A STUDY ON COMMERCIALIZATION OF HAND HELD POINT OF SALES TERMINALS

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A PROJECT REPORT

Submitted to the

FACULTY OF MANAGEMENT SCIENCES

in partial fulfillment for the award of the degree

of

MASTER OF BUSINESS ADMINISTRATION

CENTRE FOR DISTANCE EDUCATION
ANNA UNIVERSITY CHENNAI
CHENNAI 600 025

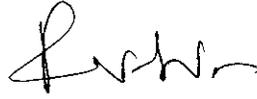September, 2013

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Certified that the Project report titled "**A STUDY ON COMMERCIALIZATION OF HAND HELD POINT OF SALES TERMINALS**" is the bonafide work of

Ms.R.MANJU BHARATHI who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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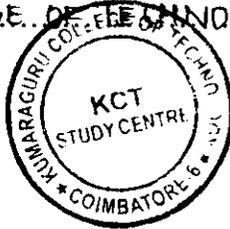
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ACKNOWLEDGEMENT

It is my great privilege to express our gratitude and respect to all those who have guided and helped me during the course of my project work.

I feel privileged to thank our Counselor of MBA Programme, KCT Study Centre, Coimbatore, Asst. Professor **A. Senthil Kumar** for wonderful guidance and support.

I extend my deep sense of gratitude to **R. Vinayaga Sundaram**, for permitting me to carry out my project under his guidance and extending his valuable suggestions to complete my project successfully. I would like to thank for his guidance and constant encouragement for the successful completion.

I would like to thank **The Managing Director, Clancor Technovates Pvt India Ltd, Coimbatore,** for permitting to carry out my project. I extend my deep gratitude for support and suggestion throughout my work and his timely help to complete my project.

I thank all to Department of Oncology who supported for my questionnaires with hearty participation and dedication towards my goal to achieve my project

I thank all professors, Lecturers and staff members of KCT Study Centre, Coimbatore for their help to complete my project work.

I express my thanks to my Parents, Family members and Friends for their support, concern and prayers which were major factor in the completion of my project.

Above all, I thank Almighty for his blessings and grace which enabled me in all my endeavors.

R.MANJU BHARATHI

ABSTRACT

The electronic point-of-sale terminal is the newest form of computer technology being introduced into the retail industry. Not only to improve the status of Business but also to improve the Business in an efficient manner in the means of Time management, to reduce man power and the like. The proper way of development has to be carried out, proper way of Management is also to be taken care and finally it is very much important to track whether the POS terminals are reaching the Customer as they required. For that, in the life time of POS terminals from Development stage to Usage stage, it is to be taken care.

A view of Developer, Management and Customer has to be reviewed for the better usage of POS terminals so as to attain the benefits of it.

This study reviews the views of Developer, Management and the Customer and followed by the recommendations. The final section of the article also proposes the suggestions given by all the three people who are involved in the POS terminal business and the suggestions that can be implemented as a result of the output got through various tests.

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CHAPTER 1
INTRODUCTION

1.1 RESEARCH BACKGROUND

Hand Held Point Of Sales Terminals (POS) are fast developing technology in the Business world. Focus on improving business performance at lowered cost.

Businesses single or multi-branch specialty stores such as Publishing and Distribution, Supermarket, Mobile Store and Accessories, Toy Showroom, Consumer Electronics / Computer Hardware and Spares, Flowers and Boutiques, Cosmetics, Luggage and Bag shops can use POS.

It is also called as **Point of Purchase** or **Checkout** and it is the place where a retail transaction is completed. It is the point at which a customer makes a payment to the merchant in exchange for goods or services. At the point of sale the retailer would calculate the amount owed by the customer and provide options for the customer to make payment. The merchant will also normally issue a receipt for the transaction.

The POS in various retail industries uses customized hardware and software as per their requirements. Retailers may utilize weighing scales, scanners, electronic and manual cash registers, EFTPOS terminals, touch screens and any other wide variety of hardware and software available for use with POS. For example, a grocery or candy store uses a scale at the point of sale, while bars and restaurants use software to customize the item or service sold when a customer has a special meal or drink request.

The modern point of sale is many times called as the Point of Service because it is not just a point of sale but also a point of return or customer order. Additionally it includes advanced features to cater to different functionality, such as inventory management, CRM, financials, warehousing, etc., all built into the POS software. Prior to the modern POS, all of these functions were done independently and required the manual re-keying of information, which can lead to entry errors.

With all these benefits the need of POS terminals are widely increasing. Customers are made to be satisfied by the Management with the proper development of features.

1.2 PROBLEM IDENTIFIED

Problems are identified as the common phenomena as the dissatisfaction for the people (Developer, Management and the Customer) who are involved in the life cycle of POS terminals. A study is carried out on these dissatisfaction and to benefiting all.

1.3 NEED FOR THE STUDY

Companies have increased their use of internal and external sources in pursuit of a competitive advantage through the effective and timely commercialization of Point Of Sales terminals.

Grounded in the resource-based view of the firm, this study examines the effect of a company's use of internal and external sources by taking care of Customer's perception on multiple dimensions with successful commercialization.

The study also explores the Customer view and Developer view on POS terminals. Applying a longitudinal design and data by Questionnaire, the results are traced out.

1.4 OBJECTIVES OF THE STUDY
1.4.1 PRIMARY OBJECTIVE

To study on how to commercialize the Hand Held Point of Sales Terminals which benefits the Customer, Management and the Developer.

1.4.2 SECONDARY OBJECTIVE

➢ To understand the expectation of the Customer.
➢ To understand the thoughts of Management in case of Development and as well as Commercialization.
➢ To bring out different ways to implement new features for development and Commercialization.
➢ To understand the views of Developer in the Customer's perspective

1.5 DELIVERABLES

The comparative study helps to identify the problems faced right from the development stage to the usage stage of POS terminals. This also delivers the actual requirements by the customer, actual problems faced by the developers when developing the POS terminals and also the Management views.

CHAPTER 2
LITERATURE SURVEY

2.1 REVIEW OF LITERATURE
2.1.1 Literature Identification and Collection:

The literature search was conducted with the help of library search engines. We used professional databases, IEEE Explore, and Springer. In addition, general search engines such as Google Scholar were used to supplement this process. Since the use of POS terminals in the Market is quite recent, the search was performed in early start of the project and repeated at the end of August in 2013 to ensure that literature review is most up-to-date and comprehensive.

The literature review supplements, but does not replace, other data collection methods. It simply provides a quick overview. Sources of published literature include books, professional journals, association magazines, theses, and dissertations. Unpublished studies may be available from professional associations, consulting firms, colleges and universities that offer training programs for your target job, and through the Internet. The quality of these studies will vary widely and they need to be critically evaluated before use.

For searches, employed the following keywords and their combinations are Hand Held POS terminal, Customer views, Managerial thoughts and Developer thoughts, Market strategy. Journal and conference papers addressing all the providers and users of POS terminals were identified. Technical reports were excluded since focus on research papers.

2.1.2 Literature Categorization and Research Framework:

In the second stage, collected literature was classified into several categories based on the proposed research framework, which will be introduced in the next section. With the guide of this framework, we identify why POS terminals are much attractive to the Business, how it is applied in different areas, and what technologies are used in practice. The research papers also discusses about the Commercialization techniques undertaken for the better reach to the Customers hand and the Development strategies for the POS terminals for the developers.

