- Business Intelligence Mechanisms and Tools -

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1.1 Background Details of Organization

Ceylon Cold Stores (CCS) PLC, trademarked as 'Elephant House', is a leading food and beverage company in Sri Lanka, which is specialized in manufacturing carbonated soft drinks and frozen confectionary products. Elephant House is grown as a popular trademark in Sri Lanka, resulting as the market leader of the country. Moreover, Ceylon Cold Stores is considered to be operational for 153 years, with 28 years of retail experience. Further, Ceylon Cold Stores is a major part of John Keells Holdings PLC group. The group employs 5,849 personnel in its operations currently.

Ceylon Cold Stores was found on 1866, which was named as the 'Colombo Ice Company', started with 22 employees, initially started by creating ice. Eventually, the company improved its performance and produced various beverages. Currently, the company manufactures products such as carbonated soft drinks, fruit drinks, ice cream, water, flavoured milk.

- **Vision Statement of Ceylon Cold Stores (CCS)**

Our passion is to deliver pleasure and nutrition throughout people's lives, through exciting and superior products, whenever and wherever they choose to eat and drink.

- **Board of Directors**

Table 1: Board of Directors

Position	Name
Chairman	Krishan Balendra
CEO	Jitendra Gunarathne
Sector Head for the Consumer Food Industry	Daminda Gamlath
Non-Executive Director	Muhammed Hamza
Non-Executive Director	Dr. Shanthi Wilson Wijeratnam
Non-Executive Director	Sharmini Ratwatte

1.2 Business Process

A business process is defined as a specific set of activities executed in order to reach a set target, which is the 'vision' for most companies. The target of the business processes is always purposeful and essential to the company's growth in many ways. The target of a company would be very specific, and have a good outcome for the company's benefit. Business processes are executed in a step-by-step manner, efficiently. (Rouse, 2018)

1.2.1 Business Core Process

Business core processes are carried out to get a consistent output of a business, where effective input must be supplied. Moreover, a company should be able to fulfil any sort of requirements during a core process to make sure of achieving consistent output. Process tasks must be designed to perform in a sequential and systematic manner. The core process manages the essential processes of the business, so input requirements and procedures must be done properly to get the best output of the business context. (MarvalCo, 2018)

1.2.1.1 Core Process of Organization

The core business process of Ceylon Cold Stores is manufacturing and retailing food and beverage products, such as carbonated soft drinks, ice creams, fruit drinks, flavoured milk, and water. Specialized in cold and frozen products. Manufactured products are retailed for stores, all over the country, especially grocery stores, drink stores and super-markets.

Examples:
- Handling raw materials and scheduling product manufacturing.
- Transporting products to retail stores all over the country.
- Having a track of product raw materials, to make sure they are enough for production.
- Verifying to not lack or exceed the amount of stock demand in stores.
- Handling safe product transportation to stores in the country.

The core business process of the organization can be broken down into sub procedures, which are carried out by the company is scheduled bases, as mentioned below;

01. Gathering raw materials.

Ceylon Cold Stores (CCS) manufactures refreshment products, which requires raw materials, which are mostly consumer goods such as water, carbonated water, milk, sugar, flavours, colouring, cream, citric acid, caffeine, carbon dioxide, oil, phosphoric acid and related items. These items are transported safely and stored with proper care.

02. Manufacturing.

Manufacturing processes are usually scheduled, and required raw materials are first arranged for preparations. The manufacturing process is mostly handled by machines and robots, while the outputs are verified by employees. Manufacturing process is usually carried out for a certain period, with planned product amounts.

03. Product packaging.

Once the manufacturing process is done, the products are packed in retail boxes. Packaging is done right after products are manufactured. For CCS company, refreshments products such as ice creams are stored in plastic containers, while soft drinks are stored in glass compartments. Manufactured item amounts and stocks are calculated as data.

04. Labelling and bulk-packaging.

Once the products are stored on appropriate containers, they are labelled with product information including branding, ingredients, manufacture date, expire date and price. Then, the products are taken to bulk-packaging process, where the products are packaged in bulk, where CCS company packs using safe materials such as foams and cardboard.

