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Procurement, regulatory, and SCM challenges in establishing a private
Multi-specialty OPD healthcare facility "Capital Medical Centre".



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FINAL PROJECT APPROVAL SHEET

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EXECUTIVE SUMMARY

Pakistan has faced many challenges in its operational and supply chain issues in the healthcare industry, especially for small- and medium-scale outpatient facilities. These issues affect service quality, patient safety, and cost-effectiveness. An example of such a start-up facility would be a Capital Medical Centre (CMC) to be set up in August 2025 in D-17, Margalla View Housing Scheme, Islamabad, as an OPD-based model offering high-quality, accessible healthcare services. The two essential operational issues addressed in this project were manual inventory and patient records management, which led to inefficiencies and high logistics and transportation costs due to its peripheral location. To address these problems, a digital transformation and logistics strategy optimization were implemented. The research used Microsoft Access tools to develop a Health Information Management System (HIMS), an ABC inventory analysis, Just-in-time (JIT) principles, and Economic Order Quantity (EOQ) calculations.

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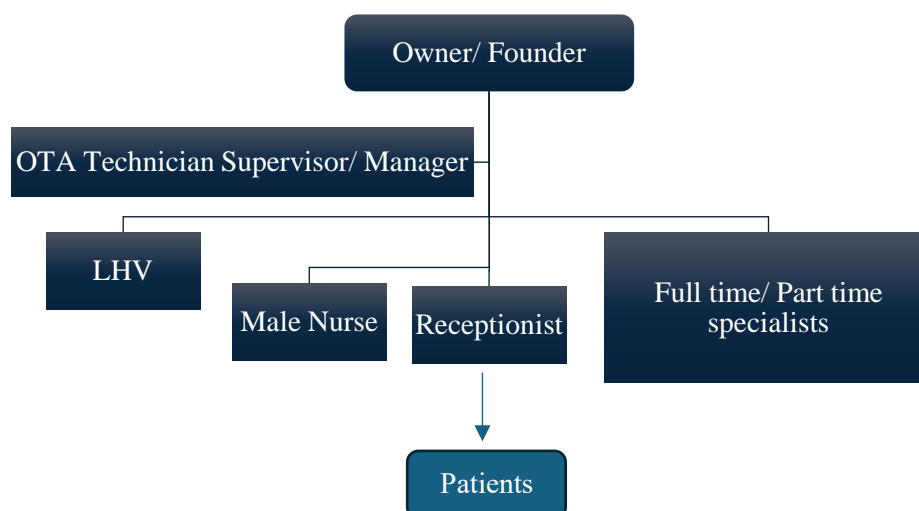
CHAPTER 1: INTRODUCTION

1.1 Business setup overview:

In the highly dynamic modern business world, the healthcare sector in Pakistan faces numerous operational and supply chain issues that directly affect service quality, patient safety, and cost-efficiency ((WHO), 2019). No healthcare system can be labeled as perfect because of the growing needs of people, constantly emerging new public health challenges, and the diversity of population demographics around the globe. Every system needs continuous pruning to fulfill the needs of its people through analysis of its shortcomings and strengths. Pakistan's healthcare system (PHS) is not an exception to this principle.

A real-world example of such a startup facility is **Capital Medical Centre**, which opened in **August 2025**. CMC is situated in **D-17, Margalla View Housing Scheme, J7 Mall, Islamabad**, to offer high-quality healthcare services to the local people at an accessible location. It is an Outpatient Department (OPD) model.

- Legal structure (Sole proprietorship).
- Qualification: Registered with the IHRA (Islamabad Health Care Regulatory Authority)
- Serial No. 001942 according to section 21(3) Healthcare Regulation Act, 2018.
- Partnerships and Collaborations: Aman Labs, V&S waste management Pvt ltd, and Care plus.
- Organizational structure:



1.2 Mission statement:

“We deliver professional and reliable service for every patient by combining clinical excellence with an empathetic approach. Deeply committed to earning patients' trust by utmost care and assistance and empowering each individual to seek optimal health outcomes.”

We provide professional and trustworthy service to all people...'

In this case, the Capital Medical Centre makes it clear that it provides outstanding services that meet the expectations of every person regarding the healthcare experience. Many individuals would rather avoid hospitals due to a lack of trust in doctors and staff. The promise of reliability helps the startup emphasize the need to establish trust, which will allow patients to trust the quality the Centre can deliver through the latest machines, timeliness, and follow-ups.

The integration of clinical experience and compassionate attitude...'

In this case, a binding element ties together two of the most significant features of a healthcare institution: clinical experience and an empathetic approach. In this situation, clinical experience has been very competent in terms of qualified doctors, skilled personnel and optimal course of treatment, but the empathetic approach involves being knowledgeable and recognizing the fears and situations of the patient. The Centre stresses that the two cannot be complete without each other; together, they can attain excellence in healthcare.

'Deeply committed to earning patients' trust by utmost care and assistance...'

The Centre says that the essence of an organization's identity lies in its desire to win the trust of patients by engaging in habitual behaviors that exceed the minimum set requirements. It is about assisting every individual in all aspects, including guiding them through the general healthcare system and helping them decipher bills.

'Empowering each individual to seek optimal health outcomes'

Empowerment in this case will mean providing everyone with the basic health information they need, ensuring that they are mindful of and priorities their health and safety. The Centre aims to achieve optimal health outcomes by promoting the well-being of everyone; it is not only about curing an ailment, but also about correctly diagnosing and finding ways to enhance wellness and quality of life by believing in the people at hand to be supportive.

1.3 Vision statement:

“A community where we can redefine healthcare experience for everyone. Bringing positive impact, convenience, and support for all.

'A community where we can redefine healthcare experience for everyone...'

The vision statement outlines the Centre's vision for establishing a community where every person can trust the system. Redefine here implies eliminating the list of negative stereotypes that people have towards the healthcare system like (long waiting times, confusion, being rushed or being dismissed, etc.) and the Centre should focus on making their healthcare experience a calm and reassuring experience, and make sure that all humans, regardless of their background, ethnicity, or medical complexity, be treated equally.

'Bringing positive impact, convenience, and support for all.'

To introduce a quantifiable and positive change in the health of the community, as well as to concentrate on operational efficiency by considering the daily issues of patients, such as the establishment of an online portal to provide convenience to both doctors and patients, which can be helpful in terms of dealing with the long waiting times, inability to schedule, and complexity of procedures. Core offerings:

Capital Medical Centre is a healthcare ecosystem designed to meet the various needs of the community. The primary services of the Centre are:

- Consultation
- Gynae/ Obstetrics
- Child specialist
- Physiologist
- General surgeon
- Labs
- Pharmacy
- Nursing staff
- Blood collection



Gynecology and Obstetrics: Pediatricians and Psychologists, specialist consultants. Gynecologists specialize in the female reproductive system and the health of women in general, including family planning, prenatal care, and the delivery of a baby. Pediatricians are experts in children and can be found at Capital Medical Centre for routine check-ups, diagnosis and treatment, and assessment of children's growth and development. Psychologists at the Centre can evaluate, diagnose, and offer therapy to clients on a wide variety of matters; they aid patients in controlling their anxiety, stress, and behavioral disorders. The other primary services include a general surgeon, an on-site diagnostic laboratory, a stable blood-collection service, and a pharmacy. It also has a home health services division that provides skilled nursing and personal care services in the comfort of the home. The Centre aims to promote the well-being of the whole community through services provided by qualified medical staff, on-site facilities, and home-based care.

