

Study on Impact of Digitalization of The Healthcare Sector in India: Process Flow of Health-Tech Companies in it

By

Shubhangi Pandey

*Dissertation submitted for the partial fulfillment of the
MBA Rural Management*

Academic year, 2016-2018



The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

Study on Impact of Digitalization of The Healthcare Sector in India: Process Flow of Health-Tech Companies in it

By

Shubhangi Pandey

*Dissertation submitted for the partial fulfillment of the
MBA Rural Management*

Academic year, 2016-2018

Credihealth, Gurugram



The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

TO WHOMSOEVER MAY CONCERN

This is to certify that **Dr. Shubhangi Pandey** student of MBA Rural Management from The IIHMR University, Jaipur has undergone dissertation at **Credihealth, Gurugram** from **5th Feb 2018 to 4th May-2018**.

The Candidate has successfully carried out the study designated to her during dissertation training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

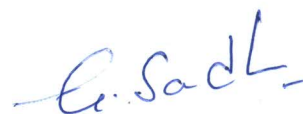
I wish her all success in all his future endeavors.



Dr (Col) Ashok Kaushik

Dean, Academics and Student Affairs

The IIHMR University, Jaipur



Dr. Goutam Sadhu

Dean, School Of Development Studies

The IIHMR University, Jaipur

Appendix E (Certificate of completion of Internship/dissertation for the duration of at least three months from the organisation. (Suggested format.)

To be obtained on official stationery

The certificate is awarded to

Name Dr. SHUBHANGI PANDEY

In recognition of having successfully completed her
Internship in the department of

Name of Department BUSINESS DEVELOPMENT

and has successfully completed her Project on

Title of the Project "A STUDY ON IMPACT OF
DIGITALIZATION OF THE HEALTH-
CARE SECTOR IN INDIA.
ROLE OF HEALTH-TECH
COMPANIES IN IT. CREDIHEALTH"

Date 4.05.2018

Organization CREDIHEALTH

He/ She comes across as a committed, sincere & diligent person who has a
strong drive and zeal for learning

We wish him/her all the best for future endeavors

Chin/Sikha
04/05/18
Training & Development


Akanksha
4/05/18
Zonal Head-Human Resources

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation **A study on impact of digitalization of the healthcare sector in India: Process flow of Health-Tech companies in it, from CREDIHEALTH,GURUGRAM**, submitted by **DR. SHUBHANGI PANDEY** Enrollment No- **IIHMR-U/03/2016-18/0013** under the supervision of **DR. GOUTAM SADHU** for award of **MBA in Rural Management** of the University carried out during the period from **2nd FEBRUARY 2018 to 4th MAY 2018** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.


Signature

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that all the ethical issues have been considered while collecting data for my dissertation titled A study on impact of digitalization of the healthcare sector in India: Process flow of Health-Tech companies in it at Credihealth, Gurugram.


SIGNATURE

TABLE OF CONTENT

ABOUT THE ORGANIZATION	11
INTRODUCTION.....	17
INTERPRETATION	25
PROCESS FLOW-	31
SUGGESTIONS-	43
THE RURAL MODEL.....	45
BIBLIOGRAPHY	47

LIST OF TABLES

S. NO.	TITLE	PAGENO.
TABLE 1.	HEALTH SECTOR KEY PLAYERS IN THE MARKET	31
TABLE 2.	PPROCEDURE COST COMPARASION	33

LIST OF FIGURES

S. NO.	TITLE	PAGE NO.
FIGURE 1.	CUSTOMER ACQUISITION FUNNEL	22
FIGURE 2.1	CITY WISE COMPARASION BETWEEN CONVERSION RATIO	25
FIGURE 2.2	CITY WISE COMPARASION OF SEARCH ATTRIBUTE- PROFILE OF DOCTORS	26
FIGURE 2.3	CITY WISE COMPARASION OF SEARCH ATTRIBUTE- PROFILE OF HOSPITAL	27
FIGURE 2.4	SOURCE OF PATIENT REQUEST FOR DELHI(NCR)	28
FIGURE 2.5	SEARCH ATTRIBUTES FOR DELHI (NCR)	29
FIGURE 3.	HEALTHCARE SECTOR GROWTH TREND	33

ABBREVIATIONS

BI	Business Intelligence
CAGR	Compound Annual Growth Rate
CH	Credihealth
EDI	Electronic Data Interchange
F	Forecast
HI	Health Informatics
IPD	In Patient Department
IT	Information Technology
OPD	Out Patient Department
SAARC	South Asian Association For Regional Cooperation
UX	User Experince

A study on Impact of digitalization of the healthcare sector in India: Process Flow of Health-Tech companies in it. CREDIHEALTH

Credihealth: Aapka healthPartner

By

Dr. Shubhangi Pandey

Acknowledgment

Internship is successful largely due to the effort of a number of dexterous people who have always provide me with valuable advices and lent a helping hand in need. I sincerely appreciate the inspiration support and guidance of all those people who have been instrumental in making this summer training a success.

I, **Dr. SHUBHANGI PANDEY**, student of IIHMR University, Jaipur, consider it a honor and privilege to work as a business development associate at **CREDIHEALTH, Gurgaon** for a span of 3 months.

At this juncture, I feel honored in expressing my sincere thanks and gratitude to my **Mentor, Dr. VineetSikka** Assistant Vice President, Marketing and **Mr. Gaurav Gupta** Vice President, Credihealth, Gurgaon, for the confidence bestowed in me and for making resources available to me at right time and providing me with valuable insights leading to successful completion of my projects during dissertation period.

I would also wish to take this opportunity to extend special thanks to **Mr. RaviVirmani**, Founder & MD, Credihealth for their aspiring guidance, invaluable constructive criticism and friendly advices during the training period.

I am obliged to all the staff members of all the **departments of Credihealth** for the valuable information provided by them in their respective fields. I am grateful for their co-operation during the course of my training period.

I express my heartfelt appreciation to **IIHMR University** for providing the dissertation opportunity and owe my profound gratitude to my **College Guide Dr. Gautam Sadhu Dean, School of Rural Management, IIHMR University, Jaipur**, who helped me throughout for solving various doubts and queries.

I would also like to thanks my friends Dr. Supriya Agnihotri, Mr. Manu Mehra, for always helping me in times of need and support. At the end, I would like to thank God for allowing me to complete my project, my family and friends for being a constant source of inspiration to me.

Dr Shubhangi Pandey

MBA RM 05, 0013

The IIHMR University, Jaipur

ABSTRACT

Title: A study on Impact of digitalization of the healthcare sector in india:
Role of Health-tech companies in it. Credihealth.

Author: Dr.Shubhangi Pandey

Guided By: Dr.Gautam Sadhu

1.Background:

“Digital” this word has reshaped the health-care delivery in India. In the present scenario both private players as well as the government departments are recognizing the importance of efficient patient engagement and clinical proficiency in Healthcare system. Globally patients and health providers alike are getting comfortable using digital networks/ services, in India albeit some unique challenges in terms of demographics and infrastructure remain. This is where digitization is now assisting in creating new healthcare models specific to suit these requirements leveraging technologies like mobile, social, cloud, analytics, and the internet of things.

According to a Gartner report Healthcare providers in India are expected to spend \$1.2 billion (USD) on IT products and services in 2016, which includes spending by healthcare providers on internal services, software, IT services, data centre systems, devices and telecom services. We feel that big data will definitely change the way healthcare is delivered by creating collaborations and virtual platforms will help reduce healthcare costs and improve the quality of a Digital health is not only improving patient care, but also the entire customer experience, which is increasingly important as consumers take a retail approach towards healthcare. Smart communication devices are helping healthcare providers and patients monitor and manage illness, treatment and recovery. Oracle has a strong presence in healthcare industry with technology and applications developed to meet the specific needs of providers, patients and payers. The company offers comprehensive suite of solutions and products for better collaboration and quality patient care, which includes multiple solutions from Accounting, Health Information Exchange, Patient Data Management, Cloud framework to Predictive Analytics and BI.

The healthcare industry business model is continuously evolving. Some of the challenges that this sector is facing today arise due to inflexible, expensive and obsolete legacy IT systems and a lack of updated business and operating model relevant to the customer. Some of the key solutions that are driving this sector today are Digital Health, Pharmacy Solutions, Claims Management, Clinical Trial Solutions, EDI Modernisation, and Point-of-Sale Technology, along with focused development of technology services like Agile IT, Legacy

Modernization, Digital Insurance, Knowledge Management, Data Warehouse & Analytics and UX—User Experience.

Also the commendable role of medical tourism in the present scenario cannot be neglected medical tourism has bind the whole wide world into a small pinball where people of different nationalities are going across their borders to get cost effective medical treatment done which is at par with the medical standards of their nation but on the other hand way cheaper as compared to medical expenditure in the first world.

Now a days through this channel of digitalization India has become a hub of medical tourism reason-

1. Top notch doctors in India
2. World class medical facilities
3. Cost effective treatment.

With an estimated market size of 100 billion USD in 2015, one of the fastest growing industries in India is healthcare. What makes this industry even more attractive is the strong potential for impact based on the number of challenges it faces in its health profile, accessibility, affordability and quality. Healthcare in India is a prime candidate for investment for foreign investors, especially through digital interventions, and this trend is already picking up. India currently has the second largest CAGR in healthcare (11%) among all the BRIC countries (china first).Healthcare is one of the fastest growing industries and is expected to expand at a CAGR of 18.3% during 2012–20 to reach 280 billion USD.

Even looking at the current potential and to drive medical tourism more towards India even the Indian govt. Has made a portal especially for foreigner patients by the name of “Indian healthcare tourism.com” which provide an ease to international patients, it has all the detail from doctors to hospitals to even proving them accommodation their travelling visa and everything and all this has been possible only because of digitalization of healthcare sector.

The e-health companies have also given a huge contribution to it by making services easier for domestic as well as international customers. They are catering all the needs of especially international patients from providing them air tickets to receive them in airport and accompanying them through all the hospital procedure and post treatment. This trust and satisfaction is driving more and more business for India further expanding the healthcare sector.

Some studies predict that India’s Smartphone population will surpass that of the US in the next few years.More Indians are using their smart phones with 2G/3G/4G technology and broadband Internet to obtain basic necessities such as food and healthcare. As a result, consumers are looking for an Omnichannel experience from companies.These factors are further enhanced through India’s thriving entrepreneurial and start-up culture. India is ranked 3rd among middle-income economies in the Global Innovation Index.The public sector’s investment in this culture, through the Start-up India initiative, is adding to this interest.

1.1 Research Objectives:

1. To assess the gap in the digitalized healthcare system.
2. To study the process flow of e-healthcare companies
3. Role of Health-tech companies in leveraging these opportunities and bridging the gaps.

1.2 Methodology:

1. Study type- Descriptive study.
2. Study Area- Online data of Six Major Metropolitan Cities- Bangalore, Chennai, Delhi-NCR, Hyderabad, Kolkata and Mumbai and Four Minor Cities- Jaipur, Indore, Pune and Ranchi and international patient requests from Uae, u.k, other SAARC nations coming in the portal.
3. Study Area-Departments of the company as well as online data tracking of the company.
4. Study Period-Observation of the process flow of the organization as well as Tracking of data for Three months (February- April 2018)
5. Sample Size- Distant online data of 20000 people who visited the digital platforms of Credihealth was tracked.
6. Data Collection Technique-Online Data tracking (Website, Android app, telephonic, Google search, social media campaign leads)
7. Limitation in Data Collection: Missed CRM requests, Non responding Users, Untracked CRM Request.
8. Data Analysis- The data analysis will be done in MS Excel.