05. Package transportation.

Once the products are bulk-packed, they will be stored safely until transportation arrives, for distribution. CCS products must be transported at a low temperature as they are refreshment products, which involves special air-conditioned trucks. A distribution team takes over the products for whole-sale distribution to stores. Stocks and distribution amounts are stored for sales evaluation purposes.

1.2.2 Business Management Process

Business management process are the methodical evaluation of increasing audience reach of a product or service. Business strategies and tactics are the main procedures executed through management process. Product marketing is always the main target during management process. Management process focuses on an aspect to maintain good relationship with customers and gain a better impression towards the company.

Management process is also considered to be implemented step-by-step. Initially, the company should make sure to include the ideal and talented team for the work. The, planning is the most essential section where marketing strategies must be well planned and evaluated effectively. Eventually, companies must make sure their promotions are worth, as organising management processes would require investment. (iEduNote, 2018)

1.2.2.1 Management Process of Organization

Eventually, the major management process of Ceylon Cold Stores is to create new products for retail, which could attract customers, towards the brand. The company also executes various marketing strategies for drink products, like discounts and free gifts. The company produces a large variety of colourful ice cream products, targeting young individuals.

Examples:
- Providing special discounts on seasonal period, such as January, April and December.
- Offers such as 'Buy 01, Get 01 Free', during special function periods, such as Christmas season on the month of December.
- Introducing new products for a specific target audience during effective time, such as targeting school children, considering their likings.
- Special competition announced on products, including a winning price.

1.2.3 Business Supporting Process

The supporting process of a company ensures that the organizational practices of a company are being carried out perfectly. Simply, supporting process enrich the business processes of the company. Supporting processes make sure that the company is making improvements on achieving the set target of the company, which is the company 'vision'.

In order to a company to reach the target, it will need various supports from different departments, in order to achieve the goal. The processes which contribute to the key business procedures of a company, are known as the supporting processes. A company's supporting processes must be strong, to achieve the target. (ManagementMania, 2019)
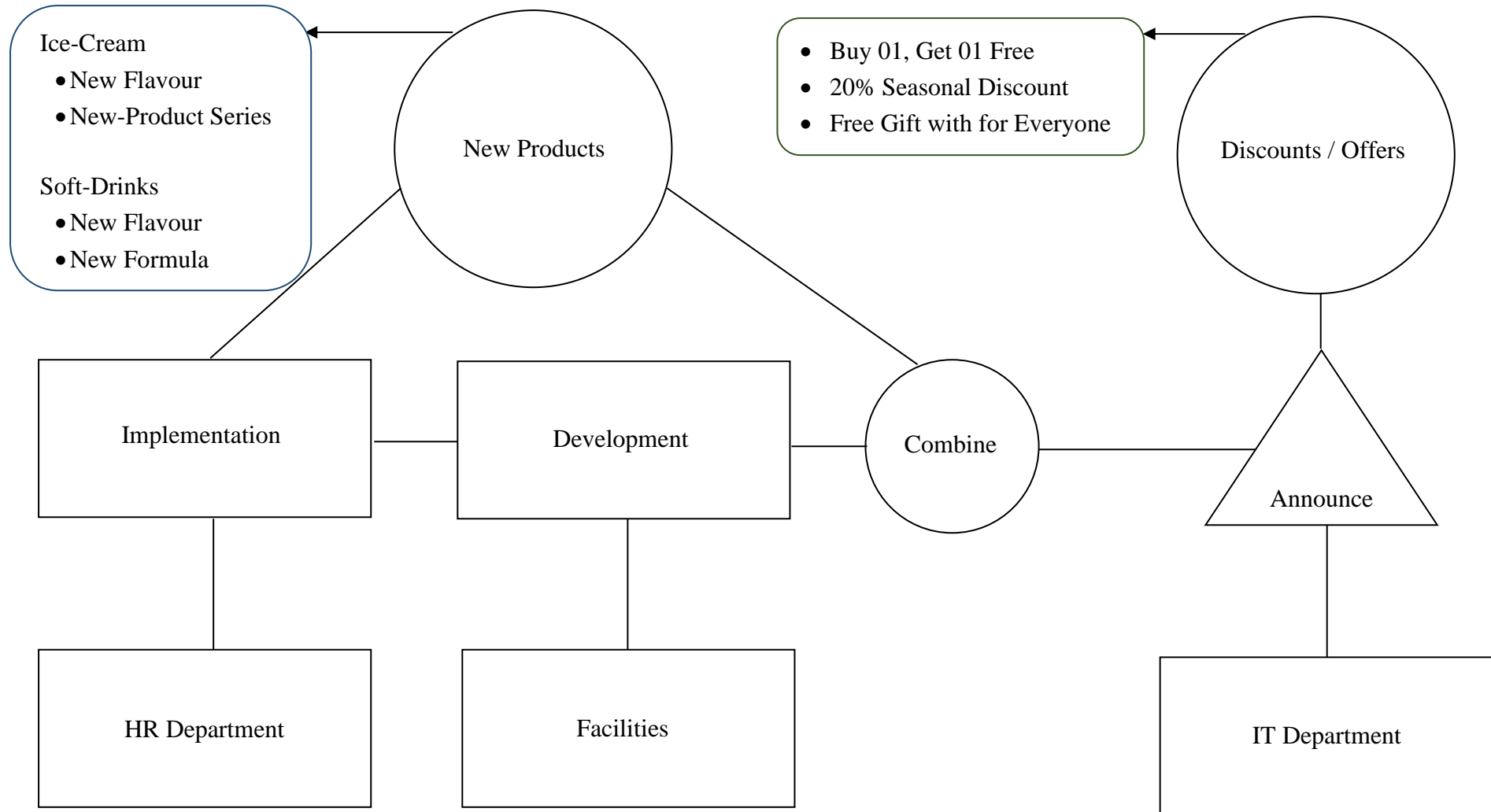
1.2.3.1 Supporting Process of Organization

