



ASIA PACIFIC UNIVERSITY

INFORMATION SYSTEMS

(DIPLOMA)

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Abstract:

This following report aims at assess the 7-Eleven's Point Of Sales Information System. Through personal interviews involving the 7-Eleven's employees and online research, our group was able to obtain information about the Point Of Sales information system of 7-Eleven, how it works, it's multimedia elements, how they backup their information, the current problems that they are suffering from and the solutions that are to be followed in order to avoid or stop them problems from occurring.

Introduction to 7-Eleven

History of the Company

In 1927, J. C. Thompson, who was the manager of the ice plant in Dallas, Texas discovered that selling items such as bread and milk was convenient. This led him to establish a store as The Southland Ice Company. Since customer 'toted' (carried) away their purchases, the company's first outlets were known as "Tote 'm Stores". In 1946, the name was changed to "7-Eleven" to reflect their opening hours which extended from 7am until 11pm, seven days a week. 7-Eleven operated over 5000 stores worldwide before 1995. In October 1984, the first 7-Eleven was introduced in Jalan Bukit Bintang, KL, Malaysia. In October 2008, a milestone opening of its 1000th store in Bandar Sunway Selangor was achieved. Today, it has become an undisputed market leader in convenience store chain in Malaysia.

Main Business of the Company

It's a Mini-hypermarket with branches in over 16 countries worldwide, which aims to provide day to day basic needs of manufactured goods like stationaries, snacks, beverages. It follows a Retail trading system of buying goods in bulk from producers and selling them in small quantities to its consumers. It is also a location based products and services store where the sell their good depending on the surrounding they are in, for example, if they are close to schools or other educational institutions, most of the goods available in their store would be stationaries, soft drinks and snacks or if they are close to bars and beaches, the goods that they will have in their stock would be cigarettes, beer and soft drinks. Due to such a system of doing business, it is safe to say that 7-Eleven is a company that does research on their customer before introducing any products.

Introduction to the Information System

The Information System that our group is discussing on is the "*Point on Sale System (POS)*". *Point Of Sale systems is an electronic systems that provides businesses with the capability to retain and analyse a wide variety of inventory and transaction data on a continuous basis.*

The Point Of Sales information system has replaced the traditional cash register and introduced an electronic cash register. With the use of a computer, it operates and monitors all the stock in the store and keeps track of all the transactions made. It compiles all recorded

data and transactions of each sale. The data collected includes items bought, time, price, the balance if any, and the amount that the customer paid. It assists the store to set-up notifications of goods running low in the store so that the store can remember to reorder and replace the stock before it finishes completely.

Analysis of POS System

Data / Information

Due to the collected information and data of 7-Eleven there are different types involved. The company estimates the data by product, time, price and regional data. The following are explanation of the types of data and information which are involved in 7-Eleven for the Point Of Sales Information System:

1. Product Data

Product data is involved with all the names of the products that 7-Eleven has in its store. The Point Of Sales information system has all the names of the products available in the store so that it can make it easier for the company to order for goods in case the products run low in the store.

2. Price Data

Price is concerned with all prices allocated for the products in their store. The company can analyse the price of product in order to provide high-availability of a variety of reasonable quality product at reasonable price. (Aamir Drigh, 2013)



Figure 1: Product data.



Figure 2: Price data.

3. Timing Data:

This is involved with the time in which the products are sold the most in the store. With timing data, 7-Eleven can tell when the seasons of particular products come so that they can be able to buy most of that kind of product in order to sell to their customers for most profit. This is due to the records that are kept in the system after each purchase is made.

4. Regional Data:

By analysing the region data, the company will know which items the customers are most interested in that particular place. For instances, the flavour of ice-cream between the countries is different.

Software

7-Eleven uses both system software and application software for their Point Of Sales information system. This is to help them do specific tasks for the information system and its functions. The following are detailed explanations for both:

Application Software

7-Eleven uses the Microsoft Dynamics Retail Management System (MD-RMS). The MD-RMS is a complete Point Of Sale information system for middle-size retailers. MD-RMS efficiently helps to 7-Eleven to track the stock inventory within their stores. This software will also automatically generate Point Of Sales information system based on reorder points and sock levels. Moreover MD-RMS can let the store manager view sales and stock inventory information and modifiable reports in real time.