1.3 Results:

The analysis of the data demonstrated how digitalization has transformed the e-healthcare services as well as created boom for medical tourism in India. The results also illustrated the conversion rate of patients reaching the online portal- who were converted into either OPD or IPD. The study allowed us to find how the digitalization has helped in bridging gaps that existed in the old traditional healthcare sector in India.

1.4 Conclusion:

The study aimed at finding out the role digitalization has played in the massive makeover of the traditional healthcare system. Also, how these e-health care companies have made services accessible, affordable, and easy for both the domestic as well as international patients. This study gives an insight how digitalization of the healthcare sector and e-health companies together has changed the face of the health industry and has proved to be a sustainable, profitable model.

1.5 Key Words:

e-Health, Healthcare services, digitalization, medical tourism, digital platform, conversion rate.

2. About the Organization

Credihealth (CH), is a health-tech firm established in 2014, is the first Omni-channel player in the hospitalization/ inpatient business. The organization is currently operating in ten cities across India- Delhi NCR, Mumbai, Kolkata, Hyderabad, Chennai, Bangalore, Pune, Indore, Jaipur and Ranchi. It does not only cater the needs of domestic patients but has also expanded to cater the international patients from Africa, US, UK, UAE and most prominent being the patients from SAARC nations- Afghanistan, Bangladesh and Nepal. Credihealth is an **end to end solution** for hospitalization needs – from the very starting when the patients start to search for the right doctor, to scheduling of their appointments, diagnostics, surgeries & post-op care and continuous follow up of the patients by the credi team. It interacts with customers via website, mobile app, telephone & WhatsApp to provide them a complete solution. Recently the organization has changed their tagline to “Credihealth- aapka health partner” which refers to a firm who helps cater all the need of a patient from the moment a patient requests for a booking or for inquiry to their appointment to pre op post op procedure to a complete follow up.

Founded and led by Ravi Virmani – ex COO of Max Healthcare

2.1 Need to establish CH

Since every family has a healthcare need, CH helps navigate through the complex healthcare system and aspires to leverage technology to expand the healthcare boundaries, by enabling

a) **Access to Healthcare** through Information and Delivery

Information – Hospital and Doctor Credentials, Procedures, Treatments, Feedback, and healthcare content for the common man

Ensuring Delivery – CH serves as credible partner to support the patient through the entire experience of their hospital journey.

b) **Transparency**

CH empowers people to make informed healthcare decisions, by way of verified reviews, price comparisons, multiple treatment options and a belief that **now** there's a better way!

CH follows a disruptive model that challenges the conventions of traditional healthcare. The key differentiators are tie ups with marquee hospitals, medical guidance from in-house doctors, providing second opinions and referrals, comparable packages of different packages of procedures in various hospitals, Hospital- concierge services, articles, blogs, videos, ambulance services, tie-up with loan facilities.

Users can search for doctors based on specialty, procedure, symptom, location, doctor name or hospital name. The search can be further refined based on the area inside the city, availability, timings and consultation fee. Patients can directly book appointments from the search results, which display relevant doctors, their timings, fees, reviews and address.

Credihealth has a proprietary algorithm running in the backend, which lists doctors on the site based on relevance, location, experience and specialty, feedback from patients and appointment experience.

Credihealth involves the online organic search to get valuable consultations and further the treatment from the best doctors. Engagement can be low to moderate. It can be increased with bundling other forms of content in the app. Notifications can also work if they are related to free stuff. Retention can be moderate to high. High retention can occur for satisfied users. Since health care services are of high involvement, a great experience will not only retain users but also drive a lot of recommendations too.

2.2 Vision of CH

We envision a healthcare ecosystem where people from around the world can quickly find credible and reliable answers to their medical problems, along with easy access to the best healthcare experts to guide them towards a healthier, happier and more fulfilling life.

We aim to be the first port of call for customers having healthcare related need, doubt or query.

2.3 Mission of CH

To help people get credible information at the time of their need. Accidents can't be anticipated. Aged family members can fall sick at any time. Infants and children are fragile lives who require constant care. We at Credihealth aim to be your support system at the time of your need. Not just that, we recognize the constant increase in living expenses making medical bills more and more painful. Our overarching goal is to start 'The Right Cost Movement' in Indian Healthcare.

2.4 Conventional vsCredihealth scenario

The very moment a family member gets ill, the first point of information is our near friends and relatives to ask for the best service provider. The process follows as to first consult that GP- that usually is our family doctor, and moving forward to take second opinion for the same. Further, the patient lands up in the corresponding hospital based on the treatment advised and the urgency of the need. Meanwhile, what is missed out is the proper guidance in the process which burdens the family who is already in worry of their dear one.

Here Credihealth fits in. Credihealth provides the one-stop solution to every healthcare need- beginning from getting the extensive information to help users to make an informed decision by speaking to a empathizing medical expert, avoiding the long ques in the hospital, getting the estimated cost comparisons between different hospitals, getting the correct treatment route and also the post treatment care, all just a phone call away!

The best part is this new digitally advanced healthcare system provides all the information in just few minutes to the patient comfortably sitting back at their home.

2.5 Value Proposition to the Credi Users

- Hassle free experience - diagnostics, procedures and documentation
- Transparent medical costs with discounts passed directly to Patients; Prevent touts and unethical practices
- Access to a larger pool of doctors, hospitals, diagnostic centres
- Credi concierge, 1-on-1 direct contact & post-op support
- Provide additional knowledge & helps ease decision making
- Find best Doctor for Patient's needs; get second opinions before committing to a procedure

Credihealth enables users to make informed choices and manages the entire treatment lifecycle for patients

CH stands unique with a large network of more than 630 hospitals- mainly Apollo Hospitals, Fortis Group, Medanta, NarayanaHrudalaya, Jaslok, Columbia Asia, BLK, Artemis, Medica and AMRI. The start-up's service is free for users. It charges a subscription and market development fee from hospitals.

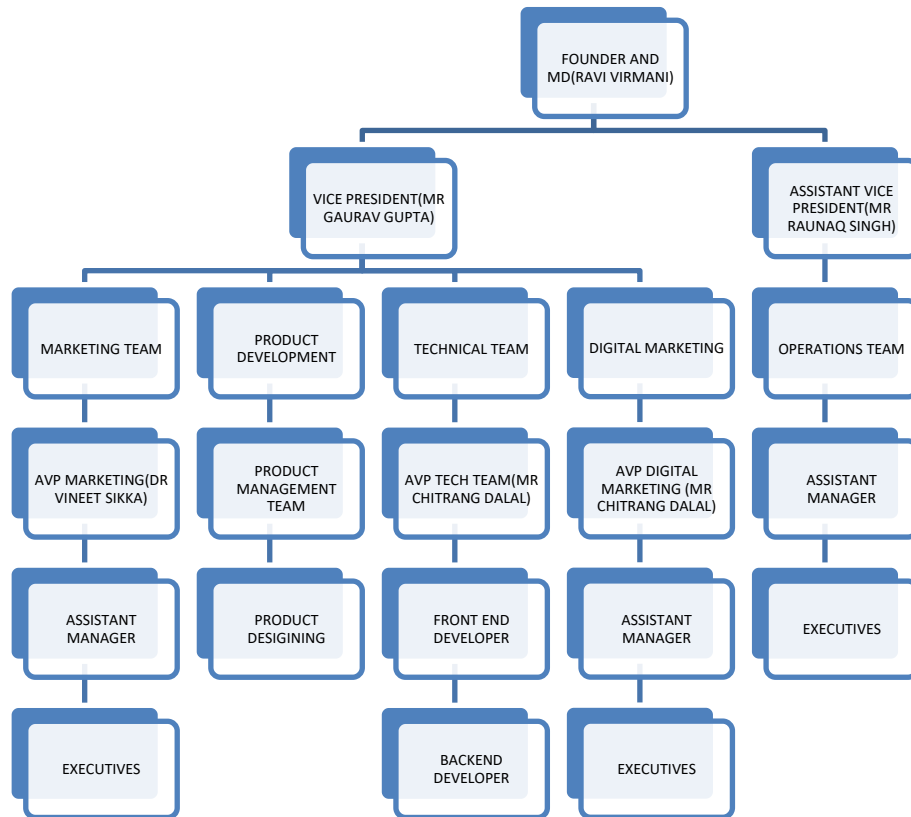
2.6 The Credi Team

The start-up is led by the clear vision of Mr. Ravi Virmani, Founder and Managing Director of Credihealth.

Credi Family comprises of:

- Operations team including all the medical professionals and patient care executives.
- Business Development Team
- Digital Marketing Team
- Product Operations Team
- Technical Team
- Management Team

ORGANOGRAM



2.7 How Credihealth Works

✓ CH provides Credible healthcare information on hospitals, doctors and treatments

- Search and short-list doctors and hospitals
- Select and compare from the largest hospital network in India
- Read from over a thousand articles on our health blog
- Watch hundreds of doctor interviews and patient feedback

✓ “Medical Assistance throughout hospitalization journey”

- Get cost estimate on procedures
- Personalized guidance by our in-house medical experts
- Doctors and hospitals options customized to your needs

- Get detailed information, make an informed decision
 - Share your hospital experience
 - Get cost estimates on procedures and treatments in hospitals
-
- ✓ **Book appointment and compare treatment prices**
 - Book your next doctor's visit from the comfort of your home
 - Request for treatment prices from hospitals from across India
 - Choose from the best hospital network
 - Have a smooth hospital journey

DISSERTATION REPORT

A study on impact of digitalization of the healthcare sector in India: Role of health- tech companies in it-Credihealth.

Introduction

Credihealth is into healthcare sector that serves as virtual point of contact with patients both domestic as well as international at the time of their healthcare need. We all are very well aware of this fact that each and every family at one or other point in their lives come across has a healthcare need.

Credihealth realizes this healthcare need and thus created 'An Online platform with a human touch'. In Modern healthcare system with rapidly expanding costs, Complexity of diseases and different types of treatment options one encounters a difficulty in making optimal treatment decision. Credihealth envisions supporting people through their entire hospitalization journey by providing correct and reliable information about hospitals, doctor's credentials, procedures, treatment, feedback and healthcare content for the common man.

To help in taking this right treatment decision, Credihealth employees are required to be completely aware of services delivered through it to bridge the gap between healthcare professional and the patient. This will not only ensure happy and satisfied patients but also increased productivity of employees, efficiency in their working and sustainability of this technology based online business model. Till date they have cater the needs of both the domestic patients and the international patient coming from various countries for medical assistance and procedure to our nation.

2. Review of Literature-

The Digital healthcare Leap, David McKeering, FEBRUARY 2017 states that over the past few years, few industries have seen such dramatic changes as in healthcare. On the one hand, the healthcare sector is strong and growing, with a value of \$3.2 trillion in the United States and it is estimated that Indian healthcare market to hit \$372 billion by 2022.

