

"A Case Study of Fatehgarh Sahib for E-Healthcare System"

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ABSTRACT

The objective of E-governance is to offer resident-centric facilities concentrating on the resident & guaranteeing increased answerability & transparency in service dealings with the government establishments and deptts. Governments at world-wide level are concentrating on lessening of manual manner of communications so as to deliver dependability, service efficacy and drop in processing period of workflow situation. We are living in a digital world and most of the daily work life is dependent on information system utility such as Internet/Intranet, IT tools and services. However, Information System (IS) have revolutionised the way, in which we live and work. It has changed all aspects of our life style. The digital revolution has given mankind the ability, to transmit it with high accuracy, to manipulate it, to treat the information with mathematical precision followed by valid arguments. The study plays a major role in addressing the gap and pitfalls in the current scenario in delivering of Health Services to the people of district Fatehgarh Sahib. The various aspects how Information Systems can improve the health services being provided to the population of FGS is mentioned. The paper is theoretical and is based on qualitative research and collected data from secondary sources of information. With the help of Information Systems quality and timely health services can be provided to treat the patients and decrease the mortality rate.

Keywords: research, study, Information Systems

1. INTRODUCTION TO E-GOVERNANCE

The objective of E-governance is to offer resident-centric facilities concentrating on the resident & guaranteeing increased answerability & transparency in service dealings with the government establishments and deptts. Governments at world-wide level are concentrating on lessening of manual manner of communications so as to deliver dependability, service efficacy and drop in processing period of workflow situation. Approachability to remote zones, user-friendliness and capacities are several of vivacious success aspects for any E-governance initiative & government deptts at the world-wide level are leveraging the progression in Information Technology to diminish digital divide & to propel these initiatives.

The classifications of e-governance applications are given below:

1. Government to Government (G2G)

It comprises all sorts of exchanges which happen between one govt & other govt e.g. in a democratic Nation like INDIA between Central govt & state govt or UT administration. It contains business taking place between the deptts & establishments of one govt & authorities and divisions of the other govt. In this instance recurrent communication passing also happens between the deptts.

2. Government to Enterprise (G2E)

It comprises all types of communications between govt deptts, establishments and the public sector institutions like State Electricity board, State water corporation & Municipal Corporations. These organizations are truly regulated & controlled by the govts. The principal tests in these interfaces are policy executions, safety & accountability.

3. Government to Business (G2B)

It embraces all forms of interactions amid the govt & the business. e.g. in terms of assortment of tariffs, agreement management which takes place in the workflow of govt policy execution and other tasks.

4. Government to Consumer (G2C)

These are those exchanges which befall when the govt is offering its services to resident or consumer. The services fluctuate from a request resolution to introductory a workflow linked situations.

An E-governance arrangement can only be fruitful if it is dependable, profitable & informal to maintain. The private sector has already seen the rise of E-commerce, E-business in preceding decade & its incredible triumph which has transformed the life of residents. Govt can shape upon this chance & offer effective and swift services to residents who live in farthest of areas.

Govt can apply E-governance as a instrument for forecasting, operationalization & appraisal of ground situation of country.

Challenges of E-governance:

1. Data Scaling
2. Auditing & Logging
3. Rolling out new instances, Replication and Migration.
4. Disaster Recovery
5. Performance & Scalability
6. Reporting & Intelligence
7. Policy Management
8. System Integration & Legacy Software
9. Obsolete technologies and migration to new technologies
10. Going Green

2. INFORMATION SYSTEMS

We are living in a digital world and most of the daily work life is dependent on information system utility such as Internet/Intranet, IT tools and services. However, Information System (IS) have revolutionised the way, in which we live and work. It has changed all aspects of our life style. The digital revolution has given mankind the ability, to transmit it with high accuracy, to manipulate it, to treat the information with mathematical precision followed by valid arguments. These capabilities are bringing into being, a whole world within the existing physical world. The amount of calculation power (with special reference to digital world) that is available to mankind has increased at an alarming rate and communication and Information Systems is becoming integral parts. At the organizational level, Information Systems should assist in formulation of strategies of the organization and also in specifying the required objectives.

