

Study on Factors affecting Adaptation and Implementation of
Digital Logistics Management System Among the Staff of the
Logistics Management Department at Sankara Eye Hospital

By

Anjan Kumar Pattnaik

*Dissertation submitted in partial fulfillment of the requirements of the degree
MBA Hospital and Health Management*

Academic year, 2018-2020



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**A STUDY ON FACTORS AFFECTING ADAPTATION AND IMPLEMENTATION
OF DIGITAL LOGISTICS MANAGEMENT SYSTEM AMONG THE STAFF OF
THE LOGISTICS MANAGEMENT DEPARTMENT AT SANKARA EYE HOSPITAL**

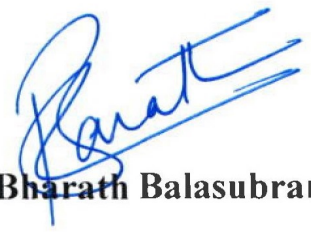
3RD FEBRUARY 2020 to 2ND MAY 2020

Organization: SANKARA EYE HOSPITAL, COIMBATORE

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

We wish him all the best for future endeavours


Ms Srinivas Karthikeyan
(Chief People Officer)


Mr Bharath Balasubramanian
(President – Operations)

THE IIHMR UNIVERSITY JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "A Study on Factors affecting adaptation and implementation of digital logistics management system among the staff of the logistics management department at Sankara eye hospital, Coimbatore" is submitted by Anjan Kumar Pattnaik (IIHMR-U/01/2018-20/0719). This work was done under the supervision of Dr Daya Krishan Mangal, Professor of Public Health, IIHMR University, Jaipur for the award of MBA in Hospital and Health of the University. It was carried out during the period from 03 February 2020 to 03 June 2020. It is 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.

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ABSTRACT

Submitted By- Anjan Kumar Pattnaik-0719 MBA-HM23

Title- “A Study on Factors affecting adaptation and implementation of digital logistics management system among the staff of the logistics management department at Sankara eye hospital.”

Introduction- Every day, many patients visit healthcare facilities for their physical or mental problems. The medical and administrative staff must manage and integrate clinical, financial, operational, and regulatory information. All the health professionals use a Computer-based system for performing a specific type of management activities, and that is known as HIS/MIS, wherein Sankara eye hospital uses MoveX for managing day-to-day operations of Fleet management.

The purpose of the research was to get some insight into the adaptation of MoveX and possible gaps present in the implementation. Problems that are faced by the end-users of MoveX, which is affecting the implementation of the system and how they are adapting the digital fleet management system is crucial for the organization to know and find possible solutions for improving the existing fleet management for smoother operation.

Objective- The study aims to determine the key factors affecting the adaptation and find possible gaps in the implementation of the Digital fleet management system MoveX in Sankara eye hospital, Coimbatore.

Methodology-

It was Cross-sectional study conducted in Sankara eye hospital amongst the users of MoveX, by using Total enumeration/ Census Sampling. The sample size taken was 33 and data was collected by a self-administered questionnaire amongst the users. This study was conducted to identify factors affecting adaptation of MoveX and possible gaps in implementation in Sankara eye hospital. The study duration was 3 months from February 2020 to Apr 2020

Conclusion-

A digital fleet management solution is pointless, if the end-users will face challenges in daily usage and if the answer is unable to provide relevant and essential information, which can improve management of fleet in hospital.

Barriers identified in this study are as per the Unit Heads are Lack of Training and availability of guidelines and the Uncertainty of ROI and lack of capital resources as well as lack of IT support and vendor support are the contributing factors in barriers of implementation and Adaptation of MoveX.

As per the Fleet managers, the barriers identified in implementations and adaptation are difficulty in information exchange across department and difficulties in meeting departmental workflow. Moreover, Lack of Training and availability of manual and guidelines are the profound barriers in implementation. As per the suggestion and report, the User interface is playing a vital role in the adaptation of the modern system by the end-users, Mostly regarded barrier is lack of IT support system, which plays a crucial role in daily issues regarding hardware and software.

The barriers which were covered under the open-ended question were, inability to perform changes in route, in the ability to modify MIS entry data by the end-user and less training of end-users. These are all the barriers which were reported by the unit heads as well as Fleet managers.

Recommendation

To achieve better smooth operation of the MoveX, Operation Manual and training of the end users could be made available.

Before Implementing any digital solution, Hospital Administration need to have a specific requirement list, so from the initial phase the software could be built accordingly

Fast Paced technical support could be implemented for better troubleshooting during significant problematic situations.

As the fleet managers are not much acquainted with modern technological systems, implementation of simple, concise user interface could be recommended. Easy to customize user interface creates an environment of ownership for the end user, so Easy to customize and simple user interface could be recommended for better implementation.

Significant issues regarding software as well as hardware could be addressed for making the system more usable, More systemic data could be made available for the fleet managers and administration staff, which are presently not available and requested by administration staff, the data like, Vehicle Idling time and halt location.

As the use of mobile technology among the end users are increasing day by day, Android and Apple mobile application could be introduced, so it could help the fleet managers track vehicles and resolve issues.

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With immense gratitude and respect, I acknowledge that without the support and help of Mentor and Guide Prof (Dr) Daya Krishan Mangal, Dean Research, IIHMR University, this dissertation would not have been possible to complete successfully.

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I wish to thank all the Unit Heads, Fleet Administrators, and my seniors and co-workers for their continuous support and participation in my dissertation study.

I am indebted to my university professors, who have shared their invaluable knowledge and skills, which I consider as a jewel I got from my Alma-mater the IIHMR University, Jaipur.

I owe my deepest gratitude to all the management staff of IIHMR University who have made our MBA journey uncompromised.

It gives me great pleasure acknowledging my fellow friends and classmates, for making this journey enjoyable.

I thank my parents for the love and support throughout my life; without their help, it would not have been to achieve these things so far.

I thank the almighty for providing me with the courage and energy to sustain in this life and achieve my dreams.

Anjan Kumar Pattnaik

TABLE OF CONTENTS

Contents

ABSTRACT	vi
ACKNOWLEDGEMENT	viii
LIST OF FIGURES AND LIST OF TABLES	x
Introduction	1
Review of Literature:	5
Research Question	7
Research Methodology	7
Data Analysis and Interpretation	9
Suggestions	19
Discussion:	20
Limitations of the study	22
Conclusions	23
Recommendation	24
Bibliography	25
Annexure	26

LIST OF FIGURES AND LIST OF TABLES

Figure i.....	9
Figure ii.....	10
Figure iii.....	10
Figure iv.....	11
Figure v.....	11
Figure vii.....	12
Figure viii.....	12
Figure ix.....	13
Figure x.....	14
Figure xi.....	14
Figure xii.....	15
Figure xiii.....	15
Figure xiv.....	16
Figure xv.....	16
Figure xvi.....	17
Figure xvii.....	17
Figure xviii.....	18
Figure xix.....	18
Figure xx.....	19

Introduction

In the community, hospital and healthcare plays an essential role in everyone's life, and health care providers must do their jobs efficiently and effectively. Every day, healthcare facilities are visited by patients for having physical and psychopathic intervention. The clinical and hospital administrative staff must organize and integrate clinical data, financial information, hospital operation, and regulatory data. All the health professionals use a Computer-based system for performing a specific type of management activities, and that is known as HIS/MIS, wherein Sankara eye hospital uses MoveX for managing day-to-day operations of Fleet management. Fleet Management can incorporate a spread of capacities, similar to vehicle renting and financing, vehicle upkeep, Licensing and Compliance, Supply chain Management, mishap management, and subrogation, vehicle telematics (following and diagnostics), driver management, speed management, fuel management, wellbeing and security management, and vehicle re-advertising. Fleet Management could be a capacity which permits organizations to rely on transportation in business to dispose of or limit the dangers identified with vehicle venture, improving effectiveness, profitability and decreasing their general transportation and staff costs, conforming 100% with the government enactment (obligation of care). These capacities will be constrained by either an in-house fleet management division or a re-appropriated fleet of the board supplier. A crucial part of fleet management frameworks is the vehicle following segment. This part usually is GPS-based, yet at times it may be founded on GLONASS or a cellular triangulation platform.[4] Once vehicle area, bearing, and speed are resolved from the GPS segments, following extra abilities, transmit this data to a fleet management programming application. Strategies for information transmission incorporate both earthly and satellite. Satellite-based interchanges, while increasingly costly, are essential if vehicle following is to work in remote conditions without interference. Clients can see real, continuous areas of their fleet on a guide. This is regularly used to react to occasions in the field rapidly.



Benefits and Advantages of Fleet Management System are

Improved Dispatching Allows for Additional Jobs

When there's a superior comprehension of where the vehicle fleet is found, how much time they have left on their activity, and that's only the tip of the iceberg, organizations can start to present extra employments and tasks for new and existing vehicle drivers. This implies your organization can straightforwardly build potential net revenues because of increasingly viable fleet management.[4]

Mechanize Your Fleet Reports

Fleet Management frameworks can convey reports hourly, every day, or week after week dependent on the models that serve your needs. If you need to comprehend the propensities for your vehicular fleet and plan dependent on the investigation, a fleet management framework can permit you to do that.[4]

Improve Vehicle Fuel Efficiency

Fleet Management frameworks permit a fleet supervisor to dissect the conduct of drivers just as view inert occasions of every vehicle. Some frameworks may take into consideration the following of receipts utilized for refuelling, which can give additional data about the vehicle and fueling propensities for a driver just as driving conditions. At the point when more data is

given about refuelling, organizations can settle on increasingly educated choices and make changes that depend on information instead of hypothesis and guesses.[4]

Improve Safety for the Fleet

Your fleet management framework can give a chance to better security propensities. With programming, you will have the option to dissect examples, practices, and tendencies for singular drivers. This data will permit you to settle on increasingly educated choices about how to improve driver propensities, carry hazardous driving conduct to their mindfulness, and that's only the tip of the iceberg. [4]

Our country india is among the fast-paced progressing healthcare-information technology market in the world, after the neighbouring Asian country china. In today's competitive market, hospitals which have an enormous fleet of vehicles need to have a digital fleet management framework to deal with everyday tasks with ease. A proficient and futureproof fleet administration framework for the hospital can save a lot of human effort and money by smoothing daily operational activity and at the same time, reducing the chances of human error.

