focuses how the patient is reacting to the drug use, tolerance of drug and chemotherapy. In immunotherapy it finds out about treatment effect, improves treatment plan .AI has a programmed algorithm that can analyzes image of organs which will help from over treatment. It technology helped doctors from unnecessary surgery. AI efficiently supports in clinical decision making. Deep learning technology made it easy for the doctors to choose a treatment plans. Human are confined to the boundary of their knowledge in treatment plans. But robots have changed it and are offering wide range of plans. AI is considered to bring a powerful change in medical system.

Impacts of Artificial Intelligence of Healthcare System

Jennifer Brown (2018), Healthcare industry is prone to several changes with time. AI has endless scope in this industry. This technology is used to know the exactly trace out the patient's health condition and risk assessment. It helps in making better decisions when compared to traditional methods. With the betterment in the technology patients start to expect more with regard to the data which will be accumulated at a faster rate. Knowledge about the algorithms will be more useful to precisely learn about the data processing, variety of treatment available and diagnosis. At a event of world medical information held in the year 2018, Healthcare responders presented the world with twelve technologies with are widely used. Even information with respect to the Advancement and technological changes of AI in healthcare over the last few decades was discussed. Effort to create an interface between technology and human brain is a new age break through task. Discussions about the tools that drastically created AI impact of health care are scanning devices and x-ray scanning. AI holds a fair chance to develop a high –end devices which are the next generation devices. They will be that accurate that smallest injury will be visible. Algorithm developer and programmers should be quite careful regarding the since each organ and tissue has unique feature and structures.

Will AI Replace the Doctors?

Ross Upton (2019), one common question that may arise in every single mind is that will AI be able to replace doctors. Will this technology replace the traditionally occurring procedure? Will robots replace surgeons? One common answer is one. Traditional method of doctors' interventions will continue. AI is just a man-made technology. It is will be used just for diagnosis which just the initial step of the treatment procedure. But the valuable inputs and decision of doctors will the final step. AI can just help in fast and accurate diagnosis. The three mains duties performed by a doctor are diagnosis, treatment plan, post care services. The machine may diagnose the problem, may have an effective treatment but can't have the friendly conversion with the patient regard the plan course. Machines mainly lack the friendly touch. AI revolution in healthcare industry is prominent change. But it can never replace human intelligence.

Reasons Why Artificial Intelligence Can Never Replace Human

Bertalan Mesko **(**2018), Machines cannot show sympathy and sensitive emotion. They don't exhibit the behavior of understanding the patient's need, assure the patient. They just follow the commands given to them. Doctor and patient interaction is very

necessary when a crucial decision is being taken about the treatment procedure. Not algorithm can replace empathy. A case study about a young boy who was poisoned. He had kept a chemical in his pocket which unfortunately spill in his clothes and entered into his skin. No one could find out the chemical he is poisoned due to unless they found it in his pocket. Then the doctors could treat him. This concludes that AI can't work in the non-linear method which doctors used. The complex techniques which are used during a surgery can't be mimicked by no algorithm. They can only help to provide data, provide case history but interpretation is human duty. Doctors and nurses have many responsibilities and duties to perform which can't be performed by AI. Sometimes in emergency situations humans are way faster to react than robots. AI lacks in decision making.

Advantages

1. AI algorithm can be used at healthcare industry to process large amount of data. It's multitasking; fast characteristics help the doctors to analyze the data faster. Faster the data is an analyzed more quicker response can be given to patients in form of treatment.
2. AI has a unique feature of 24*7 availability. On an average humans are can work 5-6 hours without breaks. After certain time they are exhausted too. But AI embedded machines can work 24 hours, can perform repetitive tasks without even getting bored.
3. AI can reduce the risk of human error. Humans make mistakes whereas if machines are programmed well, they can make accurate decisions with zero error. A survey shows that machines can analyze with 99% accurately, whereas the human accuracy stands at 60%.
4. AI can promote healthcare availability and accessibility at remote regions. Till date there is no availability of proper healthcare facilities at the remote-area and poor countries much to our disappointment. AI can help us to solve this problem.
5. AI technologies can analyze the patients past health history and reveal the probable health risks. It can store all the information of a patient at single units. This helps it to predict the risks which may not be possible by healthcare professionals.
6. Now-a-days AI assisted robots assist professionals at performing surgeries. Robotics surgeries are highly beneficial. Benefits include minimal discomfort, less chances of infection rate, fast rate of recovery, short hospitalization period. The success rate of robotics surgery stands at high rate.
7. AI helps in image scanning. Image scanning include MRI, X-RAY scan, CT scan. This help doctors in easy interpretation. Its saves lot of time.
8. AI can help in reduction of dosage error and human errors. In this vast world, due to lot of work pressure it becomes impossible for the doctors to give equal attention to all the patients. AI reduces the work pressure for doctors helping them to attend the emergency cases.
9. AI has a strong impact on clinical trials. It has helped in drug, vaccine discovery and manufacture.
10. In the pandemic situation it helped in tracing out the high risk patients, determining the infection rate and solving the real time problems. They were used at hospitals to deliver food and medicines to patients. Flu Sense is a contactless syndromic surveillance system used to give information about the seasonal flu outbreak. AI embedded thermal screening system were used. AI is playing a significant role in development of vaccines for the viruses.

Conclusion

Healthcare in India have drastically evolved due to involvement of AI. Especially in the pandemic situation India has moved its focus to use AI to deal with the present scenario and setting an example for rest of the world. India is a huge country. When we compare statically, people are suffering from various

types of issues. Few of the disease have permanent treatment while some of them have no cure at all, but only the time period can be delayed. When we look at the magnitude of patients and the number of the healthcare professionals available, the difference is huge. In such a situation it becomes impossible for the doctors to attend each and every patient. The Robot assistants have simplified their tedious jobs. The recent pandemic situation which temporarily paused the human movements. During these condition temporarily AI assisted Robots were deployed at some of the care-centers for patient's care. Jobs of these robots included giving them food and medicines. This saved a lot of man-power and also avoided the health care professional from exposing them to infectious conditions for a longer period of time. AI has helped the government and ministry of health of maintain the large amount of data of the patients, their past health case history, travel information. These technologies have also helped the healthcare industry to make the patients aware of the precautions to be taken during the pandemic.AI has also helped in discovery and manufacturing the necessary drugs during the pandemic situation. This technology was also used at airports for screening, temperature measuring and recording (AI cameras were used). Even the AI assisted diagnosis tools were used by doctors for CT scan which helped them to determine the type of pnenumia covid patients are suffering. Contact tracing have also helped a lot in fighting against the virus. Development and increased usage of AI have reduced the burden of healthcare industry and also has become a strong pillar of support.

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ENERGY EFFICIENT TECHNOLOGY FOR DAY-TO-DAY LIFE

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Introduction

Hesselink et.al. (2019). Energy Efficiency means using less energy to perform the same task. This means that there is minimum loss of energy. Adoption of energy efficiency by the international community is the best way of reducing greenhouse gas emission. Policies should be made and implemented that make the residential sector more energy efficient. There are many barriers that prevent people from the day-to-day use of energy efficient technology: economic, behavioural and social.

They may not have enough investment for installation of new technology because of the high price of this technology. They may have priorities other than energy efficiency; they may not want to change their way of living and are simply ignorant of new and efficient technology. They may have some trust issues towards these new and efficient technology due to the society, during the decision making.

Jaffe, A. B. et.al. (2001) Carbon emissions happens due to over population, energy use in these activities, the economic activity per capita, and the intensity of these carbon emissions. Stopping economic activities is not possible for any country so there is too much pressure on development of new energy efficient technology. The carbon intensity of energy can be reduced by using renewable or nuclear energy in place of fossil fuel. Looking at this many policies have been implemented that give tax credit to households or companies that use these renewable types of energy and also to the people who purchase energy efficient homes or equipment like solar water heaters and fuel cells.

Mills, B., & Schleich. J., (2012). Households with young members prefer latest technology, which is usually more energy efficient than the old one. The relationship between age and the adoption of energy savings measures is not fixed and it depends on the technology. In many studies is found that the use of energy efficient technology and methods are mainly for cutting cost. These methods differ from house hold to house hold and region to region. Curtis et al. (1984) said that energy saving methods are of two types low-cost or no cost measures which do not have high initial investment but change of behaviour and high-cost measures which have high initial investment and technological changes to the house.

Literary Survey

Dr. Kathleen Hogan, (DECEMBER 18, 2015) Some of the most used energy efficient technology used in the world are: Ultra-efficient heat pumps – uses natural and ultra-low-emission combustion burner to give a home heating, cooling and hot water.

Carbon-fighting clothes dryers – uses up to 60% less energy than normal dryers.

Magnetic refrigerators – This uses a water-based cooling fluid, which makes it better for the environment and more efficient, also has lower energy bills and less carbon pollution. LEDs (light emitting diodes) – best LEDs consume 85 percent less energy than incandescent bulbs.

Caird, S. et.al., (2008). They took a survey of a group of people and found out that many people faced problems using some of the renewable energy sources though they are efficient. Solar water heater is the most commonly used renewable energy source. Two thirds of the users in a survey mentioned that they were happy using the solar heated water. Other benefits mentioned by them were low fuel bills, better energy efficiency. Some also said that thew

were having concerns as they used more water than usual after installing solar water heater. Micro-wind turbine is used by very less people to save energy. Many decide not to go for it due to its high capital investment and less fuel saving and return.

Solar PV has a good effect on energy consumption. Many people were more concerned about saving energy after installing this. Many try to use their own solar generated energy after installing it. People got 40% electricity saving by using it. Again, many decided not to go for this as it is very expensive.

Rosenow et.al. (2018) They modeled four main groups of technology. Heating efficiency, appliance efficiency, heating networks and low carbon heating systems.

Heating efficiency technology includes building fabric, heat controls and efficient boilers. Efficient appliances include new technology refrigerators, freezers, washing machines, dryers, ovens, televisions and lights etc. Heat networks include high density areas powered from multiple sources. low carbon heating systems include air-source and ground-source heat and biomass boilers. There are many benefits of installing energy efficient technology in residential buildings- it is cost effective in the long run, reduction in greenhouse gas emissions and improved air quality and thermal comfort.

Pukšec, T et.al. (2013) Households sector has a big opportunity for saving energy and use of more and more renewable energy in the future. The main element is enforcing the current building codes on all new buildings being built and also the ones being refurbished. Applying these codes would lead to significant energy saving. One of the main elements to save energy would be to introduce these regulations for building new buildings and the ones refurbishing to produce their energy locally or be net zero emission buildings. high use of heat pumps leads to high use of electrical energy in the future but this electricity can be produced locally from a renewable source. In the future making a low or zero energy building will highly depend on heat pumps.

Somashekar, S., & Nagesha, N. (2010). A group of thirty homes were chosen for a study. The target population being the top thirty percent. The following figures are from twelve middle income homes, eight from upper middle-income homes and ten from high income homes. They all are selected randomly from different areas of the same town.

S. N.	Factor	Frequencies
1	Ownership of energy consuming assets	More than thirty - 50%
2	Awareness about energy efficient technologies	Extremely poor - 40%, Below average - 30%.
3	Number of energy efficient technologies owned by the household	Very little - 36.7%, Somewhat - 53.3%.
4	Degree of satisfaction derived	Largely - 46.7%; To a great extent - 36.7%
5	Awareness about general environmental issues	Very little - 40%Somewhat - 36.7%
6	Awareness about some generalfacts about energy consumption	Somewhat - 56.7%Largely - 33.3%
7	Concern for environment	Good - 50%; Very good - 33.3%
8	Attitude towards change	Agree - 43.3%; Strongly agree - 53.3%
9	Willingness to invest in energy efficient devices	Agree - 36.7%Strongly agree - 50%
10	Willingness to adopt energy efficient methods	Agree - 40%Strongly agree - 60%
11	Income factor	Strongly agree - 63.3%
12	Cost savings	Good - 30%; Significant - 36.7%
13	Purchase cost	Important - 26.7%; Unimportant - 36.7%
14	Maintenance cost	Very little - 73.3%
15	Government subsidies	Strongly agree - 33.3%; Agree - 33.3%
16	Government regulations	Strongly agree - 56.7%
17	Government incentives	Very little - 53.3%
18	Government efforts	Not at all - 23.3%; Very little - 46.7%
19	Product information	Strongly agree - 60%
20	Adequacy of information	Very little - 46.7%; Somewhat - 23.3%
21	Risk coverage	Agree - 30%; Disagree - 36.7%

This table shows the different percentage of homes that agree to the factors mentioned. The factors are different reasons for using or not using energy efficient technology.

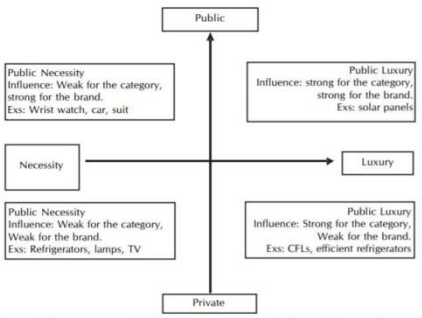

Figure 1: Influence of reference groups (friends, colleagues etc) in purchasing generic categories and products (Adopted from Solomon, 1996)

Strielkowski, W. et.al. (2019) The change to carbon neutral future make the role of consumers and residential households' crucial for an energy efficient future. Without them a carbon free future based on renewable energy sources would not be possible. The results tell that the solar PV leads to transfer of costs without considering the ownership of PV and EV's.

Generation of solar energy significantly reduces the per kWh energy cost of the house. In this globalised and industrialised world, energy efficiency can be achieved by a slow and constant change towards a low carbon emission economy. Many governments have set up methods to tackle carbon emissions, climate change, decreased use of fossil fuel.

Advantages

1. Energy efficient technology can lower the greenhouse gas (GHG) and other pollutant's emission. It directly decreases the air pollution from the machinery, vehicles and power stations that use conventional methods to make energy. Accidents in Coal mining and nuclear power have already caused too much harm to the environment. Changing to energy efficient technology can save both the environment and the wildlife.
2. It significantly decreases the energy consumption and with it the total bill for the energy used. Can help create new jobs and help stabilise the price of electricity.
3. Gives long-term benefits by decreasing the overall electricity demand, hence reducing the cost of investment in generation of electricity and also the infrastructure to transfer it.
4. Helps create new jobs which in turn boosts the local economic development
5. The pollution from generation of energy form fossil fuel is very damaging to the human health. This pollution can cause a wide range of health problems like asthma or cancer which will result in unnecessary expenses. By switching to energy efficient technology, we can protect the health of other human beings.
6. The resources that we use to generate electricity are non-renewable and will exhaust over time. For example, coal and all the fossil fuels will be finished over time. Switching to energy efficient technology can help save these resources for future generations.
7. Energy efficient technology like solar PV and solar heater can be used as long as we want as they operate on a renewable resource as the sun.
8. They improve the quality of life. As if a house generates its own energy then it is not dependent on the electricity from the grid. Also, they need less maintenance.
9. Energy efficient technology when installed can increase the property value that it is on.
10. Helps in sustainable development.

Conclusion

Energy efficient technology can be of a huge benefit to a developing country like India. People will have to pay a lot less for the energy they use. The pollution caused due to burning of fossil fuels will also significantly reduce which inturn will decrease the health problems in the people of India. This technology can give jobs to the common men and women. New jobs will be created hence giving the unemployed some salary to take care of their families. All this will help in the overall increase in the economy of India. Young minds are easily attracted to new and improved technology. This can have a significant effect on the financial condition of their family.

According to me energy efficient technology is the war forward. If we keep exploiting the available resources then they will exhaust eventually leaving nothing for the future generations. Development should be done while keeping in mind the welfare of the future generations. This is called sustainable development and this is only possible with energy efficient technology.

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BUSINESS INTELLIGENCE

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Introduction

Ranjan, J. (2009). Business intelligence is mainly depending on the history of a company's data and analysing the data and creating a successful strategy for the company. And it is often used as BI. Business intelligence is all deals about the term data analysis. One should know what is meant by the term data. The data is a collection of meaningful and statistical information. And analysis means after collecting the data and thinking about a profitable outcome or deciding the future goals. Business intelligence is widely used by many companies around the world it become an iconic tool for a company to analyse the data from the past to present and analysing whole information and taking decision regarding future goals and to grow the company around the world. There are some famous BI tools provided by many companies some are Microsoft power BI and Tableau these are some of the best tools in the world at present for solving complex problems. And this meaningful information is extracted by using BI tools. On looking into this the companies will take set of actions and this action can be modified according to their company requirement for future stability and to with stand company in around the world.

Lennerholt, C. et.al (2018) Business intelligence is into that if you installed a software in your company and that can solve the problems of company it's not that BI changes with time to time and you cannot stick onto a single software that can lead company in future. So, company must have a clarity on future goals and should look into it.BI it accesses on the functions that are approached by using technical approach and this technical approach contain data mining, predictive analysis and data warehouses. With these technical approaches the data is converted into BI functions this contain views of company based on data and reporting based on data. There are many tools and functions for analysing the data (OLTP AND OLAP DATA MINING) etc

Literary Survey

1. Watson, H. J., & Wixom, B. H. (2007).BI is all about data getting in and making an organised and getting out the data and this helps the organizations make their decisions. The main problem is one must collect the high-quality data and no use of collecting poor quality data. Users are not interested in using the poor quality.BI gives a ball park figure for any company. The main thing one must extract the data of the organizations and sending them into decision support systems or data. To make some meaningful data. Meta data is technical part which is present in data ware houses like (OLAP).The main role of metadata is use to give information to the user in a simplified or in a meaningful way. It is like boundary between users and data warehouses. Meta data provides clear and transparency of data to the user.BI making a huge amount of demand in this world and also developing in vey smarter way. In succeeding in BI is not that easy have many conditions like having the good BI governance and decision-making system and use of information in a well direct way.
2. Elena, C. (2011). Business intelligence can also be called as Information intelligence. In these days it gained a huge across the world and users. Th e main part of this BI is gathering information

in different ways some are asking the users a feedback of any website or anything about the company'sdevelopment. And based the feedback of users the main agenda of company to provide the high-quality information to the user. But most of companies are facing a common problem in analysing the un structured data or semi structured data which is in the form of texts, messages, memes, and all these comes under text and content analysis. Most of the companies are facing the same issue in converting these unstructured data into meaningful data. And many are trying to get on it and succeed. Meta data is the process in which a company get data of un structured data in a very short format or we can say it is just a source to collect the large amount of data. For example, if you know the author name or file name. Then it is useful to extract the data from those resources. But this meta data is also not an appropriate method to extract the in a meaningful way.

3. Cristescu, M. P. (2017). Business intelligence is used for the development of business application for their clients and investors. BI also have many tools and functions and many solutions for finding the rightful solution for a company. There are many BI solutions software and many companies are providing this but company has to choose the appropriate for their company. One of the best software is Microsoft BI tools. It provides the correct and best analysis of data. The software gives a complete vision for clients and around 2000's Microsoft entered into this field and done successfully by analysing their company in making SWOT analysis and using this analysis they have succeed in this field. In analysis swot analysis they created four quadrants same like a coordinate system. And these type of BI tool helps user of a particular organization to exceed their profits and identifying the most useful programs for them and gives them a 360degree clarity on their organisation. BI makes the easy to understand the business data and provides interaction with enterprises and forecast their problems and clears it off.
4. Marjanovic, O. (2012) In day to day of these computer generation the data has become very complex to store as there is bulk amount this creates a complexity to the enterprises to eradicate these BI tools are introduced and this helps them to find their future goals regarding the company.BI decision making are of two types it is evolved based on companies making their decisions one is strategic and another is operational BI. Operational BI is widely used than strategic BI. Strategic BI depends on the data ware marts of the enterprise and make them decisions. But in operational BI is very flexible and cost effective and uses different tools and knowledge workers and turning it into a best decision system. In these days operational BI is using in a wide range. And this operational BI resulted in operational business process (BP). At the same there are BPM which are focusing on BP's to make them effective. The main agenda of BPM is to focus on intelligence of decision same like operational BI's and BP's. And these makes think powerfully and accurately.
5. Khan, R. A., &Quadri, S. M. K. (2012). In this world every company needs BI because it gives best figure of their company and changing their strategies for making their company best and also helps them what costumer wants and how to attract customers and helps them move along the market. The main concept of BI is use to collecting data and storing the data and analysing the data these are the important steps any company have to do first if they want to know. Data is collected in a back of data warehouses like OLTP (online transaction processing) it is cleaned and stored in data warehouses like data marts and meta data and this stored data is sent to the data analysis are where there isnumerous software developed for providing structured data for a company there are many data analysis some of them are OLAP (online analytical processing) and Data Mining and Machine Learning. In this

machine learning has very importance making the effective data because it is a part of AI (artificial intelligence) it is full of methods in which it containsnumerous decision-making systems required for BI.

6. Shariat, M., & Hightower Jr, R. (2007)From past ten years the BI evolved like a giant man to help the enterprises to improve. BPM and BP are used in starting days to manipulate the data in an efficient way and the world is not steady and it is increasing its technology day by day and making all part today we coined as Business Intelligence. There are many tools used in those days 1960's data base management is developed and also in1970's decision support system is developed and, in these days, there are so many other data analytic system is developed based on these. OLAP and Data Mining and many are developed to analyse the data and make some gunshot decisions for companies. It can also analyse through business intelligence architecture by making the data in a predesigned manner. In this BI architecture one constructs the data in a very constructed way. And this BI gives a tactical and good figure on making the decisions for companies and enterprises. In this process clients providea good information on collected to the vendors.

Advantages

1. BI mainly resides about the strategies to uphold their company in this techno world.
2. It gives ball park figure of the company.
3. It provides very effective solutions for planning strategies.
4. It can also improve the data quality to make accurate decisions.
5. It makes easy to employers to work on data collected. And gives employer satisfaction.
6. Through different strategies company can have customer satisfaction. And can increase costumer rate.
7. Business reporting is very fast and accurate.
8. BI helps the company to make best decisions for company endurance.
9. BI helps to find out the problem very easily and effectively.
10. Through business systems company can compare their past and present performance in particular field.

Conclusions

BI it is the finest technology used by the most of the tech giant companies around the world and making their companies lager and lager. Most developed countries are having many great companies are using BI as a tool for the company. In India also there is drastic growth in the business intelligence services and increasing the growth of technology in India. Using BI services India expected to reach $22.8 billion by the end of 2020. This makes India to stand out in technology using BI services. BI services are very useful for the companies as well as for common people. The company acquiring the data from user. And analysing it and coming with user friendly decisions. In recent years technology is growing rapidly and use of AI chat bots this make much easier for a company to collect data very easily. Machine learning is the future to any software industry along with BI it empowers the company value in the market.

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ENERGY EFFICIENCY- A LEAP TOWARDS A BETTER FUTURE

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Introduction

The one main motive of the human race has always been to strive towards excellence. However, in this constant struggle to improve our lives sometimes tends to throw us off track and we lose sight of the fact that we are neither the first, not the last ones to inhabit this planet. We love to live a lavish lifestyle, have big houses with air-conditioned rooms, expensive cars with strong V8s and V10s pumping out 500+ bhp and gulping fuel like a thirsty person after a long, hectic workout. But, the human in the run to satisfy his greed often overlooks the needs of the future generations. There were civilizations much before us and will be long after we are gone. They too are going to inhabit the same planet as us. Moreover, they will inhabit this planet in the condition that we leave it in which is not looking great so far. What we don't understand when we a blindly cutting down the trees and pumping out of the ground is the fact that the resources our mother earth has for us are very much limited. Our future generations will have to depend on how much of these resources we leave for them. But it does not seem that they would have much to depend on if we keep exploiting our natural resources as the current pace. This calls for the need of energy efficient technologies.

AB Jaffe, et.al., (2006)Energy efficiency is defined as the percentage of output energy to input energy. The more energy efficient a device is, the less energy it will consume to perform the same task. Energy efficiency of a technology is one of the most important characteristics of an eco-friendly system as it directly relates to energy consumption. It is our solemn duty in today's world to use energy effectively and save energy in our day-to-day life. Even if a handful of people inculcate some simple energy saving practices in their day-to-day life, it can make much difference.

CJ Andrews, et.al., (2009)All the small efforts ranging from switching off lights and fans when not in use, using LEDs instead of traditional light bulbs or CFLs to installing solar panels on your rooftop to cut yourself completely from the city power supply all go a long way in saving the energy and hence the natural resources of the earth. On a commercial level, all the manufacturing industries should use the latest equipment and machineries which comply with the safety and CO2 emission norms. Particulate filters should be installed in all the chimneys so that the pollution levels coming out from them is reduced to a bare minimum. All the industries should try and run completely on solar or wind energy and not take up electricity from the city grid. Construction of dams although highly criticised, also help in generating huge amounts of electricity which can provide power to entire cities. Emphasis should be laid on constructing the new buildings in such a way that maximum use of natural light is used in order to light up the interiors of the building and minimum power is used to heat or cool the building.

KT Chau, et.al., (2007) One of the most recent ways to decrease the pollution output is to replace the traditional petrol and diesel engine using cars with electric cars. Companies such as Tesla, Rivian, Polestar are already working towards producing cars totally runon battery power. Efforts are also being made to introduce fully electric trucks, planes and hydrogen locomotives for trains.

Literary survey

Energy Efficiency in Buildings

The energy sector worldwide faces rather significant challenges that become more and more acute by each passing day. Innovative technologies and energy efficiency measures are nowadays well known and widely spread, but the main issue is to be able to identify those that will be proven to be the more effective and reliable in the long term. With such a variety of proposed measures, the decision maker has to keep in mind to compensate environmental, energy, financial and social factors in order to reach the best possible solution that will ensure maximized energy efficiency of the building while at the same time also satisfying its final owner/occupant. The most widely used approach to this problem is to analyse the energy usages of the building via various simulations, while the final decision is sometimes assisted through multicriteria decision making techniques in which all the predefined alternative solutions are tested. Many researchers have applied this multicriteria formula in order to calculate and compare various things such as to explore the trade-offs between the building thermal performance and other criteria such as capital cost, and usable are of the building to be used at the process of building design. Some approaches were made approaches for the evaluation of retrofitting scenarios, to determine the most suitable ventilation strategy on a university building. The aim of the last-mentioned approach was to ensure the best possible indoor air quality and thermal comfort of the occupants and the lower energy consumption. Some efforts were also made to optimize the thermal design and control of buildings employing multicriteria genetic algorithms. A multicriteria ‘‘knapsack’’ model to help designers to select the most feasible renovation actions in the conceptual phase of a renovation project was also proposed. According to this approach, a set of renovation actions are developed and for each of them, a utility score is given according to certain criteria. The obtained utility scores of all actions are then used as weights in a knapsack optimization model to identify which actions should be undertaken. Although these approaches allow, to some extent, the consideration of many alternatives, they are still based upon a set of actions or scenarios that should be predefined and pre-evaluated which is one of the main problems of multicriteria system since it does not allow for the use of new and innovative technologies.