2.1.3 Literature Analysis, Evaluation and Implications:

The last phase followed our proposed research framework and conducted detail analysis with regard to the literature. We proposed some useful suggestions and implications (e.g., the most popular application, the perceived benefits and critical barriers) for researchers in this area.

2.1.4 POS Technology:

Point of sale is the place where a retail transaction is completed. It is the point at which a customer makes a payment to the merchant in exchange for goods or services. At the point of sale the retailer would calculate the amount owed by the customer and provide options for the customer to make payment. The merchant will also normally issue a receipt for the transaction.

Vendors and retailers are working to standardize development of computerized POS systems and simplify interconnecting POS devices. Two such initiatives are OPOS and JavaPOS, both of which conform to the Unified POS standard led by The National Retail Foundation.

OPOS (OLE for POS) was the first commonly adopted standard and was created by Microsoft, NCR Corporation, Epson and Fujitsu-ICL. OPOS is a COM-based interface compatible with all COM-enabled programming languages for Microsoft Windows. OPOS was first released in 1996. **JavaPOS** was developed by Sun Microsystems, IBM, and NCR Corporation in 1997 and first released in 1999. JavaPOS is for Java what OPOS is for Windows, and thus largely platform independent.

There are several communication protocols POS systems use to control peripherals:

- Logic Controls
- Epson Esc/POS
- UTC Standard
- UTC Enhanced

- AEDEX
- ICD 2002
- Ultimate
- CD 5220
- DSP-800
- ADM 787/788
- HP

There are also nearly as many proprietary protocols as there are companies making POS peripherals. EMAX, used by EMAX International, was a combination of AEDEX and IBM dumb terminal.

Most POS peripherals, such as displays and printers, support several of these command protocols in order to work with many different brands of POS terminals and computers.

2.1.5 The Needs of POS Terminals:

A point-of-sale (POS) terminal is a computerized replacement for many applications such as cash register. Much more complex than the cash registers of even just a few years ago, the POS system can include the ability to record and track customer orders, process credit and debit cards, connect to other systems in a network, and manage inventory. Generally, a POS terminal has as its core a personal computer, which is provided with application-specific programs and I/O devices for the particular environment in which it will serve. A POS system for a restaurant, for example, is likely to have all menu items stored in a database that can be queried for information in a number of ways. POS terminals are used in most industries that have a point of sale such as a service desk, including restaurants, lodging, entertainment, and museums.

Increasingly, POS terminals are also Web-enabled, which makes remote training and operation possible, as well as inventory tracking across geographically-dispersed locations.

And these POS terminals are tend to run on a range of operating systems, including DOS, Windows, Linux and Unix with effective Graphical User Interface.

2.1.6 CUSTOMER VIEW ON POS TERMINALS:

The heightened intensity of retail competition has drastically changed the way distribution companies operate their distribution systems. These changes include the application of the integrated logistics management concept to the analysis and design of their supply chains and, what is most important, extensive use of information technology to gain a competitive edge. Five major information technologies which have become increasingly common in practice are:

➤ Point-of-sale (POS) systems;

➤ Bar-coding

➤ Electronic data interchange (EDI)

➤ Value-added networks (VANs) and

➤ Electronic ordering systems (EOSs).

In addition, distribution firms should maintain close relationships and effective communications with their channel/trading partners, render necessary support to them and provide customers with satisfactory service. These have been deemed the key factors for distributors' success in managing their logistics systems.

The purpose of this article is to formulate an integrated framework for distribution firms to establish and so improve their distribution systems of such POS terminals.

Worldwide there are a lot of different standards for electronic payments. These differences consist of communication protocols, currencies and bank-organization standards which are historically formed in small regions. With globalization of economies, borderline payments are more common and will probably grow in the future. Other worldwide movements, like the implementation of the euro, stimulate exchanging money amongst worldwide regions. This paper describes the conventional way of vendor's POS-payment transactions and how POS-payments could be done through web services. The literature review is focused on the world-wide standards and the architecture framework. Other business issues, like costs are also mentioned to make clear what the considerations are when web services are investigated.

2.1.7 CONVENTIONAL POS TERMINAL COMMUNICATION:

The conventional electronic payment transaction method is used worldwide from the early eighties. POS terminals communicate via dedicated communication lines to one specific financial institute. All transactions are done via directly coupled connection lines. These financial institutions are mostly large players in a country or region. For example, Interpay in the Netherlands is originally founded by Dutch banks in 1994 [3] to set up, manage and develop an efficient payment infrastructure. Almost all of the Dutch payment transactions are done through Interpay so you could call it a monopolist. This also applies to some other European countries (like Banksys in Belgium and Cetrel in Luxemburg [26]). In Germany, more financial Institutions are active on payment transaction market, each operating its own network

CHAPTER 3
METHODOLOGY

3.1 RESEARCH METHODOLOGY

Research Methodology is a systematic way to solve the research problem. It may be understood as a science of studying how research is done scientifically. In this, we study various steps that are generally adopted by a researcher in studying his/her research problem along with the logic behind them. The researcher should also know the methodology. The methodology of this research process is as follows:

3.1.1 TYPE OF RESEARCH:

It is a descriptive study which describes data and the characteristics about the population being studied. Here it to use to describe the effectiveness of the Interview and Questionnaire conducted in the hospital associate. The research is meant to gain insight and familiarity of the RFID technique used in hospital.

3.1.2 RESEARCH INSTRUMENT FOR DATA COLLECTION

Both primary and secondary data is used for this project.

3.1.2.1 PRIMARY DATA

Questionnaire: To collect information from the Customers, Developers and Management of the Hand Held Point of Sales Terminals.

3.1.2.2 SECONDARY DATA

Published in website: To collect the pricing details of the cloud infrastructure and physical in-house servers.

3.1.3 QUESTIONNAIRE DESIGN

The questionnaire framed for the research study is a structured questionnaire in which all the questions are predetermined before conducting the survey. Questions are of both closed and open type.

The scales used to evaluate questions are:

1. Dichotomous scale (Yes or No)
2. LIKERT 5 point scale (Highly dissatisfied, satisfied, Neutral, dissatisfied, highly satisfied)
3. Category scale (Multiple items)
4. Text Box

The questionnaire for the research is framed in a clear manner such that it enables the respondents to understand and answer the question easily. The questionnaire was designed in such a way that the questions are short and simple and is arranged in a logical manner.

There are three kinds of questionnaire. One is framed for Management; one is framed for Customer; Final one framed for Developer.

The way for splitting questionnaire is to pull the different ways of answers and different ways views from different people who are going to get the benefit with Point of Sales Terminals. So it is very easy to compare the thoughts in different aspects from different people.

