

TRANSO.COM

Internship Report

A PROJECT ON PRODUCTION MANAGEMENT SYSTEM OF BANGLADESH ELECTRICAL INDUSTRIES LIMITED (BEIL)

Prepared For
Nusrat I. Chowdhury,
Chairman
Department of Business
Administration
East West University

24th June 2001

Prepared by
Sultana Afsari
ID#1998-1-10-019

19

PHILIPS

Let's make things better

The Dissertation / Thesis / Project Report

Of

Sultana Afsari

Entitled

A Project

on

Production Management System of BEIL

at

Transcom Electronics Limited

Is approved and is acceptable in quality and form.

Research Guide's Name
and Designations

Farid Uddin Chowdhury

ISA programmer
Transcom Electronics Limited
102, Kazi Nazrul Islam Avenue,
Kawran Bazar, Dhaka-1215

Student Declaration

I hereby declare that the Project / Thesis / Dissertation Entitled

A Project
on

Production Management System of BEIL
at
Transcom Electronics Limited

Submitted as a requirement for the conferment of the degree of

BACHELOR OF BUSINESS ADMINISTRATION

to The Institute of Business Administration, East West University,
Dhaka, Bangladesh, is my original work.

Place: Dhaka

Date: 24th June, 2001

Sultana Afsari

ID # 1998-1-10-019

Department of Business Administration

East West University, Dhaka

Bangladesh

June 24, 2001

The Chairman

Department of Business Administration
East West University
Mohakhali, Dhaka.

Sub: Submission of Internship Report

Dear Sir:

I am pleased to present the internship report entitled "A Project on Production Management System (PMS) database of Bangladesh Electrical Industries Limited (BEIL) under Transcom Electronics Ltd. (TEL)." which is a requirement for the conferment of the BBA degree. This report provided me with the opportunity to use some of the theoretical learning gathered at the institute for practical purpose.

This study has two focuses. One is to look at the industry in general and Transcom Electronics Ltd. in particular. The other broad and most important objective of the report is to analyze the Production Management System (PMS) of Bangladesh Electrical Industries Limited (BEIL) under Transcom Electronics Ltd. (TEL) with related studies and to suggest some appropriate control procedures and recommendations from that perspective and how effectively it can be applied in the automation process related to the system. The PMS database was totally developed in MS Access. The system is at the verge of completion in the ISA department of TEL.

I enjoyed working on the report and if you have any further queries, I will be glad to respond to them.

Thanking you,

Sincerely,

Sultana Afsari
Sultana Afsari
ID # 1998-1-10-019
East West University

June 24, 2001

Human Resource Manager
Transcom Electronics Limited
BSEC Building (7th Floor)
102, Kazi Nazrul Islam Avenue
Dhaka-1215.

Sub: Submission of Internship Report

Dear Sir:

I am pleased to present the internship report entitled "A Project on Production Management System (PMS) database of Bangladesh Electrical Industries Limited (BEIL) under Transcom Electronics Ltd. (TEL)." which is a requirement for the conferment of the BBA degree. This report provided me with the opportunity to use some of the theoretical learning gathered at the institute for practical purpose.

This study has two focuses. One is to look at the industry in general and Transcom Electronics Ltd. in particular. The other broad and most important objective of the report is to analyze the Production Management System (PMS) of Bangladesh Electrical Industries Limited (BEIL) under Transcom Electronics Ltd. (TEL) with related studies and to suggest some appropriate control procedures and recommendations from that perspective and how effectively it can be applied in the automation process related to the system. The PMS database was totally developed in MS Access. The system is at the verge of completion in the ISA department of TEL.

I enjoyed working on the report and if you have any further queries, I will be glad to respond to them.

Thanking you,

Sincerely,

Sultana Afsari

Sultana Afsari

ID # 1998-1-10-019

East West University

REFERENCE ONLY NOT FOR ISSUE



Internship Report

A PROJECT
ON
PRODUCTION
MANAGEMENT
SYSTEM OF
BANGLADESH
ELECTRICAL
INDUSTRIES LIMITED
(BEIL)

Prepared by
Sultana Afsari



PHILIPS

Let's make things better



Acknowledgement

I express my sincere gratitude to Mr. Syed Akhter Hossain, Associate Professor, Department of Computer Science and Engineering (CSE) for being my supervisor and guiding me continuously along the way. His continuous guidance has helped me to prepare the report in a more wonderful manner. I would like to thank Mr. Nusrat I. Chowdhury, Chairman, Business department, for his valuable time and support. Also I would like to thank Mr. Kazi K S Chisty, Asstt Professor & Counselor of Career Services, for providing me with the opportunity of internship.

I am thankful to Mr. Lt. Col. Shahriar Ahmed Chowdhury (Retd.), Human Resources Manager of Transcom Electronics Limited for allowing me to do the internship in Transcom Electronics Ltd. (TEL). I would like to express my gratitude to the members of ISA department, especially Mrs. Rima Hossain Madani, ISA Manager, Mr. Mohammad Emdadul Haque Khan, Senior Programmer for their cooperation and support and all the other respected ISA officers for their valuable advice and support throughout my internship at Transcom Electronics Limited.

I would like to thank Mr. Yeamin Sharif Chowdhury, Production Manager, BEIL and Mr. Mohammed Nesaruddin Ahmed, Store Officer, BEIL for their valuable support and guidance.

Last but not the least, I am highly thankful to Mr. Farid Uddin Chowdhury, ISA programmer of Transcom Electronics Limited for being my supervisor and giving me an opportunity to work on this project and for his continuous guidance, and enormous support. I am highly grateful for having him as my supervisor in TEL.

Executive Summary

This study has two approaches. One is to look at the industry in general and Transcom Electronics Limited (TEL), in particular. The other broad objective of the report is to analyze the Production Management System (PMS) of Bangladesh Electrical Industries Limited (BEIL) under Transcom Electronics Ltd. with related studies and to suggest some appropriate control procedures and recommendations from that perspective. The PMS database, developed in MS-Access is at the verge of completion in the Information System and Automation (ISA) department of Transcom Electronics Limited (TEL).

Transcom Electronics Limited (TEL) is a private limited company incorporated in 1992 in Bangladesh under the Companies Act of 1913. TEL is the official licensee of PHILIPS Electronics N.V. for lighting products, radio and TV sets. The company purchases and sells various consumer products especially relating to audio/video products, bulbs, tube lights, professional lights, domestic appliances, refrigerators etc. The company is managed professionally with high caliber professionals and industry experts. In recent years TRANSCOM has emerged as an increasingly significant media house in Bangladesh.

The first part of the report informs about the organization's history, functions, products, markets, management, activities and company profiles.

The second part of the report gives a broad analysis and the importance of Production Management System (PMS) database of BEIL under Transcom Electronics Limited and how effectively it can be applied in the automation process related to the production management system. This section analyzed the previous system PICCOLO (Philips Industrial and Commercial Control for On-Line Operations) of the Transcom Electronics Limited and the current system PMS and described the conceptual differences of the two systems. The whole study has brought many perspectives of the system analysis and design and situations where design methodology shows the ultimate means to handle the complexity of the system.

Table of Content

	TOPIC	PAGE
Part-I		
	Acknowledgement	v
	Executive Summary	vi
Part-II		
1.0	Introduction	1-2
1.1	Origin of the Report	1
1.2	Objectives	1
1.3	Scope	1
1.4	Methodology	1
1.5	Limitations	2
Part-III		
2.0	Overview of Transcom Electronics Limited	3-18
2.1	Introduction	3
2.2	Background of the company	3
2.3	Nature of Business	4
2.3.1	Activities of Transcom Electronics Limited	4
2.3.2	Activities of Transcom involving Electronic products-overall activities	4
2.4	Structure of Transcom Electronics Limited	5
2.5	Business Units	5
2.5.1	Operations of the Business Units	5
2.6	The companies of TRANSCOM	6
2.7	The Associates of Transcom	9
2.8	Offices and warehouses of Transcom Electronics Limited	10
2.9	Different branches of Transcom Electronics Limited	10
2.10	Information system of Transcom Electronics Limited	11
2.11	Products of Transcom Electronics Limited	13
2.12	Other Information	14
2.13	Functional Department of the Organization	15
Part-IV		
3.0	Bangladesh Electrical Industries Limited	19-28
3.1	Introduction	19
3.1.1	Nature of Business	19

3.1.2	Activities of Bangladesh electrical Industries Ltd.	19
3.2	Organization structure of BEIL	20
3.3	Production Process	21
3.4	Product Flow Chart of BEIL	24
3.5	Production Personnel activities	25
3.6	Employee and trade union	28
3.7	Major Competitors of BEIL	28

Part-V

4.0	Observations: Sales	29-29
4.1	Total sales	29

Part-VI

5.0	SWOT Framework	30-32
5.1	SWOT Framework	30

Part-VII

6.0	PICCOLO: A Production Management System	33-35
6.1	Historical background of PICCOLO	33
6.2	PICCOLO database structure	34
6.3	Advantages and disadvantages of using PICCOLO	34

Part-VIII

7.0	Production Management System (PMS)	36-47
7.1	Introduction to PMS	36
7.2	How PMS was derived from PICCOLO	36
7.3	Objective of the new system	36
7.4	Advantages of the derived system – PMS	36
7.5	Data flow diagram of PMS	37
7.6	Database schema	41
7.7	Entity relationship	43
7.8	Entry forms with relation to Entity	44
7.9	PMS database interaction forms	46
7.10	Reports	47

Part-IX

8.0	Analysis of the derived system – PMS	48-51
8.1	Analysis of the derived system - PMS	48

Part-X

9.0	Proposition on the derived system – PMS	52-53
-----	--	-------

Part-XI

10.0	Conclusion	54-54
------	-------------------	-------

Appendix

Bibliography

Table of Illustrations

TOPIC	PAGE
1. Figures	
Fig 2.6.1: Companies of Transcom	6
Fig 2.7.1: Associates of Transcom	9
Fig 2.9.1: Network of Transcom Electronics Ltd. in Bangladesh	11
Fig 2.4.1: Organization structure of Transcom Electronics Ltd.	18
Fig 3.2.1: Organization Structure of BEIL	20
Fig 3.4.1: Product Flow Chart of BEIL	24
Fig 3.5.1: Kits Planning	26
Fig 3.5.2: Kits movement	27
Fig 4.1.1: Total Sales	29
Fig 6.2.1: The modular structure of PICCOLO	35
Fig 7.5.1: Transaction flow of PMS	39
Fig 7.5.2: Transaction flow of PMS	40
Fig 7.6.1: Screen caption of the table ArticleGroup	41
Fig 7.6.2: Screen caption of the table Inventory Transaction using PS	42
Fig 7.7.1: E-R model of PMS Database	43
Fig 7.8.1: Representing entity relationship of the form ArticleGroup	44
Fig 7.8.2: Representing entity relationship of the form InventoryTransaction	45
Fig 7.9.1: User level Interface of the Form Menu of PMS	46
Fig 7.9.2: User level Interface of the Form Article Group of PMS	46
Fig 7.9.3: Input screen for Transaction type	46
Fig 7.10.1: Screen caption of Report Menu	47
Fig 7.10.2: Report-List of Articles sorted by ArticleGroup Description	47
Fig 8.1.1: User level interface for Administrator Access of PMS	48
Fig 8.1.2: Item Master screen to add, update, delete different items	49
Fig 8.1.3: Input screen to 'assign' the warehouses to store the items	50
Fig 8.1.4: User level interface for Inventory Transaction	50
Fig 8.1.5: User level interface for Product Structure	51
2. Tables	
Table: SWOT Framework	30-32

Introduction



1.1 Origin of the Report

This report is being submitted to West University as a requirement for the Administration (DBA) degree.

1.2 Objectives

The study has the following objectives: To identify the Production Management System (PMS) of BEIL. To identify the various components of the PMS. To identify the various departments of the PMS. To identify the various functions of the PMS. To identify the various departments of the PMS. To identify the various functions of the PMS.

1.3 Scope

The scope of this report is to highlight the various components of the Production Management System (PMS) of BEIL. The report will cover the various departments of the PMS and how effectively they are functioning in the current scenario.

1.4 Methodology

The data for this report was collected by interviewing a number of employees of BEIL.

1.5 Production Management System (PMS) of BEIL



1.0 Introduction

1.1 Origin of the Report

This report is being submitted to the Department of Business Administration, East West University as a requirement for the conferment of the Bachelor of Business Administration (BBA) degree on the 24th of June 2001. The work on this report was carried out in an Internship program at Transcom Electronics Limited, Karwan Bazar, Dhaka, in the Department of Information System and Automation (ISA).

1.2 Objectives

This study has two focuses. One is to look at the industry in general and Transcom Electronics Ltd, in particular. The other broad objective of the report is to analyze the Production Management System (PMS) of Bangladesh Electrical Industries Limited (BEIL) of Transcom Electronics Ltd. with related studies and to suggest some appropriate control procedures and recommendations from that perspective. The PMS database, developed in MS Access is at the verge of completion in the ISA department of TEL.

