

# An Overview of Barcode Industry with a focus on Barcode Automation



## **Internship Report**

*An Overview of Barcode Industry with a focus on Barcode Automation*

**Submitted To:**

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## **Letter of transmittal**

April 16, 2011

**Shawkat Kamal**

Assistant Professor  
Brac Business School  
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Subject: Submission of internship report on “**An Overview of Barcode Industry with a focus on Barcode Automation**”

Dear Sir,

It is a great pleasure for me to submit the report on “**An Overview of Barcode Industry with a focus on Barcode Automation**”. I am submitting this report as my internship report.

This report will help to find out what is the usage of barcode, current situation of using barcode, how the companies are utilizing this technology. In every spare of my thesis I tried my best to make good combination of my past course and practical experience.

It is true that it could have been done in better way if there would not be the limitations. I hope you will asses my report considering the limitations of the study. Your kind advice will encourage me to do further research in future.

Thank you

Sincerely yours,

**S.M. Rasel Akram**

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Brac Business School  
Brac University

## Acknowledgement

First of all I am grateful to almighty Allah without whose help it would not have been possible for me to prepare this internship report.

I am deeply indebted to my supervisor, Shawkat Kamal, instructor of this internship program. I would like to express my gratitude to him for providing me detailed feedback and advice on this report. He always gave me his suggestions in making this study as flawless as possible.

In the preparation and finishing this report, I acknowledge the encouragement and assistance given by a number of people and institution, especially Mr. Lalindra Wijekoon who was my on-site supervisor. I am also grateful to my parents who inspired me all along the way.

Special thanks go to the respondents, who spared their time generously, and helped me a lot finishing this report.

## Executive summary

Barcode industry is rapidly growing industry in our country, and Barcode Automation is one of the pioneers in this industry. Barcode Automation has been maintaining high market share in mobile phone market for long time.

This paper tried to measure the utility of barcode system and the current situation of using this technology in our country.

This paper describe about barcode system, how Barcode automation is operating their business, the current scenario of Bangladesh.

Overall usage of barcode in our country is growing but it is not satisfactory at this time. But companies are coming front to accept the technology and making themselves more productive and efficient.

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## **Chapter 1: Introduction**

### **1.1 Background of the report:**

As a mandatory part of BBA program all the students have to undergo an internship program of three months duration in any organization with a view to acquiring practical knowledge. Theoretical Knowledge is not enough for a business student. There is a gap between the theoretical knowledge and practical knowledge. Our internship program has been launched mainly to bridge the gap. Barcode automation is the market leader in their business area. The company offers students the perfect opportunity to gain on-the-job experience by supporting and guiding them during their internship program in many business areas. After all they know that today's students can be tomorrow's most efficient employees. Through internship students become aware of organizational culture and learn how to show professional excellence to a great extent. This learning helps them when they finally enter into practical field.

### **1.2 Statement of the problem:**

In the context of Bangladesh barcode solution is a comparatively new to the market. Barcode have its huge user advantage, but people don't know about it. So it is a challenge for any barcode solution provider companies to do business successfully and capture a market. So, capture the market, at first they need to know the current market situation. So the purpose of my report to view and analyze the current situation of use of Barcode, identify problems areas and recommend the ways to overcome.

### **1.3 Objective of the study:**

In this study I have chosen perception towards current situation of using barcode in Bangladesh as my report topic. I have collected the information related to the topic through the records and personal interview. As a student of Marketing and Human Recourse, I was encouraged to find the similarities between my learning and real world situation. So, this can also be considered as the objective of the paper in a broader sense.

The main objectives are given as follows:

1. Current situation of Barcode solutions in Bangladesh

2. Analysis the performance of a company after using barcode
3. Find out the direct sales process of this product

#### **1.4 Methodology of the study:**

Data are gathered from both primary and secondary sources. As Barcode Automation (BD) Ltd, is leading company for barcode solution and they want the people know about the company, so I got sufficient data to prepare my report. The details of these sources are highlighted below.

##### **Primary Sources**

We have collected data from primary sources. We went to about 195 companies to collect information about barcode usage. The sources are:

1. The IT managers
2. Purchase Department
3. GM/MD of the company
4. Interviewing of Barcode Automation's staff

##### **Secondary Sources**

I also collected some information regarding international perspective from

- a. Company Documents
- b. Newspaper
- c. Document of Motorola

#### **1.5 Limitation of the study:**

There were some limitations in gathering some information for this report.

- The main limitation I faced in preparing this report was obstacles in finding information
- Lack of sufficient information (both primary and secondary data), as this topic is considered as very much confidential topic for the organization.
- Lack of awareness among the people.
- Limitation of time to collect data.



## **Chapter 2: Overview of Barcode Automation (BD) Ltd.**

### **2.1 Overview:**

Barcode Automation (BD) Ltd is a UK based company. They have another two branches in United Kingdom and Sri Lanka. The company is established in 1992 in Sri Lanka. They are operating their business in Bangladesh from 2001. This company aims to establish themselves as an “Automated data capturing solution provider”. Their main focus of the business is Barcode related solutions.

### **2.2 Vision:**

Our VISION is to bring proven global technology in Data-capturing & collection to local business to compete locally and globally.

### **2.3 Mission:**

Our MISSION is to understand your business model, automate business process, and add value to your business by increasing efficiency, help you pay back while you are benefiting.

### **2.4 Solution as a product:**

Barcode Automation is a solution provider. So, they doesn't sell product by the customer order. At first, customer must disclose their problems to Barcode Automation. Then Barcode Automation analyzes the problem to find out what solution is best for them. These needs to be done because a wrong solution can decrease the productivity of a company and the customer may not know which solution or product suits those most. So, Barcode Automation's main task is to provide the full solution to the customer as a package.

### **Solutions:**

Barcode Automation (BD) Ltd is a company which provides solutions regarding automated data capturing. There are two types of solution. These are:

- Barcode Solution
- RFID Solution

### **Barcode Solution:**

For Barcode related solution Motorola has 50 percent market share all over the world. And Barcode Automation is the only Motorola product supplier in Sri Lanka and Bangladesh. So, now they are leading the market. The main concern of the company is to capture the market of Barcode solution.

There are three different segments. These are:

- Barcode Printer
- Barcode Scanner
- Paper

Providing Barcode solution means a long term relationship with the client. Because the clients will need support from the solution provider from time to time.

#### **RFID:**

RFID means Radio frequency identification. RFID is a technology that uses communication via radio waves to exchange data between a reader and an electronic tag attached to an object, for the purpose of identification and tracking.