[Questionnaires are placed in the last page]

3.1.4 METHODOLOGY-A BRIEF SKETCH

Name of the study   : Descriptive study- Survey Type

Nature of the data   : Primary data

Primary Sources   : Management, Developer & Customer view gathering by a
                        structured questionnaire,
                        Clancor Technovates India Private Limited,
                        Coimbatore

Sampling method   : Probability Sampling Method, Systematic Random Sampling

Sample size   : Customer View – 26
                        Management View – 21
                        Developer View – 29

Total Sample size – 76

Geographical area : Tamil Nadu

Research Instrument : Questionnaire

Data collection method: Through questionnaire

3.2 TOOLS USED FOR ANALYSIS

3.2.1 PERCENTAGE ANALYSIS:

Percentage refers to a special kind of ratio. Percentage analysis test is done to find out the percentage of the response of the respondents. In these tool various percentage are presented by the way of bar- diagram, pie charts in order to have better understanding of the analysis.

Formula: Percentage = (number of respondents/ total number of respondent)* 100

3.2.2 SUMMARY STATISTICS:

Summary Statistics are used to summarize a set of observations, in order to communicate the largest amount as simply as possible. Statisticians commonly try to describe the observations in a measure of location, or central tendency, such as the arithmetic mean, a measure of statistical dispersion like the standard deviation.

Formula: a) mean = $\sum xi / n$.

b).variance =The average of the **squared** differences from the mean.

c).S.D = the **square root** of the **variance.**

3.2.3 WEIGHTED AVERAGE:

Mean in which each item being averaged is multiplied by a number based on the item's relative importance. The result is summed and the total is divided by the sum of the weights. Weighted averages are used extensively in descriptive statistical analysis such as index numbers. Also called as weighted mean.

Formula:

WEIGHTED AVERAGE= $(\sum WXi)/ (\sum W)$

$\sum WXi$=the sum of weights

$\sum W$=occur with weights

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 CUSTOMER'S VIEW WITH PERCENTAGE ANALYSIS:

Based on questionnaires collected from 26 respondents (Customer), an analysis is carried out to study on Commercialization effectiveness on the usage of Point of Sales terminals.

TABLE: 4.1.1

RESPONSE ON AREA FROM WHERE THE USERS ARE COMING FROM

You are from which kind of Area?	No of respondents	% of responses
Urban	8	31%
Rural	18	69%
Total	26	100%

FIGURE: 4.1.1

RESPONSE ON AREA FROM WHERE THE USERS ARE COMING FROM

Rural [18]   Urban [8]
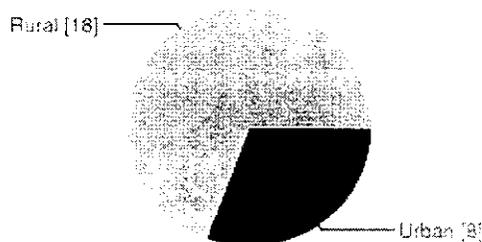
INTERPRETATION:

From the above table 31% of the respondents are from Urban area and 69% of the respondents are from Rural area. So it is clear that the Customers who are responded are mainly from the Rural area.

TABLE: 4.1.2

RESPONSE ON HAND HELD POINT OF SALES TERMINAL USERS

Have you ever worked with Point of Sales (POS) terminals?	No of respondents	% of responses
Yes	25	96%
No	1	4%
Total	26	100%

FIGURE: 4.1.2

RESPONSE ON HAND HELD POINT OF SALES TERMINAL USERS
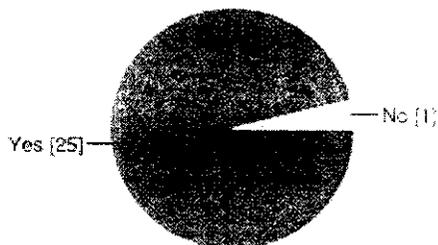
INTERPRETATION:

From the above table 96% of the respondents are the users of Point Of sales Terminals and only 4% of the respondents are non users of POS terminals.

TABLE: 4.1.3

RESPONSE ON THE USAGE REQUIREMENT OF HAND HELD POINT OF SALES TERMINALS

Do u think that the usage of Point Of Sales terminals are required in your life?	No of respondents	% of responses
Yes	24	92%
No	2	8%
Total	26	100%

FIGURE: 4.1.3

RESPONSE ON THE USAGE REQUIREMENT OF POS TERMINALS

Yes [24]   No [2]
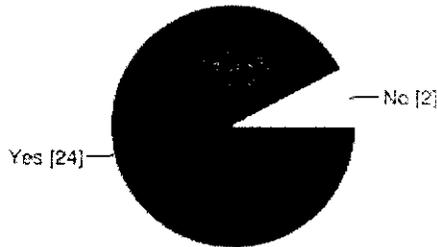
INTERPRETATION:

From the above table 92% of the respondents thinks that usage of POS Terminals are required in their daily life and only 8% of the respondents thinks that usage of POS terminals are not required in their daily life.

TABLE: 4.1.4

RESPONSE ON THE REQUIREMENT OF HAND HELD POS TERMINALS

Reason for the requirement	No. Of respondents for the requirement for usage	Percent
Reduces man power	23	30%
Compatible	16	21%
Ease of usage	17	22%
Time Management	19	25%
Other	1	2%
Total percentage		**100.0%**

FIGURE: 4.1.4

RESPONSE ON THE REQUIREMENT OF HAND HELD POS TERMINALS

Reduces man power
Compatible
Ease of usage
Time Management
Other

0   5   10   15   20   25
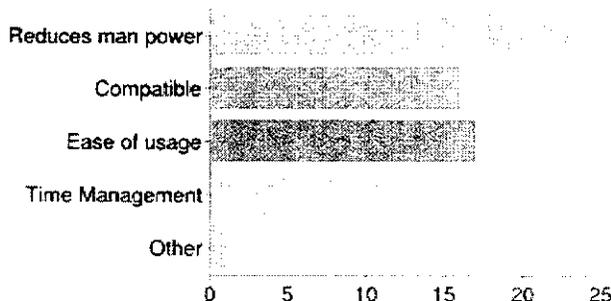
INTERPRETATION:

From the above table it is clear that,

1. 30% of the respondents think that the usage of POS terminal will reduces the Man power.

2. 21% of the respondents think that POS terminal are highly compatible for the usage

3. 22% of the respondents think that POS terminals are very easy for using and handling

4. 25% of the respondents think that the usage of POS terminal will reduces the working time and for better time management

5. 2% are other respondents

TABLE: 4.1.5
RESPONSE ON THE NON REQUIREMENT OF HAND HELD POINT OF SALES TERMINALS

Reason for non requirement	No. Of respondents for the non requirement for usage	Percent
High cost	12	55%
Fear of Explosion	1	5%
Lack of Knowledge	6	27%
Time Management	2	9%
Other	1	4%
Total		**100.0%**

FIGURE: 4.1.5

RESPONSE ON THE NON REQUIREMENT OF HAND HELD POINT OF SALES TERMINALS
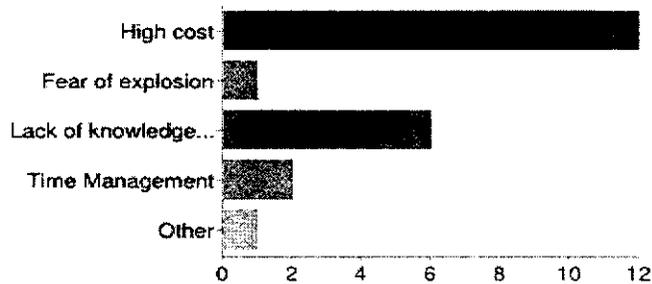
INTERPRETATION:

From the above table it is clear that,

1. 55% of the respondents think that of more cost.