Sankara Eye Hospital follows 80:20 Model, where 80% of the service is catered to non-paying patients, and the revenue is generated from the 20% paying patients who can pay for the treatment they have been suggested and or opted. A dedicated department for providing service to the non-paying patients is present in the premise of every unit. Sankara Eye Hospital possesses different types of vehicles to cater to varying types of services. The transportation of patients from campsites to hospitals and vice-versa is done by a dedicated bus owned by Sankara, which are mostly donated by different organizations under CSR Scheme [2]. Here, the non-paying patient's transportation is dealt with by a 50-seater bus specially engaged for patients' facilitation and the emergency patients are taken care of by the ambulance, for the monitoring and smooth operation of the use of the transportation service provided by the hospital. Sankara Eye Hospital had introduced the MOVEX- a computer-based logistics management system.[3] **MoveX** is used for monitoring and managing trips done by different vehicles like- Bus, Tempo-Traveler, Ambulance, and LMV's. All the financial cost monitoring is also done like amount paid for fuel filled in vehicles, Maintenance costs borne by the organization. Monitoring jobs like KMS has done in a trip, live location of vehicles, their current live speed, and the route they are following and the due of regular maintenance service

can be done. The MoveX is used across the units of Sankara eye hospital for monitoring and evaluation purposes for smooth fleet management.

The purpose of the research was to get some insight into the adaptation of MoveX and possible gaps present in the implementation. Problems that are faced by the end-users of MoveX, which is affecting the implementation of the system and how they are adapting the digital fleet management system is crucial for the organization to know and find possible solutions for improving the existing fleet management for smoother operation.

While 80% of the service is catered for Non-paid patients, it is crucial to have a cutting-edge technology well used and implemented for better operations of carriage of patients. The outreach department solely depends upon the transport department for carrying patients into and from the hospital. This makes the use of digital fleet management too crucial for smoother operation and as that, the problems which may present affecting the implementation and adaptation of MoveX in Sankara eye hospital.

The study aims to determine the key factors affecting the adaptation and find possible gaps in the implementation of the Digital fleet management system MoveX in Sankara eye hospital, Coimbatore.

Research Question:

1. What are the factors affecting the adaptation of the "MOVEX- computer-based logistics monitoring system" among staff handling logistics?
2. What are the possible gaps in the Implementation of MOVEX at Sankara eye hospital?

Objectives of the study are:

1. To determine factors affecting adaptation of MoveX
2. To identify possible gaps present in the implementation
3. To identify problems faced by End-users and Administrators
4. To suggest possible solutions for overcoming potential gaps and problems

Review of Literature:

A search of literature was performed to pin down published studies related to factors affecting adaptation of Digital Information systems. The search was made limited to complete papers published about Adoption or Adaptation of Digital Information Systems, which may include Management Information systems, Hospital Information System. The number of published articles on the adoption or adaptation of the Digital fleet management system were few. I have gained some insight from the literature I have reviewed during the study.

India is amongst the fastest growing healthcare IT markets in the world. The hospital, and health industry, which possesses a large fleet of vehicles, need a Fleet Management System" to manage its daily operations effortlessly. There is enough evidence that an efficient and futureproof fleet management system for any hospital could save human resource and money by smoothing day-to-day operations and lowering human error.

In a study by Dr Rajesh Kumar Sinha and Susanna Kurian assessed satisfaction level of end-users of the MIS. The acceptability and sustainability mainly depend upon the satisfaction of end-users with the Management Information System Design (MIS). it also affects the MIS Implementation in an organization. (1)

Mehrdad farzandipur, Fatemeh Rangraz Jeddi, and Esmail Azimi investigated factors influencing the practical usage of HIS frameworks. The examination demonstrated that for the most part, human factors, for example, necessary information on utilizing PCs, Ease of using HIS, and simplicity of figuring out how to utilize Hospital Information System. As indicated by this paper, there is a connection between inspiration to use a PC and having involvement with using PCs. At that point, the individual with more responsibility with utilizing PCs is progressively propelled to perform computational procedures and are strong of HIS implementation. Different examinations show that easy to use, and straightforward information recovery will be gradually acknowledged, and their execution will be useful. (2)

In a study, Minal the most significant barriers in the adoption of EMR are reported as the cost of software, hardware, and end-user participation. (3)

The Adoption of HIS has confronted numerous difficulties. Subsequently, the HIS Implementation is exceptionally moderate and slacking because of the obstruction by the Healthcare experts to the innovation.

These difficulties significantly go from issues identified with technology itself, administrative condition low adoption rates by end-clients, and the emergency clinics resist due to associated expenses. As the expense of procurement, running and upkeep are high and vulnerability about the return on investment and worries on information security issues identified with human factors.

According to Boonstra and broekhuis et al, 2010 and Castilo et al. 2010 budgetary factors, for example, high startup costs, high running costs, degree of profitability vulnerability and absence of monetary assets and specialized factors, for instance, the unpredictability of framework including a large number of screens, choices, menus, pop-ups and dropdowns, Lack of specialized Information, customization issue, absence of interconnectivity, Hardware support were distinguished as most much of the time referred to hindrances to the selection of EMR by doctors. (4)

Ayodele Cole Benson et al. (2011) conducted a study on surveying hindrances to adoption of HMIS in Nigeria. Research shows that the fundamental issue was that there isn't any stable medicinal services arrangement in the usage of HMIS.(5)

As indicated by Williams and Boren (2008), the weak mechanical base and absence of financing backing might be answerable for the poor execution of electronic clinical records in developing nations. (6)

Ozge Sagiroglu and Meltem Ozutran et al. investigated the execution challenges of the HIS. As per this investigation, HIS is a Computer framework intended to make powerful administration of all data of hospital clinical and managerial work. Study shows that the sources of HIS Implementation challenges were significantly identified with hierarchical issues, framework, application, and association of the implementation procedure end-client commitment management, the profile of end-clients, diverse a structure, lack of master data management specialized prerequisite planning software immaturity after usage support,

obliviousness of authoritative needs of HIS execution, training issues, issues identified with hardware, computer programs, planning backing and security (7)

The rationale of the study

With the rise in the demand for healthcare services, the requirement for modern software solutions has become vital. International studies have indicated challenges faced by healthcare providers in the adoption and implementation of HIS/MIS. The Values of Software-Based solutions could be evaluated by recognizing numerous advantages from its utilization and contrasting this and the old paper-based data framework. On the other side, there are multiple types of barriers present with the adaption and implementation of HIS/MIS. Considering the Scenario, very few studies have been done focusing on obstacles in the adoption of HIS/MIS and Software Based Fleet Management solutions. to Shed light on these barriers on implementation and adoption of the Digital Fleet Management solution, the study was conducted.

Research Question

Research Question- What are the factors affecting the adaptation of the "MOVEX- computer-based logistics monitoring system" among staff handling logistics, and what are the possible gaps in the Implementation of MOVEX at Sankara eye hospital?

Objective

- To identify the possible barriers in adapting a computer-based logistics system amongst the hospital staff involved in the Monitoring and Administration of fleet management.
- To identify significant gaps present in MoveX- the Computer-based logistics system if any, contributing to adaptation and Implementation at Sankara Eye Hospital.
- Identify problems faced by End-users and Administrators in the adoption of the MoveX.
- To evaluate the suggestions and feedback provided by the administrators.
- Suggest possible solutions for overcoming potential gaps and problems.

Research Methodology

Study Design: Cross-sectional study.

Study Area: This study was conducted amongst various users of MoveX across all Sankara Eye Hospital units in India.

Sampling Method: Total Enumeration Sampling / Census Sampling

As the total population is very small, where the total population refers to the people who are using "MoveX" across Sankara Eye Hospitals in India.

Sample Size: 33

Here the Sample size represents the number of participants in the research study, The Sample size was taken as a whole of the total population using "MoveX", By Using Census Sampling / Total Enumeration Sampling Technique.

Total population: 33

Here the total population represents the people who are associated with logistics management and are using "MoveX" in "Sankara Eye Hospital."

Inclusion criteria: Staff belonging to Sankara eye foundation/Sankara eye hospital involved in the Logistics management system. This study includes hospital staff from Sankara eye foundation/ Sankara eye hospital, based in different parts of India.

Exclusion criteria: Staff belonging to Sankara eye foundation/ Sankara eye hospital not involved in Logistics management.

Study Duration: 03 Months-03 February 2020 to 03 May 2020

Sources of Data: Primary Data collected by a questionnaire

Data Collection Tool: for collecting data, a self-administered questionnaire for both the administrators and the fleet managers was prepared. The questionnaire includes demographic factors like; Name and Age, along with that, the respondents were asked to give experience in years. Both the questionnaire contained eleven close-ended questions and one open-ended question for collecting their feedback and suggestions.

Data Collection: For data collection, a survey was conducted with two different categories which are Unit Heads and Staff, Microsoft Forms distributed the questionnaire to respondents working as Unit heads and Fleet managers across all the units of Sankara Eye Hospital. Their

Invaluable responses were analyzed to determine barriers in the implementation and adaptation of MoveX.

Data Analysis Procedure: The collected response data were analyzed in Microsoft Excel 365 for analysis, and the graphical depiction was done as bar graphs and pie charts.