Ceylon Cold Stores include Support process like facilities in the manufacturing products. The company imports various new machines, for their product manufacturing, such as ice cream machines and soft drink manufacturers. Further, the HR (Human Resources) team of the company plays a great role in building up the company's powerful departments, such as IT department and workforce department.

Examples:
- The Human Resource Management of the company handle the departments. They take care of recruiting people, creating departments and handling projects, which has a major impact on the business process of the company as well.
- The facilities and equipment of the company factories must be developed, to produce better products and build up the reputation of the company.
- The company must have a strong IT department with experts, to carry out technological decisions of the company. The IT decisions of the company play a major role in maintaining effective business processes.

1.3 Process Model

Ice-Cream
- New Flavour
- New-Product Series

Soft-Drinks
- New Flavour
- New Formula

New Products

- Buy 01, Get 01 Free
- 20% Seasonal Discount
- Free Gift with for Everyone

Discounts / Offers

Implementation

Development

Combine

Announce

HR Department

Facilities

IT Department

1.4 Data Classification

1.4.1 Business Management

The evaluation and implementation of essential business activities are considered as business management. A business management team is made up of well experienced group of members, selected by company higher officials. This team will be responsible for organising, planning and executing company production, recruiting and major marketing decisions. Eventually, the company management will have the power to make decisions related on the production and services of the business. (UPCounsel, 2018)

1.4.1.1 Structured Data and Decisions

Structured data are considered to be information which are well access and properly organized in order to analyse data in an effective manner. Moreover, structured data usually exist in a database format, so that they are extractable easily.

In Ceylon Cold Stores (CCS), essential company and management information are collected and stored as structured data. Moreover, it is also essential to maintained company revenue as structured data. These structured data are usually entered and stored in essential company databases, as they will be used for data extractive and company analytics. Analysed data are used for company target and idea purposes. Extracted data are examined in order to generate opinions for the growth of the company products.

Structured decisions are usually made by the lower-level management of the company. The employees' targets will be scheduled according to the current requirements of the company. The employees will be carrying on routine decisions which are essential to make in their daily goals. Any decision made by the lower-level management must passed over to multiple higher officials to be verified, meaning they cannot make major decisions on their own level, unless they are authorized by a higher-level management.