Figure 3: Microsoft Dynamic Retail Management System (MD-RMS)

Operating System Software

The operating system that is used by 7-Eleven is Windows 7 Home Premium. It is a 64-bit operating system.



Figure 4: Windows 7 Home Premium.

Hardware

The hardware components that are used in the Point Of Sales information system in 7-Eleven are a desktop computer, an electronic cash register, multi-purpose printer and a barcode scanner. The following detailed explanation of each hardware component, their specifications and what they are used for in the Point Of Sales information system;

Computer

The computer is used to it is used to run all the other hardware components since they are connected to it in the network, it is also used to view the data that is saved in the Point Of Sales information system database, it is used to store the information saved in the Point Of Sales information system,

- Hewlett-Packard
- Operating System- Windows 7 Home Premium

- Model- HP 2000 Notebook PC
- Processor- AMD E-305 Processor 1.60 GHz
- RAM- 3.00 GB (2.60 GB Usable)
- HDD- 500 GB
- Drivers- All drivers are available

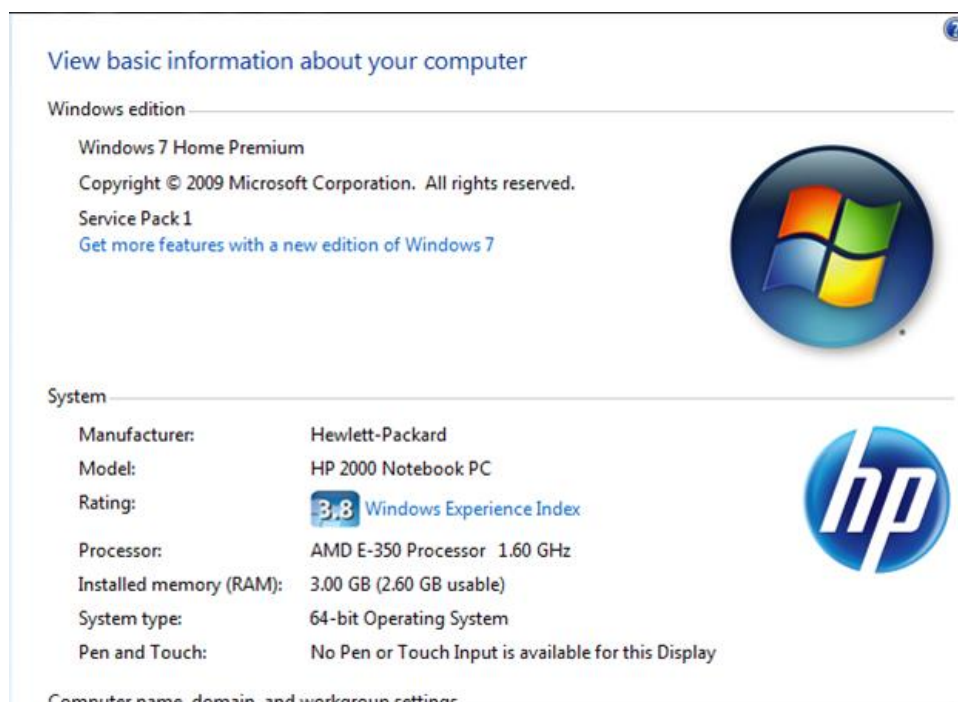


Figure 5: Computer Specifications.

Electronic Cash Register

7-Eleven uses an Acrylic Cash Register. The cash register is used to key in all the transactions that take place in the store. It is connected to the computer so that the Point Of Sales information system can calculate the price of the purchased goods and deduct from the remaining stock in the store.



Figure 6: Acrylic Cash Register.

Multi-purpose Printer

The printer used in 7-Eleven is a HP Laser Jet Printer. It has printing, scanning, copying and faxing functions. It is also involved in the Point Of Sales information system because it is used to print out transaction reports, send fax details of each transaction to the head quarters and photocopy all records daily.

- ⦿ HP Laser Jet Pro MFP M127fn 10
- ⦿ Functions - Print, copy, scan, fax
- ⦿ Black print speed - Up to 21 ppm
- ⦿ Networking - Standard (built-in Ethernet)
- ⦿ Duplexer - Manual (driver support provided)
- ⦿ Display - 2-line LCD (text)
- ⦿ Scan type - Flatbed, ADF



Figure 7: HP Laser Jet Printer.