1.4 Target market:

Geographic Target Market: Capital Medical Centre's primary target market is D-17 Islamabad and its inner areas, including D-18, E-16, B-17, and the surrounding regions of Taxila and Sangjani. These are just residential neighborhoods that are growing quite rapidly, and most of the families are new to them. However, even with the swift growth of these regions, their local medical centres and hospitals do not provide top services. Even simple checkups require most residents to travel long distances to reach central Islamabad or Rawalpindi. CMC will bridge this gap by offering home and outpatient healthcare services to the community. It is also conveniently located in the J7 Mall, and patients can access it since the mall is not a new location with parking and other facilities. The strategic location cannot help but make CMC attractive to the D-17 residents and the representatives of the adjacent neighborhoods, who require rapid, convenient medical services.

Demographic Target Market: CMC has a wide demographic range of clients. The centre mainly targets middle- and upper-middle-class families, as they are more likely to use private healthcare and want to make it affordable. These are primarily families in new housing societies in D-17. The target population is children and aged patients. Indicatively, young couples and mothers visit gynecology and pediatric specialists' clinics while older individuals visit physiotherapy and general check-up clinics. Professional workers are also an appropriate segment of the target market, as they prefer timely consultations and proximity to healthcare facilities due to their busy schedules. The target audience is both men and women, with

consideration for women and children, given the presence of Gynae/Obs and pediatric services. The median income level comprises people who can afford quality treatment and, at the same time, see affordable prices compared to those of large hospital chains in the city Centre.

Psychographic Target Market: This target market takes comfort, hygiene and healthcare trust seriously. They desire a healthcare facility where they feel respected and cared for, and physicians who will listen to them and not rush them through consultations. They also value convenience. Most families are inclined to choose the clinics closest to their place of residence, where all these services are available under one roof, i.e., consultations, labs, and pharmacies. The other segment of this target market is an aged patient or a patient just recovering from an illness that favors home-based services such as nursing care, physiotherapy, and blood collection. Such individuals desire to receive reasonable medical assistance without necessarily travelling. Those who appreciate the individual approach and the need for a long-term relationship with their physicians, rather than moving around the clinic regularly, are also the target market. They can spend more on a trusted service that provides a sense of peace of mind.

Behavioral Target Market: CMC patients can be categorized by their healthcare behavior. The other patients also have a routine of visiting the facility to check in, treat chronic illnesses, or vaccinate their children. Other patients come temporarily, such as when they are suffering from the flu, have an injury, or undergo minor surgery. There is also a growing interest among more people in home health services owing to busy schedules or limited health conditions. The services CMC provides, including OPD consultations, nursing services, and caretaker facilities, are in line with this group's requirements. The other behavioral tendency in this market is love of reliability and word of mouth. In small communities, most patients opt to visit medical facilities recommended by friends, neighbors, and relatives. Reputation and patient satisfaction, therefore, become significant factors in attracting and retaining customers in this segment.

1.5 Partnerships & Collaborations:



The marketing plan must be effective in establishing and identifying Capital Medical Centre (CMC) within the healthcare market. Since CMC is an OPD-based medical start-up in Islamabad, it must be committed to raising awareness, building trust among the local population, and establishing a customer base. The marketing strategy will target the Centre's strengths, including its qualified physicians, convenience, hygiene, and affordability.

Marketing Mix (4ps)

1.6 Problem Statement 1

Product (Service)	Price
General and Specialist Consultations <ul style="list-style-type: none"> • Gynecology & Obstetrics • Pediatrics (Child Specialist) • Physiotherapy & Rehabilitation • Minor General Surgeries (OPD) • Laboratory Testing (Ayan Labs Collaboration) • Pharmacy and Medicine Dispensing • Home Health and Caretaker Services • PMDC-certified Doctors and Qualified Nurses 	Value-based, affordable pricing <ul style="list-style-type: none"> • Competitive consultation and diagnostic rates • Package deals for physiotherapy and home health services • Transparent billing with no hidden charges • Discounts for families and repeat patients • Special rates for Pine Heights flats residents as they are directly targeted due to the close locational feasibility
Place (Distribution)	Promotion
Located in J7 Mall, D-17 Margalla View Housing Scheme, Islamabad <ul style="list-style-type: none"> • Serves residential and nearby commercial zones • 12-hour OPD operations for convenience • Home visit and sample collection services extend outreach • Collaboration with local pharmacies and laboratories 	Word-of-mouth referrals and patient testimonials <ul style="list-style-type: none"> • Digital visibility through WhatsApp Business, Google Maps, and Facebook community groups • Health awareness camps and community medical drives • Display of IHRA licensing and PMDC certification for credibility • Local partnerships with schools and organizations for referrals

“Loss of data, human error, wastage of time in keeping records manually”

Explanation

The manual data management system is producing a critical functioning blind spot, namely in the supply chain management, which, in its turn, is causing direct financial losses, clinical risks, and scaling challenges. In a case of a startup where even a small mistake can lead to major disruptions and problems, this inefficiency is not just a mere inconvenience; it is a life-threatening issue that makes the patient mistrust the startup and spend its limited resources at its disposal.

The centre frequently faces two major issues: one is the 'emergency purchases' required in critical situations in which medicines from local pharmacies are bought at a very high price because of the unexpected stock-outs, and the other issue faced is the 'dead stock', where the centre's money is tied up in expired items that were over-ordered due to poor visibility. These issues exhaust the startup's most valuable asset: its cash.

Loss of brand reputation at launch can also occur when a patient is informed that the prescribed medication is unavailable or that a diagnostic test is delayed due to the unavailability of materials, thereby immediately violating the centre's promise of reliability. In a new business, a single bad patient experience can disproportionately affect overall community perception and referrals. For a new startup, a single negative patient experience can have a disproportionate impact on community perception and word-of-mouth referrals.

Staff Burnout and Operational Bottleneck are other problems the centre is facing, as staff are performing different tasks altogether; e.g., 'A nurse also managing inventory' spends a significant amount of time on non-clinical work, such as manually counting stock and locating patient files. This causes burnout, reduces the time available for patient care, and limits the number of patients the centre can serve daily, thereby capping the centre's revenue potential from day one.



1.7 Problem Statement 2

“Cost of transportation and logistics due to location”

Explanation

The startup's geographic position in D17 imposes a limiting, imprecise logistics network, which has further reduced its already insufficient profitability to the point that it can no longer provide supplies, compromising its delivery capacity. It is a paradox of the centre that it is located to serve a new market, yet it is hard to do so because of its location, which makes it inefficient and expensive.

The large suppliers in I-9, G-9, or the central wholesale markets charge huge additional fees on deliveries to D17, especially for the small but frequent orders a startup would need. This location tax results in their Cost of Goods Sold (COGS) being automatically higher than that of competitors in other central locations.

It has an untrustworthy and less frequent¹⁷ delivery timetable. A so-called same-day delivery service can be reconfigured as a next-day service, leading the clinic to cancel patients' appointments and procedures. This variation in service directly affects revenue and patient satisfaction. Also, to avoid the high delivery charges, the centre can consider bulk ordering. As a new start-up, it does not have sufficient capital to buy large amounts of inventory and rent facilities to store it in bulk, so it is incurring a costly, low-volume purchasing process.