2. 5% of the respondents think that POS terminal may get explosive since it is an Electronic device

3. 27% of the respondents think that usage of POS terminal is not required because they don't have enough knowledge about the POS terminal.

4. 9% of the respondents think that the usage of POS terminal is time consumable.

5. 4% are other respondents

TABLE: 4.1.6

KIND OF HAND HELD POINT OF SALES TERMINALS WHERE THE CUSTOMERS ARE USING

Kind of POS terminals	No. Of respondents for the kind of POS terminals using	Percent
Money transaction	6	19%

Weighing terminals	4	13%
Bus ticketing	11	33%
Point Of Sales terminals on Biometric verification for security purpose	7	22%
Token related Point Of Sales terminals	4	13%
Other	0	0
Total		**100.0%**

FIGURE: 4.1.6

KIND OF HAND HELD POINT OF SALES TERMINALS WHERE THE CUSTOMERS ARE USING
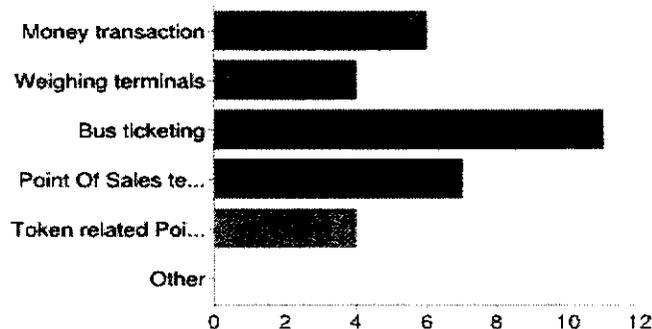
INTERPRETATION:

From the above table it is clear that,

1. 19% of the respondents are working with Money Transactional POS terminals.

2. 13% of the respondents are working with Weighing POS terminals.

3. 33% of the respondents are working with Bus Ticketing POS terminals.

4. 22% of respondents are working with Point Of Sales terminals on Biometric verification for security purpose

5. 13% of the respondents are working with Token related POS terminals.

TABLE 4.1.7
DEGREE OF SATISFICATION WHEN WORKING WITH POS TERMINALS

Level of satisfaction	No of respondents	% of responses
Highly Dissatisfied	0	0%
Dissatisfied	2	8%
Neutral	5	19%
Satisfied	14	54%
Highly Satisfied	5	19%
Total	26	100%

FIGURE: 4.1.7

DEGREE OF SATISFICATION WHEN WORKING WITH POS TERMINALS
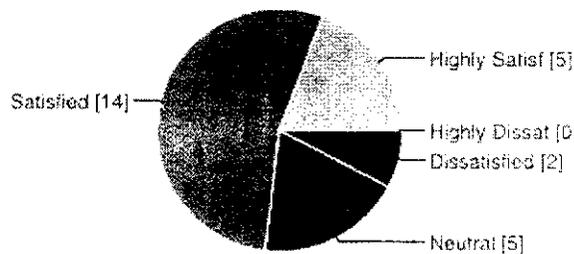
INTERPRETATION:

From the above table it is clear that,

1. 5% of the respondents are highly satisfied when working with Point Of Sales Terminals.

2. 54% of the respondents are satisfied when working with Point Of Sales Terminals.

3. 19% of the respondents neither satisfied not dissatisfied when working with POS terminals.

4. 8% of respondents are dissatisfied when working with POS

TABLE: 4.1.8

LACK OF SATISFACTORY LEVEL WHEN USING HAND HELD POINT OF SALES TERMINALS

Is there any lack in satisfactory level when you using your Point Of Sales terminals?	No of respondents	% of responses
Yes	17	65%
No	9	35%
Total	**26**	**100%**

FIGURE: 4.1.8

LACK OF SATISFACTORY LEVEL WHEN USING HAND HELD POINT OF SALES TERMINALS
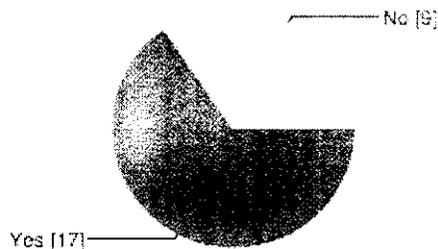
INTERPRETATION:

From the above table 65% of the respondent feels that there is a lack when using POS Terminals and 35% of the respondents feels that there is no lack when working with POS terminals.

TABLE: 4.1.9

SATISFIED FEATURES WHEN USING HAND HELD POINT OF SALES TERMINALS

Highly satisfied features	No of respondents	% of responses
User interface	22	25%
Cost effective	5	6%
Ease of access	19	22%
Rich look	10	11%
Good customer support from the manufacturer	15	17%
Expected service from the manufacturer	16	18%
Others	1	1%
Total	**26**	**100%**

FIGURE: 4.1.9

SATISFIED FEATURES WHEN USING HAND HELD POINT OF SALES TERMINALS
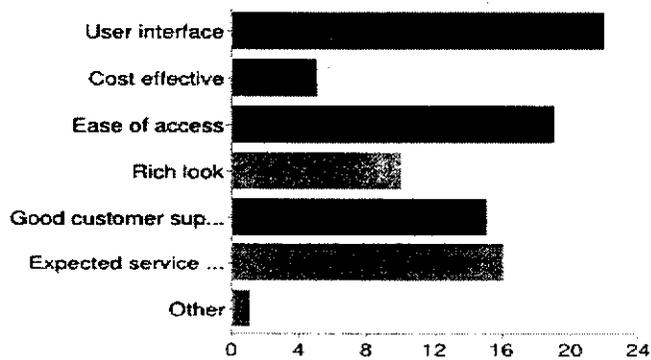
INTERPRETATION:

From the above table it is clear that,

1. 25% of the respondents are highly satisfied with User interface of the POS terminals.

2. 6% of the respondents thinks that Cost is highly effective.

3. 22% of the respondents think that usage of POS terminals is of ease of access.

4. 11% of the respondents think that POS terminals are of rich look.

5. 17% of the respondents feels that they getting good customer support from the manufacturer

6. 18% of respondents feels that they getting better service from the Manufacturer

7. 1% are other respondents

TABLE: 4.1.10

DISSATISFIED FEATURES WHEN USING HAND HELD POINT OF SALES TERMINALS

Highly dissatisfied features	No of respondents	% of responses
User interface	2	4%
Cost effective	20	38%
Ease of access	1	2%
Rich look	13	25%
Good customer support from the manufacturer	7	13%
Expected service from the manufacturer	8	15%
Other	2	3%
Total	**26**	**100%**

FIGURE: 4.1.10

DISSATISFIED FEATURES WHEN USING HAND HELD POINT OF SALES TERMINALS
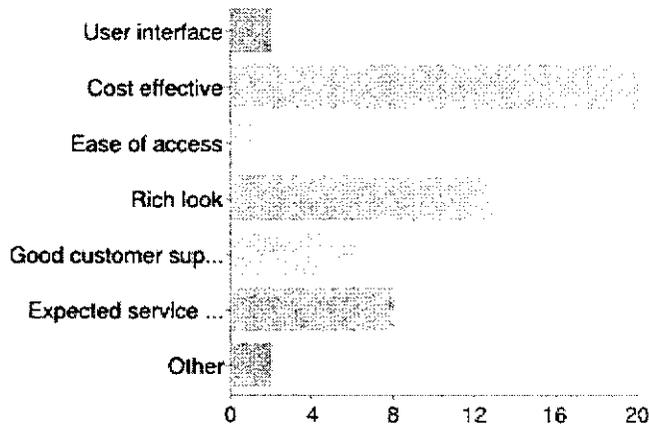
INTERPRETATION:

From the above table it is clear that,

1. 4% of the respondents are dissatisfied with User interface of the POS terminals.