Barcode Scanner

7-Eleven uses the Metrologic Barcode Scanner. It is used to read the barcodes on the products so that they can be recognised in the system which will then be deducted from the store in order to complete a purchase.

- ⦿ Metrologic MS5145 Eclipse.
- ⦿ It's a single-line, handheld laser scanner.
- ⦿ It runs with Code-Gate technology.
- ⦿ It can easily target the desired barcode and complete a data transmission with a simple press of a button.



Figure 8: Barcode Scanner.

People

The people involved with the Point Of Sales information system in 7-Eleven are both direct users and indirect users. Direct users are those with direct access to the system like stock holders, customers, cashier, manager and head quarters. The cashier is subjected to controlling the cash register and all transactions that happen between 7-Eleven and customers; they also recommend latest products and provide customer services to the customers. The managers of the store and head quarters are there to ensure that all procedures are being followed as allocated; they also check with the head quarters about products that need to be replenished after they are informed by the stock holders of the store.

The indirect people are those without direct access to the system. They include agents, bank, supplier and even customers in some cases. The bank is considered an indirect user when customers come to buy products and pay with credit cards instead of cash.

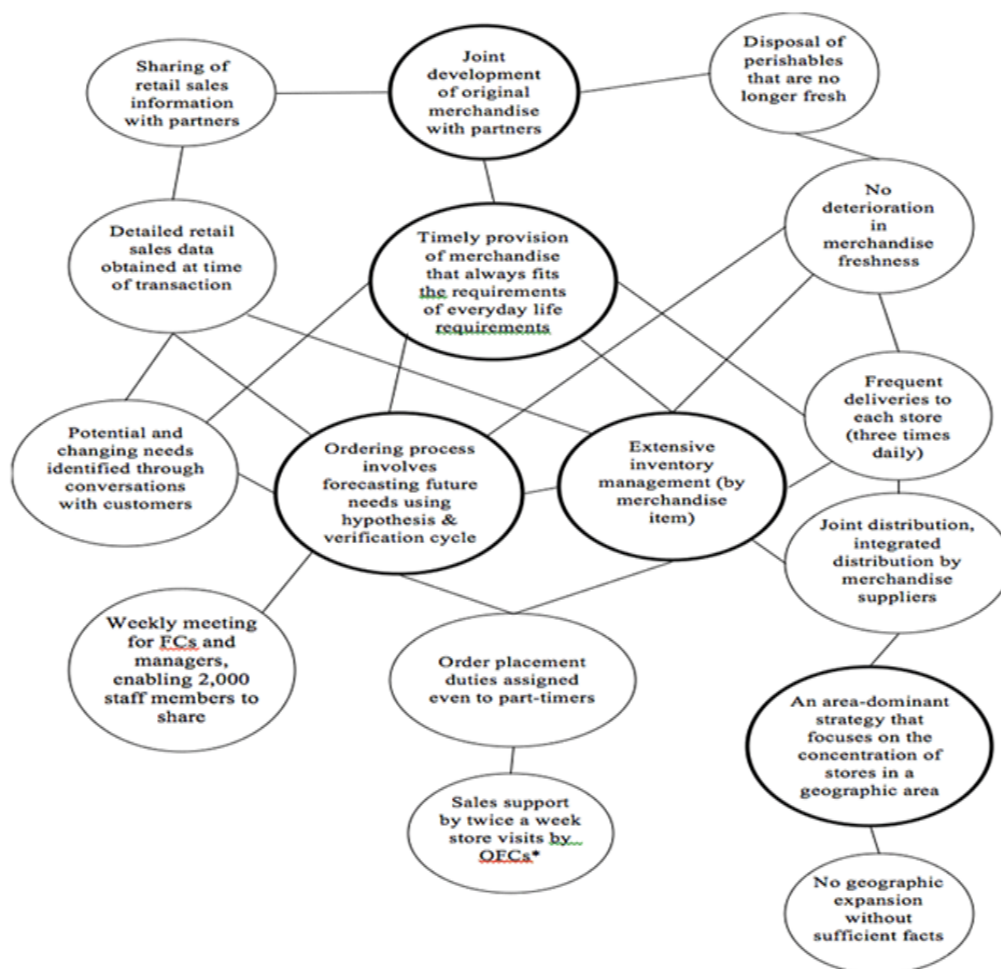


Figure 9: Correspondence and Information flow.