Indian healthcare on the cusp of a digital transformation, PWC India, Year 2017 reports that The gradual popularity of e-Health systems across the globe has emerged the need of extensive analysis for the identification and rectification of related issues. So that. High quality e-Health systems could be invented for the improvement of communal health. Hence, the main objective of this paper is to point out some of the challenges, opportunities and gaps related to e-Health systems which are identified during this study.

In e- Health a new perspective on global health(journal of evolution and technology) ,Gurjit kaur,Neena Gupta, Year 2006 it has identified and highlighted opportunities and gaps related e-Health systems and working of e-health companies that would be applied for system development in near future. So that, more reliable, user oriented and demand specific systems could be invented in near future.

The economic times , Mr Venkatadari Bobba ,July 04 2017 states that the Indian Healthcare market is expected to grow at a CAGR of 23% to USD 280bn by 2020 from USD 100bn in 2015. This growth is being driven by lifestyle diseases, an ageing population, rising income levels, increasing access to insurance and growing health awareness. This rapidly increasing need and demand for healthcare services puts immense pressure on various stakeholders to efficiently manage the scarce human resources and inadequate infrastructure while controlling the increasing cost burden on consumers and simultaneously providing better quality care and increased accessibility.

Some key issues which stakeholders have to solve in addition to efficient and effective utilization of the scarce resources being-accessibility, affordability, quality of care, telemedicine, smart health monitors, mobile health apps etc.

In Digitalization of healthcare industry: Using technology to transform care a CISCO study Year 2016,A recent Cisco survey showed that 45 percent of companies still do not view digital disruption, as a board-level concern, and only 25 percent consider that they are willing to disrupt them-selves to compete. To address these challenges, companies are increasingly investing in digital transformations that connect and enable analysis of every piece of data across channels, operation, and patient outreach. From providing personalized care options to gathering insights to addressing new care formats such as telemedicine and outpatient care, digital technologies are a crucial tool for providers, insurance and medical service industries.

Cisco a leader in Gartner's Magic Quadrant for contact ,Jeff Campbell ,23 june 2016 states in a recent Cisco survey showed that 45 percent of companies still do not view digital disruption as a board-level concern and only 25 percent consider that they are willing to disrupt them-selves to compete. Based on these figures, healthcare firms are leaving billions on the table in economic value over the next decade.

There is no doubt that digital transformation will markedly change how they do business. Many healthcare com-panies still run on traditional lines, based on older technologies; siloed information; and cumbersome, complex networks. To achieve such a transformation, you will need to make critical decisions about new technologies and vendors that provide value and address your business imperatives.

Health IT in Indian Healthcare System: A New Initiative,Sharma Kalpa, 27th march 2012 states that the purpose of this paper is to assess the current status of information system specifically in the areas of health sector, role of health information technology (HIT) and its importance in improving the delivery of health care services; to assess the challenges/issues faced and future recommendation to improve the status of health IT in India. Secondary data is used. Various articles and research papers published in national and international journals are used. India is hub of IT and its use is increasing in health sector. Currently HIT is used through electronic health records (HER); telemedicine; digital health knowledge resource; hospital information management system; e-learning technologies, health informatics etc.

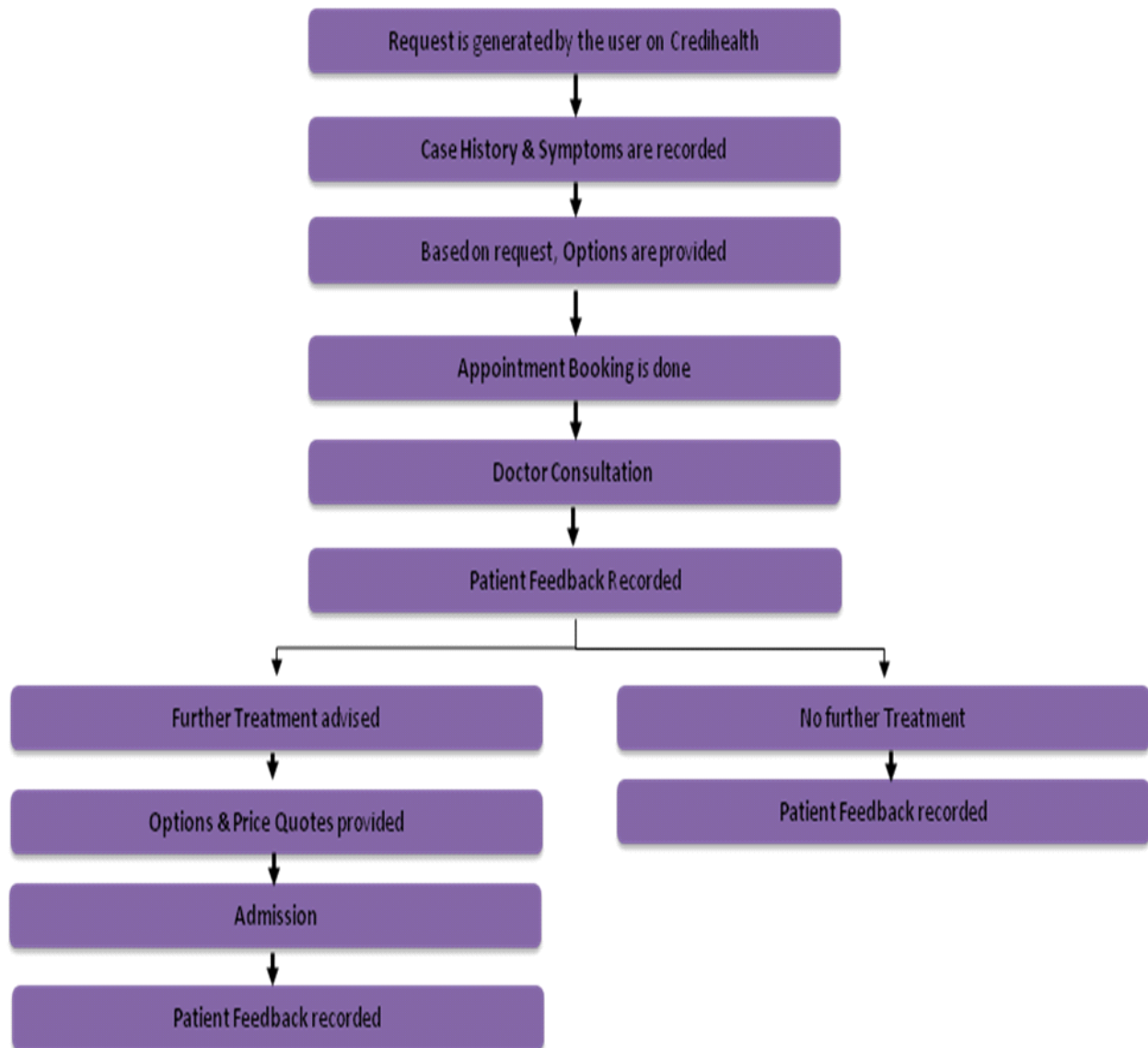
Conclusion Of Studies

By the various research papers books and journalist can be estimated that Indian Healthcare market is expected to grow at a CAGR of 23% to USD 280bn by 2020 from USD 100bn in 2015. This growth is being driven by lifestyle diseases, an ageing population, rising income levels, increasing access to insurance and growing health awareness.

This rapidly increasing need and demand for healthcare services puts immense pressure on various stakeholders to efficiently manage the scarce human resources and inadequate infrastructure while controlling the increasing cost burden on consumers and simultaneously providing better quality care and increased accessibility, role of health information technology and its importance in improving the delivery of health care services; to assess the challenges/issues faced and future recommendation to improve the status of health IT in India.

Also, this study has helped in and highlighting opportunities and gaps related e-Health systems and working of e-health companies that would be applied for system development in near future.

Internal Process Flow of Credihealth-

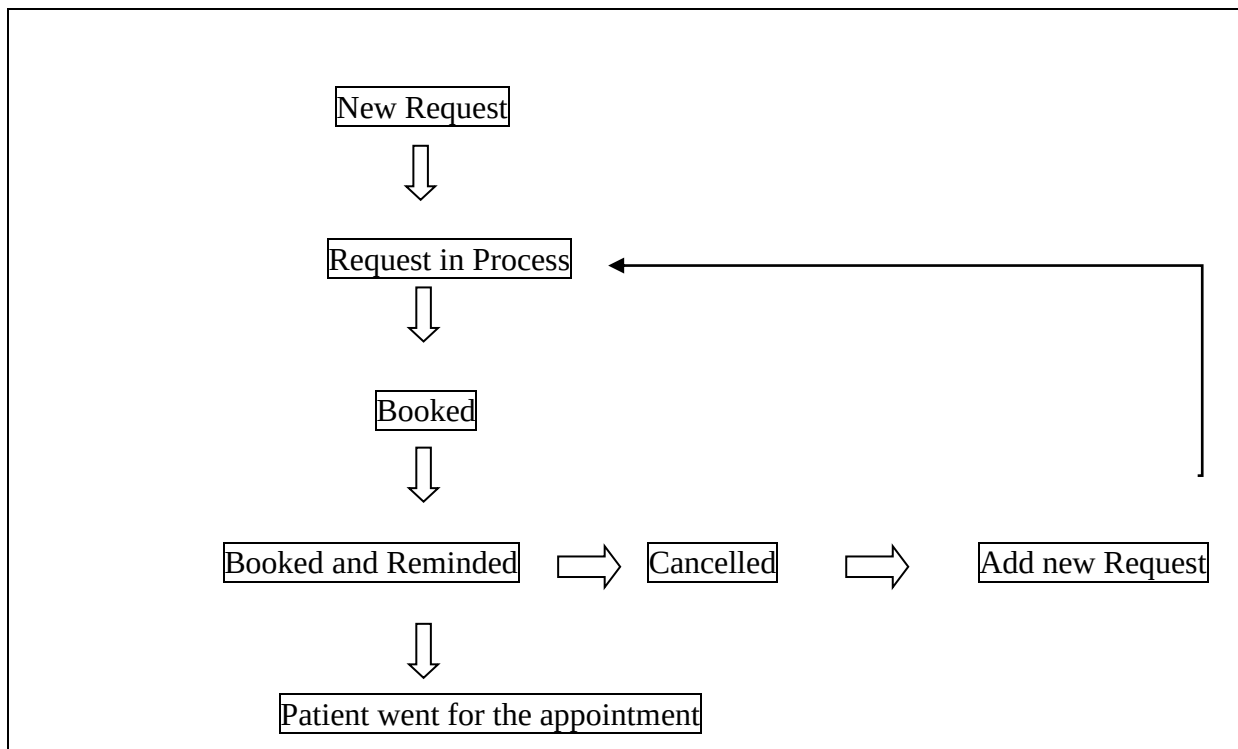


The process flow followed in Credihealth has three major features

- Discovery & Search - Online: Provide extensive information to help users make an informed decision on their treatment
- Comprehensive database of Hospitals & Doctors with their specialization and achievements.
 - Pre-recorded Doctor interviews, Articles and patient feedback on hospitalization and treatment
- Quality & Trust - The Personal touch:
 - In-house Doctor team provides reliable inputs & clarifications
 - Transparent comparison of procedure pricing across hospitals
- Convenience - Offline:
 - Project manages the entire hospitalization process for the user / patient through to post-op care.