Information Systems should also aid in supporting and developing of goals and procedures to achieve them. In organization; at the department level, IS must ensure a smooth flow of information across departments in the organization as well as at inter-organization level, and should guide organization to adopt the most appropriate business practices. At prime level, Information Systems develops and maintains an enterprise-wide database. The database will eliminate the need of the isolated data islands that existed and in each department and make the organization's data accessible across the departmental boundaries to the other stakeholders. This enterprise-wide sharing has many benefits like, faster response times, availability of high quality information for better decision making and automation of procedures. Information Systems has dramatically influenced all the areas of the company and all the sectors of industry. In a company be it finance, marketing, supply chain and HR all of them utilize Information Systems to gain a competitive edge in the market.

Due to the recent advances in the Information Systems including internet there have been instances where there have been significant cost savings throughout the complete supply chain. Also Information Systems can be helpful for the strategic planning by the stakeholders of the supply chain management to achieve competitive advantage.

In the past decade there has been focus on the utilization of the Information Systems in the supply chain for the cost reductions. These cost reductions were parts of supply chain. But now due to convergence of technologies of Information Systems including internet technology can be used in a novel way to meet the Sustainability requirement of the organization. Here the focus of use of Information Systems is not only the economic aspect but also on the environmental performance of organisation and other stakeholders and also social performance of organisation.

The following are different types of Information Systems:

1. ERP (Enterprise Resource Planning)

Enterprise Resource Planning (ERP) Systems are basically Enterprise-wide Information Systems used for automation of all functions and activities of a business. These are integrated across the whole business and are transaction-based information systems. They capture data for the whole business into a single computer package which's a single source for all the key business information activities, such as financials, customer orders and inventory.

2. WMS (Warehouse Management System)

Warehouse management systems are systems that control all the traditional functions and activities of warehouse operations. Areas covered by WMS include, allocation or recording of storage locations, order picking, order assembly and stock rotation, production of picking instructions or lists. Some systems are used in association with radio frequency communication equipment. These are highly sophisticated and technically sound systems that control the operations of fully automated warehouses.

3. IMS (Inventory Management System)

The systems work in a circular process, tracking of purchase to monitoring of inventory to re-ordering and back around again. They have the ability to tracking of sales and available inventory, communicate with suppliers in near real-time and receive and incorporate other data, such as seasonal demand. They should be flexible, allowing for a merchant's intuition. And, they should tell a storeowner when it's time to reorder and how much to purchase.

4. TMS (Transport Management System)

Transportation Management Systems lead to visibility in shipments and orders. Scheduling issues are solved on time with the help of TMS. Multiple transportation options can be utilized as a result of earlier visibility into the supply chain. Timely communication and status reports are also obtained. By having control on its supply chain, companies can make efficient routing decisions. Implementation of the TMS system results in target vendors increased speed and efficiency when they submit the relevant freight information electronically. The TMS results in reduced administrative overheads, improved cost controls and better labour planning.

5. RFID (Radio Frequency Identification)

RFID in manufacturing processes leads to less manual work, less costs, improved visibility and improved planning. In warehouse processes it leads to visibility of accurate real-time information, fast locating of products, possibility to record losses and ability to plan product locations strategically. In container management and tracking offers visibility of real-time cargo movement, improves efficiency, increases accuracy and reduces distribution costs.

6. EDI (Electronic Data Interchange)

EDI is useful for effective and efficient supply chain because EDI reduces lead time, saves documentation processing costs, clarify inventory status information eliminate procurement errors and enhance strategic alliances throughout supply chain. EDI plays various important roles in supply chain management. These roles are classified as electronic integration, electronic marketplace, information diffusion and sharing.