Energy Efficiency in Transportation

EJ Horvitz, et. al., (2008)There is the usage of latest studies of machine learning, reasoning, and optimization included in a multi-attribute utility framework to learn, control and improve the energy systems to enhance the efficiency of vehicles. This can include energy systems included in vehicles that employ multiple energy sources, whether it be petrol, diesel, or even an electric engine. There are study inferences from the previous generation of vehicles to calculate how much further we have reached in terms of pollution checking and also the efficiency of the vehicle. The same capacity engines today produce double the amount of power than they used to produce about 2 decades back. With the increasing usage and demand for the transportation facilities, it has become rather necessary to improve the efficiency of the engines, whether it be car, bike, heavy vehicles or even trains. Energy-efficient transportation needs to be encouraged on three different levels: system efficiency, travel efficiency and vehicle efficiency. Corresponding to these three levels of energy efficiency in transport, three basis strategies exist to improve energy efficiency:

- Avoiding increased transport activity and reducing the current demand for transport;
- Shifting demand to more efficient modes of transport;
- Improving the vehicles and fuels used.

S. Boehler B., et. al., (2012) System efficiency means organising land use, social and economic activities in such a way that the need for transport and the use of fossil fuels is reduced. Travel efficiency includes making use of energy efficient modes like public transport and non- motorised

modes like bicycles etc., to reduce energy consumption per trip.

Vehicle efficiency includes consuming as little energy as possible and per vehicle km by using advanced technologies and fuels and by improving vehicle efficiency. System efficiency relates to how the demand for transport (and the different modes of transport) is generated. Research has shown that infrastructure and city structures influence transport demand. Energy consumption per capita rises proportionally as city density falls. The reduction of traffic volume is a crucial aspect of energy-efficient transport. Land-use planning should therefore optimise the positioning of settlement and production structures to avoid traffic or to reduce travel distances. A dense urban structure with mixed uses is essential for high system efficiency, because it involves shorter travel distances and a modal shift from road transport (which consumes an enormous amount of space) to more efficient transport modes such as walking, cycling and public transport. The prerequisites for system efficiency do not only include a dense city system, but also proper management of the demand for transport and an adequate public transport network. Freight transport also benefits from dense city structures with short distances. Combining residential and commercial areas reduces the transportation of private goods.

[7] In urban areas, most journeys involve distances of below five kilometres. A variety of measures can be implemented to encourage citizens to travel such distances by bike or on foot. For longer journeys, public transport provides an alternative to the automobile. Increasing the share of public transport will lead to higher rates of occupancy in buses and trains, which will further increase their energy efficiency.

Besides passenger transport, energy efficiency also needs to be increased in freight transport. Rail freight is particularly energy efficient because of the high load factor; its flexibility is, of course, limited. A sophisticated logistic network, including multimodal logistics centres can help to shift freight to more efficient modes of transport.

The strategy of improvement is not only relevant for private cars, but also for freight and public transport. Specific measures for passenger cars include the use of lightweight materials, downsizing (reducing the volume of the engine and size of the car) and/or using hybrid engines. Such technological improvements are mainly a job for vehicle manufacturers and research institutes. However, legislation and fiscal measures can be important drivers of technological advances. Local authorities can support the diffusion of efficiency technologies in the market by setting standards, raising awareness and creating incentives for consumers to buy more energy efficient vehicles.

Future of Energy Efficiency

[8] Energy is responsible for so much of what powers our daily lives. It's also a resource in which we are constantly trying to manage more effectively and efficiently to not only conserve those resources to be good stewards, but to save money, as well.

The private sector, along with the government, are committed to developing new technologies that use less electricity in order to alleviate environmental concerns, lower costs and stimulate the economy as a whole. The less money a business spends on their electric bill, the more they can spend on hiring employees and expanding their business.

There are a number of other energy efficient technologies which are currently under progress and ensure some promising results.For instance, research and development of new refrigeration technologies has helped to increase residential energy savings. It is estimated that refrigerators sold in the U.S. use about 60% less energy today than they did twenty years ago. While the cost of an energy efficient refrigerator can be more expensive, in the long term, the cost to keep it running is much more cost effective than a less efficient model. This is just one out of many examples of the latest and upcoming energy efficient technologies.

Advantages

1. The use of energy efficient technologies will reduce the emission of greenhouse gases especially carbon-dioxide.
2. This reduction in return will slow down or even completely stop the process of global warming and ozone layer depletion.
3. The air quality index (AQI) will improve drastically meaning people will get much clearer air to breathe, in-turn improving their health and life-expectancy.
4. Using energy efficient technologies will also mean that less fossil fuels will be burnt leading to decrease in greenhouse gas emissions and also ensuring the availability of fossil fuel stock for the future generations.
5. Use of such technologies in houses or in buildings would greatly cut the expenses due to lower energy, maintenance and water costs.
6. Using energy-efficient appliances at home would save you money on utility bills, boost the resale values and improve your family's quality of life.
7. Motors which are energy efficient use less electricity, run cooler and often last longer than NEMA motors of the same size.
8. Energy efficient transformers have longer lifespans and have less energy waste. They also save you money and provide a better ROI (return on investment).
9. Using solar panels in school can dramatically reduce the running and maintenance costs of the school which in-turn can help reduce the fees of the students.

Conclusion

Energy efficiency is now the next step in technological development. In a country like India which is rich in natural resources like sunlight and winds, there is a large scope for such technologies to flourish and enrich the lives of all the men, women and children of this country equally. Some efforts to reach the goal of energy efficient India are already in place. As the industrialisation all over the world increases, the global demand for fossil fuels and other sources of energy also increases. It is high time now that we use energy efficient technologies so that we can ensure a better tomorrow for our next generation and not lead humanity towards extinction.

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ARTIFICIAL INTELLIGENCE -FUTURE OF HEALTHCARE INDUSTRY

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Introduction

Davenport, T. and Kalakota R (2019) - Artificial intelligence (AI) is a general term that implies the use of computer to model intelligent behaviour with minimum human intervention. The term is applicable to a broad range of items in medicine such as robotics, medical diagnosis, medical statistics and human biology. Artificial intelligence is a branch of computer science capable of analysing complex data. One of the main problems in the present healthcare industry is harnessing advanced health technology. The security threat posed by terrorists who might use infectious virus like smallpox, measles and other infectious diseases to cause widespread panic and disaster. Rising healthcare cost, delay of payment processing and billing, huge prices of drugs and medicines and pharmaceutical equipments, shortage of medical staffs(doctor, nurses, and other technicians)

Hamet, Pavelet.al.(2017)The use of AI in medicine has two main branches: virtual and physical. The virtual branch includes statistics, approaching information from deep learning management to have healthcare data in control like electric healh record. It would also render the physicians help in their treatment decisions. The physical way of AI usage is to assist the elderly or attending surgeons. Robots can help in homedelivery of drugs etc.

AI cannot replace human clinicians on a large scale but can rather augment their efforts to care for patients.

Literary Survey

Longoni, Chiara, Andrea Bonezzi, et.al.(2019) AI is revolutionizing healthcare but little is known about consumer receptively to AI in medicine. Consumers are reluctant to utilize healthcare provided by ai in real and hypothetical choices, separate and joint evaluations. Medical AI technology not only could improve physicians efficiency and quality of medical services, but other health workers could also be trained to use this technique to compensate for the lack of physicians, thereby improving the availability of healthcare access and medical quality. The greatest challenge to AI in healthcare domains is ensuring their adoption in daily clinical practise for widespread adoption to take place, AI systems must be approved by regulators, integrated with FHR systems standardized to sufficient degrees. The interface must be made comfortable and known to the clinicians, nurses etc. Payment should be made for regularly, and the systems must be updated timely.

Bartoletti, Ivana (2019) The uniqueness of AI deployment in healthcare is extremely promising. This is because harnessing patient data will lead to precision in medicine, aid in detecting disease before the manifestation and support independent living for elderly. Cancer can be detected faster than before, diseases can be identified before they manifest and incubate, genetic disorder can be spotted which may affect us later down the line. Similarly algorithm can streamline back office processing thus improving patient hospital experience as well as saving considerable resources by reducing inefficieny and waste. But deployment of AI in the medical field brings a lot of challenges from privacy and ethical standpoint. To name a few, the safeguarding of partient data, the ethical boundaries of innovation and the most important of all the actual impact of technology on medics and patients alike. The cooperation of doctors and machines could represent

a turning point with regards to our ability to tackle diseases and improve our well being.

Davenport, Thomas et.al. (2019) The major categories of application of AI involve diagnosis and treatment recommendation,patient engagement .A lot of research studies suggest that AI can perform as well as or better than humans at healthcare tasks. They would work efficiently, deliver things faster, manage data more statistically, conduct test and release the results quicker. Presently the algorithms are already outperforming radiologists at spotting malignant tumours and guiding researches on how to construct cohort for expensive clinical trials. It is believed AI has an important role to play in healthcare offerings of future. The greatest hurdle to AI in the field of medicine is ensuring their adoption in daily clinical practise. Many people are sceptical and don't trust machines, even after so much of progress in technology. The initial set up cost is very high, due to which the adoption of AI is not preferred.

Ramesh, A. N., Kambhampati, Cet.al. (2004) Modern medicine is faced with the humongous impediment of acquiring, analysing and applying large amount of knowledge necessary to solve complex clinical problems. The development of medical artificial intelligence has helped in the formulation of a diagnosis, the making of therapeutic decisions and prediction of outcome. These are designed to support health core workers in their daily duties, assisting with tasks that rely on the manipulation of data and knowledge .There are many different AI techniques available, which are solutions to a variety of clinical problems but these have not been embraced with enthusiasm. There is no doubt that medical AI techniques can help, enhance and supplement medical intelligence of future clinician. Many physicians don't trust the images, the results, the data generated by AI. Preconceived notions hinder the widespread use of AI in healthcare.

Greenspan, H., Estépar, R. S. J et.al (2020) AI systems in health care sector is unique as there is early disease detection, the management of the disease detection, the management of the disease in a hospital setting, and building patient specific predictive models that require the combination of imaging with more medical features. The Covid 19 pandemic surprised the world with its rapid spread and has had a major impact on the lines of billions of people. Imaging is playing a major role in the fight against the disease in some countries, where enabled Computed Tomography (CT) of the thorax has been shown to give an important adjunctive role in treating, tracking the progress of Covid 19 in comparision to other methods such as monitoring of respiratory symptoms and the current molecular testing using sputum or nasopharyngalswabs. So AI has helped the frontliners in fighting an emerging pandemic.

Wartman, S. A., & Combs, C. D. (2018) The practise of medicine is rapidly transitioning from the statistical age to the age of artificial intelligence. So a reboot of medical education is required. Medical education needs to move beyond the foundational biomedical and clinical sciences . Systematic curricular attention must focus on the organisation of professional effort, the use of intelligence tools, involving large data sets and machine learning and robots,all the while assuring compassionate care. It is a fact that the understanding of the biomedical sciences and their connection with clinical knowledge and expertise should remain central to medical education. However the 21st century medical curriculum must include components to strengthen physicians capacity to practise with more precision in data rich environments supported by artificial intelligence tools such as machine learning, robotics, a relentless focus on improving performance and outcomes, and ensuring the mastery of compassionate communication with patients

Advantages

1. With increase in population, more and more data is to be collected and generated. Introduction of AI to healthcare will help the data to be better managed and prevent the loss data.

2. AI would reduce the workload on physicians, nurses and other helping staff and increase their efficiency too.
3. Once an algorithm is developed AI can help the doctors and support staff in early identification and diagnosis of a disease. Some diseases like cancer are hard to diagnose and identify. AI would help in such case by access to wide range of data.
4. Under developed countries can benefit from AI at large to increase life expectancy where there is shortage of skilled physicians and support staff. AI along with human operator could work under such areas
5. AI would help in drug development at large as drug development is a very slow process and there are several faults initially. AI can help scientist in drug development in identification of candidates early on.
6. AI can also help to create medical device. AI can access information to a person's metabolic processes, hormone levels, and predict any mishaps. It can be very useful in predictive analysis.
7. AI infrastructure although may have high initial cost of setup, but it can reduce the overall expenditure of patients on diagnosis, AI also provides better security at data.

Conclusion

AI has an important role to play in the healthcare offerings of the future. As machine learning, it is primarily capable behind the development of precision medicine, widely agreed to be a sorely needed advance in care. Even though early attempts at providing diagnosis and treatment recommendations have proven to be challenging, AI will eventually master that domain as well. Given the advances in AI for imaging analysis, it seems likely that most radiology and pathology images will be examined at some point by AI developed machine. Speech and text recognition are being employed for patient communication and capture of clinical notes.

The largest threat to AI in healthcare domain is not whether the technologies will be capable enough to be useful, but assuring their adoption in daily clinical practice. For widespread adoption to take place, AI systems must be approved by regulators, integrated with EHR systems, adopted by clinicians, paid for by public or private payer organisations and updated timely in the field. Most of these challenges will ultimately subjugated, but this will take long, before the technologies themselves to mature.

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ENERGY EFFICIENT TECHNOLOGY FOR DAY -TO -DAYLIFE

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Introduction

Zerinou, I. et.al.(2020) Energy efficient technologies is one of the method by which we can use the energy in the most efficient way. It means that less energy is required by a device to perform the same task than other devices which take higher energy. There are many energy efficient technologies through we can save our energy resources. As we know the current energyresourcesaredepletingdaybydayresultingintheh armfuleffectsoftheenvironment. Due to our lack of knowledge we are harming our environment. Like burning of fossil fuels has increased the level of carbon dioxide in earth results in increasing of earth's temperature, glaciers melting resulting in the increase of water level that can also lead to floods. Thus there is a urgent need to use the energy efficient technologies that is we can use more renewable sources of energy like we can install solar cell in our homes which can use sun's energy to generate electricity. Solar cell plants can easily be instalinour homes. Thus in this scenario it is our need to use energy efficient technologies otherwise our earth would no longer be same.

Zerinou,I. et.al. (2020) Now it is our foremost responsibility to implement these energy efficient technologies. Now a days we can only save energy by using renewable sources of energy like using energy from sun, air water. From air wind mills are there which with the help the air helps to generate electricity and that can be supplied to our homes later. Simply hydro power can be generated by using fast moving water. We can use fluorescent light bulbs instead of incandescent bulbs to save our light energy. There are various methods through which can save our light energy. We can use smart metering solutions which can tell us how much power we are using. Try to use LPG gas connection for cooking don't use fossils fuels like coal which will harm the environment. Don't use private transport vehicles try to use public vehicles as much as we can which can save a lot more energy especially petrol, diesel which are non– renewable sources of energy. Also using CNG car which will protect our environment from pollution as we see our country is suffering from air pollution a lot we do not find fresh air to breathe. Therefore using CNG gas will save our fossil fuels as well as will protect our environment .It is estimated that if we follow the above methods we can save around 20% of energy which is quite helpful in saving our environment.

Abdelaziz, E. A. et.al.(2016) The industrial sector consumes greater percentage of world's total energy. The energy that is used in industrial sector is used for many purposes like for mining purposes, used for manufacturing of products, for mining purposes and also for constructing buildings ,dams, roads etc. so industries are using various type of technologies for energy saving such as economizers which are mechanical devices that tend to induce energy consumption. They are heat exchange devices that exchanges heat from the surroundings and maintain the device and thus helps in energy consumption. However industries also use high efficiency motors, devices which is used to prevent leak age of energy, reducing pressure drop, variable speed drivers for reduce in energy. Variable speed drivers are used in electromagnetic devices to reduce the speed of rotors. The high efficiency motors can lead reduce energy as well as significant savings in cost. However in addition to this some new technologies should be introduced to increase energy efficiency and to reduce energy consumption.

Sarpreetkaur (2016) Now we will see the trends in technology that is being adopted to improve energy efficiency. Now the first one is the energy efficient motors which is used to reduce the power loss and hence improve the efficiency. For this we will require some good quality materials for example using steel that will reduce the loss of eddy currents. We can also use soft starters which is used to provide power to motor in an easy way and helps to do acceleration and deceleration easily**.**

Alexandre Hébert (2018) We can also apply some technologies at home to conserve energy or we can make our house a passive house. Passive house is a specially designed house to prevent energy losses. Various insulations are done in the house to prevent loss of light and also the heat windows which can make the temperature of the house suitable accordingly and can save very much energy. It is estimated that a passive house can save upto 90% of energy. This is a very great method and everyone needs to follow this method in our house or workplace to increase energy efficiency

Literary Survey

Ryan Ayers (2017) When it comes to innovations in energy the new technologies helps to give power to the world. Artificial Technologies, helps to use energy resources efficiently and helps us to replace non renewable sources of energy like coal, wood, etc. for example there are technologies for smart home devices. There are various companies which are trying to make the devices which make easy for the home owners to save energy. The devices like smart bulb which automatically switch off lights when you are not in room or smart heaters which can change temperature on their own whenever needed. Smart Electrical Grid makes easy to use renewable sources of energy. Today power delivering is not only limited to power stations, transformers. With the use of artificial intelligence and smart meters it is possible to check how much energy you have used and cost of that energy used by you in one day. These technologies can save energy up to 30%. There are many more technologies that are coming but it will be nothing of use unless we are cautious, aware of using the resources in a limited way but it is only possible with the help of the public support. Algae is one of the most important technique through which we can make various fuels as algae grows quickly and it has higher content than cane or sugar. Now it is more important to implement these technologies in order to live a healthier and happier life.

Grueneich, D.M.(2015). Now there are various challenges that comes regarding using energy efficient technologies. The first one is making a financial report that how much money we can investonthesetechnologies.Alsousingnonrenewablere sourceslikewindmillrequireslarge amount of land to set up wind mills. Also the sources from which we are getting energy efficient technologies must be varied. The main thing is also that the public needs to be aware about using local energy potential as much as they can. There also be inefficient corporation among research work and research organisations which lead to lack of inefficient technologies. Also lack of confidence is seen in local installers to install technologies. The lack of interest among youths to think the ways they reduce the usage of renewable sources of energy and how they develop new technologies so they can use energy efficiently. Now further what is important that people did not know the consequences. They don't know what will happen if they try to deplete the resources in such a way. There will be a time when one day energy resources will deplete in our country and we have to depend in other countries for resources due to which prices of fuels will get increased too much.

PAUL LESTER **(**2015) There are various new technologies that we can adopt to use energy sources efficiently. A new technology that is coming is ultra efficient heat pumps.

These heat pumps cool and heat your room whenever required by moving heat from one place toanother.Thesetechnologycansaveupto10%ofenergy. Theseheatpumpscanalsoworkas cloth dryers they provide hot air to wet clothes and make clothes dry. These technology save up to 60% of energy. Another

one is window controls this automatically controls the amount of light coming from sunlight and whenever large amount of light is coming it automatically adjust to shading. Thus saving consumers energy and money. There are also other methods like making the roofs of the house with such pigments such that it absorb less amount of light and reflecttheotherpartoflight.Thishelpsinmakingtheroom cool.Thesemethodsareofnouse unless we adopt them.. Only by using these type of methods we can use energy resources efficiently.

Er. PRAVEESH V V(2020) Now we will see how we can use energy efficient technologies easily at our home. By adopting energy efficient techniques we can easily increase our comfort level. It reduces our impact on climate change, reduces pollution and also helps us to save money. We can save our money by using energy efficient appliances such as by using five star rating appliances which consumes less energy than any other rating appliances. We should always clean our appliances on a regular basis which helps to make the appliance run better and thus helps in energy consumption. We should use BLDC fans in our homes which saves about fifty percent of the total energy than consumes by other fans. Try to use solar water heater in winters instead of using normal water heaters also we can we can replace our windows and use more efficient windows. We can also use solar shades. We can use a lid on our cooking utensils which a prevent the heat from escaping and saves a very good amount of energy from wasting. Try to use a laptop instead of a desktop or computer as laptop uses less amount of electricity than computer. By adopting these simple techniques in our day to day lives we can save a lot more energy.

Hilty, L.M. et.al (2009) .Now we should know about the role of ICT (Information and Communication Technology) in energy efficiency. ICT is emerging as one of the best techniques for increasing energy efficiency. ICT uses the telecommunications related software to store, transfer analytics data. Now the use of ICT has spread widely in our daily lives ICT can play a important role in sustainable development. ICT can provide high efficiency in lighting, electrical systems, power backups, generators. It can also provide high efficiency in energy electrical devices like elevators and pumps. With the use of ICT light can be automatically turned on, off and dimmed according to requirement thus saving energy.

Also through the use of ICT we can manage temperature of both indoor and outdoor. Now it is clear that if we use ICT we can save energy consumption by 20% almost and thus saving renewable sources of energy.

Bianchi, M. V. (2011). Now there are various challenges that we face in building energy efficient technologies. first is that if we make our home air seal it will saves energy but also can affects our health ,safety .so to solve these we have to take various precautions and make sure that air sealing of our home should be done with proper designed ventilation. The main problem is that people did want to spend their money on making energy efficient homes.

They did not feel the need to do it. Also lot of money in using energy efficient appliances .so it is necessary to make a budget of about how much we can spend. Also due to lack of resources we are not able to implement energy efficient techniques. The most important thing through we can build energy efficiency techniques is the intend to do it. If do not have care about resources which are depleting at a faster rate we cant do nothing .We(especially youth) need to build to a positive attitude towards this and come up with new and best energy efficient technologies.

Advantages

1. There are various advantages of energy efficient technologies in our day to day life. The new technologies helps us to save the fossil fuels which are limited and take many years to regenerate.
2. The energy efficient technologies helps us to simply save money by lowering the costs of purchasing energy.

3. These technologies helps us to reduced climate change impact, reduced air pollution and improved health of the individuals , improved indoor condition of the house, improved energy security and reduction of the price risk for energy consumers.
4. One of the best advantage is that energy efficient technologies helps us to reduce green house gas effect which means that the effect of green house gases will be less which will thus helps in the lowering the temperature of Earth , prevent melting of glaciers which will further helps in preventing flooding.
5. The energy efficiency method helps us to prevent from the harmful effects of ultraviolet radiations as the production of green house gases will be less and it will result in the less depletion of ozone layer.
6. Energy efficient technologies helps us to reduce pollution mainly air pollution which will help us to prevent asthma problems, lungs problem, difficulty in breathing.
7. By using the efficient technologies we not save energy save limited energy sources for ourselves but also for the future generation. Thus it helps in using the energy sources sustainability.
8. To meet our requirements we harming our environment very much. It is estimated if we use energy efficient technologies the earth will be more cleaner and greener and also there will be decrement in the number of disasters that happens around the world.
9. Using energy efficient technologies helps us to save the habitat as excessive use of renewable sources of energy can harm animals as mining, logging and extraction activities destroys the habitat on lands and in the ocean.
10. Continuous usage of energy efficient technologies helps us to reduce acid rain which will further helps in preventing crops damage and it also reduce smog which is generally seen in winters .

Conclusion

The energy efficient technologies are very useful for a country like India which is the second most populated country after China. The implementation of energy efficient technologies helps us to reduce the negative impact of energy on environment and human-being and increase the availability of primary energy reserves. The cost to both suppliers and consumers can be reduced. The energy efficient technologies are boom to our world. These technologies can change the world climate from unpleasant to pleasant and will make the world a worthy place to live in where one can breathe fresh air, one can enjoy the beauty of nature but there also certain challenges in front of ourselves like lack of appliances, lack of information and awareness of political benefits, lack of knowledge to implement energy efficiency measures and some areas lack of technology and money is seen there. There is a urgent need to overcome these barriers then only we can save our limited sources of energy otherwise all renewable sources of energy will get finished and our future generations will not able to utilize the useful sources of energy.

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ADVANTAGES OF AI IN MEDICAL FIELD

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Introduction

Charniak, E. (1985) Artificial intelligence is defined as the modification of thought process of different ideas and creativity thoughts in the developing areas that can be implemented by using technical expertise in the developing computer field is known as Artificial intelligence. The immediate rise in the field of Artificial intelligence is due to the development of new thoughts in many interesting fields like robotics, machine learning etc.

Yao, Wet.al. (2010) The major challenges faced by the health care industry are that the lack of security concern, the financial crisis, the level of consistent maintenance, organizations support, major requirements of sufficient tools are the difficulties in the field of health care and medicine.

Khanna, D. (2018) AI is used in healthcare industry because it can perform many difficult tasks in less time and in more accurate manner. The various applications in which AI is used are to maintain medical records of patients, advanced treatment, new medicine discoveries, scan, new medicine invention , analyse signs of x-rays, MRI and ultrasounds. These are the effective uses of AI in healthcare.

Kechit Goyal (2020) AI help the doctors from wrong diagnosis by providing the patients detailed data base and they will give appropriate treatment according to it. BCI (Brain-computer Interfaces) is another area in the medical sector where AI is used. These interfaces help in recognizing problems related to speaking or moving that occurs due to problems in the brain. AI can help those patients to overcome the problems by decoding the neural activates.

Artificial intelligence is very helpful tool in the present and in the future because it makes new and innovative things which can make a difficult work in a very simple form and its also helpful for the researchers to find more innovative thoughts and to make their research in a very confident manner by bringing out the research to success. This AI changes the human intelligence into the form of digital intelligence.

Literary Survey

The Potential for Artificial Intelligence in Healthcare

Davenport (2019)., AI has the potential to develop many aspects of patient care, administrative processes, payer and pharmaceutical organization. AI has the potential to replace humans for broad medical process domain. Artificial intelligence is not a single technology, but it's a collection of many. Most of these technologies have immediate relevance to the healthcare industry. Machine learning, robots for treatment, natural language processing are the few findings from AI which can help more in the field of health care. Kalakota, R. (2019)Diagnosis and treatment of disease is a focus of AI since at least the 1970s, when MYCIN was developed at Stanford for diagnosing bacterial blood-borne infections, this and other early rule-based systems showed accuracy in diagnosing and treating the disease, but were not adopted for clinical practice. This will be changed by the help of artificial intelligence. Patient engagement and adherence is the another major problem faced in the health care. The more patients proactively participate in their own health and care will give better outcomes. These factors are increasingly being addressed by big data and AI. The implementation of AI made a variety of ethical implications like accountability, permission, privacy etc. AI play a vital role in future in the form of machine learning,

image analysis, speech and text recognition for patients and these are the various scopes of AI in health care.