Figure 10: Flow of Information and products.

As seen from the picture above, from the Supplier to 7-Eleven to Customers, apart from a flow of information there is also a flow of products and services along with it. This is mainly considered when the Suppliers deliver the goods and products to 7-Eleven, and then sales those goods and products to their customers.

Procedure

In 7-Eleven, the procedures that are involved with the Point Of Sales information system are mostly related to transactions that take place in the organisation. These procedures are mainly from Suppliers to 7-Eleven and from 7-Eleven to Customers.

Transactions from Suppliers to 7-Eleven:

These include all the buying and selling of goods and products between suppliers and 7-Eleven. When 7-Eleven orders goods and products for their store, there are procedures that should be followed by both in order to ensure that all procedures are valid. These include stock holders writing down the names of all the goods that are missing in the store, they then inform the managers who request the head quarters to inform the suppliers about the goods.

Transaction from 7-Eleven to Customers:

These include the buying and selling of goods and products between 7-Eleven and customers. When customers go to 7-Eleven to buy goods, they have to pay in cash or with credit cards.

They have to choose the goods that they need then the cashier calculates the total price for the customers to pay.

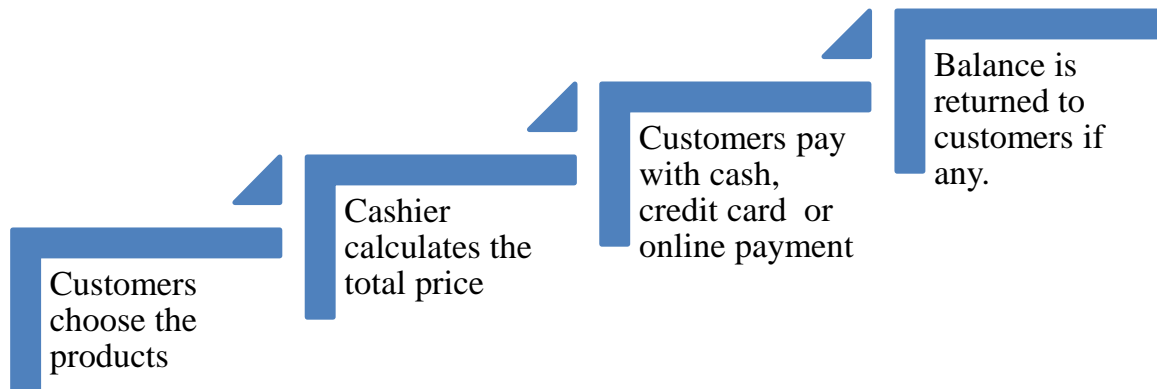


Figure 11: Transaction between 7-Eleven and customers.