The existing clinics located in more central locations have lower logistical costs and a more stable supply. This is better because they can either offer more competitive prices or achieve higher margins. Capital Medical Centre has been structurally cost-disadvantaged since the beginning and cannot compete on price or invest in other critical factors, such as marketing or staff training.

1.8 Project objective:

The main goal of the given project is to examine the operational deficiencies of the Capital Medical Centre and address them through digital transformation and logistics optimization. To do this, the **SMART** (Specific, Measurable, Achievable, Relevant, Time-bound) objectives are set, which are the following:



(Specific, Measurable, Achievable, Relevant, Time-bound)

Category	Description	Estimated Cost (PKR)
Hardware	One desktop PC with updated specs for digital inventory & patient database	PKR 150,000-/-
Software	Hospital management/inventory system & database integration tools	PKR 50,000-/-
Training & Implementation	Staff training, data migration, and system configuration	PKR 25,000-/-
Internet & Networking	Router, cables, backup connection	PKR 25,000-/-
Transportation optimization	Route planning, Collaboration with a logistics company, and collaborative warehouse setup.	PKR 35,000-/-
Miscellaneous / Contingency	Maintenance, documentation, stationery	PKR 15,000-/-
Total Estimated Cost		PKR 250,000-/-

1.9 Project budget:

1.10 Project timeline:

The project would take a 4 months duration between September 2025 to December 2025. The month is a special phase in the process of progress, which incorporates planning, research, design, implementation, evaluation, and reporting. The progress is consistent in terms of timeline.

Phase 1 Project Planning and Approval (1 September 2025 -15 September 2025)

The project will be initiated by finalizing the topics, getting the supervisor approval, and getting the approval of the Research Cell. During the specified stage, the background of Capital Medical Centre (CMC) will be analyzed, along with the key areas of issues, manual data processing, and the prohibitive price of logistics will be revealed. The goals, justifications and anticipated results will also be determined in consultation with the supervisor.

2 Situation and Needs Analysis (16 September -30 September 2025)

This step involves the analysis of the existing system of monitoring inventory, equipment and patient records using a manual system. The personal and management interviews will be employed to find gaps in the operation, the areas of inefficiencies and where digital transformation will have the greatest impact. Simultaneously, existing transportation and logistics framework will be reviewed to determine the crucial cost drivers.

Phase 3 System Design and Framework Development (1 October, 2025 15 October, 2025)

This step involves the analysis of the existing system of monitoring inventory, equipment and patient records using a manual system. The personal and management interviews will be employed to find gaps in the operation, the areas of inefficiencies and where digital transformation will have the greatest impact. Simultaneously, existing transportation and logistics framework will be reviewed to determine the crucial cost drivers.

Phase 4 Implementation and Pilot test (16 October -31 October 2025)

The prototype system will then be coded and put to test at this stage. To check the effectiveness of the digital modules, patient registration, medicine stock tracking and report generation, the sample information will be keyed in. A pilot test shall as well be conducted to identify the impact that the proposed changes in the logistics will have on the fuel consumptions and the efficiency of delivery.

Phase 5 Data Collection/Evaluation (1 November 2025 -15 November 2025)

The step entails the collection of primary and secondary data to be analyzed. In order to measure the improvement in accuracy, response time and cost-effectiveness, the medical staff, patients and logistics partners will be surveyed and interviewed. The comparison of manual and digital operations will be used to find an efficiency measure.

Phase 6 Report Writing and Review (16 November – 30 November 2025)

Analysis of the data obtained will be done and integrated into the project report. The chapters (Introduction, Literature Review, Methodology, Results, and Benefits) will be written and

designed in accordance with Bahria University's requirements. The draft will be provided to the supervisor to receive feedback and revisions.

Phase 7 Finalization, Submission, and Presentation (1 December – 20 December 2025)

The last phase of the project shall comprise incorporating the supervisor's feedback, proofreading, and final formatting. The final project will be printed and spiral-bound for an open defense, then bound into a hard copy and submitted to the Research Cell. It is at this stage that the open defense presentation will be ready and delivered, thus marking the end of the project.

1.11 Justification of project research:

It is necessary to move to an integrated digital information system for several reasons:

Accuracy and Efficiency of Data:

The use of manual records leads to the duplication of information, information loss, and time losses. Digital systems can be automated to perform patient registration, appointments, and tracking inventory, which can give real-time accuracy and faster service delivery.

Resource Optimization: Automated Inventory tracking minimizes waste and surplus stock of medicines and equipment and ultimately controls cost of operations.

Improved Decision-Making: Centralized information will allow the management to track the stock level, patient spending, and patient inflows to facilitate evidence-based and timely decision-making.

Enhanced Patient Experience: A digital system will improve the communication system, booking appointments, and follow-ups, which will boost retention and patient confidence.

Cost-effective logistics: CMC is located in D-17, Islamabad, efficient routing to the site and transportation will help to minimize the spending on medical supplies and outsourcing services including laboratory testing and garbage removal.

Scalability: The system can be scaled up once it has been successfully implemented; it can be used as a prototype of other community-based healthcare centers in Pakistan planning to digitize their operations at minimum cost.

CHAPTER 2: CONCEPTUAL OVERVIEW & BACKGROUND

2.1 Just-in-Time

Just-in-Time (JIT) is a lean philosophy of inventory control, whereby objects are produced or ordered just in time. It will assist in reducing wastage and storage expenses, and streamline the operational effectiveness by maintaining an ideal inventory of products every time. The JIT makes sure that resources are not wasted including materials and labor, and capital is no exception. In order to be able to implement JIT, the companies are forced to be dependent on accurate demand forecasts, good working relationship with the suppliers, and effective communication (al V. e., 2017).

Significance in Medical Setup:

JIT is a very crucial aspect in a healthcare facility, in which not all the medical supplies needed and medication will remain unused through either being overstocked or spoiled by going out of date or occupying more space than what they should. In case of an emergency, a lean supply chain would reduce costs and time in taking to turn-around by implementing an effective JIT system in hospitals. The concepts of JIT are implemented in the large healthcare organizations such as Mayo Clinic (USA) and NHS hospitals (UK) that are better to manage the surgical equipment, blood units, and pharmaceuticals. With a JIT system in place, medical facilities are able to remove waste, which is unavailable products that expire, smooth out procurement procedures and have a continuous flow of inventory without capital being tied up in overstock.

Capital Medical Centre (CMC)

JIT model can be implemented in Capital Medical Centre (CMC) in Islamabad to a large extent in order to enhance efficiency and minimize cost involved in processing data manually. The manual method of records is too slow to update on the inventory levels which results in overstocking or shortage of stock. A digital inventory management system can be implemented through the introduction of JIT by automatically establishing the reorder points of important medicines and equipment. The system will print purchase orders once the inventory has been decreased to a set level. This will make the hospital have the best supplies at any given time, according to the real patient needs and consumption records. It also decreases the storage of slow-moving and overstock products, the expiry level of medicines, and the expenses of overstocking. Altogether, the JIT has the potential to turn the CMC supply chain into the lean, responsive, and data-driven system (Clinic., 2016).

2.2 Economic order quantity (EOQ)

Economic order Quantity (EDQ) model is used to calculate the optimal quantity of inventory that the organization will hold to maintain the overall ordering and carrying cost of the inventory to a minimum. The formula is given by:

$$EOQ = \sqrt{((2 \times D \times S) / H)}$$

Where:

D = annual demand,

S = ordering cost per order, and

H = holding cost per unit.