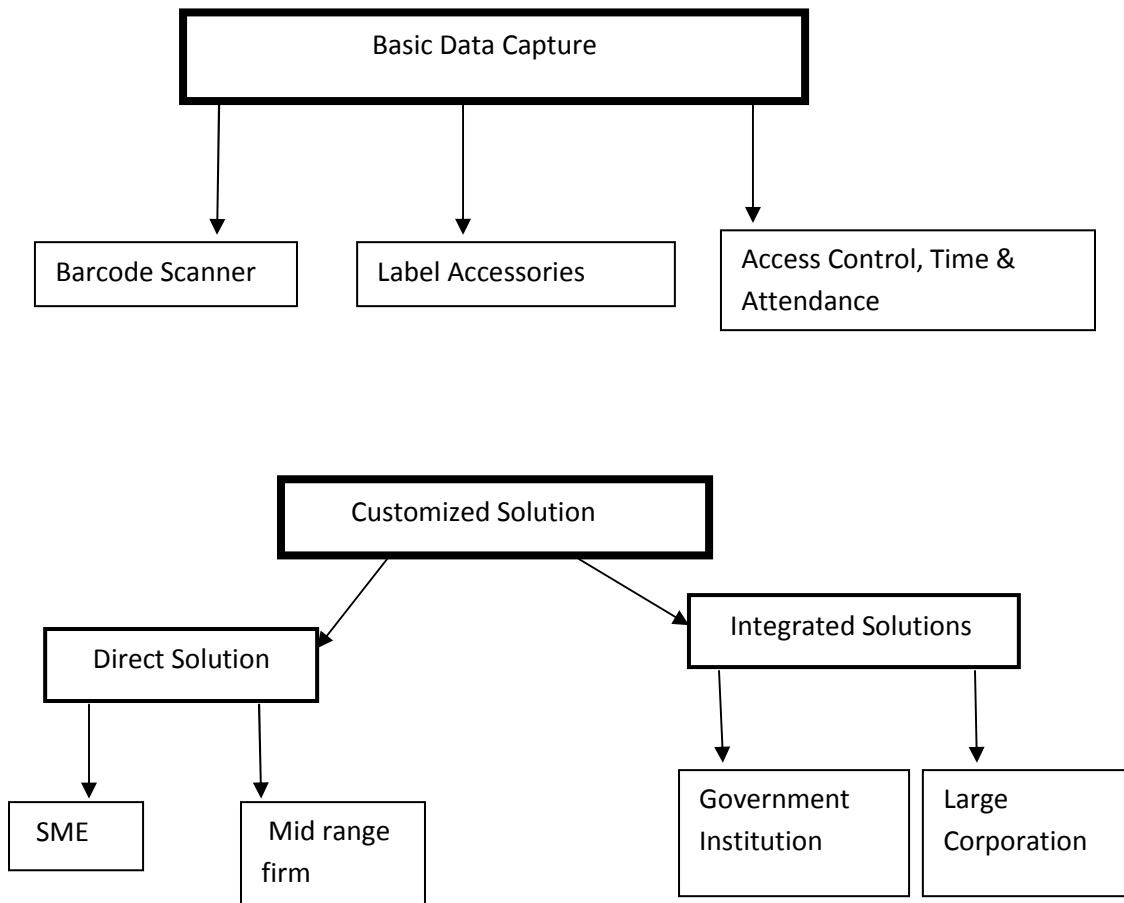
RFID technology makes it possible to give each product in a grocery store its own unique identifying number. Compare that to the situation today, with bar codes, where it is only possible to identify the brand and type of package. Furthermore, RFID tags can be read if passed within close enough proximity to an RFID tag reader. It is not necessary to "show" them to it, as with a bar code. Some tags can be read from several meters away and beyond the line of sight of the reader. The application of bulk reading enables an almost-parallel reading of tags. Radio-frequency identification involves interrogators (also known as readers), and tags (also known as labels). Most RFID tags contain at least two parts: one is an integrated circuit for storing and processing information, modulating and demodulating a radio-frequency (RF) signal, and other specialized functions; the other is an antenna for receiving and transmitting the signal.

#### **2.5 Category of Solutions:**

- Fixed Asset Management
- Logistics
- Barcode Printing
- Mobile solution for order management

- Marketing intelligence
- Sales order tracking
- Inventory Management
- Time tracking and payroll management
- Access Control

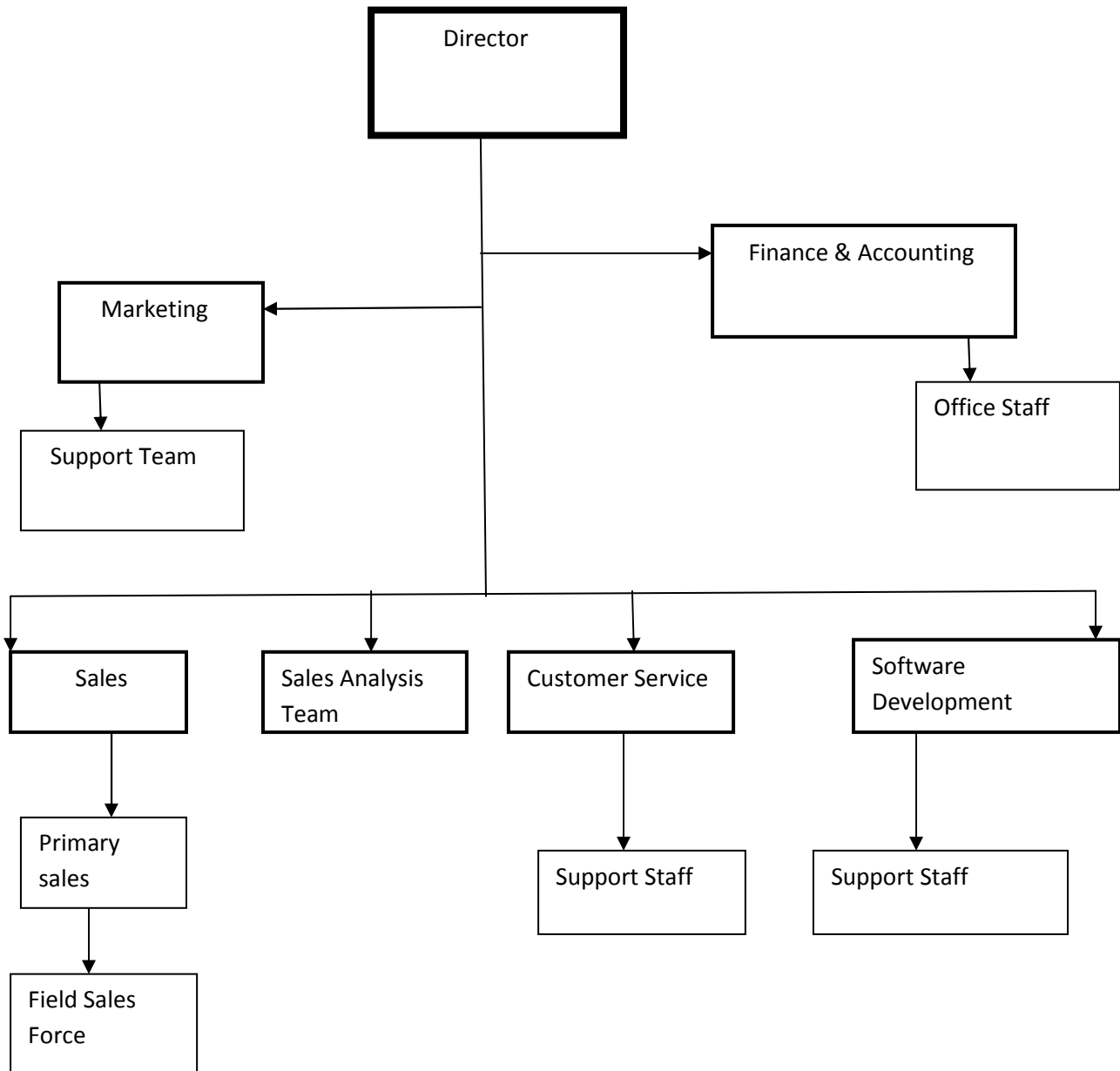
## 2.6 Ways to provide the solution:



## 2.7 Three Range Of solutions:

- Value
- Mid range
- Premium

## 2.8 Organizational structure:



## 2.9 Business Partner: They are Business partner of:

- Motorola
- Datamax-O'neil
- Hundure
- HID Corporation
- Seagull Scientific
- ZK Software

## 2.10 SWOT Analysis:

<p><b>Strength:</b></p> <ul style="list-style-type: none"> <li>• Business Partner of Motorola.</li> <li>• Priority in the corporate market because of foreign management.</li> <li>• Direct customer care from Motorola.</li> <li>• Low operating cost.</li> <li>• Have the latest technology.</li> <li>• Proving the most reliable product in the market.</li> </ul>	<p><b>Weakness:</b></p> <ul style="list-style-type: none"> <li>• Weak management.</li> <li>• High employee turnover rate, no strategy sustain because of this turnover rate.</li> <li>• Weak Branding.</li> <li>• Organization structure is poor.</li> <li>• Mo information in their websites.</li> </ul>
<p><b>Opportunity:</b></p> <ul style="list-style-type: none"> <li>• Huge growing market for Barcode in Bangladesh.</li> <li>• Within 10% of eligible customer are using Barcode, still 90% of the market is open.</li> <li>• Retail &amp; logistic industries are growing all over Bangladesh.</li> <li>• Huge market for field mobility.</li> <li>• According to current government plan "Vision 2011", all the government logistics and other offices will be using Barcode. For example: Postal office.</li> </ul>	<p><b>Threats:</b></p> <ul style="list-style-type: none"> <li>• Competitors have low price product.</li> <li>• Competitors are moving fast.</li> <li>• Big companies are trying to get this solution from directly from foreign companies.</li> </ul>

## 2.11 Target Customer:

The target customer for this company is given below:

- **Manufacturer:** Manufacturing industries of Bangladesh are the priority target of this company. They have huge inventory. This inventories can be easily be tracked by barcode.
- **Logistics:** Logistic business deal with a huge amount of packaged product. They have to deliver these logistics to different destinations. This task is so complicated and time consuming. But the productivity of this task can be drastically improved by barcode automation solution.
- **Asset Management:** Big organizations like Banks have huge fixed assets. These assets can be tracked by barcode.
- **Retail store:** Retail store is a huge market for barcode solutions. They have a large amount of sale every day. This selling process can be done faster by automation and at the same time the inventories will be updated when a sale is done. This will made the retail store giving uninterrupted service.

## 2.12 Current Giant Customer:

- Grameenphone
- Robi Axiata
- Brac Bank
- Shanta Group
- Unilever
- DHL
- TNT
- Expo-lanka
- Raddison
- Aarong
- ACME
- BATA
- British American Tobacco
- Aramex
- Nestle

## 2.13 Pricing Policy:

There are two types of product. These are:

- Hardware
- Software

Hardware: The hardware includes: Barcode scanner, barcode printer.

The price range for this product is:

Product	Price Range	Remarks
Barcode printer	From 75000tk to 500000tk	Depends on the performance of the printer. Some client required normal printer, some clients required high end solution with water-prof print
Barcode Scanner (with stand, single line)	12500tk	The barcode should be aligned with the laser line to scan)
Barcode Scanner (with stand, multiple alignment)	22000tk	The barcode can be putted any alignment to scan)

## 2.14 Competitor Analysis:

Criteria	Retail Technology	Metrologic	Uddipon Digital	Update International
Location	Gulshan 1	BCS Computer City	Mohakhali DOHS	Panthapath
Alliance with other company	SACO	Metrologic	--	Brother, Dilmah, Update
Strengths	Low price for barcode solutions	Brand image, good product with a low price	Strong selling team, Own retail shop	Huge range of product, low price
Weakness	Weak selling team, Less brand value	Product are not reliable for huge inventory management	Doesn't have any fixed solution	They don't have any focused market
Product line	Barcode, scanner, Printer	Barcode printer	Barcode, Time-attendance machine, office solution	From computer to tea, all kind of product required in office
Marketing Activities	Direct Selling	Direct Selling, Retail shop.	Door to door selling, Retail shop	
Target Customer	Retail store		Retail store, SME	Office based business



## Chapter 3: Overview of Barcode System

### **3.1 Barcode:**

A barcode is a way of optically representing data. Originally, barcodes represented data in the widths (lines) and the spacing of parallel lines, and may be referred to as linear or 1D (1 dimensional) barcodes. 2D systems use symbols other than bars, but they are still referred to as barcodes as well. Barcodes can be read by optical scanners called barcode readers, or scanned from an image by special software.

The first use of barcodes was to label railroad cars, but they were not commercially successful until they were used to automate supermarket checkout systems, a task in which they have become almost universal. Their use has spread to many other roles as well, but the simplicity, universality and low cost of barcodes has limited the role of these other systems

### **3.2 Uses:**

Barcodes—especially the Universal Product Code -UPC —have slowly become an essential part of modern life. Their use is widespread, and the technology behind barcodes is constantly improving. Some modern applications of barcodes include:

- Almost every item purchased from a store has a UPC barcode on it. This greatly helps in keeping track of a large number of items in a store
- When they are used to identify patients in a hospital, barcodes permit clinical staff to instantly access vital patient data, including medical history, allergy warnings and other potentially life-saving medical information.
- The tracking of item movement, including rental cars, airline luggage, nuclear waste, mail and parcels.
- Since 2005, airlines have used an IATA-standard 2D barcode on boarding passes
- Entertainment event tickets can have barcodes that need to be checked before allowing the holder to enter sports arenas, cinemas, theatres, fairgrounds, transportation etc.

### **3.3 Benefits:**

In point-of-sale management, the use of barcodes can provide up-to-date information on aspects of the business, For example:

- Fast-selling items can be identified quickly and automatically reordered to meet consumer demand,

- Slow-selling items can be identified, preventing a build-up of unwanted stock,
- Historical data can be used to predict seasonal fluctuations very accurately.
- Items may be reprised on the shelf to reflect both sale prices and price increases.
- This technology also enables the profiling of individual consumers,

The reason barcodes are business-friendly is that the scanners are relatively low cost and extremely accurate compared to key-entry, with only about 1 substitution error in 15,000 to 36 trillion characters entered. The exact error rate depends on the type of barcode.