Data Analysis and Interpretation

Age of the respondents was an essential factor in the study. The average age of the respondents was 39.77 years. The importance of age could be justified as persons with older age are relatively more resistant to adopt a new IT Technology and are not fond of digital mediums than young persons. Lack of Interest and less experience with technology, including typing skills, make a difference with their association with traditional pen and paper approach. Therefore, younger people within 20-30 years age group are more likely to adopt new technology and have very little or no resistance to use technology. The younger population tend to enjoy working with computer/digital systems.

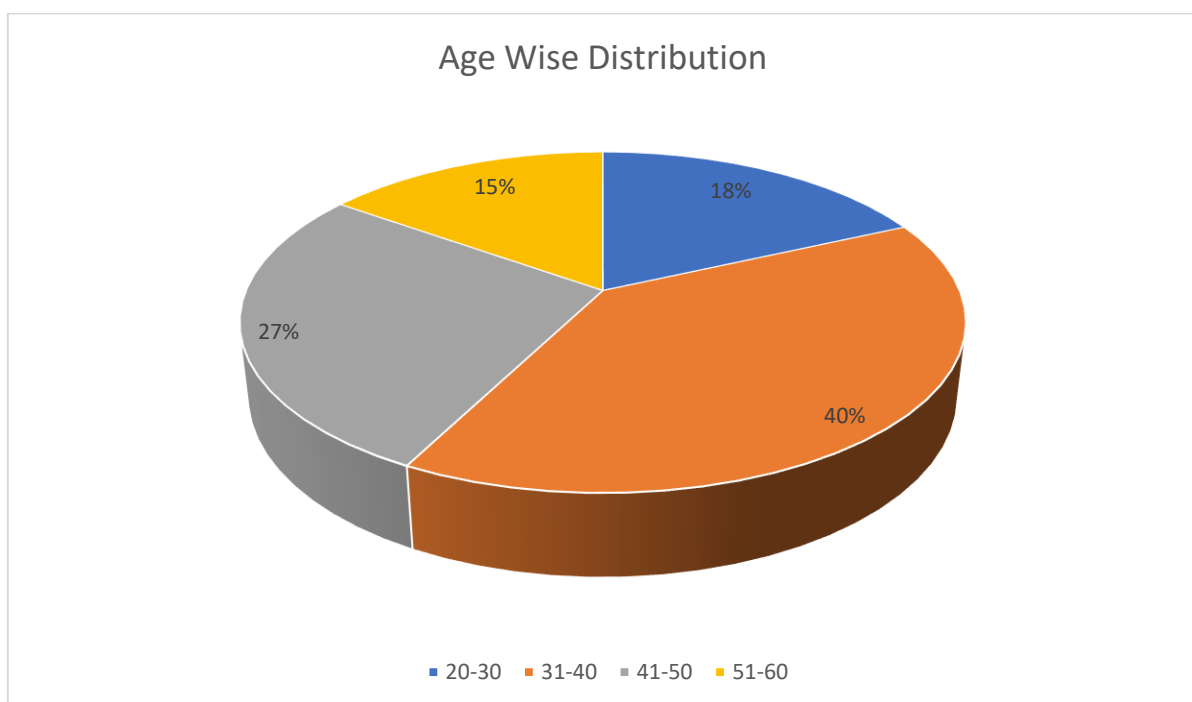


Figure i

As per the sample data, 85% of them are male, and 15% are female.

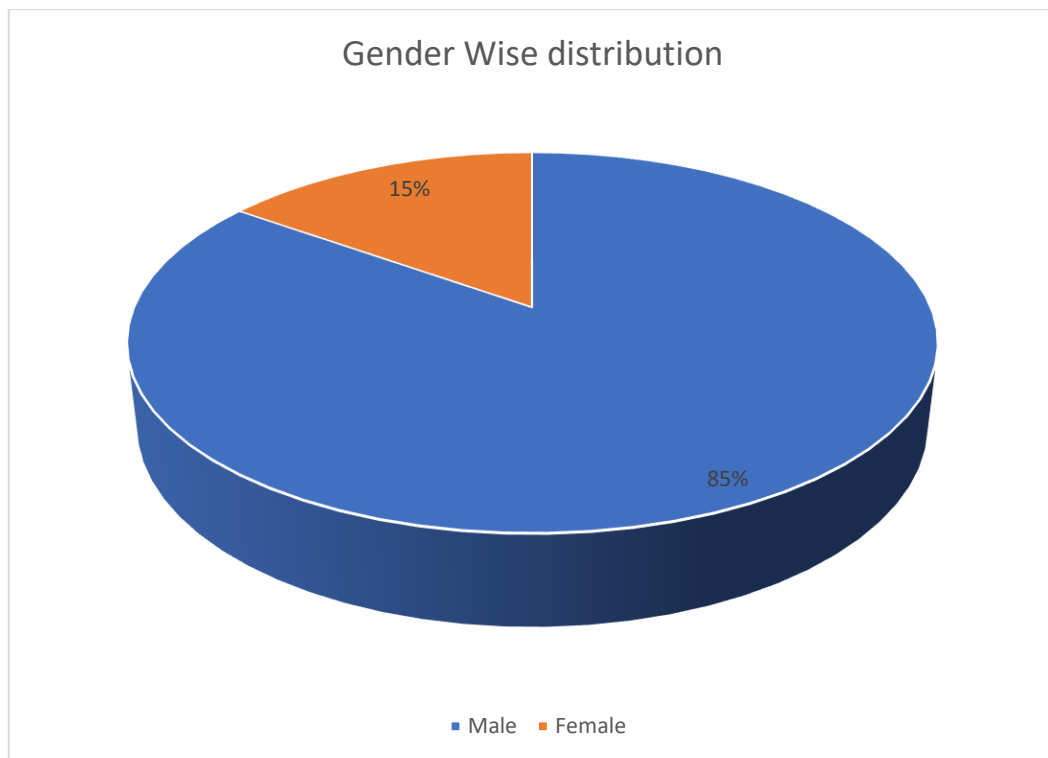


Figure ii

Years of experience play an essential role in this study because, there were some questions associated with financial aspects for the administrative staff, without prior experience it would be hard to give any comment on those questions.

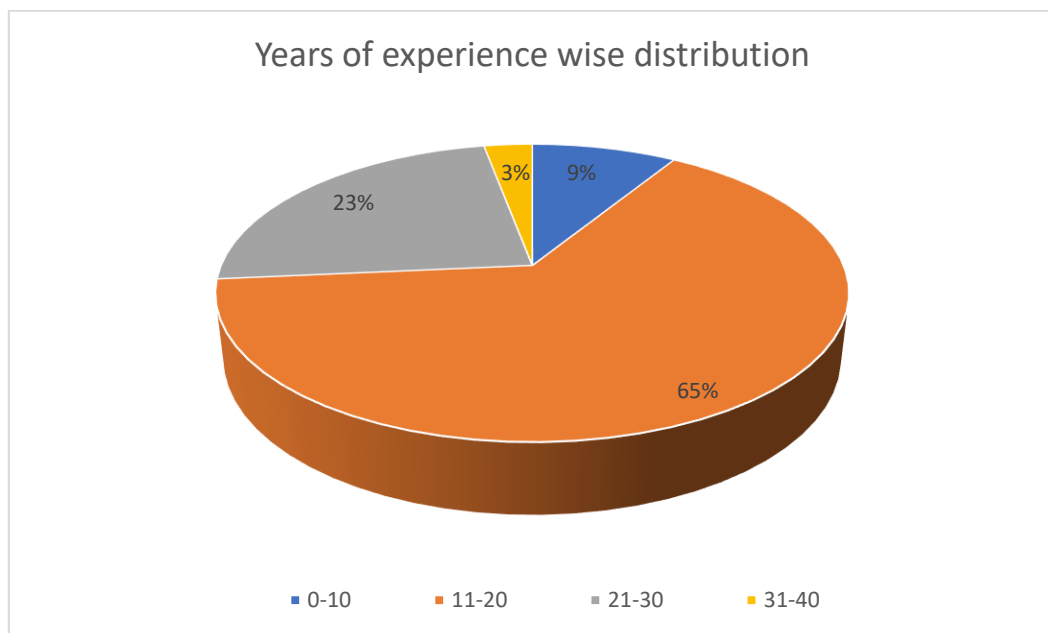


Figure iii

As per the collected data from the sample, there were two types of respondents; those are fleet managers and Administrative staff who are Unit heads. Here from the example, 30% were Unit Heads, and 70% were Fleet managers.