1.3 Scope

The scope of this report is to highlight the importance of Production Management System (PMS) database of Bangladesh Electrical Industries Limited (BEIL) under the Transcom Ltd and how effectively it can be applied in the automation process related to the production management system.

1.4 Methodology

I have utilized both primary and secondary sources of data collection for the study. I have collected the primary data by interviewing a number of concerned managers and employees. The secondary data was collected from company brochures, leaflets, journals, articles etc. The questionnaires and discussions were based on the industry



itself, Transcom Electronics Ltd, and the Production Management System (PMS) database of Bangladesh Electrical Industries Limited (BEIL) of Transcom Electronics Ltd.

1.5 Limitations

There were in fact certain limitations, which were the major obstacles in organizing the report in a more elaborated and detailed manner. These are:

- Limitation of time- The allotted time was not sufficient to study the system in-depth;
- Limitation of secondary information- There were in sufficient secondary sources.
- Confidential policy- Every organization has confidential matters, which are not disclosed to outsiders. As a result, concerned personnel of the company were reluctant to disclose the confidential information (i.e. NDA).

2.1 Introduction

Transcom Electronics Ltd. is a company under the 1947 Companies Act, registered in England. The company is a public company and is listed on the London Stock Exchange.

Overview of Transcom Electronics Limited

Transcom Electronics Limited is a leading and fastest growing electronics company in Bangladesh, employing over 1,000 people. The company is a public company and is listed on the London Stock Exchange. The company is a public company and is listed on the London Stock Exchange.

Their early industrial activities were in the field of electronic components and high-tech manufacturing. In recent years, the company has expanded its operations into the field of integrated circuits and microprocessors. The company has received an increasing number of awards for its products.

2.2 Background of the company

Transcom Electronics Limited (TEL) is a subsidiary of the Transcom Group of the company. It is the same as the Philips Bangladesh Limited (PBL). Philips is the first multinational company to establish a factory in Bangladesh.

Transcom Electronics Limited is the official licensee of PHILIPS Electronics N.V. (Philips N.V. products of The Netherlands), one of the leading multinational co-



Production Management System (PMS) of BEIL



2.0 Overview of Transcom Electronics Limited

2.1 Introduction

Transcom Electronics Ltd. is a private limited company incorporated in 1992 in Bangladesh under the Companies Act of 1913. The company is managed professionally with high caliber professionals and industry experts.

Transcom Electronics Ltd originated with tea plantations in 1885 and is today, one of the leading and fastest growing diversified business houses in Bangladesh employing over 5,000 people. Not many industrial groups in Bangladesh can claim a history of continuous business pursuits stretching back over 100 years. Initially tea and later jute formed the backbone of the family business. Although these are still part of the activities, they contribute marginally to the overall group turnover.

These early industrial ventures have moved to businesses involved in high-tech manufacturing, international trading and distribution, forming stone ties with host of blue chip multinational companies. In recent years TRANSCOM has emerged as an increasingly significant media house in Bangladesh.

2.2 Background of the company

Transcom Electronics Limited (TEL), owned by a group of dynamic entrepreneurs of Transcom Group of the country, is the successor of Philips Bangladesh Limited (PBL). Philips is the first television company in Bangladesh. Philips Company was established in Holland.

Transcom Electronics Limited is the official licensee of PHILIPS Electronics N.V. (Philips NV products of The Netherlands, one of the leading multinational company in electronics, telecommunication, consumer electronics, personal care products and household appliances sector) for lighting products, radio and TV sets. Transcom



Electronics Limited purchased the light, audio / video, and professional light business with some assets and liabilities from Philips Bangladesh Limited on the 4th of March 1993. This aforesaid business, personnel and assets/liabilities were then transferred to Transcom Electronics Limited, which commenced business with effect from the 5th of March 1993. Its head office is in Karwan Bazar and Factory at Mohakhali.

“Let’s make things better” is the worldwide slogan of Philips.

2.3 Nature of Business

The company purchases and sells various consumer products especially relating to audio/video products, bulbs, tube lights, professional lights, domestic appliances, refrigerators etc. During the years 1998-1999 the company introduced credit facilities to its retail customers under hire purchase (HP) scheme.

2.3.1 Activities of Transcom Electronics Ltd.

- a. Purchase and warehousing of finished goods from Bangladesh Electrical Industries Limited (BEIL) and import Complete Built Unit (CBU) TV sets from overseas.
- b. Marketing of Philips local and imported goods.
- c. Sales of Philips products and Whirlpool products.
- d. Collection from debtors.
- e. Making effective market plans.
- f. Clearing and forwarding.

2.3.2 Activities of Transcom involving Electronic products - Overall Activities:

Three companies are related with producing, marketing and servicing of Philips products. They are:

- a. Transcom Electronics Limited (TEL): The company involves in marketing of Philips lights, audio and video products.



- b. Bangladesh Lamps Limited (BLL): The Company involves in producing Philips Lights. It is a public limited company. Its activities are:
- Purchase, import and warehousing of raw materials.
 - Production of bulbs and sale of its 99% production to Transcom Electronics Limited and 1% Sainik bulb to Sena Kalyan Sangstha (SKS).
- c. Bangladesh Electrical Industries Limited (BEIL): This Company involves in production and service of Philips audio and video products. This is also a private limited company. Its activities are:
- Purchase, import and warehousing of raw materials.
 - Production of TV, radio etc. and sale its 100% production to Transcom Electronics Limited.

2.4 Structure of Transcom Electronics Limited

Transcom Electronics Ltd. is a private limited company incorporated in 1992 in Bangladesh under the Companies Act of 1913. Managing Director is the operational head of the organization. Head of every department carries out their functions with the help of line managers different departments have different structured according to their functions and responsibility.

2.5 Business Units

Transcom has three business units (BU). They are:

- a. GLS Lighting and Tube Lights - BU - Light
- b. Professional Light - BU - Professional Light
- c. Consumer Electronics - BU - CE

2.5.1 Operations of the Business Units

Consumer Electronics: Consumer Electronics (CE) are operated by both Bangladesh Electrical Industries Ltd. and Transcom Electronics Ltd.

GLS, Professional Lights and Mounting Shops: Both Bangladesh Lamps and Transcom Electronics Ltd operate GLS, Professional Lights and Mounting Shops.

2.6 The companies of TRANSCOM

The companies those made TRANSCOM a success are:

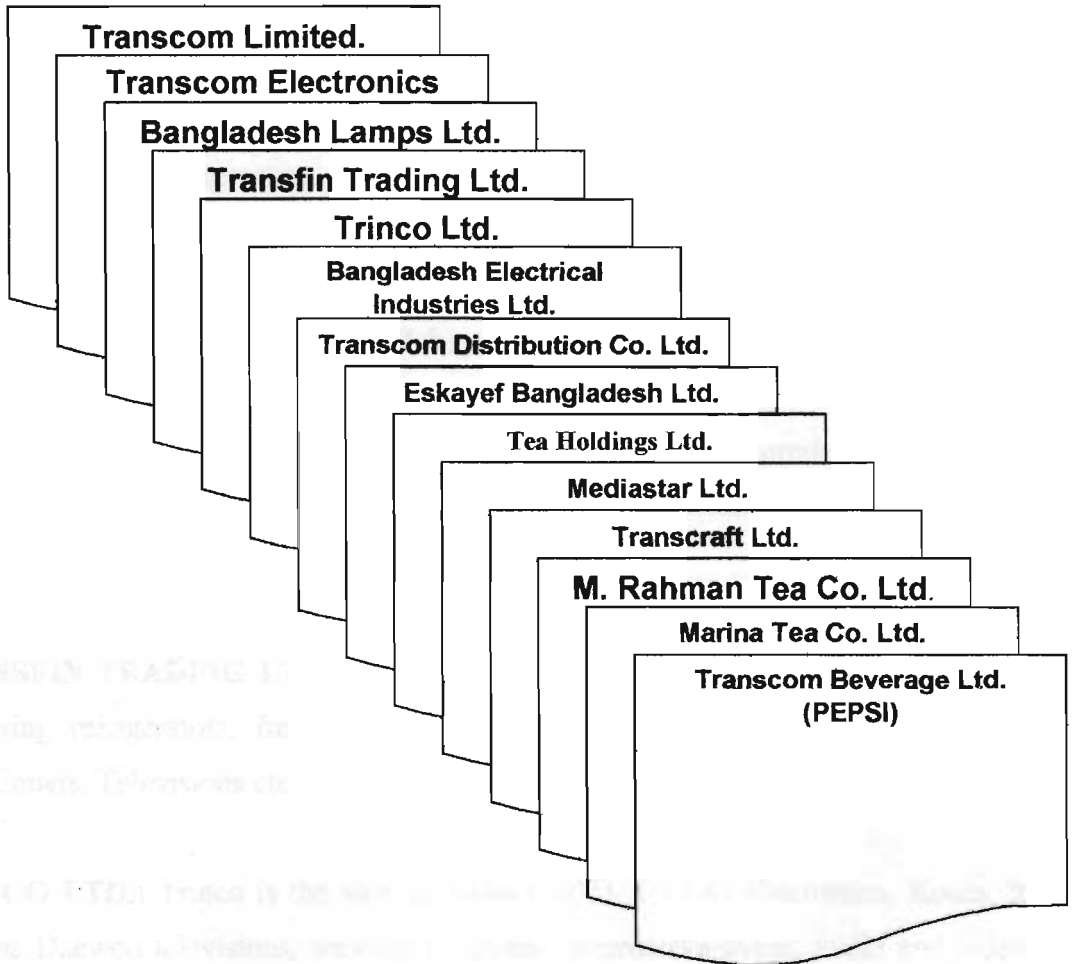


Fig 2.6.1: Companies of Transcom

TRANSCOM LIMITED: This is the flagship and holding company of the Transcom enterprises. Transcom represents Andre Switzerland for exports from Bangladesh.



TRANSCOM ELECTRONICS LTD.: The Company is the official licensee of PHILIPS Electronics N. V. Holland for lighting products, radio and TV sets in Bangladesh. The lighting division distributes Philips lighting products to over 45,000 outlets all over the country through an exclusive dealer network. A separate Professional Lighting team handles energy saving, special applications and sports lighting. The Consumer Electronics division distributes Philips televisions, radios, music systems and domestic appliances.

It is the authorized sole distributor in Bangladesh for WHIRLPOOL, USA. The products include refrigerators, freezers, washing machines, microwave ovens and other domestic appliances.

BANGLADESH LAMPS LTD. (BLL): BLL is the pre-eminent manufacturer of electric light bulbs in the country. The company has an exclusive licensing agreement with Philips, under which it manufactures Philips lighting products. BLL was incorporated in 1960 as a subsidiary of Philips, Holland. In March 1993, Philips sold its entire shares to Transcom.

TRANSFIN TRADING LTD.: Transfin is the sole distributor of SANYO, Japan, marketing refrigerators, freezers, microwave ovens, washing machines, and air-conditioners, Televisions etc.

TRINCO LTD.: Trinco is the sole distributor of DAEWOO Electronics, Korea. It markets Daewoo televisions, washing machines, microwave ovens, audio and video equipments.

BANGLADESH ELECTRICAL INDUSTRIES LTD. (BEIL): BEIL is a leading producer of televisions and radios in Bangladesh and is the official licensee of Philips. The company was incorporated in 1960 as a subsidiary of Philips, Holland. In March 1993, Philips sold its entire shares to Transcom.



TRANSCOM DISTRIBUTION CO. LTD. (TDCL): TDCL is the largest independent distribution setup in Bangladesh with full infra structural facilities provided by a countrywide network of branch offices with warehouses and delivery vans. The company distributes quality pharmaceutical products manufactured by **ESKAYEF BANGLADESH LTD.**, **ORGANON**, **SMITHKLINE**, **BEECHAM**, **SERVIER** and diagnostic products from **ORGANON TEKNIKA**.

TDCL also markets and distributes color cosmetics, skin and hair care products from several high profile international Brands namely, **L'OREAL Paris**, **MAYBELLINE New York**, **GARNIER Paris** and **SYNERGIE**.

ESKAYEF BANGLADESH LTD.: Eskayef manufactures high quality pharmaceutical products and is particularly strong in antibiotics, the company, which was incorporated in 1980 as a subsidiary of Smithkline and French USA, was acquired by Transcom in 1990. Strict GMP standards and excellence in product quality is reinforced through a technical tie up with Smithkline Beecham.

TEA HOLDINGS LTD. (THL): THL is an exporter of tea, jute goods and petroleum products. It is also involved in warehousing, import and sales of agricultural commodities. It has been awarded the president's Export Trophy for outstanding export performance. The company markets and distributes phone and IT network components from **KRONE Germany**. The company represents **VITOL Switzerland** for petroleum products.

MEDIASTAR LTD.: **PROTHOM ALO**, the fastest growing Bengali daily newspaper has established itself as an independent and respected voice in the field of media in Bangladesh.

TRANSCRAFT LTD.: A modern printing facility located in Dhaka.