Operational Process Flow

Website, Direct Call, Mobile application



Here,

- I) A request can come through various sources- Credihealth Website, Mobile application, Direct Call or various channels- social media campaign leads, Google search
- II) The new request handled by the medical expert is put into process.
- III) If the doctor and the slot is available for the particular date and time, the appointment is booked
- IV) The patient is reminded a day prior to the appointment date through system.
- V) After this, the booking can be either- cancelled and booked again or it may be converted.

3. Conversion Rate

The key challenge for any e-Healthcare market is not only to get the traffic reaching the site but its main concern being its retention, engagement and lifetime value. One of the crucial monitor of any service provider is the customer acquisition which can be calculated by the conversion rates in terms of booking to OPD and further conversion of OPD to IPD. It is the conversion rate that gives a clear picture about the provider whether the provider is actually putting up some action that pushes the consumer a bit further down the acquisition funnel.

Customer Acquisition Funnel

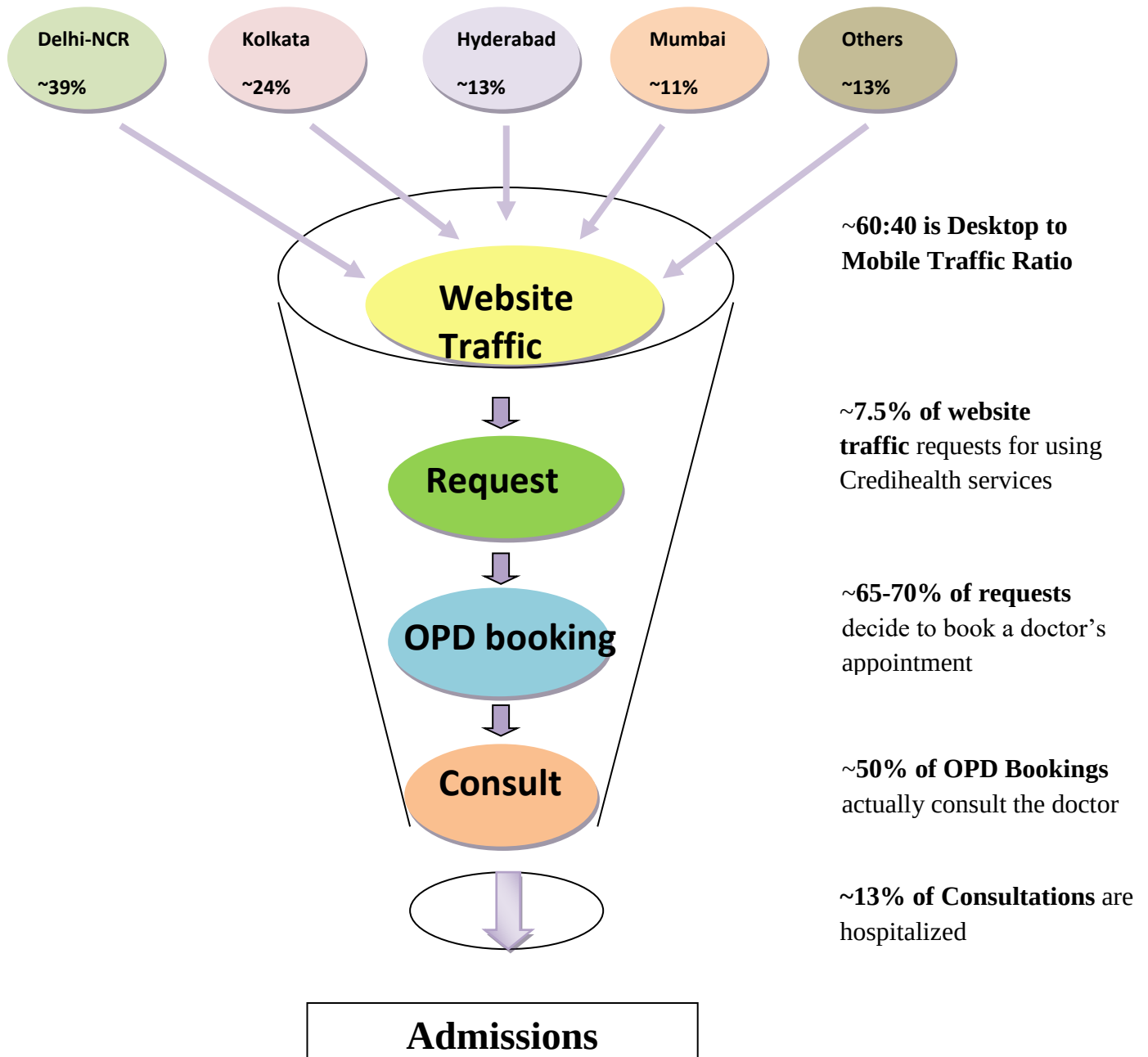


Figure1. Depicts the conversion rates in the overall process of Credihealth.

4. Results:

The study results show that OPD conversion rate is approximately half (51%) of the requests are filtered out of the funnel and 13% comes out as admissions.

5. Analysis and Findings:

Analysis

Steps of Conversions in the process:

1. The traffic generated at the Credihealth website is the team effort of the marketing or digital marketing team, through various sources of channels to reach Credihealth.
2. It is supported by the product and IT team. The request can come in any of the three way-appointment requests, call backs or tele-consultation.
3. This reaches the medical experts, who are the direct point of contact with the patients (Credi Consumers). The doctors assist the patient to the appropriate specialist or hospital of choice, which is confirmed by the patient care executives.
4. The same patient is followed up by the medical professionals, the next day of the appointment, which decides if patient requires further line of treatment or not.
5. The discovery team's role begins here to find out the admissions.

The overall analysis is made on the following basis:

- Total No. of Requests generated= approx 25000-30000
- Out of these requests, Sixty seven percent of cases were booked.
- Out of these cases booked, Fifty-one percent of the patients actually consulted.
- Further, out of these OPD consultations, approx Thirteen percent of the patients were admitted for further treatment plan.

Interpretation:

The overall conversion rate from requests generated to book an appointment reduces from Sixty-Seven percent to Fifty-one percent for consultations. This further converts merely Thirteen percent of patients to admissions.

Here,

Interpretation:

- Booking Percentage = No. of appointments booked / Total No. of requests *100
- Consultation Percentage = No. of Patients Consulted/ Total No. of appointments booked *100
- Admission Percentage = No. of Admissions/ Total No. of Patients consulted *100

Conversion Rate is the change in the status from new request to booking, from booking to consultation (OPD) and from consultation to admissions (IPD).

- The study focus on the OPD and IPD conversions.

Fig 2.1 City wise Comparison between the Conversion Ratios

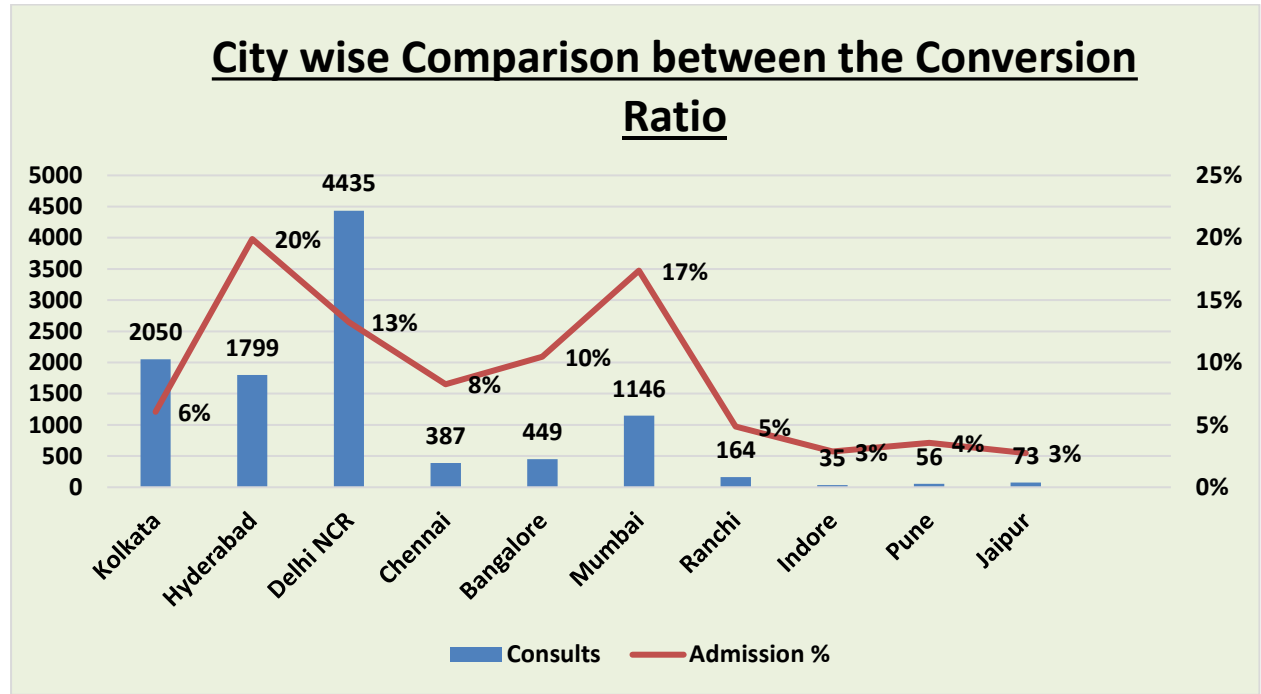
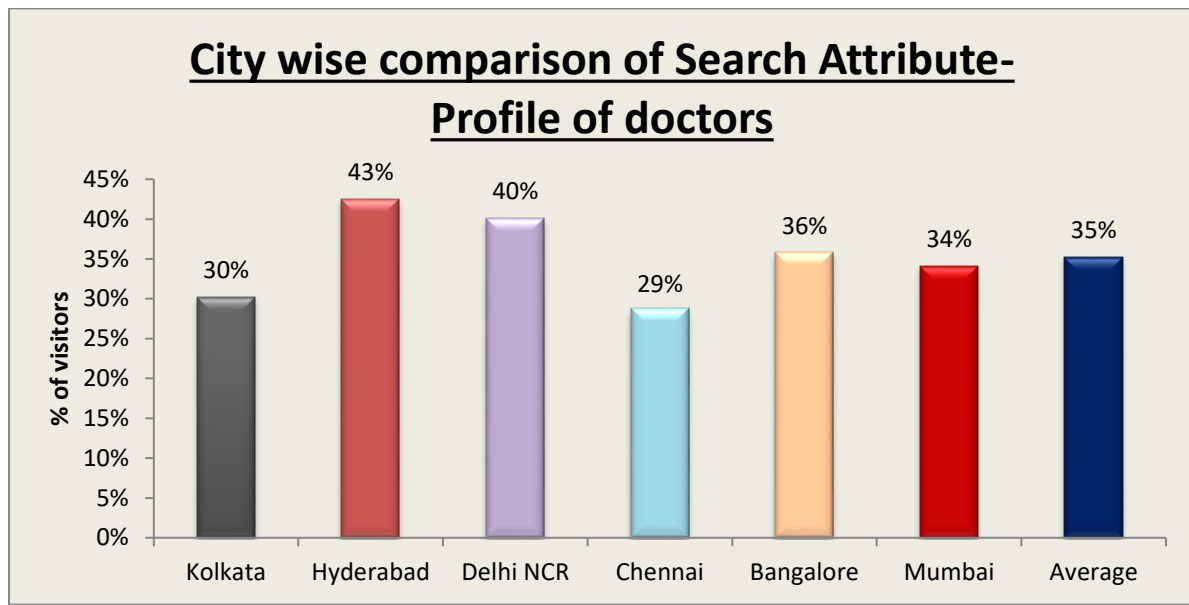


Figure 2.1 depict the number of patients turn up for the OPD consultation in hospital in different cities of India and the same predict that in Hyderabad the conversion rate is around one-fifth (20 per cent) which was found to be the highest compare to other cities, followed by 17 per cent in Mumbai and 13 per cent in NCR Delhi. The upcoming cities like Ranchi, Indore, Pune, and Jaipur has also conversion rate from 3 to 5 per cent.