Use of Artificial Intelligence in Early Detection of the Coronavirus

Allam Z et.al (2020) The availability of computing tools in AI and their subsequent use in healthcare worldwide has created many developments in medical operations, personal medicine and epidemiology are expected to continue improving precision especially in accuracy of diagnosis. Early detection of covid-19 is done with the help of AI. The official warning issued by the WHO on the outbreak of the coronavirus (COVID-19) was declared after received the reports from official sources of China offices on 9 January, 2020. But it was detected earlier on 8 December, 2019 when the first batch of six patients first reported into a Wuhan hospital where they were treated and discharged. This information tells us clearly that how AI is used in the detection of pandemics earlier. The increasing trend in research involving the development of AI-based algorithms to predict the outcomes of healthcare data and to predict the disease outbreaks earlier. The technical expertise among us will see an increasing use of computing processes and their accuracy in management decisions may be undertaken as in the case of pandemics and will lead to a prominent role in urban health policy.

Artificial Intelligence in Drug Development

Mak, K. (2019). At present pharmaceutical industries are facing challenges in sustaining their drug development programmes because of increased reduced efficiency and R&D costs. The first step in drug development process is the identification of novel chemical compounds by biological activity. This biological activity can arise from the interaction of the compound with R&D efficiency and attrition rate in the development of drugs. The increased R&D costs as well as high attrition rates in the development process of a new drug will create challenges to pharmaceutical industries. Pichika, M. R. (2019). AI tools can be effectively used in various sectors like identification of drugs, validation of drug targets, designing of new drugs, drug repurposing, analysing biomedicine information, improving the R&D efficiency and many more. AI can be used in assisting gene therapy and other therapies that are currently not available to us in the field of healthcare. With the help of AI the possibility of combining regenerative medicine with pharmacology and gene therapy also takes place. The major uses of AI provide the opportunity to counter the challenges created in the drug development methods by minimising bias and human intervention in the process. Currently, there are no developed drugs by the use of AI, but definitely it will create a major impact in pharmaceutical industry by the upcoming decades.

Artificial Intelligence-Enabled Healthcare Delivery

Reddy S et.al (2019).In recent years, there has been growing progress of artificial intelligence with the development of deep neural networks, natural language processing, computer vision and robotics. These techniques are now actively used in healthcare with many of the health services given by clinicians. The potential role of AI techniques in healthcare delivery and medical research are increasing nowadays. The four main areas where AI influence more are patient administration, clinical decision support, healthcare interventions and patient monitoring. The major challenges faced for the implementation of AI are clinicians who are traditionally been slow adopters of new technology relying on tried and trusted methods to deliver clinical care, as the success of AI in medicine become more evident because governments and funders may be required to formulate strategies by how AI gets applied in healthcare delivery and how the process will be funded etc. The other trends of AI in healthcare is the development of realistic view of humanoid robots or computer-generated virtual health assistants may accelerate the development of artificial intelligence in healthcare and it will be

helpful to do minor surgeries by robots in the future. These information clearly describes that artificial intelligence will replace human clinicians in the future.

Artificial Intelligence in Cardiac Management

Nadikattu R. R. (2017). Cardiac disease is one of the leading causes of death across the globe. There is an increasing demand to develop new techniques and strategies to uplift the existing cardiac disease management. In recent usage, artificial intelligence has created an enormous impact globally; it is also creating an impact in the health care domain for the diagnosis and management of cardiac diseases. Artificial Intelligence has become an essential tool in medical science which replaces actual humans and convert human intelligence into machine programmed, which think like humans and also mimic the human actions. Artificial intelligence is used in the machines and is used in the treatment of the cardiac patients like a ventilator which give artificial respiration to the patients who are serious. There is an ECG and ECO machine which is used to measure and graphically represents the heartbeat of a patient. ECO is taken when improper representation of the pulse shown in the ECG output. For a cardiac person it's necessary to see the pattern of the heartbeat to treat the patients accordingly. There are more similar machines-like oxygen concentrator which is used to provide oxygen to the patient. Artificial intelligence is very much used to treat and test the patient to address them in a better way and give the best treatment facility for the patients. There are few challenges of AI in cardiac management are math knowledge, robust data, security, good collaboration in processing. In these ways AI can help the development of cardiac management.

Applications of Artificial Intelligence in COVID-19 Pandemic

Vaishya R et.al (2020).Healthcare industry requires the support of new technologies like Artificial Intelligence, Internet of things etc. The main aim of AI is to analyze, prepare for the prevention measures and fight with COVID-19 (Corona virus) and other pandemics.AI is one of the technology which can easily find the spread of the virus, identifying the high-risk patients and also useful in controlling the spread of infection in real time. The major applications of AI in COVID – 19 pandemic are early detection and diagnosis of the infection by medical imaging technologies like Computed tomography (CT), monitoring the treatment by creating an intelligent platform for automatic monitoring, prediction, neural network can also be developed to view the visual features of the disease and this would be helpful in proper monitoring and treatment of the patients, Contact tracing of the patients by analyzing the level of infection of the virus, development of drugs and vaccines by speeding up the drug testing process in real-time, where normal testing takes plenty of time which may not be possible by a human. It can be helpful in identifying the useful drugs for the treatment of COVID-19 patients.AI is not only helpful in the treatment of COVID-19 infected patients but also for the proper health monitoring and can also helpful in developing proper treatment knowledge, prevention strategies, drug and vaccine development.

Advantages

1. AI helps in robot assisted surgeries.
2. It can perform early detection of symptoms and triage.
3. It can also help us in patient care and medication management.
4. AI assistant can help and assist the patients by providing virtual care through online medical records.
5. AI has the capability to design proper treatment plans for the patients.
6. AI can reduce human error and can able to free up the time of doctors.
7. AI can increase the efficiency of operations in hospitals, clinics, pharmacies and labs.
8. AI can help the doctors in finding new inventions for solving the major problems in the human health.

9. AI plays a major advantage in the discovery of new drugs.
10. AI plays a major advantage in cardiac management by providing artificial oxygen for the patients.

Conclusion

We can conclude that Artificial Intelligence is the growing and developing technology at present and has a potential to increase the development of many sectors especially in the healthcare industry. AI requires large amount of healthcare data to train and learn in order to give accurate and precise clinical decision and to increase the efficiency of the treatment. AI is used in various areas of medical field like managing healthcare records and data, drug development, treatment ways etc and also it can help the physicians to analyse and treat the patients accurately. Even though AI is used effectively, it also has some disadvantages like

Cost efficient due to increased development of machineries, it also affects the human interference which causes major problem in the employment. Every new invention will have both advantages and disadvantages but we need to consider the positive thoughts to increase the development of the world. Since AI help the clinicians to take accurate and precise decision and it leads to the increase of patient care as the whole. It will be more useful for the developing countries like India because it as more advantages for the improvement of the environment and the society .Hence, AI plays a major role in increasing the growth of healthcare industry.

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DRONE TECHNOLOGY AND ITS APPLICATIONS IN EVERYDAY EMERGENCIES

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Introduction

Prior, Custers B. (2016) Drone technology has occupied a significant place in our lives having made it easy to accomplish tasks in almost every field of work. Drone refers to the technology of aerial machinery that is controlled in its movement from the ground. It is also referred to as Unmanned Aerial Vehicle (UAV) since it does not have any person physically on-board to control it. Media popularized the term 'drone', due to which, it is much familiar among the people than any of its other terminologies.

Drones find usage for a wide variety of purposes, some of the most common ones being videography and transport of light commodities. It has seen applications in area surveillance, videography, traffic surveillance, agriculture management, rescue operations during disasters, etc.
In our day-to-day lives, some of the emergencies we come across are accidents, natural disaster strikes, quick medical help like cardiac arrest or being in need of some medicines which aren't with you, wanting to reach a particular destination at the earliest but don't know which road to take in terms of the traffic or at times when an entire area is to be evacuated for a demolition and to be able to view the entire place to check for those people left behind, and many others.

Prior, Cohn, et.al. (2017) Drones cover up for majority of these day-to-day emergencies and needs. Drones make inspection of agricultural lands and management much easier for people working in producer sectors. As for the delivery companies, small deliveries are done through drone services. In cases of accidents, especially in remote or crowded areas, emergency delivery of relief and care units are carried out through drones. The same goes for during the aftermath of any natural disaster or wide-spread epidemic where help is required faster and at more than one place at once. Another instance where we see drones in use is during inspections for large constructions. They see to every minute details in its making which makes sure that there is no loose end which could give rise to any problems like accidental demolition due to frail structural build.

Prior, Estrada, et.al. (2019) Even after the introduction of drones, they have further advanced in their model, usage and effectiveness with the help of sophisticated technologies and control systems attached to it. It is this advancement that took drones to new heights from private videography to national security. However improved the version gets and however big the task to be performed gets, it always remains compact enough to control comfortably. This technology truly has a lot of boons than banes.

Literary Survey

Prior, Wade Hutson, et.al. (2016) Drone technology has proven to be useful in many situations but despite the most common applications, there are some unusual and innovative yet very helpful uses of drones seen lately. In case of medical emergencies like cardiac arrests, where help is needed within six to seven minutes, drones have been developed to transport the needed medications and medical units to the specified location with only a phone call! It also sees to the transport of blood for patients and spread of fertilizers on a land for agricultural uses. A brand by the name 'ZIPLINE' uses this technology to transport blood, vaccines and medical supplies. There are also drones developed that are used in search and rescue which can travel to places not accessible by vehicles in order to locate people

trapped or in need and can send their location and condition to its control source. The condition of the person is taken in using the data it stores through its heat sensors and other technologies installed. There were cases documented under avalanches in the cold areas which were foreseen kilometers away by drones installed. Such cases proved instrumental in saving many lives as well. Thermal scanners fixed in drones have been able to detect mishaps in the dark especially in the middle of vast water bodies like oceans during late hours. Its speed has helped reach the location of help and the land faster that vehicle speed. These applications are just a few of the numerous others that have glorified drones as ever before.

Prior, Estrada, et.al. (2019) The initial drone is found to have been developed by Orville Wright and an engineer, Charles Kettering but the uniqueness of the drone technology timeline is how fast it has seen to the advancement in drones, from the initial model, with the use of high-tech controls and monitoring aspects. When it comes to uses of drones, it has been listed from entertainment to military and from private to meteorological uses.

The best example of how drones are used for life-saving activities are seen in disaster managements across the globe. It is proves to be useful in three aspects:

→ Search and Rescue
→ Transport of aids and relief
→ To assess the damage after disaster strike

For every kind of uses, there are nine major criterions to ensure that defines the quality of drone used- space and size, effective charging methods, engine and power, GPS and antenna coverage, logistic work done, model structure and material, flyer's experience, speed factor in propulsion and the camera quality. Thus the effectiveness of drones is determined by the level of technology used in it structure.

Prior, Cohn, et.al. (2017) with the modernizing of this technology it has seen a rise in its market value and a move in to the commercial sector. The graphical trends show a steady increase in uses and sale in market of drones. Originally used as a military equipment, it is now seen for more personal emergencies over the past five years. Drone-delivery services, surveillance and security have gained momentum all due to its technological potential of free flight, better battery, detecting technology, sensors and many more. This is why there has been a rise in its market value over these five years. Growth in drone value is influenced by five pointers in this sector which are infrastructure, improved technological potential, public acceptance, economy and regulations. Industry and government are now active users of the drone technology. Both benefit in heaps for their own uses which in turn come in favor of the public.

Prior, Custers B. (2016) While drones have seen a rise in market value, it's still considered feasible in terms of its uses. There is a lot of future application and needs seen in this technology. There are two forms of issues faced in general: Ethical and Legal issues. Both of these have many solutions to solve but the important aspect we see from these is that they are based on the way we use them and for what we use them. The Ethical issues concern the harsh methodologies of combat used for personal wars and its psychological impacts on people from such uses. The Legal issues refer to unauthorized use of drones in particular places and for particular uses that directly or indirectly harm other. In general, we can summarize that, there are opportunities and threats in the context of drones but these are distinguished only in terms of how we choose to operate them.

Prior, Bill Read (2017) Life-saving Drones have become an integral part of many societies like the aeronautical society. According to them, these "Eyes-in-the-sky" are spot-on in detecting survivors with a precision in location, time and state or condition of the person. There records on drone rescue exceeds in count. Different kinds of life-saving drones have been developed like the ambulance drones, drones for maritime rescue, etc. The easiness to launch, the low cost of operation and closer contact to victim are the reasons for the high scope of drone usage in rescue operations. The addition of new features and extensions are easier in

its structure and makes it more apt to use in its work without making the model bulkier or overloaded. It is to this day, a very welcomed asset to societies like the above mentioned.

Prior, Nina Strochlic (2017) Talking about saving lives, drones have also proven useful for animal lives. Drones are used in monitoring wildlife in their natural habitats to save them from any threats or from the face of extinction. It is also used in search of lost civilizations. The check on wildlife against illegal practices like poaching and hunting has never been this easy before either. The application we are most aware of is documenting these wild species for broadcasting. These require videography without any person in the view of the animal as it may venture off at the sight of human. Drones are the best for such uses. Detecting animals in need of immediate help in a vast area has also been simplified under the bird's-eye of the drone. This technology has solely supported these activities which has conserved many species and helped many people earn a livelihood with such activities.

Advantages

1. Drones have made aerial photography and aerial videography possible and with much ease as well. The imagery it provides is of high quality and enables perfect and detailed vision to a vast area.
2. It has made agriculture on a vast area easy to manage by being used in farming activities like mass spray of fertilizers and insecticides, and in monitoring the growth of crops. This has saved the producer sector time and money.
3. Drones are instantaneous and easy to deploy, due to which it is used for almost any function by fixing the instrument used in the activity to the drone body. Its usage has made the world smaller by accessing areas that were previously inaccessible.
4. Security has been convenient with drone technology due to its aerial vision and high quality images. Drones are also secure from manipulation in such tasks.
5. It captures moments that require time and patience such as in the field of education and entertainment. For example, zoologists and wildlife researchers can carry out observations over longer periods of time much faster and without being in close proximity to the animals which can affect their reactions.
6. It minimizes risks by foreseeing dangers in hazardous areas like in case of avalanches, tsunamis, accidents, etc.
7. It saves money, time and effort in all of its uses.
8. It has made medical help and commercial delivery faster to send and access.
9. Since most tasks are being carried out through drones and not manually, there has been a decrease in unwanted crowding at public areas and reduction of traffic on roads.
10. It is easy to modify the drone body in its size, shape, efficiency and technology according to our will and usage.

Conclusion

Drones have become incredibly popular now. They have proven useful in many varieties and in a number of fields. For countries like India, drones prove to be a big establishment in the making of a developed country. This is achievable as it lead major sectors to flourish like agriculture which forms the backbone of India and commercial sectors that are rising nowadays. Speaking of India, agriculture is one sector that India can and has been since long providing in abundance. But this requires a lot of time, effort and money to run successfully, all of which the drone technology can satisfy. It has thus modernized this field to large extends and popularized agricultural activities which weren't given much importance before. Even in other fields, mostly commercial sectors, handling the extensive population has been simplified by drone deliveries and drone surveillance.

Drone technology has also provided itself as a product for sale which has increased technological levels of study and employment in development and sale. Another usage is as a source of entertainment,

especially in colleges, where drone races have gained momentum and tech clubs have started manual development of drones.

In general, drones are used for common uses as well which has helped make many people self-sufficient in carrying out tasks. Private matters of security, management and business has been handled personally with ease since the introduction of this technology, while before it required a lot of time, money and joint effort.Drone is one such technology that has kept on being modified from its previous form to a more advanced and efficient model. It has also seen changes in order to accomplish specific tasks as per the user's will. Its importance and use has increased as ever before and will do so ahead.

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ARTIFICIAL INTELLIGENCE AT MEDICAL FIELD

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Introduction

Artificial intelligence (AI) aims to mimic human cognitive functions. It is bringing a paradigm shift to healthcare, powered by increasing availability of healthcare data and rapid progress of analytics techniques. (F, Y, & H, 2017) AI can be applied to various types of healthcare data (structured and unstructured). Popular AI techniques include machine learning methods for structured data, such as the classical support vector machine and neural network, and the modern deep learning, as well as natural language processing for unstructured data. Major disease areas that use AI tools include cancer, neurology and cardiology. (Dong, Li, & Ma, 2017). There has also been an exceptional amount of inflation about the abilities of AI and even sometimes claims that AI will replace human clinicians altogether. These perspectives do not appear to reflect current limitations of AI systems. If one takes a balanced perspective of the limitations and promise of AI, one can gauge which parts of the healthcare industry are likely to feel significant impact of these technologies in the near future. Currently, there is little discussion in scientific literature or public policies as to how AI techniques can be incorporated in healthcare delivery.(Reddy, Purohit, & Fox, 2018)

Related Work

Social media and healthcare quality improvement is an emerging topic.(Genes, 2016) Recently many scientific works have been proposed facing different aspects of social media for healthcare purposes. Regarding the social implication of such systems, the benefits, best practices, risks and ethical issues of applying social media to healthcare professionals are discussed in (Lee Ventola, 2014),(Hors-Fraile et al., 2016), (Pinho-Costa et al., 2016), (Aboelmaged et al., 2016). Social media can be used to enhance professional networking and education, organizational promotion, patient care, patient education, and public health programs, but they can also present several potential risks for patients regarding the distribution of poor-quality information, damage to professional image, breaches of patient privacy, violation of personal-professional boundaries, and licensing or legal issues. However, social media are also changing the healthcare industry ((Opel, 2016)and marketing (Malvey et al., 2015). Evolution of social media in scientific research in the domain of ICT and healthcare professionals in Saudi Arabia Universities is discussed in (Abdullatif et al., 2017), whereas a similar study performed on young people in Russia is available in (Bugrezova, 2016). Studies on the effectiveness of social media data in healthcare communication involving both medical personnel and patients is proposed in (Saqib Nawaz et al., 2017), (Huby & Smith, 2016),(Smailhodzic et al., 2016). The role of social media in menopausal healthcare is discussed in (Short, 2017). There is also a strong correlation among online data coming from search engines and social media in the healthcare domain. In this regard, in (Smailhodzic et al., 2016) it is discussed an approach for collecting twitter data by exploring contextual information gleaned from Google search queries logs.

Due to the huge amount of information to be analysed and processed, many scientific works have faced the need of decisional support systems. In this regard, a recommendation approach helping social media users to identify topics of interests is discussed

in(Li & Zaman, 2014). Such an approach was also used for the assessment of user similarity in heterogeneous network with the purpose to look for people that can give informational and emotional support in a more efficient way is discussed in(Jiang & Yang, 2017). Another user similarity study in healthcare social media using content similarity and structural similarity is presented in (Jiang & Yang, 2015). A Study on healthcare social media aimed at underserved communities based on a mobile decision support system (MDSS) providing information dissemination is discussed in (Miah et al., 2017). The need of pervasive decision support systems in healthcare using intelligent robots in social media is discussed in (Miah et al., 2017). All aforementioned scientific works consider the benefits of using healthcare social media, but in many cases require a strong interaction of the medical personnel. For the best of our knowledge a system that filter for doctors only the patients' posts that raises critical issues has not been proposed yet. In this paper, we aim to overcome such a gap.

Findings and Future Challenges

AI-based PaPAS also enables other applications scenarios considering a combination with emerging ICT technologies such as Cloud computing, Edge computing, Cyber-Physical System, Internet of Things (IoT) and Big Data analytics technologies. In fact, AI applied to HSNs can trigger delivery of various kinds of Cloud-based healthcare services and applications over telecommunication networks and the Internet aimed at providing assistance to patients when warning and critical levels of seriousness occur. The benefit of adopting AI in telemedicine is twofold: on one hand it can push down clinical costs and on the other hand it can improve the quality of life of both patients and their families. Telemedicine solutions that can be triggered by AI mechanisms can be aimed at tele-nursing, tele-rehabilitation, tele-dialog, telemonitoring, tele-analysis, tele-pharmacy, tele-trauma care, tele-psychiatry, tele-pathology, etc. Feedback provided by AI applied to HSN can also control physical processes of patients considering Cyber-Physical System that on one side is connected with an Healthcare Cloud provider (e.g., managed by a Hospital or clinical centre) and on the other side is connected with the patient by means of a series of medical IoT devices deployed on him/her by means of a personal body network including medical sensors and actuators and/or deployed in medical devices placed in the patient's home on which the patient is attached or monitoring and controlling the surrounding environment. Furthermore, AI applied to HSN opens towards various scenarios of big data analytics. In fact, it can allows researchers to study and understand the origins, causes and diffusion over a wide geographical area of a particular disease besides understanding their social implications.

Conclusion and Discussion

A successful AI system must possess the ML component for handling structured data (images, EP data, genetic data) and the NLP component for mining unstructured texts. The sophisticated algorithms then need to be trained through healthcare data before the system can assist physicians with disease diagnosis and treatment suggestions.

The IBM Watson system is a pioneer in this field. The system includes both ML and NLP modules, and has made promising progress in oncology. For example, in a cancer research, 99% of the treatment recommendations from Watson are coherent with the physician decisions. Furthermore, Watson collaborated with Quest Diagnostics to offer the AI Genetic Diagnostic Analysis. In addition, the system started to make impact on actual clinical practices. For example, through analysing genetic data, Watson successfully identified the rare secondary leukaemia caused by myelodysplastic syndromes in Japan.

The cloud-based CC-Cruiser incan be one prototype to connect an AI system with the front-end data input and the back-end clinical actions. More specifically, when patients come, with their permission, their demographic information and clinical data (images, EP results, genetic results, blood pressure, medical notes and so on) are

collected into the AI system. The AI system then uses the patients' data to come up with clinical suggestions. These suggestions are sent to physicians to assist with their clinical decision making. Feedback about the suggestions (correct or wrong) will also be collected and fed back into the AI system so that it can keep improving accuracy.

Stroke is a chronic disease with acute events. Stroke management is a rather complicated process with a series of clinical decision points. Traditionally clinical research solely focused on a single or very limited clinical questions, while ignoring the continuous nature of stroke management. Taking the advantage of large amount of data with rich information, AI is expected to help with studying much more complicated yet much closer to real-life clinical questions, which then leads to better decision making in stroke management. Recently, researchers have started endeavours along this direction and obtained promising initial results.

Although the AI technologies are attracting substantial attentions in medical research, the real-life implementation is still facing obstacles. The first hurdle comes from the regulations. Current regulations lack of standards to assess the safety and efficacy of AI systems. To overcome the difficulty, the US FDA made the first attempt to provide guidance for assessing AI systems. The first guidance classifies AI systems to be the 'general wellness products', which are loosely regulated as long as the devices intend for only general wellness and present low risk to users. The second guidance justifies the use of real-world evidence to access the performance of AI systems. Lastly, the guidance clarifies the rules for the adaptive design in clinical trials, which would be widely used in assessing the operating characteristics of AI systems. Not long after the disclosure of these guidances, Arterys' medical imaging platform became the first FDA-approved deep learning clinical platform that can help cardiologists to diagnose cardiac diseases.

The second hurdle is data exchange. In order to work well, AI systems need to be trained (continuously) by data from clinical studies. However, once an AI system gets deployed after initial training with historical data, continuation of the data supply becomes a crucial issue for further development and improvement of the system. Current healthcare environment does not provide incentives for sharing data on the system. Nevertheless, a healthcare revolution is under way to stimulate data sharing in the USA. The reform starts with changing the health service payment scheme. Many payers, mostly insurance companies, have shifted from rewarding the physicians by shifting the treatment volume to the treatment outcome. Furthermore, the payers also reimburse for a medication or a treatment procedure by its efficiency. Under this new environment, all the parties in the healthcare system, the physicians, the pharmaceutical companies and the patients, have greater incentives to compile and exchange information. Similar approaches are being explored in China.

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ENERGY EFFICIENT TECHNOLOGIES IN HOUSEHOLDS

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Introduction

Murray Patterson (1996) Energy Efficiency merely means utilizing less energy to complete the same task, while getting rid of any energy waste. It is the focal point of numerous national energy policies and is in the limelight during debates on energy sustainability issues. In most developed countries, it has an important place in the public policy agenda. A nation's energy efficiency is most commonly measured by the aggregate GDP ratio. When it is attempted to be measure in complex economic systems, an energy quality problem is encountered. Energy forms need to be modified in terms of energy quality before such calculations can be made.

EESI (20) While facing drastic issues like climate change and rapid depletion of fossil fuels, renewable energy has become one of the biggest solutions to these problems. But research shows improving the energy efficiency of technologies is the cheapest and fastest way to decrease the use of fossil fuels. Not only is it the most cost-effective way to reduce greenhouse gas emissions, but it also maximizes the benefits of energy use while minimizing the cost and it's impact on the environment.

Clinton J. Andres & Uta Krogmann (2009) Insulation, Solar Panels, and efficient lighting like LEDs and smart homes are few energy efficient technologies at home. Heat pumps are used both at homes and in industries. Energy-efficiency technologies including HVAC features, control system types, window treatments, and lighting technologies are adopted in commercial buildings.

Conserving energy in our day-to-day life can make a tremendous difference in saving energy for our future. Simple things like, re-using paper and using cloth bags instead of plastic can help the environment a lot. Using natural light during the day and walking or using cycles while travelling short distances help conserve energy. We can also turn off cylinders and other appliances when not needed, and switch to LED bulbs and solar heaters. Upgrades can range from small things like simply plugging in smart power strips to an HVAC system overhaul.

Literary Survey

Energy Efficient Technologies and climate change policies

Jaffe, A. B., etc. (2001).Population and energy use per unit of economic activity are few of the main factors of green house gas emissions. Not only do developing countries have a greater and increasing population but also their carbon emissions are surpassing those of developed countries. This is why it's become much harder to reduce economic activity. Technological improvements can play a big role in reducing our carbon footprint and effectively lowering cost. Switching to renewable or nuclear sources and increasing energy efficiency can lower carbon intensity of energy. Recent policies have introduced tax incentives, like tax credit to buyers of energy efficient vehicles, homes and equipment, both commercial and industrial. Furthermore various plans like direct spending on research, improvement, production and distribution of energy efficient goods have been brought forward. There are ample opportunities for low cost or even "negative-cost" improvements in energy efficiency and these will require vigorous involvement in markets to help overcome problems to use of more efficient technologies. This would guide consumer choices and it suggests that with the suitable technology and

market creation policies, significant emission reduction can be attained at a low cost. It is recognized that there are market barriers to the introduction of new technologies, this view stresses that there are tradeoffs between economic and energy efficiency. From the economic standpoint greenhouse gas reduction is more costly than argued and puts more emphasis on control policies like tradable carbon permit system and carbon taxes to support the least costly means of carbon efficiency to individual energy users.