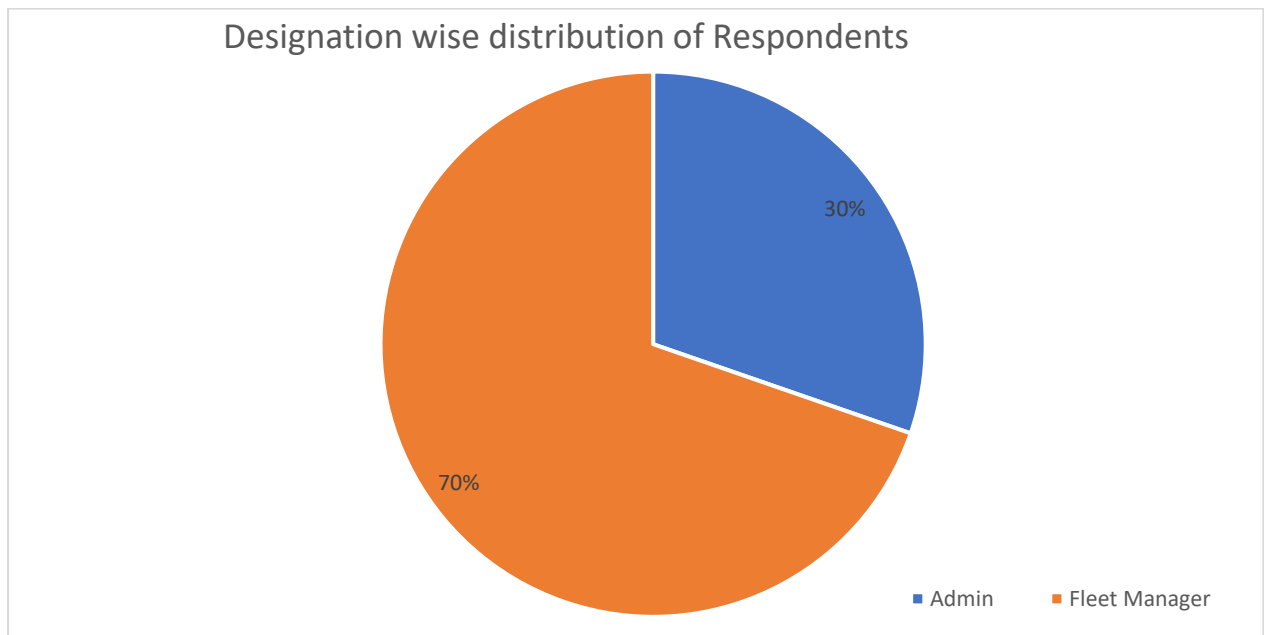


Figure iv

Responses of Administration staff (Unit Heads) on various parameters

Sl No	Parameter	Yes	No
1	Lack of sufficient capital is a barrier?	40%	60%
2	Uncertainty of ROI	30%	70%
3	Receiving support from the vendor	100%	0%
4	Lack of proper IT support	30%	70%
5	Did MoveX enhance productivity?	100%	0%
6	Lack of proper training and guideline is a barrier?	50%	50%
7	Implementations lead to data safety issue	0%	100%

Figure v

Responses of Administration staffs

Only 33% of the staff considers the uncertainty of return on investment a moderate barrier for implementation of MoveX, and 67% of the sample finds it a minimum restriction for the application.

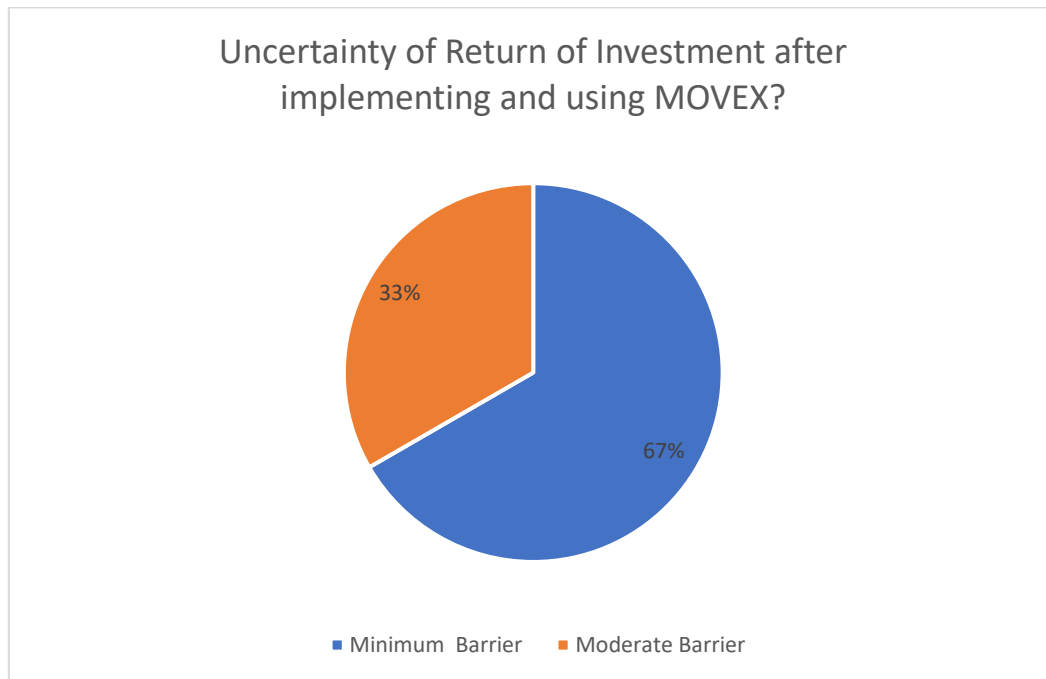


Figure vi

Among the respondents who said yes to the question "is the lack of a good IT support system a barrier in the implementation of MoveX" 50% of them considered it is a "minimum barrier" and the other 50% believed it as "not a Barrier".

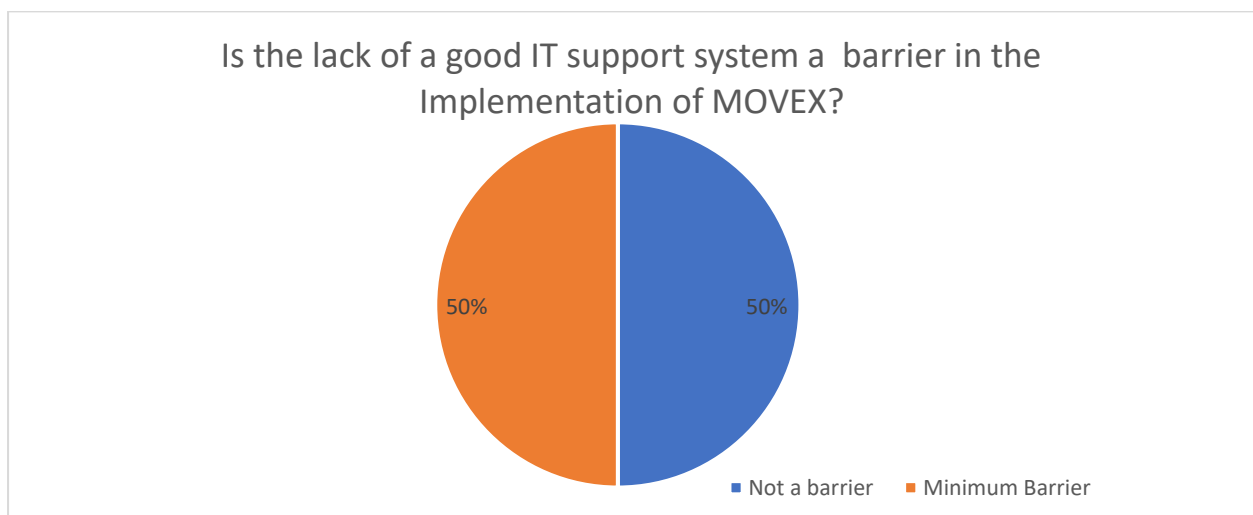


Figure vii

Lack of Training and unavailability of manuals or guidelines are the most common problem faced by the end-users. As per the analysis, 40% among them considered it a moderate barrier, and the other 40% as a minimum barrier and rested 20% Major as a barrier.

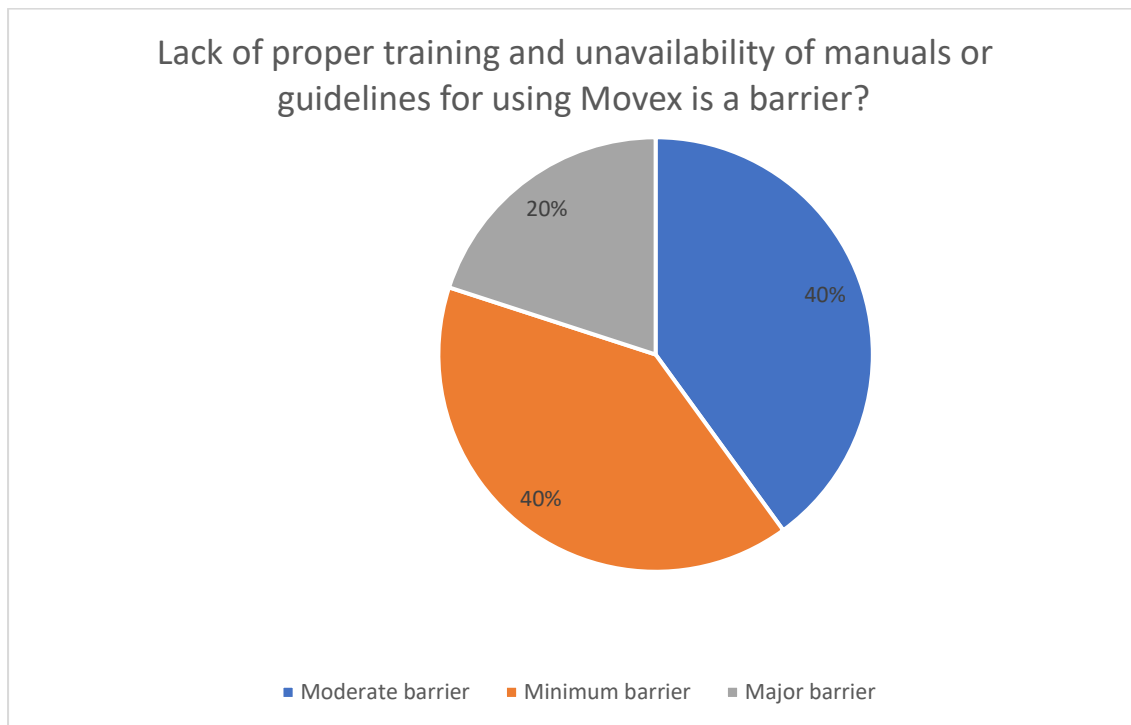


Figure viii

Parameter	Yes	No
Current Software Meeting Needs	87%	13%
Difficulty in information exchange	30%	70%
Do you think there is a reduction in operation time	74%	26%
Lack of proper training and unavailability of manuals or guidelines for using “MOVEX” is a Barrier for implementation?	48%	52%
Does this software "MOVEX" Provide relevant information across the fleets and gives you value addition?	83%	17%
Improper Maintenance and technical support for hardware and network is a barrier in the use of “MOVEX”?	69%	31%

Assessment of Barriers faced by Fleet Managers-

As per the analysis, 33% considered as it is not a barrier and rest 67% as a minimum barrier for implementation.

