Are Corporate Hospitals more Dependent on Technology in India?

K. Parimala[1] and Agatamudi Laxmanarao[2]

1. Student, Department of MBA, Aditya Institute of Technology and Management, Tekkali, Srikakulam
2. Professor, Department Of Humanities and Sciences, Aditya Institute of Technology and Management, Tekkali, Srikakulam

Abstract: *Hospital services industry subjugated by the doctors traditionally has had its transition by being recognised and rewarded through technological outcomes and performance rather than the capability of human brain. The dominance of technology in the way of infratech for hospital industry is increased exponentially in healthcare industry with modern application of artificial intelligence and machine learning. Further it is noted that the patents even prefer to have treatment for the critical cases through techno hospitals since their belief is more on the technology rather than the doctors which must have certain factors. So, this study aims to assess the factors of technological dominance that leads the consumers' positive perception of hospital performance. The methods of exploratory design, qualitative approach and the collection of secondary data was adopted by the researchers. This paper discusses the attributes pertaining to five star hospital management, technology traits, and customer response. Certain conclusions amalgamated with management implications have been contributed through this study in this paper.*

Keywords: Hospital services, Technology traits, Doctors dependence, Customer Response, Performance management.

1. Introduction:

Facility management plays a crucial role in the effective functioning of corporate hospitals. It encompasses a wide range of services and activities aimed at maintaining and optimizing the physical environment, infrastructure, and support services within the hospital premises. The importance of facility management in corporate hospitals can be understood through the following key aspects:

Operational Efficiency: Facility management ensures that all aspects of the hospital's physical infrastructure and support services are efficiently managed and maintained. This includes managing utilities, equipment, maintenance, and repairs, as well as overseeing the cleanliness and hygiene of the facility. By maintaining the smooth operation of these essential functions, facility management contributes to the overall efficiency and productivity of the hospital.

Patient Experience: The physical environment and amenities provided by corporate hospitals greatly influence the experience of patients and their families. Facility management ensures that the hospital premises are comfortable, clean, and well-maintained, creating a positive and reassuring atmosphere for patients. This includes managing waiting areas, patient rooms, parking facilities, and other amenities that contribute to a pleasant patient experience.

Safety and Compliance: Corporate hospitals are subject to various safety regulations and compliance requirements to ensure the well-being of patients, staff, and visitors. Facility management plays a crucial role in ensuring that the hospital meets these standards and guidelines. This includes implementing fire safety measures, managing security systems, maintaining proper ventilation and air quality, and adhering to infection control protocols. By prioritizing safety and compliance, facility management helps mitigate risks and safeguard the well-being of all stakeholders.

Cost Optimization: Effective facility management practices contribute to cost optimization in corporate hospitals. By implementing proactive maintenance schedules, energy-efficient systems, and optimal space utilization, facility managers can reduce operational costs and maximize resource utilization. This, in turn, enables the hospital to allocate financial resources to patient care and other

critical areas, enhancing overall financial performance.

Business Continuity: In the event of unforeseen circumstances or emergencies, facility management plays a pivotal role in ensuring business continuity in corporate hospitals. This includes developing and implementing disaster preparedness plans, managing backup power systems, coordinating emergency response procedures, and maintaining contingency measures. By being proactive and prepared, facility managers help minimize disruptions to critical operations and ensure the smooth functioning of the hospital during challenging situations.

In recent years, the world has witnessed a rapid and transformative advancement in technology across various sectors. The healthcare industry, in particular, has experienced a significant shift towards technological dominance, revolutionizing the way hospitals function and patients are treated. In India, a country known for its vast population and diverse healthcare challenges, this technological revolution has had a profound impact on the performance of hospitals.

India's healthcare system has faced numerous challenges, including inadequate infrastructure, scarcity of skilled medical professionals, and limited accessibility to quality healthcare services, especially in rural areas. However, the rapid integration of technology has opened up new possibilities and presented a ray of hope for addressing these issues.