Adoption of Energy Efficient Technologies by Households–Barriers, Policies and Agent-based Modeling Studies

Hesselink, L. X., & Chappin, E. J. (2019). The residential sector is marked as a critical sector that contributes to the international set climate targets. The required level of energy efficiency in households has not yet been attained and this is called the 'efficiency gap'. To alleviate the effects of global population and rising energy demands, increased adoption of energy efficiency by households is needed. Like market barriers there are various others such as, economic, social, structural or behavioral barriers that prevent the adoption of a new technology. Hence people aren't getting the most efficient technologies and policies can help stimulate adoptions by taking away these barriers.Agent based modeling (ABM) produces understanding that complements the information acquired from accounting models for the purpose of energy efficiency policy evaluation. These models are used to describe the impact of different policy replacements that tackle these adoption barriers. Barriers addressed were high upfront cost, ignorance, lack of capital and information and other priorities. Research shows that subsidies help to stimulate the adoption of electric vehicles and alternative heating technologies. Policies like banning incandescent lamps have been deemed most effective for adopting efficient lighting. Making it a requirement for new house owners to insulate their homes effectively increases the adoption of house insulation.Many adoption barriers have not been researched yet with ABM,it has the capability to provide understanding in many more energy efficiency policy questions.

Households' Energy use–which is the more Important: Efficient Technologies or user Practices

Gram-Hanssen, K. (2011) This paper addresses whether user practice or energy efficiency is more critical for the size of households energy consumption. The study confirms that similar houses can have heating consumption that varies with a factor of 2-3 depending on user practices. It means that user practices is as important as building structures when it comes to energy consumption related to heating. The electricity consumption for lighting and appliances, and the number of appliances is more dependent on user practices as suggested by data analysis. With our growing economy, more people and being able to purchase appliances and the affluent can afford more appliances. That's why even though there has been a considerate increase in efficiency over the years, there has also been in a rise in the number of appliances in households during that period. When comparing smaller houses, electricity consumption is less linked with building size and type than with heating consumption. The biggest factor for describing electricity consumption is the number of inhabitants in households. The greater number of people living, the greater is the consumption. Electricity consumption per person shows the contrary, that it is more energy efficient to live with more people together.

Impact of Energy Efficient Technologies on Residential CO2 Emissions: A Comparison of Korea and China

Park, C., etc (2017) Accounting for over one third globally, the building sector is one of the largest energy consuming sector and a significant source of carbon dioxide emissions. In this study we see the impact of efficient technologies on residential carbon dioxide emissions in Korea and China. They are both

major countries in the East Asian continent, China having the world's largest population. While Korea is a highly urbanized country, China just recently gained momentum. Due to accelerated economic growth China, by 2030 it will reach the same per capita GDP as Korea. Until 2010 more than half the Chinese population still lived in rural areas. GDP and population are critical determinants of future energy demand. As seen in the previous paper, the number of inhabitants in a household changes the electricity consumption. In Korea, households had three generations living together but now the average family is comprised of four. Because of this lifestyle change the service demand of electronics doubles by 2030. While in China there is an increase in the energy service demands, in the urban sector as there is a rise in population growth and higher living standards. Climate also plays a big role in the energy consumption and hence emission breakdown are more easily recognized in Chinese regions where residential carbon dioxide emissions are caused by heating services like coal in cold regions.

The research concluded that residential energy demand would increase in the future for both countries. China will face a much drastic increase than Korea due to its increasing population and increasing economic growth. Solutions such as replacing technologies that rely on coal and gas by sustainable heating technologies, like solar and geothermal alternatives that are carbon neutral can be adopted by both countries. Connecting the residential sector to the power sector is needed to analyze effects of low carbon power generation on residential Co2 emissions.

Energy efficiency and low-carbon technologies in urban renewal

Sunikka, M. (2006). Urban renewal means improving the quality and infrastructure as well as making it sustainable and efficient. One of the most cost effective ways to reduce carbon emissions is to improve the energy efficiency of buildings. Urban renewals can provide a way for energy improvements as well as other renovations, thus reducing costs. The investment will not only pay off if the building is efficient but also its surrounding and other buildings. Cost is often the main barrier is adopting carbon reduction methods in urban regeneration. Here again policies play a major role. Two case studies reviewed the state of Dutch urban renewal from an environmental point of view. Cost being a greater part of it. There are two main problem in a policy based on energy prices: high-income households that do not have to react to price signals; and low-income households that cannot afford to respond to them, and sometimes in the rental sector they are not even allowed to do so.Due to costs and payback periods, poor market signals, risks, and a lack of leadership on environmental targets and policies on sustainable urban renewal the current free-market public policy instruments have not managed to address the problems identified in the case studies. Stronger government intervention is required for effectiveness in reducing both energy consumption and carbon dioxide generation.A new energy standard by means of the energy certificate, which rewards higher and punishes worse energy performance levels, is an approach that needs research.

Improving the energy performance of UK households: Results from surveys of consumer adoption and use of low-and zero-carbon technologies

Caird, S., Roy, R., & Herring, H. (2008) As seen before the main barriers that are to be overcome for effective adoption is high costs, the low level of consumer awareness, restrictive planning laws, and the complexities of selling electricity back to the grid. Reports show that there is significant potential for market growth, energy and carbon saving of micro generation technologies; including solar, micro-wind, micro-combined heat and power, photovoltaic, heat pumps, solar thermal and biomass heating. This paper talks about four energy efficiency measures and four household renewables. Green consumers typically adopted these technologies to save the environment, energy or money, which many

considered they achieved despite the rebound effects seen. Another UK study shows the potential of micro-CHP, solar PV and micro-wind also identified the barriers of high upfront costs, long payback times and lack of information, also noting down the consumer skepticism regarding the performance and reliability of these technologies. Multiple approaches need to be tailored to the different technologies concerned, to promote the widespread consumer adoption and carbon-saving use of energy efficient measures and renewables. There is a more complex picture of house owner experiences with low or zero carbon technologies. For a more widespread use and effective use of energy efficiency measures, it will require various actions and policies by the government, manufacturers, and energy suppliers to the specific markets and technologies.

Advantages

1. Implementing energy efficiency measures, your home will be warmer, drier and better ventilated, which reduces the risks of illness and mold formation. It also prevents build-up of indoor pollutants.
2. It reduces demand for energy imports.
3. In 2016, homes were responsible for 19 percent of national greenhouse gas emissions and implementing energy efficiency measures in your home will substantially minimize your emissions contribution and reduce your carbon footprint.
4. It is one of the cheapest and most cost effective ways to reduce the use of fossil fuels.
5. It is generally less expensive to improve the energy efficiency, than investing in new generation and transmission.
6. Energy efficiency supports local economy and builds downwards pressure on natural gas costs and volatility.
7. As a homeowner, energy expenses can make up a large percent of your monthly expenses. With the help of energy efficient appliances and home improvements, we save anywhere from five to thirty percent on your utility bills. Energy friendly appliances use less energy throughout their lifespan without losing efficiency, and are an excellent way to conserve on your energy expenditures.
8. Energy Efficient homes are often sold at a higher price than regular homes with similar amenities. Private residences with green certifications have been proven to sell at a premium relative to comparable homes in the area, as energy efficiency is an attractive feature, which includes reduced utility and repair bills.
9. It diversifies service capital portfolios and can offer a hedge against risks associated with fluctuating fuel prices and other risk factors.
10. Energy efficiency offers long term benefits by reducing base load and peak demand, and reduces the need for any new generation and transmission assets.

Conclusion

In India, buildings energy consumption represented about 14% of total delivered energy consumption in 2015. The residential sector remains the greatest consumer of buildings energy, representing more than 70% of the total buildings. Factors like rising income, growing population, rapid economic growth and urbanization are responsible for the growth in building's energy consumption. 45 percent of the Indian population will live in urban areas by 2040, hence residential delivered energy consumption is projected to grow by an average 2.4% per year from 2015 to 2040. To help save energy and reduce carbon emissions, the typical household can reduce its energy usage by 25 to 30 percent by investing in more efficient energy consumption alternatives. The financial benefits of energy-efficient buildings yield a benefit-cost ratio of over 4 to 1, and 75 percent of those benefits can be attributed to health advantages. Energy efficient transactions should not be treated as an expense but as an investment with utility savings that add up over the lifespan of the product. Savings cover the initial premium price on energy efficient options and give a significant return relative to conventional, non-efficient alternatives. The return you pocket from savings will only increase over time, this will help common men and women

insulate themselves from the financial impact of unpredictable sharp energy price increases. Introducing energy efficient technologies in households is one of the fastest ways to become more efficient and reduce our individual carbon footprint. It also has many long-term benefits and is one of the most cost effective ways to become more sustainable.

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ENERGY EFFICIENT TECHNOLOGIES FOR DAY-TO-DAY LIFE

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Introduction

We are surrounded by diverse technologies which make our life comfortable and smooth. But not all technologies are conserving energy; the technologies which effectively use energy by eliminating energy wastes are known as energy-efficient technologies. To meet the energy requirements of the citizens, the Indian government aims to reduce energy wastage and thereby reducing the emission of CO2 gas. In 2001, the Indian government passed the 'Energy Conservation Act' which aims for energy conservation and thus taking a step ahead to achieve energy independence. It has focused on developing energy-efficient technologies. Currently, under this act, the government has formulated standards and norms for promoting energy efficiency in buildings by keeping a check on lighting, heating, electrical appliances, etc.

Sanati.et.al (2013); King J. and Perry, C. (2017), There are numerous smart devices to improve energy conversion and output in our daily life and smart buildings are one of them which can save energy with the use of light-sensitive sensors and controllers. Smart buildings are those commercial buildings that have inbuilt automation, communication, and advanced technology that automatically study the utility and weather data and function accordingly to achieve maximum energy efficiency. Plug loads, lighting controls, HVAC zone control, automated fault detection device, window shading, and solar panels are part of these smart buildings. **HVAC (Heating, Ventilation, and Air Conditioning)** systems conserve energy by maintaining occupant comfort levels. **Smart plug loads** consist of sensors and power slips that sense the usage of the connected device and cut the power supply when it is not in use. **Window shading systems** use smart shading technologies to regulate the amount of solar heat entering into the building by using battery-operated blinds that open and close automatically according to the intensity of sunlight falling on it which helps to maintain room temperature.

Xiaojie Ma., et.al (2020), Another use of energy-efficient technology at our homes is **Phase Change Materials (PMCs)**on concrete floors. This new technology is gaining importance in today's world due to its property of absorbing and releasing heat according to the surrounding temperature. It is designed to absorb heat when the temperature goes up, store it, and release that heat when the surrounding temp goes down. By melting and solidifying at the Phase change Temperature (PCT), these materials are capable of storing a large amount of clean energy. To enhance the rate of solidification of PCMs, copper oxide nano particles are dispersed in the paraffin.

Julie A.Horvath.et.al (2011),India has a wide range of renewable energies but lacks adequate infrastructure. Thermal power contributes 0.5-1% of the total power produced. **Linear Solar Concentrator** is one such effective technique that will boost up the energy efficiency of the steam turbine power plants. It concentrates the solar radiation on a fluid by using a mirror, so that fluid gets heat up very quickly and then the steam produced can be used to generate electricity.

With the growing population, the consumption of energy is increasing at an incredibly faster rate. We are exploiting non-renewable resources such as coal, petrol, etc. to meet our needs. The study suggests that to make our technology energy efficient

we need to modify it by increasing its output, energy conversion efficiency, and switching to non-renewable resources. By not wasting electricity, replacing faulty appliances with new ones, switching to energy-efficient light bulbs, using fewer vehicles, carpooling, composting, biogas production, rainwater harvesting, installing solar panels, etc; we contribute our little share in energy conservation and effective utilization in our day-to-day life. The effective use of energy starts with its conservation. Energy conserved is equivalent to the energy produced. Conserving energy at the cost of our requirements is not a good deal. Switching off unnecessary lights, usingLED lights, proper servicing of electrical appliances, not wasting water while brushing, etc are some gestures that help in conserving energy.

Literary Survey

Hafer M. et.al (2017), About 33% of the total energy of commercial buildings is consumed by plug loads. A considerable amount of energy can be saved by managing the pug loads effectively. This is the reason smart plugs and circuit breakers are gaining importance in today's world. Keewi Inc., an energy optimization company conducted the study of plug loads at 3 recreational buildings of Stanford University with 71 Electronic devices of 20 occupants working at offices. In this study, the smart plug was used to analyze energy consumption and savings. Furthermore, the Keewi mobile application was also made which was connected to the smart plug and therefore allowing the user to keep track of energy consumption, remotely access devices, set schedules, and remainders. This was monitored for 27 days. The results clearly state that energy is effectively used by smart plug as it had saved 21% of the daily consumed energy. These smart plugs can easily replace the existing receptacles and effectively coordinate with the switch and timer. Apart from this, smart plugs consist of APS (Advanced Power Strips) which almost resemble Standard Power strips but can sense the usage of the load connected to it and automatically cuts the power supply when the device is no longer used. APS in smart plugs have decreased the energy usage by 26% in workstations and 50% in the kitchen and adding to this, researchers found that buildings with APS in smart plug uses 5% less energy in cooling as the loads generate less heat.

Dutta A. et.al (2017) and Li. L. (2016), Window is the basic element of the building which plays a major role in maintaining indoor temp. Earlier, manual shades and motorized shades were used but both these involve human input. Taking a step ahead, now we have an automized shading device that senses the inner and outer temp without the involvement of humans and adjusts the height of the shades accordingly. To understand the heat influx, we need to understand the amount of heat influx through different vertical wall windows. In the tropical climate of the northern hemisphere, it was found that south-oriented windows account for the maximum influx of solar heat followed by east, west, and northbound windows. A validated Fortran 77 compiler program builds the relation between building orientation and energy consumption. An experimentally designed programmable logic controller based movable exterior window shading device prevents the direct sunlight from reaching our window and was linked with sun path through validated TRNSYS building model to show the reduction in usage of cooling load in the hospital buildings in tropical weather. The result of this experiment suggests that 14.9% of the energy can be conserved in June in the tropical climate and 9.8% annually.

Another technique for window shading is Building Integrated Solar Thermal Shading System (BISTS) which analyzes the daylight patterns and effectively improves the daylight level by reducing the excessive sunlight in the room. This model was experimented in one of the medium-sized office buildings of Los Angeles. The finalized BISTS configuration conserves about 5.8% of primary energy. In this configuration, smaller slat angles are recommended rather than 90 degrees for both vertical as well as the horizontal layout of BISTS.

Tao Y.B. et.al (2018), Akeiber H. et.al (2016), and Hossain R. et.al (2015), The most significant threat to mankind is global warming. Buildings are one of the major emitters of greenhouse gases. This situation will worsen even further in the future. Air Conditioning is the next biggest threat to mankind. With growing global warming, the temperature is also rising. Therefore, we cannot ignore cooling systems. There is a need in making our cooling systems more energy-efficient and environmentally friendly. Passive cooling systems are more promising than a conventional cooling system. When compared to other passive cooling systems, PCMs (Phase Change Materials) with high thermal energy storage density are more appropriate for the purpose. Thermal Energy is stored through latent heat because Latent Heat Thermal Energy Storage Systems are handier to use as its heat source remains at constant temp and heat is recovered with just a small drop in temperature. The low thermal conductivity of phase change materials used in Latent Heat Storage (LHS) becomes a hindrance in thermal charging and discharging rates. Therefore, to improve its thermal conductivity lot of research was carried out. The performance enhancement methods are classified into 3 types: using high thermal conductivity additives and porous media to improve thermal conductivity, using finned tubes, and encapsulated PCMs to increase the surface of the heat transfer system, and using multistage or cascaded LHS technique and thermodynamic optimization for maintaining heat transfer uniformity. Nanoparticles are introduced in PCMs to enhance their thermal conductivity. Introducing porous materials in nano-PCMs enhances their rate of heat transfer. Consider a nano-PCM (which is a mixture of cyclohexane and CuO nanoparticles) at its melting point. When the surface of the nano-PCM is exposed to a temp higher than its melting point, it will absorb heat. In this way, PCMs on walls and floors can help in conserving energy and reducing greenhouse emissions by using renewable thermal energy; at the same time fulfilling the needs of the occupant.

Cappelletti.et.al (2018) and Catelani M. et.al (2016), Modern Photovoltaics and thermal technologies are gradually gaining importance in the everyday life. However, many different innovative and creative approaches need to be explored to find better architectural solutions. The linear solar concentrator is one such technology that consists of a 20x semi-parabolic mirror to concentrate sunlight on the photovoltaic cells. The linear receiver tube contains fluid that gets heated up to produce steam. Then that steam runs the turbine which further drives the generator to produce electricity. This principle is used in many solar plants. This set up can be mounted horizontally as well as vertically according to the architecture. However horizontal mounting produces 30% more power than vertical mounting. Yet, this device faces some practical issues such as its low concentrator factor (20x) and less energy conversion efficiency of about 18%. So, more development needs to be done to use this technique more efficiently and effectively.

Advantages

1. By using energy-efficient technologies in day-to-day life can reduce the emissions of greenhouse gases and other pollutants as well as decrease water pollution to a great extent. Thus, these appliances are environmentally- friendly.
2. Energy-efficient technologies focus more on renewable energy resources which can reduce our dependence on non-renewable resources. For example, linear solar concentrators, solar panels, etc. use solar energy to produce electricity rather than burning coal or fossil fuels.
3. By shifting our attention towards energy-efficient technologies we can reduce the dependence of our country on imported energy.
4. Since energy-efficient technology uses the minimum amount of energy to complete a task, it can also help to save 30% of your electricity bills.
5. New energy-efficient appliances are more convenient to use as compared to the older appliances as these are empowered with new technologies and thus can increase your quality of

life. Furthermore, these appliances require less maintenance and fewer repairs.

6. Companies selling energy-efficient technologies can get financial benefits in the long run by using less energy and making more income.
7. Though few energy-efficient appliances are expensive but provide good returns in the longer run. For example, solar panels are very expensive (e.g.,a 1KW solar system costs around Rs.95,000 in India) but this is a one-time investment that reduces your dependence on non-renewable resources for generating electricity.
8. Energy-efficient Automated window shading systems help to maintain the temperature of the room and reduce our dependence on other appliances such as a heater or air conditioners.
9. PCMs (Phase Change Materials) has great potential to work as thermal insulation and can alsobe used in cooling applications. PCMs are more economical than diesel generators as they get charged when not in use. Thus, helps in conserving non-renewable fuels.
10. Many smart energy-saving gadgets also help you to track the usage of electricity by any appliances connected to it. For example, Smart plugs help you know the usage of power by the gadgets connected to them and thus, letting us find the energy-hungry devices so that we can avoid buying them in the future.

Conclusion

This paper highlights many energy-efficient technologies such as smart plugs, window shading systems, HVAC, PCMs, and Linear solar concentrators. Indeed, these technologies help us to use energy more effectively without compromising our needs. By inculcating modern energy-efficient technologies in our daily lives we can minimize the dependency of our country on non-renewable energy resources. This will reduce the import of coal or petroleum and will shoot up our economy. India has still not achieved energy efficiency but it is on its way to start a mega-trend towards reducing and optimizing energy demand. Energy Pro Asset Management (EPAM) has raised funds in India to focus on energy productivity. So, by upgrading our buildings with energy-efficient technologies we play our role in reducing our costs and thus help in conserving the energy. There are many schemes and projects started by the honorable Prime Minister 'Narendra Modi' to promote energy efficiency. For example, the 'UJALA' scheme is the initiative of the government to spread the message of efficient use of energy by switching to LED Bulbs at the residential level. Moreover, another plan is known as the 'National Electric Mobility Mission Plan' to promote electric vehicles. Hence, we should upgrade our older technologies with modern energy-efficient technologies to conserve energy resources. Energy is the soul of all processes thus; its efficiency and productivity are our prime responsibilities.

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THE FUTURE OF BUSINESS INTELLIGENCE

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Introduction

Foley, É., &Guillemette (2010) Business Intelligence is the technology's applications and practices for the collection, integration, analysis, the presentation of business information. Business Intelligence is a support to better decision making. Specific skills like data analysis, problem solving, communication skills, business acumen is needed for Business Intelligence. Nowadays it is widely used in world of practice and business. Business intelligence software is a type of application software designed to retrieve, analyze, transform and report data for business intelligence. Business intelligence uses a large database, typically stored in a data warehouse or data mart, as its source of information. Since the technologies have grown so much in the past years each and everything in the world is improving. So, the customers expect more and better things from companies. BI is such a great technology which goes on with the trend and provides better services by showing present and historical data within their business context.

Chen, H., Chiang, R. H., &Storey, V. C. (2012) Business intelligence can help companies make better decisions by showing present and historical data within their business context. Analysts can leverage BI to provide performance and competitor benchmarks to make the organization run smoother and more efficiently. An effective Business Intelligence system serves as a means to identify key organizational patterns and trends. Business Intelligence helps in Business intelligence helps extract crucial facts from a vast amount of unstructured data and transform them into actionable information that enables companies to make informed strategic decisions, improving operational efficiency and business productivity. Some of the benefits of using Business Intelligence are Faster analysis, increased organizational efficiency, Data-driven business decisions, Improved customer experience, Improved employee satisfaction, Trusted and governed data, track performance, optimize operations, Predict success etc.

YouTube (what is business intelligence BI) business intelligence is simply the delivery of relevant and reliable information to the right people. And helps to take better decisions faster. BI The methods and programs to collect structure data and convert it into information to improve business decisions.BI include performance management, analytics, predictive modelling, data and text mining and many more.it is a mode of any time access to organized data which includes the discovery of inefficient business process and hidden patterns, identify areas of strength and weakness, discover more opportunities and many more. The term BI refers to the group of tools and techniques that collects and organizes data.

Literary Survey

What is Business Intelligence

Negash, S & Gray, P. (2008), Business Intelligence is basically human intelligence applied to events and activities. It is basically the use of artificial intelligence in Business system. It helps the enterprise users to make better business decisions by providing access and analyzing data. The components of business intelligence are online analytical processing; advanced analysis co-operate performance management and real time Business intelligence. Business Intelligence helps businesses and organizations ask and answer questions of their

data. within their business context it helps the companies make better decisions by showing present and historical data. It is very much useful for managing today's global business, the same is used to collect details through Information technology to deliver actionable information for decision makers. business intelligence both structured and semi structured data is used. Structured data is easily organizable, unstructured is complex and often qualitative information. the business intelligence plays a major role in decision making and proportion of semi structure data used in daily decisions. There are 3 steps in structured and semi structured data that is acquisition then integration then cleanup, data from both structured semi structured areas search then to analysis and then to delivery finally the action can be mould up according to BI data.

Turban, E., Sharda, R., &Delen, D. (2010) Business intelligence is for the monitoring of business systems by means of accurate presentation and analysis of data. Business intelligence has become a widely used phenomenon now.Itis emerging as a key to enable for the increase of value and performances. It has two primary activities such as getting data in and getting data out. business intelligence helps in reducing the IT infrastructure costs and also saves time for data supplies. The benefits of using Business intelligence are cost saving from data mart consolidation, time saving for data supplies, time saving. more and better information, better decision making, better data quality, competitive analysis etc. the entire purpose of Business Intelligence is to support and felicitate better business decisions. Business intelligence software are the tools that make it possible to create value from big data. Some examples of business intelligence include data warehouse, dashboard, data discovering tool and cloud data services.Cloud computing hasbecome one of the revolutionary technologies over recent years.Business intelligence combines business analytics data visualization with analytical tools to present complex and competitive information to planners and decision makers. It is used for multiple purposes including measuring performance progress towards business goals, performing quantitative analysis in reporting and data sharing.

Benefits of Business Intelligence

Hočevar, B., &Jaklič, J. (2010) Business intelligence is very effective in the modern world. the benefits of using business intelligence is very huge. There are many benefits for business intelligence like fast and accurate reporting, valuable business insights, competitive analysis, better data quality, increased customer satisfaction, increased operational efficiency etc. The main function of business intelligence is to provide a support for decision making in business. the main categories of business intelligence benefits such as increase in revenue, increase in profit, improved customer satisfaction, reduction of costs, increased market share, improved satisfaction and motivation of users, faster decision-making can be successfully linked to the defined long -term business strategy.With the help of business intelligence, a company can make better decision making.Discover money-laundering criminal. It has also various benefits or the use of BI can be by the means of Analysing potential growth customer profitability and reduce risk exposure through more accurate financial credit scoring of their customers, determine what combinations of products and service lines customers are likely to purchase and when. Analyse clinical trials for experimental drugs. Set more profitable rates for insurance premiums. Reduce equipment downtime by applying predictive maintenance etc.

Dobrev, K., & Hart, M. (2015). The purpose of business intelligence systems is to let managers get continuous, current information about their business and use this information to make better decisions and move rapidly in response to changes. The learning and discovery increase from the new works available.there is an increase in adaptive, automated decisions in the operational systems. The main goals for the use of business intelligence is to improve the company's business success and competitive advantages. the benefits of using such technologies

was that business intelligence is time saving a it is simpler to use and because of the data warehouse of historical data. It is time saving, since it is computerizing and online everything is less time consuming. Improved decision support as it provides the graphic visualization of data. Improved communications for faster and better exchange of reports, the greater flexibility preparing reports and to go data. The benefits of BI in a company's vision and strategy can be by increasing turnover, by increasing profit, improves customer satisfaction, decreases cost, increases market share etc.

The Future of Business Intelligence

Yeoh, W., &Koronios, A. (2010). Business Intelligence is a quicker and efficient service so it can be very helpful in many aspects of business as the technology have improved so much. It helps to speed up the services and thus, provide a better analysis. The growth of business intelligence is going to be rapid and it will be useful or will gear towards the large number of users and will be connected to greater systems. As the expectation of the consumers increases companies also increases their efficiency. It is also a wide area of research. BI provides many benefits to companies utilizing it. It eliminates lot of the guesswork within an organization, enhance communication among departments or sections in the companies while coordinating activities, and it enables companies to respond quickly to changes in financial conditions, customer preferences, and supply chain operations. It provides more analytical insights.BI improves the overall performance of the company using it. The companies will have to make use of business intelligence for better performance and decision making of the company and better image of goals and objectives.

Summary

Sangar, A. B., &Iahad, N. B. A. (2013). Business intelligence is collecting data from the field and making analysis and planning strategies to boost their business and market. Information's are collected through data warehouse data mining visualization knowledge management etc. the analysis and there by decisions are taken from structured and unstructured data. One important part of business intelligence is competitive intelligence that is to know about other market leader's business to plan your business it's a very important decision-making tool as far as business is concerned. Busines intelligence is an intangible knowledge which can be used for decision making throughout the business activities. The main phases or steps of a business intelligence process are: Defining intelligence needsà gathering of information à processing the information àthe analysis à propagate à utilization and feedback. There are many benefits of using business intelligence such as fast and accurate reporting valuable busines insights, competitive analysis better data quality, increased customer satisfaction, identifying market trends, increased operational efficiency etc. Business Intelligence have a great future as it helps us to improve in performance of the companies. But there are also a few problems or issues faced in this field some views Business intelligence as only a supplementary system. The most competitive system but only the most competitive enterprises will achieve sustained success in market.