M. RAHMAN TEA CO. LTD.: The Company possesses huge tea plants.

MARINA TEA CO. LTD.: The Company is involved in tea plantations.

TRANSCOM BEVERAGE LTD. (PEPSI): Transcom's latest and one of the largest acquisitions is Transcom Beverage Ltd. (Pepsi), which was acquired in first of 2000 from Tabani Beverages Limited.

2.7 The Associates of Transcom

Transcom's associates are:

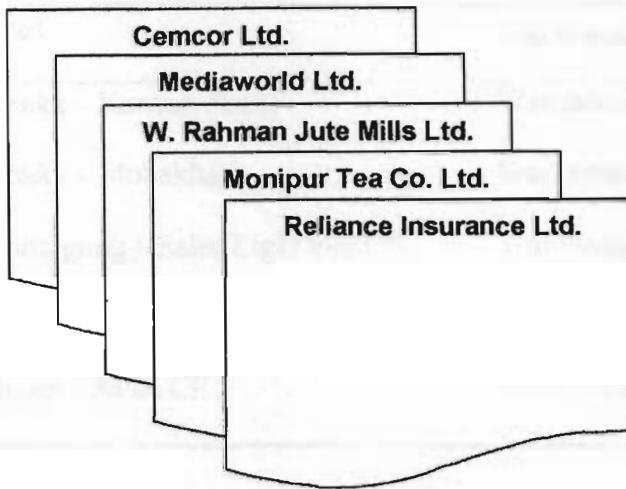


Fig 2.7.1: Associates of Transcom

CEMCTOR LTD.: Cemcor incorporated as a joint venture with HOLDER BANK S. A. Switzerland. The company will manufacture and market cement with a mission to be the leading cement company in this market.

MEDIAWOLD LTD.: The Daily Star is the leading and most quoted English newspaper in Bangladesh. The company also publishes the Bengali SHAPTAHIK 2000 a quality political and current affairs weekly and ANONDODHARA, the premier film and entertainment fortnightly.

W. RAHMAN JUTE MILLS LTD.: Established in 1962 at Chandpur, manufactures jute bags, hessian and yarns.

MONIPUR TEA CO. LTD.: The company produces quality tea.

RELIANCE INSURANCE LTD.: The largest private sector general insurance company in Bangladesh.

2.8 Offices and Warehouses of Transcom Electronics Ltd.

Offices	Warehouse No.
1. Dhaka – Karwan Bazar	Warehouse no. 1 & 5
2. Dhaka – Mohakhali	Warehouse no. 9
3. Chittagong – Sales Light and CE	Warehouse no. 2
4. Khulna - sales Light and CE	Warehouse no. 3
5. Bogra – Sales CE	Warehouse no. 4

2.9 Different branches of Transcom Electronics Ltd.

Barisal	Mymensingh
Noakhali	Bogra
Comilla	Rajshahi
Rangpur	Chittagong
Faridpur	Sylhet
Khulna	

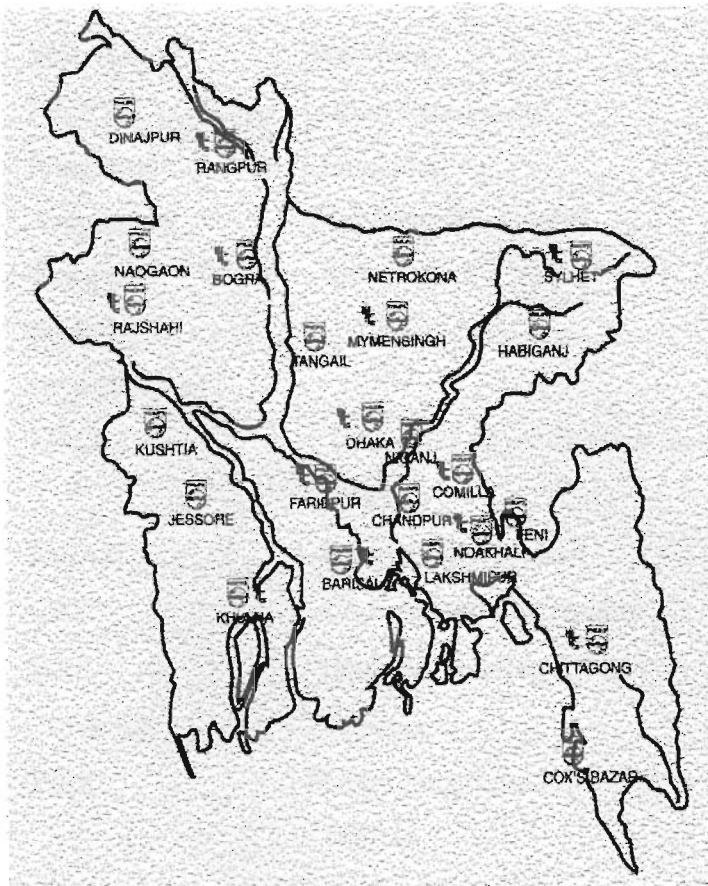


Figure 2.9. 1: Network of Transcom Electronics Ltd. in Bangladesh

2.10 Information Systems of Transcom Electronics Limited

Transcom Electronics Ltd. created a very effective information system by the help of its Information Systems and Information System Analyst. The Information system involving Hardware and Software are effectively ensuring and making the activities ease for the company and its personnel. The ISA department uses the following Hardware & Software for its operations:

- Hardware:**
1. Mini Computer IBM AS/36
 2. PCs clones (Compaq & IBM, mainly Intel Pentium Series)



Software:

Software	Activities
1. PICASSO (Philips Integrated Cost Accounting Software for Selected Organization)	- Order Processing - Invoicing - Accounts Receivable - Inventory
2. MMS	- General Ledger System and Financial Reporter
3. FIXAS	- Fixed Assets System
4. CAS	- Cash Accounting System
5. BAS	- Bank Accounting System
6. Traveling	- Expenses
7. PIPS	Philips Integrated Payroll System - Payroll - Medical Benefits - Cash and Article Loan -Personal Profile
8. MS Access	-Sales System



2.11 Products of Transcom Electronics Limited

PHILIPS Products

1. GLS Lights
2. Tube Lights
3. Professional Lights
4. Radio Cassette Recorder
5. CD Changers, VCD, DVD players
6. Color TV
7. Black and White TV
8. VCP and VCR
9. Audio and Accessories
10. Domestic Appliances

WHIRLPOOL Products

1. Refrigerators
2. Washing Machines
3. Gas Cookers
4. Microwave Ovens

GLS lights, tube lights and professional lights: The company engages in production and import of large variety of lights and lighting appliances. The sales of this category are the vital force for the total sale of the products. The sale of this category is about taka 140,958,000 in January to June 2000 period.

Audio / Video appliances: In this category also the company engages in assembling and importing large variety of audio and video appliances including radios, cassette recorders, CD players, VCD/DVD players, VCP and VCRs.

Televisions: Transcom has been proving with a huge line of black & white and color televisions. The total sales of televisions (both black & white and color) are taka 31,098,000 in the January-June 2000 period.

Domestic Appliances and home appliances: This category covers refrigerators and freezers, washing machines and dryers, cooking equipments, such as microwave



ovens, blenders, juicers, food processors, electric fans, irons etc. The sales of these products are also good.

So it is apparent that Transcom is going through production and import of lots of quality products for different customers with mass quantity in the electric and electronics industry.

2.12 Other Information:

Basis of Accounting

Accounts are made under the historical cost conversion in accordance with the generally accepted accounting principles (GAAP).

Fixed assets and depreciation

Fixed assets are valued at cost and are depreciated on straight-line method at rates varying from 3.33% to 50% depending on the expected life each category of fixed assets.

Capital and Reserves of Transcom Electronics Ltd.

Share Capital

Authorized:

500000 ordinary shares of Tk. 100.00each Tk. 50,000,000

Issued and paid-up:

45000 ordinary shares of Tk. 100.00 each Tk. 4,500,000

Out of 45000 ordinary shares issued and paid-up, 25000 shares were allotted as fully paid bonus shares in the ratio of 1:1.25.



Stocks of Transcom Electronics Ltd.

Stocks are valued at cost following the FIFO pricing method or net realizable value whichever is lower. Net realizable value is the estimated selling price in the ordinary course of business.

Taxation

Provision for income tax is made on the basis of company's computation of fiscal profit and on the basis of demand notices raised by the tax authority.

Provision for gratuity

The company operates an unfounded gratuity scheme, provision for which is made annually covering all its permanent employees as per gratuity rules.

2.13 Functional Department of the Organization

TEL has been operating its business under the following major functional areas:

PRODUCTION DEPARTMENT

The Factory manager is the head of the production department, and takes necessary steps to smooth out the production process. The factory manger is in charge of planning quality control, engineering, research and development of the organization. The Motto of the Production Department is to ensure quality control and productivity in sustaining long-term profitability. BEIL is the leading producer of televisions and radios and it has as strong production capacity. The production capacity of B/W television is 25,000 and color television is 15,000.

MARKETING DEPARTMENT

The company has a strong network consisting of four regional offices throughout Bangladesh. The four regional offices are in Dhaka, Chittagong, Khulna and Bogra. These are headed by four area mangers in cooperation with some sales officers. The four offices have workhouse facilities to store some television sets.

Transcom Electronics Limited has its own distribution system. TEL distributes their products to the dealers through four regional offices. The regional offices ask CE (consumer electronics) sales division for their required products and CE sends television sets to the dealers. TEL sells television sets through their appointed dealers throughout the country. They have a total of 140 dealers and the requirements of dealers are met through four regional offices in the concerned areas.

Dealers are appointed through some regulations, which is abided by the dealers. A shopper willing to be a dealer must have a trade license, income tax license, bank solvency certificate and will have to deposit some security money and fill up a form.

PERSONNEL DEPARTMENT

The personnel manager, who is in-charge of selection, recruitment, appointment of worker and officer, heads this department. The personnel manager is also involved in handling the legal affairs, labor welfare, security and fire service and performance appraisal. Personnel department consists of one personnel manager, one personnel officer, one personnel controller, one personnel assistant, two staff and ten guards.

The personnel department concentrates all its activities for the development of human resource for the benefit of the company. The department ensures that managerial development contributes to organizational development. Company sponsors executives for higher studies for the development of the employee. The company has one medical officer, who looks after the health welfare of the employees. The company gives four bonuses to the workers and three bonuses to the officers every year to strengthen the bond.

FINANCE DEPARTMENT

The company has strong financial monetary policy. This has helped the company to grow its value in the market. The finance department performs a number of functions.

They are:

- Prepare and verify consolidated financial statement of all units of the company.
- Monitor and control all financial activities of the company.
- Structure capital policy.
- Carry out auditing by internal and external auditors.

CORPORATE AFFAIRS DEPARTMENT

The corporate affairs department of the company is dedicated for maintaining a good image of the company to the society by keeping customers, media, government, suppliers etc. contended. The company promotes and sponsors various programs. The company organizes waj mehfil, games, and drama on the factory premises.

COMMUNICATION DEPARTMENT

The communication manager heads the communication department. Under the communication manager communication officers are working. The department ensures strong and effective communication both inside and outside the organization.

INFORMATION SYSTEM AND AUTOMATION DEPARTMENT (ISA)

Transcom Electronics Ltd. created a very effective information system by the help of its Information Systems. The Information system involving Hardware and Software are effectively ensuring and making the activities ease for the company and its personnel. The ISA manager heads the department, along with one Senior programmer and few ISA officers. The personnel of ISA department look after the troubleshooting, hardware and software maintenance of all the units of the company.

