Impact Of Financial Analytics Adoption And Implementation On The Operational And Financial Performance Of Corporate Hospital Sector In India

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Background:

Various sectors of the economy are integrating technology to improve business productivity and efficiency. However, the Indian healthcare sector is disappointed that little money is being spent on hospital information systems. Technology integration has the potential to not only accelerate speed, but also improve the quality and efficiency of hospital operations.

The purpose of this paper is to know about Financial Analytics adopted in Financial and Operational areas of Indian Hospitals and assess the current status of Financial Analytics specifically in the areas of health sector, role of health information technology (HIT) and its importance in improving the Accuracy in Financial and Operational data; to assess the challenges/issues faced and future recommendation to improve the status of health in India. Primary and Secondary data is used. Various articles and research papers published in national and international journals are used. India is hub of Health and its use is increasing in health sector

Introduction:

The lack of integration of information systems in hospitals (resulting from the use of numerous systems and applications) tends to lead to data redundancy and duplicate functionality. This makes it difficult to coordinate organizational processes. They are increasingly interested in investing in tools that prioritize the integration of clinical, organizational, and administrative processes and quality. Enterprise application integration in the pharmaceutical industry is about solving information exchange and interaction between different application systems.

The healthcare sector is increasingly recognizing the value of sharing information not only across programs, but also with private sector providers, policy makers, and the public. Data Fragmented data An application that provides and expects updated information. This accelerates the flow of communication and encourages internal collaboration within the organization. At the same time, it facilitates decision making. healthcare management literature supports the application of integrated information systems in healthcare organizations. They help improve processes and reduce operating costs. However, ERP systems tend to be adversarial because they introduce control mechanisms into day-to-day operations and typically require significant process redesign.

Hospitals are complex, multifunctional facilities, and therefore require a high degree of clinical and administrative integration. Mainly, he has two approaches to implementing information integration in hospitals. Full integration and partial integration. B. Admission and discharge of patients, wards with first aid kits, pharmacy billing. This type of integration represents a process restructuring, leading to significant organizational changes that impact both how hospitals work and how they are managed through a single source of information. For Anderson, this kind of integration typically involves all employees (caregivers and both caregivers) and tends to provoke resentment. Soh and Sia argue that this method of implementing ERP may not be suitable for the hospital's particular case, as it requires the use of specialized tools and process redesign. But for hospital management, this kind of integration means effectiveness and efficiency that compensates for the effort.

Along these lines, systems have been developed in which medical information is at least partially integrated with economic and financial information, as is done at the Alcorcón Foundation University Hospital (HUFA). However, in parallel with this implementation, an evaluation process is required. These allow you to identify the contribution of the new system to your organization. Since most evaluations are in terms of system efficiency and evidence is collected only after implementation, the success of health information technology should be assessed through the development of specific tests of evolutionary fitness. Because of this, it has various drawbacks. B. Lack of pre- and post-implementation comparisons, i.e., "before and after" assessments.

Data is one of the most important components used in the decision-making process. However, raw data consisting of scattered facts and figures from many different sources must be systematically transformed into a meaningful form using analytics. This task is performed through an automated process using specialized software that processes and sorts data using complex algorithms and formulas. The resulting output is translated into easy-to-read displays for online dashboards, including graphs, tables, and printable reports that can be easily interpreted by physicians and hospital administrators. Hospitals are also regularly reviewed by state and federal agencies and are required to report patient care and financial data to ensure compliance with established policies. As a result, the urgency of reporting accurate data in a timely manner has never been greater.

Financial analytics supports hospital administrators with this responsibility and clearly demonstrates the impact on revenue and Expenses. Without Financial analytics, it is impossible to fully understand how a complex organization like a hospital Financial and Operational functions, or how to manage costs while improving quality of care. Financial analysis enables organizations to uncover areas of waste and make more informed decisions about the use of hospital resources and Revenue. See exactly what's really going on and support decisions that ultimately save money. Consulting with a consultant or developing an in-house team to manage data analysis is a worthwhile investment in the future success of your healthcare organization.

Research Problem

This research tackles the Impact of financial analytics adoption and implementation on the operational and financial performance of corporate hospital sector in India

Objectives of the Study:

The prime objective of this research is to determine the current state of Financial Analytics adoption among hospitals in India.