Advantages

1. BI helps in decision making and help to organize data and make it easily accessible.
2. It has a great impact on customer service and improves the customer satisfaction
3. BI in a company's vision and strategy can increase turnover, increase profit, improve customer satisfaction, decreases cost, increases market share etc.
4. Provides better services by showing present and historical data within their business context.
5. BI is emerging as a key enabler for increasing value and performance.
6. It can save time for data suppliers and users because of more efficient data delivery.

7. As BI provides a complete view of their operations and process one can identify the area of opportunities.
8. Faster reporting capabilities and accurate data helps in better business decisions.
9. It enhances the data organisations and analysis and increase the success rate of business process.
10. Improves employee satisfaction.

Conclusion

By the survey conducted on business intelligence it is clear that what business intelligence is and how it can be useful. Business intelligence is very helpful for the upcoming days because everything will be technology related and BI provides information's at technical level. It is essential for the global business using information technologies in decision making. This paper discusses about the BI framework and also about its research potential areas. This framework highlights the importance of semi-structured data to support informed action by decision makers. also, this paper also looked into the BI data types (structured and semi-structured) and data sources (internal vs. external).Business Intelligence helps in better decision making. By this research we can find that the growth of business intelligence is going to be rapid and it will be useful or will gear towards the large number of users and will be connected to greater systems. In this developing world of technologies BI is going to be utilized more in future. The usage of technology can be considered as one of the key points of developments. In developing countries like India Information technology is expected to play a key role. Business Intelligence bring about very significant changes. Developed countries are constantly improving their information systems by finding the uses of information technology and incorporating data analysis for decision making and development. A collective and critical process of information management can help obtaining the result from business intelligence.

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Youtube (what is business intelligence BI)-Hitachi solutions Canada

ARTIFICIAL INTELLIGENCE DRIVEN HEALTH CARE

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Introduction

Jerry Kaplan, 2016, let us first begin by discussing about what Artificial Intelligence really is, because well that's the first question that comes to our mind which is an easy question to ask but a rather difficult one to answer. You can define artificial intelligence in many ways, each perspective having its own bias to some ideas. But all these renditions circle around the same idea of making machines or computer programs perform certain tasks or make them capable of certain behavior that we would regard as intelligent if it were performed by humans, which was rightfully said by John McCarty who was the founding father of this discipline. Looking at this approach of representing artificial intelligence, it seems discreet but in turn of events is deeply erroneous. The human nature of reducing everything to numbers often facilitates comparison which in turn often creates false conclusions of open mindedness and precision. So it is clear that a broad spectrum of views must be considered before considering that this discipline can solve issues in the health care industries. With this review we will try to find the trends and patterns that is followed among the literature from the past to the present and leading to what can be the future.

Rita Sharma, with this review we will try and dive into some of the problems the health care industry is facing these days. Through this we will try and find concepts or questions that iterate across the literature, we will discuss about issues like harnessing major health care technologies throughout all the health care centers across the globe, teaching the staff how to access these technologies, the collection of information and storing this information and integrating it with health care services. These days the use of role of technology and our dependence on it is pretty evident, so this leads to cyber security attacks which are on a pretty steep incline these days. Acknowledging these issues through the already present literature can be done by addressing literature that is generally against the consensus. The addition of these technologies is one thing but making these accessible to the people at a reasonable price is also a big issue as considering that per capita income of each country differs widely, this can only be achieved when there is a investment in the private sector which itself is a major concern. Through this review we will also try and address the pivotal or breakthrough advancements that lead to these eventual possibilities.

These days there are more no of people requiring medical support this leads to development of tension and pressure on the health care systems as we had recently experienced how even the most developed countries faced issues regarding this matter this in turn leads to changes or we can say ease of regulations that need to be followed which can lead to life turning events. Sothese were some of the major problems faced by the health care industries.

Jennifer Bresnick, Well let's look at some ways artificial intelligence can be efficiently used in the health care industries. It will unify the mind, emotion, logic of the human being with the speed and accuracy of the machine which will inturn lead to expanding access to care and underserved regions. Another are where artificial intelligence can be helpful is in creating more precise images for pathological gateways which is of very importance when we look at the current situation of the world. Data science bundled with AI is opening up new

horizons for the health care industries for example bringing intelligence to medical and healthcare devices by using stored data to predict potential health risks, which we can see nowadays in the form of wearable and personal devices. This revolutionizing of the clinical decision making with the help of artificial intelligence will open up new horizons for the future generations to come.

So in the end we will try and find certain gaps is the literature that need to be addressed so that possible solutions can be found

Literary Review

Overview

Artificial Intelligence in Healthcare: Past, Present and Future

Jiang F, Jiang Y, Zhi H, *et al*.The main objective of Artificial intelligence (AI) is to impersonate human cognitive functions. Which in turn is bringing a massive shift in the health care systems leading to shaping the entire industry, the author discusses the empowerment of data driven technologies and their importance and how everything today and going forward will be seen through the eyes of data analytics. It critically analyses current caliber of AI driven technologies and tries to depict the future. The article provides suggestion on how AI technologies can use structured data (structured and unstructured),moving forward it dives into the popular AI techniques including machine learning methods for structured data, such as the classical support vector machine and neural network, and the modern deep learning, as well as natural language processing for unstructured dataand provides various types statistics of different studies on the impact the artificial intelligence has created. This paper further discusses about paramount disease aspects which use artificial intelligence tools in the field of cancer treatment, neurology and cardiology by taking an example of application in stroke it can be used in early detection and diagnosis, treatment, outcome prediction and prognosis evaluation. This paper then concludes by discussing about the pioneering AI systems, such as IBM Watson. Then in the end discusses about hurdles and problems that could be faced for real-world application of AI.

The Potential for Artificial Intelligence in Healthcare

Davenport, T., & Kalakota, talk about the rise in the importance and complexity of data in healthcare and translates to the fact that artificial intelligence (AI) will increasingly be applied within the field. The article suggests the new types of AI driven health care technologies are already being deployed by healthcare brands and various life sciences companies such as Machine learning, natural language processing, Rule based expert systems, physical robots, Robotic process automation. These technologies are being used for automation, Diagnosis and treatment, patient engagement and adherence application administrative application. The major aspects or fields of application of these technologies involve diagnosis and treatment recommendations, patient engagement and adherence, and administrative activities data handling in institutions and etc. however the article points out various instances where these technologies perform on par or sometimes even better than real human beings but still a lot of improvement needs to be done on the reliability aspect , another factor that's against the large scale implementation is the loss of the professional jobs for a considerable period. Application of these systems involve implication of the healthcare workforce and ethical issues too. Raising the question that how can a life and death situation be left to the hands of algorithms is this ethical raising doubts on accountability, transparency, permission and privacy. This paper concludes by talking about the future emphasizing the importance of machine learning.

Artificial Intelligence-Enabled Healthcare Delivery

Reddy, et.al, begin by discussing the recent major breakthroughs achieved in the field of (AI, ML, Neural Networking and NLP), computer vision and robotics. The use of these technologies is actively

increasing and currently being delivered by clinicians and administrators in various parts of the world and this industry is anticipated to be taken over by these technologies in the decades to come. The reason for mentioning this article is that it contradicts to the general consensuses notion that AI will eventually take over/replace humans and in turn their jobs. These perspectives and notion are limited in view and are often misunderstood, no one can adjudge to which aspects of the health care systems based on these technologies can be applied to and hence to make a meaningful impact, ie there are no boundaries. The four major aspects where AI compels are clinical decision support, patient administration, patient monitoring and healthcare interventions, data management, health risk predictions. This type of system which is AI enabled is termed as AI amplified health care system. In this article the author discuses about how these ideas can be implemented systematically and efficiently so that there is no damage to previous system. Artificial intelligence, Machine Learning, Natural Language processing all go hand in hand these fields can be utilized in almost any field in medicine, and the augmentation it provides to biomedical research, medical education and delivery of health care seems limitless.

With its robust ability to integrate and learn from large sets of clinical data, AI can serve roles in diagnosis, clinical decision making and personalized medicine.

Ethical Standpoint

Artificial intelligence (AI) in the health care industry is looked upon as the most metamorphic technology of the 21st century. The healthcare industry has been fortunate enough to be recognized as the early applicants to be revolutionized by these AI based technologies. There are a wide variety of clinical and medical application that have reached the healthcare practices with the huge potential to provide a relief to the health care staff, bring down costs and ultimately improve the lives of patients. This paper too raises concerns over the unique inherent properties that is linked with these technologies. This article aims providing a view at the initial stages of the capabilities and the decision making abilities of these AI based systems. It als discusses the possible legal and ethical bifurcations that need to be discussed against the currently functioning framework. This paper concludes with the fact that the present structures are largely fit to deal with the challenges AI technologies are posing. In some areas, sector-specific revisions of the law may be advisable, particularly concerning non-discrimination and product liability.

Opportunities and Challenges of Artificial Intelligence in Healthcare

Iliashenko, et.al. This article provides an insight to the various aspects, use case scenario's and various fields where these technologies are being used and what are the opportunities of AI technologies has created further discussing about the challenges the industries might face while implementing these technologies and using them. As discussed whatever theory we refer we might find a different definition for what (AI)really is, there are several definitions of AI given in different dictionaries and studies all these definition are deliberately mentioned in this article further broadening the idea of artificial intelligence. The entire framework of this article discusses the same idea as we have discussed in the introduction of this literary survey. The object of the research is AI in healthcare. The author tried to represent various gaps such as the lack of knowledge to use the systems and provide solutions by referring data by further by giving examples of small startups using these technologies The goal is envisioned by the following tasks: to classify AI systems used in healthcare and to make a world map of top AI startups in this field. A statistical approach is used for the research by studying the sources about current projects in AI market.

Key Challenges for Delivering Clinical Impact with Artificial Intelligence

Kelly, C.J., Karthikesalingam, A., Suleyman, M. *et al* .The major challenges that health care might face in transitioning to artificial intelligence driven systems will be mostly linked to machine learning, implementing these systems efficiently in a cost effective way, one would have to also consider the barriers to the adoption of these technologies such as dealing with the mindset of people of providing them with a sense of security that there data is secure. As this technology and system is new therefore development of a robust safety measure and a standard that need to be followed worldwide, by looking at these task it might not look so simple and feasible but which has to be done. The data also derived using these technologies must also be easy to understand so that the end user can understand it easily, a system should also be formed which maintains that all necessary regulations are being followed and which is necessary is required to ensure that patients are not exposed to dangerous interventions nor deprived of access to beneficial innovations. Developers must be very vigilant in ensuring that data breaches don't happen.

Let us look at some of the con of AI in health care

- Lack of personal involvement
- Possibility of a defective Diagnosis
- Social prejudice

In the end there common trend and patterns can be found as it is evident that there is a mojor emphasis on machine learning, natural language processing, deep learning etc. Following these trends the industry is moving forward with endless possibilities

Advantages

- The raw power of these AI based systems can be seen when predictions and intensive calculations are involved such as these are currently being used for the diagnosis of skin cancer and have proved to be more accurate than certified dermatologists
- As this world is moving toward adopting digital data clinicians are becoming overwhelmed with the raw data that they are being provided so AI through its smart algorithms has helped in reducing that burden by decluttering the relevant data. A good example of this is glucose level monitors instead of providing raw data alert when levels are not correct.
- These technologies have also helped in the development of drugs and vaccines as it generally take a lot of time but due to the ability of these systems to predict possibilities it has fastened the process quite a lot.
- The use of these technologies is now starting to be seen at the personal level with these technologies being integrated in the form of wearable's such as smart watches and has provided a boom in giving importance to personal health.
- Talking about personal health by virtual nursing assistants have also played a major role and has helped in dealing with simple healthcare issues right from the people's homes.
- It has helped in reducing the pressure from the administrative healthcare department.
- Fraud detection has also benefited as there was a need to address increasingly complex services and payment frauds.
- It has helped in reducing errors right from the lowest levels such as dosage error reduction.
- Artificial Intelligence driven tools have helped in predicting early disease risks such as improper heart rates and companies like google, apple, etc. are providing these as products for personal use.
- It has proved to be an unrivalled assistant in surgeries through automation and has provided the precision that lacked before.

So if we talk about these advantages AI has affected this industry at almost all levels right from the company providing the service to the end consumer.

Conclusions

The advancements in these technologies sometimes looks to be quite overwhelming and raise doubts that are we even ready. Limiting this notion to India it is pretty evident that there is a huge divide in the income of the people, a lot of the population might

not be equipped with the correct skill, and the cultural divide, and the fact that in India there is a huge difference in the reach of people, the government and the industry seem might seem pretty eager considering the huge potential for saving the cost and improving the quality of service provided. The big question is what should be the optimum speed at which the development should take place keeping in mind the correct practices, standards and protocols that need to be followed, responsibilities that need to be taken, and to maintain the equal distribution of these benefits. These technologies have started benefiting people at their personal level through personal gadgets. These technologies can do tasks which were never possible before and that's the beauty of it there is an uncertainty that demands a leap of faith as discussed through the literature above but the possibilities seem to be endless.

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SIGNIFICANCE OF BUSINESS INTELLENCE IN PRESENT-DAY WORLD

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Introduction

Today's business world aims to have successful decision making, which requires a technical support to enhance their ideas and strategies to reach their goals. Lennerholt, C (2018) Business intelligence (BI) plays a key role to help companies and industries to make qualitative decision making. In order to make better decisions for the company's growth users must be able to utilise the available data and analyse for better insights.

Bennet, D.R (2019). We see that almost 80% of the data in the world is unorganised and unstructured. Huge amount of data is being generated every day. The sources of data include emails, blogs, texts, articles, social media comments and many more. There is a need to find innovative methods to classify and analyse data. Analysing and modifying the available data and arranging the data according to the company's requirements to produce useful and profitable outputs is very important for the companies to reach people with refined strategies.

Michel lamont, (2014) BI provides companies to have quality decision making, more effective and efficient operations, higher profitability and great customer satisfaction. BI is a technology driven process which uses the past and present data for future quality decision making. It is the foremost idea to judge and rate success of bigger organisations.BI being accurate, valuable, timely and action able makes it more reliable and trustworthy. Data accuracy and data precision enables organisations to have a profound view and make detailed estimations based on the available data, Selecting and extracting data which is only necessary for company's requirements, making decisions based on the past and present data to have better understanding of current trends and current needs of the people, updating the statistics of ups and downs of the company.

Many technologies have been discovered to meet the needs of the organisations. Common users depend on power users to extract and analyse data. Lennerholt, C (2018) The present trend in BI development is to promote SSBI (self service business intelligence) which focuses to provide common users to make effective decisions without the need of power users.

Villamarín, J. M., & Diaz Pinzon, B. (2017)**.** Besides the efficiency of BI, it is seen that huge BI projects tend to break down as organisations fail to implement BI systems. Bennett, D.R. (2019) Certain technologies face difficulties in understanding the textual content like sarcasm or irony as it is not possible to identify the positive and negative sentences in given data.Hence, there is a need for the development in technologies to make more precise and accurate decisions.

Literary Survey

Bennet, D.R (2019). Accessing and analysing the data is valuable and is a time-consuming process. So, there is a need to find innovative methods to classify useful data. Sources of user generated data can be online comments, blogs, articles, expressions and interactions between users and organisations. Analysing data is very important for the companies to reach people with innovative strategies in order to be successful. Analytical technologies such as big data and data mining have led to maximising strategies for UGC analysis. It is important to generate key indicators (that is evaluate the success of an organisation) using analytical techniques. Key

indicators help the companies to work on improvement of the organisations and increase their profits. Several methodologies have been proposed to perform data analysis and obtain variables. The three-stage methodology (Latent Dirichlet Allocation, sentiment analysis and textual analysis) help organisations to classify data to generate key indicators. LDA stands for Latent Dirichlet Allocation. It is a method which is used to find similarities in data generated by users. SA stands for sentiment analysis which is used to find direct opinion of users through textual mode. TA stands for textual analysis and is used to find variables and key indicators. There are several issues to be considered such as, in use of sentiment analysis there is difficulty for a machine to understand textual content like sarcasm and irony as it is not possible to identify positive and negative statements in the given data. TA is a qualitative and empirical process where the data is structured and classified by the researchers to draw conclusions based on market intelligence.

Lennerholt,C (2018 Data can be accessed and analysed by extracting, transforming and loading (ETL) process from data warehouse. SSBI consists of data functions such as ETL and loading in the back end and generating decision reports in the front end. Many casual users depend on power users who are BI experts and can access and retrieve data using technical knowledge for decision making. Casual users face many difficulties when they have to analyse data with the help of power users as they have to pay in excess every time when they want a different approach of statistics. Current development in BI systems is the self-service business intelligence (SSBI) which provides casual users to make timely decisions without the use of power users. It enables casual users to access data of their interests, make modifications based on their requirements and build their own reports and predictions. One of the most important research processes is to have a systematic literature review. Many search engines such as Google Scholar are used to find the literature. In a literary review the text is classified into different categories based on the content and the challenged that are portrayed in the text. Literary review is an iteration of classifying data into categories in a systematic manner by enlightening the challenges. SSBI simplifies the use of business intelligence. If this is implemented casual users will be able to access data without the help of power users or its departments. Users have different requirements, demands and applied skills which can help them to be self reliant. The challenges that casual users have to overcome include retrieving the precise data, reducing the use of multiple resources. The main motive to implement the SSBI is to make casual users perform their own analysis, help organisations to make timely decisions by accessing recent and undated data, to decrease the pressure on it sections. A single SSBI tool is not to be used by several users as it effects the quality decision making. This can be attributed as the major problem that is seen in many organisations.

Bordeleau, F. E.et al (2018)BI is used at strategic, tactical or operational level. Bi monitors and analyses the activities of business organisations and provides better insights of marketing, technology investments or modifying the business models at strategic level. It improves the business objectives or business models at operational level. Strategic and operational methods can be overlapped based on the requirements. German government introduced the concept of industry 4.0 which created a floor for companies and industries to use technologies like big data, cloud computing, cyber physical systems, business intelligence and many more to meet the economical, environmental and cultural requirements of business world. There should be a balance between what is to be invested and what is to be studied since there are gaps in the BI research. Only classical bi methods cannot work on unstructured data in data warehouses in real time. Use of techniques like manufacturing execution systems will process the data from different resources like machines or products. Small and medium sized enterprises do not have technical support and advanced bi system architecture due to unbalanced financial support. Industry 4.0 aims to provide

companies with real time technologies to fight in the competitive world. There is significant rise in the BI over the years and industry 4.o brought a revolution which made companies to expand with new strategies.

Muntean, M. (2018). Sustainable organisations look forward to expand their investments and try to increase their market value by focussing on short term and long-term goals by using the knowledge in inter disciplinary manner. Sustainability is adopted to make sure right use of resources is maintained without exploiting natural resources. Business intelligence contributes to sustainable use of technology for decision making processes. Exploring data from various resources will integrate various aspects of data and help to implement the quality of the enterprises. Key performance indicators measure the sustainability of organisations. Corporation of business strategies is required to achieve good sustainable programs and companies should come up with sustainable initiatives to ensure the efficiency and profitability of the companies. Several key performance indicators had been developed such as activity normal average (ANA), activity current average (ACA), activity average process, activity absolute process etc to maintain sustainability. Data models are created by data model theory and by using data modelling process data models are used to see whether data objects required by databases are accurately mentioned. Business models are efficient only when they have proper support of technology and management systems. Business intelligence and sustainability are expected to go hand in hand to have quality business management and for the companies to run with high performance. Sustainability provides opportunities to stakeholders and ensures that they have job security.

Schwade, F., & Schubert, P. (2017).Social media has changed the way people respond and communicate with others with increasing standards of technology. Social analytics serve the companies to enterprise social software (ESS) analyse hoe people are connected on social media and what percentage of the people are using the system. Large software organisations such as IBM, Microsoft perform detail analysis but systematic analysis is limited due to the lack of visualisation of results. Web analytics is a part of social collaboration analytics which works from collecting data to redesigning websites. Social collaboration analytics uses technologies like web content mining, web structure mining, web usage mining which differentiates it from web analytics as web analytics monitors and analyses user activities and focuses on every single user's interests whereas social collaborative analytics analyses the activities of multiple users of the website. The further development of complex analytical software is being restricted as researchers are moving backward from development in this. Organisations and managers look for more complex and meaningful analytical software which can help them increase their success rates. Social collaborative analytics is used as the primary aspect to reach expectations of the organisers. Business intelligence in social media not only enables the companies to make decisions but also provides companies to focus on content management systems and socially enabled collaboration systems.

Bordeleau, F. E. et al Big data is the collection of large data gathered from different resources which is complex and difficult to analyse using traditional data management systems. It is defined as large amount of data that is unstructured or unorganised is used to evaluate and make decisions. Big data contains vast amount of data which range from gigabytes to yottabytes. Big data analytics system uses number of resources to collect data and is stored in multiple storage formats throughout the world. All the unstructured data is used by the big data analytics. Data is generated and processed with great speed. Analysts can have access user data with a click of the mouse. Velocity of data is important to see that the data is current and updated this helps organisations to have quick decisions and saves time and money. Data inconsistency that occurs in large data because of data variables and dimensions is referred to as variability. The accuracy and

corrections in data is referred to as validity. Security concerns of data are referred to as vulnerability. The format and layout of data in which the data is analysed is called visualisation. How meaningful the data content is called the value of data. These are the important characteristics which we see in big data analytics. Many companies want to make use of big data analytics as it supports business intelligence systems to understand the past data experiences and make possible predictions. With the rise in demand for the use of cell phones, personal computer, health tracking devices has benefited the business intelligence systems. Big data analytics is a process in which the data is segregated based on the patterns, relations and connectivity of data. Many business managers and policy decision makers adopt various big data technologies which supports them to have quality decision making. Technical and practical challenges are identified by the hardware and software infrastructure which prove companies to excel in the industry.

Advantages

1. BI being very efficient, performs heavy duties in the cloud involving processes like collecting data from various sources, storing data in data warehouses and analysing data based on user requirements by generating effective models. many companies like PepsiCo and Lenovo came up with different strategies with the help of business intelligence.
2. It helps many multi-national companies and organisations to have a holistic view on their operations and generates ideas to compete with larger organisations and to compete with the emerging world's requirements.
3. It is used in healthcare industries to collaborate with different organisations and build optimised models to diagnose patients faster and use innovative ways to perform better clinical trials. Pfizer and PEMCO stand out to be the best examples to use BI in the health industry.
4. Data Mining and Data Analysis supporting BI gives scope to innovative programs and products that can boost the business industry.
5. Data accuracy and data precision with a capability to report better business decisions helps organisations to create dashboards that can meet the potential client quests.
6. It helps organisations to have updates on the changing technology and advancements in the industries by analysing past and present data for future insights.
7. Business intelligence ideally focuses on customer requirements and customer satisfaction. It collects all the data that is being generated by the users such as feedbacks and online comments which helps the organisations to come up with improved strategies and advancements.
8. It provides employment and opportunities to many analysts and potential technologists.
9. Modern BI systems ensure that the data that is being accessed is trusted, secured and governed. They combine and relate data in organised ways so that users can access same data from any part of the world which saves time for the users.
10. BI helps organisations to increase their revenues by providing business industries to have answers to their questions from different dimensions and company's weaknesses.

Conclusion

Business intelligence with the help of increasing advancements in the technology brings significant changes in the present-day world. It helps to unite people from all over the world to reach and utilise the sources that are being available. Not only generating opportunities but also comes up with innovative strategies to help developing countries to reach the standard lifestyles of developed countries. Indian business intelligence systems increased its revenues with a margin of fifteen percent in the recent years. Enterprises in the country have better understanding on which areas to invest to increase revenue growth and improve service efficiencies. It is seen that the emerging importance of business

intelligence in India which is exploring marketing strategies and critical changes. For common people business intelligence provides a platform to have a quality decision making and gives a scope to share their experiences for which companies can make changes on. It helps people not to depend on power users to meet their requirements and utilise BI applications by making their own reports and make changes in the existing ones. They can progressively make changes and add calculations to their reports. Business intelligence is always on a step ahead to increase the abilities of the organisations across the world.

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ARTIFICIAL INTELLIGENCE IN HOSPITAL MANAGEMENT

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Introduction

Artificial Intelligence (AI) is the combination of two products such as Science and Myth. It is one of the fruits in the computer science tree. Zulaika Lateef (2020) The introduction of AI in 1950.AI was founded in the year 1955.The term Artificial Intelligence was coined by John McCarthy. In the year 2016 the AI has been used by 30 companies to create a self driving of cars. Farhan Saeed (2020)AI is used to develop skills and think as a human being. In a recent days AI technology is globally used in the many part of the business. The experts say that AI is the only thing that can be only used in the future for developing skills. The AI technology has been already connected among us by many other features such as Netflix, Alexa or Watson etc. The boundary of a AI is not only used for IT technologies and technology industries but also used in the medical, academic, law and production etc. *Siri* is the familiarized technology given by the Apple i phone and i pad. It acts as an mobile phone as it is used to get many information such as by Google, Chrome etc,. *Tesla* is the electrical vehicle used in the California, USA. The Tesla battery life of the electric car is up to 300000-500000 but it is insufficient. *Cogito* is founded by *Dr.Sandy* and *Joshua*. It is the program used to communicate to the customers asking for an help. In United States, *Cogito* plays an important role 36 call centers. Rita Sharma The challenges faced by the health care industry in AI are Cyber security, expensive, work overload, limited technologies and low income.AI is also called as a machine intelligence, problem solving and programming. The components used in the AI are too huge to list. The main aim of AI is to perform a complicated task in the computer and can be used to translate in one language in other language and enable to make an decision. It affects the economy, and causes a undesirable inferences because of huge components used in AI. The machine that consist of intelligence can be used to avert the problems and reduces the risk. We know the proverb as *'Prevention is better than cure'* as well as we have to diagonise the problem before it comes and it is rectified by AI.