7. DSS (Decision Support System)

Interorganizational DSS may facilitate shared decision making between two organizations, help increase collaboration in a supply chain and support decisions of a certain group of individuals. An inter-organizational DSS may provide stakeholders with access to a provider company's intranet and features to use certain capabilities.

8. GIS (Geographical Information System)

GIS mapping ties many different data sources together so instead of looking at spreadsheets, users can have a visual picture of what is going on in the supply chain at their fingertips. GIS uses GPS technology for location purposes, but GIS adds data in a way that allows the users to make intelligent strategic and tactical decisions. GIS is used for risk management and real-time planning.

3. Objective of Study

- The First objective of the study is to throw light on E-governance & Information Systems..
- The Second objective of the study is to know more about "Healthcare Services in Fatehgarh Sahib" in detail and all the facets associated with the same.

- The Third objective of the study is to give the audience an idea about how Information Systems can play role in “Healthcare Services in Fatehgarh Sahib” and further suggesting a direction for future research in same.

4. Methodology of study

- The methodology of the research work is derived from the systematic and theoretical analysis of the methods to evaluate correct specific method for application. It constitutes qualitative techniques.
- This study is Qualitative in nature and is conducted based on the data collected from secondary sources of information such as published reports, journal articles, newspapers and magazines.

5. Case Study: “Healthcare Services in district Fatehgarh Sahib”

In fatehgarh Sahib district there is district civil hospital as well as Primary Health Centers & Community Health Centers in villages of district. These are established to provide quality & timely healthcare services to population of FGS. The current scenario of the health services provided with the help of PHCs is discussed below. Then the various aspects how Information Systems can improve the health services being provided to the population of FGS is mentioned.

The healthcare professionals working in PHCs of FGS are these:

1. MBBS/MD docs (Medical officer-PCMS)
2. Pharmacist
3. Staff Nurse
4. Attendant
5. Lab Technician

1. Doctors

MBBS docs & MD docs (Specialists) posted at these PHCs have work timings from 9AM to 1PM & 2PM to 4 PM. Now MBBS doctors use their study of MBBS 5 yrs duration especially experience gained in Internship & also experience acquired while working in Medical Colleges/Hospitals after Internship.

If the availability of MD doctors (Specialist) then MBBS docs will give first treatment depending upon the condition of patient & refer them to higher center and explain him/relatives Risk as per their experience. The patient may or may not survive during the time they reach higher Centre for treatment. There can be situation that for some reason the MD doc specialist is not available in PHC during 9 to 4 and after 4 till next morning. This can lead to High mortality rate.

With the help of Information System this High mortality Rate can be decreased drastically.

MBBS docs can consult MD docs specialist for their medical advise on landline phone. They can also contact on mobile phone specifically on whatsapp. Through whatsapp they can have video call & show the patient, they can click photos & send photos showing symptoms of patient. They can make MMS & send to Specialist Docs. They can use the SMS option to contact docs when MD doc cannot take their call/Reply on whatsapp. They can do conference call using mobile phone in case medical advise is required from more than 1 MD doc. Using mobile phone call recording option the MBBS doc can listen to the call done to MD doctor again & again can have better understanding of medical advise. Also MBBS doc can shoot an E-mail to MD docs alongwith attachments when the time available for treating patient is more. The MBBS docs can send via whatsapp/Email the X-rays/all the diagnostic reports required for medical advise from MD docs. So with the help of Information Systems even if there is lack of physical availability of MD docs in rural PHCs but still the MBBS doc can treat the patients very well and decrease the mortality rate.

2. Pharmacists

Pharmacists posted in PHCs of FGS are having education qualifications as D.Pharm/B.Pharm as well as experience also. They alongwith Chemist shops in rural areas provide medicines as prescribed by the Docs. Normally Manual process is followed in PHCs by Pharmacists. In this process Pharmacists place order of medicines required on daily basis, weekly basis, monthly basis, fortnightly basis & demand basis. The demand includes medicines like anti-biotics common for various diseases/illnesses & frequency of patients visiting PHCs. The cost of medicine from PHCs have to be rate competitive to rate of medicines offered by Chemist Shop in area of PHCs.