Fig 2.2- City wise Comparison of Search Attribute- Profile of Doctors



Researcher try to understand the city wise attribute profile of doctors. Figure 2.2 clearly stated that more than one third (35 per cent) of the patients see the doctors profile before selection of hospital. Further analysis stated that more than two-fifth of the patients in Hyderabad consults doctors after seeing their profile. Delhi NCR (40 per cent) also has a similar trend closer to Hyderabad. Similarly, in other cities also patients prefer to review the doctor's profile before selecting the health care facilities and the information in CREDI-Health.

Fig 2.3- City wise Comparison of Search Attribute- Profile of Hospitals

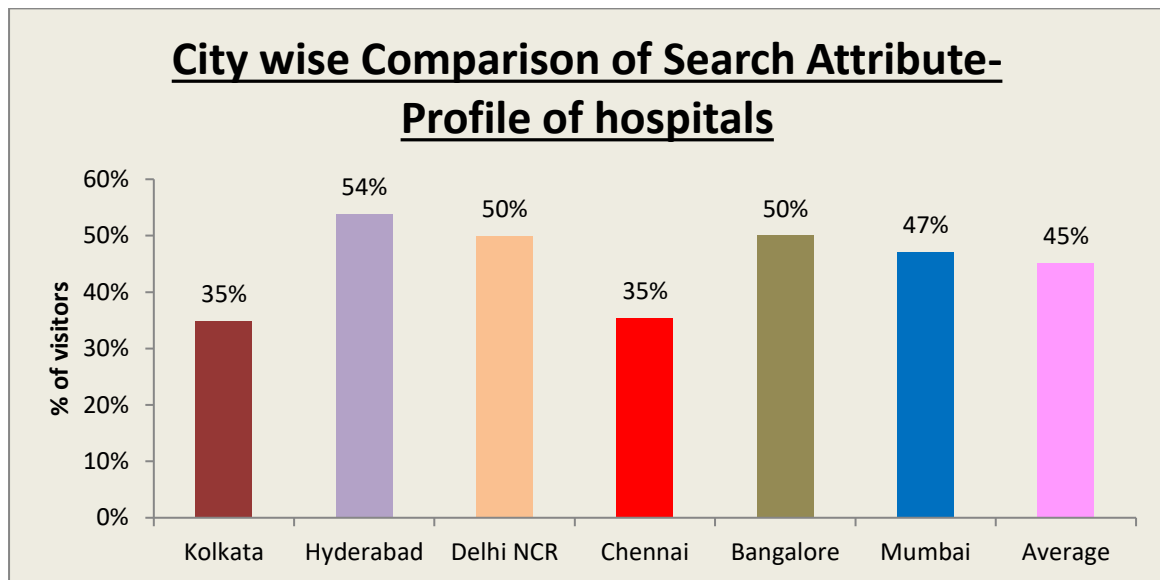


Figure 2.3 depicts the city wise comparison that the patients do online before deciding the facility they prefer for their treatment. Here we can analyse that the maximum search has been in Hyderabad along with Delhi(NCR) and Bangalore following this trend the other cities being Mumbai, Kolkatta and Chennai. Thus on an average little less than half (45 per cent) of the population prefer to use Credi-health portal to compare the profiles of the hospital before finally deciding upon the hospital where they will be getting treatment done.

Fig 2.4- Source Of Requests for Delhi NCR Region

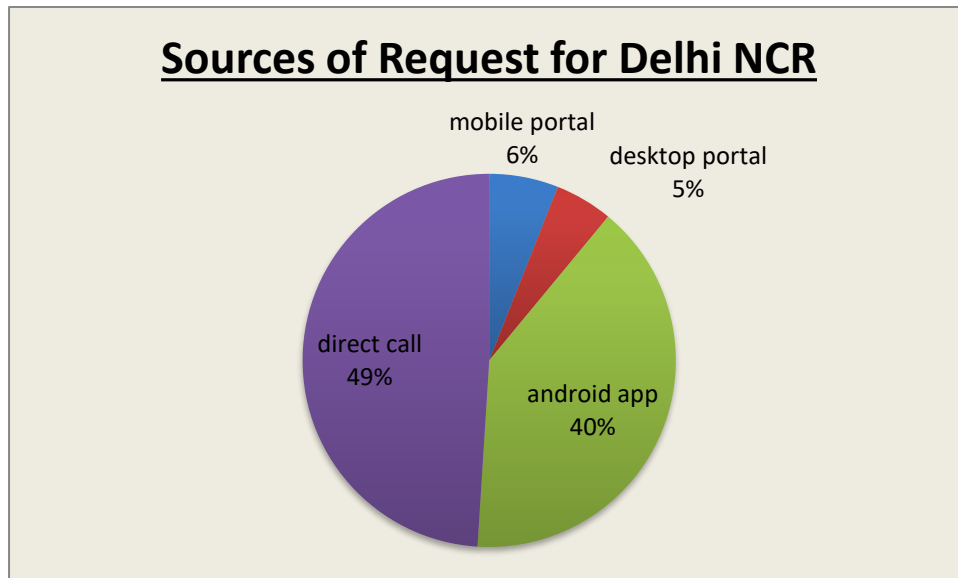


Figure 2.4 depicts the percentage distribution of the maximum number of patients (forty-nine percent) in Delhi NCR Region who directly choose to call the e-Healthcare service for medical assistance while 40 percent prefer the mobile application also the customer preferences of either choosing mobile portal is 6 percent where as those who prefer desktop portal are 5 percent. It can be interpreted by the following data that there is a huge population which via the medium of digital platform takes all their medical assistance.

Fig 2.5 Search Attributes for Delhi-NCR

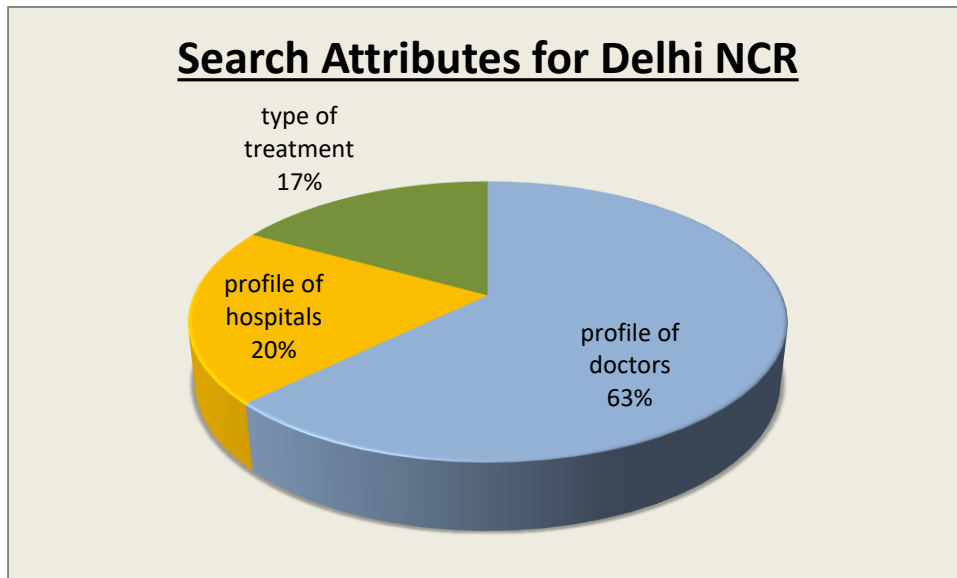


Figure 2.5 depicts that around 63 percent of the patients prefer to choose treatment after looking at the profile of the doctors. While one-fifth (20 percent) of the patients go through the profile of the hospital and 17 percent search the types for treatment that they require in Delhi(NCR) region. Thus with this data analysis it can be stated that people are using this medium of digital platform for catering their healthcare needs and also the data reflects that people find it more convenient than the normal traditional methods.

The dimensions of the Fig 2.2-2.5:

Android- The requests coming through the mobile application

Portal- The requests coming from the Credihealth websites

Call- The requests via direct calls

Profile Treatments- The requests generated after searching for the particular disease ailment

Search Doctors- The requests after searching the particular doctors, either suggested by the friends, family or referred by the doctors.

Profile Hospitals- The requests generated on selecting the particular hospital.

Profile Doctors- The patients are putting requests after looking the profile of the doctors

Process Flow-

6.1 For International patients.

- CrediHealth helps Indian and International consumers make informed decisions on Indian Healthcare providers.
- CrediHealth provides the most reliable, comprehensive, updated and validated information on your healthcare needs.
- Our goal is to support healthcare providers in helping people make the best possible healthcare decisions, online and offline, and by improving the quality of care, while saving time and lowering the costs of healthcare in this country.
- As per the data tracking it has been seen how digitalization has able to bridge the gap of medical tourism in India where earlier if other nationalities has to search for a doctor in India the only ray of hope were wither relatives residing in India otherwise agents who would take huge money from the patient including heavy commissions in each step from getting Visa to taking the patient from the airport to the hospital than the huge treatment cost and also no option of selection of hospital as wherever the agent is taking they have to go
- Now companies like credihealth has completely changed that scenario now for foreigner patient India is just a click away they visit the website of credihealth where they have large number of options of the hospitals as well as doctors profiles, cost comparasions through which they can according to their budget decide the best option and not only this Credihealth cater all the needs of the patient from their visa to place of stay to accompanying them to the hospital and keeping a thorough followup.
- In a follow up survey conducted by me at credihealth we made a call to 500 patients both national and international and asked them to rate the services provides by Credihealth.
- Around 72 percent people gave a 5 star 26 percent gave a 4 star and only 2 percent people gave 3 star, with all patients being highly satisfied with the services that credihealth has provided them.
- In the past 3 months it was seen that around 84518 international patient visited the site of credihealth along with queries dropped by them.
- Out of this 4761 number of patients booked their appointments In India through the medium of Credihealth.

To become the **go-to** destination for credible information, feedback and referral on healthcare providers in India.

- Credihealth is a credible site with credible health care partners who meet stringent criteria before listing on CrediHealth.com.
- Our focus is on bringing transparency to the decision making process for any health related situation.
- We are service focused and aim to make it a lot easier for our visitors to get reliable and timely information while making critical and non-critical healthcare decisions

India's primary comparative advantage lies in its

- Large pool of well-trained medical professionals in the country.
- Cost advantage compared to peers in asia and western countries.