2. 38% of the respondents thinks that Cost is more.

3. 2% of the respondents think that usage of POS terminals is not that easy to access.

4. 25% of the respondents think that POS terminals are of not that rich look.

5. 13% of the respondents feels that they are not getting good customer support from the manufacturer

6. 15% of respondents feels that they are not getting better service from the Manufacturer

7. 3% are other respondents

TABLE: 4.1.11

GETTING THE HAND HELD POINT OF SALES TERMINALS AS PER REQUIREMENT

Can you able to buy the Point Of Sales terminals as of your requirement?	No of respondents	% of responses
Yes	19	73%
No	7	27%
Total	26	100%

FIGURE: 4.1.11

GETTING THE HAND HELD POINT OF SALES TERMINALS AS PER REQUIREMENT
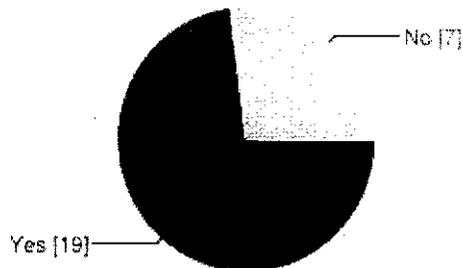
INTERPRETATION:

From the above table 73% of the respondents think that they can able to purchase POS Terminals with the required features and 27% of the respondents thinks that they are not able to get their POS terminals with the required features.

TABLE: 4.1.12

REASON FOR NOT GETTING THE HAND HELD POINT OF SALES TERMINALS

What are all the reasons will be there for not getting the POS terminals?	No of respondents	% of responses
Unaware	2	10%
More cost	5	23%
Lack to reach	5	23%
Poor marketing	6	29%
High demand	2	10%
Other	1	5%
Total	**26**	**100%**

FIGURE: 4.1.12

REASON FOR NOT GETTING THE HAND HELD POINT OF SALES TERMINALS
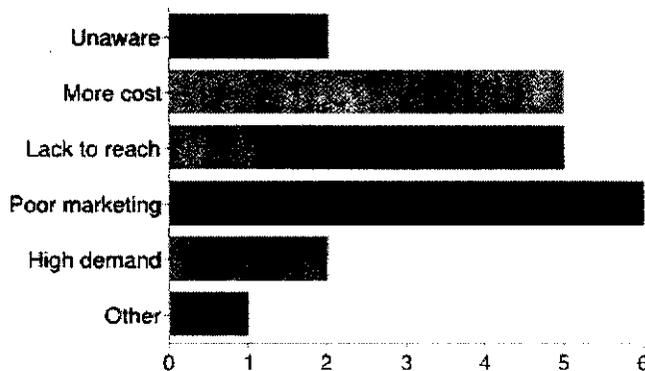
INTERPRETATION:

From the above table it is clear that,

1. 10% of the respondents feels that they are not able to get the POS terminals as per their requirement since they are unaware.

2. 23% of the respondents thinks that Cost is more.

3. 23% of the respondents think that there is a lack of reaching of terminals

4. 29% of the respondents feels to not to go for the purchase since of poor marketing.

5. 10% of the respondents thinks that there is a demand for the terminal

6. 5% are other respondents

TABLE: 4.1.13

DEGREE OF SATISFICATION IN GETTING HAND HELD POINT OF SALES TERMINALS

Level of satisfaction	No of respondents	% of responses
Highly Dissatisfied	0	0%
Dissatisfied	1	4%
Neutral	3	12%
Satisfied	18	69%
Highly Satisfied	4	15%
Total	**26**	**100%**

FIGURE: 4.1.13

DEGREE OF SATISFICATION IN GETTING HAND HELD POINT OF SALES TERMINALS
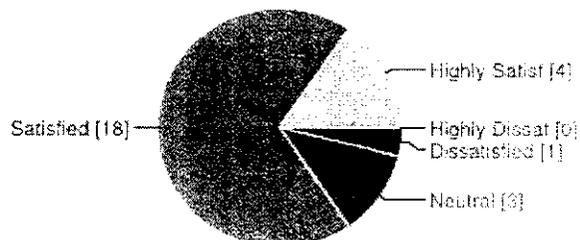
INTERPRETATION:

From the above table it is clear that,

1. 15% of the respondents are highly satisfied when going for the purchase of Point Of Sales Terminals.

2. 69% of the respondents are satisfied when going for the purchase of Point Of Sales Terminals.

3. 12% of the respondents neither satisfied not dissatisfied when going for the purchase of Point Of Sales Terminals.

4. 4% of the respondents not satisfied when going for the purchase of Point Of Sales Terminals.

TABLE: 4.1.14

PROBLEMS FACING WHEN GOING FOR THE PURCHASE OF HAND HELD POINT OF SALES TERMINALS

What are all the problems which you are facing when going for buying terminals?	No of respondents	% of responses
Lack of Customer Service	7	18%
Lack to explain functional features	4	11%
High cost	19	50%
Lack in expected features	5	13%
Other	3	8%
Total	**26**	**100%**

FIGURE: 4.1.14

PROBLEMS FACING WHEN GOING FOR THE PURCHASE OF HAND HELD POINT OF SALES TERMINALS
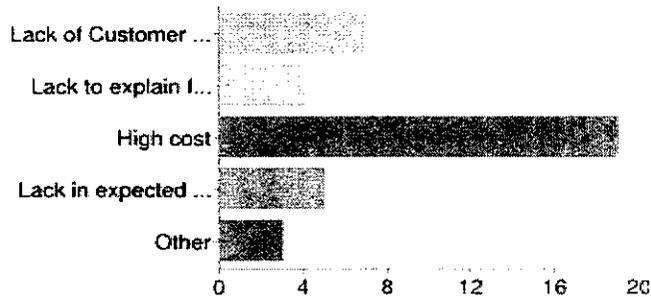
INTERPRETATION:

From the above table it is clear that,

1. 18% of the respondents facing lack in Customer service when going for the purchase of POS terminals.

2. 11% of the respondents facing lack to know about the functional features when going for the purchase.

3. 50% of the respondents feels that it is more cost.

4. 13% of the respondents are not going for the purchase since there is no expected feature.