1.4.1.2 Semi-Structured Data and Decisions

Semi-Structured data are information which are well organized for examination, but aren't arranged for proper storage purposes. Data will be organized, but until a specific extent and the rest will be just analysable enough.

In Ceylon Cold Stores (CCS), data with certain importance are stored as semi-structured data, which also has certain need for analysis. Moreover, these data will be stored company databases where regular quality data is stored. These data will be mostly included with past data such as former employee data and past product information. These data are not much essential data for the company, but can be rarely used for certain surveys.

Semi-structured decisions are usually made by the middle-level management of the company. All regular and routine decisions are taken completely by the employees standalone. However, there will also be occasions for the management to take some unexpected decisions based on their intuitions on a fast and appropriate outcome.

1.4.1.3 Unstructured Data and Decisions

Unstructured data are information which are now organized properly or doesn't have no arrangements. These data usually exist is common databases and is rarely used.

In Ceylon Cold Stores (CCS), data which are less essential are stored and without the intention of extraction purposes. Mostly, temporary projects and common leftover data are stored in the company. The company will store these data in common databases and isn't extracted unless there is an important requirement.

Unstructured decisions are usually made by the top-level management of the company. The employees can make major decisions on their own using output intuitions. Moreover, these employees also authorize decisions of lower and middle level employees. They are provided with decision power on increasing company growth at quick, unexpected and essential situations.

1.4.2 Company Decisions Evaluation

Table 2: Company Decisions Evaluation

Management Level	Decision Type	Example
Top-Level	Unstructured	• Brand new product ideas and target customers • Conduct job interviews and recruitment processes
Middle-Level	Semi-Structured	• Publish jobs opportunities and filter applications • Maintain company accounts and calculate revenue information
Lower-Level	Structured	• Handle product promotions and advertising projects • Manage and verify product distribution and warehouse information

1.5 Application Software

Application Softwares are programs which allows the users to complete specific tasks, using program functions. The softwares will be designed for a specific set of tasks with pre-designed functions, in a simple manner. A simple example for an application software is a web browser, designed to access the internet using website hyperlinks. (Catherine, 2018)

Application Software is also beneficial for the selected organization for implementation in the company businesses processes. Different business processes might use different softwares with daily schedule requirements. Employees working on each process require certain effective software to complete their day-to-day business goals.

1.5.1 Advantages of Application Software on Business Process

- Application softwares are highly reliable while connected with business processes, as simple human errors can be avoided.
- Applications softwares are faster and efficient as the processing time of softwares are faster than manual work.
- Business process data becomes more accessible while using application softwares as they can even be connected to the internet.
- Easy data backup methods while business process data are stored in systems.

1.5.2 Disadvantages of Application Software on Business Process

- Configuration of application softwares could be expensive as they require extra devices.
- The system devices require special elements such as electricity in order to operate continuously without interruptions.
- There are higher chances of system corruptions, which could even lead to data loss.
- Extra time must be spent to explain software processes to newly recruited employees.

1.5.3 Softwares used in Organization

1.5.3.1 Core Process Software

The organization core process consists of major tasks of the company which are under top priority. The employees of these process are required to use various softwares in order to handle essential business tasks. For example, Ceylon Cold Stores (CSS) uses a special Management Information System (MIS) designed for the company tasks. The MIS system handles client and product information, which are required to track company statistics.

The MIS includes special functions such as;

- Managing company product information such as stocks count and prices.
- Product tracking data to monitor products transportation out of inventory.
- System to handle regular product demands and production limits.
- Update amounts of distributed products and filter sold products.

1.5.3.2 Management Process Software

The organization's management team requires certain softwares to handle various management activities of the company. The company has designed a specific management system in order to handle the tasks of the employees.

The management system is used to handle tasks such as;

- Add and publish currently available company job postings.
- Manage salaries and payrolls for company employees.
- Add and manage new product promotions with locations and target customers.
- Handle company revenue and provide recommendations for company growth.