Consequently Credihealth offers vast benefit as well as medical tourism in India.

IPD Services-provide the best care and competitive price for the generic surgeries i.e. Cardiac procedures, Liver and kidney transplant, Brain surgeries, Ortho and spine surgeries.

Diagnostic and Pathology Services-High Cost Differential in India allows for credihealth to provide the competitive price

Online Consult-Credihealth offers technical support from the Healthcare experts through telephonic chats, video conferencing, pre and post visit online, off-line consults etc.

Health Insurance-credihealth will take care of the health insurance when patient will get treatment done in India.

6.2 Credi Features-

- Access to wider network of distinguished healthcare providers (500+ hospitals)
- Transparency in clinical advise at reliable cost
- Special Credi prices for International Patients
- Detailed comparison of “Specialists” across hospitals.
- Comprehensive information/ expert opinion on Patients Query
- Pre visit consult (Online/video)
- International Payment gateway
- Scheduling & booking of appointments on priority
- Emergency ambulance services, we will also arrange air ambulance services.
- Low cost & efficient logistic support
- Interpreter service
- Courteous & experienced staff to facilitate the entire process e.g. airport pick & drop, money exchange, flight booking, visa, hotel accommodation etc.
- Credi patient care – International Toll free
- Personalised care during hospital stay
- Post visit consult (online, video)

Key players in the market-

Table 1.

Company	No. Of bed	Presence
Apollo hospital enterprise ltd.	7946	Chennai, Madurai, Hyderabad, Karur, Karim Nagar, Mysore, Visakhapatnam, Ranchi, pune, Raichur, Ranipet Bilaspur, Aragonda, Kakinada, Bengaluru, Delhi, Noida, Kolkata, Ahmedabad, Ludhiana, Indore, Bhubaneswar.
Arvind eye hospitals	3649	Theni, Tirunelveli, Coimbatore, Puducherry, Madurai, Amethi, Kolkata
Care hospitals	2500	Hyderabad, Vijayawada, Nagpur, Raipur, Bhubaneswar, Surat, Pune, Visakhapatnam
Fortis Healthcare ltd.	10000	Mumbai, Bengaluru, Kolkata, Mohali, Noida, Delhi, Amritsar, Raipur, Jaipur, Chennai, Kota
Yashoda Hospitals	1100	Secundrabad, Somajiguda, Malakpet in Hyderabad
Manipal Group of Hospitals	5400	Udupi, Bengaluru, Manipal, Attavar, Mangalore, Goa, Tumkur, Vijaywada, Kasaragod, Visakhapatnam

6. Medical tourism: A new growth factor for India's Healthcare Sector

- ✓ Presence of world-class hospitals and skilled medical professionals has strengthened India's position as a preferred destination for medical tourism
- ✓ The growth in the sector is underscored by the cost advantage that India provides to the patients from developed countries. Notably, India also attracts medical tourists from developing nations due to lack of advanced medical facilities in a number of developing countries
- ✓ Medical tourism market is expected to expand at a CAGR of 43 per cent to USD 8 billion in 2020 from USD 3.. 9 billion in 2014.
- ✓ The major service offerings that attract medical tourists from European nations and the Middle East to India include yoga, meditation, ayurveda, allopathy, and other traditional systems of medicines .

7.1 Strong growth in healthcare expenditure

- Healthcare industry is growing at a tremendous pace owing to its strengthening coverage, services and increasing expenditure by public as well private players.
- During 2008-20, the market is expected to record a CAGR of 16.5 per cent.
- The total industry size is expected to touch US\$ 160 billion by 2017 and US\$ 280 billion by 2020.
- As per the Ministry of Health, development of 50 technologies has been targeted in the FY16, for the treatment of disease like Cancer and TB.

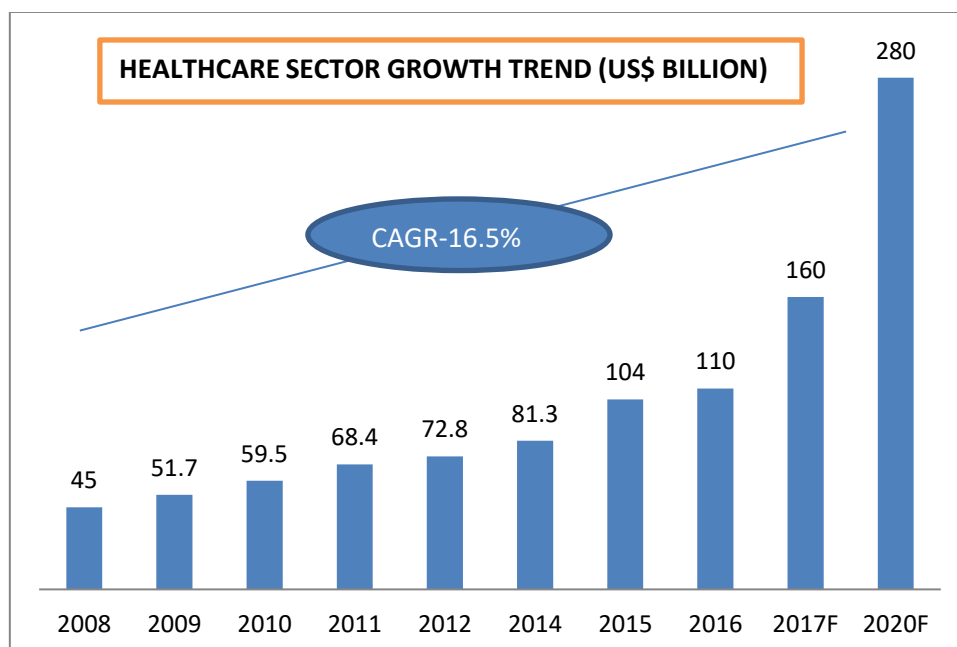


Figure 3.

Table 2.