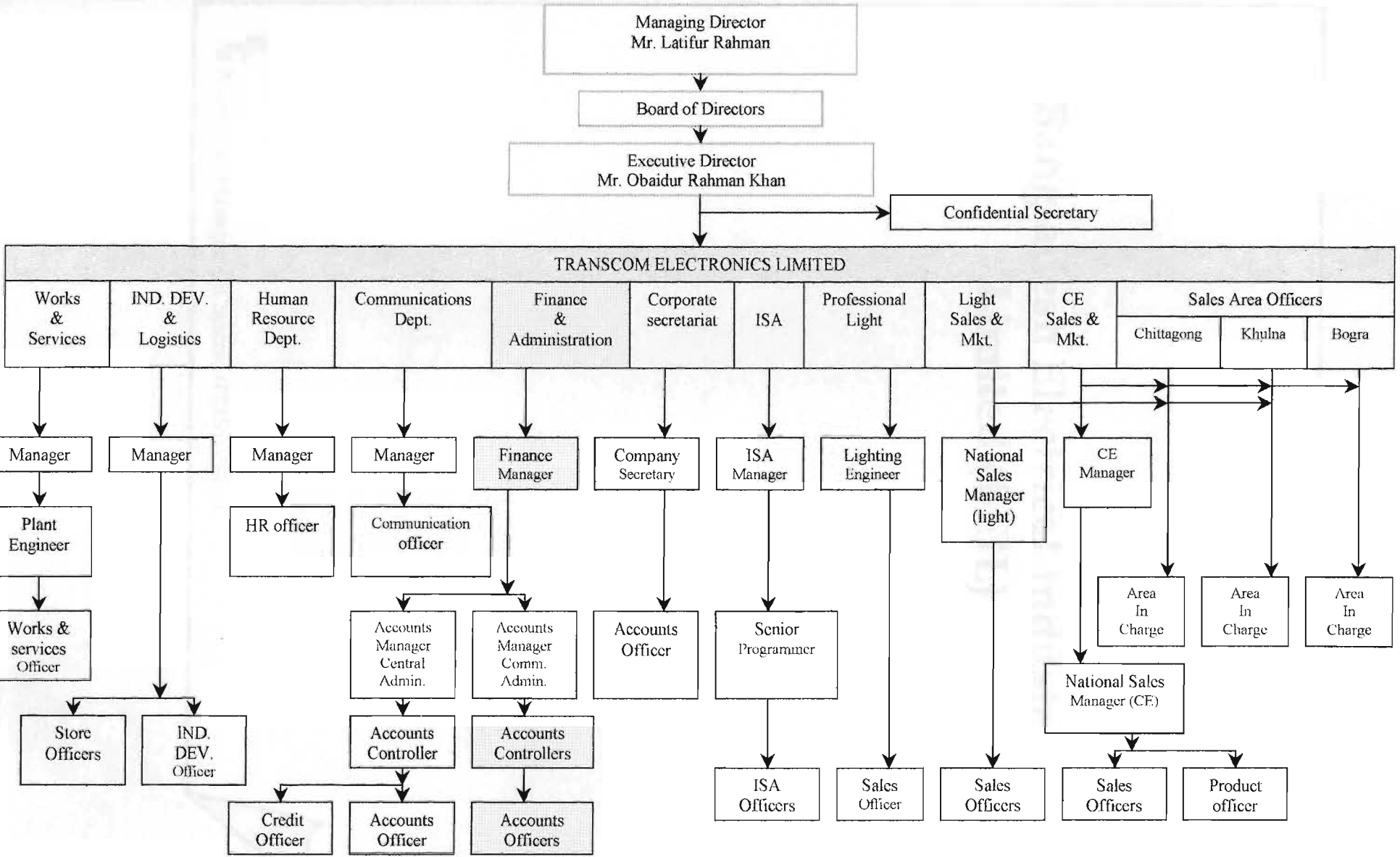


Fig 2.4.1: Organization Structure of Transcom Electronics Limited

Bangladesh Electrical Industries Limited (BEIL)



Production Management System (PMS) of BEIL



3.0 Bangladesh Electrical Industries Limited (BEIL)

3.1 Introduction

Bangladesh Electrical Industries Limited (BEIL) is a private limited company incorporated in 1960 in Bangladesh under the companies Act 1913 within an authorized capital of taka 3 crore divided into 300,000 ordinary shares of taka 100 each. 80% of the shareholding is owned by Transcom Limited and the balance 20% held by Sena Kalayan Sangstha. Television is the main product of Consumer Electronics (CE) Division; BEIL assembles both the color and B/W Philips TV set. BEIL has almost all the TV size likely in this country. The television sizes available are:

Color: - 14", 16", 20", and 29"

B/W: - 14", 17"

3.1.1 Nature of Business

The company produces and sells various audio/video products.

3.1.2 Activities of Bangladesh Electrical Industries Ltd.

- Purchase, import and warehousing of raw materials.
- Production of TV, radio etc. and sale its 100% production to Transcom Electronics Limited.



3.2 Organization structure of BEIL

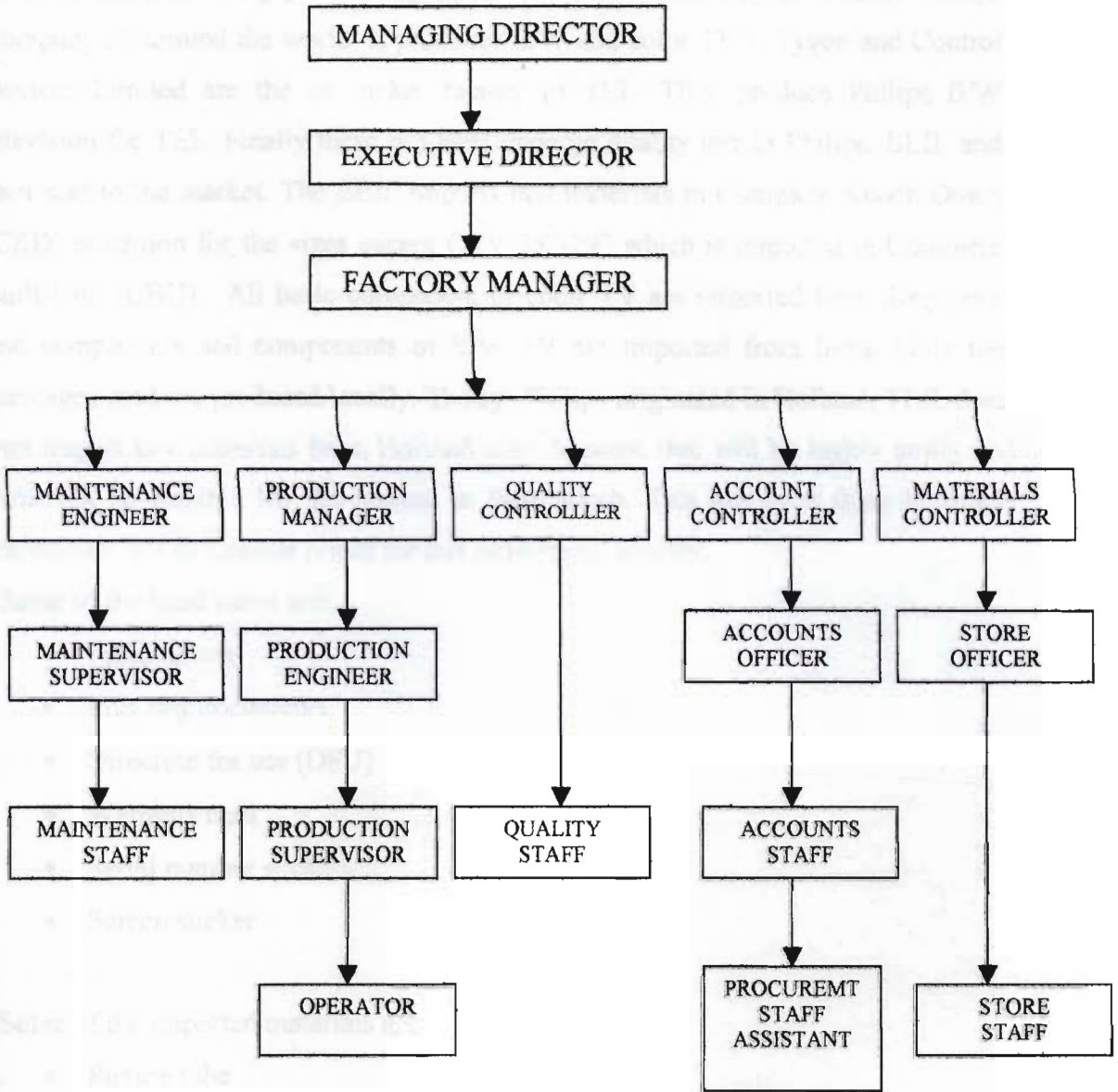


Fig 3.2.1: Organization Structure of BEIL



3.3 Production Process

BEIL is one of the leading industries of Transcom Industries Limited, which is basically an assembling plant. They use the modern technology as used by Philips Company all around the world. It produces B/W and color TV's. Tygon and Control Devices Limited are the co maker factory of TEL. They produce Philips B/W television for TEL. Finally these products undergo quality test in Philips, BEIL and then sent to the market. The BEIL imports raw materials in Complete Knock Down (CKD) condition for the sizes except CTV 25"-29" which is imported in Complete Built Unit (CBU). All basic component of color TV are imported from Singapore and components and components of B/W TV are imported from India. Only the packages used are produced locally. Though Philips originated in Holland, TEIL does not import raw materials from Holland now, because that will be highly costly and will not be feasible for the market in Bangladesh. This has been done to supply television sets in suitable prices for this developing country.

Some of the local items are:

- Packing box
- Poly bag documents
- Direction for use (DFU)
- Warranty card
- Serial number stickers
- Screen sticker

Some of the imported materials are:

- Picture tube
- Rear cab
- Front cabinet
- Integrated circuit (IC)
- Resistance
- Capacitor
- Washer



TV assembling process is divided into three parts. They are as follows:

1. Production
2. Quality control
3. Maintenance

TV production process is divided into two halves:

- a) 1st Half
- b) 2nd Hal

1st half consists of the following stages:

- PCB preparation
- Stuffing
- Soldering
- Touch-up
- Alignment
- Monitor check

2nd half consists of the following stages:

- Front cabinet preparation
- Picture Tube Installation
- Encasing
- Soak test
- Final control
- Back cover fitting
- Ageing list
- Quality check
- Reliability check test
- Packing

The above processes are involved in the making of color TV. The production process of color television is one of the outstanding products of Philips, BEIL. The production process is systematic. Starting from the checking of raw materials to the final assembled specimen they ensure quality control stage after every stage to maintain the quality of the product.

The production process of B/W TV consists of the following stages:

- Stuffing
- Soldering
- Leg cutting
- Touch-up
- Alignment
- Sub-assembly
- Front cabinet preparation
- Picture tube installation
- Encasing
- Final alignment
- Back cover fitting
- Ageing test
- End quality control
- Packing

The way Tygon Electro Ltd. Assembles B/W TV is systematic. They try to maintain the quality of the product. For e.g. 17" MRC B/W Philips TV is one of the outstanding products of Philips with some exclusive features.

3.4 Product Flow Chart of BEIL

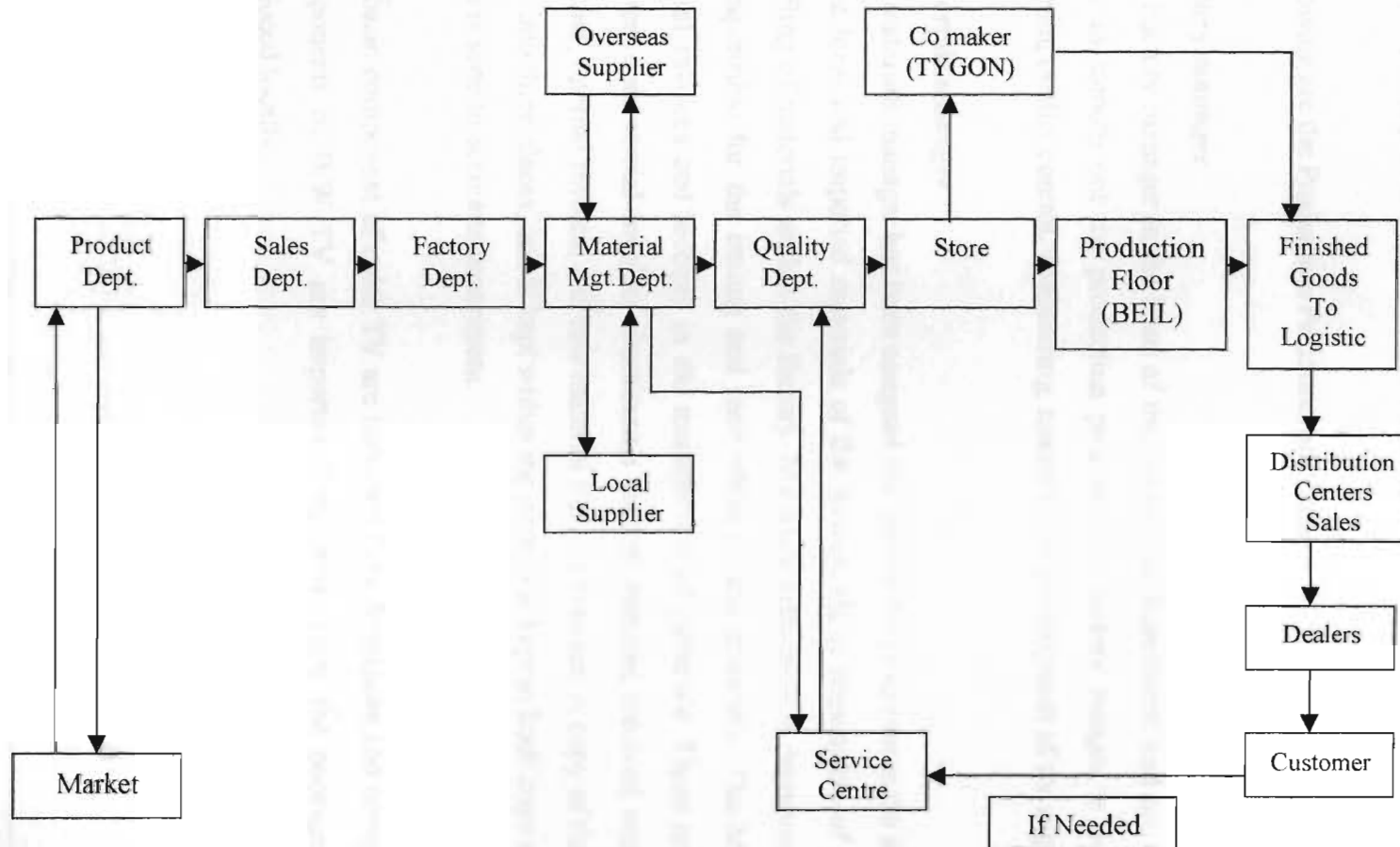


Fig 3.4.1: Product Flow Chart of BEIL



3.5 Production Personnel activities

The Motto of the Production Department is to ensure quality control and productivity in sustaining long-term profitability. BEIL is the leading producer of televisions and radios and it has as strong production capacity. The production capacity of B/W television is 25,000 and color television is 15,000.