This essay aims to explore the extent of technological dominance in Indian hospitals and its influence on their overall performance. It will examine the key areas where technology has made a significant impact, discuss the benefits and challenges associated with technological advancements, and highlight the implications for patients, healthcare providers, and the healthcare system as a whole.

One of the key areas where technology has transformed the healthcare landscape in India is the digitization of medical records and administrative processes. Electronic Health Records (EHRs) have replaced traditional paper-based systems, enabling hospitals to efficiently manage patient data, reduce errors, and enhance communication among healthcare professionals. Moreover, the implementation of Hospital Information Systems (HIS) has streamlined administrative tasks, such as scheduling appointments, managing inventories, and billing, leading to improved operational efficiency and cost-effectiveness.

Furthermore, technological advancements have revolutionized medical diagnostics and treatment methodologies. Advanced imaging technologies, such as MRI (Magnetic Resonance Imaging) and CT (Computed Tomography) scanners, have enhanced the accuracy of diagnoses, enabling doctors to detect diseases at an early stage. Robotic-assisted surgeries have also gained popularity, offering precision, minimal invasiveness, and faster recovery times. Additionally, telemedicine has emerged as a vital tool, connecting patients in remote areas with healthcare professionals through video consultations, thereby bridging the geographical divide and improving access to medical expertise.

However, alongside these transformative changes, challenges have also emerged. The digital divide between urban and rural areas, lack of technological infrastructure, and limited digital literacy among certain sections of the population pose hurdles in harnessing the full potential of technology in healthcare. Privacy and data security concerns also need to be addressed to maintain patient confidentiality and trust in the digital era..

In conclusion, the dominance of technology has had a significant impact on the performance of hospitals in India. It has brought about improvements in medical record management, administrative processes, diagnostics, and treatment methodologies. However, the challenges of unequal access, infrastructure limitations, and data security issues must be addressed to ensure the equitable and effective implementation of technology in the healthcare sector. By leveraging technology effectively, India has the potential to revolutionize its healthcare system and provide quality care to its vast population, overcoming the existing barriers and creating a brighter future for healthcare in the country.

2. Objectives of the study

The general objective of the study is to analyse the prospects and challenges of hospital technology

The specific objectives are

- To identify the technological areas adapted by corporate and five star hospitals in India.
- To discuss the effect of technology on the hospital management of corporates
- To assess the doctors' dependency on the hospital technology of corporates
- To analyse the response of the customers towards the treatment backed up with technology

3. Literature review

Venugopal, K. et al. (2015) specified that the technology used in the hospitals resembles five star hotels which focus more on the facility management. At the same time, hospital additionally should focus on the updated technology which improves the performance of treatment and increases the customer satisfaction.

It is noted that most of the rural and semi-rural patients are accustomed to prefer corporate hospital for the treatment of certain typical and exceptional services h=which are not available in small clinics and government hospitals (Gopalakrishna, V. et al., 2019)

Koppala Venugopal., et al. (2019) stated that the promotion about different technological devices and machinery for the treatment of rare diseases are dexterously promoted through e- marketing and especially, as a part of health tourism, many are practicing the e-promotions.

Some principles are or should be timeless; we should not plan the future by being technology-driven (e.g., implementing cloud, Nano health, etc.) but by improving along criteria behind principles (such as improving patient care or staff support). Articulating the principles of the futures we want should be a continual process, not a one-off activity; every day there is a new future to plan, and new discoveries that will change our minds about what is possible and likely. Future planning should be as much a routine part of healthcare as responsive care is. If we don't know what we need, we will get what is easy and profitable to make; as we emphasized above, what we need and what we want are often confused (Thimbleby, Harold. 2013).

Given substantial investments in health IT over the past decade, we are at a moment where new analytics may yield insights. Indeed, health IT has

the potential to transform healthcare to improve patient health and lower healthcare costs. The form of the transition and the speed with which the new IT tools generate value will depend on the strength of management to guide the use of new technologies.