1.5.3.3 Supporting Process Software

The organization's supporting process is included with essential approval activities. Ceylon Cold Stores (CCS) doesn't have special softwares to handle supporting processes. However, the employees certain useful third-party softwares for daily activities. In essence, the company employees use Microsoft Office applications in order to manage routine supporting processes.

The employees fulfil supporting process tasks using Microsoft Office applications, such as;

- Track company equipments and request for any required maintenance.
- Handle company IT requirements and system crash queries.
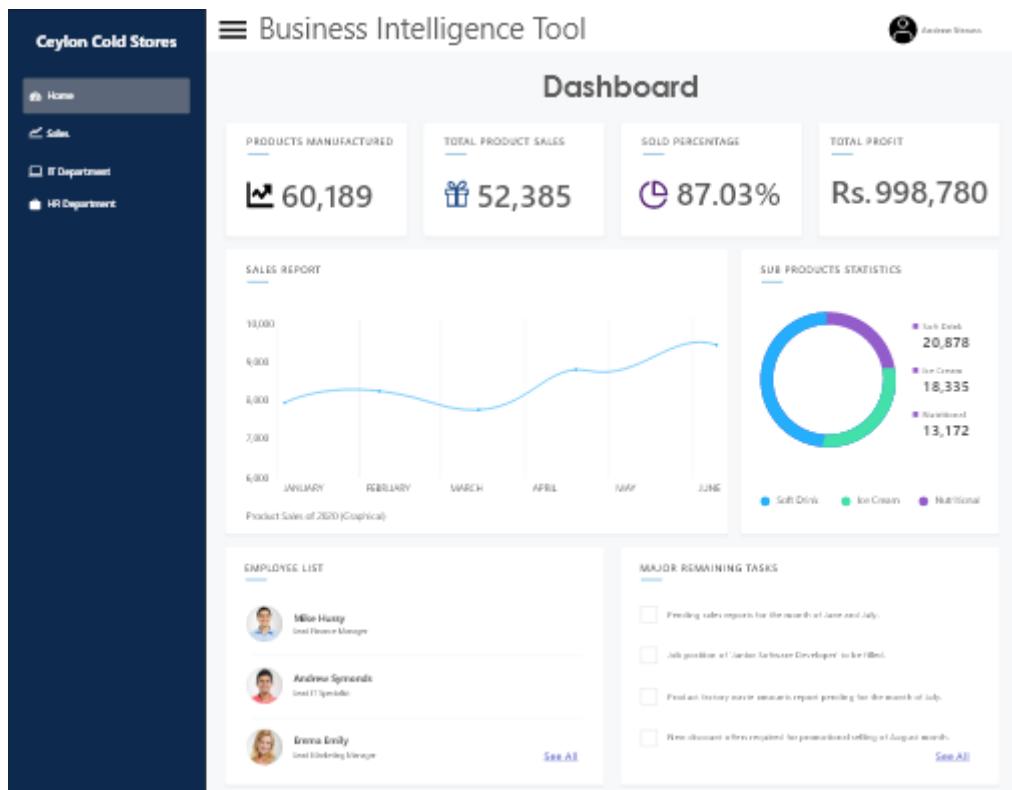- Create scheduled company and product reports.

3.1.2 Dashboard

Figure 1: BI Tool – Dashboard

The dashboard page of the BI tool will show all the essential business information on one display. These can be used by the company administration to have a better idea on the company statistics.

This design covers various essential requirements, such as;

- Display essential products manufacturing and distribution count.
- Display sales as a percentage value for better statistics.
- Sales growth information displayed using charts and infographics for better analysis.
- Display the list of major employees and their roles.
- Display a list of essential regular tasks remaining.

4.1 Importance of Business Intelligence Tools

Business Intelligence Tools are used by organizations for various reasons, mainly focusing on convenient decision-making concepts. Eventually, there is also an increasing demand for these tools as most businesses are targeting a large number of audiences at a time.