EOQ compromises the issue of ordering often (costly in terms of ordering costs) and ordering in bulk (costly in terms of storage and carrying costs). It assists organizations to make informed decisions regarding the order timing and the quantity to order thus enhancing financial and operational efficiency (Gupta, 2016).

Relevance in Healthcare Systems:

The EOQ model holds particular significance in the healthcare sector whose overstocking or understocking may lead to extremely high expenses and harsh outcomes. Overstocking can lead to the waste of expired drugs and understocking can cause delay in treatment or attending to the emergency (Johnson, 2013). Examples of hospitals using the EOQ-based inventory controls include Johns Hopkins Medical Centre and Aga Khan University Hospital to control the best amount of required medical supplies to have adequate availability and affordable cost. The EOQ can aid the medical institutions to accomplish economical purchasing processes, low logistics cost, and on-request commodities.

Capital Medical Centre (CMC)

The EOQ model would help minimize the high transportation and logistics expenses involved in the location of the hospital at CMC. The cost of medicine and medical equipment delivery is prone to rise because of geographical and delivery reasons. When the CMC calculates the EOQs of the basic products (e.g. gloves, syringes, IV fluids and laboratory kits), it will be able to decide and evaluate the most cost-effective order quantities and delivery rates

The computerization of inventory data will also help influence the use of EOQ to facilitate instant demand, storage space, and expenditure monitoring. This approach will ensure that CMC will not have to make unnecessary deliveries, reduce transportation costs, maintain constant service delivery, and maximize order levels. In the long run, EOQ will also help CMC achieve a more balanced, cost-effective procurement cycle.

2.3 ABC Analysis:

We employ the ABC Analysis Theory to compile and control inventory data. It sub-classifies the data into three major categories: A, B, and C. The concept can be traced to the Pareto Principle, which states that only a few items account for almost all the value or importance. In other words, 20 per cent of products can account for 80 per cent of the overall value (Principle, 1896).

In ABC analysis:

- **Category A** contains items of paramount and great value. These should be checked frequently and taken with the utmost care.
- **Category B** involves predominant items. They are not as expensive as the ones under category A, although they require proper care as well.
- **Category C** has products which are not very expensive or essential, but there are numerous of them. These require minimal attention and can be verified periodically.

The most important thing about the ABC analysis is to devote time and effort to the most significant objects rather than giving equal attention to all. This makes work more consistent and reduces errors caused by ignorance or workload.

2.4 ABC Analysis in the Healthcare Sector

The ABC analysis has been highly successful in hospitals and medical centers, as these organizations handle the broadest range of medicines, medical equipment, and patient information daily. All this may be very hectic to manage equally, particularly where personnel are defined, or record keeping is manual (al T. e., 2015).

ABC analysis is used in healthcare systems in:

- Pharmacy departments, pharmacy management, drugs and medicines.
- Hospital shops are used to manage supplies and surgical instruments.
- To systematize medical data and optimize service, patient record systems are used.
- Financial control is about putting a check on areas that consume more resources.

By adopting such an approach, the hospitals will ensure that the most essential items are never out of stock, that more expensive medicines are strictly tracked, and inadequately developed systems do not distort that data.

Item	Annual Usage (Units)	Unit Cost (PKR)	Annual Consumption Value (PKR)	% of Total Value	Cumulative % Value	Category
IV Fluids	300	120	36,000	25%	25%	A
Antibiotic Injections	180	150	27,000	18%	43%	A
Surgical Gloves	600	40	24,000	16%	59%	A
Blood Test Kits	120	150	18,000	13%	72%	B
Syringes	400	30	12,000	8%	80%	B
Bandages	500	10	5,000	3%	83%	C
Cotton Rolls	200	15	3,000	2%	85%	C
Masks	800	5	4,000	3%	88%	C
Disinfectants	100	40	4,000	3%	91%	C

Category	% of Items	% of Total Value	Control Focus
A Items	30%	60-70%	Tight control, frequent review, digital JIT system.
B Items	20%	15-25%	Moderate control, monthly monitoring.
C Items	50%	<10%	Low control, bulk orders quarterly

Application of ABC Analysis for Capital Medical Centre:

Managing Medical Inventory

Capital Medical Centre is a new medical start-up in the process of evolving its systems and processes. As in most small med, it struggles with inventory control, adequate record-keeping, and patient information management. The ABC analysis method may assist the centre in managing its supplies more efficiently, minimizing errors, and using resources wisely. This

will not only streamline day-to-day operations but also help the centre establish a consistent foundation for future development.

Category A: The principal and premium medicines or equipment entail insulin, antibiotics and surgical equipment. Such items can be many, but they represent a salient part of patient care. This is supposed to be checked on a daily or weekly basis to make sure that the stock levels, the expiry date, and the purchase orders are always updated.

Category B: These are of medium price medicines and supplies, including syringes, gloves, and standard pills. They are eaten frequently yet not costly. To make sure that these goods are under reasonable control, they can be checked after every two weeks or after a month.

Category C: These are cheap, readily available products which involve cotton rolls, bandages and saline solution. They also are frequent and can be bought in large quantities. This is due to the fact that they are inexpensive, they are always needed and only have to be checked on an occasion.

The categorization will assist the staff to concentrate on priority items and save time and reduce chances of errors. It will also be useful in prevention of overstocking/ shortages. The ABC analysis can also be used to manage patient records. All the data of a patient are not to be given the same attention.

Category A: This segment consists of patients with consistent visits, long-term illnesses or those in need of regular checkups. Their records should never be incomplete or imprecise, as even a slight error could affect their treatment.

Category B: This group of patients visits infrequently or for minor treatment. Their data do not require frequent review, and short summaries are often sufficient.

Category C: This category comprises patients who are one-time or infrequent. In their case, simple recordkeeping will be enough as they do not require constant monitoring.

Separating patient data in this way will allow the centre to reduce record duplication, file absence, and confusion. There is more time to spend on the records of most significant relevance, which increases accuracy and reduces the time required to access them whenever necessary.

Administrative and Financial Control

The Capital Medical Centre can also use ABC analysis in enhancing its administrative planning. Through such an approach, management can identify which departments, services or treatments are the most revenue-generating or those that use the most resources. Using the example of the specific tests or procedures that might be classified as Category A due to the high cost or high demand, the Centre can design its budget and staffing. Such control would contribute to increased organisation across the whole operation, reduced waste, and further development of the start-up.

The advantages of the ABC Analysis in the Healthcare:

The application of the ABC analysis introduces enormous benefits to a healthcare facility:

1. **Lessens Problems in Documentation:** By paying closer attention to important objects and information, the staff will be able to prevent errors such as the loss of a record or incorrect entry of all information, ensuring that all data and records are free of mistakes and up to date.
2. **Improved Inventory Management:** ABC analysis will keep the much-needed medicines and supplies available at all times and prevent overstocking low-value goods that occupy space and waste money.
3. **Saves Time and Energy:** Employees do not have to have the same attention to all things. This assists them in saving time, work effectively and focus on the areas that it is likely to be needed most.
4. **Enriches Financial Management:** It is useful to the management and serves to make them spend money wisely by indicating the areas or items that need more financial attention.
5. **Favors Digitalization:** Future digital infrastructure can be based on the ABC approach, which will automate the process of patient management and guarantee that operations are modern, up-to-date, and reliable.
6. **Better Patient Care:** Good records and access to medicines at the right time allow patients to have better treatment in a shorter time, and more precisely.