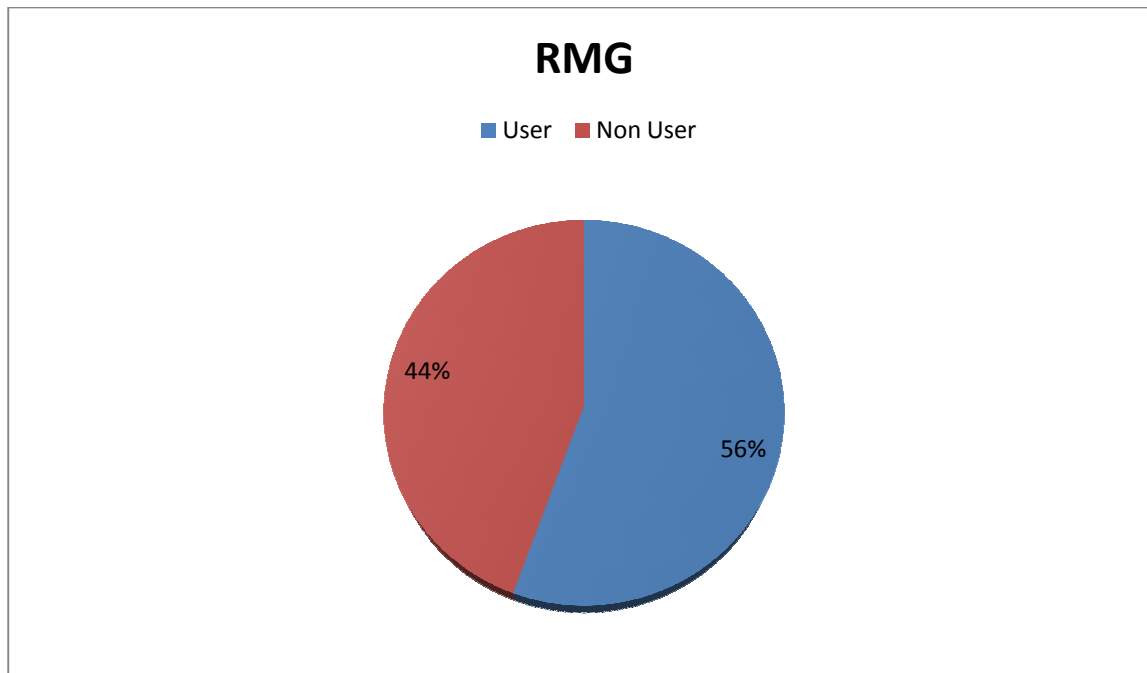
## **Chapter 4: Current Situation of Barcode usage in Bangladesh**

**4.1** To find out the current situation of barcode automation usage, we have collected information from 195 companies. These companies were chosen randomly.

<b>Name of sectors</b>	<b>Visited Number</b>	<b>Barcode use</b>
RMG	81	45
IT	19	01
Logistics	10	04
Telecommunication	02	02
Retail	80	18
Buying house	09	03
Pharmaceuticals	03	03
Manufacturing	27	17
Plant Installation	11	02
Others	27	08

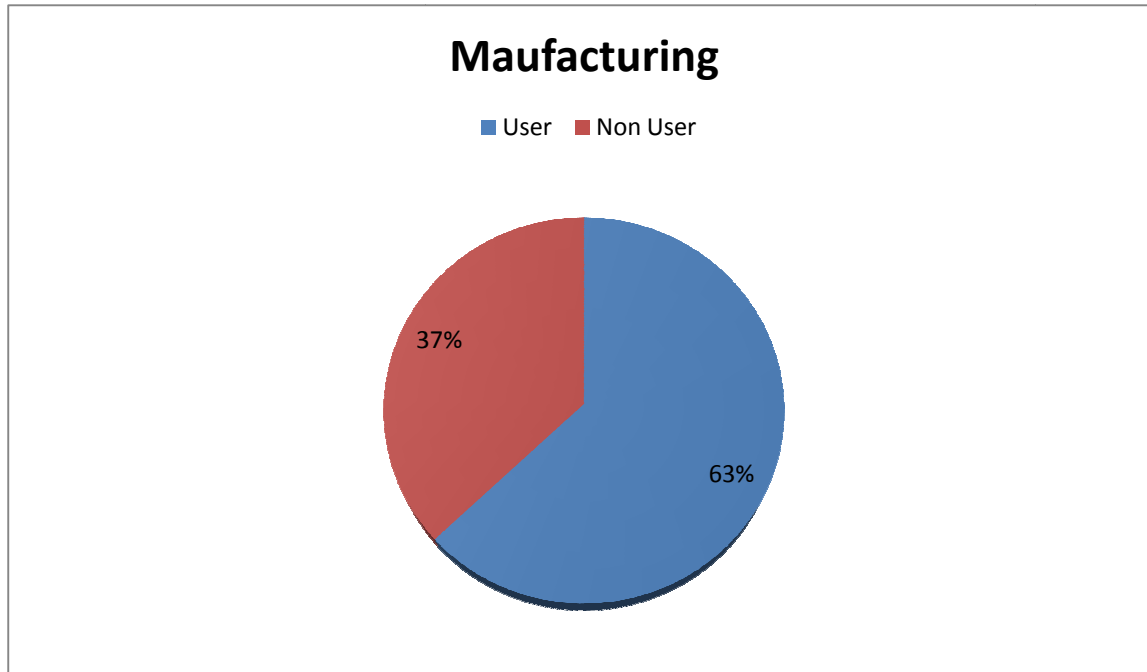
## RMG

Among those 71 garments we have collected information from, only 45 companies use Barcode. Within these companies some companies use barcode, because they have to maintain the international production standard. Some of the garments are instructed to take barcode from specific company which the buyer has selected. They have no independency to use their own. Why they don't use barcode, to answer this question they have answered that this process are not that much cost-effective to them.