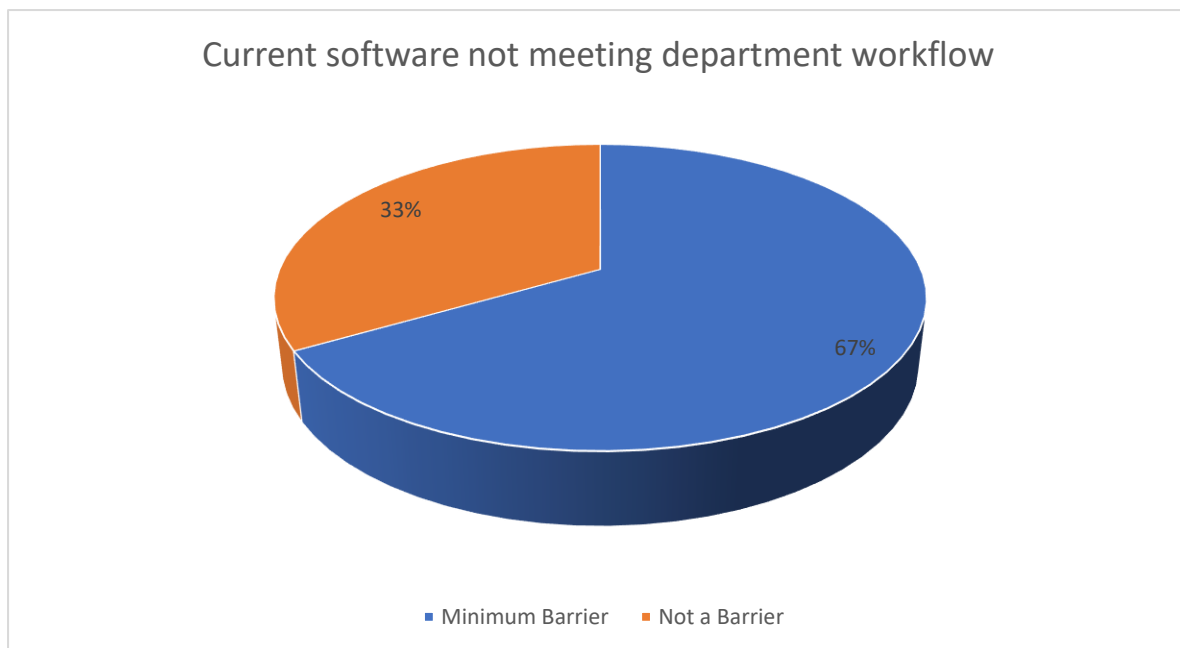


Figure ix

As per the analysis, the difficulty in information exchange has 29% of users have reported as a significant barrier and 43% considered it a moderate barrier, 14% of the respondents found it as not a barrier, and the remaining 14% found it as a minimum barrier.

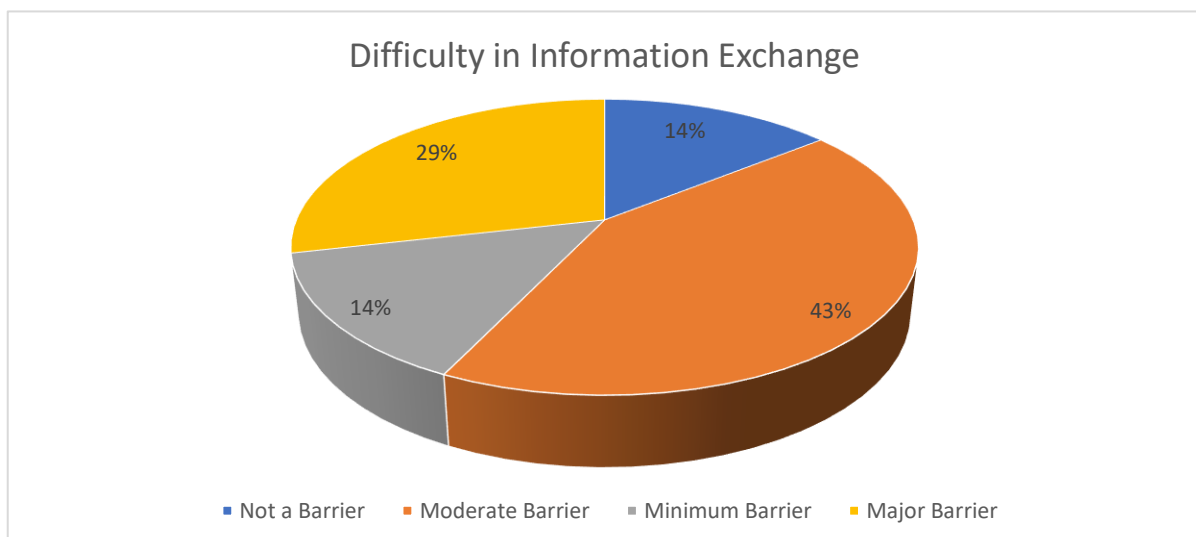


Figure x

Non-Reduction of operation time as a barrier, as per the analysis, only 33% considered it a moderate barrier and 17% as a minimum barrier, and surprisingly 50% thinks it as Not a barrier.

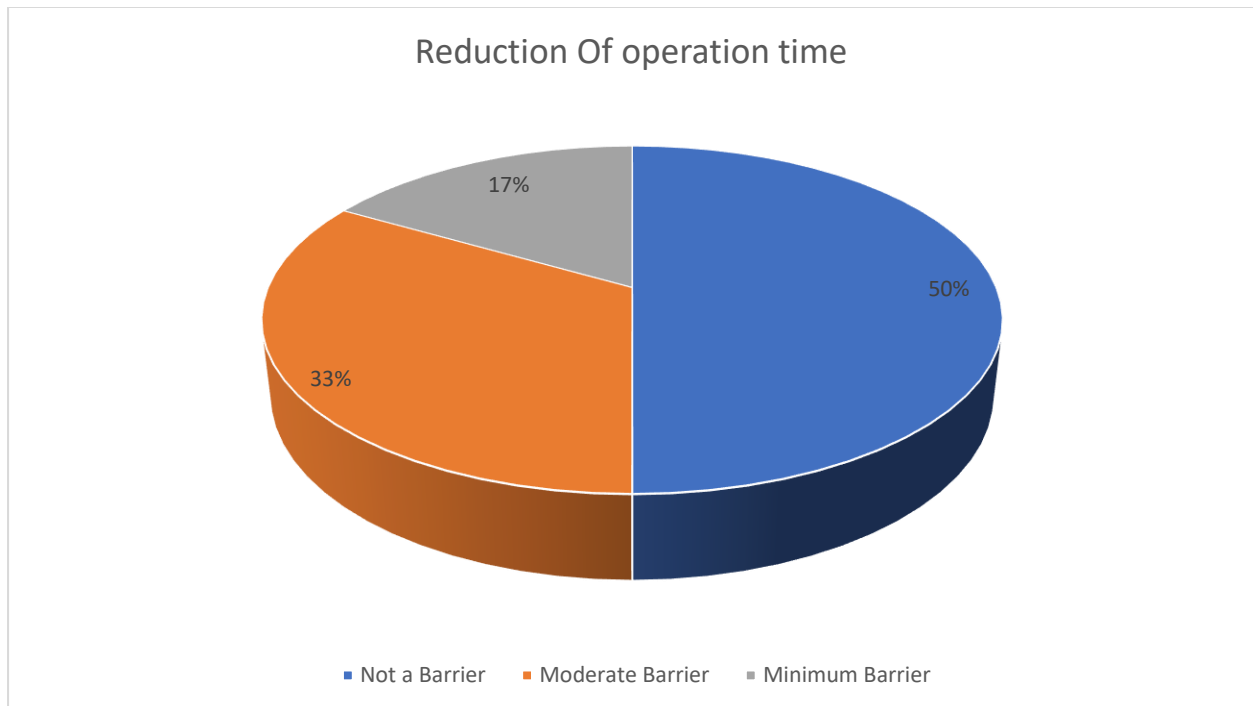


Figure xi

Out of 23 respondents belonging to Fleet managers category, 70% of them are very much satisfied with the IT support system, 17% are Somewhat satisfied, 4% are somewhat dissatisfied, 4% are very dissatisfied and 4% Neither satisfied nor dissatisfied.

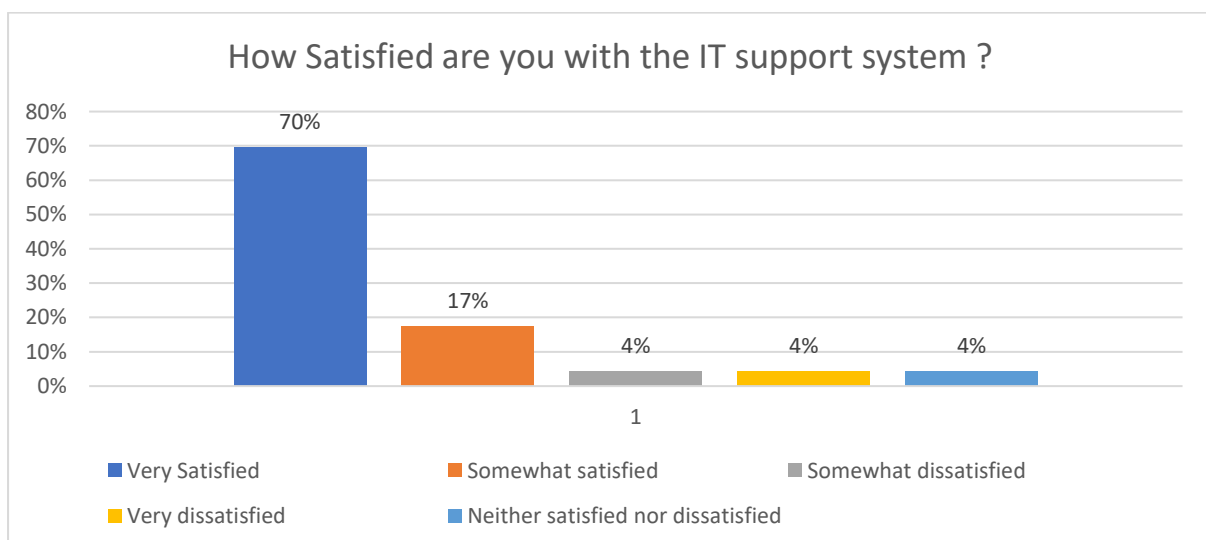


Figure xii

As per the analysis, A significant proportion of respondents have answered with yes to the question -"Do you think a lack of proper training and unavailability of manuals or guidelines for using "MOVEX" is a Barrier for implementation?" Out of the total respondents 45% considers it as a significant barrier and 18% as a minimum barrier, 18% moderate barrier, and 18% as not a barrier.