CHAPTER 3: METHODS AND TECHNIQUES

3.1 Research design:

The study design is applied and descriptive. The project will help identify operational inefficiencies at Capital Medical Centre and offer feasible solutions through digital transformation and logistics optimization. It employs a mixed-methods approach, combining qualitative and quantitative methods to ensure results are grounded in real-life, measurable data.

Qualitative aspect: Interpretation of workflows, staff behaviors, and issues regarding the manual data recording and transportation with the help of interviews and observation.

Quantitative aspect: Assessment of the differences in time, costs and efficiency of proposed digital and logistical interventions with respect to numerical data and performance indicators.

3.2 Problem 1 solving (Tools & techniques):

Microsoft Access (Database Design and Implementation): The leading digital platform is built in Microsoft Access and will serve as the centralized system for Health Information Management (HIMS), with all primary functions connected. The modules of the database include:

- Patient Records: personal information, history of appointments, diagnosis and billing.
- Doctor and OPD Management: Consultation schedules, details of specialization and records of treatment.
- Medicine and Inventory Module: Monitors stock availability, expiry dates, and reorder levels.
- Security and Integrity Controls: Data entry fields cannot be edited or deleted after they have been approved, so that they are not compromised by unauthorized data modification or manipulation.

The Access system implements **relational database constraints** that enable automatic correlation across patient visits, prescriptions, and inventory utilization. This minimizes manual mistakes and guarantees real-time data retrieval (Bank, 2020).

“Database is an organized set of large information gathered and stored electronically to be retrieved whenever required. The systematically stored information can be accessed, analyzed, updated or moved to other databases as per the requirement. A centralized healthcare database (CHD) is a memory house of health data from a wider population, where information such as health records, financial data, billing and claims information and inventory use is not only stored systematically but can also be retrieved, analyzed, and integrated. The data can be assessed by the health care providers, researchers, policy makers, institutions and by the patients themselves”

MS ACCESS DATA MANAGER GALLERY



CAPITAL MEDICAL CENTRE ay, October 23, 2025

RECORD NO: **Untitled** #Name? 1:59:50 PM

Go to [Dropdown] Save and New E-mail Save As Outlook Contact Find Record Last Record Print Report Close Form

General Contact Call Log Additional Information

Auto ID [Text] (New)
 Receipts [Text] 0
 Title / Dr Name [Dropdown]
 Patient Name [Text]
 Date Visit [Text] 10/23/2025
 Time of Visit [Text]
 Reception_Name [Dropdown]

Phone Numbers
 Patient Mobile Phone [Text]

Address
 Street or Road [Text]
 City [Text]
 State/Province [Text]
 Zip/Postal Code [Text]

Payment Details

Procedure [Dropdown]
 Fee Charged: [Text]
 Discount/Refund [Text]
 Net Fee [Text]
 Dr Share [Text]
 Centre Share: [Text]

Attachments

Follow up Notes/Description

Next Visit/follow up [Text]

[Large Text Area]

3.3 Data Protection and Surveillance Integration:

To ensure the operation's security, security cameras will be deployed at the reception and data entry points. This provides oversight of all physical access to patient data and inventory, thereby meeting data confidentiality and accountability requirements.

Microsoft Excel and SPSS were used to perform quantitative analyses of costs, efficiency, and turnaround time before and after the new system. Key metrics include:

- Mean duration of time spent on entering patient records (manual vs. digital).
- Fewer documentation errors, percentage.
- Economy of data processing and inventory control.

Cost-Benefit and Comparative Analysis: Financial data is used to compare the costs of manual recordkeeping with those of the new digital Access-based module. This comprises the number of staff hours saved, the reduction in paper use, and improved administration.

3.4 Problem 2 solving:

Identified Issue: CMC is situated at the outskirts of the city of Islamabad (D-17); the prices of the medical supplies, medicines, and waste collection were greater because of the frequent, small-quantity deliveries and the distance covered. The small storage space also enhanced holding costs and stockouts.

Solution Implemented: To address this, CMC has adopted a partnership-based supply chain model, which reduces inventory holding and transportation frequency.

1. **Strategic Supplier Partnership:** A joint agreement with a wholesaler, under which the company will order medicines every two weeks on a percentage-based credit, will eliminate the need to carry stock and improve cash flow initially.

2. **Shared Inventory Storage Agreement:** Collaborated with a local healthcare facility to store the

overflow inventory at low expenses and lessen the necessity of purchasing costly cold storage or having on-site inventory to a considerable size.

3. **Logistics Optimization:** The number of consolidated deliveries during the week is reduced to biweekly (instead of once per week), which minimizes the number of travels by almost 40%. Joint transport is handled through partner facilities, and the cost per trip is lower.



Analytical Tools Used:

- **Tracing of the routes using Google Maps:** To estimate the average delivery distance and travelling time.
- **Tracking cost in Excel:** To compare the costs of transportation in the month before and after the implementation of the partnership.
- **Supply chain performance measures:** Order lead time, holding cost and stock turnover rate.

Improved Offering: The hypothesis is that the new model will decrease transportation and procurement expenses by 2025, the inventory holding expenses by about 30%, and the collaborative efforts within the healthcare supply ecosystem.

3.5 Data collection methods:

The data utilized in the study was gathered in a combination of primary and secondary sources to increase the strength and scope of the inquiries of the activities of the Capital Medical Centre. The primary information has been obtained in the form of direct data collection among the staff, management, patients, and logistics partners of the organization, and the secondary data have been obtained at internal and trusted external sources. This combined strategy facilitated a comprehensive analysis of the manual data management system and the logistical inefficiencies of the Centre prior to the implementation of the digital solutions.

On site observation, structured interviews and survey questionnaires were the main data collection methods. It was followed inside the reception area, pharmacy and administration offices to be able to see how the work flows, data entry processes and information flow among the departments is conducted and transmitted. This was used to find out delays and duplication in manual recordkeeping. Doctors and the administrative staff as well as logistics partners also participated in the interview to learn about the difficulties in keeping patient records, stock and deliveries. In addition, brief satisfaction surveys were distributed to patients and front-desk staff to assess their satisfaction levels and willingness to integrate digital systems. These responses provided valuable insights into the user experience and the parts that needed to be automated or trained.

The secondary data collection was based on analyzing operational and financial records to confirm the field research. These involved the audit of procurement invoices, logistics cost sheets, the medicine stock register, and patient appointment logs in the CMC manual system. Back-up material, like the IHRA healthcare management guidelines, case studies on the digitalization of the hospitals,

3.6 Population and sampling:

The study is carried out at the Capital Medical Centre, which focuses on major operational stakeholders and partners. The sample includes: 5 administrative and clinical staff (to provide feedback on the usability of the system), 5 (service experience evaluation) patients, 5 supply

chain and logistics partners (inventory and delivery coordination analysis). The reason is convenience sampling, as it provides direct access to the organization and its partners. This structure will give a balanced view of internal activities and external coordination.