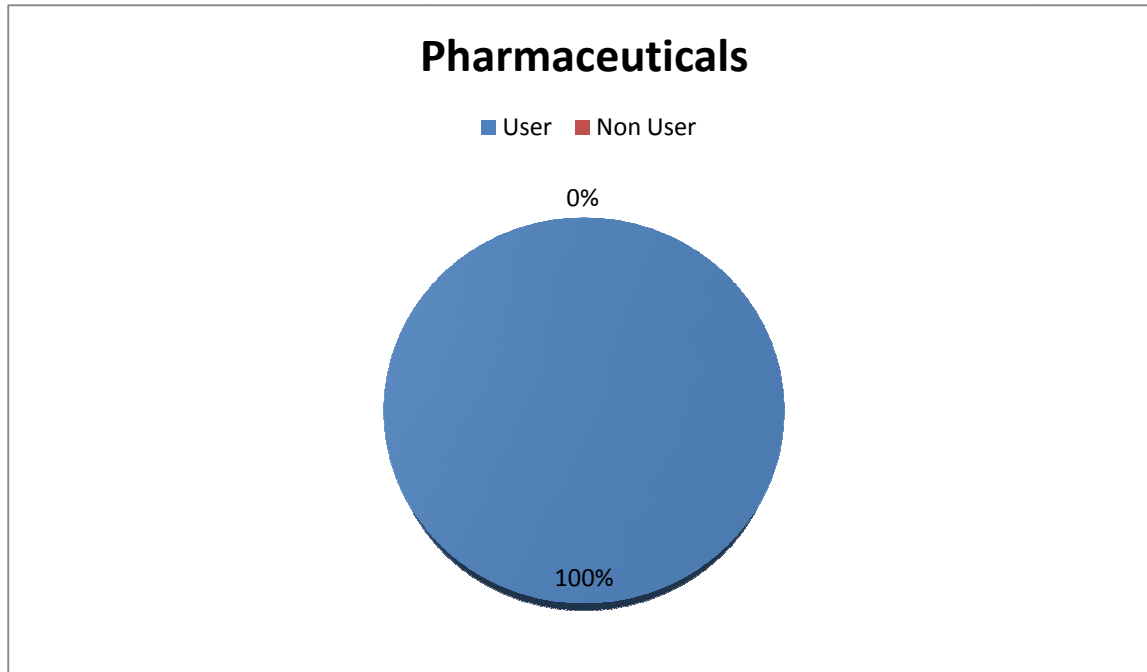
## Manufacturing

The manufacturing industries are our prime target for automation. But most of these companies are reluctant to use barcode. Among 27 manufacturing companies only 17 companies are using barcode; even then they are not using it properly.



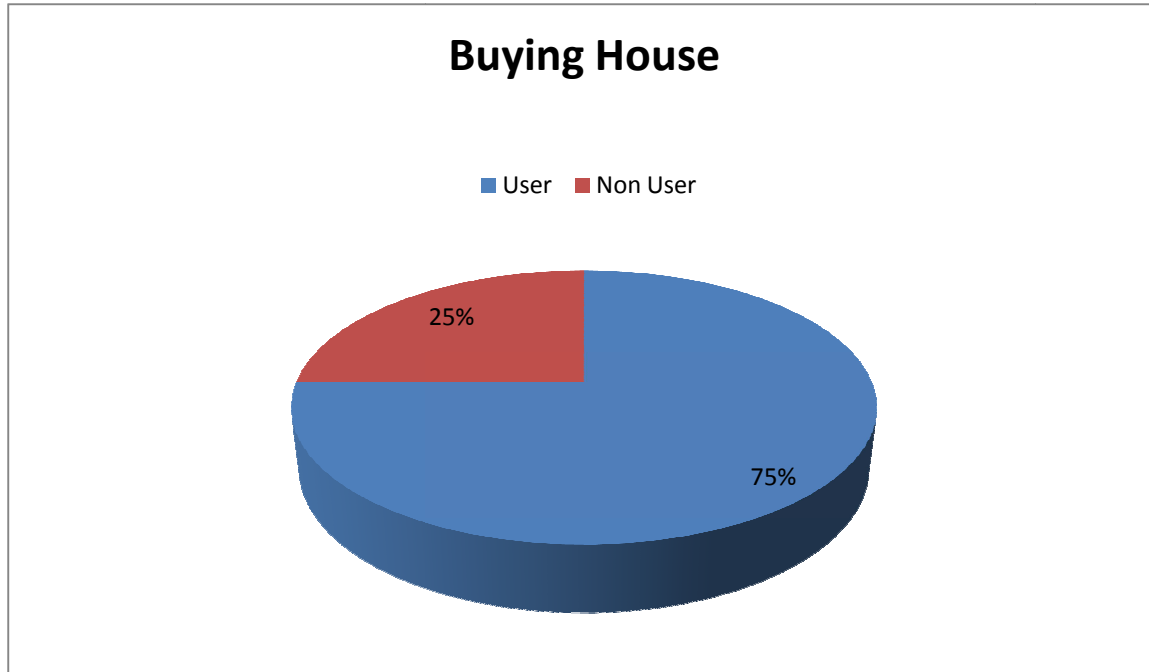
## Pharmaceuticals

The number of pharmaceuticals that we have visited is only three. But what we got that every pharmaceuticals are mostly automated because it is wholly produced automatically. And to know the entrance and existence of the employee it is important.



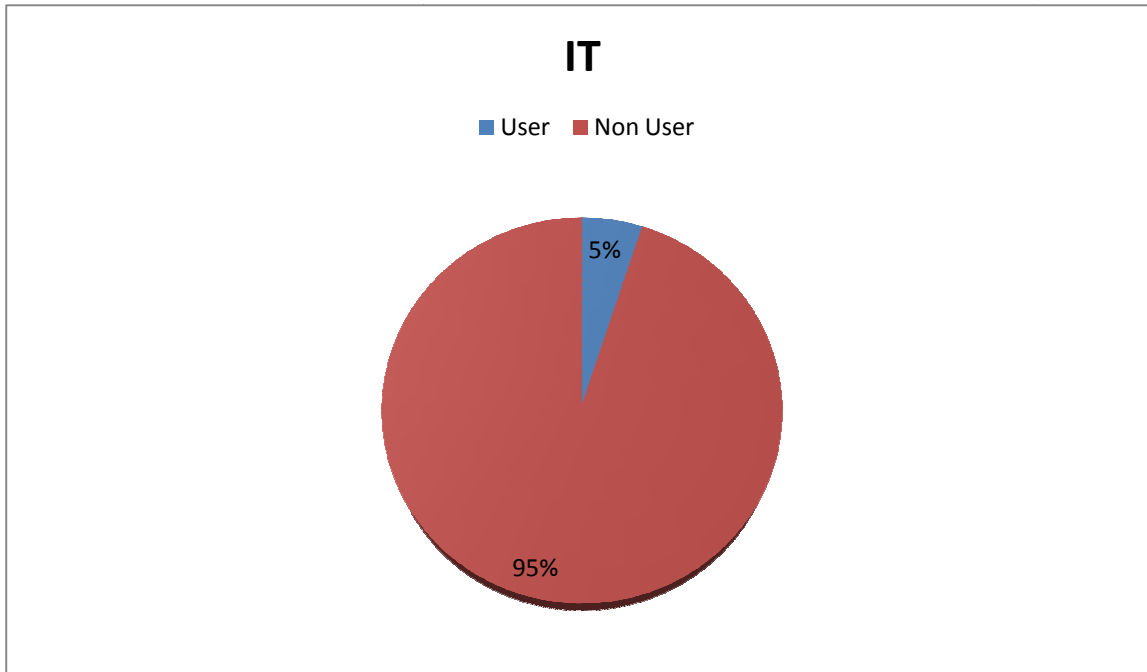
## Buying House

Only a few buying house use barcode for their own. Most of the buying house use barcode to fulfill the buyer's requirement. Many buying house use barcode for their shipping purpose.