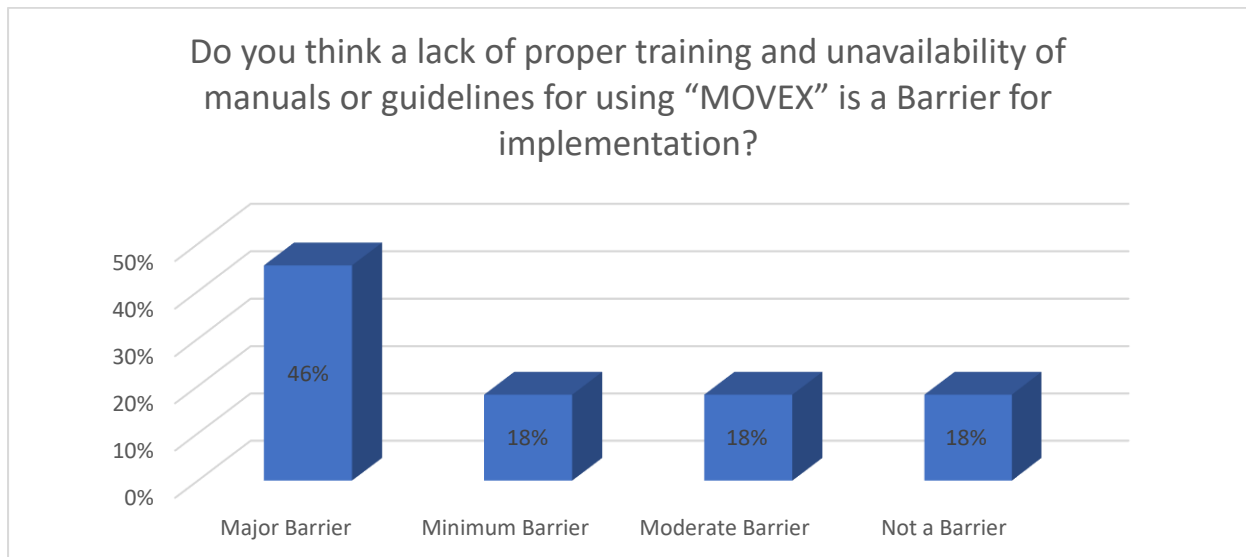


Figure xiii

As per the analysis, 31% of the respondents with a response "Yes" to the question have considered lack of training as a significant barrier, 19% as a minimum barrier, 19% as a moderate barrier, and 31% thought it was 'not a barrier'..

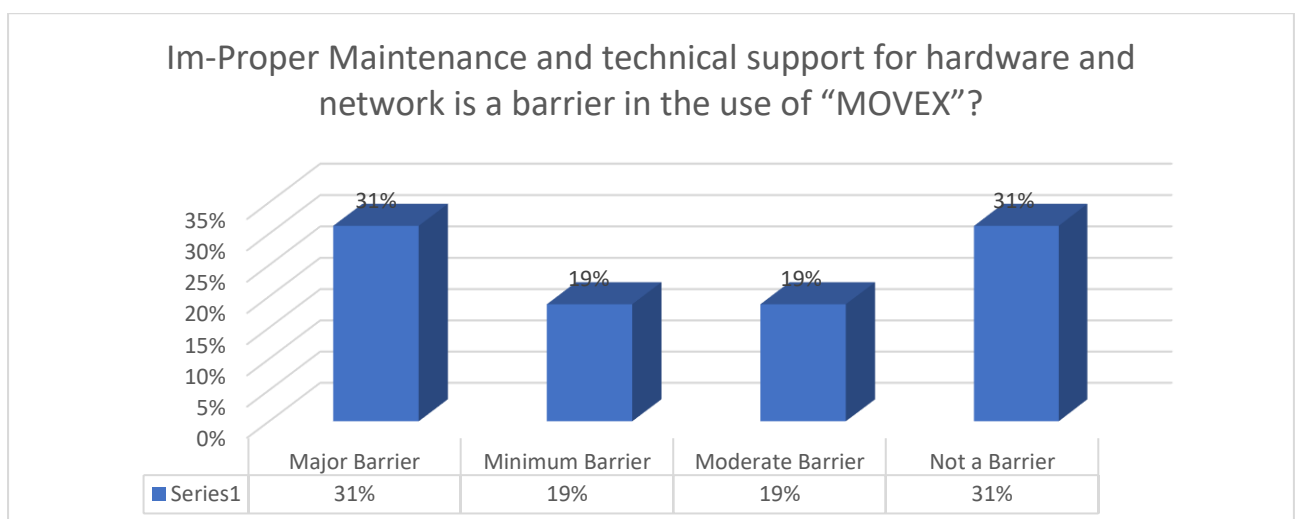


Figure xiv

As per the analysis, only four per cent of participant found the screen layout as poorly designed and the rest have seen the screen layout as well the design.

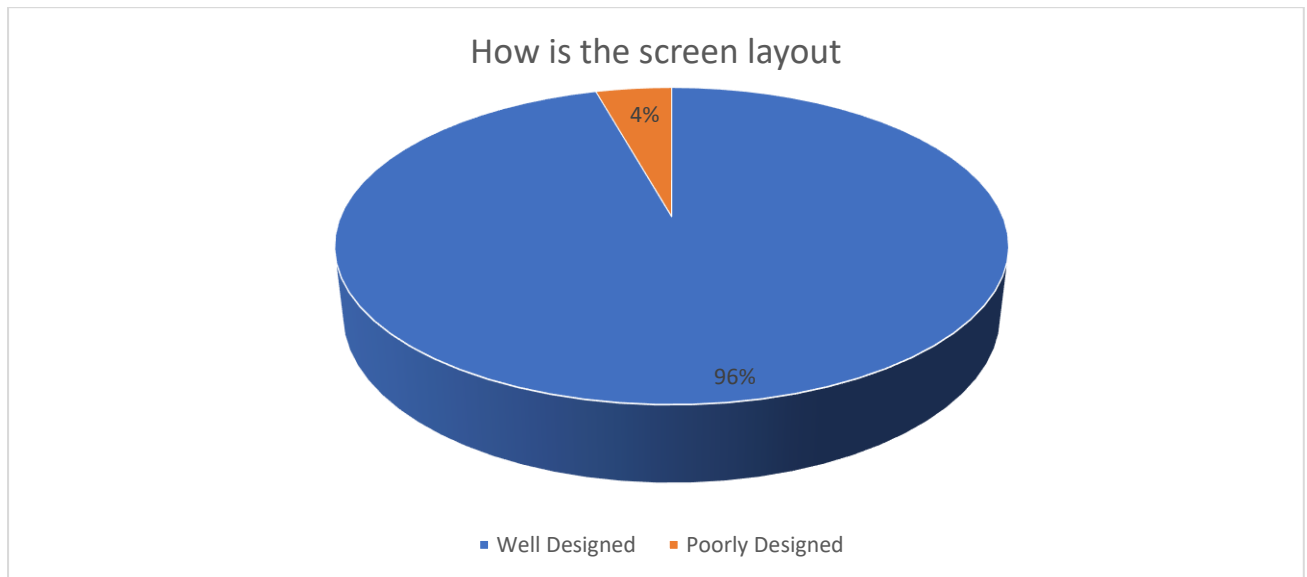


Figure xv

As per the analysis, 96% of the sample considered information is readable and only 4% considered as Confusing.

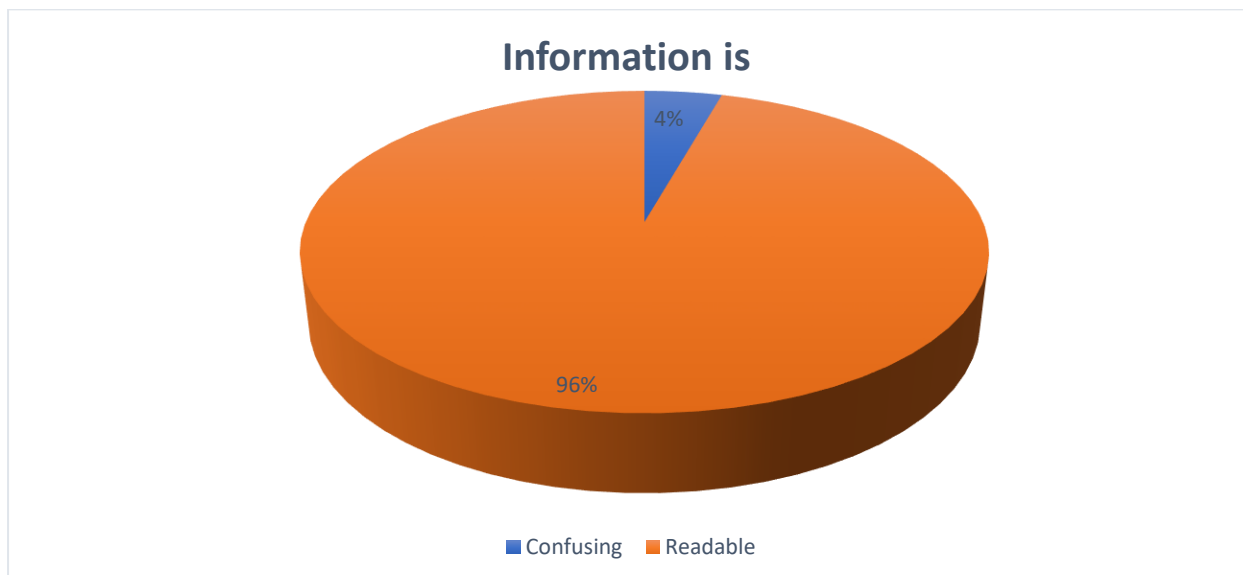


Figure xvi

As per the analysis, 96% of the sample considered charts are concise, and only 4% considered as diffused.