“In conclusion, while CHD offers substantial benefits in enhancing patient care, improving healthcare systems, and aiding research, the successful implementation of these databases necessitates addressing challenges related to data management, security, uniformity, and ensuring physician satisfaction to harness their full potential. Efforts to streamline and standardize these systems on a global scale can significantly improve healthcare outcomes worldwide”

CHAPTER 4: PROJECT OUTCOMES/ ANALYSIS

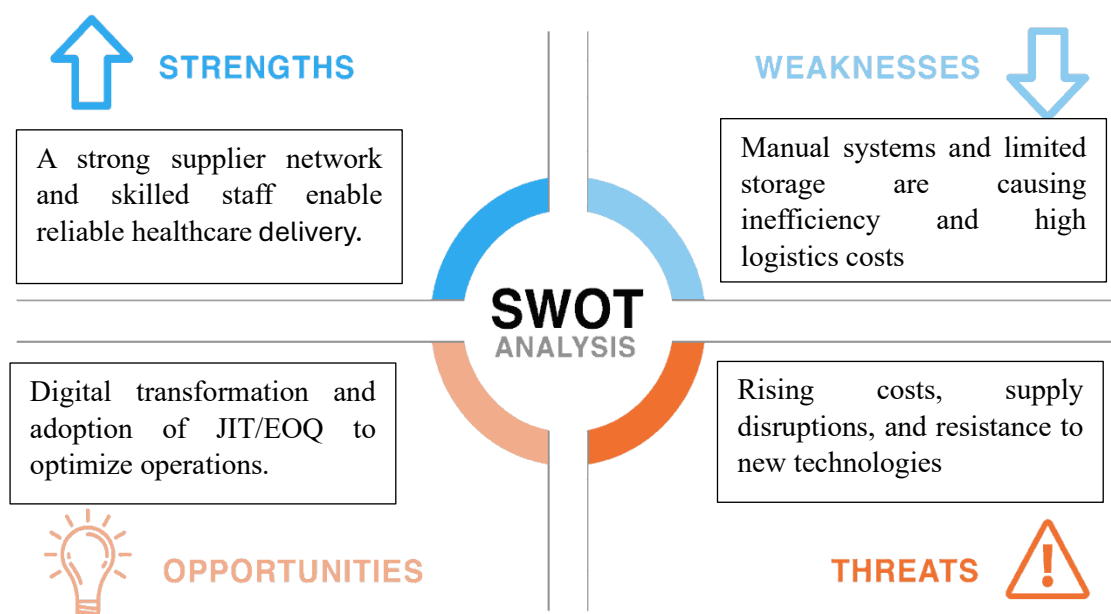
4.1 SWOT Analysis

SWOT (Strengths, Weaknesses, Opportunities and Threats) is a strategic planning model that is applied to assist organizations analyses the external environments. SWOT analysis is aimed at determining where there should be improvements and elaborating strategies that can help to exploit the strengths and opportunities to the fullest and minimize the risks (Johnson, 2013).

In a Medical set-up, significance is defined as:

SWOT analysis is a critical component of healthcare institutions that enables strategic decision-making. It allows administrators to gauge system operations, employee competency, and infrastructure. SWOT analysis is a technique used in hospitals worldwide to plan expansions, introduce new technologies, and evaluate patient care systems. Indicatively, the Singapore General Hospital used a SWOT analysis to introduce digital healthcare models and improve the efficiency of its supply chain.

This framework assists hospitals in identifying inventory management, financial management or digital infrastructure gaps that align with the resources they have and the environment in which they operate .**Capital Medical Centre (CMC) SWOT Analysis:**



Strengths

Several major strengths of Capital Medical Centre can enable it to modernize. Its supplier network for medical equipment and pharmaceutical products is stable; therefore, shortages of required supplies are uncommon. The medical and staff team at the hospital is also qualified and professional, and they strive to maintain service quality at all times. These virtues provide a robust foundation for the successful implementation of JIT and EOQ systems, particularly with the emergence of digital tools. It also has a stable supplier base for medical equipment and pharmaceutical products, so there are no shortages of required supplies.

Weaknesses

One of the significant weaknesses of CMC is its reliance on manual data record systems which have led to inefficiency, duplication of data, and delays in provision of its inventory systems. This is complicated by the absence of one digital management system that would allow tracking stock and patient data in real-time. Also, this small storage space restricts the capacity of the hospital to store large amounts of goods, which means that orders will have to be placed on a regular basis, and, therefore, will be expensive in terms of logistics. These are the weaknesses that slow down the supply chain management of the hospital.

Opportunities

Digital transformation is the most important opportunity of CMC. In order to automate the stock tracking, demand prediction and reorder notice, an HMIS with the inventory management modules can be implemented at the hospital. The collaboration with local technology providers and suppliers would facilitate the procurement process and make transportation routes shorter, which would make the process more cost-effective. The other concern is that JIT and EOQ models will make CMC a progressive institution that appreciates operational excellence when it comes to health care provision.

Threats

The CMC is prone to the effects of external factors that may destabilize the finances, including increasing fuel prices, disruptions in the supply chain, and inflation. A transportation issue may also arise when it comes to the location of the hospital hence resulting into delays in supplying the required items. The desire of staff to move towards new technologies may also slack down the process of digital transformation. To mitigate these threats, CMC must make investments

on the continuous training of employees, diversify on suppliers as well as having a well-developed contingency plan, which will keep deliveries moving.

The chapter presents the findings from applying the suggested solutions to minimize operational inefficiencies at Capital Medical Centre (CMC). The chapter is further separated into two key parts:

- Digital Inventory Management Implementation.
- Optimization of Logistics and Transportation Costs.

4.2 Digital Inventory Management Implementation:

4.2.1 Time–Motion Study (Manual vs Digital Entry Time):

To gain an appropriate understanding of how much time was being wasted in the manual inventory process, we conducted a Time-and-Motion Study at Capital Medical Centre over 2 weeks. This was done to note the actual time it took the staff to update stock levels using the old manual registers, then compare this time with that after transferring the same operation to the newly integrated digital inventory tool.

In the first week, we witnessed the routine in which the receptionist, LHV, and a male nurse refilled the medicines in the physical register. I had a stopwatch on my cell phone and used it to record the time each day. In order to make sure that we picked the most popular products, we selected fifteen most used products which include Paracetamol, ORS, Amoxicillin, syrup, injections and vitamin drops because these products turn out to be bought the most and require frequent replenishment.

The observations showed that operations on updating the stock manually were laborious as the following was observed:

Employees were forced to seek the right page in the register.

- They were required to verify the past stock entries.
- Other times, the register was in the possession of a different staff member.
- It was time-consuming to write long names and quantities.
- The times of corrections or errors were even worse.

We did the same during manual timing in the second week; however, this time, the digital system was used. The update of products was done in a tailor-made electronic records sheet through drop-down lists and automated calculation. The personnel involved was the same leading to similar and equitable outcomes.