## IT

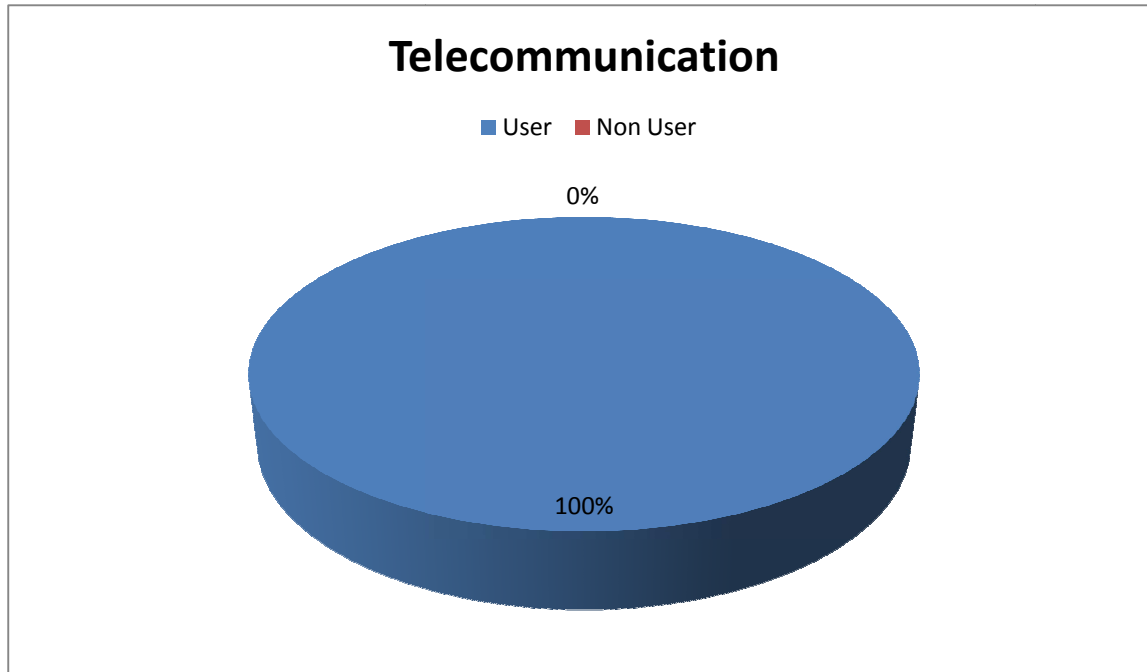
Most of the IT industries have their in house software development department. By this department they develop their own type of software and implement them. Basically they don't go for outsourcing.





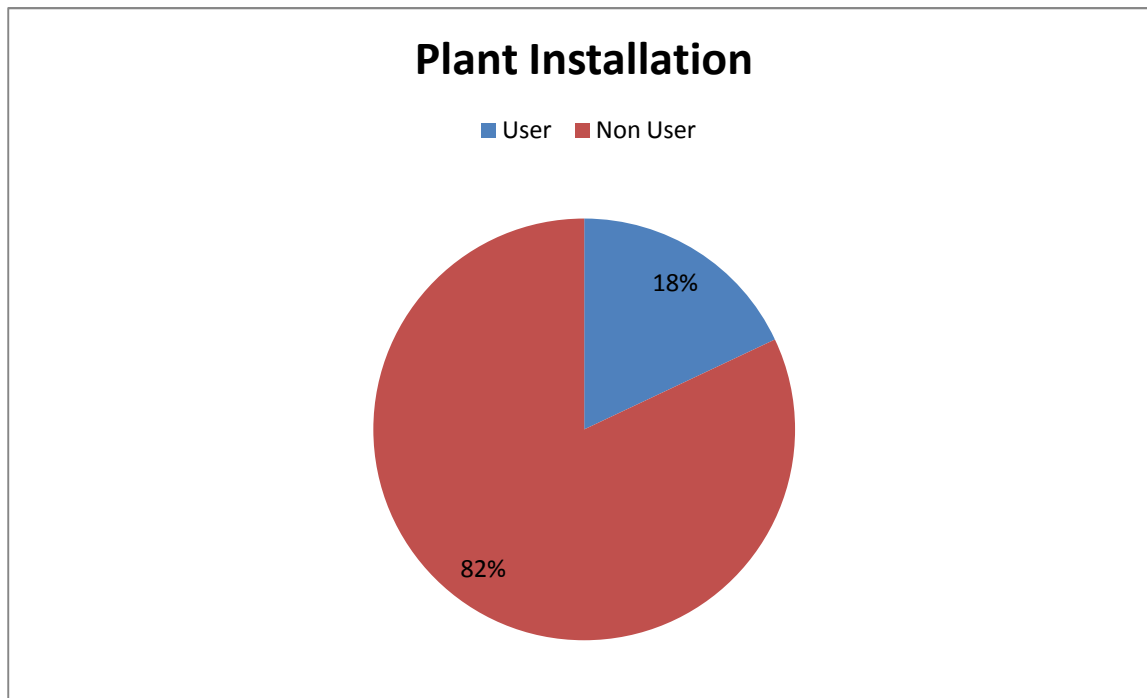
## Telecommunication

Telecommunication sectors are also using barcode. They are using that for their inventory tracking. Also barcode solution enhances their selling techniques. Every sim card and pre-paid recharge cards now have barcodes.



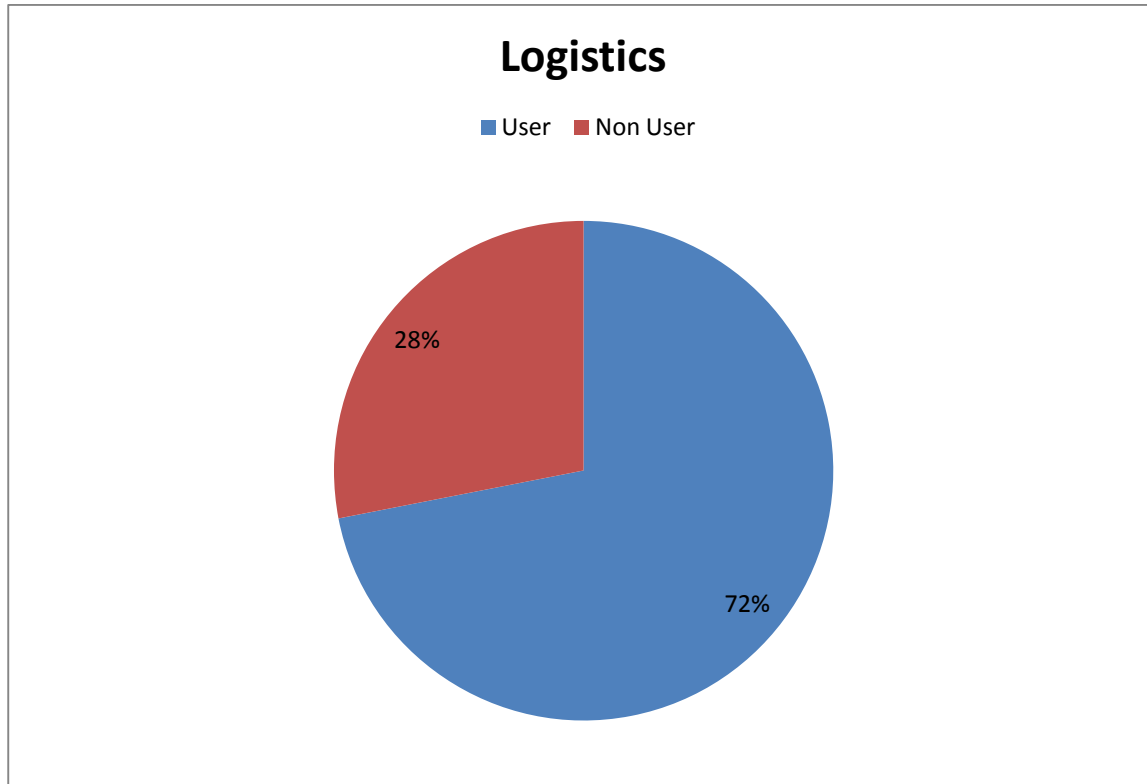
## Plant Installation

We have visited 11 plant installation companies like: Wartsila & Huawei Technologies Ltd. Most of the plant installation companies have small head office and small number of employee. But they are using hi-tech access control in the office. Giant companies like Huawei use finger-tip reader. But they are not using Barcode for any purpose. For inventory, they are using ERP software.