The specific objectives of this study are:

1. To know about the financial analytics
2. To Know what Financial Analyst do
3. To study the purpose of adopting Financial Analytics in Hospital Operational and Financial Areas
4. To ascertain the advantages of Financial Analytics usage and level of satisfaction derived from usage of Financial Analytics in hospital Financial and Operational areas
5. To identify the barriers in adoption of Financial Analytics by hospitals

Review of Literature

1. Technological innovations provide hospitals with a competitive advantage in offering newer and improved services including pre-emptive diagnosis of ailments. A high level of specialisation increases the probability of an organisation adopting an innovation (Frambach, 1993, pp. 22-41). Functional differentiation is referred to as the extent to which the hospital is divided into a number of subunits, leading to an increased adoption of innovation in organisations that are highly functionally differentiated (Kimberly and Evanisko, 1981, pp. 689-713). Some serious medication errors can be significantly reduced by 55 percent through the use of computerized physician entry system (Bates et al. 1998, pp. 1311-1316). Open Source Software (OSS) is being seen as the next big step towards revolutionizing the software industry in a variety of fields, as more and more organizations are shifting towards it. The adoption of OSS in healthcare industry seems equally promising (Dedrick and West, 2003, pp. 236-257; Dedrick and West, 2004, pp. 10; Norris, 2004, pp. 42-49; Fitzgerald and Kenny, 2004, pp. 50-55; Waring and Maddocks, 2005, pp. 411-428). Previous researches suggest that the use of OSS would not only enhance the healthcare delivery but would also help cut software acquisition costs as well. (Carnall, 2000, pp. 976; Kantor, Wilson, and Midgley, 2003, pp. 616; McDonald et al., 2003, pp. 175-184; Valdes et al., 2004, pp. 3-9).

2. Menachemi (2007, pp. 398-410) in his survey of 98 hospitals of florida observed that the adoption rate of IT is just 45 percent and the hospitals with greater IT adoption performed better on patient safety measures. Asangansi et al. (2008, pp. 10-14) conducted a survey in Nigeria and highlighted that better accessibility of records through the use of computer-based systems was the prime reason why such systems were considered better. The service quality in healthcare has two aspects. First, the technical aspect related with the core services and second, the process or the functional aspect as to how these services are provided in the hospital (Umath et al., 2013, pp. 37-39). The 1990's decade was not so encouraging for the use of information technology and the quality of service delivered to the customer satisfaction (Kazanjian and Pagliccia, 1996, pp. 27-34). Patients are biased in reporting their levels of satisfactions due to multiple factors pertaining to ethnicity, age and the improvement condition etc. (Thiedke, 2007, pp. 33-36). Itumalla (2012, pp. 433-436) carried out a study on customer satisfaction in a private hospital of India and found that CSI index, is 75.87 out of 100. Specifically, the hospital lacks in overall factors such as timely action, communication and the availability of information.

Objective:1

Financial analytics is the field that provides a high-level, detailed view of a company's financial data, thereby helping improve business performance. Predictive data-driven insights help you understand and analyze past performance, predict strategies for successful future performance, and take actions to make smarter, safer decisions. Help your team from start to finish. As technology has expanded its role, the role of financial managers and their approach to financial analysis have changed. Acting as a management strategist means that management must always be aware of the company's financial situation at all times.

Financial analytics is required for healthcare companies to perform core functions of claims processing and maintaining payment integrity and fraud, waste, and abuse (FWA), and risk assessment. The advances in big data are driving the accelerated growth of the financial analytics segment, especially in the healthcare domain. Big data analytics gives a better way to tackle healthcare expenditure and quality issues.

The healthcare financial analytics market is growing. The largest market for healthcare financial analysis is North America and the top players include Cerner, Oracle, IBM, etc. The market size was $11.59 billion in 2018 and is projected to grow to $80.21 bn by 2026 with a CAGR of 27.5%.

While the coronavirus pandemic jeopardized many markets, it showed the importance of healthcare financial analytics. The costs of vaccine development, monitoring the health of the population, health insurance innovations, etc. resulted in new directions of financial work for many healthcare providers. Most hospitals faced massive losses and are unlikely to be profitable even in 2021.

Another trend across the world is the rise of the geriatric population across developed countries. Even countries like India will have a large aging population in 2-3 decades at the most. The nature of healthcare costs will change as more people will require preventive care. Currently, the healthcare market operates on a service-based model but is moving towards a value-based model.