Physicians believe in the usefulness of e-health. Professionals with previous experience with it are more open to its implementation and consider that the benefits of technology outweigh its possible difficulties and shortcomings. Physicians demanded projects with appropriate funding and technology, as well as specific training to improve their technological abilities. The relationship of users with technology differs according to their personal or professional life. Although a 2.0 philosophy has been incorporated into many aspects of our lives, healthcare systems still have a long way to go in order to adapt to this new understanding of the relationship between patients and their health (Ruiz, Maria Dolors, 2017).

There has been a rise in the demand in healthcare systems in Western countries due to aging of the population, an increase in the prevalence of chronic diseases, and limitations in funding, especially after the recent economic recession (WHO, Report 2008).

In this context, the introduction of computers and technology can help to improve the efficiency of the healthcare system and the care provided to patients/users (Hailey, D. 2002)

For the purpose of this paper we use the terminology in the following way. E –health is used referring to health services and information delivered or enhanced through the Internet and related technologies (Eysenbach, G. 2001).

4. Methodology of the study

The methodology of this study was with exploratory design and qualitative approach. The researchers have carried out this research through secondary data of the material from books connected to the topic, media, newspapers, pedagogical pieces, reports from industry-based websites, and research publications.

5.   Five Star hospitals technology

Five-star hospitals are known for their exceptional quality of care and luxurious amenities. When it comes to technology, these hospitals strive to incorporate the latest advancements to enhance patient experiences and improve healthcare outcomes. Here are some key areas where five-star hospitals often excel in terms of technology:

Electronic Health Records (EHRs): Five-star hospitals prioritize the implementation of comprehensive electronic health record systems. EHRs enable seamless access to patient information, including medical history, lab results, and imaging reports. This allows healthcare providers to have a complete and up-to-date view of each patient's health status, facilitating more efficient and informed decision-making.

Advanced Imaging Technologies: High-end imaging technologies, such as MRI (Magnetic Resonance Imaging), CT (Computed Tomography), and PET (Positron Emission Tomography) scanners, are commonly available in five-star hospitals. These state-of-the-art machines provide detailed and accurate imaging for precise diagnoses and treatment planning. They may also offer features like faster scan times, reduced radiation exposure, and increased patient comfort.

Robotic Surgery: Five-star hospitals often invest in robotic surgical systems, such as the da Vinci Surgical System. These advanced robotic platforms assist surgeons in performing minimally invasive procedures with enhanced precision and dexterity. Robotic surgery can lead to smaller incisions, reduced blood loss, faster recovery times, and improved surgical outcomes.

Telemedicine and Remote Monitoring: Five-star hospitals recognize the importance of telemedicine and remote monitoring technologies. These hospitals leverage telecommunication tools to provide virtual consultations, follow-ups, and monitoring for patients. Telemedicine facilitates access to healthcare professionals from anywhere, reducing the need for in-person visits. Remote monitoring devices enable continuous tracking of vital signs and health parameters, allowing early detection of potential complications.

Patient Engagement and Experience: Five-star hospitals often employ technology to enhance patient engagement and overall experience. This may include interactive patient portals, where patients can access their medical records, schedule appointments, and communicate securely with healthcare providers. In-room entertainment systems, with personalized features and options for patient education, can also be provided to improve the overall patient experience during hospital stays.

Integration of Artificial Intelligence (AI): AI applications are increasingly being utilized in five-star hospitals to support diagnosis, treatment planning, and decision-making processes. AI algorithms can analyze vast amounts of medical data, identify patterns, and provide valuable insights to aid healthcare professionals in making accurate and timely decisions. AI-powered tools can assist in areas such as radiology, pathology, and risk prediction.

It's important to note that while technology plays a significant role in five-star hospitals, the overall quality of care goes beyond technology alone. Skilled healthcare professionals, personalized attention, and a patient-centered approach remain fundamental to providing exceptional care in these hospitals.

It is worth mentioning that the availability and extent of technology may vary among different five-star hospitals. Each hospital may prioritize specific areas of technology based on their patient population, specialization, and budget.