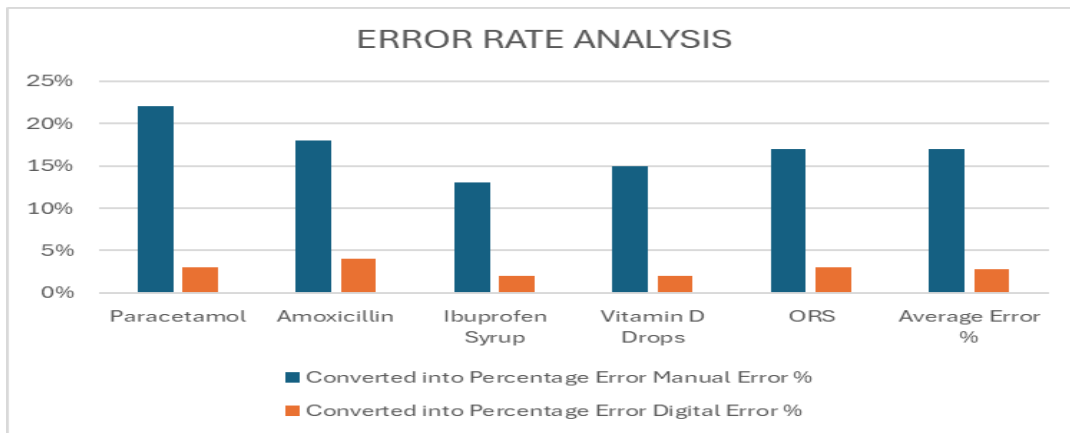
Activity	Manual System (minutes/day)	Digital System (minutes/day)	Improvement
Daily Stock Updating	25.6 mins	4.3 mins	83% Faster
Record Checking / Verification	16.8 mins	2.1 mins	87% Faster
Monthly Summary Compilation	122 mins	18 mins	85% Faster

The results were apparent with a tremendous difference on the time taken. Under the manual system, the staff took close to 30 minutes a day to update stock. This may not appear to be a big deal, but in a busy medical Centre it will delay other important activities e.g. handling of patients, dispensing of medicine and room preparation. The digital tool also minimized the time to update to only 4-5 minutes per day following the use of the tool. This is equal to 21 minutes in time saved by us daily.

$$21.3 \text{ minutes saved per day} \times 30 = 639 \text{ minutes saved}$$

4.2.2 Error Rate Analysis (Manual vs Digital Accuracy):

To determine the correctness of the impact of the digital system, I selected five frequently used items and counted them with the help of my fingers. I have then compared the manual register with the new digital sheet and the physical count. The manual register was full of mismatches because at times, the staff did not remember to update it at the point or accordingly when they were in a hurry, they inscribed wrong values when they were not in the right state of mind (Johnson, 2013).

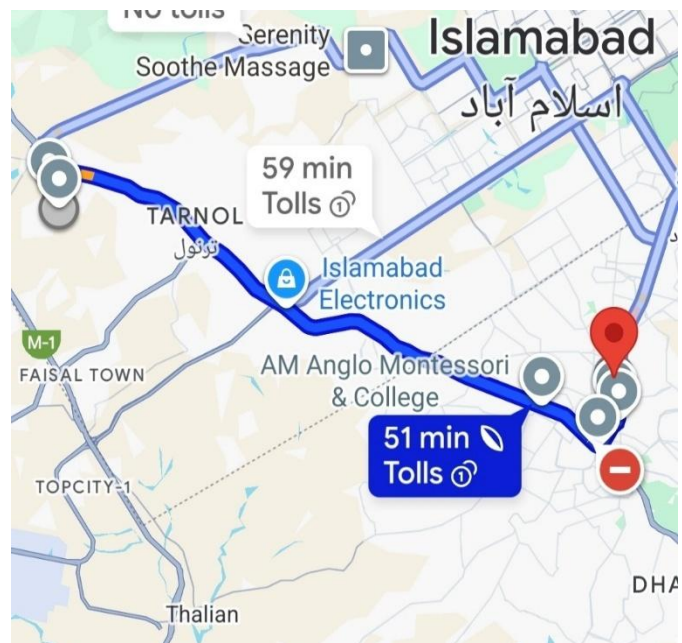


4.3 Logistics & Transportation Cost Optimization:

4.3.1 Route & Trip Frequency Analysis (RTA):

To find out why transportation and logistics costs were high at Capital Medical Centre, we performed a Route and Trip Frequency Analysis of a month. During this assessment, we got to know how often the procurement trips were made, why the trips had to be made and whether the trips had been planned or not. In monitoring, we realized that some of the visits were unplanned and were mostly undertaken when some of the medicines or supplies were exhausted. Such emergency trips led to increased fuel consumption, wastage of staff time and general disruption of operations.

The use of the digital inventory system and a better understanding of the stock levels made our procurement process more organized. We also scheduled our shopping to certain days and consolidated most of our shopping needs in fewer and effective shopping excursions instead of making small or frequent trips. This transformation has helped us to decrease the number of visits to Procurement, make the logistics process more predictable, and simplify it. Employees also said that their workflow was



more effective as they did not have to go out of the center with little notice to get medical supplies.

Procurement Cycle Efficiency Analysis (PCEA):

To further discuss the issues in our logistics operation we have also performed a Procurement Cycle Efficiency Analysis prior to the introduction of the new system and after its implementation. When we looked through the logs of daily activities, the comments of staff and the interactions with the suppliers, we understood that our previous procurement process was rather reactive. Orders were often made when a shortage had been noted, and as the registers maintained in a manual form were not necessarily current, a large number of them were urgent. Such a reactionary style resulted in delays, high transportation costs and a pointless strain on our entire supply chain.

After the introduction of the digital inventory tool, the apparent change towards the improved method of procurement decision-making was noticed. The system was giving correct alerts of low stock, consumption, and usage patterns thus allowing us to pre-order. We are now able to make orders based on credible and timely information instead of being required to memories them with the staff or do manual checks quite frequently. This minimized the emergency buys and coordination with suppliers became more routine.

CHAPTER 5: PROJECT BENEFITS

5.1 Enhancement in Operational Efficiency:

With the adoption of the digital inventory system and the systematic procurement model, the entire functionality of CMC came a great deal closer to achieving operational efficiency. Previously, it took a lot of time in updating registers, verifying quantities and rectifying errors among employees. Digitalization has made inventory updates quicker, more accurate and less taxing. Time saved in a day would be utilized by employees to give more attention to patients than to their management roles.

Interruptions in the workflow were also reduced with this change in efficiency. The emergency procurement trips and stocks outs were reduced and this made the daily operations to be smoother. This meant that the wastage of the employees during consultations was reduced as the staff were guaranteed of medicine and supply when required. This led to better service delivery in healthcare and automatic patient satisfaction.

5.2 Reduction in Logistics & Transportation Costs

One of the most beneficial factors of the project was the reduction of transportation and logistics expenses. It was a habit of buying outings prior to the intervention that were hasty, unthoughtful and a wastage of petrol, time and energy. These unnecessary visits not only increased the expenses, but it also relieved the clinic staff. As soon as the structural procurement cycle was implemented and soundly maintained with the help of digital inventory management, CMC was able to manage buying more effectively and predictably. This minimized the frequency of trips made a month, emergency movements, and overall transportation expenses. The reduced cost improved the financial position of the Centre and allowed the resources to be dedicated to more important matters such as upgrades in the equipment, patient service, or employee training.

5.3 Improved Inventory Accuracy and Transparency

The computerized stock system was very effective in enhancing precision of all medicines and disposables inventory. Errors, such as lost registers, gaps in shift changes, and similar problems, were likely to occur because of the use of handwritten records. On the contrary, the digital tool ensured real time visibility, central repository of data and real time updates. The

number of errors reduced led to reduced inventory beat and wastage of stock, improved inventory and product wastage and improved consumption forecasting. The system brought transparency to the organization: employees could look at the stock without any confusion, the process of decision-making became simpler, and the management could always access the up-to-date information.