Summary

Use of Artificial Intelligence in Healthcare and Medicine

The success of the AI is because of the following reasons. First AI which is used to give health care data and it also used in Software Engineering. They analyse the data from the given information and implement the clinical practices. Another motivation for the medical AI is to store the medical data. Therefore it is used to assist the patient's health. AI is the set of the medical information. Medical notes, clinical laboratory, physical examinations, etc, are the information present in the medical dataset. For example *Tophol* and *Jha* are the researcher advised to use and adopt the AI technology to analyse the health of physicians.AI is of two types namely weak AI and strong AI. weak is good at the specific task and it is not used widely .strong AI is used widely with big scope .AI Structural and Non-structural data are the two types of the data in the medical dataset. Therefore it has different kinds of techniques that are used to meet the medical requirements.The supervised learning is the most used type of the machine learning in clinical settings.It has added advantage and it complete the task in a short period

of time. The employ of use of AI will restore parts of newly discovered drugs cheaper, safer and quicker.

Deep Learning Technology for Improving Cancer Care in Society

Lung cancer is one of the dangerous diseases that is caused to the both men and women. The major factor of lung cancer is smoking. The other factors are air pollution, arsenic present in the drinking water. Lung cancer is caused by a small or large cell. The death rate of the people who suffered with lung cancer is very high. The therapy of the lung cancer are conventional, target and new immune therapy. The detection of the type of cancer is very critical process by using the drugs in the medical field. The types of lung cancer such as lung adenocarcinoma, lung squamous cell carcinoma and specific mutant lung cancer.Breast cancer is mainly caused to women due to obesity, hormone replacement therapy. The technology used to detect the cancer cells and kills them. This cancer is caused in a more western countries than the Asian or African countries. In the recent days the most important diagnosis approach is blood test which detect the appropriate type of cancer, stage, changes in the DNA sequences. Every technology has some merits and demerits likewise. The technology based on the AI is used to classify the different types of cancer cells. The cost of this technology is high because of lesser equipments, materials, specialized persons and research labs.

Applications of AI in Health Care Safety Context: Opportunities and Challenges

AI is one of the essential thing in health care. The application of AI is used to detect and prevent the disease, higher rate of efficiency and detect the result of disease states. There are numerous benefits of using AI are reduction of mistakes in appropriate diagnosis and select the best treatment methods. The device called an health wearable can be used to track the wearer's health, fitness related data etc,. The technology used in health care is very safe and efficient. The research of AI systems include medical, ethical and privacy etc,. It performs an task based on the instructions. It takes the baby steps and learn to be comfortable and works in various environments by the use of data. In the medical field safety and security is the most important but when data is hacked by hackers but it can be prevented by AI research systems. High quality data is one the important keys to train AI systems used in health care. All the labeled data should be given correctly if it fails to give data correctly AI applications will be poor. Data is a raw fact and it will store the information. The other application of AI is used to diagnose radiotherapy in primary care. Safety and privacy is the common task but the patient's data are given in a digital format and uploaded in the systems. However the safety of the data are not clearly mentioned.

Machine Learning and Artificial Intelligence in the Service of Medicine

Deep learning, AI and Machine learning are the key fact and gives solution to many problems. However these are also used in a medical field. The primary step of a professionals in the health care is to improve the patient's health status. The primary process starts with the nurses to enquire the patient's condition. The method digitization converts the written format into digital form and data can be stored and it is required when it is needed. The medical techniques called CT (Computed Tomography) and MRI (Magnetic Resonance Imaging) is used to find out the internal problems of human beings gives the medical image of a patient's internal problem and the physicians gives the proper treatment to the patients.

There are some characteristics used in radiology Segmentation,Labeling ,Detection and diagnosis and helps to give final report. Hematology is the study of blood. Only through the blood test the blood related disorders can be identified by the Machine Learning. Unsupervised Learning is used to discover the class and Supervised Learning is used to assume the class. Neurology is the study of Nervous system and the tool called Encephalography is used to find the brain functions. Cardiology is the study of heart.ECG is

used to find the functions of heart. ML techniques is used to find the abnormal sounds in the heart. Opthamology is the study of eye defects. Opthamologist finds the sight abnormalities and gives the solutions by the ML applications.

Promises of Big Data and Artificial Intelligence in Nephrology and Transplantation

Nephrology is a study of kidney. Kidney diseases are results in major mortality rates and economic losses. There are two types of kidney diseases such as acute kidney injury and chronic kidney diseases. These two diseases leads to heavy complications and leads to death. Based on the data the USRDS (United States Renal Data System) traces that how many patients were affected by kidney diseases because of economic conditions. The transplantation used in United States is an important database called UNOS (United Network Organ Sharing). By using the data in the medical field the professional offer more chances to save the patients life. Such data are integrated with fitness data, health data, blood level etc,. These data are reconditioned, gathered and uploaded in a network system.AI is an important factor and it is used to decrease the risk factor of the disease affected by the patients. The prediction and the risk factor of the diseases are very complicated. Many types of kidney diseases has the similar type of risk factor. However the similar risk factors are present in the different types of diseases. The techniques of the Deep Learning method are more applicable to Bio-medical applications. In recent years the AI has been used to identify the symptoms and to give the treatment for kidney diseases. However there are many demerits in Artificial Intelligence and it is being used in the medical field.

Artificial Intelligence in Medicine

The term artificial intelligence is based on the process of decision making and the operation is done independently.AI is being used in many other medical applications. For example: AI is used in cardiology to detect the symptoms of heart disorder by the use of big data in AI. Artificial Intelligence is being used to develop the medicine to the any other types of diseases. The power of AI is divided into two methods such as Strong AI and Weak AI. The weak AI is a running program and it will be done only by a stimulating person's behaviour and consciousness.It is being focused by the single task. The strong AI is a program in a machine not only stimulating the human behaviour it is also used to stimulate the brain. It is focused by a multitasking. The technology used in the medical field is done through the devices of robotic and imaging. The first surgical operation by the use of robotic devices in done in the year 1985 in the area of neurology and this surgery is being successfully done by professionals. In the year of 1987 the surgical operation is done to remove the gall bladder by using the robotic system was being successfully done by the researchers in medicine. The AI is same as that of the human mind but human has consciousness and AI hasn't consciousness.The robotic surgery is the main advantage of AI using in the medical field.

Advantages

1. Best decisions can be made by this method. It is the best method to treat the diseases.
2. AI technology is used to reduce the death rate.
3. This technology is used to give the proper treatment for the particular diseases and it accurately cure the diseases.
4. Whatever the information is needed that is present in this method.
5. Time can be saved by this method by finding out any types of diseases without any delay.
6. Hospitals visits can be reduced unneccesarily. This technology helps us to visit the patient's health digitally.
7. Artificial Intelligence helps us to overcome fear and challenges.
8. It works 24X7 without any disturbance. It is also used in the mining process.
9. It makes the function faster and smarter. It is used in military, public and ethics.

10. The AI robot has been developed by the humans and this robot can do any type of complicated task whereas human can't do that task.

Conclusion

Artificial Intelligence is used to develop the computational models. We know that there are equal pros and cons in all object as well as same. The term 'intelligence' means ability to function the different skills and knowledge to solve a problem. It can be developed across the business. This technology represents the symbolic structures and operations that can be done in the computer.AI is the part of the life and developing more new or interesting ideas. New researches has been developed by this technology. It has no end and helps to make new inventions .In future there will be whole society of robots who knows? It is in the human hands that how they can choose these technologies in right or wrong way. There is a threat that it may give jobs in futures or not. The workers will be new. It can increase the training and re-learning which will be more essential in the future. There is a time to make the humanize of robots and there are tools to learn. As the research continues more people can be educated and finding new things which helps to the people.AI have not only taken in the robots but also in the mobile phones ,video games characters and recognition of voice. Technologies are more important in the future and we have to choose the right. We have encourage the inventions which will give more enthusiasm to the inventors.

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FUTURE OF DRONE TECHNOLOGY

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Introduction

Fintan Corrigan, (2020) A drone is a pilotless aircraft which is more familiar by the terms unmanned aerial vehicles (UAV's) or unmanned aircraft systems (UAS's). A drone can be named as flying robot as it can be controlled remotely and through sensors and GPS. Drones were initially introduced in military in the use of anti-aircraft target practice, intelligence gathering and many more. Now-a-days drones are used for search and rescue of people during disasters, traffic monitoring, photography, cinematography and even for delivery services.

Drones are made with components like electronic speed controllers (ESC), an electronic circuit to control speed and direction, flight controller, battery, antenna, receiver, cameras, sensors, GPS module, accelerometer. Drones are of two types. They are personal drones which are owned by a person weighs less than 10 pounds and commercial drones which are owned by companies or organizations weighs less than 55pounds.

Mahashreveta Choudhary, (2019) Drones are helping the world in various sectors. In disaster management, for finding damage, locating victims and delivering aids. In urban planning drones provide the data for instant mapping and planning. In construction they provide 2D and 3D models for conducting the surveys. Drones also help in wildlife conservation by providing the information of number of animals and species. They assess the weather condition to understand approaching dangers. Drones also play wide role in law enforcement, waste management, health care, agriculture sectors.

EKU Online Drones are getting better day by day by providing their services in day to day life. In March 2011 a powerful earthquake lead to tsunami, caused severe damage to fulcushima daiichi nuclear plant, japan which resulted in the release of dangerous nuclear gases. During this, drones were able to provide aid and save the lives of people. In 2015 Nepal earthquake drones are appointed for creating 3D maps through picture processing apparatus, this information helped in finding the damage, evacuation mission and reconstructing buildings. Drones can also locate broken gas lines through which workers can stop the lines and avoid explosion. Drones can give support to the people by providing food, water and aids in the case of infrastructure supply lines are disabled after the natural disaster or terrorist attacks.

From this we conclude that, Drones are going to play a significant role in the further development of the world. Drones are not only helpful in development but also saving lives. We have many benefits from drones if they are used in a positive way.

Literary Survey

(i) Drone technology in Health care industry

Balasingam, M. (2017) In medical emergencies, drones should be controlled properly and should be provided fastest route for lifesaving. If "flying out of sight'' as such any deviation occurs this might adversely impact the health and the survival rate of the patient. Drones help the medical field in a very efficient way. Drones can give aid and lifesaving treatments to the people in the disaster affected areas. Drones provide the safe transport of disease test samples and test kits in areas with high contagion and highly restricted areas. They also help in transportation of organs for transplantation. It has potential to deliver portable tools like ultrasound etc.

Dronesare one of the rapidly developing technology with increasing worldwide applications. Google has also granted a patent to develop a system which helps all the fields. Uses of this system simply need to press a button to call for help, such innovations in drone technology are comingup.

Aerial drones can be launched by using various methods like hand thrown pneumatic launcher takeoff from a prepared runway etc. depending on their type. Drones do not require room to land and can drop objects from low height and they land by using bio-degradable parachutes. Drones became a valuable tool in the medical field by demonstrating their ability to address the issues faced by both the medical personnel and patients. Common drone applications in this field include providing disaster assessment when other means of access are severely restricted; provide vaccines, medicines, blood, test kits; rapid access to AED's to the patients in cardiac arrest.

(ii) Drone technology in disaster management

Restas, A. (2018) We have three options to use drones in water related disasters. "Before floods" the drone can take riverbed survey which can prevent floods. "During flood" drone can be used to support people who are helping victims of flooded area in providing objects. "After flood" the drone is used for mapping and remapping the affected area for making quick actions about damages caused by flood. In case of serious drought, experts can take advanced picture survey of river basin by using drones. We can notice not only the natural changes of basin but also illegal activities along the river side. During flood, drone can give data about flooding area which can support the management. Drone can remap the given area and can detect unexpected events like trapped people, water leakage etc. Based on this quick detection of leakages, management can control the problems before getting worse. Most of the people think that water related disaster means only floods, but it also includes droughts. In drought conditions, the amount of water is less than required but in case of flood, amount of water is too much. With drone applications fire service can detect hotspot earlier like "eagle eye" than civil reports. If the reduced response time can save as much value forest as the cost of using drone. Drones help very effectively not only in experts view but also in economic view. Drones play a supportive role before floods, during floods and after floods.

(iii) Drone technology for social relevant activities

Washington, A. N. (2018) Now-a-days drones are used in huge amount. The problems of drones are they are easily affected by the weather, collisions with buildings, structures and monuments. The drones have short flight time; once the drone is fully charged it is possible to fly only for 30 minutes. The uniqueness of this article is it explained about the applications of drones in African countries and classifications of drones and it also explained the applications of drones in non- African countries, benefits and challenges of drones. In health care, drones are used to provide critical lifesaving aid, to deliver blood and sample test kits during the pandemic situations. In agriculture, the change in climate and deforestation affect the agriculture. Acacia trees are planted to control the sand movements and to prevent the devastation of house and farmlands during deforestation. Researchers closely monitored the impact of these efforts using drone technology. In archaeology, drones are used to identify sites for excavations much better, faster, cheaper than ground-based efforts. Applications of drones in various fields like healthcare, population and wildlife monitoring, agriculture, archeology, genocide prevention. The governments have identified the advantages of drones. So, the drones use has exploded majorly. Accessibility, faster response times, inexpensive, community collaboration are the benefits of drones. Challenges to drones are national responsibility concerns, privacy concerns, trained operators, equipment loss or damage, government regulations, limited time to development. The usage of drones in the fields other than military is rapidly increasing. Many countries are now looking to copy these to provide better services to citizens.

(iv) Drone technology to develop the smart cities

Alsamhi, S. H., Ma, O., etal., (2019) Drones collaboration with IoTs (internet of things) can bring a drastic change in all the sectors like agriculture, healthcare, military etc. Drones play a very effective role in data collection. It helps IoT devices to transfer data with less energy and in less time. Drones can avoid delays and errors caused by IoT devices. They help in traffic monitoring, which is a major issue in smart cities now-a-days. The static cameras provided on the streets cannot give all the data about the incidents occurring, but drones can collect all the data and send it in real time. Drones also help driver to spot parking places when there are limited parking spots. They also help policemen to identify the robbers etc. in the huge crowd.

When compared with the human workforce it is less expensive and more effective. Drones can also perform delivery services. They can provide faster delivery and better services to the customer. Now-a-days drones are used to identify the powered down lines after the disasters. In future drones are going to provide alternative for the people who are not able to travel miles distance for health care like diagnosis.

Which helps in soil and field analysis. These also help in planting by shooting the seeds into the soil, which decreases the costs of planting. Drones can scan and provide the plants with correct amount of required chemicals. This reduces the usage of chemicals and can be done five times faster than traditional spraying. Water supply is the major issue in agriculture. Drones can identify the dry areas which are to be watered. This decreases the intake of water by plants. Drones can also assess the health condition of the crops and can take the pictures with the help of its camera. From this we can say that the drone technology which started as the military technology can end as the green tech technology issue in the agriculture. Drones can identify the dry areas which are to be watered. This decreases the intake of water by plants. Drones can also assess the health condition of the crops and can take the pictures with the help of its camera. From this we can say that the drone technology which started as the military technology can end as the green tech technology.

(v) Drone technology in Agriculture

Ahirwar, S., Swarnkar, etal., (2019) As the world population is increasing day by day; it is becoming a challenge to reach each human need in food. Now -a-days agriculture sector is facing many problems like labor scarcity, infections, diseases to crops, weather conditions. Application of drones can be done in agriculture can be done during various periods of crop cycle. Drones can provide 3D maps, which helps in seed plantation. They also provide for irrigation and nitrogen-level management, which helps in soil and field analysis. These also help in planting by shooting the seeds into the soil, which decreases the costs of planting. Drones can scan and provide the plants with correct amount of required chemicals. This reduces the usage of chemicals and can be done five times faster than traditional spraying. Water supply is the major issue in agriculture. Drones can identify the dry areas which are to be watered. This decreases the intake of water by plants. Drones can also assess the health condition of the crops and can take the pictures with the help of its camera. From this we can say that the drone technology which started as the military technology can end as the green tech technology issue in the agriculture. Drones can identify the dry areas which are to be watered. This decreases the intake of water by plants. Drones can also assess the health condition of the crops and can take the pictures with the help of its camera. From this we can say that the drone technology which started as the military technology can end as the green tech technology.

(vi) Drone technology in Military

Mahadevan, P. (2010) Drones in military sector represent an evolution not a revolution. There are three types of drones used in the military purposes. They are strategic, operational and tactical. Strategic drones can fly at 200000 meters for 40 hours and operation drones can fly at 7500 to 15000 meters. These are used to attack enemies. Tactical drones can fly up to short range (20 miles). These are fully controlled by an operator. During the Vietnam war, they helped to plot north Vietnamese and Chinese

logistics networks. Later after eight years, in Kosovo attacks, drones played a vital role by winning 9/11 attacks which gave a boost to Kosovo. AI Qaeda terrorist in Yemen was killed by drone-launched missile. Drones also saved the lives of Americans by detecting the road-side bombs. Pakistan raised a controversy on drone strikes. The three points are first, drones kill large number of innocents. Second, the rules of engagement governing their use should be made explicit, and third is that they represent a violation of Pakistani sovereignty. As the technology increases in the drones the cost also increases. But the improvement is taking place slowly. US is heavily investing on operational drones to provide better services to the army.

Advantages

1. Drones help to decrease the dangers and health risks by eliminating the physical need of workers in risky environments like oil and gas refineries.
2. UAVs equipped with obstacle avoidance capabilities will be able to capture the images at heights and angles that humans cannot and collect the data of cracks, damage, misplaced wires etc.
3. Drone technology is a cost saving technology. UAVs take over many workforce which results in the no use of large number of workers, aerial lifts and other heavy equipment.
4. With the help of drones, drone operators with relevant permissions and licenses can provide security for private organizations by providing the information from natural catastrophes.
5. Drones can support law enforcement by giving the information about lost children, accident investigations, suspect tracking, monitor large crowds.
6. Drones can streamline agriculture and they point the areas that farmers should provide care for yield improvement, resource conservation.
7. Drones can be used to deliver medicines, food during pandemic conditions to the people in highly man restricted areas.
8. Drones are firstly introduced in military to locate the road side bombs and find the location of the terrorists with putting the human lives in trouble.
9. Drones are very popular in mass media networks due to its functionality in capturing images and videos which attract the people and increase the popularity of the bloggers.
10. Drones save time, money and require less effort. Drones provide the required information with in less time. As it does not require many labour it also saves money. It also do not require much effort, only one trained operator is enough.

Conclusion

In a country like India ,agriculture is the major and important sector. In agriculture water insufficiency is the major problem. In this case drone technology helps farmers by providing the information of dry areas which should be watered without wasting them. India is a developing country, Drone technology helps in the construction of smart cities in less time. If any illegal activities like road side bombs in public places occur it would effect a large number of people as India is one of the highly populated country. During disasters, drone technology helps in providing food, medicines to the common people living in the areas without any transportation. Drones helps in transporting them to the common people in time. It also helps in the detection of area damaged due to the disaster. Drone technology also play a very important role in medical sector. It is used to transport organs for transplantation. Many innovations are coming up like pressing button in the case of emergency for the help. According to me , drone technology is going to a huge impact on India and also going to play a important role in the development of India. Drone technology is growing very rapidly. Drone technology will help many developing countries like India if it is used for the good. Drone technology also results in lose of jobs of many common people and provides new jobs. It is very useful.

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BUSINESS INTELLIGENCE

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Introduction

Negash.S., & Gray, P. (2008) Business intelligence is all about the methodology, the way of approach, the technology that is being used, and the applications and practices implemented for collecting, analysing and presenting business information. The main purpose of business intelligence (BI) is to support and develop the business decision making into a better one. The term business intelligence priorly deals with three prominent factors called Data gathering, Data storage and Knowledge management. Business intelligence systems are usually called as DDS – decision support systems. This term business intelligence was introduced for the first time by Howard Dressner in 1989, where he was then a research fellow at Gartner Group. Prominent companies like Starbucks and amazon etc., are using this BI.

Debortoli, S (2014) et.al., The skills needed for an individual to work and opt business intelligence as their career option are as follows:

- Communication skills
- Problem solving
- Advanced vision and attention to detail.
- Specific industry knowledge
- Business acumen
- Critical thinking
- Coding data
- Classifying data
- Planning
- Decision making.

Kopáčková, H., & Škrobáčková, M. (2006). The knowledge of business Intelligence can help business industries and entrepreneur's in various ways but it helps significantly in making and taking good and accurate decisions. Business intelligence(BI) help companies to make better decisions by plotting and representing their present and past historical data within their business context. It also helps them analyse and think of their investment strategy using the borrowed money which provide competitor benchmarks to make the organization run smoother and more efficiently. BI also helps to spot market trends which can increase sales and revenue. And BI may also contribute its help in the following ways,

- Helps in identifying the ways to increase their profit
- Helps in analysing the customer behaviour
- Helps them to compare data with competitors
- Helps to track their own performance
- And finally, in predicting their success.

The 5 main habits or qualities that a business intelligence person have are,

1. Focus on the work you want to initiate
2. Should be quick in analysing and delivering results
3. Better organising skills and responsible at your work
4. Should be Ready to adjust to any condition and situation
5. Ready to monitor and manage the problems that arrises with ease.

Literary Survey

Turban, E (2008) et.al., Business intelligence provides students' a very good platform to gain knowledge of the concepts right from the core to depth, then tools and techniques to ensure effective business intelligence. Students also learn how to grasp and keep grip on data mining and data ware housing which helps them to establish a competitive

advantage and solve business problems quicker by using data - warehousing and mining tools. Even BI course provides a detailed and perfect overview of the available business intelligence technologies and of course strategic analysis can also be done. Students are also benefited in learning how the BI technologies fit into the overall business strategy. The major problems that are discussed in the reference are the high prices of Business intelligence software and Poor data quality. And the solutions for the above problem are as follows; For high prices of BI, it is recommended to opt for Self-service Business intelligence tools over a more traditional model where those systems avoid costly IT support. And for poor data quality it is suggested to implement a Data quality Management initiative.

Stackowiak et.al., (2007) Business intelligence is defined as the process of taking more amount of data for analysing it, and presenting a high-level set of reports that gives the correct and accurate sense of that data into the basis of business actions and enabling the management to priorly make the basic daily business decisions. BI can also be viewed as a way and method to improve business performance by providing powerful assistance for executive decision makers to help them to have useful information at hand. Business intelligence tools are usually seen as technology inhibitors that enables the efficiency of business operation system by providing an profitable value to the enterprise information and so this information can be utilized. One of the writer Zeng defines business intelligence as "The process of collection, treatment and diffusion of information that has an objective, the reduction of uncertainty in the making of all strategic decisions." And many experts describe or explains Business intelligence as a "business management term used to describe applications and technologies which are used to gather, provide access to analyse data and information about an enterprise, in order to help them make better informed business decisions."

Business intelligence is now very prominently used, mostly in the world of innovation and practice, i.e., to describe analytical applications. BI is now the top-most priority choice of many chief information officers (CIO's). BI has become an initiative now-a-days and has been recognized as the best by Chief Information Officers and business entrepreneur's as an instrumental one in driving business as a much effective element. Business intelligence mainly involves two primary activities that are "getting data" in and "getting data out". Getting data in, refers to data warehousing, which generally involves moving data from a set of source systems into integrated data warehouse. 'Getting data' in delivers only limited value to an enterprise that is when users access the data and use it to make various decisions where the organization realize the full value from its data warehouse. Thus, 'Getting data out' receives most attention from both the users and organizations. This 2ndactivity, which is commonly referred to as Business Intelligence, consists of both business users and applications accessing data from the data warehouse to perform different activities like enterprise reporting, OLAP, queries resolving, and predictive analytics.

Schiefer Josef et.al., (2005) COMPONENTS OF BI; OLAP, refers to the way in which the business users divide into parts through the data using sophisticated tools which allows for the navigation of dimensions such as time. Online Analytical Processing i.e., shortly said OLAP provides multidimensional and multipurpose, short noted summarised views of data which is mostly and commonly used for reporting, analysing and planning for making its best in business. OLAP tools and techniques are used to work with data warehouses or data mining designed for sophisticated enterprise intelligence systems which in turn the systems process queries required and analyses the critical factors. And the rest BI tools are used to store data, analyse data, such as data mining and data warehouses decision support systems, document warehouses, knowledge management and mapping, information visualization, and dash boarding, management information systems, geographic information systems, Trend Analysis, Software as a Service (SaaS).

Advanced Analytics refers to as data mining, forecasting and predictive analytics, which takes an advantage of statistical analysis techniques to predict certain measures on facts. Corporate Performance Management is a general form of category that usually provides a container for several pieces to get into so that the whole tells a story. For suppose Take an example of balanced scorecard that displays portlets for financial metrics combined with organizational learning.

Cella Luris et.al., (2004) Now-a-days, Business intelligence users are demanding to begin real time Business Intelligence to their business which in turn can help them to gain more profits, specifically in the frontline operations. These users come to the companies expecting everything up to date and new information in the unique platform as they will monitor the stock quotes online. Included even monthly and weekly analysis will not sufficient or not so adequate to take in. So, we can expect that in future, not too long but sooner, business companies will definitely become dependent on real time business technology and information in which the same way as users come to expect all the information to be made available on the internet in just few clicks. Also, in the near future business technology and business information will be made accessible to everyone where every user from every corner of the organization will be able to get the information on their specific platform to see how it's performing. So, by all the done surveys or calculations by experts we can expect very soon in the near future, the requirement of business intelligence will definitely increase and even the user's expectations also increase simultaneously or linearly. Business intelligence, is therefore imperative that both businessmen and industries increase it with same pace or may even faster to stay always competitive.

Malhotra, Y. (2000), discusses the benefits of business intelligence with many important points that are as mentioned below. Business intelligence provides number of benefits to industries and companies where they can utilize it in various ways of their interest. And it also helps to eliminate a lot of guess-work within a company or organisation, and also enhances the way of speech or the communication among different departments while organising or coordinating activities, and also it enables industries to respond quickly to have a change in financial condition and customer preferences to supply chain functioning or operation. Business Intelligence also improves the overall performance of the company and also helps in getting better or fruitful results. As we know, Information is regarded as the second most dominant resource to a company and its people are its most valuable asset. So, when a company is able make decisions based on accurate information at correct point of time, then obviously any company can improve its performance and therefore it's results also. Business Intelligence also makes everything happen fast or in less time i.e. making decisions correctly on information before having a competition with businesses and so it can often result in competitively superior performances. It also improves customer experience, making them allow for timely and appropriate response to customer problems and priorities. The profit business organisations have been recognising the importance of business intelligence for decades and few of them are mentioned below.

- By the help of Business Intelligence superior tools, employees can easily convert their business knowledge through analytical intelligence to solve many business problems and issues, like Internet delivered marketing campaigns, increase response rates from direct mail and much more.
- And with business intelligence tools, profit based industries can identify their most profitable and helpful customers and the underlying reasons for those customers' loyalty.
- By analysing click-stream data that improve ecommerce strategies.
- It Quickly detects warranty-related problems to minimize the impact of product design defects.
- Identifies the money-laundering criminal activities very smartly.