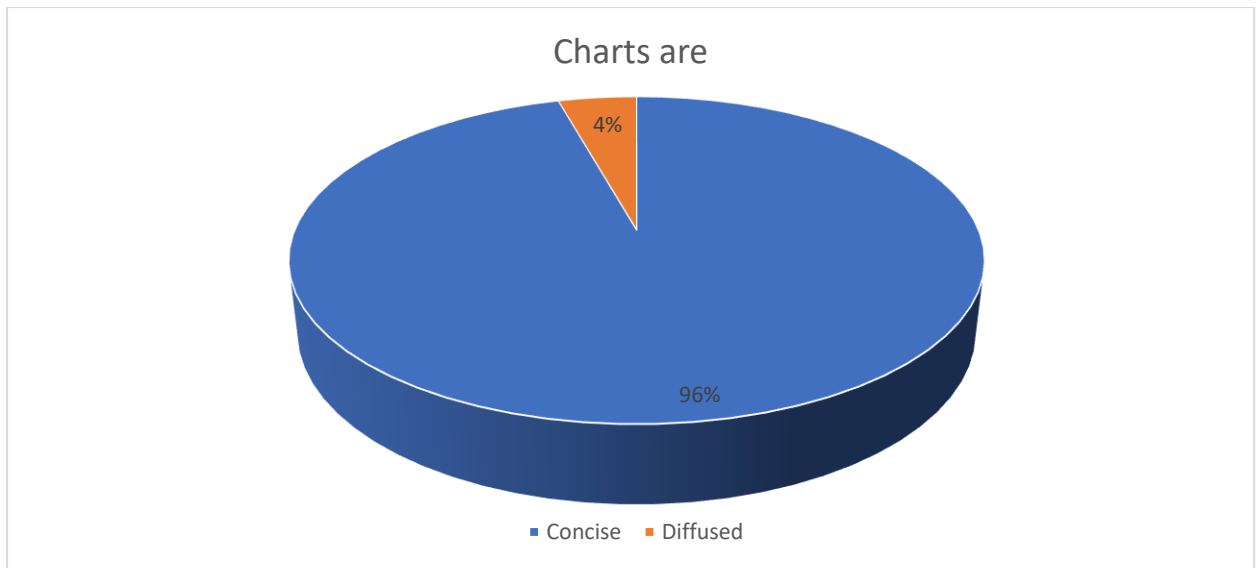


Figure xvii

As per the analysis among the sample, 35% considered the screen interface as rigid and rest 65% as easy to customize.

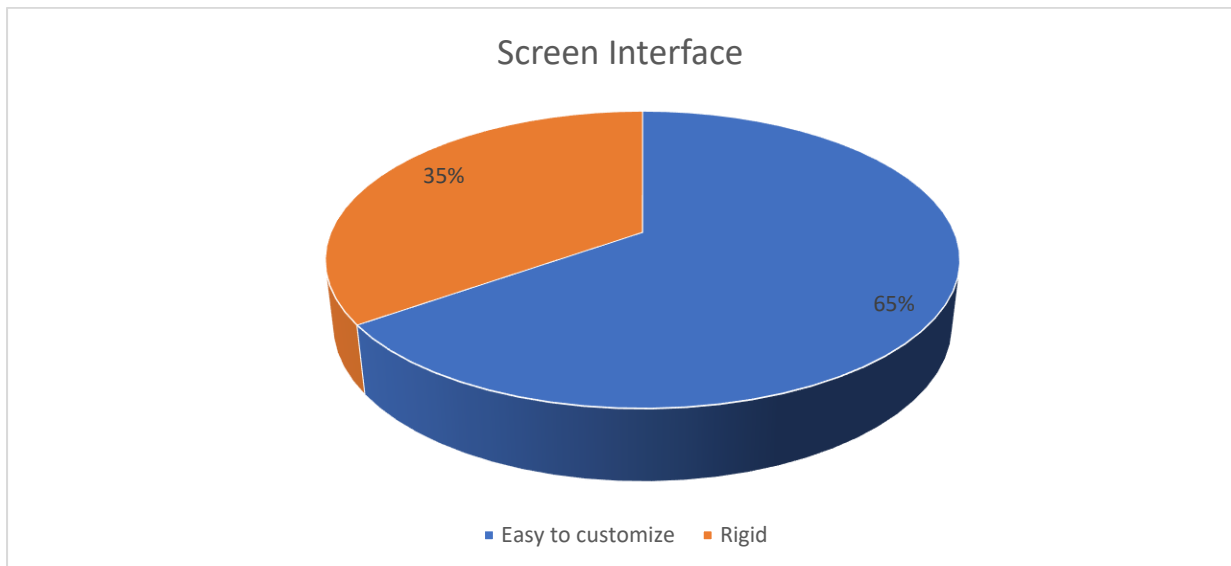


Figure xviii

As the analysis suggests, out of the sample, only 50% considered it a moderate barrier and rest 25% as a major barrier and 25% Not a barrier, respectively.

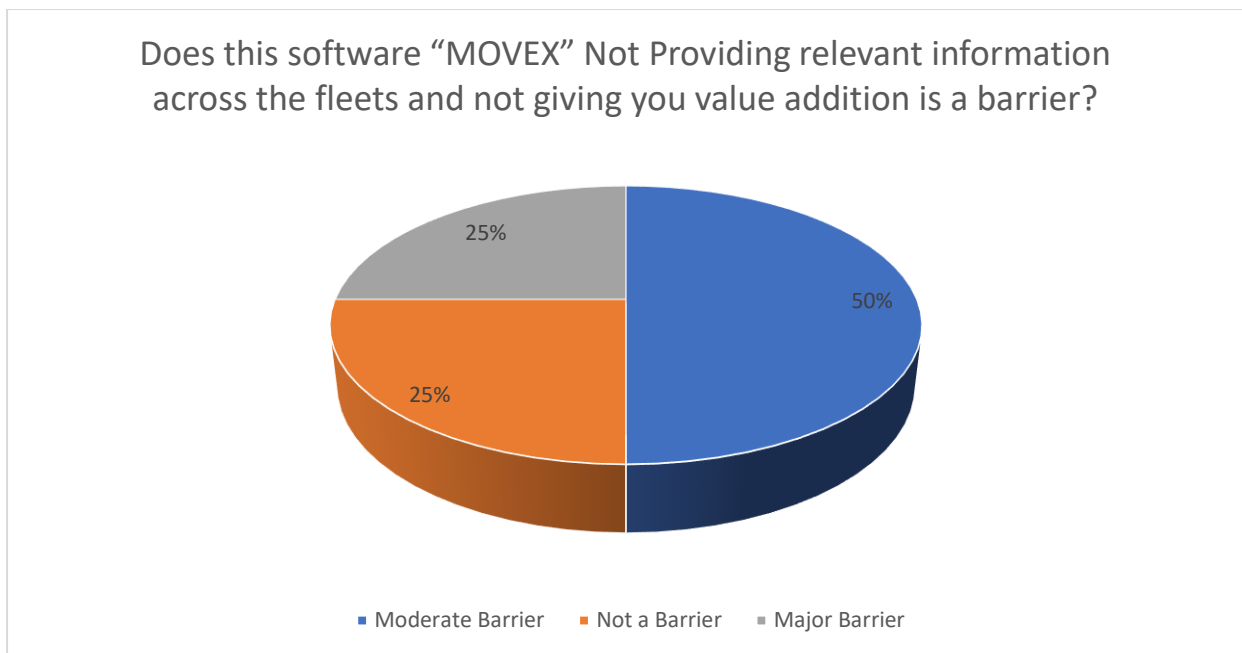


Figure xix

Suggestions

Suggestions by administration staff

Adequate training to the transport/ fleet managers on data entry and report generation. Orientation to the administrators on various reports from MoveX and analysis of the same. Prompt Back end support whenever there is a technical issue in the software
More of visibility
If MOVEX Can be used as an application so that tracking can be easier
no, as such
Since the users mostly belong to the transport department, the module could be simple to understand & easy to operate. Flexibility to customize the software as per the client's need is mandatory.
To enable the option of adding additional locations in between the targeted location or flexibility of changing the destination
Yes, things are in much better control post-implementation. Users have to mandatory use of the system
Effective end User Training
No
Training

Suggestions by fleet managers

Nil
It's easy for understanding
If by mistake wrong meter reading is added in MoveX, we do not have the option to edit that. There is an option in MoveX to fetch data if the driver accelerated the vehicle too much, but no data is recorded by MoveX and no information is provided on how much time a vehicle stayed at a single place.
Some times site is not available this problem to be solved
Recommended More Report Details from MOVEX
Training for my Team and Myself
This software is very comfortable to use
Good Software
Nothing
In between trips modification is not possible
No as Such
Invest in the efficiency
Nothing
Proper training and regular upgradation.
Training
More focus on training of the users could be made.
More focus on training of the users could be made.
Route change is not possible after starting trip
Good software
Real-time tracking does not work sometimes
Nothing
Good software
More information requires

Discussion:

As a result, describes prime issues and factors which are affecting the adaption as well as Implementation MoveX in across all units of Sankara eye hospital. It is essential to keep in mind about the issues as well as their priority by the End users like administration staff and fleet managers. While the Open-Ended question collects the critical issues, which are present in the system in the questionnaire and the rest issues are denoted in the response. The priority of the barrier can be beneficial in administering the problems which are currently present in the system.