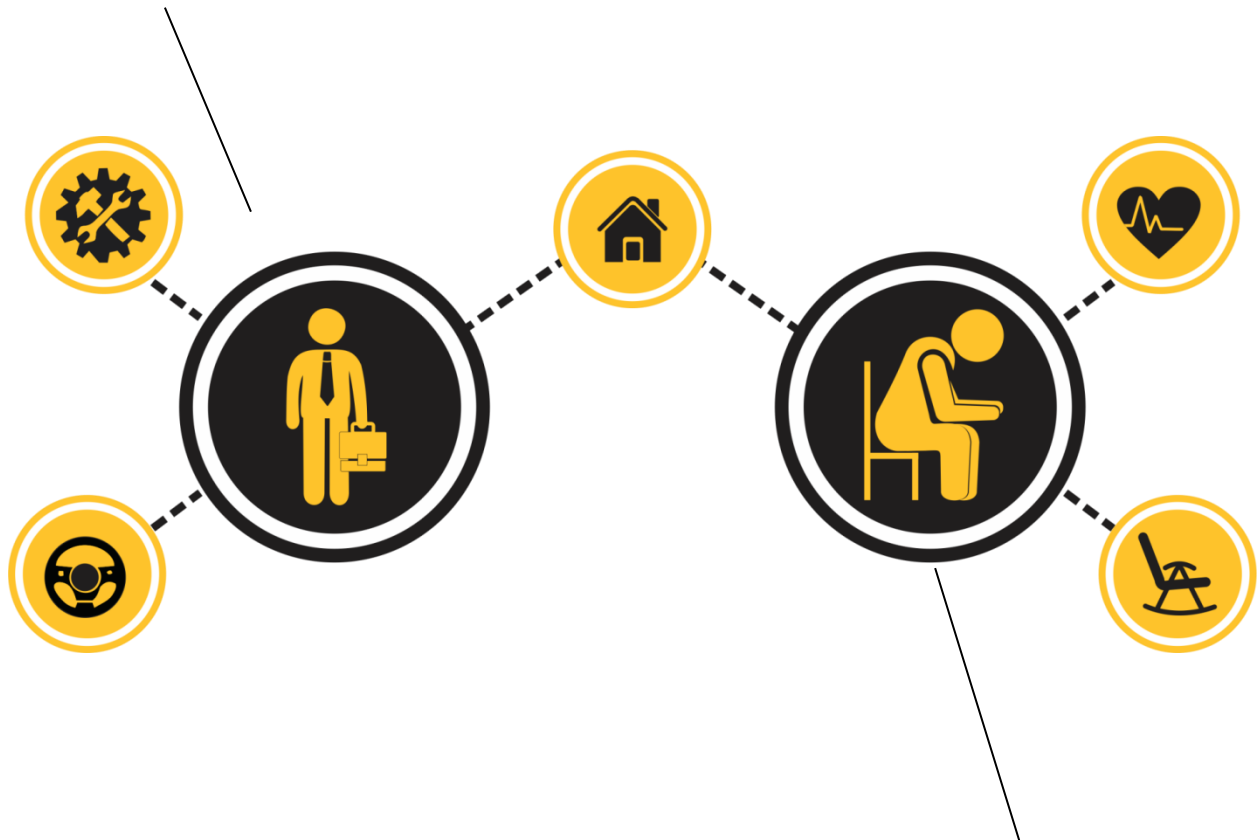
Procedures wise Cost Comparison

Country Wise Cost Comparison

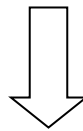
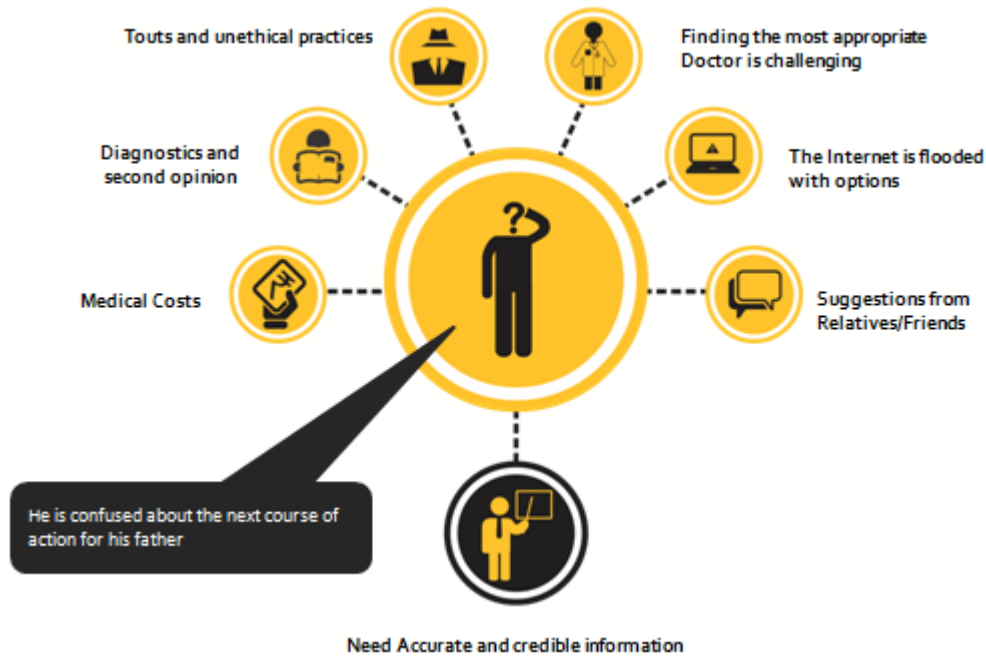
Procedures	US (\$)	Costa Rica (\$)	India (\$)	Korea (\$)	Mexico (\$)	Thailand (\$)	Malaysia (\$)
Heart Bypass	\$144,000	\$25,000	\$5,200	\$28,900	\$27,000	\$15,121	\$11,430
Angioplasty	\$57,000	\$13,000	\$3,300	\$15,200	\$12,500	\$3,788	\$5,430
Heart Valve Replacement	\$170,000	\$30,000	\$5,500	\$43,500	\$18,000	\$21,212	\$10,580
Hip Replacement	\$50,000	\$12,500	\$7,000	\$14,120	\$13,000	\$7,879	\$7,500
Hip Resurfacing	\$50,000	\$12,500	\$7,000	\$15,600	\$15,000	\$15,152	\$12,350
Knee Replacement	\$50,000	\$11,500	\$6,200	\$19,800	\$12,000	\$12,297	\$7,000
Spinal Fusion	\$100,000	\$11,500	\$6,500	\$15,400	\$12,000	\$9,091	\$6,000
Dental Implant	\$2,800	\$900	\$1,000	\$4,200	\$1,800	\$3,636	\$345
Lap Band	\$30,000	\$8,500	\$3,000	N/A	\$6,500	\$11,515	N/A
Breast Implants	\$10,000	\$3,800	\$3,500	\$12,500	\$3,500	\$2,727	N/A
Rhinoplasty	\$8,000	\$4,500	\$4,000	\$5,000	\$3,500	\$3,901	\$1,293
Face Lift	\$15,000	\$6,000	\$4,000	\$15,300	\$4,900	\$3,697	\$3,440
Hysterectomy	\$15,000	\$5,700	\$2,500	\$11,000	\$5,800	\$2,727	\$5,250
Gastric Sleeve	\$28,700	\$10,500	\$5,000	N/A	\$9,995	\$13,636	N/A
Gastric Bypass	\$32,972	\$12,500	\$5,000	N/A	\$10,950	\$16,667	\$9,450
Liposuction	\$9,000	\$3,900	\$2,800	N/A	\$2,800	\$2,303	\$2,299
Tummy Tuck	\$9,750	\$5,300	\$3,000	N/A	\$4,025	\$5,000	N/A
Lasik (both eyes)	\$4,400	\$1,800	\$500	\$6,000	\$1,995	\$1,818	\$477
Cornea (both eyes)	N/A	\$4,200	\$500	\$7,000	N/A	\$1,800	N/A
Retina	N/A	\$4,500	\$850	\$10,200	\$3,500	\$4,242	\$3,000
IVF Treatment	N/A	\$2,800	\$3,250	\$2,180	\$3,950	\$9,091	\$3,819

7.2 Credi-Health a healthcare assistant for International Patients-

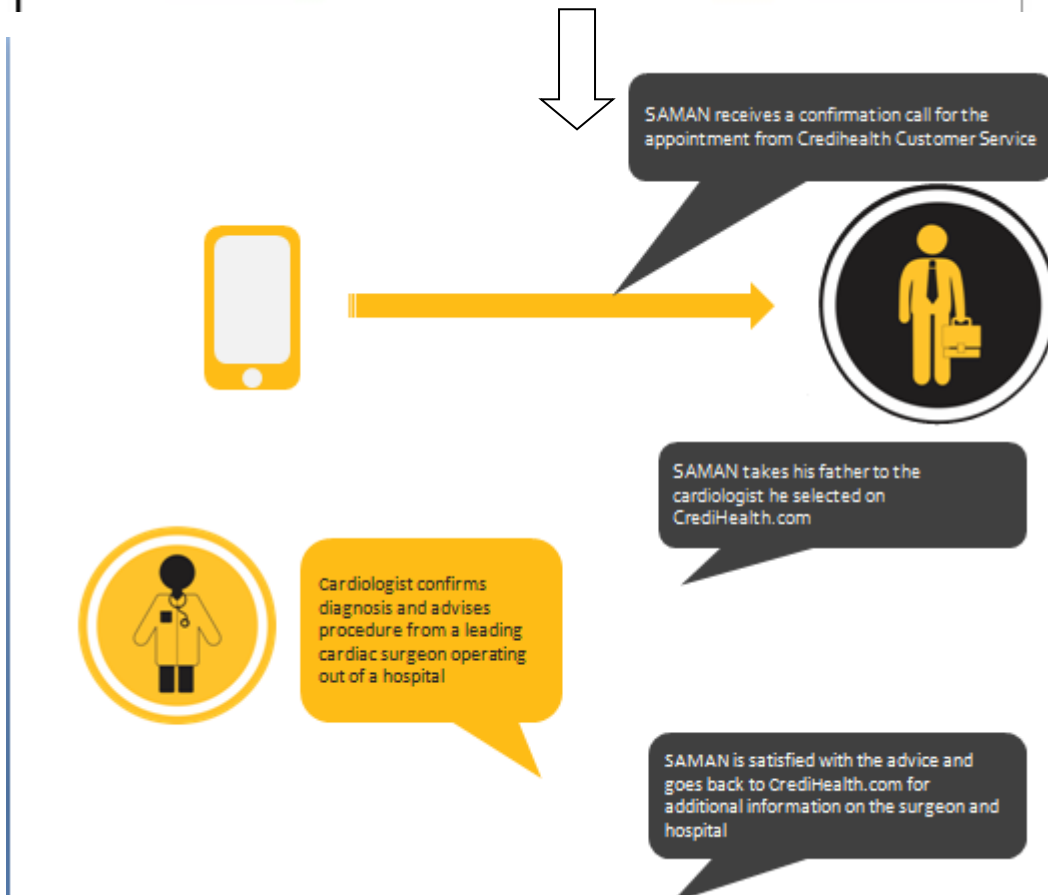
Saman, a mechanical engineer is a resident of Afghanistan who works in a Automobile part company



His father has recently retired as a GM from a PSU and has been diagnosed with blocked arteries



The screenshot shows the Credihealth website interface. At the top, there are several tabs labeled with 'X'. The main content area is divided into two sections: 'Account Login' on the left and 'Join Credihealth' on the right. The 'Account Login' section has fields for 'Email' (Registered Email) and 'Password', with a 'Forgot your password?' link and buttons for 'Log In', 'Facebook Login', and 'Google Login'. The 'Join Credihealth' section has fields for 'First Name', 'Last Name', 'Email', 'Password' (minimum 8 characters), and 'Confirm Password', along with a checkbox for 'I agree to the Terms and Conditions' and a 'Create An Account' button. A yellow callout bubble points to the 'First Name' field in the 'Join Credihealth' form, containing the text: 'To make a booking instantly, SAMAN creates his profile on Credihealth using his details/ social media details'.



The screenshot shows the Credihealth website interface. At the top, there's a navigation bar with the Credihealth logo and a 'Sign up | Login' link. Below the navigation bar is a search section with tabs for 'Doctors', 'Hospitals', 'Diagnostic Centers', 'Home Care', and 'Others'. The 'Hospitals' tab is selected. The search results show a listing for 'Book For a Procedure at Indraprastha Apollo Hospital'. The form includes fields for 'Select Procedure', 'Select Surgeon', 'Time Slot', 'Name', 'Date of Birth', 'Gender', 'Phone number', 'Patient Name', and 'Patient History'. A yellow callout box points to the 'Book Now' button with the text: 'SAMAN makes the booking for the procedure using credihealth.com and gets the competitive estimation for Bypass surgery etc.'

Up to 50% discount today

Select Procedure:

Select Surgeon:

Time Slot:

Name:

Date of Birth:

Gender:

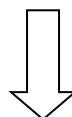
Phone number:

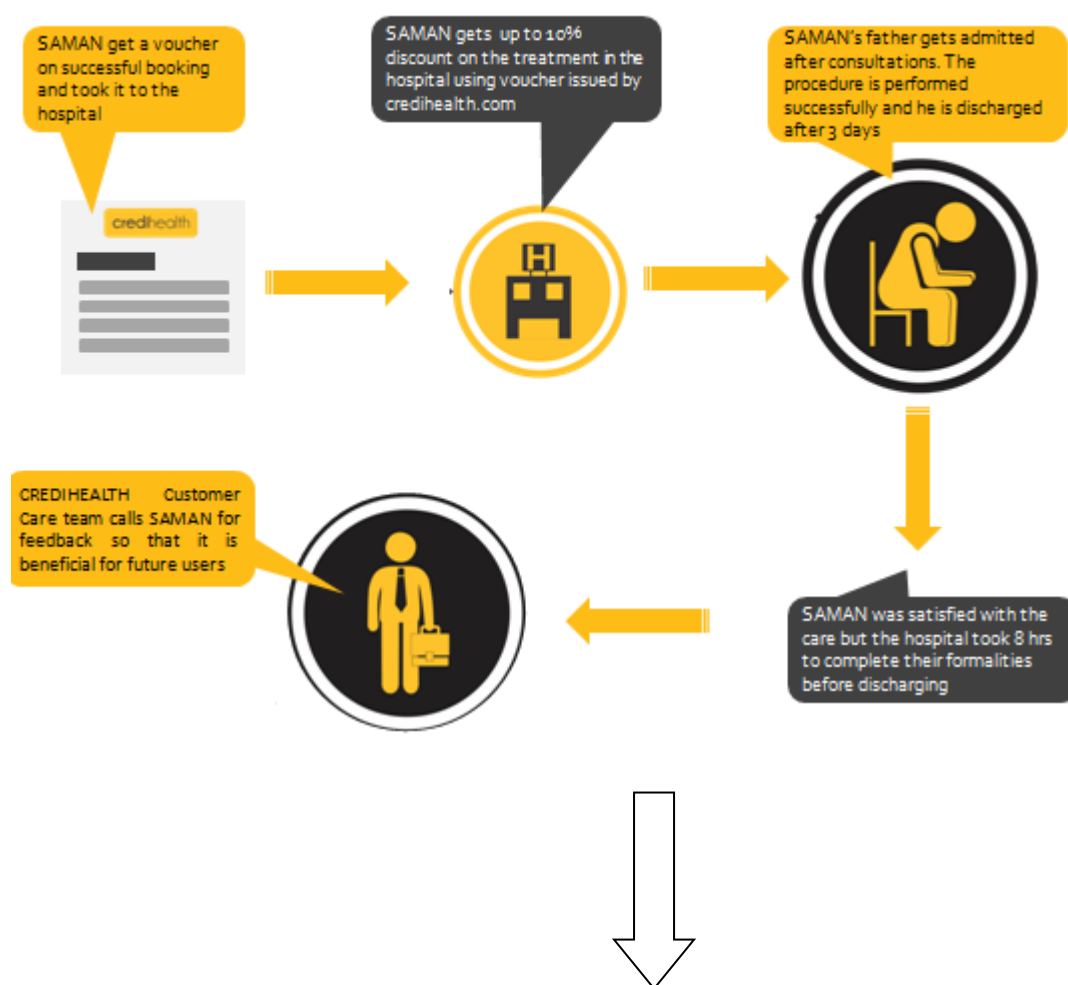
Patient Name:

Patient History:

Other Doctors Near You

Copyright 2013 © Credi Health Private Limited. All Rights reserved.