There are also many healthcare disruptors coming on the scene, building diagnostics that put people's healthcare in their hands. There is also a call for strategic planning to cope with the revenue loss and deal with the emerging costs of people deferring healthcare and opting for teleconsultations. World over, attention is also upon the systemic inequities of healthcare.

Considering the need for healthcare financial analysts, this is a good niche for students and those who want a career change. Skilled analysts can get paid quite well. Students have to acquire domain knowledge of accounting, financial modeling, debt, and the healthcare industry.

Objective:2

1. Financial data reporting, trend forecasting, presentation, etc.

2. Budget control

3. Claims and compensation processing

4. Ensuring tax and regulatory compliance

5. Reviewing operating and acquisition costs

6. Finding ways to maximize revenue generation, preparing and executing business plans

7. Dealing with other teams of financial professionals

Objective:3

No matter the size of your company, there are six types of analytics you should implement into your processes to help you stay competitive.

1. Cash Flow: See in real time how much cash is coming in and out each day and how much money you need to keep your business running smoothly.
2. Customer Profitability: Data to ensure sufficient customer sales by segmenting customer segments and analyzing the cumulative value of each customer.
3 Forecast Sales: These analytics map the success of sales forecasts and possible ways to improve future forecasts.
4. Product Profitability: Data revealing which products are profitable, ensuring that appropriate costs are appropriate for different products that may share a production process or cost base.   .
5. Shareholder Value: Once your company is big enough to have shareholders, you will want to ensure that they always get a return on their investment. These analyzes are calculations of corporate value based on the returns provided to shareholders.
6. Value Drivers: These key metrics ensure your business is on track to achieve all your short-term and long-term goals.

Objective:4
The benefits of financial analytics:

As a subset of business intelligence and enterprise performance management, financial analytics affects all parts of a business and is crucial in helping companies predict and plan for the future. Financial analytics involves using massive amounts of financial and other relevant data to identify patterns to make predictions, such as what a customer might buy or how long an employee's tenure might be. With a wealth of financial and other relevant data from various departments throughout their organizations, corporate financial teams are increasingly using this data to help company leaders make informed decisions and boost the company's value. By helping businesses understand their top- and bottom-line performance (along with other indicators, including financial and macroeconomic data), measure and manage their assets, and forecast variations within the organizations and industries in which they compete, financial analytics offers insight into organizations' financial status and improves the profitability, cash flow and value of the business. Financial analytics also helps companies improve income statements and business processes.

Medical data comes from a variety of sources, including electronic health records (EHRs), medical images, medical records, pharmaceuticals, wearable's, and medical devices. This data is transmitted at a greater scale and speed, making it very different from other industries. Thanks to technological advances in analytics, hospitals can use software tools to store and analyze this data to make smarter, more cost-effective decisions. Operational Efficiency Data collected at admission and discharge will be used to analyze staff efficiency

and productivity in various patient populations. This analysis leads to more efficient use of human resources while improving patient care. Proactive healthcare Big data from electronic health records (EHRs), such as clinical data, medical conditions, and diagnoses, are used to research more effective treatments for patients. Aggressive inpatient care shortens hospital stays and reduces costs for healthcare facilities and patients. Medical Equipment Maintenance Critical medical equipment, such as MRI scanners, require preventative maintenance to keep them in good working order 24/7. Data from machine sensors can predict when critical components will need to be replaced, thus preventing costly unplanned outages. Maintaining Physical Infrastructure Like other buildings, hospital buildings use sensors to monitor resources such as energy use, heating and air conditioning systems, and fire and security systems. Monitoring and analyzing this data facilitates the ongoing operation of these systems and prevents costly repairs or replacements.

The following are other Benefits

Building a business requires making informed decisions using the data-backed insights that financial analytics provides. Benefits of financial analysis include:

• Uses both external and internal real-time data so you can quickly and easily filter and analyze datasets.
• Organize your data to make it easier to digest and understand, streamline data workflows, and improve productivity to have a significant impact on your bottom line.
• Increase productivity and give your team a better chance to make decisions with confidence and reduce complexity and risk.
• Provide forward-looking strategies and insights for clear and accurate financial reporting.
• Acts as a single source of truth, eliminating the need to implement a separate financial management software tool to track information.

A few Use cases

1. A closer look at margins and costs by service line, procedure, treatment plan and per patient

This is always the big picture of costs and margins and we haven't gone through all the details. The pandemic has highlighted the importance of using edical resources effectively while controlling costs. Inter-patient comparisons and procedure comparisons provide insight into future similar cases and cost optimization strategies. Not all service lines and procedures are profitable for a particular facility.