5. 8% are other respondents

TABLE: 4.1.15

RESPONSE ON GOING FOR THE PURCHASE OF POS TERMINALS AGAIN

Will you go for Purchasing of POS terminals again?	No of respondents	% of responses
Yes	22	85%
No	4	15%
Total	**26**	**100%**

FIGURE: 4.1.15

RESPONSE ON GOING FOR THE PURCHASE OF POS TERMINALS AGAIN

No [4]

Yes [22]
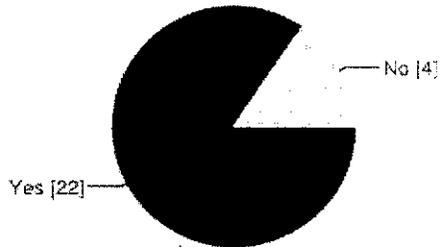
INTERPRETATION:

From the above table 85% of the respondents responded as they will go for the purchase of POS Terminals again and 15% of the respondents responded will not go for the purchase of POS terminals again.

4.2 MANAGEMENT VIEW WITH PERCENTAGE ANALYSIS:

Based on questionnaires collected from 21 respondents (Management), an analysis is carried out to study on Commercialization effectiveness on the usage of Point of Sales terminals.

TABLE 4.2.1
A SUCCESS DECIDER

Do you think that your success is decided by your Customer	No of respondents	% of responses
Yes	21	100%
No	0	0%
Total	21	100%

FIGURE: 4.2.1

A SUCCESS DECIDER

Yes [21]————————No [0]
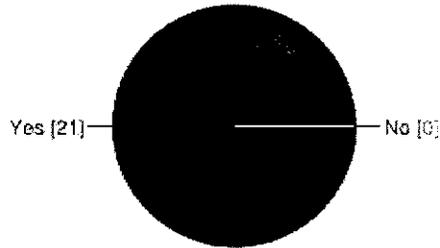
INTERPRETATION:

100% of respondents say as that their success is decided by the Customer

TABLE 4.2.2

KIND OF CUSTOMER

What kind of Customer you are looking for?	No of respondents for the kind of customer required	% of responses
Customer who gives high Profit	13	27%
Customer who Creates wide range of Market	18	37%
Customer who buy much products	16	33%
Others	2	4%
Total	100%	

FIGURE: 4.2.2

KIND OF CUSTOMER

Customer who give...
Customer who Crea...
Customer who buy ...
Other
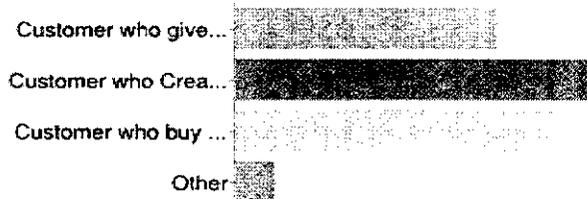
INTERPRETATION:

From the above table it is clear that,

1. 27% of the respondents expecting for the customers who give highest profit.

2. 37% of the respondents expecting for the customers who creates wide range of Market

3. 33% of the respondents expecting for the customers who buy more products

4. 4% are other respondents

TABLE 4.2.3

MODE OF CONTACT WITH THE CUSTOMERS

How will you contact your Customer?	No of respondents	% of responses
In Person	1	5%
On Phone	1	5%
Through your Sub-Ordinate	0	0%
Through Mail	0	0%
Through Letter	0	0%
Other	19	90%
Total	21	100%

FIGURE: 4.2.3

MODE OF CONTACT WITH THE CUSTOMERS
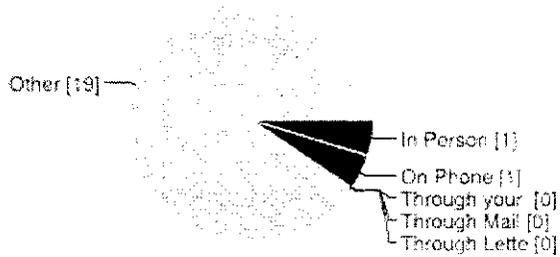
INTERPRETATION:

From the above table,

1. 5% of the respondents says that they will contact directly

2. 5% of the respondents says that they will contact through phone

3. 90% are other respondents and they say as by all the means.

TABLE 4.2.4
CHANGE OF FEATURE WHEN CUSTOMER REQUIRED

Will you change the features of your Point Of Sales terminal as per your Customer requirement?	No of respondents	% of responses
Yes	18	86%
No	3	14%
Total	21	100%

FIGURE: 4.2.4

CHANGE OF FEATURE WHEN CUSTOMER REQUIRED
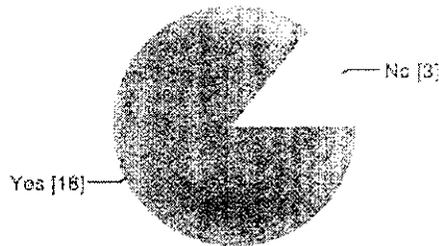
INTERPRETATION:

From the above table, 86% of the respondents responded says that they will change their POS terminal feature when there is a requirement from their customer and 14% of respondents says that they won't change.

TABLE 4.2.5
MODE OF COMMUNICATION OF CUSTOMER REQUIREMENT WITH THE DEVELOPER

How will you communicate the Customer's needs to your Developer?	No of respondents	% of responses
In Person	20	28%
Face to Face Meeting	18	25%
Mail	16	22%
Notice Board	7	10%
Through Sub-Ordinate	11	15%
Total	**100%**	

FIGURE: 4.2.5

MODE OF COMMUNICATION OF CUSTOMER REQUIREMENT WITH THE DEVELOPER
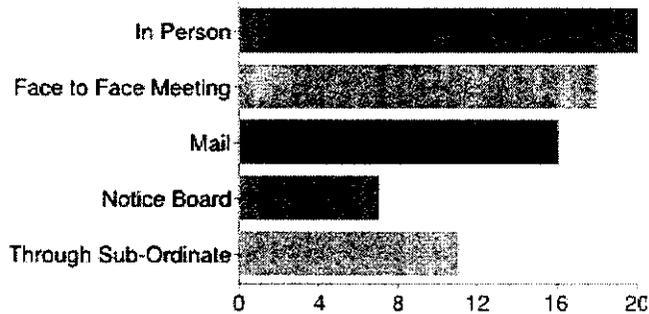
INTERPRETATION:

From the above table,

1. 28% of the respondents says that they will contact in person

2. 25% of the respondents say that they will convey in face – face meeting.

3. 22% of respondents say that they will contact through mail.

4. 10% of respondents say that they will convey the customer needs through notice board

5. 15% of respondents says that they will convey to the developers with the help of their Sub-Ordinates

4.3 DEVELOPER'S VIEW WITH PERCENTAGE ANALYSIS:

Based on questionnaires collected from 29 respondents (Developer), an analysis is carried out to study on Commercialization effectiveness on the usage of Point of Sales terminals.

TABLE 4.3.1

MANAGEMENT ALLOWING DEVELOPERS TO CONTACT THE CUSTOMERS DIRECTLY

Will your Management allow you to contact with the customers directly?	No of respondents	% of responses
Yes	25	86%
No	4	14%
Total	29	100%

FIGURE: 4.3.1

MANAGEMENT ALLOWING DEVELOPERS TO CONTACT THE CUSTOMERS DIRECTLY
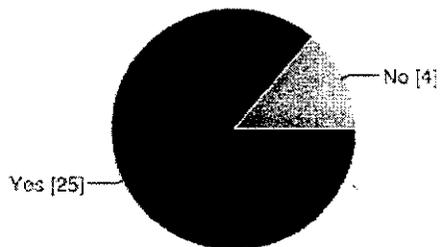
INTERPRETATION:

From the above table, 86% of the respondents say that their Management will allow them to contact directly with the customers directly and 14% of respondents says that their Management will not allow them to contact directly with the Customers.