5.4 Enhanced Decision-Making and Planning

There was easy access to real-time clean inventory information which led to improved planning and decision making. Having a better understanding of the use of medicines, CMC could make predictions regarding the in-demand and slow-moving medicines. This helped the management to maximize on the volume of ordering, bargaining with the suppliers and even reducing the unnecessary purchases. The regular procurement procedures also helped the Centre in improved budget planning. The cost of clearing the unpredictable costs would enable CMC to predict the cost of purchasing within a month more precisely. Foreseeable budgeting is also a severe advantage in any medical facility, especially to small and growing organizations.

5.5 Reduction in Staff Workload & Human Error

The online system reduced the repetitive manual work, which included the inventory count, data, and page reconciliation. This cut down the roles of the nurses, receptionists and the manager. This decreased the administrative work load and allowed more time to be spent in communication with patients. Moreover, the decreased number of manual entries was associated with the decreased possibility of errors. Mistakes in amounts, incorrect dates and scribbled remittances were highly reduced. Balance was calculated automatically and the computerized system indicated low stock warnings, which made the inventory a safer and more reliable place.

CHAPTER 6: LIMITATIONS & CONCLUSION

“The challenges faced by Pakistan's healthcare system include insufficient funding, inadequate healthcare workforce and infrastructure, less focus on preventive health, and inequitable distribution of resources. These challenges need comprehensive policy formulation focused on increases in healthcare funding and allocation of equity-based resources”

- Restricted Period to Interpret Tests.
- Poor Employee Training and Digital Literacy.
- One of the model's weaknesses is the small sample size per inventory item.
- Yet, overdependence on a Single Supplier Network.
- Absence of Sophisticated Software Tools.
- Real-World Variables that cannot be Completely Controllable.

6.1 CONCLUSION:

This project has been capable of addressing two key operations problems of the Capital Medical Centre, which are:

- 1) High logistics costs
- 2) The process of inventory management using manual means is inefficient.

Accuracy, cost efficiency, and operational stability have improved drastically by introducing a series of procurement cycles and with the use of digital inventory. The Route and Trip Frequency Analysis revealed that unneeded travelling was cut by a bigger margin courtesy of scheduled Procurement. The Procurement Cycle Efficiency Analysis revealed a reduction in the supply chain reliability and emergency purchases.

Similarly, the Time-Motion Study and the Error rate Analysis revealed the apparent disparities between the staff productivity and the accuracy of records. The inventory had been made more transparent and predictable and easier to maintain.

Overall, the project helped in the optimization of organizational performance and service delivery to patients. It not only covered the existing operational issues, but also set the stage towards future digital transformation at CMC. The more the Centre is refined and adopts new and improved tools, the better the Centre can comprehend its operations in the supply chain and become one of the reliable healthcare providers in the D-17 area.

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6.3 APPENDIX : A

6.3.1 Questionnaire:

1. Your primary responsibility at CMC is:

- A. Administration
- B. Inventory / Store management
- C. Procurement
- D. Operations supervision
- E. Accounts / finance

Recordkeeping System

2. Current recordkeeping system used is:

- A. Fully manual
- B. Semi-digital
- C. Fully digital

3. Manual recordkeeping results in errors:

- A. Very frequently
- B. Frequently
- C. Occasionally
- D. Rarely

4. Manual records increase processing time:

- A. Strongly agree
- B. Agree
- C. Neutral
- D. Disagree

Inventory Management

5. Inventory shortages occur due to:

- A. Manual tracking
- B. Poor demand estimation
- C. Supplier delays
- D. All of the above

6. Expired medicines are:

- A. Very common
- B. Common
- C. Rare
- D. Never

7. Emergency purchases increase operational cost:

- A. Strongly agree
- B. Agree
- C. Neutral
- D. Disagree

Logistics

8. Transportation cost for supplies is:

- A. Very high
- B. High
- C. Moderate
- D. Low

9. Delivery delays mainly occur due to:

- A. Distance
- B. Poor planning
- C. Supplier issues
- D. Traffic

System Improvement

10. A digital inventory system would:

- A. Greatly improve efficiency
- B. Improve efficiency
- C. Have no impact

11. Better logistics planning would:

- A. Reduce costs significantly
- B. Reduce costs slightly
- C. Have no impact



Bahria University
Islamabad Campus

RC-04

BBA
-MBA

1st Half Semester Progress Report

Name of Student(s)	Farwa Batool, Khizer Hussain, Asbab Sajon ahmed Khan
Enrollment No.	01-111221, 027, 01-111221-045, 01-111221-021
Thesis/Project Title	Procurement, regulatory & SCM challenges in establishing a private multi-specialty OPD healthcare facility "Capital Medical Center".

Supervisor Student Meeting Record

No.	Date	Place of Meeting	Topic Discussed	Signature of Student
1	7/09/25	Faculty office	Selection and discussion of Topic	[Signature] Farwa Batool
2	21/09/25	Faculty office	Problem Statement & research gap discussed	[Signature] Farwa Batool
3	22/09/25	Faculty office	Discussion of availability of data	[Signature] Farwa Batool
4	23/09/25	Faculty office	Discussion of methodology	[Signature] Farwa Batool

Progress Satisfactory

Progress Unsatisfactory

Remarks: Progress is satisfactory, hopefully student will complete on time.

Signature of Supervisor: _____

Date: 3/11/2025

Name: Ayesha Zareef Note:

Students attach 1st & 2nd half progress report at the end of spiral copy.



Bahria University
Islamabad Campus

RC-04

BBA
MBA

2nd Half Semester Progress Report & Thesis Approval Statement

Name of Student(s)	Farwa Batool, Khizer Hussain, Arbab Shayan			
Enrollment No.	01-11221-027, 01-11221-045, 01-11221-021			
Thesis/Project Title	Procurement, regulatory & SCM challenges in establishing a private multi speciality OPD healthcare facility "Capital Medical Center"			
Supervisor Student Meeting Record				
No.	Date	Place of Meeting	Topic Discussed	Signature of Student
5	11/12/2025	Faculty office	Testing and outcomes	[Signature] Arbab Shayan
6	15/12/25	Faculty office	Limitations and conclusions	[Signature] Arbab Shayan
7	16/12/25	Faculty office	Project overview and final formatting	[Signature] Arbab Shayan

APPROVAL FOR EXAMINATION

Candidates' Name: Farwa Batool, Khizer Hussain, Arbab Shayan Enrollment No: 01-11221-027, 01-11221-045, 01-11221-021

Project/Thesis Title: Procurement, regulatory and SCM challenges in establishing a private multi speciality OPD healthcare facility "Capital Medical Center"

I hereby certify that the above candidates' thesis/project has been completed to my satisfaction and, to my belief, its standard appropriate for submission for examination. I have also conducted plagiarism test of this thesis using HEC prescribed software and found similarity index at 5% that is within the permissible limit set by the HEC for thesis/ project BBA/MBA. I have also found the thesis/project in a format recognized by the department of Business Studies.

Signature of Supervisor: [Signature] Date: 17/12/25

Name: Ayesha Zareef

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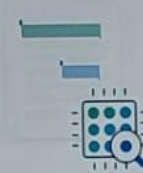
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What does 'qualifying text' mean?

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