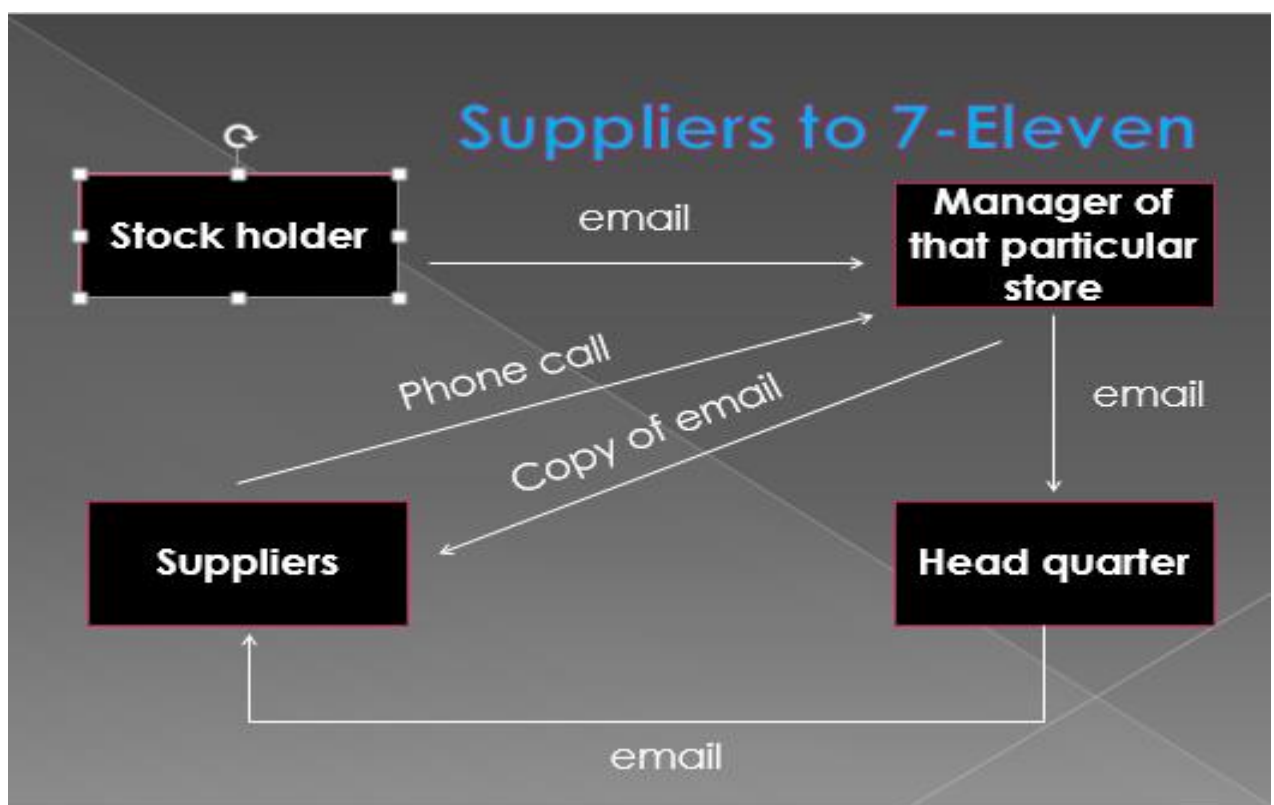


Figure 12: Transaction between Suppliers and 7-Eleven.

Multimedia

7-Eleven has two particular aspects of multimedia which involve text and audio. The other elements like graphics, animations and video are not used in the Point Of Sales information system of 7-Eleven. The analysis and detailed explanations of *text* and *audio* are as follows;

Text: Includes characters, numbers and symbols. In other words, it includes alphanumeric and symbols. Text is used in different ways for the Point Of Sales information systems; the following are explanations of each;

- Emails: 7-Eleven uses text for writing official emails to the headquarters in order to request for things like products that need to be replenished, money to pay the suppliers after delivering the products to the store. It is also used by the headquarters to send confirmation emails to the suppliers to tell them whether the emails they received from their store about product deliveries are legit.
- Receipts: 7-Eleven uses text in receipt to show the number of items brought by the customer and the amount they paid, it also shows the balance if any, it shows the time in which the goods were bought, it shows the names of the store, contact numbers and the location.
- Official website: The official website of 7-Eleven has all the details about its stores in term of locations, contacts, the goods that they sale in their store and the prices of each.

Audio: This includes everything that has something to do with sound. For 7-Eleven, audio is used in the aspect of telephones when they make orders to the suppliers after informing the headquarters about the things they need to buy for their store. It also applies when customers call 7-Eleven stores for delivery services.

Computer Security

This is one of the most important systems that a company has to run. It is used to save and protect the files and data from loss or damage. Seven eleven runs various security features including the use of a barcode scanner, passwords and logins. The barcode is used to register all items that are being purchased by the customers to the Point Of Sales information system automatically. When the barcode of a product is scanned, it is saved inside the computer and also deducted from the existing number of stock in the store. This is to ensure that no

employee will be able to steal or cheat the system because at the end of the day, the manager has to generate a total calculation of all the goods sold and the money gained during the whole day hence if there is any problem in the total counting, he or she will be able to identify the problem immediately.