<div align="center">

TABLE 4.3.2

DEVELOPERS VIEW ON CONTACTING CUSTOMERS DIRECTLY

</div>

Do you think that Contacting customers directly is good?	No of respondents	% of responses
Yes	21	72%
No	8	28%
Total	29	100%

<div align="center">

FIGURE: 4.3.2

</div>

Yes [21]   No [8]
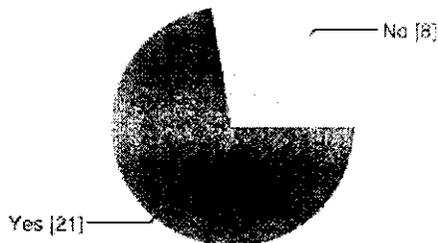
INTERPRETATION:

From the above table, 72% of the respondents feel that contacting customers directly is good and 28% of respondents feel that contacting customers directly is not good.

<div align="center">

TABLE 4.3.3

DEVELOPMENT VIEW

</div>

While developing the Point Of Sales Terminals, in what way you develop it?	No of respondents	% of responses
Customer's view	16	55%
Developer's view	3	10%
Management's view	1	3%
Environment View	1	3%

Other	8	28%
Total	29	100%

FIGURE: 4.3.3

DEVELOPMENT VIEW

Environment V [1]
Management's [1]
Developer's v [3]
Other [8]
Customer's v [16]
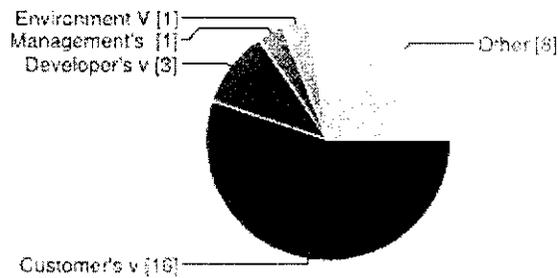
INTERPRETATION:

From the above table,

1. 55% of the respondents say that they will develop in the Customer's view.

2. 10% of the respondents say that they will develop in the developer's view.

3. 3% of the respondents say that they will develop in the Management's view.

4. 3% of the respondents say that they will develop in the Environment's view.

5. 28% are other respondents say that they will develop in all the views.

TABLE 4.3.4

DEVELOPERS SATISFYING CUSTOMER NEEDS

Will u able to satisfy all the features as per the customer requirement?	No of respondents	% of responses
Yes	26	90%
No	3	10%
Total	29	100%

FIGURE: 4.3.4

DEVELOPERS SATISFYING CUSTOMER NEEDS
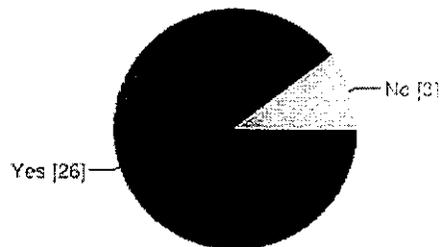
INTERPRETATION:

From the above table, 90% of the respondents say that they can satisfy all the requirements of the Customer and 10% of respondents say that they are not.

4.4 AVERAGE TIME TAKEN FOR THE DEVELOPMENT OF POS TERMINALS USING WEIGHTED AVERAGE METHOD (Developer's view):

S. No	Requirement Arrival time (max 48 hours)	Management Approval Time (max 48 hours mins)	Resource Arrival time for the development (max 20 days)	Development Time(max 180 days)	Deliver time of features (48 hours)
1	42	39	19	146	31
2	33	39	18	143	39
3	more	47	14	167	33
4	37	more	17	147	46
5	41	48	10	145	43
6	45	35	17	150	47
7	47	38	more	134	45
8	32	39	16	178	more
9	43	47	9	more	37
10	39	46	more	156	47
11	40	37	14	135	32
12	38	more	15	123	more
13	46	36	13	more	42
14	37	45	18	167	46
15	46	37	more	136	36
16	44	46	20	127	47
17	45	33	13	138	more
18	more	45	17	124	42
19	43	36	19	126	41
20	42	more	12	158	43
21	41	42	11	180	37
22	40	45	20	151	46
23	36	35	14	more	38
24	35	47	12	138	46
25	34	43	more	126	41
26	more	39	16	159	40
27	33	38	15	174	more
28	38	more	18	173	39
29	39	41	11	179	37
Avg	40.6	41.8	19.6	152.4	44.3
Rounded Avg value	Avg :41	Avg :42	Avg :20	Avg :152	Avg :44

More – Maximum value is taken for the calculation.

CHAPTER – V

SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 FINDINGS

The comparative study helps to identify the problems faced during the development, Managerial decisions, Commercializing and at the end user side. The Questionnaire was designed in consultation with the experts of the hospital associates in such manner that it would facilitate the respondents to reveal maximum information.

The following are the problems which are identified in the life time of POS terminal in corresponding side.

5.2.1 DEVELOPER SIDE PROBLEMS:

- ➢ Requirements are not clearly devilered
- ➢ Insufficient resources
- ➢ Less time for development
- ➢ Pressure from the Management side as well as from the Customer side

5.2.2 MANAGEMENT SIDE PROBLEMS:

- ➢ Developers are not delivering the development on time
- ➢ Customers wading for much unwanted features
- ➢ Market competition
- ➢ Demand for the resources
- ➢ Geographical problem for delivering the product

5.2.3 CUSTOMER SIDE PROBLEMS:

- ➢ Geographical problem for getting the product
- ➢ More cost
- ➢ In sufficient features
- ➢ Lack to get the knowledge about the product

5.2 SUGGESTIONS

Suggestions are given on the basis of the output of the Questionnaire framed differently for different people (for Developer, for Management and for Customer). The following are the suggestions given to the corresponding side.

5.1.1 DEVELOPER SIDE SUGGESTIONS:

➢ Developers shall frame the development time with the Management before starting the development. An approximate time shall be framed.

➢ Tend to explain about the unwanted features to the Customer and make them understand before signing for the development when designing a Customized POS terminal.

5.1.2 MANAGEMENT SIDE SUGGESTIONS:

➢ Market competition can be succeeded by developing an unbeatable features and good looking terminal.

➢ Requirements can be directly transferred to the Developers either making developer to contact with the customer or delivering directly from Management to the developer without any intermediate.

➢ Required Resources can be kept in stock before staring the development.

➢ Sufficient time for development shall be given or proving OT with the pay for it.

➢ Pressure shall be decreased so that developers can develop peacefully since the development is of mind work.

➢ Once the requirement is clearly delivered from the Customer to Developer, contact between them shall be decreased. So that developers will not get the direct pressure from the Customer side.

➢ Resources are to be verified clearly before undertaking the design of Customized POS terminals.

➢ Better logistics have to be chosen for product deliver.

➢ Cost shall be reasonable based on the Market price, Manufacturing cost, labor cost and the features of the product.