2. **Predictive analytics** to identify at risk patients for deferred or cancelled treatment Coronavirus has delayed treatment for many people, but the fear of entering hospital facilities still hampers treatment for many. , helps prioritize care plans for those most needed.
3. Revenue cycle analytics

Revenue and demand forecasting are key to effectively managing the entire healthcare system. Further decisions such as workforce planning, supply chain management

and operational planning depend on this. These insights also help payers proactively manage late payments. In these uncertain times, it is imperative to make calculations about the future.

Financial analysis comes at a high cost, but let's take a closer look at the benefits of implementing it. This allows healthcare organizations to realize the true benefits of automated departments while integrating them with other healthcare delivery areas.

Hospital management believes that financial analysis will "verify quality and efficiency of service," "ease of access," "availability of information from anywhere," and "verify the number of doctors and nurses on duty." I believe we can improve. These are the key benefits of HFA (70% "Important", 30% "Most Important") (Table). However, these results contrasted markedly with a previous study by Acaryulu (2012, pp. 349–352), in which the respondent rated his Financial Analytics advantages as 'communicative competence', 'ease of use' , and did not consent to "interdepartmental data sharing". Additionally, 90% of the hospitals sampled (50% Critical and 40% Most Critical) indicated that 'total patient count verification' and 'printing paper copies of medical records' were critical for HFA. I agree that it is an advantage. "Confirmation of patient history" and "Clarity of diagnosis to patient" were also other important benefits of HFA seen in a similarly high proportion (80%) of sampled hospitals. Hospital administrators do not consider the HIS helpful in making medical decisions, with 30% of them rating his Financial Analytics as a "minor" advantage. Similarly, a small portion (10%) of respondents agree that Financial Analytice helps them "maintain systematic records" and "reduce costs or provide patient engagement and comfort." These results were followed by Kumar and Gomes (2006, p. 1-12) observed that 70% of hospital executives disagreed that the HFA would help the hospital effectively carry out its administrative responsibilities.

Table 4. Relative Importance of Different HFA Benefits to Hospitals

S. No.	Benefits of Financial Analytics	Degree of Importance					
		Most Unimportant	Unimportant	Can't Say	Important	Most Important	Total
1	It provides improved quality and efficiency in Financial and Operational areas.	0.0 (0)	0.0 (0)	0.0 (0)	70.0 (7)	30.0 (3)	100 (10)
2	Provides enhanced fiscal control on the functioning of the hospital	0.0 (0)	0.0 (0)	10.0 (1)	60.0 (6)	30.0 (3)	100 (10)
3	The Financial Analytics provides enhanced security & safety of patient data	0.0 (0)	0.0 (0)	30.0 (3)	40.0 (4)	30.0 (3)	100 (10)
4	The Financial Analytics is easy to adopt	0.0 (0)	0.0 (0)	20.0 (2)	70.0 (7)	10.0 (1)	100 (10)
5	The Financial Analytics record maintenance is provides various financial information	0.0 (0)	10.0 (1)	0.0 (0)	80.0 (8)	10.0 (1)	100 (10)