7-Eleven also uses an electronic cash register that is connected to the computer and opens only when a transaction is made after scanning the barcode of a product. At the end of the day, the manager uses a password to open the cash register in order to count the total money received from the purchases of that particular day which are then put in a safe before they are taken to the headquarters at the end of the week. The following is a point summary of what the security measures that 7-Eleven uses for the Point Of Sales information system;

- The use of a barcode scanner
- Passwords and usernames
- They also use a safe (see figure before)

Back-up

A backup is a process of copying and archiving computer data in case the original data is lost or damaged. There are different types of backups that are used when a company or an individual wants to back-up their data or information. For the sake of 7-Eleven, the company uses a *full backup*. The company backups all transactions, records and data using *Symantec Netbackup* stored on the *ExaGrid* system.

7-Eleven generates a full backup daily of all the transactions, the copies of those transactions are then sent to head quarters to be store in the system at the end of the week and then the company makes a last backup at the end of the month which is stored in the *ExaGrid* System. With this information, it can be seen that 7-Eleven performs a daily backup, weekly backup and a monthly backup, hence it is safe to say that, the backup system in 7-Eleven is very reliable.

Current problems of the Company's Information System

The current problems in 7-eleven's Information System are hidden cost of hardware failures and maintenance cost and outdated-security system.

Hidden cost of hardware failures and maintenance cost:

Due to the hardware being utilized for a long period of time, all the hardware will have a certain degree level of damage. Therefore, hidden cost of hardware failures and maintenance cost will be increased. In addition, the maintenance cost is expensive especially for older hardware.

Outdated-security system:

Monitoring capabilities are limited, the video recording system is grainy and the quality of the final images is not good. Therefore, the outdated- security system hinders the security analyst to monitor the stores and cannot provide surveillance video to identify thieves or people who vandalise the products in the store.



Figure 13: Video clarity is grainy.

Ethical and Privacy Issues

The company makes sure that their employee, customer and supplier details and information are very well protected in the system in order to ensure that no one has access of their details unless otherwise they are requested directly from the management in the head quarters. In some cases, the company is forced to give out the details of their customers, employees or suppliers when any of these are suspected of a crime or something. Here the company is required to share the information of anyone involved with their company if requested by the police or the country's security services.

The company is not subjected to any damages in case of a situation like this. Often, the company does not inform the customers, their employees or even their suppliers that their details will be given out to the police for checking if suspected for any crimes.

Solution and recommendation for current problems

The recommendations for hidden cost of hardware failure and maintenance cost are to hire internal technicians because the costs of internal technicians are lower than external team. In addition to that, internal teams are aware of organization and its mission and they are readily accepted.

The best solution for the outdated-security system is to implement the DIGIOP EH Series hybrid DVR. This can provide more effective monitoring capabilities and improve store and employee safety. Therefore, merchandise vandalism and theft will be reduced in the stores.



Figure 15: DIGIOP Security Camera.



Figure 14: DVR Controller.

Conclusion

The overall performance of the company is good as per our groups view. Due to the fact that they provide products and services 11 hours a day for a whole week, they have proven to be excellent in this aspects of their business. Due to the problems that 7-Eleven faces with their current Point of Sales information system, our group's recommendations are that it should implement an internal technician in order save cost as per control of the security. They should also try to implement new security equipment which is the DIGIOP EH Series Hybrid DVR in order to be able to get good and clear images of what happens in the store so that they can ensure good security.

WORD COUNT:

2,911 words.

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3. Chiang Sai Meng (TP033482)	<ul style="list-style-type: none"> • History of the Company • People • Software • Backup 	
4. Mrisho Abeid Omary (TP033289)	<ul style="list-style-type: none"> • Main business of the company • Hardware • Procedure • Conclusion • Documentation 	

References

Steve, A. (1991). *Information Systems* 2nd ed. United States of America: Addison- Wesley Publishing Company, Inc. p25-29.

Technet.microsoft.com, (2014). *Chapter 2 - Backup and Restore Deployment*. [online] Available at: <http://technet.microsoft.com/en-us/library/bb727087.aspx> [Accessed 27 Jun. 2014].

7eleven.com.my, (2014). *Welcome to 7 Eleven*. [online] Available at: <http://www.7eleven.com.my> [Accessed 27 Jun. 2014].

Exagrid.com, (2014). *Symantec NetBackup Software with ExaGrid*. [online] Available at: <http://www.exagrid.com/Products/Supported-Data-Backup-Applications/Symantec-NetBackup/> [Accessed 27 Jun. 2014].