- BI analyses potential growth of the customer profitability and reduces the risk of exposure through more accurate financial credit scoring of their customers.
- Determines what combinations of products that customers are likely to purchase and what kind of service lines customers are expecting and when.
- It quickly analyses clinical trials for experimental material like drugs.
- It helps in Setting more profitable rates for insurance premiums and claim requests.
- Reduces equipment downtime and increases their lifetime by applying predictive maintenance.
- Determines the reason why customers leave for competitors and become the customers by churn analysis.
- Detects the fraudulent behaviour such as from usage of spikes when credit cards, any swipe cards or phone cards are stolen.
- It also identifies the promising new molecular drug compounds.

Barbusinski Les et.al., (2002) There are some issues on BI according to some Experts, they view BI in various directions. Data warehousing and Data mining experts see BI as supplementary systems and of course it is very fresh to them. So, these experts treat Business Intelligence as technological platform for decision support system. These are in the opinion that BI is group of advance decision support systems with data mining techniques, data ware houses techniques and applications of methodology. With reference to statistics, Business Intelligence is viewed as a multidimensional analysis-based tool. And now the discussion goes to future of BI, in this rapidly developing and growing world, customers or the receivers will certainly demand for quick and efficient service from businessmen or business industries. As today's situation is like everything became competitive, companies and business men will and must meet or exceed the expectations of customers. Business men, companies and industries will have to depend more on their business intelligence systems to stay ahead and compete and collaborate with future events.

Advantages of BI

- Fast and accurate reporting: Employees can use customized reports or templates to monitor 'key performance indicators (KPIs)' using a variety of data sources, including financial activities, operations, and sales data. These reports are completely generated in real time and uses the most relevant data so that businesses can act quickly. Most reports include easy to read visualized data, such as graphs, tables, and charts. Some Business Intelligence software reports are interactive so that users or organisations can play with different variables or even access information faster.
- Valuable business insights: Businesses can estimate employee productivity, revenue, overall success and department-specific performances through BI. It also maintains a transparency of strengths and weaknesses since BI tools help users and organizations understand what's working and what isn't. Setting up alerts is quite easy and will help in tracking these metrics and also help busy executives stay on top of the KPIs that matters a lot to their business.
- Competitive analysis: The ability to manage and manipulate a huge amount of data is a competitive task in itself. Where further, budgeting, planning, and forecasting is an incredibly powerful way to stay ahead of the competition, and going a way beyond standard analysis, which is also easy to perform with BI software. Business organisations can also track their competitor's sales and marketing performances to learn how to differentiate products and services.
- Better data quality: Data is very rarely clean and there are many ways of discrepancies and inaccuracies to show up especially with a hacked together 'database'. Businesses which take care of collecting, updating and creating quality data is typically more difficult and they are even

successful to some extent. With this software, companies or business organisations can aggregate differentsources of datato get a complete picture of what is happening with their business.

- Improved customer satisfaction: Business Intelligence software helps companies understand customer behaviours, thoughts and their way of approach. Most of the companies take customer feedback in real time and this information will help businesses retain customers and reach the new ones. These tools may also help companies identify different buying patterns, which help customer experience employees predict the needs and deliver better service.
- Identifying market trends: Identifying the new opportunities and building out various strategies with supportive data can give business organisations a competitive edge that directly impact long-term profitability, and give them a full scope to know what is happening. Employees can externally market the data with internal data to detect new sales trends by analysing customer data and market conditions. It helps in spotting business problems too.
- Increased operational efficiency: Business Intelligence tools makes multiple data sources as a single unit which helps for business's overall to the organization so that the managers as well as employees spend less time in tracking down the information and can more focus on producing timely and accurate reports. Maintaining the data up to date with accurate information thereby, employees can focus on their short-term and long-term goals and analyse the impact of their decisions.
- Improved, accurate decisions: Competitors move much more quickly and it's most important for the companies to make decisions as quickly as possible. Failure in solving the issues withaccuracy and slow speed could lead to loss of customers and revenue. Organizations can have a strategy to deliver information of existing data to the right stakeholders at the right point of time, optimizing time-to-decisions.
- Increased revenue: Increasing revenue is an important and prior goal or dream for any business organisation. Data from BI tools can help business companies ask better questions about why are the things happened through making comparisons across different dimensions. When organizations are listening to their customers and noting all the points, watching their competitors progress, and improving their operations, revenue are more likely to increase.
- It's prominence in higher education: BI tools are used in various educational institutions right from admissions to optimizing the classrooms and scheduling the curriculum, to even improving student success. In this way the BI tools are showing their importance in every sector of the society.

Conclusion

So, the implementation of BI will improve the decision taking skills by the mangers as well as employers. The BI systems will in fact empower all the employees and work man with complete information required and make them capable of decision making. In any organization, managers have the key role in the success of operations and employees have the skill of supporting. The managers have to take decisions that either directly or indirectly affect the organization. A bad decision by anyone source will definitely lead to a disastrous outcome. The implementation of BI will surely improve the decisions taken by the mangers.

In any organization, huge amount of data is present, that data can be related to customers, suppliers, invoices, employee information, sales data, financial data, purchase orders, pay slips, training data, product data, client data, etc., where it becomes very heavy to manage such huge amounts of ever-increasing data. Business Intelligence systems can make the management of these huge amounts of data easy by using modern technologies like OLAP and Data Warehousing and therefore can produce better results. And, finally from this paper, we can

conclude that the implementation of BI will result in many fruitful and expected results.

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USER FRIENDLY AI IN TECHNOLOGY IN HOSPITALS

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Introduction

Alex Castrounis Artificial intelligence is a intelligence established by machineand it also refers to artificial creation of human like intelligence that can learn reason, plan, perceive, or process natural language which can be used in a beneficial way. It is also described as a machine can learn from data, use the knowledge learned to do something.

Elsevier Australia (2018) In current, health care industry is facing many problems. The first main problem is due to high sensitive patient information collected by the hospital organisation, which become a target to cyber criminals and the healthcare providers can also leak the information about their organisation processes involving sensitive information by leaking it to the third member. Even when more and more data is being generated its leaked across various members including payers, providers and patients. In addition to this collecting payment has become an another challenge as patients are becoming responsible for a large portion of their medical bills.

Jennifer Bresnick.AI offers a number of advantages over old and clinics decision making techniques. Learning algorithms can become more precise and accurate as they interact with training data, allowing humans to gain unprecedented insights into diagnostics, care processes, treatment variability, patient outcomes. It works by combining mind and machine through brain computer interfaces developing next generation radiology tools, expanding access to care in undeserved or developing regions, reducing the burden of electronic health record use, creating more precise pathology and so on.

Literary Survey

1. Will Artificial Intelligence Solve the Human Resources Crisis

Meskó, B…et.al…, (2018) In the healthcare industry currently, there are three major issues doctor shortages, aging and burnout physicians and higher demand for chronic care. Globally, there is 17.4 million shortage of healthcare workers and additional challenge is aging workforce .In 2030 it is expected that the population of people above age 65 will be high and number of chronic illness demand grows. In addition to that 400 million lack one or more essential health services and five billion lack surgical and an aesthesia care. In upcoming generation the medical professionals are looking for only limited working hours and so there is further shortages. Due to growing of chronic patients, physicians burning out is increasing. Artificial intelligence is a specialized set of machine learning that uses artificial intelligence replicated structure and functionality of the brain .It performs image recognition, natural language processing, translation and also various tasks. Nick Bostrom mentioned in his book that AI is generally classified into three types, Artificial Narrow intelligence, Artificial General intelligence, Artificial Super Intelligence . In the next decade, it is said that ANI will be used in the medical practice foe analysing large data sets. AGI understands and reason to its environment like human beings. ASI is smarter than humans in all fields from social skills to scientific creativity. Deep mind Health launched a cooperation with the Moor fields Eye Hospital NHS Foundation Trust to improve eye treatment by mining one million an onymized eye scans with the related medical records. IBM launched Watson Oncology to provide clinicians with evidence-based

treatment options and an advanced ability to analyze the meaning and context of structured and unstructured data in clinical notes and reports. In the Netherlands, Zorgprisma Publiek helps caregivers and hospitals avoid unnecessary hospitalizations of patients by analyzing the digital invoices obtained from insurance companies with IBM Watson in the cloud. In radiology, the Medical Sieve project aims at building the next-generation "cognitive assistant" with analytical, reasoning capabilities and a range of clinical knowledge. Such an assistant would be able to analyze radiology images to detect medical issues. In genomics, Deep Genomics helps identify linkages to diseases in large data sets of genetic information and medical records. In pharmaceutical research, Atomwise uses supercomputers to find new therapies speeding up clinical trials that take sometimes more than a decade and cost billions of dollars. Atomwise found two drugs predicted by the company's AI technology which may significantly reduce Ebola infectivity in less than a day of research, instead of years. Deep learning algorithms have demonstrated to be able to help the diagnosis of conditions in cardiology, dermatology and oncology Arterys already received FDA clearance for its AI-assisted cardiac imaging system. Artificial intelligence makes human resource crisis ease .Human crisis widening and is not possible to provide care without workforce. These gaps are growing worldwide and it is replaced with digital health.AI is eventually based ,wide spread and affordable. Physicians translates data using rudimentary tools and they will keep doing the same with digital sensors and AI.AI makes the process faster and efficient .It is the change in medical professionals involving more tasks with creativity. Undeveloped countries with poor resources will face challenges. On one hand, cost of those technologies will be very high for these undeveloped countries. On the other hand these countries make policy changes and adopt challenges and becomes widespread. AI is not to replace medical professionals but to make complicate medical issues easy.

2. Use of AI in Healthcare and Medicine

Khanna, D. (2018).Artificial intelligence sector in US is valued upto $600million and it is the highest growth industries in 2014. AI applications which use advance computing system has overcome human intelligence limitations in the medical industry using many techniques to assist clinicians. Every system that has adapted AI has an advantage of accomplishing a task within short span of time.AI has positive impact impact on doctors and patients because it gathers and analyse the large amount of data and it is even quicker , accurate and safer .Some of the people are not able to use specialized healthcare ,then they can achieve the advantage through AI. AI is used in finding links between genetic codes to driving robots that are used in surgery process. It uses sophisticated algorithms to learn various features from large healthcare data same as in engineering . The obtained data assist in clinical practices .The medical updated data shows the patients specific problem. It reduces diagonistic and therapeutic errors. The medical dataset will contain medical notes, physical examinations, images, Clinical laboratory, recordings ,and demographics . Researchers Topol and Jha advised radiologists to adopt AI technologies to analayse diagnostic images that contain large data. Developing pharmaceuticals using clinical test methods take clinicians and analysts many years and huge cost. It is used to restore parts of that discovery process of a drug quicker ,cheaper and safer. It is used to identify the application of compounds that were previously tested .After the outbreak of Ebola in West Africa it is used to scan accessible medicines that might be redesigned to fight the disease. It has the capabilities of analysing and accurately recognizing signs and symptoms of medical images such as X rays, CT scan, MRI scan ,ultrasounds. It facilitates invention of medical assistant systems such as modernizing medicine that gathers information about a patient, record diagnosis, aid in the testing process .It is used for gathering, storing, normalizing , and racing the source of data .It allows simulation of smart behaviour in a computer system

and this can increase the quality of patient care. Since simulation will coordinate the experience information and human contact of clinician with AI.AI mimic human cognitive functions. It has surpassed human performance in several medicalfields areas in the recent years. It has the capabilities to prevent, detect, diagnose, and treat a wide range of diseases. Many people do not realize the form in which AI is present in our daily life. It requires a large amount of health care data to train and learn in order to provide more accurate clinical decision and increased treatment efficiency. It has been applied in many areas in the medical field. It betters the care of a patient as a whole.

3. Potential of AI Healthcare Industry

Davenport, T., & Kalakota, R. (2019). Artificial intelligence is not one technology but a collection of them. Machine language is a statistical technique to fit models and to learn by training models with data. Machine learning is the most common of AI. In a Deliotte survey in 2018 1100 US managers were using AI and 63% companies surveyed were using machine learning in their business. In healthcare the most commonly used technique of machine learning is precision medicine. In 1960s a complex form of machine language is neutral network .It involves deep learning or neutral network of many levels which predicts the outcomes. Compared to other forms of AI robotic process automation is in expensive, easy to program .It does not really need robots only computer network and servers. Natural language processing includes applications such as recognition, text analysis, translation and other tasks related to languages. Rules based expert system widely used clinical decision support purposes over the last few decades. Physical robots more than 200000 industrial robots are installed and they perform tasks like lifting, repositioning, welding, and delivery supplies in hospitals. In 2000 ,USA approved surgical robots which have the ability to see, create precise and minimally invasive incisions stitch wounds and so on. In 1970s Stanford developed MYCIN for diagnosing blood borne bacterial infection. IBMs Waston had precision medicine particularly on cancer diagnosis and treatment. Waston employs a combination of machine learning and NLP capabilities. Waston is not a single product but a set of cognitive services provided through app programming interfaces which includes speech and language, vision, and machine learning based data analystics programs. In health care, another growing focus is on effectively designing the Choice Architecture to nudge patient behaviour in a more anticipatory way based on real world evidence. EHR system provides information through the provider, bio sensors, watches, smartphones, and other instrumentations, software can tailor recommendations by comparing patient data to other effective treatment pathways for similar cohorts. The administrative application technology is most likely relevant to robotic process automation. It can be used for a various in healthcare such as claims processing, clinical documentation, revenue cycle and medical records management.AI will be increasingly applied within the field. Several types of AI are already used by payers and providers of care and life science companies. These technologies have the potential to transform many aspects of patient care, as well as administrative processes within provider, payer and pharmaceutical organisations. AI can perform better than humans such as diagnosing disease .AI has the important role to play in healthcare of the future. Rapid advances in AI for imaging and analysis it seems likely the most radiology and pathology images will examined by the machine. Speech and text recognition are already used and their usage will further increase.

4. Artificial Enable Healthcare Delivery

Reddy, S., et.al...,(2019). Clinicians and healthcare professionals face a unexpected pressure because of changing demographics administrative requirements ,workforce shortages change in information technology demand . In the recent years AI has been playing a vital role in healthcare industry. It is believed that these technique are predicted to take over some activities currently done by clinicians. AI

is one the newest branch in engineering which is researched in 1950s. John Macarthy who is the father of AI said that it is the science and engineering of making intelligent machines. AI has the ability to emulate features of human intelligence such as reasoning, decision making, vision and language, knowledge representation, complex task processing and communication . The techniques in healthcare delivery and medical research are becoming rapidly evident. The business of delivering healthcare has become difficult with healthcare infrastructure in many countries. To reduce the burden information technology tools has been established. AI and data mining techniques is the most promising approaches to healthcare by clinical care and lessening administrative demands on clinicians .It undertakes routine tasks like patient data entry , automated review of laboratorary data and imaging results it can free time for clinicians . Healthcare industries can also use optimised machine learning algorithms thus reducing patient waiting and more efficient use of services. Clinical decision support systems helps to reduce medical errors and increase efficiency. Machine learning algorithms are used to predict development of diagnosis and treatment of chronic disease patients. ANN an advanced form of machine learning also predicts cancer, cardiovascular disease and diabetes risk better than clinicians. The adoption of electronic health records created a access to digital data and exploit AI techniques for monitoring patients. It have details on patients sleep patient, BP, heartrate.AI enabled software can be used in ICUs for cardiovascular and respiratory monitory via vital signs. Machine learning algorithms which is combined with electronic health records can analyse biometric and other medical data of individual patients. AI has been used for syndromic surveillance to spot disease out breaks and predict outcomes for critically ill and cancer patients.

5. An Open Approach to AI in Healthcare

Paton, C., & Kobayashi, S. (2019). AI is a term that encompasses a range of technologies which uses human like intelligence. This is called as expert systems. AI is the use of machine learning including ANN. It works similar to biological nervous systems. Machine Learning is the combination of sufficient processing power and large datasets. In healthcare ML is used for image analysis and interpretation for radiology, pathology, dermatology and improve the accuracy of biomedical signal interpretation. Open data is a data available at free of licence. It offers significant healthcare by the IMIA open source. Most of the open datasets are for bioinformatics rather than for clinical informatics. However, new open datasets are derived from clinical records such as the Chex-put dataset of X rays for ML. There is a large and growing research on AI techniques focusing on the predictive abilities. Black Box concept in AI research refers to neutral networks that are complex even for very skilled programmers to understand. Even though new medical technologies work in lab they wont be readily transferable to real clinical practice.AI systems may strong predictive accuracy but have problems when used in clinical practices. If healthcare workers give up on understanding how decisions are made it will lead to technology over dependence leading to worse healthcare outcomes for patients.AI research and development have a major contribution in healthcare industry.

6. Artificial Intelligence in Healthcare sector

Puaschunder, J. M., & Feierabend, D. (2019).AI and robotics supported medical assistance has increased rapidly within last decades. Bigdata revolution and hierarchical modelling advancements and computational power are dominating accesses to healthcare and prevention control.AI helps in guidecare , analyse trends and identify opportunities for future research with help of scientific evidence derived from bigdata. Technology can guide engagements which act as virtual mentor to meet customer expectations. Robotics have entered medical field assisted by bodyguards or surgery devices in the support of automated nursery and mental health stabilizers. Radiology and Imaging from computer and bigdata have the capabilities to diagnose and predict the future outcomes based on

large scale samples. Health related data and healthcare related diagnosis are at low cost. Patient monitoring can used in remote areas and developing nations. Clinical support systems will advance in the future using 5G technologies. Artificial emotional intelligence is programmed to understand, simulate, Caliberate human emotions. By using social media data researchers are able to predict the future occurrence of depression on the basis of linguistic cues. For the succession of robot technologies, robots don't only need to meet a level of strength, physical skills, and cognitive ability based on intelligence but also fullfill the social and ethical issues.AI helps patients to move, communicate and decode neural activities on an individual basis. The use of AI is to improve the accuracy in diagnosis, prevention of diseases, prediction on treatment plan outcomes.AI based tools such as voice recognition software and clinical decision system are at lower cost and also improved care delivery and enhanced patient experience. As per the 2017 Accenture Research and Frontier Economic report of economic growth rates of 16 industries concluded that AI will increase the probability on an average of 38% by 2035. AI is not used to replace human doctors but it is used to help doctors and nurses like helping on decision making predicaments, as burnout prevention by aiding on cognitive load capacity terms with excellence and precision.AI associated with lower economic growth rates in a cross sectional analysis over 161 countries of the world. Decentralised and information diversified data collection are to revolutionized health care sector. AI have the most advanced data storage and computational capacities. It lacks a reflective process that the relevant data is the decision maker to influence guidelines, pathways treatment, algorithms .Continuous information tracking which implies full transparency leads to stigmatization setting patients up in a path of discriminatory, when a diagnosis influences future diagnosis.

Advantages

- AI reduces human error, free up physicians, decreases manual tasks, increases efficiency and productivity.
- It provides the opportunity for us to move towards precision medicine.
- It gives the doctors idea that when the patient is under critical stage, so the medical intervention can be given before .
- Machine learning can automate tumour DNA diagnostic process.
- It helps in identifying mutations in cancerous tissues and improves the accuracy.
- It enables the hospital to focus more on human related things, and also to rescue the money spent on healthcare administrative costs and to use those money on delivery of care.
- AI in healthcare is similar to Xray technology, as it helps to evaluate the patients with greater precision detail.
- It can perform some certain laborious activities which makes the physicians burnout.
- It helps in combining the information such as medical records with operating metrics which can help to assist physicians.
- It can assist doctors in making better data driven decisions.

Conclusion

For the countries like India AI have brought new efficiencies and quality to healthcare. This keeps improving in healthcare sector by presenting with more accurate medicine and diagnosis .This is a centre at which perform tasks to build computational models of intelligence. Their intelligent architecture, which combines learning and reasoning which has the ability to act without any information further and not requiring any constant human attention is attracting. AI applications have successfully solved problems when compared with the results of the human clinicians. The shareholders will look more into the solutions that can replace the expensive elements in patient care as the healthcare delivery is more expensive ,and AI will be an solutions for these

problems. According to studies it is said that AI is the rapidly growing sector in field of healthcare. Though this technology has these much advantages this cannot totally replace the human clinicians in healthcare, and a method which combines both technological and human care is to accomplished.

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ENERGY EFFICIENT TECHNOLOGY IN TODAY'S WORLD

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Introduction

TIRDO (2006) Energy efficiency is a word which can be used in different ways and it means the energy that required i.e. efficient of a perfect result and depends on the thing that we use. The strict energy usage for the technology is called as energy efficient technology. They are the machines which have a defined process which relates the energy in put to the energy output we are using energy efficient technology in our day-to-day life in many ways depends upon the purpose that they are made for and our needs . Almost they all follow the experimental notation that the input energy is always equal to the output energy that used and released. Alfred K. OfosuAhenkorah, Accra, January 2006. These energy efficient technology is being used by us in many ways in our day-to-day life like sensors, water purifiers, desalinators, wireless data transferring and cellular and Wi-Fi network, etc. More than 80% of the population is covered by cellular networks .As per the GSM association there are over 2.5 billion global mobile phone users as of October 2006 , which is about 40% of the population . These energy efficient technologies are being used on electricity or solar energy or battery etc.....We have many types of energy resources like fossil fuel energy which is non-renewable energy source and solar energy and wind energy .We can store the energy by planning in a perfect manner so we can utilise the limited amount of energy that we required and we can save the energy for the future generations. The saving of the energy can be takes place more in renewable sources. Zambia Country Report on Energy Efficiency, March 2006 As the technology is being developed today by day new technologies are coming up but on one hand they are making our tasks simple but on the other hand they are consuming so much energy .If they are renewable energy then no problem is there. We have to be very planned on using those technologies to save the energy for the future generations. If we are getting the perfect output with equal to the input energy that we given then it means that we are using them in right way .So energy efficient in every sector is a big important thing which is leading our life so we have to use them wisely so we can make our life happier and safe for the future generations.

Literary Survey

Energy efficient cluster based routing protocol for wireless sensor networks

Thangadurai, Net.al., (2013). Energy efficient cluster based routing protocol for wireless sensor networks; As technology is developing from day to day , sensors are having very important role in our daily life network. Nowadays wireless sensors are became a boon for us which can be used in many day to day life situations in different places in different types. Sensor technology is becoming a important thing and being used at many places because of its sensing application and processing data to the user wonderfully as compared to the normal mechanical machines. Sensors are being used for many purposes like industrial application, medical needs, military and home applicants and agriculture as well. When they are getting out of power they can be used by solar and battery power based on their built technology.

Even it has many advantages it also has some disadvantages as well interms of operating and other things . Because of sensing applicants are battery oriented. Thus the minimum usage of energy

prolongs the battery's lifetime. And also in many situations it is very difficult to change the battery in terms of any damage or it totally drained off which leads to network failure or the message cannot be transferred between the user and the machines. More energy is needed in terms of transferring the data to user by node. Keeping all these things in mind many routine protocols have been designed for consuming less energy.

We can find usings of sensored things in or daily life in many situations from the car's door in our garage to the office gate especially in many cities in nowadays. These sensors are also being used in agricultural purposes, medical operations and equipments, military purposes and industrial and home applicants etc. for many different things to which they are made to perform the given tasks and etc.

Sensors are the machines which have mechanical brain by which they observe the surroundings and performs the tasks as per the situation and when it comes to a very routine work they perform very well. By making human's works very easier and making us to get rid off doing these common things sensors are helping us lot in our daily routine life. It has many advantages which are confirmed by looking at their usage in many places and tasks that they are performing. From the common bus door to the giant mechanical assemblings tasks sensors are giving their best in helping humans to complete our work easier and well with better performance. Even though there are so many negative things according to that battery but as the technology is developing from day to day these things are getting disappeared now. From the electricity to the solar energy and the battery power we are using everything for the best performance and not expecting any problems and making our lives easier.

Ghaffour,N et.al., (2014)Energy efficiency in salination; As the water is the main energy source around the world we can't separate the problems and issues within the water energy nexus on the basis of water and resources and energy management, the both water and the energy can be in the form of renewable or non renewable. Nowadays as we are using them at very high rate and causing the rapid depletion there are causing some global warming and climatic changed which causees several problems and environment ramifications includings GHGs. We have many types of energy resources like fossil energy which is non renewable energy source and solar energy and wind energy. Among these the water energy is very easy to connect in to the particular energy type that we want and mostly it is renewable and even we can recycle it. Keeping all these things in mind we have to use the energy wisely so we can preserve the energy for the future generations too which is the main resource from them too.

Desalination is a process in which we remove the unwanted and unnecessary salts according to the energy that we needed. And there are many distillation processes like membral distillation, geothermal distillation and desalination, adsorption distillation etc. These methods are done in different ways according to their physical and chemical properties like for example in adsorption distillation we use silica gel for removing of the absorbents which are the salts that sticked to the walls of the water molecule surface and the membral is process of diffusion in which it allow only particular particles to flow through it which is a type of filtration. Whereas the geothermal salinationinka natural process in which we use rocks of different types to desalinate them and cool it to make groundwater sufficient around that area.

There are many new technologies like FO,MD,AD and hybrid systems are getting upgraded for the use energy wisely. Some tests of these has proven that not only these some incorporation of RE will make them more efficient. As we discussed all the methods are very harmless for the nature and give us the best resource and show us how we can use them wisely, so we can call then green technologies which are need to meet growing water and energy they needs.

Gandjil,A.J., Jannuzzi (1991), CFLs (compact fluorescent Lamps) Generally in many developing countries like India people uses the incandescent bulbs in their household and working places because

of their less investment that they can afford. But the bulbs like CFLs which stands for compact fluorescent lamps are very efficient in converting only 10% of the electricity that the light used. They are in the shape of tube so they give more light which works on the principle of using the discharge gas in the tube so it requires very less energy which is about 4-5 times less than of normal incandescent bulbs and can last more than 12 times of that of incandescent bulbs. These CFLs bulbs are the so eco friendly ones and can be used widely. As per the CFLs prevents the emission of carbon dioxide about 500- 1000kg and 4-8 kg of sulphur dioxide per annum in United States (Polsby, 1994). In our country we have high sulphur content most of electrify generation about 3/4th comes from the coal burning plants.

So here the usage of CFLs are very important and useful. Many number of surveys has been done and reported on the usage of CFLs in different countries from its technical problems of operating system to doing the retrofits. Almost all the reports highlighted only one thing that is the very good user experience in using but many people are not using them because of lack of knowledge on the things like CFLs bulbs and etc..and it also has got the appreciation of many pollution prevent organisations. On the other hands as the people has lack of knowledge on many energy efficient technologies like CFLs and etc. government has to provide the awareness by conducting small meetings, advertising and many other publicity ways which requires more money. But the good thing is that because of due to technology and using its advantages many companies started up introducing these things to the people to increase their company sales. The reports are reporting that the sales of CFLs are increasing for year by year in an exponential way, which is a very good sign in many terms. In the section of creating the awareness of this new alternative the source of this awareness got explored.