➢ Try to deliver the product on time

5.1.3 CUSTOMER SIDE SUGGESTIONS:

➢ Features can be obtained clearly from the Management before going for the Purchase of POS terminals.

➢ Cost can be evaluated with the Feature provided in the product.

➢ Pressure to the developers shall be decreased.

CONCLUSIONS

Even though so many POS terminal manufacturing sectors have introduced many technologies for the development of unbeatable features, success can be attained only after the positive feedback from the Customer. Developers are also to be considered with an important care since they are going to give the output of the Customer and Management imaginations by means of POS terminal product. Not only the features in the product but also better service, good customer support and good look of the product must be taken in an account. Further it is necessary to find out solution for matters related to practical difficulties in the life time of POS terminal.

A STUDY ON COMMERCIALIZATION OF HAND HELD POINT OF SALES TERMINALS

Organization: Clancor Technovates India Private Limited

DEAR RESPONDENTS,

This questionnaire is designed as a part of my MBA project I am undertaking in Commercialization of Hand Held Point of Sales Terminals and tracking with manual problem which are faced from the development stage to the using stage of the POS terminal.

Different views are taken in an account and the questionnaire is framed differently for three different views.

I request you to kindly fill the questionnaire. The information collected from you will be used only for my academic purpose. Your response will be kept strictly confidential. The completed questionnaire will not be made available to anyone.

1. DEVELOPERS VIEW:

1. While developing Point Of Sales terminals what will be your main view? Rank the following. *
Features, Cost, User Friendly, Quality, Rich look

2. Will your Management allow you to contact with the customers directly? *

☐ Yes

☐ No

3. Do you think that contacting customers directly is good? *

☐ Yes

☐ No

4. If yes, why?

☐ Requirements can be required easily

- Doubts of Developers shall be cleared
- Impossible processes can be conveyed to the customers in a technical way
- Time period for the development shall be defined clearly
- New Friends circle
- Other:

5. If no, why?
- Direct Pressure
- Different thoughts may cause conflicts
- Chance of different speaks when there is no knowledge of Management
- Other:

6. While developing the Point Of Sales Terminals, in what way you develop it? *
- Customer's view
- Developer's view
- Management's view
- Environment View
- Other:

7. Will u able to satisfy all the features as per the customer requirement? *
- Yes
- No

8. If no, what could be the reason?

9. Do you feel that there cause a Problem between you and management when you directly contact with the Customer? *

10. What kind of requirements by the Customer will u take?

2. MANAGEMENT VIEW

1. As an Individual what kind of Objective you laid to yourself to attain the Vision of your Organization? *

2. Rank the options *

Satisfy customer needs, Satisfy Employee Needs, Eco Friendly, To win Market, Attain High Profit Margin

3. Do you think that your success is decided by your Customer? *

☐ Yes

☐ No

4. If yes, why?

5. If no, why?

6. What kind of Customer you are looking for? *

☐ Customer who gives high Profit

☐ Customer who Creates wide range of Market

☐ Customer who buy much products

☐ Other:

7. How will you contact your Customer? *

☐ In Person

☐ On Phone

☐ Through your Sub-Ordinate

☐ Through Mail

☐ Through Letter

☐ Other:

8. Will you change the features of your Point Of Sales terminal as per your Customer requirement? *

☐ Yes

☐ No

9. How will you communicate the Customer's needs to your Developer? *

☐ In Person

☐ Face to Face Meeting

☐ Mail

☐ Notice Board

☐ Through Sub-Ordinate

10. Think the important thing you consider when pricing your Point of

Less than the Competitor, High profit, Manufacturing Cost,

| |

11. How serious you will take your Customer needs? *

| |

12. Will you force your Developer to satisfy your Customer needs? *

- ☐ Yes
- ☐ No

13. Do you think your way of Product development, Marketing and Service will satisfy your Customer needs? *

- ☐ Yes
- ☐ No

14. Will you contact your Customer even after completing the business deals to know about the feed back about your Point Of Sales terminals? *

| |

3. CUSTOMER VIEW:

1. You are from which kind of Area? *

- ☐ Urban
- ☐ Rural

2. Have you ever worked with Point of Sales (POS) terminals? *

- ☐ Yes
- ☐ No

3. Do u think that the usage of Point Of Sales terminals are required in your life? *

- ☐ Yes
- ☐ No

4. If yes, why?

- ☐ Reduces man power
- ☐ Compatible
- ☐ Ease of usage
- ☐ Time Management
- ☐ Other: |

5. If no, why?

- [ ] High cost
- [ ] Fear of explosion
- [ ] Lack of knowledge to use
- [ ] Time Management
- [ ] Other:

6. What kind Point Of Sales terminals which are you working with? *

- [ ] Money transaction
- [ ] Weighing terminals
- [ ] Bus ticketing
- [ ] Point Of Sales terminals on Biometric verification for security purpose
- [ ] Token related Point Of Sales terminals
- [ ] Other:

7. Degree of satisfaction when you working with it *

- [ ] Highly Dissatisfied
- [ ] Dissatisfied
- [ ] Neutral
- [ ] Satisfied
- [ ] Highly Satisfied

8. Is there any lack in satisfactory level when you using your Point Of Sales terminals? *

- [ ] Yes
- [ ] No

9. What are all the features which you are highly satisfied with the Point Of Sales terminals which you are using?

- [ ] User interface
- [ ] Cost effective
- [ ] Ease of access
- [ ] Rich look
- [ ] Good customer support from the manufacturer
- [ ] Expected service from the manufacturer
- [ ] Other:

10. What are all the features which you are highly dissatisfied with the Point Of Sales terminals which you are using?

☐ User interface

☐ Cost effective

☐ Ease of access

☐ Rich look

☐ Good customer support from the manufacturer

☐ Expected service from the manufacturer

☐ Other: _____

11. Can you able to buy the Point Of Sales terminals as of your requirement? *

☐ Yes

☐ No

12. If no, why?

☐ Unaware

☐ More cost

☐ Lack to reach

☐ Poor marketing

☐ High demand

☐ Other: _____

13. If yes, what is the degree of satisfaction in getting it

☐ Highly Dissatisfied

☐ Dissatisfied

☐ Neutral

☐ Satisfied

☐ Highly Satisfied

14. What are all the problems which you are facing when going for buying terminals? *

☐ Lack of Customer Service

☐ Lack to explain functional features

☐ High cost

☐ Lack in expected features

☐ Other: |

15. Will you go for Purchasing of Point Of Sales terminals again? *

☐ Yes

☐ No

16. If yes, why?

☐ To work with new features implemented

☐ Requirement to work with more such terminals

☐ Better Service

☐ To replace old one

☐ Other: |

17. If no, why?

☐ Dissatisfied with Customer Service

☐ More Cost

☐ No requirement for new one

☐ Other: |

18. Overall degree of satisfaction when you going for purchasing of Point Of Sales terminals *

☐ Highly Dissatisfied

☐ Dissatisfied

☐ Neutral

☐ Satisfied

☐ Highly Satisfied

19. What suggestion you would like to give to your Manufacturer to make yourself benefit? *

☐ Commercialize products with lesser price than the other

☐ Add more Features in the Product

☐ Give to with minimum cost

☐ Advertise attractively

☐ Improve Customer service

☐ Other: |

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