6.   Hospital technology as a saviour

Hospital technology as a life-saver is a highly debated topic. While some argue that technological advancements in hospitals have undeniably saved countless lives and improved patient outcomes, others contend that technology alone cannot be considered a life-saver and that the role of healthcare professionals should not be underestimated. Let's explore both sides of the debate:

Supporting Arguments:

1. Advanced Diagnostics and Treatments: Hospital technology has revolutionized the field of diagnostics and treatment. Advanced imaging technologies, such as MRI and CT scans, allow for accurate and early detection of diseases, enabling

timely intervention and potentially life-saving treatments. Technological advancements have also led to the development of sophisticated surgical procedures, robotic-assisted surgeries, and minimally invasive techniques, improving patient outcomes and reducing risks.

2. Telemedicine and Remote Monitoring: The emergence of telemedicine and remote monitoring technologies has bridged geographical gaps and improved access to medical expertise. Patients in remote areas can now receive timely consultations and monitoring from healthcare professionals, leading to early detection of complications and timely interventions. This has proven particularly beneficial in emergency situations, where immediate medical advice can be provided remotely, potentially saving lives before patients even reach the hospital.

3. Rapid Information Exchange: Hospital technology facilitates the rapid exchange of critical patient information among healthcare providers. Electronic Health Records (EHRs) and Hospital Information Systems (HIS) enable quick access to patient data, including medical history, allergies, and current medications. This enhances the coordination and collaboration among healthcare professionals, ensuring accurate diagnoses and timely interventions, which can be life-saving in critical situations.

Opposing Arguments:

1. Human Expertise and Decision-making: While technology provides invaluable support, the ultimate responsibility for patient care lies with healthcare professionals. Technology cannot replace the knowledge, skills, and judgment of doctors, nurses, and other medical staff. Diagnosis and treatment decisions still heavily rely on the expertise and experience of healthcare professionals, who assess and interpret the information provided by technology.

2. Access and Affordability: Although hospital technology has undeniably saved lives, its benefits are not equally accessible to all. Technological advancements often come with high costs, limiting their availability in certain regions or for underprivileged populations. Access to advanced technologies, such as high-end diagnostic equipment or state-of-the-art treatments, may be limited, particularly in resource-constrained settings. Thus, relying solely on technology as a life-saver could exacerbate healthcare inequalities.

3. Technological Limitations and Risks: Hospital technology is not infallible and can encounter technical glitches or errors. Reliance solely on technology can create a false sense of security and lead to complacency. Moreover, technological advancements may introduce new risks and challenges, such as data breaches or cyber security threats. It is essential to consider the potential drawbacks and risks associated with technology in healthcare.

It is crucial to strike a balance between recognizing the life-saving potential of hospital technology and acknowledging the critical role of healthcare professionals. While technology has undoubtedly transformed healthcare and saved lives in numerous instances, it is the combination of advanced technology and skilled professionals working together that maximizes patient outcomes.

Technology serves as a powerful tool, aiding healthcare professionals in making accurate diagnoses, delivering timely interventions, and enhancing patient care. However, it is essential to invest in continuous training and education for healthcare professionals to effectively leverage technology, interpret results, and make informed decisions based on their expertise.

Furthermore, while celebrating the life-saving impact of technology, it is crucial to address the challenges of accessibility, affordability, and healthcare disparities. Efforts must be made to ensure equitable access to advanced technologies and bridge the digital divide, enabling technology to reach all individuals in need, regardless of their socioeconomic status or geographic location.

4. Doctors' dependency on technology

Doctors' dependency on technology is a topic of significant discussion and debate in the field of healthcare. The increasing use of technology in various aspects of medical practice has undoubtedly transformed the way doctors work and make decisions. Here are some key points to consider regarding doctors' dependency on technology:

Diagnostic Assistance: Technology, such as advanced imaging techniques and laboratory tests, provides doctors with valuable diagnostic information. Doctors heavily rely on these technologies to support their clinical judgment and aid in accurate diagnoses. For example, radiologists interpret medical images to detect and diagnose diseases, while laboratory tests help identify specific biomarkers and conditions. However, it is crucial for doctors to interpret and validate these results based on their medical expertise and clinical experience.