Finally in reports concluded that number of issues of CFLs are not more than the people who are aware of that. This says that people are getting suggested by others. The conclusion of this is that there is only one problem that is the awareness is not very good in people especially whose income is less than 10000rs per month. For this the government and private companies are working by advertising products making some free trail schemes. Even though it has many good things still some people are in dissatisfaction on its brightness performance. As per their demand manufacturers are making CFLs of night wattage. Government approved the cost in mutually convenient installation of CFLs by government agencies and recovery if government. More than 71% responders favoured the free cost installation of CFLs by government but about 51% of the people said that manufacturers should initiate such schemes. They should bring up a programme which ensure the right quality will be labelled and published with performance guarantees because of a single bad impression they can loss their reputation. This point cannot be just overemphasized.

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Nowadays internet became a very common thing in our daily life it helps us in many ways to access data and to store or share information among the people which is nothing but wireless data transferring There are many types of wireless data transferring options from a single text message to the Xerox of abfax everything is wireless data transfer. These are many types in which we can share the data publicly they means socially and some other are private which are called Private accounts, they can transfer between a particular people so they can share the files of any format from one place to any other place of the world with network accessibility which makes our work quiet simple and easier.

Technology is a dual edge sword which has both pros and cons. For sharing and type data from one place to another place we need something as accessibility. As per the surveys the participants from the rice community from the Texas which is a major

US urban area , from Sept. 2006- feb. 2007, the survey showed a major bright picture regarding network availability on an average of 99% however the reality is that the energy cost and the battery lifetime is not as bright. For example the transferring of data of a three-channel ECG application will reduse the battery life of a mobile phone to below a one+-fourth of the original. As per the frequency of the network is increasing it creates a lot of radiation which will wipe out some species of birds.

According to the energy efficient ubiquitous connectivity is based upon the energy profiles of Wi-Fi and cellular network interfaces which are complementary compared with Wi-Fi , cellular fata requires a very less power to stay connected not always interns of high MB data transferring cellular networks are becoming universal. As per the GSM association there are other 2.5 billion global mobile phone users as of October 2006, which is about 40% of the world population more than 80% of the population is covered by cellular network. Shorter range wireless networks are also increasingly available, especially in urbans and business settings and also by the people who travels a lot. Wi-Fi wireless local area network(WLAN) technology has rapid expansion.

Wireless network became very compulsory in our daily routine life and ut is available in multiple ways. Theoretical analysis showed that judiciously choosing between network interfaces can considerably improve battery life time under a broad range of application requirements, while careless use of Wi-Fi can backfire. The best part of this is we can share the information to people From one place to another place which will reduce the burden of keeping and storing so many hard disk drives. The cellular and Wi-Fi networks are seperate. An integraphication of cellular and Wi-Fi network can create some more additional opportunities in estimating Wi-Fi network condition an availability. It is important to note that using context information to estimate wireless to estimate current network conditions, it can be used to predict future network conditions. Based on the prediction, system policies can be deviced to prefer wireless data of the network is predicted to degrade, or buffer data while latency requirements if the networks is predicted to improve.

P.Damacharla, A.Y.Javaid, (2018), Smart home technologies using IoT;Energy efficient technologies and are of many types, some of them are to complete definite tasks and some of them will follow commands to do different works at that time and smart homes are a kind of that using IoT(Internet of Things) which has a lot of equipments of and home appliances which will take commands and does the tasks. It is based on multimodal application that can be operated by recognised our voice of the user using the google assistant of the person. Not only following the commands, from normal fitting of the Led Bulbs which consumed less electricity to the big softwares which will communicate with us to do tasks all are under smart home energy efficient technologies. This helps us a lot and makes us to complete our work more simple and secure and intelligent. In these days where the technology isdeveloing very fastly the Human and machine interaction became a very common thing which is called as human machine interaction (HMI). Recently HMI moved a step ahead on using of internet of things some can access all the things through internet hence they can be accessible from anywhere. This shown that IoT has no boundaries to stick to one field , and it has shown it's own contribution small applications to large applications example coal mine, agriculture, laboratory monitoring and in many other fields.

Even though we are getting very good improvements in the technology, a common big issue is there around the world which ia a problem in this too it is power consumption. The ICT(Information and Communication Technology) has shown the reports of the electricity consumed by them is alone is of 4.7% of the world's electricity which is increased to 10%(2017-2019). In India is consumed about 6.5% in 2015. India has the 17% population the world and has very limited energy resources and they are in the form od word gas,oil and coal. In the last four years the consumption of electricity due to ICT has increased from 24Twh to 31Twh.

As the energy is the main source to run anything., the demand of the electricity is increasing day-by-day we can't able to use many of smart home IoT appliances. In many developing countries like India not only the enegry efficient for technology but also the poverty and economy is also a main reason for that we can't use everything. So they are making them as remote control accessories so we can use with less energy and it can be used by many people who all can afford them. Some of them are now available inform of bulbs and fans etc which which is allows the user to control when without any physical connection.

Advantages

- Energy resources: We can use very little amount of energy for machines to do tasks as compared to normal machines which require a lot of energy or power.
- Energy Alternatives: Unlike other machines, energy efficient technology has many energy source alternatives like instead of electrical energy we can use battery power, or we can charge with sunlight by solar plates, or different kind of fuels.
- Smart Appliances: As many of the energy efficient technological machines like IoT has been installed with smart technology which will not waste energy when they are not working.
- Security: For example, nowadays everywhere like traffic point, parking lots and at many public areas are under CCTV camera surveillance which are energy efficient and they are being used because they won't go down with power cuts like normal CCTVs
- Cost of Maintenance: These technological energy efficient equipment may cost a little higher, but after buying them, we can maintain them easily with less serviceand maintenance charges as they are not required a lot of energy and long last.

  For example, bulbs like LED(Light Emit Diode) they use 75% percent of less electricity and last for more than 25 years in comparison with normal incandescent bulbs.
- Adjustments: As many of the products are coming with smart technology, we can adjust them to our convenience even to the weather and climate for comfort.
- Environment Protection: We can reduce the pollution and emission of gases like green house gases and CO2 by 25% to 30% by using more the energy efficient technologies.
- Enhancing Life Quality: With the perfect calculation we can optimise the energy we use and we can increase the comfort of having and working at many places like home, working office and at public areas, and also we can see notable health benefits.
- Increase of property values: In the real estate market the price of energy efficient buildings are becoming high with standard features. So the addition of energy efficient adds fraction to its cost of living and to the final selling price.
- National dependence: These kind of benefits will reduce the dependence of country on imported energy at national level to the international market, or could extend the energy reserving life where they present. This increase the national economy and many companies will come forward to use them and little or no cost to the government itself.

Conclusion

By the conclusion of this whole survey is we can understand is firstly getting awareness of energy efficient technology of things is very important. As India has so much poverty and many people are from middle class segment, they will show interest and come forward to use these things because they can't afford more money on other things which are doing same tasks with more money, also they can save their money and spend on other things which will develop their life style. The energy efficient technology is just started before a few years ago in India and have a very good progress in development. They are LED bulbs, pruifiers, sensors, wireless data transfer desalination of water CFLs etc. Unlike developed countries India doesn't have bigger energy efficient

technologies because of many reasons like discrimination in society, partiality, poverty and the scams. These are the main reasons for why India is still a developing country. But by using these things we can develop our country easily as we can preserve the energy for the future generations .Later when it comes to the matter of using it we can analysis the accessories or those those things which are really efficient. If we have a option to chose between energy efficient and technology, we should go for efficiency because we should preserve it for future generations. We also have to keep in mind that energy is very important thing so its better to do things manually when you can and and only using of technology when you really want it, it can make our lives really happy. In this survey we've discussed about desalination of water, working of sensors, wireless data transferring, CFLs etc, which are some of major and mostly being used things in our day-to-day life. Even though technology has both advantages and disadvantages, we are having necessary of it to use. In that situation going for the energy efficient technology is a very good thing.

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RECENT TRENDS IN BUSINESS INTELLIGENCE

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Introduction

Mary K. Pratt and Josh Fruhlinger(2019);Business Intelligence (BI) consists of strategies, applications, and technologies that can be used by the MNCs and other Business Companies and Corporations. In History, the term 'Business Intelligence' was first used by Richard Miller Devens. He mentioned the term in his book called 'Cyclopedia of Commercial and Business Anecdotes', which was published in the year, 1985.Some of the important functions of BI are Data Analytics, Future predictive analytics, Data mining, Benchmarking, Text mining. There are many other functions in BI, excluding the above mentioned. Those functions are strategies that help the companies to achieve their goals with perfection.

Alison Doyle(2020); Each and every career needs a person to be well equipped with some special skills. Some of the most basic and necessary Hard skills for BI are Programming skills, Problem solving skills and Data analytical skills. Some of the soft skills that plays a major role in BI are Communication skills, Leadership skills, and Self-responsibility. Mostly, the required hard skills would not be the same for various jobs. But the soft skills are all ultimately similar for any kind of jobs.

Saptarshi Das (2019); Business Intelligence helps companies to shine with any kind of businesses. It helps them to achieve Goals and to earn rewards. For example, if a Hotel is about to be opened in a particular area, BI supports the Hotel by providing a Data Analyst. That Data Analyst evaluate the information about the neighboring people's financial status to see if they could have the ability to make use of the Hotel. The data analyst also analyzes the information about the nearby hotels to predict the Competition among Hotels. Likewise, Cyber Security plays a major role in IT Companies. A Cyber Security technician encodes the sensitive data of the company; then, a Cyber Security analyst comes forward and evaluate the technicians work to locate vulnerabilities and he/she strengthens the security. If the data are unexpectedly hacked, then a Cyber Forensic Expert will show up and inspect the case to locate the Hacker. These are just some examples. Likewise, there are several strategies that will help the companies to shine in their field.

From my personal view, BI is one of the most successful strategies, that mankind has ever figured out. I think that, those who are interested in learning Business Intelligence must work hard to reach their goal with complete confidence and they must believe on what they do. I've chosen Business Intelligence as a topic for my R&D, because I think that Cyber Security could be helpful for my career after graduation.

Literature Review

i. **Power and Scope:** Sarita Digumarti, June, 2017; Business Intelligence provides a wide area of scope for its candidates. Many enterprises under-estimate the power of Business Intelligence, but the truth is completely opposite to that statement. Those enterprises use those statement, because business intelligence requires more resources and money. Business Intelligence is one of the most emerging and fast-growing strategies in the world. It has reached the ultimate position in human business skills in entire history, and it also growing further with the assistance of Software Researchers. Business Intelligence also shows its power in the sectors of e-commerce and retail (banking, insurance, loans, etc.,,.) and it help in

analyzing and improving a country's economic and financial status.

The scope is well defined as Business Intelligence also shows its power in the field of Gaming, Food, Fashion designing, Public transport, Traffic control, Sports, Politics, and Governance. So, most of the sectors in the business world are going to consider Business Intelligence as one of the most necessary requirements and they are going to add Business Intelligence in top place in their required criteria list. As the people around the entire world are using internet and IoT, they all are going to depend on Cyber Security and Data Analysis, that are among important parts of Business Intelligence. So, Business Intelligence has bigger scope, when compared to other human strategies.

ii. **Current Status:** Hugh J. Watson; Barbara H. Wixom, May. 11, 2018; The current position of Business Intelligence is really fascination when compared to other strategies in the world. At present, Business Intelligence is considered as top-priority, by many Corporate companies and Enteprises and researches claims that Business Intelligence will raise further in the view of MNCs. As Business Intelligence is in emerging state, students and candidates think that the jobs offered, are completely depend on programming. But the truth is it requires a lot of problem-solving skills, and innovation than programming skills. Business intelligence (BI) is now widely used, especially in the world of practice, to describe analytic applications Getting data in delivers limited value to an enterprise; only when users and applications access the data and use it to make decisions does the organization realize the full value from its data warehouse. Thus, getting data out receives most attention from organizations. As there are many programs available in Business Intelligence, there are scopes for all kind of jobs such as Data Analysis on Sports, Data Analysis on Political Voting. Business Intelligence consists of business users and applications accessing data from the data warehouse to perform many actions that will be useful for MNCs. Those help them in many ways such as enterprise reporting, OLAP, querying, and predictive analytics.

iii. **Discoveries and Contributions:** Cheng Cong et.al., 2020; There are lots of Findings and contributions from Indian Analysts in the world of Business Intelligence. Among them, there are three major contributions that need to be considered as most acceptable and most appreciable. First is, the study of Business Intelligence and its other programs, makes the candidate more resourceful for the MNCs and BI make candidates to shine with a quick Internationalization. Business Intelligence makes the candidate to acquire the internationalization speed studies. Secondly, the findings of Chinese Software Researchers, enrich the knowledge of the strategy by introducing a well perfected organizational agility towards both candidates and owners. Thirdly, there's a common problem, when it comes to multiple MNCs, and that is Cultural Distances. But Business Intelligence recommend only knowledge, but not differences among candidates. Thus, Business Intelligence helps in decreasing Cultural Distances among the Multi-national Companies. The Google MNC is one of the best examples that can be considered to define the words in this paragraph. In Google, employees from all over the world including work in unity for the betterment of their customers. Jobs are provided even to the candidates from some of the backward and undeveloped countries in the world; and finally, as a well-known fact, the Google CEO himself, is a person from India, who was a middle-class candidate in his young age.

iv. **Challenges:** Gauresh Naik; May. 11, 2018; There are some challenges in the field of Business Intelligence. One of the primary challenges is both learning and executing the strategies of Business Intelligence is money. Those candidates and employees who belong from middle class families are unable to learn Business Intelligence in a proper way. Another biggest challenge is Training and Execution. Some of the universities and colleges fail to provide perfect and sufficient education and training for the candidates who pursue Business Intelligence. Most of the educational institutes provide those education for

high fee, and that's the problems of candidates from poor financial background. Another challenge will be there during job. Most of the MNCs need their employees to complete the given work, that would be entirely based on money making; So, most of the employees struggle to complete the work in time, where some of them spends more than 12 hours a day to complete and their minds are being filled with lots of stress. This challenge leads to another challenge, which is improper submissions and calculations in the given project work. All the challenges that are explained above leads to one big common issue, which is lack of consistent working and Hard work. Without consistency in a work, the results collapse and in many cases they are unsuccessful. So, these are all some of the most challenging things that a student or an employee might face in his/her future.

v. **Benefits & advantages:** Gibson et.al; 2004; As of Business Intelligence, there are several ways to identify the benefits gained or earned. But literally there are some clear and well-established methods for calculating the benefits from Operation Systems, that are considered one of the straightforward efficiency benefits from strategies like Business Intelligence and its applications. The benefits of Business Intelligence are often difficult to attribute to a single factor or to be identified in the balance sheets of analysis done by the researchers. So, numerous attempts are made to identify the correct and for the precise calculation of benefits by various Academics in the world. Those academics are using various frameworks, models and techniques. Some of them tend to provide a monetary measure of specific benefits of particular systems, giving a detailed, subjective and resourceful quantification by using proxy indicators like the satisfaction report from the customers. These methods are used in common and so none of these techniques are established with a specific focus on Business Intelligence. They are chosen to give accurate representation of the techniques available in Business Intelligence. The main intent of these analysis is to highlight the techniques and benefits that might have some relevance to Business Intelligence. Reports for such analysis is to be published, only after the evaluation done by studies of a certified organizations in the major countries of the world.

Disadvantages

Kourtit, Karima, and André A. de Waal, July 31, 2008; There are many benefits gained or earned from Business Intelligence. Likewise, there are many Disadvantages or drawbacks in the strategy of Business Intelligence.

i. **Employees & Competition:** As there are competitions before getting the job, there are many more competition seven after getting the jobs under Business Intelligence among colleagues. As there are such internal competitions, one cannot guarantee a permanent job in a single MNC and in some cases, some competitors overtake the jobs of the talented with the help of their richness.

ii. **Economy:** Another major disadvantage is that the field is too expensive for the MNCs and contains many rules and regulation for the employees.

iii. **Performance and Stress:** There are too many performance indicators in the job, and most of the employees in the world are suffering from stress and nervousness. Those performance indicators are too subjective and therefore unreliable, and hence even a higher authority in a company needs assistance for evaluating the work done by his/her employees. According to the reports of analysis, that are being published by the research organizations, there is not enough strategic information in the system and this is believed as the reason for the presence of such many Performance Indicators.

iv. **Knowledge and Workload:** Another disadvantage is emerging rapidly, which is, the presence of too much of Historical information. That information should be in a state of perfection in the knowledge of both students and employees in the field of Business Intelligence. Most of the MNCs are providing technologies and applied techniques that differ from the software techniques that the employees learnt; And so, the employees experience difficulties in

understanding those new techniques and regulations provided by the MNCs.

v. **Metrics and Reports:** Some projects and Businesses lack some rules and regulations for how dashboard metrics are used. This makes each employee could use metrics in different desired ways and that leads to un similar and diverse set of Data to get reported to the authorities. This could lead to failure of the Businesses.

Conclusion:

Apart from some disadvantages, Business Intelligence still possess numerous advantages for both employees and the employers. The educational institutions should provide knowledge only about Business Intelligence, rather than forcing the students to learn unnecessary subjects like Chemistry, EVS, Circuit Physics, etc., As long as Trading and Business last in this world, Business Intelligence will be at its prime position and will continue to grow and develop further in the near future and those employees who really admire and learn BI will definitely earn better rewards to lead successful lives.

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CHALLENGES, FUTURE POTENTIAL AND DIFFERENT ASPECTS OF BUSINESS INTELLIGENCE

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Introduction

Negash, S., & Gray P., (2008) Business intelligence refers to the software, technologies or applications that leverages structure and unstructured data to provide useful insights to the decision-making body of any organisation to help them to take more informed and effective decision.(What is business intelligence, 2020). An ideal business intelligence system should provide actionable information at the correct time, at the correct location, and in the correct form to assist decision makers. The term BI replaced decision support, executive information systems, and management information systems (Thomsen, 2003). Business intelligence systems essentially includes 3 major processes. First, acquisition of data, now this process has become much more complex over the years as today, data is not limited to spreadsheets and on-premise databases, we are living in the Era of Big Data so the amount of data is drowning, so it is important to manage data efficiently. Second process is data analysis, so in this process as the name suggests all the gathered data is analysed and the end product is generally in the form of a dashboard or a report. Last but not the least is the process of gaining insights, this is done by looking at the trends, comparison, growth etc. From visual representations on the dashboard, the insights gained, play major role for decision making in any organisation.

BI skills necessary for career in the field depends on whether an individual wants to be a front- end or a back-end BI professional. Though SQL (Structured Query Language) is must for anyone desiring to work in this field. Skills like data analysis, problem solving, communication, business acumen, attention to detail and looking at the big picture are very valuable for a BI professional. (Sandra Durvecic, 2019).

BI assists in strategic and operational decision making. A Gartner survey ranked the strategic use of BI in the following order [Willen, 2002]:

1. Corporate performance management
2. Optimizing customer relations, monitoring business activity, and traditional decision support
3. Packaged standalone BI applications for specific operations or strategies
4. Management reporting of business intelligence

Literary Survey

Negash, S., & Gray, P. (2008), The biggest challenge for business intelligence is using unstructured data like web articles, media posts, customer calls etc. In their systems to improve decision making process. A survey suggested that 80% of the data is unstructured. A good architecture of business intelligence is business oriented rather than technical. In the architecture for the structured data, inputs from ERP, CRM, Legacy, operations, finance are feed to data warehouse to then filter it further and help in decision making. BI architecture for semi-structured data includes business function model, business process model, business data model, application inventory, and meta data repository [Moss, 2003]. A specialized branch of BI is competitive intelligence, in this branch we study the competitors of the business and how their decision affects our business with the help of resources available in public domain. This branch of intelligence is equally important as business

intelligence. The benefits and ROI of BI are excellent for each and every business, as it helps to not only keep check on the performance of business but also helps in making critical decisions for the company.

Filieri, R., McLeay, F., et.al (2018), User generated content (UGC) for any business intelligence system is very important and because the most UGC are open and have no structural regulations, it is quite difficult for BI & A to harness the UGC. More and more customers are giving their reviews online, so these calls need for big data analytics. Dealing with unstructured texts is among one of the biggest challenges of big data analytics (Gandomi& Haider, 2015). Analytics like sentiments analytics, big data analytics are very useful in understanding customers emotions and reaction towards any product or service. Online textual reviews can affect a company in a very serious manner as now internet is more accessible than ever, so everyone checks these online reviews before using any service or product. Many such frameworks have been developed to easily keep track of textual reviews, for example, Chau and Xu (2012) developed a framework to automatically collect and analyse blog content. Park, Huh, Oh, and Han (2012) proposed a social-network–driven inference framework to determine the accuracy and reliability of customer profiles. He, Zha, and Li (2013) applied text mining to analyse text content on the Facebook and Twitter sites of the pizza chains.

Lennerholt, C., van Laere, J., et.al (2018), A self-service business intelligence system is different from a traditional BI system as in the later the decision makers request to BI analyst to create reports, whereas in a SSBI (self-service business intelligence system) approach can enable users to be more self-reliant and less dependent on power users. To make a traditional business intelligence system work there are different kinds of power and casual users. Power users are the BI expert, they produce all the reports required to make decision. Casual users are less experienced with data analysis and usage compared to power user. When a casual user wants to take a decision and needs reports for doing so, he sends requests to power user to help visualize data to make decision taking simple. Power user interprets the request and combine required data and visualize data in form of reports and graphs. Now, if the casual user is not satisfied with the report, the power users have to repeat the whole process again, which is a very time-consuming process altogether and if the number of casual users is huge and data is also more, then the power users are often unable to meet all the requests of casual users. So, its common in many firms to take decision without help of BI which often leads to waste of resources of the firm and sometimes loss too. This not the case with SSBI as in this type of framework casual users are enabled to take decision without the help of power users. Casual users are able to access and query data, use predefined reports, analyze data or create their own reports, in order to make decisions on time.

Teruel, M. A., Maté, et.al (2019) BI has helped decision makers for many years now by providing real time data, reports and analysis and it is only getting better at this over the years. The current BI system, has a major shortcoming and that is of integrating collaborative BI to help decision makers take decisions not in isolation but with the help of the expert opinion. Current practices for collaborative BI are very classic like e-mail, text, call, meeting and co on. But these methods have not proven to be very efficient. Currently there are three major approaches present for collaborative BI. First is enrichment of already existing BI systems by communication tools. Second approach is BI systems focus on partnership in data (PD), here external partners are involved in the process of data provision. Third approach is about partnership in analysis, the collaborators work together to analyze chunks of data. A BI system should be design to elicit and model requirements of BI systems whose final users must collaborate in order to achieve the system's goal. A collaborative BI would open new doors for corporates and organizations for decision making and analysis.

Sechi, G. M., et.al (2020), Business Intelligence is not only applicable in the corporate sector but can

also be used in many other sectors for real-time decision making and analysis. In Lombardy region of Italy, the Emergency Medical Services was using BI since its establishment in 2008, but BI proved very useful for them during the Covid-19 outbreak. When the first= Regional Emergency Medical Services (EMS) Trust (AREU) decided to apply Business Intelligence to the management of EMS during the pandemic. When any request for first-aid or for medical assistances was made on 112, the requests which were related to respiratory and/or infectious episodes were analyzed by BI. Then, BI classifies requests on the based on the location and help identifying clusters where contagion was present in real time. The application of BI proved very helpful to AREU as it helped them to allocate resources efficiently with the help of data provided by BI and this one example shows how BI can help health sector and many other sectors also.

Reddy, C., et.al (2019),Suitable tools, from open and non-open sources for creating data dashboards/ visualizations, with low cost for developing marketing and financial organizations, and Transportation Service projects are described. The tools are as following-

1 Micro Strategy Analytics Express
2 Qlik view
3 Tableau
4 Pentaho
5 Power BI

These tools are some of the most popular and common BI systems out there and many organizations have successfully implemented in their businesses and they have proved to be very useful.

Advantages

1. The most important and obvious advantage of BI is faster and accurate decision making. BI helps decision makers to see tons of amount of data in an organized and more readable form which help them to make a more rational decision.
2. The ability of BI to make instant and accurate reports in real time is very useful and time saving for employees as they don't have to go through tons of spreadsheets and numbers to make an accurate and relevant report.
3. BI helps to get all the key insights of the organization from losses, gains, employee's performances, productivity, expenses and so on. This makes it very easy for the company to keep track of the metrics of the company and this helps to make necessary measures for the betterment of the organization.
4. The amount of data companies have is very vast and the company which uses this huge amount of data for to make analysis gets the edge over the competition. Competitive analysis also helps them to keep track of their competitor's performance as well, which motivates companies to bring constant innovation in their product.
5. Data has become a very important factor for any company. The quality of data defines the success and trajectory of a company. BI helps in refining data and providing high quality data which is relevant to the company most.
6. BI systems not only give insights about the employees but the customers too. Customer's behavior, reaction to the product, persona etc. BI takes all this information to help identify what is lacking or missing in the company's product or service.
7. A BI system can be proven very useful to the sales team of the company as it is able to provide up-to-the-minute reports that analyze sales, need for improvement in the product, up-to-date customers preferences and unexplored areas of the market.
8. A BI system can also help to depict areas of waste or loss which may have gone unnoticed which is very common in a big organization. The BI system works as a whole so it is easily able to find any such type of inaccuracies or redundancies harming to the company.
9. BI can also help in the inventory management of the company. One can easily can get stockroom reports and order material according to that to avoid inventory waste.

10. BI systems are very well suited for data mining. It is capable of processing large amount of data that are not possible to manage with weaker programs. It's ability to integrate with data-warehousing solution, in-house databases, helps company to access valuable information and enhance the overall decision-making processes that otherwise the company would miss.

Conclusion

Business Intelligence can prove very fruitful for a country like India, because of its huge population the amount of data organization can get from customers is huge and can prove very profitable for any company. BI is still underestimated in India but soon people will realize its potential and what wonders it can do. The things BI is capable of do are innumerable, we saw how it was applied in Lombardy region to strategize against Covid-19. It can help businesses to use the huge amount of data out there to make the company more profitable. Better insights to businesses mean better service to customers. BI can use the goldmine of data available to increase profits for businesses, increase satisfaction of customers and if applied correctly in other sectors can do wonders for them too. I believe BI technology is still under development and it is going to keep getting better. Every organization should try to harness this undiscovered potential of Business Intelligence.

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