

Evaluation of Hospital Information Systems (HIS)

Dissertation Submitted to



Submitted in partial fulfillment of the requirements for the degree of

Master of Business Administration (MBA)

in

Pharmaceutical Management

by

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IIHMR-U/02/2023-25/0536

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2025

1. Introduction

With the growing complexity in healthcare delivery, Hospital Information Systems (HIS) have become indispensable tools for managing hospital operations, patient data, and clinical workflows. During my internship at Zydus Hospital, Ahmedabad, I was assigned the project of evaluating the effectiveness and limitations of their current HIS system—**HINAI**—and recommending viable alternatives based on a structured framework. This initiative aligned with Zydus Hospital's strategic objective of upgrading its digital infrastructure to ensure smoother departmental coordination, enhanced patient care, and data-driven decision-making.

2. Internship Objectives

- To **identify operational gaps** in the current HIS (HINAI) system.
- To **explore and evaluate modern HIS alternatives** suitable for the hospital's size, specialties, and future needs.
- To develop and apply a **standardized evaluation framework** with weighted parameters across technical, functional, and usability domains.
- To present a **comparative analysis** of shortlisted platforms.
- To suggest implementation strategies for digital transformation at the hospital.

3. Methodology

3.1 Approach

A **mixed-methods approach** was used, combining both qualitative and quantitative data to analyze the hospital's current HIS and evaluate potential replacements.

3.2 Data Collection

- **Primary Data:** Interviews with hospital staff, including clinicians, IT staff, pharmacists, and administrators; observations in OPD, IPD, and pharmacy; feedback through structured surveys.
- **Secondary Data:** Vendor presentations, product manuals, internal reports, and published studies on HIS effectiveness.

3.3 Evaluation Tool

An **Excel-based scoring matrix** was developed, using weighted scores for parameters like:

- EMR support
- Cloud compatibility
- Customization
- User interface
- Interoperability
- Vendor support
- Cost

3.4 Ethical Considerations

- All participant data was anonymized.
- Consent was obtained from participants prior to interviews/surveys.
- Data was securely stored and only used for academic purposes.

4. Key Findings

4.1 Limitations in Existing System (HINAI)

- Lack of EMR integration and mobile access.
- No cloud support or real-time analytics.
- Poor user interface and customization.
- Frequent system lags and login errors.
- Manual documentation and delayed barcode scanning.

4.2 Identified Problems

- Manual registration processes causing wait time.
- Inadequate diagnosis visibility.

- Lack of built-in scoring systems like APACHE.
- Fragmented pharmacy and lab integration.

4.3 Solutions Proposed

- Integration of **TAT software** with HIS for smoother lab tracking.
- Implementation of **OCR tools** for faster registration.
- AI-based appointment scheduling.
- Barcode system upgrade with hardware/software enhancements.
- Real-time dashboards via **Power BI** or **ODBC** connectors.
- Introduction of **electronic documentation** templates.

5. Comparative Analysis

The following HIS platforms were shortlisted:

- **Epic**
- **Cerner Millennium**
- **TrakCare**
- **Meditech**
- **Napier**
- **Athma**

Top 3 recommendations based on weighted scoring:

1. **Cerner Millennium** – Highest compatibility with clinical and admin workflows; best-in-class integration.
2. **Epic** – Superior in EMR, analytics, but costly.
3. **TrakCare** – Balanced option with strong support in India and reasonable cost.

Budget-conscious choices: Meditech and Napier were found more suitable for mid-sized hospitals but lack advanced modules.

6. Learnings and Outcomes

Through this internship, I:

- Understood the complexities of hospital operations and how digital systems impact real-time workflows.
- Gained skills in designing evaluation frameworks and performing comparative analysis.
- Learned how to engage with multiple stakeholders to gather meaningful insights.
- Understood real-world challenges in digital transformation and change management in healthcare.

The experience strengthened my foundation in **healthcare informatics**, stakeholder engagement, and **system evaluation**, which are crucial skills for a future role in hospital operations or health IT consulting.

7. Conclusion

This internship offered valuable exposure to the intersection of healthcare delivery and digital technologies. The evaluation conducted at Zydus Hospital not only contributed to a strategic decision-making process but also provided me with practical insights into managing healthcare IT projects. A well-chosen HIS will enhance care quality, operational efficiency, and future-proof the hospital's infrastructure.