For Fleet Managers

As the fleet managers have responded, the Barriers in adaptation and implementation were:

Current software not meeting department workflow

These are some issues, which were denoted by fleet managers that some operations they have to do manually, like the entry from odometer reading, which is done by the security staff and same done by drivers in MoveX, where the security staffs are using traditional logbook for recording. All those data are re-entered into the system for checking.

Some of the other issues are the inability to edit data put by mistake and change of routes after starting a trip.

Difficulty in exchange of information

Difficulty in exchange of information means, unable to communicate to other departments like transportation department is unable to outreach department or user to IT Support.

The reasons vary from cases to cases like, "MoveX" is least compatible with the HMIS used in the hospital, which is "Medics" so the data from MoveX cannot be retrieved through medics. This is a critical issue which is faced by the end-users is the unavailability of the server. GPS/Network Failure, Hardware technical limitations, which could be improved to get more data about the fleet and can be used for better management.

No Reduction of operation time

Very few respondents said about no reduction in operation time, though everything is done digitally, some of the things like recording entry of time of drivers into campus. This is a very crucial data which is being done manually, and later it is entered into excel.

Lack of guidelines, manuals, and training

As the fleet managers are more used to the traditional system of management, without proper training and less availability of Manuals is causing resistance in adaptation to use the system.

Lack of technical support for hardware as well as network

This is a place where the organization is doing excellent still, Some of the suggestions came, where the respondents said, they were unable to fetch Live GPS Location of fleet/fleets, Non-Availability of Halt data and prompt less support is always a barrier in implementation.

Screen Interface

This is a part, which is visible to the end-user, which is also called as a graphical user interface or GUI, As very few respondents have said, the data is not concise, and charts are diffused, though there were some suggestions for improving the screen interface. The less intuitive interface creates a barrier in implementation among the users.

MoveX not providing valuable information across the fleet

Not fetching crucial driving information during a trip, inability to track halt data, as well as the failure of GPS data, are the points which need to be addressed. As the information is crucial and neatness of data is also essential for analysis. This is also a significant barrier, which needs to be checked.

For the Unit Heads

Uncertainty of Return on investment and lack of capital

In a financial aspect, the uncertainty of ROI and lack of sufficient capital has always been a barrier in implementing software solutions, because operational and maintenance cost is high on implementing digital solutions. Still, here, in this case, this was denoted as a minimum and moderate barrier.

Lack of IT support and Vendor Support

This is also a very important factor, here only 10% of the unit heads have responded with a lack of vendor support, and only 30% responded with lack of IT support.

Lack of Training and Guideline

Only 50% responded with a lack of training, and guideline is a barrier to implementation and adaptation. Lack of training always leads to confusion and slow working process.

Limitations of the study

- Sample Size-less number of respondents, because of fewer numbers of MoveX Users.
- Non-availability of literature resources

Conclusions

A digital fleet management solution is pointless, if the end-users will face challenges in daily usage and if the answer is unable to provide relevant and essential information, which can improve management of fleet in hospital.

Barriers identified in this study are as per the Unit Heads are Lack of Training and availability of guidelines and the Uncertainty of ROI and lack of capital resources as well as lack of IT support and vendor support are the contributing factors in barriers of implementation and Adaptation of MoveX.

As per the Fleet managers, the barriers identified in implementations and adaptation are difficulty in information exchange across department and challenges in meeting departmental workflow. Moreover, Lack of Training and availability of manual and guidelines are the profound barriers in implementation. As per the suggestion and report, the User interface is playing a vital role in the adaptation of the modern system by the end-users, Mostly regarded barrier is lack of IT support system, which plays a crucial role in daily issues regarding hardware and software.

The barriers which were covered under the open-ended question were, inability to perform changes in route, in the ability to modify MIS entry data by the end-user and less training of end-users. These are all the barriers which were reported by the unit heads as well as Fleet managers.

Recommendation

To achieve better smooth operation of the MoveX, Operation Manual and training of the end users could be made available.

Before Implementing any digital solution, Hospital Administration need to have a specific requirement list, so from the initial phase the software could be built accordingly

Fast Paced technical support could be implemented for better troubleshooting during significant problematic situations.

As the fleet managers are not much acquainted with modern technological systems, implementation of simple, concise user interface could be recommended. Easy to customize user interface creates an environment of ownership for the end user, so Easy to customize and simple user interface could be recommended for better implementation.

Significant issues regarding software as well as hardware could be addressed for making the system more usable, More systemic data could be made available for the fleet managers and administration staff, which are presently not available and requested by administration staff, the data like, Vehicle Idling time and halt location.

As the use of mobile technology among the end users are increasing day by day, Android and Apple mobile application could be introduced, so it could help the fleet managers track vehicles and resolve issues.

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Annexure

Data Collection tool:

Questionnaire for staff

Participant Profile

Gender	
Age	
Experience in Years	

1. Do you know about Digital Fleet management (MoveX)?
 - a) Yes
 - b) No
2. Does the current software meet your department workflow requirement?
 - a) Yes
 - b) No

If no, then- do you think current software is not meeting current workflow requirement is a barrier?

 - Not a Barrier
 - Minimum Barrier
 - Moderate Barrier
 - Major Barrier
3. Is there any difficulty in information exchange between different departments?
 - a) Yes
 - b) No

If yes, then difficulty in exchange of information in between departments is a barrier

 - Not a Barrier
 - Minimum Barrier
 - Moderate Barrier
 - Major Barrier
4. Do you think there is a reduction of operation time for managing fleet?
 - a) yes
 - b) no

if no, then Do you think, Ineffective in the reduction of operation time is a barrier in implementation?

 - Not a Barrier
 - Minimum Barrier
 - Moderate Barrier
 - Major Barrier

5. How satisfied you are with the IT support System in using "MoveX"?
 - Highly Unsatisfied
 - Moderately Unsatisfied
 - Neutral
 - Moderately satisfied
 - Highly Satisfied

6. Do you think a lack of proper training and unavailability of manuals or guidelines for using "MOVEX" is a barrier for implementation?
 - a) No
 - b) yes

If yes, then lack of proper training and unavailability of manuals or guidelines for using "MOVEX" is a Barrier for Implementation?

 - Not a Barrier
 - Minimum Barrier
 - Moderate Barrier
 - Major Barrier

7. Is Improper maintenance and technical support for hardware and network is a barrier in the use of "MOVEX"?
 - a) No
 - b) Yes

If Yes, then lack of maintenance and technical support for hardware and network is a barrier in the use of "MOVEX"?

 - Not a Barrier
 - Minimum Barrier
 - Moderate Barrier
 - Major Barrier

8. What do you think about the screen interface you used to display and enter data in the "MOVEX"?
 - The screen layout is- Well Designed / Poorly Designed
 - Screen colors are- Pleasant / Unpleasant
 - Information is – Readable / Confusing
 - Graphics are- Good / Uninteresting
 - Charts are – Concise / Diffused
 - Screen interface – Easy to customize / Rigid

9. Does this software "MOVEX" provide relevant information across the fleets and gives you value addition?

1) Yes

2) No

The software "MOVEX" is unable to provide relevant information across the fleets and unable to add value, do you think it is a barrier in implementation?

- Not a Barrier
- Minimum Barrier
- Moderate Barrier
- Major Barrier

10. Kindly list any suggestions in "MOVEX" to enhance the usage for an easy implementation?

Questionnaire for Administration Staff

Participant Profile:

Gender	
Age	
Experience in Years	

1. Do you know about the Digital fleet Management system (MoveX)?
 - Yes
 - No
2. Do you think that the lack of sufficient capital resources is a barrier in the Implementation of Digital fleet management like MOVEX?
 - a) No
 - b) Yes

If yes, please rate the barrier severity

- Not a Barrier
- Minimum Barrier
- Moderate Barrier
- Major Barrier

3. Uncertainty of Return of Investment after implementing and using MOVEX?
 - a) No
 - b) Yes

If yes, please rate the severity of barrier

- Not a Barrier
- Minimum Barrier
- Moderate Barrier
- Major Barrier

4. Do you receive any available support from the vendor?
 - a) Yes
 - b) No

If no, please rate the intensity of barrier

- Not a Barrier
- Minimum Barrier
- Moderate Barrier

- Major Barrier

5. Is the lack of a good IT support system a major barrier in the Implementation of MOVEX?

- a) No
- b) Yes

If yes, please rate the severity of barrier

- Not a Barrier
- Minimum Barrier
- Moderate Barrier
- Major Barrier

6. Did the installation of MoveX enhance the productivity of the transport department?

- a) Yes
- b) No

If no, please rate the severity of barrier

- Not a Barrier
- Minimum Barrier
- Moderate Barrier
- Major Barrier

7. Lack of proper training and unavailability of manuals or guidelines for using Movex is a barrier?

- a) No
- b) Yes

If yes, please rate the severity of barrier

- Not a Barrier
- Minimum Barrier
- Moderate Barrier
- Major Barrier

8. Do you think the Implementation of MOVEX leads to data safety Issues?

- a) No
- b) Yes

If yes, please rate the severity of barrier

- Not a Barrier
- Minimum Barrier
- Moderate Barrier
- Major Barrier

9. Kindly list any suggestions in "MOVEX" to enhance the usage for an easy implementation?