The entire Manual process mentioned above can be automated using Information Systems. Mainly pharmacists can make use of Inventory Management System & get it customized as per their requirement.

Some queries which Information System will address:

1. What is the entire manual process?
2. What is the Role of Pharmacist in Manual process?
3. What problems/issues Pharmacists face in Manual process?

Information Systems can automate the entire manual process. Then IS professionals will educate pharmacists/users about the automated process using software/hardware, how they will use Software/hardware on daily process, they will give feedback about issues faced by them while using IS.

Pharmacists when use the IS then they can place bulk orders for medicines with quantity/brand/salt/technical specifications/Name very easily and quickly.

Pharmacists usually maintain Stock Register (Indent Register) to keep record of entries but with the help of IS it is much easy to do entry/track/update & saving of papers & user friendly.

Pharmacists with the use of IS can have option of Report Generation on daily basis, weekly basis, monthly basis, fortnightly basis, demand basis & analyze them & send these reports to concerned department. The report analysis will bring transparency & efficiency in the working of pharmacy dept of PHCs.

The advantages provided by the IS are given below:

1. Accuracy
2. Consistency
3. Faster
4. Reduced Costs
5. Reliability

3. Staff Nurses

In case of MBBS docs/MD docs are not available in the working time or after that (Govt PHCs rural areas suffer because of lack of attendance of docs) then staff Nurses can use the Information System in the similar way as used by the MBBS docs as explained above. If staff Nurses are not able to consult MBBS/MD docs due to some reasons then with using of IS they can consult Senior Staff Nurses of PHCs or district civil hospital or Higher Centers.

4. Attendants

The attendants of PHCs are the face of PHCs who attend patients visiting PHCs and answer their queries & guide them to concerned doctor, who attend the representatives of Government authorities specially health sector, who attend the officers from the Police/Investigating Agencies.

Attendants who are proficient in local language guide patients for preparation of medical certificate, concession in Tests costs, concession in medicine costs. They help doctors, staff nurses, pharmacists, Lab technician in their daily routine tasks. They also help the above staff in administration tasks. Attendants once trained in Information Systems can use them in similar way as docs/Nurse/Pharmacist & contribute in providing quality healthcare services.

5. Lab Technician

Lab Technician conduct the various tests like CBC, Haemoglobin etc other tests in the PHCs for which they have facilities & then provide diagnostic reports in stipulated time.

Lab Technicians can use Information Systems to send the Report through whatsapp/E-mail directly to the patient in pdf format as well as to the doctors at the same time. They can also contact the docs/staff not available physically in the working time in PHCs, after that using Information Systems. Lab Technicians using Information Systems can generate Reports on monthly basis/other basis based on the test reports of all the patient in month & analyze them send to Incharge PHC as well as to the Govt Health officials for better Medical Policy making and implementation.

CONCLUSIONS AND FUTURE SCOPE

This Research Paper introduces E-governance and Information Systems. It explains the “Healthcare Services in Fatehgarh Sahib” in detail. It plays a major role in addressing the gap and pitfalls in the current scenario in delivering of Health Services to the people of district Fatehgarh Sahib. This Research paper is theoretical in nature and data was collected from secondary sources such as thesis, research papers, magazines ,reports etc In my viewpoint I would like to state that it depends on the government/administration how well it makes use of Information Systems in improving the delivery of Health care services to the population of Fatehgarh Sahib and making it a healthy district. The same model can be implemented across all the districts of state of Punjab as well as across INDIA.The research approach followed in this research paper is qualitative. Further scope of research is also there where the theoretical framework can be proposed and tested by statistical tools and techniques.

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