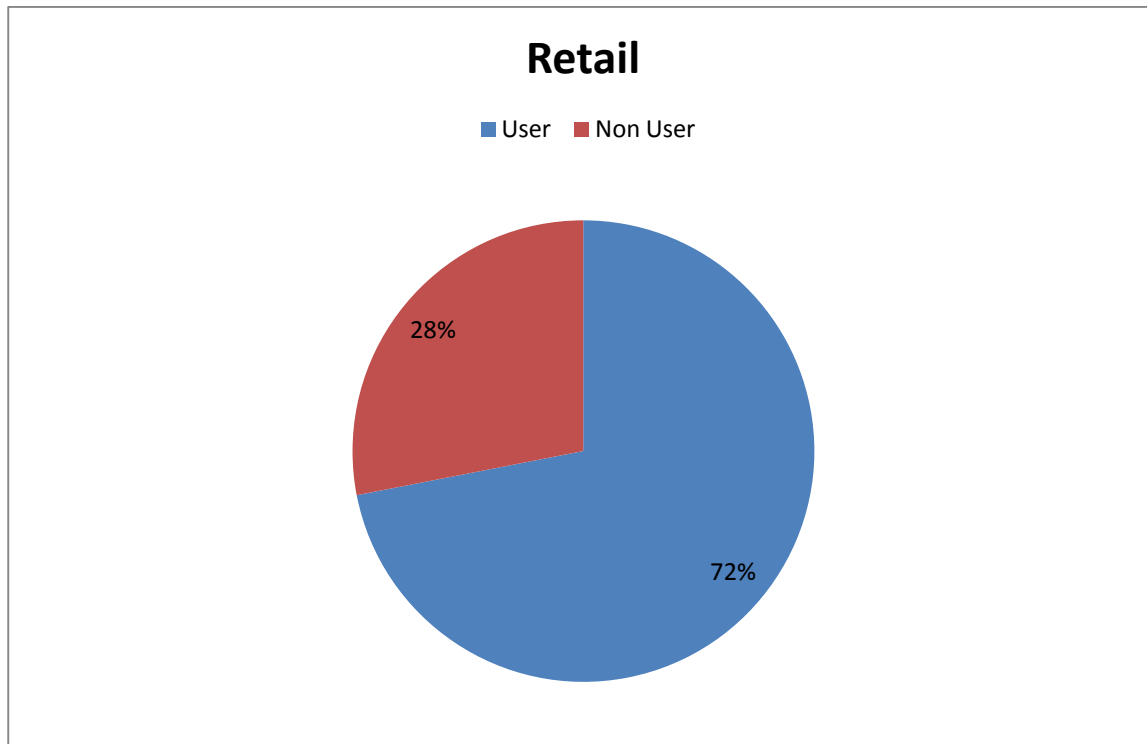
## Logistic

Logistic can be a huge market for the automated data capturing services. Within 10 logistic and C&F company, we have found out that none of them still using any kind of Barcode and Access controller.



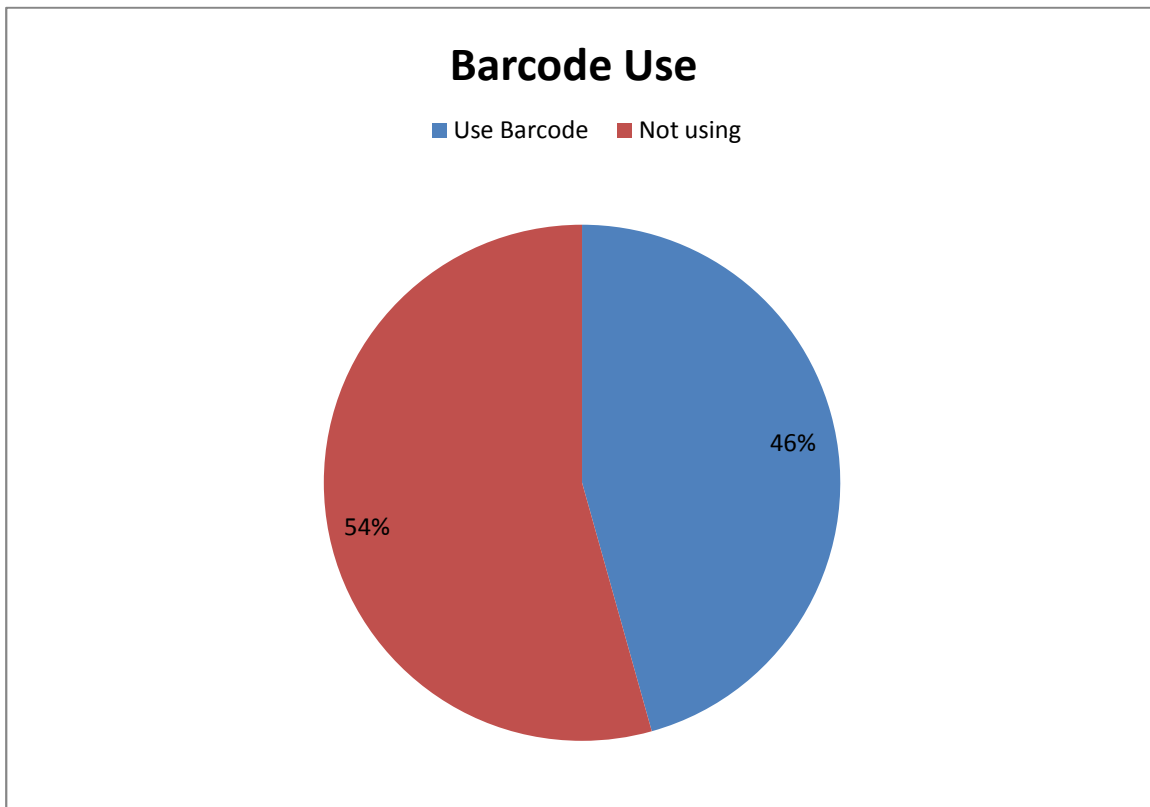
## Retail Industry

We already have several customer in retail industry. The sector is booming and all of the stores have huge demand of Barcode printers and Scanner. Also, they need a large number of paper and Ink. But they are not using any access machine in their office.



## Others

Here we have just discussed the major areas where we emphasized most. But there are certain other industries where we went for data collection including ceramic industry, leather industry and many financial industries. We found strange that most of the factory doesn't use any automation system. The whole system instead of manufacturing tasks is done manually.