Following are the Production Personnel activities:

Factory manager

The Factory manager is the head of the production department, and takes necessary steps to smooth out the production process. The factory manager is in charge of planning quality control, engineering, research and development of the organization.

Materials manager

The materials manager has been assigned the responsibility to ensure the safety of the entire local and imported materials of the factory. He is responsible of the overall handling of materials within the factory. Materials management department (MMD) is responsible for the issuing and receivables of any materials. The MMD issues several invoices and receipts in the management of materials. These are proforma invoice, commercial invoice, short/excess receipt, material received voucher, issue voucher, internal invoice, and raw material transfer voucher. A copy of these receipts goes into three places, one is kept within the store, one kept in book copy and another copy is send to accounts department.

All basic component of color TV are imported from Singapore and components and components of B/W TV are imported from India. Only the packages used are produced locally.

The diagram below shows the planning of materials (kits):

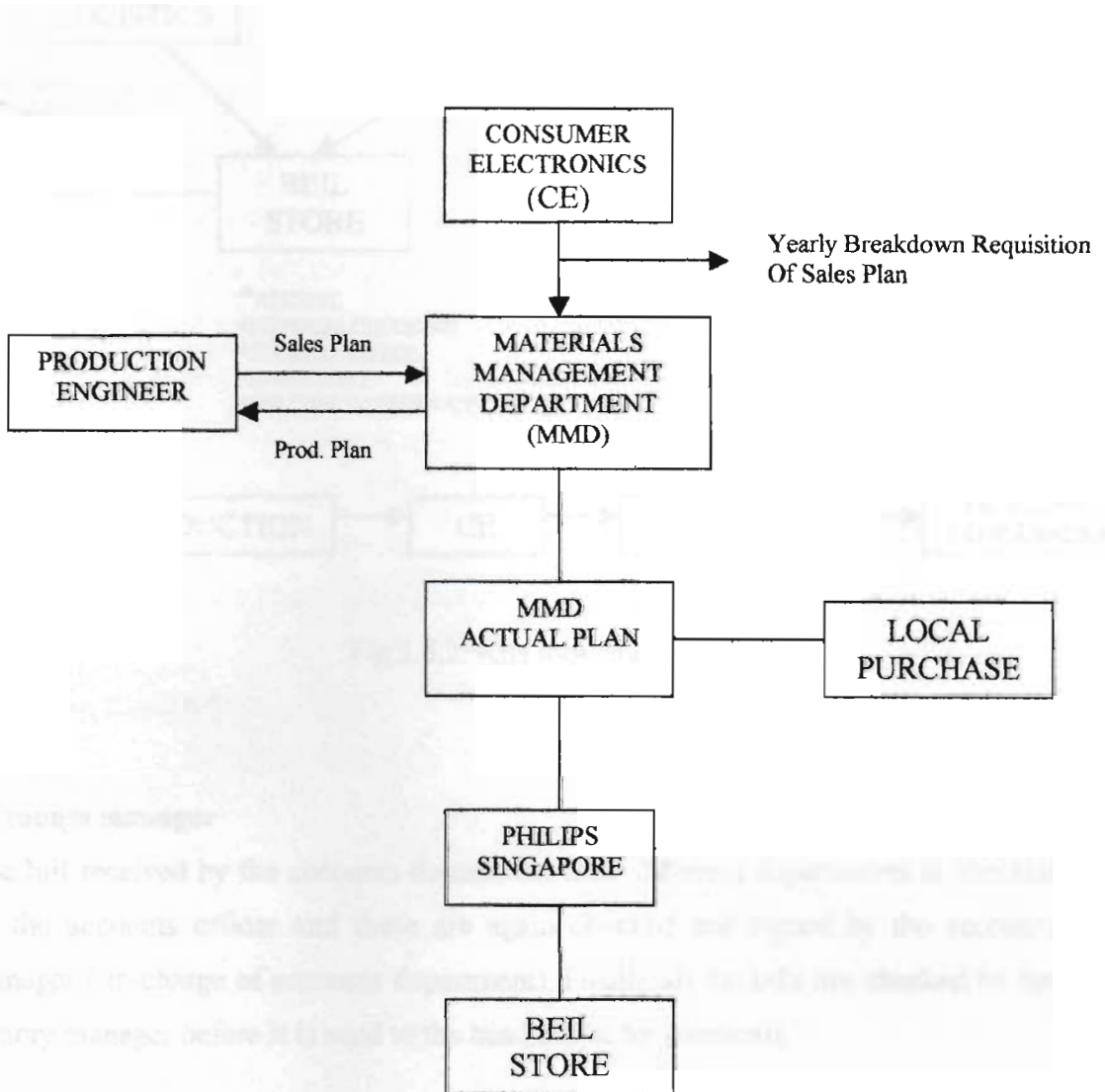


Fig 3.5.1: Kits Planning

The diagram below shows Kits(materials) Movement:

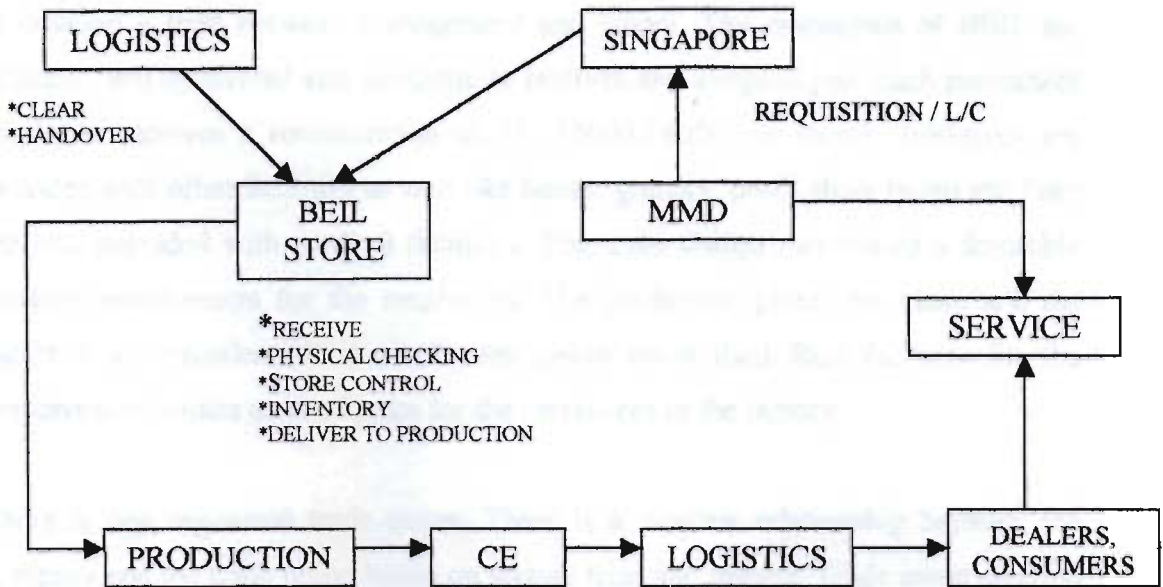


Fig 3.5.2: Kits movement

Accounts manager

The bill received by the accounts department from different departments is checked by the accounts officer and these are again checked and signed by the accounts manager (in-charge of accounts department). Finally all the bills are checked by the factory manager before it is send to the head office for payments.

Quality engineer

Transcom always cared about customers and one of the principles of its mission is **“Growth through mutual benefit between the company and the customers”**. The company continuously improved its product quality. Individual workers are directly responsible for quality results of their own workstations. Quality engineer is responsible for enduring the quality of the products.

3.6 Employee and trade union

The employee relation is very good in the company. Even the company is interested to develop a trust between management and labors. The employees of BEIL are dynamic, self-motivated and energetic to perform any assigned job. Each permanent employee receives a remuneration of TK. 13000-14000 per month. Employees are provided with other facilities as well like bonus, gratuity, profit share bonus etc. They are also provided with medical facilities. Transcom always maintained a favorable working environment for the employees. The production plants are clean and the facilities are excellent. It is worth mentioning about their food facilities for the employees subsidies on food price for the employees in the factory.

There is one registered trade union. There is a positive relationship between the company and the trade union based on mutual trust and respect. Trade union election is held every after two years and governed by their constitutions.

3.7 Major Competitors of BEIL

The major competitors of Philips for B/W television are:

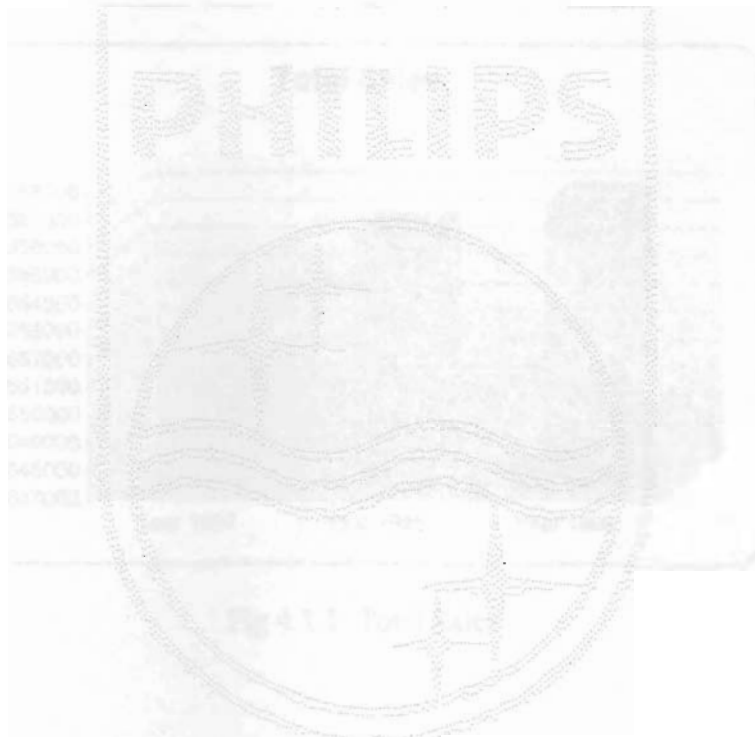
- Nippon
- Singer
- Butterfly
- National

The major competitors of Philips for color television are:

- Sony
- LG
- Samsung
- Toshiba

In addition, due to government's policy on reduction of tax and tariffs on imported goods it has created competition for Philips, BEIL.

Observations: Sales



4.0 Observations: Sales

4.1 Total Sales (Amount in '000)

Year	Year 1997	Year 1998	Year 1999
Total Sales	650,484	656,022	657,123

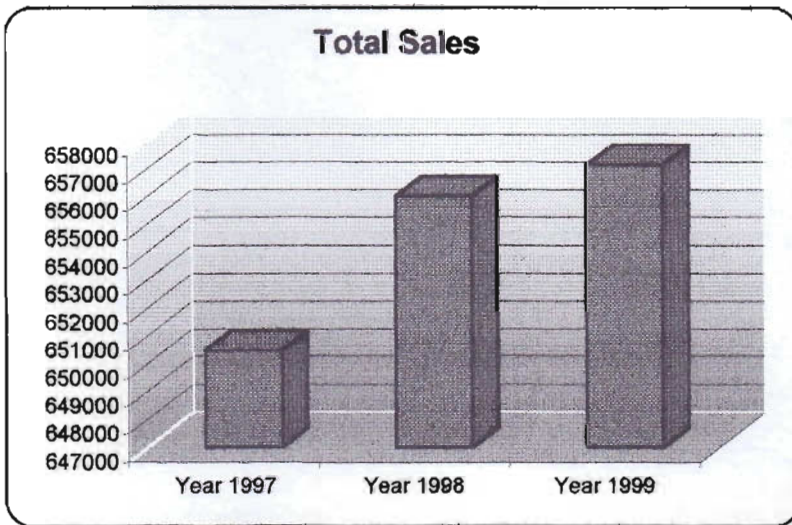


Fig 4.1.1: Total Sales

Total sale has increased over the years, but not drastically. From 1997 to 1999 total sales for both lights and consumer electronics has increased only 1.02%.

SWOT Framework





5.0 SWOT framework

5.1 SWOT Framework

This is a very important section in the analysis for it follows the reader to understand the company better through a level-by-level scrutiny. It helps the company scan the environment more closely, and have a better understanding of its opportunities and threats and so guiding strategy formulation.