Treatment Planning and Decision-making: Technology plays a significant role in treatment planning and decision-making. Electronic databases, medical literature search engines, and clinical decision support systems provide doctors with access to a vast amount of medical information and evidence-based guidelines. This enables doctors to make informed treatment decisions, considering the latest research and best practices. Nevertheless, doctors must carefully evaluate and tailor the information to each patient's unique circumstances, taking into account individual factors and clinical judgment.

Surgical Assistance: Technology has revolutionized surgical procedures, providing doctors with advanced tools and techniques. Robotic-assisted surgeries, laparoscopic procedures, and image-guided interventions have enhanced precision, minimized invasiveness, and improved patient outcomes. However, doctors must possess the necessary skills and expertise to operate these technologies effectively and safely. They remain responsible for decision-making during surgical procedures and must adapt and respond to unexpected situations.

Patient Monitoring and Care: Technology facilitates patient monitoring and care, especially in critical and intensive care settings. Vital signs monitors, electronic medical records, and telemonitoring systems allow doctors to track patients' health parameters continuously and remotely. This helps in detecting early signs of deterioration and providing timely interventions. Nevertheless, doctors must interpret the data, assess the clinical context, and make decisions based on their medical expertise and judgment.

Communication and Collaboration: Technology has improved communication and collaboration among healthcare professionals, enabling doctors to consult with specialists, share information, and seek second opinions. Telemedicine platforms and video conferencing tools have expanded access to expert advice, particularly in remote areas. However, doctors must maintain effective communication skills and ensure proper interpretation and implementation of remote advice in the context of individual patients.

While doctors rely on technology for various aspects of medical practice, it is important to emphasize that technology should complement rather than replace their skills, knowledge, and clinical judgment. Doctors must continually update their knowledge, adapt to technological advancements, and critically evaluate the information provided by technology. The doctor-patient relationship, empathy, and effective communication remain essential components of quality healthcare that technology cannot fully replicate.

Doctors' dependency on technology is a reality in modern healthcare. Technology serves as a valuable tool, providing doctors with diagnostic assistance, treatment guidance, surgical support, patient monitoring capabilities, and improved communication. However, it is crucial for doctors to maintain a balanced approach, using technology as an aid while preserving their expertise, critical thinking, and patient-centered care.

5. Patients Response on Hospital Technology

Patients' responses to hospital technology can vary depending on their experiences, perceptions, and individual preferences. Here are some common

responses that patients may have regarding hospital technology:

Increased Confidence and Trust: Advanced hospital technology can instil confidence and trust in patients. They may perceive hospitals equipped with state-of-the-art technologies as being more capable of providing accurate diagnoses, effective treatments, and better overall care. Patients may feel reassured knowing that their medical conditions can be thoroughly evaluated using advanced diagnostic tools and that treatment options are based on the latest technological advancements.

Enhanced Convenience and Accessibility: Technology in hospitals, such as electronic medical records and telemedicine, can improve convenience and accessibility for patients. Electronic medical records allow for easier access to patient information, reducing the need for repetitive paperwork and facilitating seamless communication between healthcare providers. Telemedicine enables remote consultations, saving patients from the need to travel long distances, particularly for follow-up appointments or non-urgent medical concerns.

Improved Diagnosis and Treatment: Patients may appreciate the benefits of advanced diagnostic technologies, such as MRI scans or genetic testing, which can lead to accurate and timely diagnoses. They may also recognize the value of innovative treatment options, such as robotic-assisted surgeries or targeted therapies, which can potentially offer better outcomes and faster recovery times. Patients may view these technologies as life-saving and transformative.