Search
[Doctors](#) [Hospitals](#) [Diagnostic Centers](#) [Home Care](#) [Others](#)
 Doctor Name Where Pin Code **Search**

Dr. Vineet Kumararajan
 Pediatric Sleep & Neurology

84% Patients Recommendations [Read Feedback](#)

Our Role:
 18 Years of Practice
 12 Hospital Affiliations
 1 Office Location
 4 Awards
 Sample Test
 Sample Test
 Sample Test

Share **BOOK APPOINTMENT**

Qualifications	Experience	Medical Publications	Awards
Graduation	Test Test Test Test Test Test	Test Test Test Test Test Test	Test Test Test Test Test Test
Post Graduation	Test Test Test Test Test Test	Test Test Test Test Test Test	Test Test Test Test Test Test
Super Speciality	Test Test Test Test Test Test	Test Test Test Test Test Test	Test Test Test Test Test Test

Other Doctors Near You

credihonor
 View India's Top Cardiologists

Read about Allergy
 What is Allergy?
 Allergy can be protected?

SAMAN recommended the Cardiologist and Surgeon using social media sharing feature which received multiple likes by his friends and relatives

7.3 Case Study

“It is a 5 star rating that I would like to give to credihealth ,I am very happy for its services as well as the regular follow up by their customer representative team will surely recommend to my friends and family members”

The above mentioned case study depicts that a person Saman a mechanical engineer from Afghanistan, who works there in an automobile company and his father who is a recently retired General Manager in a PSU has been diagnosed with blocked arteries.

Saman is very confused about the next course of action for his ailing father and is very confused from where to get the treatment done, what will be the cost of treatment, finding the most appropriate doctor is challenging, internet is flooded with too much options then relatives and friends suggestions etc...etc..

Saman search brings him up to credihealth website. He goes thoroughly through the website and quickly makes his profile on credihealth using his social media details.

Saman receives a confirmation call for the appointment from credihealth customer service.

Saman takes his father to the Cardiologist he has selected on Credihealth.com

Cardiologist confirms diagnosis and confirms procedure from a leading Cardiac surgeon operating out of a hospital

Saman is satisfied with the advice and goes back to credihealth.com for additional information on the surgeon and hospital.

Saman makes the booking for the procedure using Credihealth.com and gets the competitive estimation for bypass surgery.

Saman gets a voucher on successful booking and took it to the hospital, where he gets 10 percent discount on the treatment in the hospital using voucher issued by Credihealth.com .Saman's father gets admitted after consultation, the procedure is performed successfully and he gets discharged after 3 days.

Credihealth customer care team calls Saman for feedback so that it is beneficial for future users. Saman was very satisfied with the care but the hospital took 8 hours to complete their formalities before discharging.

Saman was very happy with Credihealth and through his profile on credihealth portal he recommends the cardiologist and surgeon using social media sharing features which receive multiple likes and comments by his friends and relatives.

8. Challenges

- Security, privacy, and confidentiality are major concerns in e-Health solution due to its significance.
- Insufficient accessing ratio is another challenge, which comes in the way of e-Health Systems.
- Users especially patients are not well aware regarding e-Health Systems
- Illiteracy of patients is another important obstruct in the case of Indian e-Health Systems.
- Unavailability of internet connectivity in rural and remote areas.
- Lack of supportive infrastructure (like high band width special equipment), funds, basic knowledge of computer among health workers, uniformity in clinical protocols, training for health care professional, patients knowledge about technology, employment of appropriate technology, quality control mechanism integration between systems and organizations.
- Unable to analyzethe number of female patients to male patients.
- The healthcare start-up although have provided by this digitalized platform a convenience from the rural remote ares to international patients but still there are many flaws which need to be fixed.
- For these healthcare start-ups only revenue generation should not be the only motive but they should wisely make the use of technology and digitalization to extend to even the remotest areas of the country only then can actually development of the nation takes place.Since india does not lie only in the urban cities but still 68.84% of people live in rural India so this digitalized healthcare should out reach to those as well only then can the healthcare sector be strengthend.

Suggestions-

The analysis on e-health systems developed for Indian healthcare sector has reported both strength and weakness of digitalization of healthcare system in our country as well as worldwide. More detailed studies including weaknesses, threats and benefits related to e-Health systems are required to develop more acceptable systems.

- ▶ The requests should be handled according to the priority and the appointment time required—Admin Queuing System. (e.g.: the Cardiac cases get the high score than the derma case. The surgical case is scored higher than the case requiring medical management. The less the time between the request made and the appointment requested, the more is the score.)
- ▶ Tracking of the missed calls on the systems. So the effort can be made to track the case and get them go through the channel of Credihealth.
- ▶ Use of artificial intelligence to automate the time-consuming and unnecessary process. (Example- Automation of the message sent to the patient on putting the

request that they will be reached soon by a medical professional to guide them, Automation of the country codes of the international patients.)

- ▶ Separate tabs to track the cases by symptoms or procedures done. This will make the process easy to track the cases in follow-up, that which case need to be followed up. To allow timely follow-up of cases requiring tertiary care. (E.g.: A cancer patient needs to be followed not only till its operated but also for chemotherapy or radiotherapy)
- ▶ Introducing local languages. (E.g.: The site and app were earlier only in English language, can introduce languages like Hindi, Bengali, Tamil, Telugu).
- ▶ This encouraged us to understand the drop-offs or gaps between the process flows. These gaps can be filled by re-engineering of the current process flow utilizing the recommendations provided. Some of the recommendations have been implemented too and results show increase in the number of cases attended per day.
- ▶ There should also be a system to analyze that how many women patients are actually contacting the company for medical assistance this would also help us in our study to know about the technology awareness in both the genders, also whether womens are aware of such digitalizes platform or not.

10. Opportunities-

- Increases health awareness of the general public, utilization of new technologies, availability of remote health professionals, availability of staff exchange programme, collaboration and international exchange of experience.
- Provides new careers requiring professional skill for delivering information and communication technology literacy.
- Delivers enhanced medical services in the remote areas.
- Reduces hospitalization rate, waiting time, travel cost of patients.
- It also saves time and money of doctors and patients.
- Provides facility of e-Learning for professional development.
- Provides the facility of generating medical history of patients and patient-doctor communication.
- Addressing the ignored diseases of different countries.
- Improves patient treatment and follow-ups, healthcare assistance to remote location, diagnosis from primary care, patient's satisfaction and quality of life.

11. Conclusion

Out of the various findings, the main finding is that e-Health has a potential for healthcare sector. In addition to this, e-Health systems are emerging as an important tool in different fields of Healthcare with the aim of enhancing communal health. Recent Cisco research shows that most executives believe that four of top ten incumbents per industry will fail in the next ten years if they do not engage in digital transformation. This study provides some opportunities and gaps and direction for future work in the field of e-Health and e-health companies. This paper can be treated as a pedestal to provide a preliminary study for researchers interested in conducting studies on Indian e-Health Systems and wants to improve current systems. Thus, the study will save the time and efforts of other researcher by providing information related to existing e-Health Systems and gaps to assist them in future work.

The rural model

During the dissertation period a rural model was suggested which was later on was implemented by the organization the work on which has just started.

The model was based on rural out reach programme, to set up kiosks and health centers (Community Service Centres) in the villages in collaborating with the panchayats, where a health specialist will be placed to provide health assistance to the rural population and in case of any serious condition or surgeries, whole of this procedure will be taken care of by the credihealth team.

The main work of Credihealth will be of a service provider which will cater all the healthcare needs of the patient from taking them from villages to city hospitals then looking after their whole treatment, providing them discounts on procedure and post operative care and follow up and this would include a personal touch by setting up such centres in the villages so as get familiar with the village people so that they become comfortable especially the women to discuss their health issues. This will help in reducing the mortality rate due to disease in the rural areas to a large extent and will also help to educate the rural population on health issue.

12. Bibliography

1. AbhishekSoni. Four Key Process Improvement Techniques for Services. PEX: Process Excellence Network. 2012
2. LathaNagasubramaniam. 5 Ways Airlines Can Improve Business Efficiency with Workload Automation. Mercator. 28 May 2015
3. Fleury MJ. Integrated Service Networks: The Quebec Case. Health Services Management Research. 2006
4. Roberts CC. Redefining the Healthcare Paradigm. Hospital Topics. 1996
5. Shortell SM, Gillies RR, Anderson DA, Erickson KM, Mitchell JB. Integrating Health Care Delivery. Health Forum Journal. 2000
6. Rogers A, Sheaff R. Formal and Informal Systems of Primary Healthcare in an Integrated System: Evidence from the United Kingdom. Healthcare Papers. 2000
7. Iden, J., 2012. Investigating process management in firms with quality systems: a multi-case study, *Business Process Management Journal*.
8. JEONG, Bong Keun and YOON, Tom E..IMPROVING IT PROCESS MANAGEMENT THROUGH VALUE STREAM MAPPING APPROACH: A CASE STUDY. JISTEM J.Inf.Syst. Technol. Manag. [online]. 2016,
9. Attaran, M., 2004. Exploring the relationship between information technology and business process reengineering.*Information & Management*
10. Kindler, N.B., V. Krishnakanthan, and R. Tinaikar, 2007. Applying Lean to Application Development and Maintenance. *The McKinsey Quarterly*
11. Ali, Nauman Bin, K. Petersen, and K. Schneider, 2016. FLOW-assisted value stream mapping in the early phases of large-scale software development. *The Journal of Systems and Software*
12. Chen, Joseph C., and R. Cox, 2012. Value Stream Management for Lean Office-A Case Study. *American Journal of Industrial and Business Management*
13. Damelio, R., 1996. The Basics of Process Mapping. New York: Productivity Press.
14. Tapping, D., and T. Shuker, 2003. Value Stream Management for the Lean Office. New York: Productivity Press.
15. SujataSangwan, 2017Credihealth: A Healthcare Startup Virtually Connecting Patients and Doctors. Iamwire

16. Press Trust of India. 12 August 2014. India to Soon Get 'E-Healthcare Service'. Gadget 360°, an NDTV venture
17. Mario Glowik, Slawomir Smyczek. 19-May-2015. Healthcare: Market Dynamics, Policies and Strategies in Europe
18. Indian Journal of Science and Technology, Vol 9(44)
19. HRI's Top Ten Health Industry Issues of 2016," PriceWaterhouseCoopers (2016).
20. "America's New Healthcare Economy: 3 Trends to Watch," by Bob Moritz, Fortune (Jan. 21, 2015)
21. "Where Healthcare Is Now on March to Value-Based Pay," by Melanie Evans and Bob Herman, Modern Healthcare (Jan. 28, 2015).
22. "Where to Begin Your Journey to Digital Value in the Private Sector," Cisco (2016).
23. "Cisco a Leader in Gartner's Magic Quadrant," by Jeff Campbell, Cisco Blogs (June 2016)
24. PwC, Changing demographics demand healthcare reforms, 2015
25. health.economictimes.indiatimes.com