Ceylon Cold Stores (CCS) also has certain essential requirements for using business intelligence tools. The company manages a larger number of products, so the clients reach is larger than usual businesses. Moreover, the company must also manage product distribution data, such as to retail stores.

4.1.1 Impact of Business Intelligence Tools

Ceylon Cold Stores (CSS) will be able to maintain a better relationship with customers, with the use of business intelligent tools. It is essential that the business understands the requirements of its clients, which can be supported with information such as business insights. Tools also contribute in company marketing, such as identifying product target customers, by analysis sales trends.

For example, is not effective to implement raw business data, while handling large amounts of products and clients. Data storage and display must be more accessible, whereas graphically represented data on business intelligence tools are more reliable and convenient. Visualizing data includes functions such as converting data to graphs, charts or even location data, for better growth analysis.

4.1.2 Decision-Making using Tools

Ceylon Cold Stores (CCS) depends on effective decision making in order to handle the company core business processes. The company must make sure to obtain accurate business analytics in order to make effective decisions.

The company has various functions in business intelligence tools, in order to take better business decisions. The company contains larger loads of information, which are difficult to be processed automatically.

There are various factors on business tools, for the company to rely on systems, such as;

01. Accessible Tool Dashboards

Business intelligence tools are equipped with special dashboard designs, which enables users to have a track of interactions easily. The dashboard is essential for the company to watch past business insights, as well as real-time sales information. Well-organized dashboards contain statistical information, which can be used to make business decisions.

02. Geographical Analysis

Ceylon Cold Stores (CCS) is a company with island wide distribution of products. Thus, when the business tool contains geographical location analysis, it is a major advantage for the company to examine product sales data among different locations of the country. This data can also be used for specific location advertising decision purposes.

03. Organized Reports

Creating reports are always a time-consuming task for employees on businesses, whereas there are also higher chances for human errors. Company reports contribute to major product related decisions. Using business tools, the company can generate reports faster using past data, which help to take faster business decisions.

4.2 Legal Security Issues for Organization

4.2.1 Database Breach

All essential company data are stored in the company's main database system. If any individual gains access to the company database, it will eventually lead to a major company data breach. Databases are the place where the company stores regular and confidential information, which must be secured properly.

4.2.2 Third-Party Access

The company contains a business intelligence tool, and it is significant to make sure that only the company employees are given access to the systems. Third-party individuals must not be allowed in to any of the company system. Even a simple act of an employee not signing out of a system could leave the company data at risk.

4.2.3 Ransomwares

Ransomware is a type of malicious software designed with the major intention of corrupting files in a computer system. Ransomwares are usually injected with internet downloads or malicious removable disks. The company must take precautions such as restricting external devices and restricting internet downloads in order to avoid ransomware attacks.

4.2.4 Expired Security Softwares

Devices in companies are secured using security softwares such as virus guards. It is the responsibility of the company to make sure that the softwares are up-to-data, so that it should be working properly. It would be a major vulnerability for the security of the company network if there are devices with expired security softwares.

4.2.5 Neglecting Data Encryption

All data passing through the company network as well as the business intelligence tools must be encrypted in order to make sure a middle-individual cannot steal data transfers. In case the communication isn't encrypted, a hacker could steal the transferring data which will be a major data breach. When data is encrypted, the data becomes meaningless when it leaves the sender and decrypts at the receiver, securing the whole communication.

4.2.6 Careless Data Access

The company employees must not be provided access to all devices and systems of the company. It is not much possible to observe all employee activities, but it would be beneficial to give employees limited access to every company component. For instance, only top management employees should be allowed to access product confidential information, which reduces the system vulnerability range.

4.2.7 Lack of Device Maintenance

Certain analytics must be done on the company devices to make sure all components are working properly. It is especially important to verify company network devices, as any device malfunction would be a vulnerability for the whole network. These tests must be done regularly, like once every week, as they are an essential security factor.

4.2.8 Neglecting Password Changes

All company employees are provided with a unique username and password to gain access to the company network. It is also as important to change these passwords frequently and there are also chances of password leaks. Hackers use various techniques to steal security data such as 'social engineering', where precautions must be taken.