Area	Grade	Reasons
Advertising	Outstanding	The integrated marketing sales force is backed by the high and large advertising budget. They even share advertising with the dealers and retailers.
Brand Names	Very good	The company has a strong product brands (both Philips and Whirlpool).
Channel Management	Good	Marketing sales executives monitor the outlets very closely with group level help.
Company Reputation	Excellent	The company reputation is excellent because of their quality products with low price, product availability through efficient distribution channel and the large span of business.
Computer Information System	Good	To make the information available to the different division of the company, it has a good CIS.

Control System	Good	Monthly review of each department is done and compared with the targets
Costs	Very good	The company always cut its cost to give products in low price to the customers.
Customer Loyalty	Good	It can be said that the company's long existence and quality products in low cost made some customer loyalty.
Economies of Scale	Very good	The company goes through a mass production with quality products. As a result it has achieved economies of scale.
Environmental Scanning	Moderate	Though the company holds monthly review of performance, still it is not satisfactory because it do not deeply follow up the competitors' processes of competitions.
Area	Grade	Reasons
Financial Resources	Good	To support the production and import with quality, the employee training facilities, the company has sound financial resources.
Human Resources	Moderate	It always motivates employees to perform better, which gives a competitive advantage. But overall HR policies are not up the mark.
Labor Relations	Very good	In the company the working environment is excellent and the employee turnover is also good.



Leadership	Outstanding	Mr. Latifur Rahman is now a very known and successful entrepreneur for his leadership.
Management	Outstanding	The management of the company is simply excellent, which can be interpreted, as there is no divisional conflict.
Market Share	Good	The sales and the reputation brought a conclusion about the market share of the company, which is good.
Product/ Differentiation	Service Very good	The company believes in differentiation, for example, TV by color, size etc.
Purchasing	Very good	The company has a great advantage as it has subsidiaries and associates to support the purchase and production.
Selling	Very good	The company has an excellent sales force to support the production. It has a good relation with the dealers and retailers.

PICCOLO: A Production Management System



Production Management System (PMS) of BEIL



6.0 PICCOLO: A Production Management System

6.1 Historical background of PICCOLO

The Corporate ISA (Information System and Automation) has developed an information system for manufacturing control in small production units, named PICCOLO, which can be used on personal computers.

PICCOLO (Philips Industrial and Commercial Control for On-Line Operations) is a software package developed specifically to meet the needs of the smaller industrial organisation and many small-scale operations within a larger organization where local control using PICCOLO on a decentral PC is more appropriate than use of the central mainframe facilities.

PICCOLO is intended to be run on small production units carrying out local-for-local production or simple assembly tasks. They typically employ 50-75 persons (including indirects) per unit. PICCOLO offers the following functions to support manufacturing activities on small production units:

- stock registration
- parts-list control
- purchase order registration and control
- materials requirements planning

The main application of this package was designed to meet the needs in materials management and production planning. Also expected to find application in many worksites throughout companies which were confronted with production control problems for which no economical Electronic data Processing (EDP) solution was currently available. Furthermore, it may find application in areas where there was little need of integration with other systems such as remote stock control and factory

spare-part acquisition. PICCOLO runs on almost all 'IBM compatible' personal computers using the MS-DOS operating system.

6.2 PICCOLO Database Structure

PICCOLO can be regarded as a large 'cabinet' (the SYSTEM module) with a number of 'drawers' (INVENTORY CONTROL, PRODUCT STRUCTURES, PURCHASING and MANUFACTURING). The system has a completely modular structure. This modular structure allows PICCOLO to run in different environments and to meet different requirements. Almost all the different parts of the database relate to the item Master, which is the nucleus around which all the various functions and data of PICCOLO operate.

6.3 Advantages and Disadvantages of using PICCOLO

Advantages

- Extremely compact storage usage
- No problems caused by redundancy
- Direct access for fast inquiries
- Easy maintainable
- User friendly.
- High security.

Disadvantages

- PICCOLO is not Y2K compatible.
- PICCOLO is DOS based and not graphical based.
- Only a few number of reports can be generated and no analytical reports can be generated.

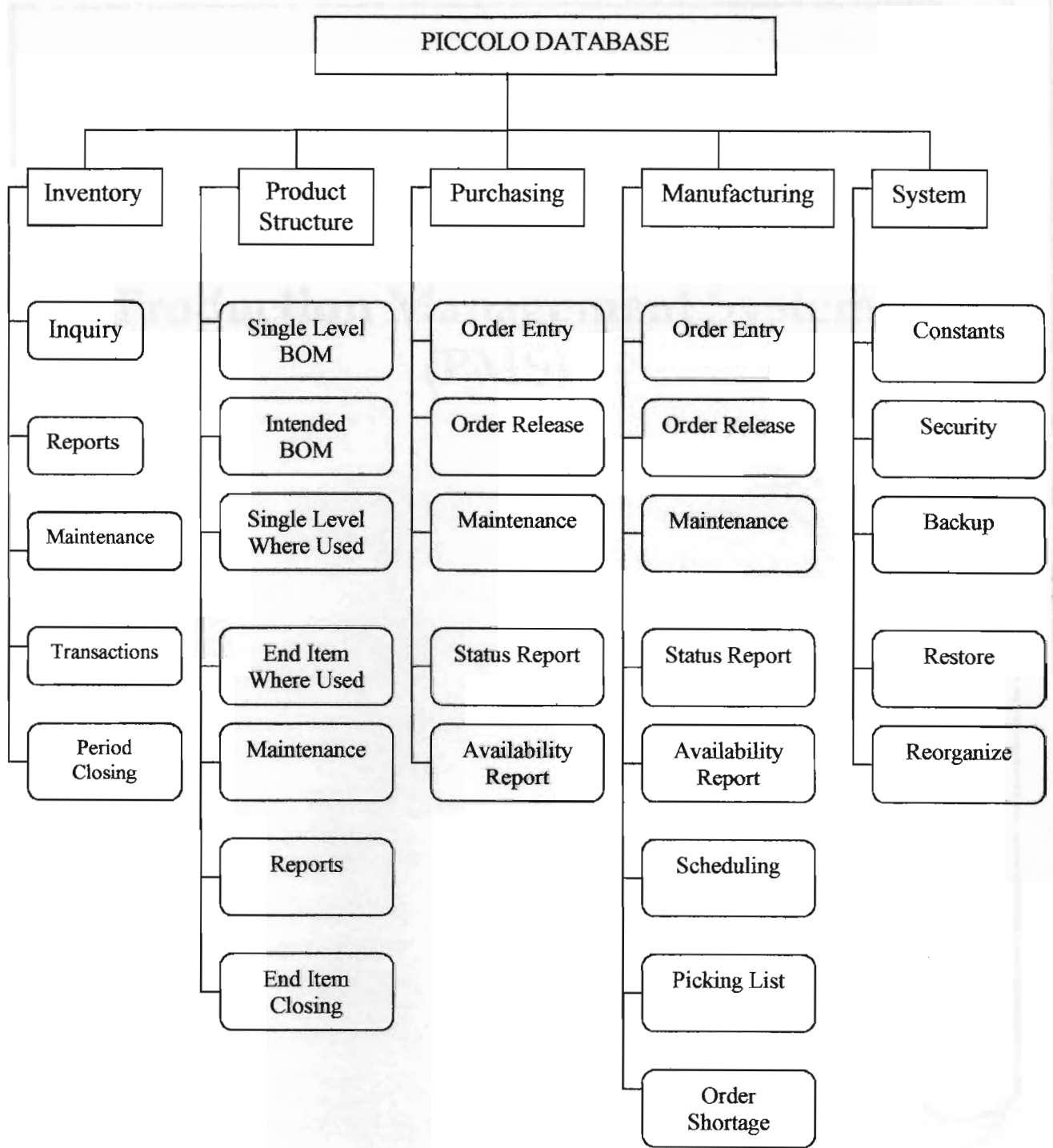


Fig 6.2.1: The modular structure of PICCOLO

Production Management System (PMS)



2.1 Introduction to the Production Management System (PMS) of BEIL. The PMS is a computerized system that manages the production process. It is designed to improve efficiency and reduce costs. The system is used to track inventory, manage production orders, and control the production process. The PMS is a key component of the BEIL production management system.

2.2 Objective of the new system PMS. The main objective of the new system PMS is to improve the production process. It is designed to reduce the time and cost of production. The system is used to track inventory, manage production orders, and control the production process. The PMS is a key component of the BEIL production management system.

2.4 Advantages of the derived system - PMS. The advantages of the derived system PMS are that it is easy to use, it is flexible, and it is scalable. It is designed to improve the production process. It is used to track inventory, manage production orders, and control the production process. The PMS is a key component of the BEIL production management system.

7.0 Production Management System (PMS)

7.1 Introduction to PMS

Production Management System (PMS) is an information system, developed on MS-Access database which is derived from PICCOLO to be used in the automation process of production planning and inventory management. It has been designed solely by the ISA analysts of ISA department at Transcom Electronics Limited (TEL) to be used in the automation of the production process of Bangladesh Electrical Industries Limited (BEIL). It is in the process of completion at the ISA department of TEL.

7.2 How PMS was derived from PICCOLO

From the year 1982 to 1993 very few upgrades or modifications were done on the PICCOLO system by central ISA. Even after Transcom Electronics Limited became the official licensee of PHILIPS no upgrades were made. As a result of which different requirements were not met and problems seemed to pile up. Major problem arise since it was not Y2K compatible. To offset Y2K problem the system was run using backward date entry. Steps have been taken by the ISA department to bring a solution to the problem. So, PICCOLO is on the process of being converted into PMS MS- Access database.

7.3 Objective of the new system –PMS

The main objective of the database would be to be more effective in the automation process related to the production management system.

7.4 Advantages of the derived system – PMS

Business competitiveness today is increasingly connected to Web and to the ability of teams to collaborate worldwide. And to keep costs down, applications need to be easier to deploy and use. Office package provides tools for IT professionals to better

now people work together and share information. The Office package reduces the cost of ownership, increases Office integration, and simplifies the user experience. This document introduces key technologies that will help companies achieve greater profitability and increase their competitive advantage.

Production Management System (PMS) of BEIL uses MS-Access as its back end database. MS-Access comes with the office package. It helps to streamline the way one works and is cost effective as well. Good information leads to better decisions and improved productivity, and Microsoft MS-Access makes information easier to find and use and helps organize and share database to make better decisions. It is user friendly and highly secured. Quickly analyze details and see vital relationships. Quickly find answers that count, share information over intranets, and build faster and more effective business solutions. Makes Data Easy to Find and Share. Manage information seamlessly—even during upgrades.

7.5 Data Flow Diagram of PMS

The purpose and value of the data flow diagram is primarily data discovery, not process mapping - hence the name "data flow diagram" (DFD).

The purpose of data flow diagrams is to provide a semantic bridge between users and systems developers. The diagrams are:

- graphical, eliminating thousands of words;
- logical representations, modeling WHAT a system does, rather than physical models showing HOW it does it;
- hierarchical, showing systems at any level of detail; and
- jargon less, allowing user understanding and reviewing.

Data flow diagrams are a network representation of a system. They are the cornerstone for structured systems analysis and design. The diagrams use four



symbols to represent any system at any level of detail. The four entities that must be represented are:

- data flows - movement of data in the system
- data stores - data repositories for data that is not moving
- processes - transforms of incoming data flow(s) to outgoing data flow(s)
- external entities - sources or destinations outside the specified system boundary

Data flow diagrams do not show decisions or timing of events. Their function is to illustrate data sources, destinations, flows, stores, and transformations. Data flow diagrams are an implementation of a method for representing systems concepts including boundaries, input/outputs, processes/sub processes, etc.

"A data flow diagram resembles a railroad map; it shows where the train tracks are laid, but it does not give the time tables." The data flow diagram is analogous to a road map. It is a network model of all possibilities with different detail shown on different hierarchical levels.

The data flow diagram not only presents a network of paths. It represents the network at a degree of detail that is understandable and usable for a select set of users. Data and information in an organization flow vertically through it. Different views at different levels of the same system are needed for users at different levels of authority and responsibility to understand and review their relevant system portion.