Better Communication and Informed Decision-making: Hospital technology can support effective communication between patients and healthcare providers. Online patient portals, for example, allow patients to access their medical records, view test results, and communicate securely with their doctors. This transparency and accessibility can empower patients to actively participate in their own healthcare decisions and feel more informed about their conditions and treatment options.

Potential Concerns and Discomfort: While hospital technology can be beneficial, some patients may experience concerns or discomfort associated with its use. For example, privacy and data security concerns may arise when electronic health records are accessed and shared. Patients may also feel overwhelmed or disconnected if technology is excessively relied upon and interpersonal interactions with healthcare providers are diminished. Technological malfunctions or delays may also lead to frustration or anxiety.

Varied Technological Literacy: Patients' responses to hospital technology may be influenced by their technological literacy levels. Some patients may embrace and feel comfortable with using technology, appreciating the convenience it offers. On the other hand, individuals with limited technological skills or access may feel overwhelmed or excluded by the use of complex technologies, potentially hindering their overall experience.

It is essential for healthcare providers to consider patients' responses to hospital technology and address any concerns or discomfort they may have. Effective communication, clear explanations about the purpose and benefits of technology, and providing appropriate support and guidance can help patients feel more at ease and engaged in their healthcare journey.

Overall, patients' responses to hospital technology can range from positive and appreciative to hesitant or apprehensive. Recognizing individual preferences and providing patient-centered care that incorporates technology appropriately can contribute to a positive patient experience and better healthcare outcomes.

6. Discussion and Conclusions
6.1. Discussion

The technological dominance impacting the performance of hospitals in India has been a topic of significant discussion and analysis. Here are some key points that have emerged from these discussions:

The advent of advanced medical technologies has significantly improved the accuracy and efficiency of diagnosis and treatment in hospitals. Technologies such as imaging systems, laboratory equipment, and robotic surgeries have enabled doctors to detect diseases at early stages, perform minimally invasive procedures, and provide targeted therapies. This has led to improved patient outcomes and reduced hospital stays.

Technology has contributed to enhancing patient care and experience in Indian hospitals. Electronic health records (EHRs) have made patient information easily accessible to healthcare providers, enabling better coordination and continuity of care. Telemedicine and remote monitoring have expanded access to healthcare services, particularly in rural areas, reducing travel costs and waiting times for patients. Patient portals and mobile apps provide convenience in managing appointments, accessing test results, and communicating with healthcare professionals.

Technology has streamlined various hospital operations, leading to increased efficiency and cost-effectiveness. Hospital management systems automate administrative tasks, such as appointment scheduling, billing, and inventory management. Digital medical imaging and record-keeping reduce the need for physical storage space and enhance data security. Data analytics tools help in tracking patient outcomes, resource utilization, and identifying areas for improvement.

While the potential benefits of technology in hospitals are significant, the implementation process can pose challenges. Upgrading existing infrastructure, ensuring data privacy and security, and training healthcare staff to effectively use new technologies require substantial investments and resources. Additionally, the digital divide in India, with disparities in access to technology and internet connectivity, can limit the equitable distribution of technological advancements in healthcare.

6.2. Conclusions

The technological dominance in Indian hospitals has had a transformative impact on healthcare delivery and patient outcomes. The integration of advanced medical technologies has improved diagnosis, treatment, and patient care, resulting in better healthcare outcomes and enhanced patient experiences. Furthermore, technology has streamlined hospital operations, making them more efficient and cost-effective.

However, it is crucial to address the challenges associated with the implementation of technology in hospitals. Adequate investment in infrastructure, training, and connectivity is necessary to ensure equitable access to healthcare technology across the country. Additionally, attention must be given to data security and privacy, as well as ensuring that

healthcare providers maintain a balance between technology and human touch in patient care.

Overall, the technological dominance in Indian hospitals offers immense potential for improving healthcare delivery, patient outcomes, and overall hospital performance. By leveraging the benefits of technology while addressing the associated challenges, hospitals in India can continue to enhance their performance and provide quality care to a diverse patient population.

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