**Overall Barcode Usage**

## Chapter 5: Comparative Analysis

### **Grameenphone:**

Grameenphone launched Djuce in 2005. To introduce this new brand in the market they took several initiatives. One of their basic strategy is they wanted to increase their selling process. Moreover, they wanted to decrease the time of sim replacement. In 2004, they came to a contract with Barcode Automation and made all their sells and sim replacement services automated by barcode. Now, all of the sim cards have their own barcode. Where the selling average time was 5 minutes, it became 1 minute. And where an average sim replacement, new sim activation time was 72 hours, also become possible in 1 minute.

### **Robi Axiata Limited:**

Robi Axiata Limited is a joint venture company between Axiata Group Berhad, Malaysia and NTT DOCOMO INC, Japan. It was formerly known as Telekom Malaysia International (Bangladesh) which commenced operations in Bangladesh in 1997 with the brand name AKTEL. On 28th March 2010, the service name was rebranded as 'Robi' and the company came to be known as Robi Axiata Limited.

When Aktel became Robi, they wanted to expand their operation in district level. For these they needed a strong selling process. They started using barcode in their sim card in 2008 and they got a boost in their selling process. They covered their selling mechanism in every area of Bangladesh with a very short time.

### **Square Hospital:**

SQUARE Hospitals Limited, a concern of Square Group is a 300-bed tertiary care Hospital. This hospital needs to keep record of hundreds of patients and visitors every day. They need to keep this record of the data of the sample taken for diagnosis. At first, they were using manual system. Then they turned their system into automation technology. Now every patients admitted in the hospital have a wrist band in their hand. Nurses or in-charge doctors can check the patient's information within a second, they just have to place a barcode scanner on their hand and all the data regarding the patients will be on the computer monitor. Every test-tube used in laboratory have a barcode label attached with them, so that these sample goes to the

right lab, taken care of by the right person and the result will also be online. The diagnosis process became so faster and easier. And the Square hospital got an error free system.

### **Expo-lanka Logistics:**

Expo-lanka Logistics was founded in 1982 and has emerged as Sri Lanka's leading provider of freight forwarding solutions and supply chain management solutions. Their outstanding success and wide customer acceptance as a reliable provider of world class logistics support has fuelled EXPOLANKA to venture into overseas markets with a strong focus on the Indian Sub Continent and the Sub Saharan regions where their expertise and experience is widely recognized.

Behind their success in logistic business in Bangladesh, Barcode Automation can take the credit beside others. When they were using manual system for their logistics, it usually took 3-4 day to complete the whole data management task, but after using barcode system it takes only 1 day.

### **Meena Bazar:**

In 2002, Gemcon group opened the first outlet of our Meena Bazar retail chain, the new face of supermarkets in Bangladesh. When Meena Bazar first introduced in Dhanmondi, they were using cash register machine, so the queue in the cash counter was always so long. The customer was dissatisfied, the productivity of the retail shop was getting low, and they were losing customer attraction. Moreover they had no automated track of their inventory. So, they never knew what is in the inventory, what product is available in their warehouse, what is their product requirement, selling performance. Then they shifted their system to barcode. Now they have efficient selling system. In the cash counter, a product needs less than a second to calculate the bill of the customer, deduct the product from the inventory, if the product is not available in the inventory gives a message to the purchase division of Meena Bazar. The process became so easier and faster that Meena Bazar is now one of the biggest retail chains in Bangladesh.

### **MAERSK Logistics:**

MAERSK logistics was always using barcode system. But Barcode Automation has given them higher technology. They have provided them Mobile Computer, this computer contains barcode scanners. With these computer the workers can be go anywhere in the warehouse and to find

out information about a container they have to just click on the barcode of the container. This barcode-enabled Mobile Computers are revaluation in the world of automation.

### **Brac Bank:**

Brac Bank is one of the largest banks in Bangladesh. They have huge assets in each of their branches. They have thousands of PC, Table, Chairs and other furniture. They were in big trouble managing their assets. They have introduced barcode in their system. Now they can keep track of their fixed assets very easily. They can move their assets and then find out the assets within a short time. This is very useful when they were re-constructing their offices and changing locations.

### **Opex-Sinha Textile:**

Opex-Sinha is one of the biggest textile mills in Bangladesh. They are one of the biggest exporters in this sector. To export this product they need to have a standard manufacturing system and be very efficient. A standard system should have 14 check points for quality checking. For each of the checking they need to take less time because the next production can't be done with the checking is finished. They also need to keep record of their 45000 workers. So, they aligned their system with barcode. They made all of the check points barcode enabled, so, where to finish all the checking of a single product took 1 hour, now this take only 15 minutes to complete all the 14 check points.

### **Yang-Wan Group:**

Yang-wan group is another biggest garment factory in the country. They have thousands of employees in the factory. These employees have ID card. Each ID card has a barcode. It increases the time and attendance system. When they were using manual system for their employee it usually took 15 days to make a salary sheet. But with the enhanced barcode system it takes only 1 day to make a salary sheet.



## **British American Tobacco:**

British American Tobacco is one of the biggest clients for Barcode Automation. They have lots of assets in their offices. Before using barcode, they were in big trouble managing their assets. If a single furniture or any other thing, it was difficult to find out the exact location of the assets. So they putted barcode in every single assets of their office. Now they can keep track of their fixed assets very easily. They can move their assets and then find out the assets within a short time.

## **Chapter 6: General Sales Process**

### **Step 1: Identifying the need:**

This step can be happen in 2 types. The field sales force can collect information about any companies and our analysis team can find out the problem they are having. Or, the customer can identify their problem themselves and give a sales order.

### **Step 2: Qualifying the customer:**

Then our primary sales executive analysis the condition of the company and stage of the problem. They find out what types of solutions are they capable of. Then they pass this to analysis team to build a solution for them.

### **Step 3: Offering a solution:**

At this stage sales team try to contact with the customer and offer a solution. Sometimes they call a business meeting or sometimes they give a presentation in front of the management of the company. If the buyer agreed to buy the product then the primary sales executive sends a quotation to the customer.

### **Step 4: Counter offer:**

Usually the customer offers another counter offer for low price. In that case, our company tries to convince to increase the sales volume or make a deal for long term business.

### **Step 5: Closing the deal:**

Finalizing the sale and fixed a delivery process and date for the sale is the last step. After this the sales file is closed and forward to the customer service department. The software development team develops the necessary software and the finance department work for the inventory and exporting the product.

## **Chapter 7: Recommendation and conclusion**

### **7.1 Recommendation:**

There some recommendation that I would like to mention:

- Make an effective HR policy to reduce employee turnover rate
- Make an alternative decision maker
- Emphasize more on training the employees

### **7.2 Conclusion:**

Barcode automation is the pioneer company for barcode solution is Bangladesh. In the light of the present state of the economy, both local and international, and the ever increasing expectancy of the customers and their ever increasing dependency on automated solutions will lead this company to a new high. And our companies will have the full advantage of the automation. With this hope, I am concluding my internship report.