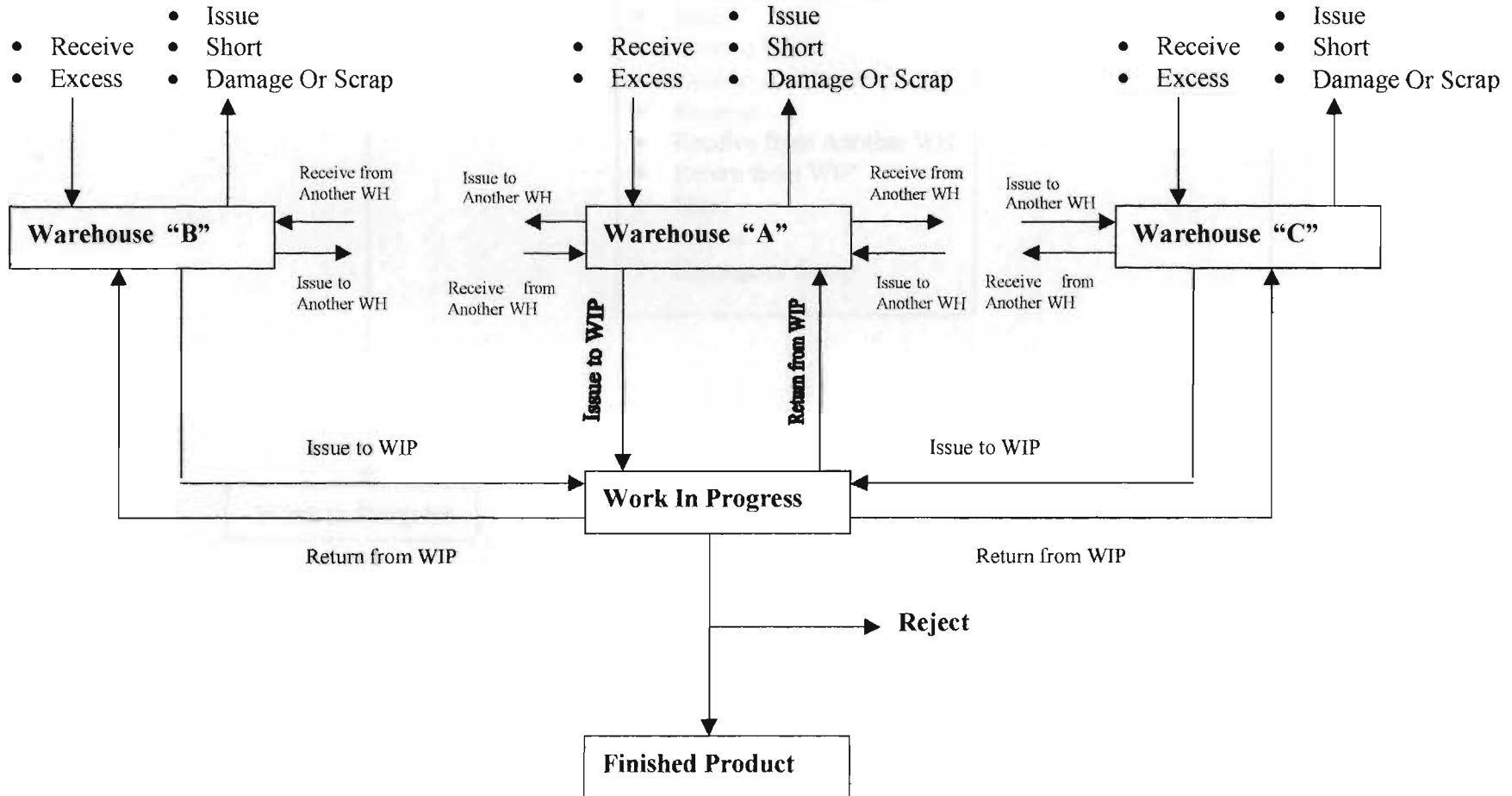


Fig 7.5.1: Transaction Flow of PMS of BEIL

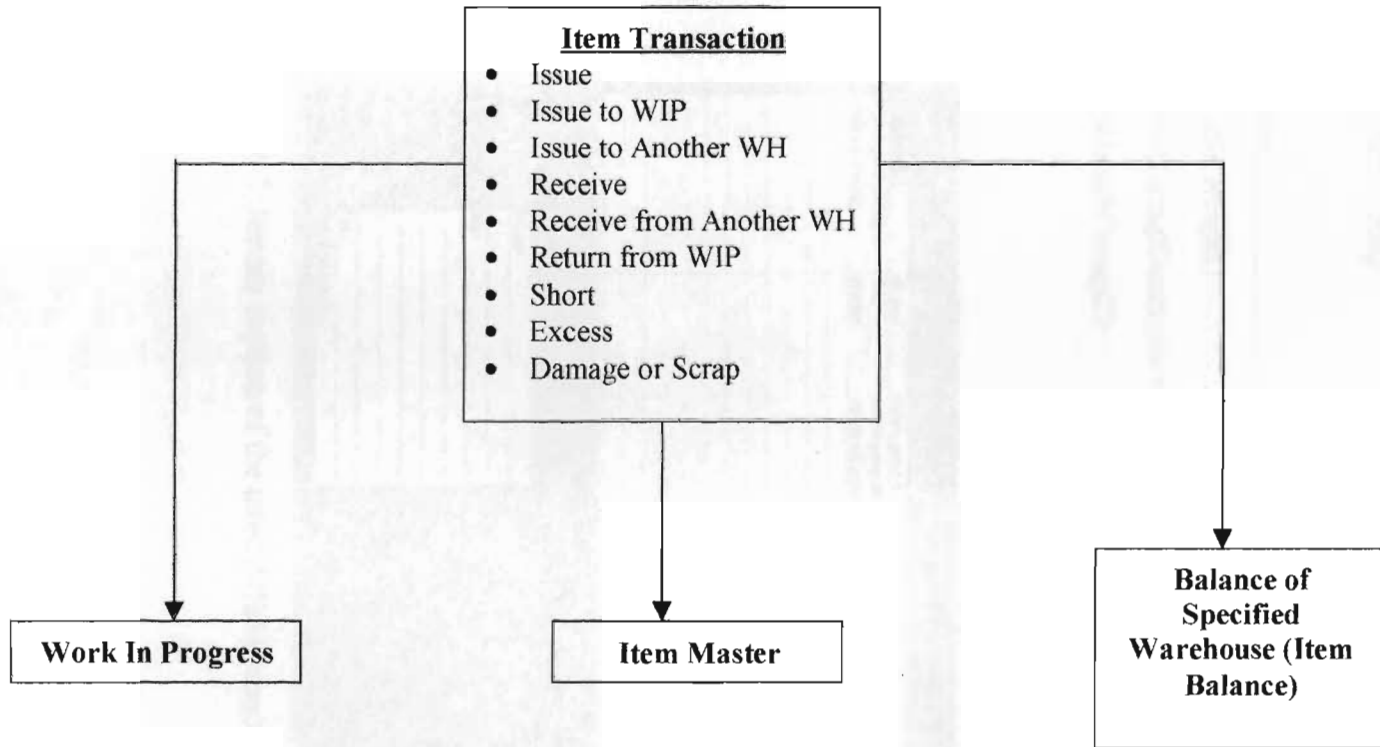


Fig 7.5.2: Transaction Flow of PMS of BEIL

7.6 DataBase Schema

Some of the tables used in the PMS database are :

1) Table: ArticleGroup

Name	Type	Size
ArticleGroupID	Number (Integer)	2
ArticleGroupDescription	Text	30
ArticleSubGroupID	Number (Integer)	2

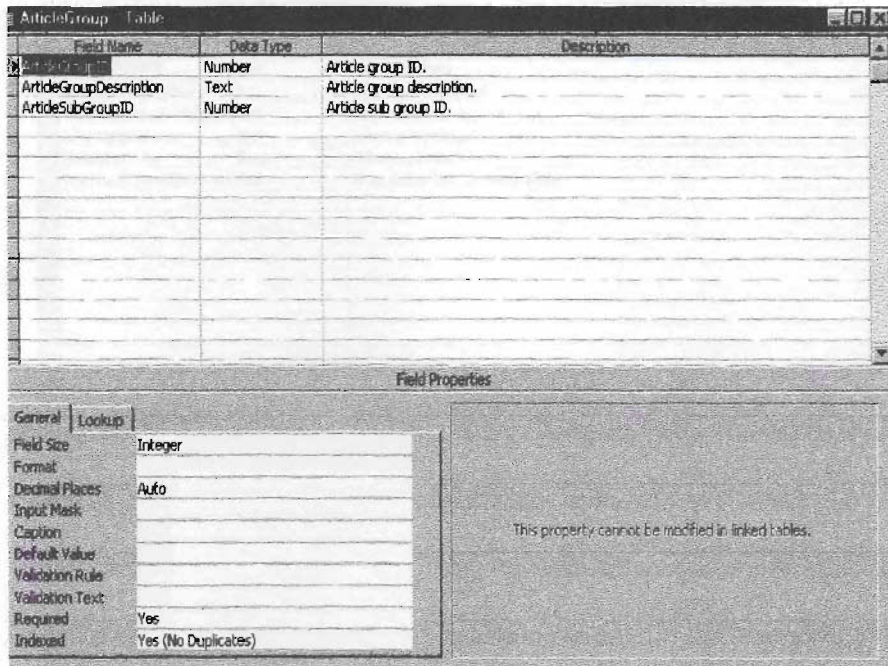


Fig 7.6.1: Screen caption of the table ArticleGroup

2) Table: InventoryTransactionUsingPS

Name	Type	Size
TransactionCode	Text	2
TransactionDescription	Text	50
WhichWarehouseToShow	Text	1
AffectingWarehouse	Text	1
MultiplyingFactor	Number (Integer)	2
WhichFieldInItemBalaceToAffect	Text	50

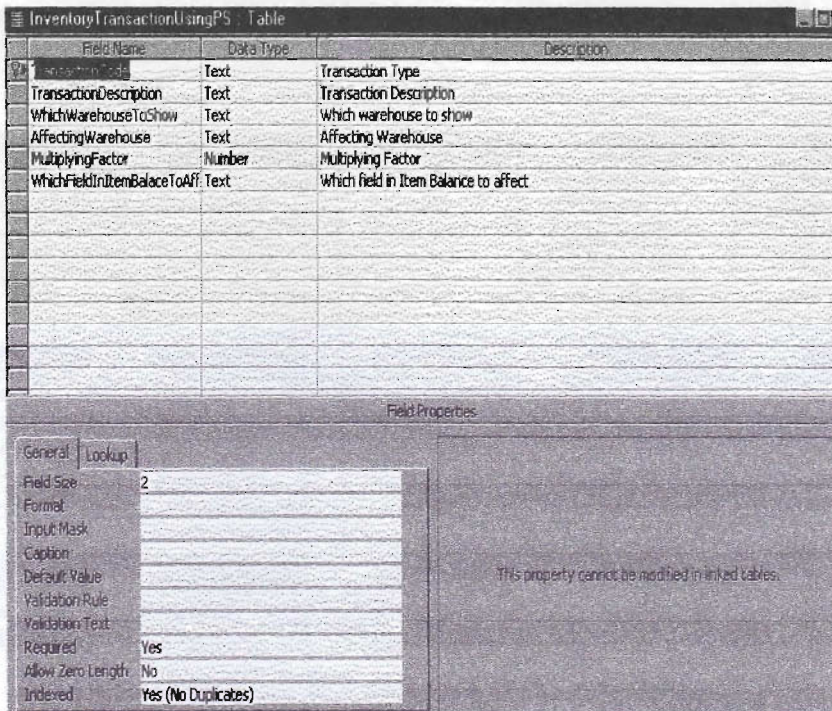


Fig 7.6.2: Screen caption of the table Inventory Transaction using PS



7.7 Entity relationship

The entity-relationship (E-R) model is based on a perception of a real world that consists of a set of basic objects called entities, and of relationships among these objects. It facilitates database design by allowing the specification of an enterprise schema, which represents the overall logical structure of the database. The E-R model is extremely useful in mapping the meanings and interactions of real-world enterprises onto a conceptual schema.