S. No.	Benefits of Financial Analytics	Degree of Importance					
		Most Unimportant	Unimportant	Can't Say	Important	Most Important	Total
6	The Financial Analytics helps in taking various Financial and Operational decisions	0.0 (0)	30.0 (3)	0.0 (0)	50.0 (5)	20.0 (2)	100 (10)
7	The FA has helped in reducing the cost	0.0 (0)	10.0 (1)	20.0 (2)	60.0 (6)	10.0 (1)	100 (10)
8	The Financial Analytics provides timely information to doctors, Users and Management	0.0 (0)	0.0 (0)	10.0 (1)	70.0 (7)	20.0 (2)	100 (10)
9	The format of the information is uniform	0.0 (0)	0.0 (0)	50.0 (5)	40.0 (4)	10.0 (1)	100 (10)
10	It is easy to access and retrieve any information from anywhere	0.0 (0)	0.0 (0)	0.0 (0)	70.0 (7)	30.0 (3)	100 (10)
11	The Financial Analytics provides the past history of the patient who has already visited the hospital for reference	0.0 (0)	10.0 (1)	10.0 (1)	40.0 (4)	40.0 (4)	100 (10)
12	Materiality has increased because of the Financial Analytics	0.0 (0)	10.0 (1)	20.0 (2)	40.0 (4)	30.0 (3)	100 (10)
13	The technical skills to use computers would be learnt quickly	0.0 (0)	10.0 (1)	10.0 (1)	80.0 (8)	0.0 (0)	100 (10)
14	Easy to find Excess and lack of material	0.0 (0)	10.0 (1)	10.0 (1)	60.0 (6)	20.0 (2)	100 (10)
15	Provides convenience to the Auditors to Check	0.0 (0)	0.0 (0)	30.0 (3)	60.0 (6)	10.0 (1)	100 (10)
16	The Financial Analytics provides Full Information about Operational area	0.0 (0)	10.0 (1)	20.0 (2)	60.0 (6)	10.0 (1)	100 (10)
17	The Financial Analytics provides clarity about Various Financial Ratios	0.0 (0)	10.0 (1)	10.0 (1)	40.0 (4)	40.0 (4)	100 (10)
18	The Financial Analytics provides information about comparison of present year data with previous year data.	0.0 (0)	0.0 (0)	10.0 (1)	50.0 (5)	40.0 (4)	100 (10)

S. No.	Benefits of Financial Analytics	Degree of Importance					
		Most Unimportant	Unimportant	Can't Say	Important	Most Important	Total
19	Provides better communication to Users	0.0 (0)	0.0 (0)	10.0 (1)	80.0 (8)	10.0 (1)	100 (10)
20	The Financial Analytics prevents the misuse of the stored information	0.0 (0)	0.0 (0)	40.0 (4)	30.0 (3)	30.0 (3)	100 (10)
21	Helps check the total no. of units produced and no. of unites are in work in progress.	0.0 (0)	0.0 (0)	0.0 (0)	70.0 (7)	30.0 (3)	100 (10)
22	Helps in checking the occupancy level at any point of time	0.0 (0)	10.0 (1)	0.0 (0)	50.0 (5)	40.0 (4)	100 (10)
23	It is easier to print the medical records	0.0 (0)	0.0 (0)	10.0 (1)	50.0 (5)	40.0 (4)	100 (10)
24	It is easy to check the billing status of the patients	0.0 (0)	10.0 (1)	0.0 (0)	70.0 (7)	20.0 (2)	100 (10)
25	Provides better information about availability of stock of drugs and vaccinations	0.0 (0)	0.0 (0)	0.0 (0)	50.0 (5)	50.0 (5)	100 (10)
26	Provides better access of remote data through internet	0.0 (0)	30.0 (3)	0.0 (0)	30.0 (3)	40.0 (4)	100 (10)
27	Helps in reducing errors that are caused by handwriting/manual documentation	0.0 (0)	0.0 (0)	10.0 (1)	60.0 (6)	30.0 (3)	100 (10

Objective:5

Challenges for adoption

· **Limited Data Management** – The healthcare industry has not yet been able to keep up with the massive influx of data. Collecting and processing data involves many manual processes. The lack of a centralized view of data for everyone in a medical institution is also an obstacle.
• **Legacy Systems** – Cloud adoption is still in progress. Many organizations still struggle with legacy issues. According to the International Institute of Certified Public Accountants, 59% of healthcare organizations struggle to extract data from legacy systems.
• New technology trends are developing rapidly. But they lack the skills needed to make change happen. The same applies to implementing analytics.

Conclusion:

The primary objective of this research study was to know about the Financial Analytics adopted in Hospital Financial and operational areas of India.

The Primary data has been collected from different about the benefits of financial analytics adopted in financial and operational areas of Indian Hospitals. 80% of people says Financial Analytics provides better communication to Users. 80% of people say the technical skills to use computer would be learnt quickly. 80% of people say Financial Analytics provides enhanced security and safety of financial information. 70% of people says Financial Analytics provides quality and efficiency in operational and financial information in hospitals.

Adaption barriers of Financial Analytics are major issue in developing Financial Analytics in Hospitals. Many hospitals have adapted Financial Analytics in their health sector to a great extent and better communication about financial data. Few Hospitals are still are facing some of barriers like Limited Data Management, Legacy Systems and New technology trends are developing.

Financial Analytics helps to understand the financial and operational Trends like Comparative, Common size, Various Ratios and stock which helps Management to take Decisions.

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