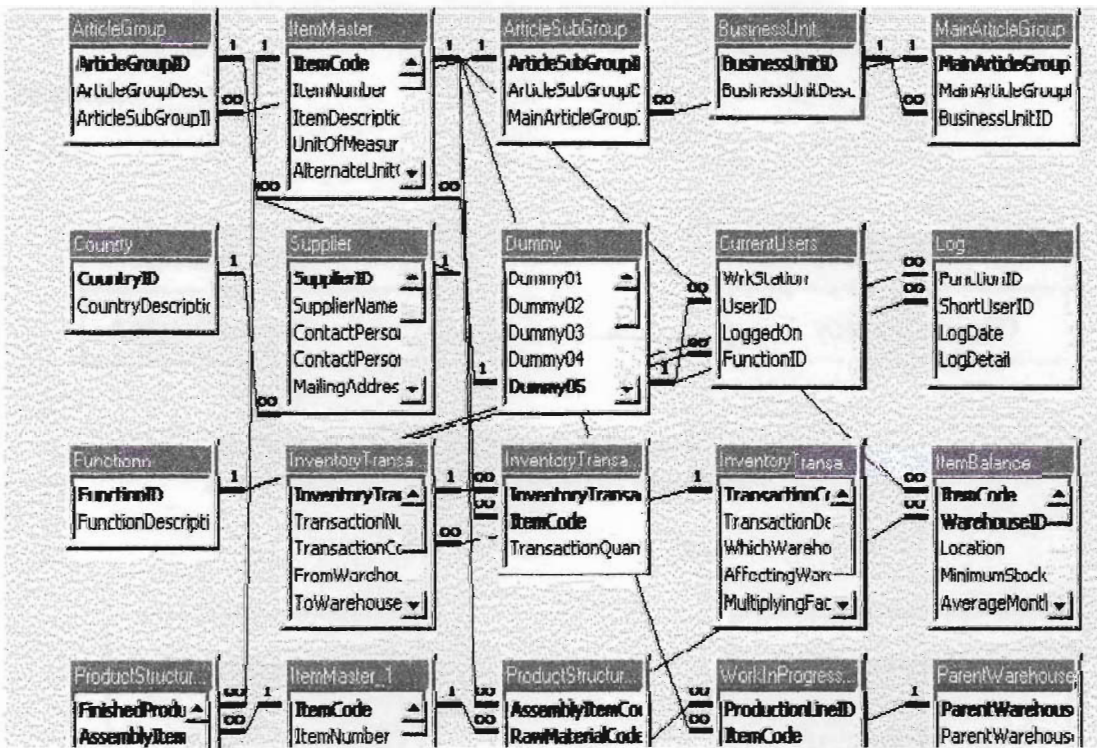


Fig 7.7.1: E-R model of PMS Database

7.8 Entry Forms with relation to Entity

Followings are the some of the entry forms in relation to entity of PMS database:

1) ArticleGroup

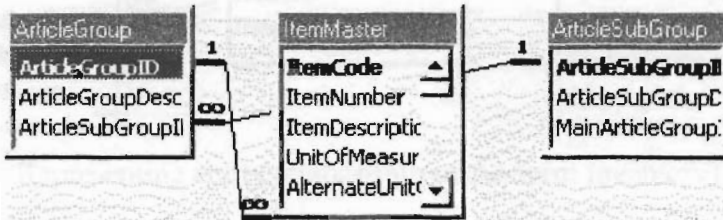
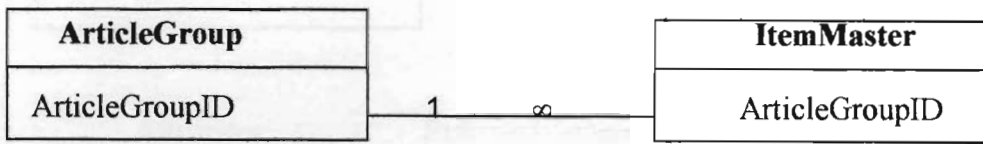
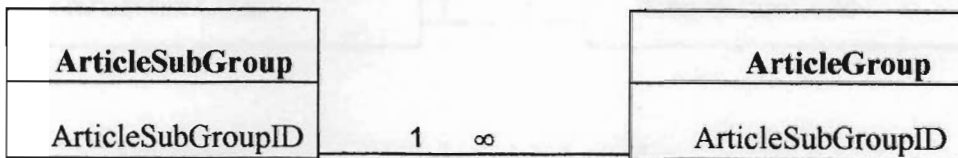


Fig 7.8.1: Representing entity relationship of the form ArticleGroup

Properties:



Attributes: Enforced, Inherited
 Attributes: One-To-Many (External)



Attributes: Enforced, Inherited
 Attributes: One-To-Many (External)



2) InventoryTransaction

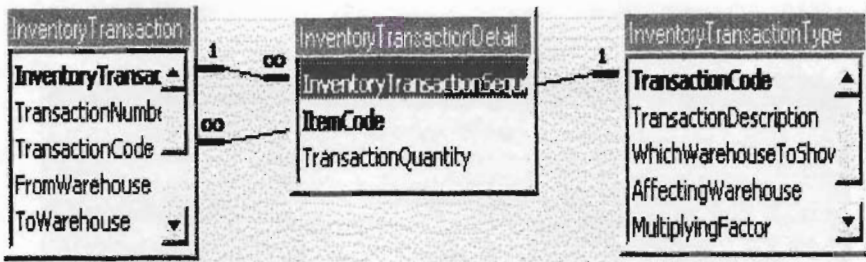
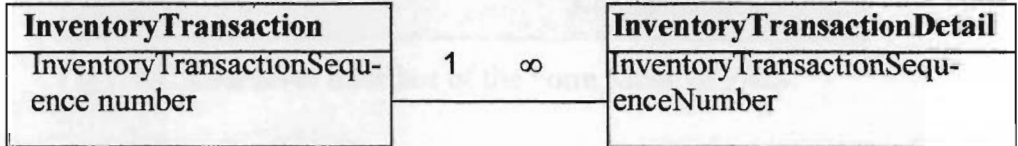
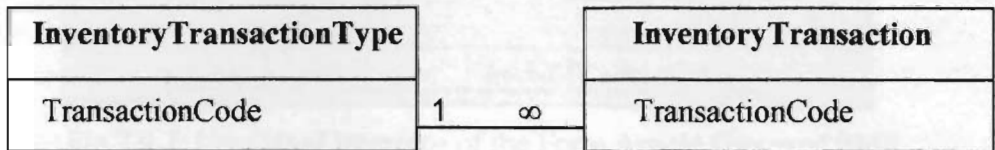


Fig 7.8.2: Representing entity relationship of the form InventoryTransaction

Properties :



Attributes: Enforced, Inherited
 Attributes: One-To-Many (External)



Attributes: Enforced, Inherited
 Attributes: One-To-Many (External)

7.9 PMS Database Interaction Forms

Some of the user level interface forms of PMS database are given below:

Fig 7.9.1: User level Interface of the Form Menu of PMS

Fig 7.9.2: User level Interface of the Form Article Group of PMS

Fig 7.9.3: Input screen for Transaction type

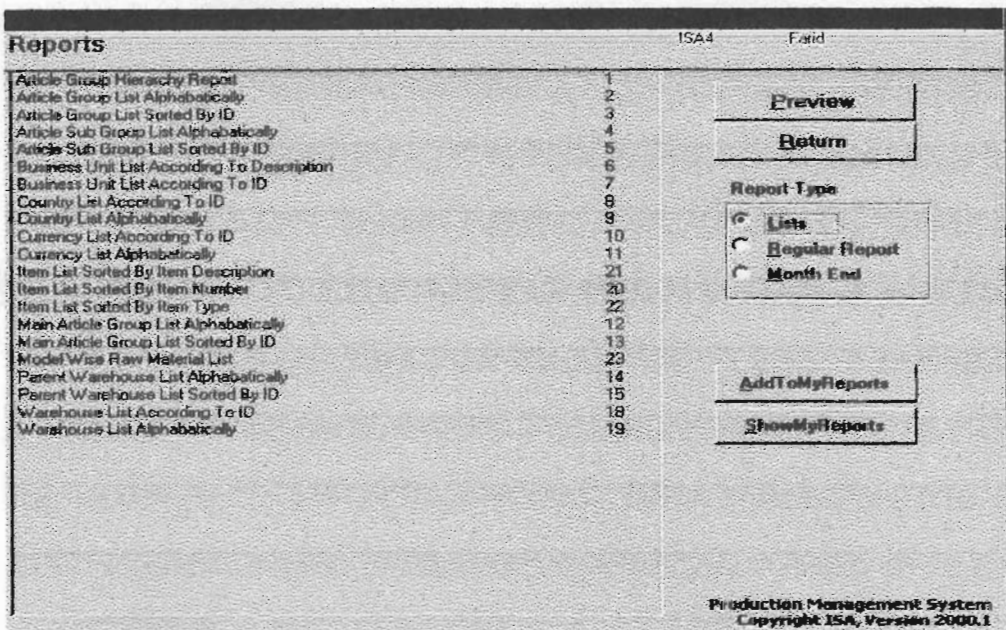


Fig 7.10.1: Screen caption of Report Menu

Bangladesh Electrical Industries Limited

List Of Article Groups

Sorted By Article Group Description Printed on : 21-Mar-2001 04:05 p.

Description	ID	Description	ID
1 BAND RADIO PHILIPS	6		
14" B&W TV PHILIPS	1		
14" CTV DAEWOO	13		
14" CTV PHILIPS	3		
14" CTV SAMSUNG	9		
17" B&W TV PHILIPS	2		
2 BAND RADIO PHILIPS	7		
20" CTV DAEWOO	14		
20" CTV PHILIPS	4		
20" CTV SAMSUNG	10		
20" CTV SANYO	8		
21" CTV DAEWOO	15		
21" CTV PHILIPS	5		
21" CTV SAMSUNG	11		
22" CTV SAMSUNG	12		

Report No: 2 Article Group List According To Description Page 1 of 1 ISA4 Printed By : Farid

Fig 7.10.2: Report-List of Articles sorted by ArticleGroup Description

Analysis of the derived system - PMS



8.0 Analysis of the derived System - PMS

8.1 Analysis of the derived System - PMS

Production Management System (PMS) of BEIL is designed using MS-Access and the data is planning to be stored in the central system for accessing from any point and department. The database comprises of several tables and queries for offering highly flexible reporting facilities and a use-friendly user interface.

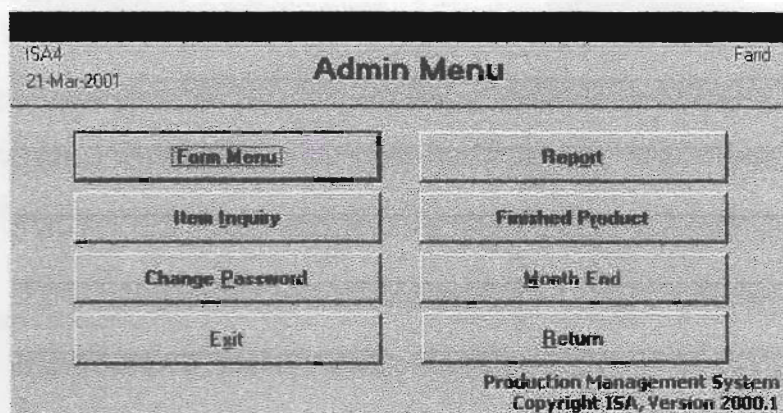


Fig 8.1.1:User level interface for Administrator Access of PMS

Screen and report layouts are highly standardized, and all control functions are accessible through the keyboard. Reports may be generated according to a set of criteria from which the user can make selection (customizing). All inquiry and data entry screens are fully supported by 'HELP' screens explaining the information shown or requested. Menus created to guide the user through the various modules and functions. The operation is almost completely foolproof against serious user errors. All entries are protected against invalid or faulty entries with clear-messages to indicate the user what went wrong and how to correct it. Each user of the system is assigned with their user accounts, passwords, user role and permissions. User identification and passwords prevent unauthorized editing, updating, inserting, deleting and accessibility to certain system functions and data can be restricted to authorized users only. Each application/function relation can be protected via Access-

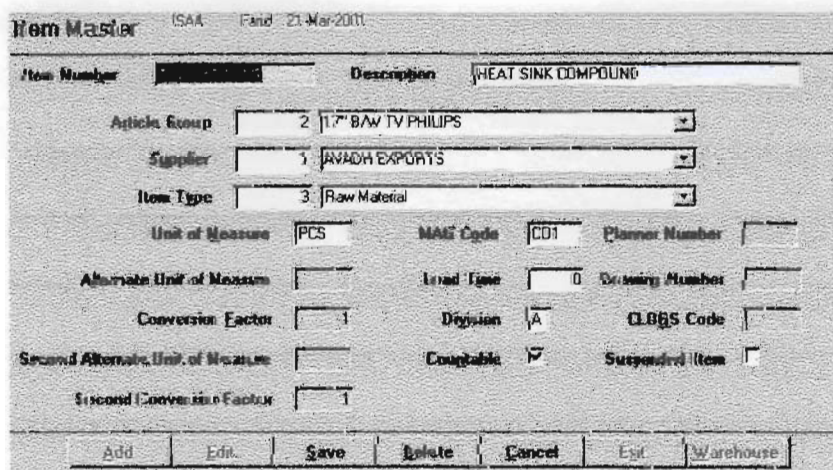
levels assigned to user-id to prevent mixing of responsibilities within the organization.

Various applications of the PMS database are as follows:

- Inventory Control Module
- Product Structure Module
- Purchasing Control Modul
- Manufacturing and Controlling Module
- System Module

The Inventory control application is designed to provide up-to-date information of stocks and to help control the goods movement in various warehouses. Transactions of various types are processed in real time. Stocks can be maintained upto certain limit. A flexible reporting function allows for stock movement, valuation, re-ordering reports, count lists etc.

Using the Item Master maintenance functions user can add,update, and delete the different items. Item data such as Description, Units of Measure, Price information, etc. registered in the Item Master file.



The screenshot shows the 'Item Master' window with the following data:

Item Number	[REDACTED]	Description	HEAT SINK COMPOUND		
Article Group	2	1.7" BAW TV PHILIPS			
Supplier	1	JAYADH EXPORTS			
Item Type	3	Raw Material			
Unit of Measure	PCS	MAG Code	CD1	Planner Number	
Alternate Unit of Measure		Lead Time	0	Delivery Number	
Conversion Factor	1	Division	A	CLBS Code	
Second Alternate Unit of Measure		Countable	<input checked="" type="checkbox"/>	Suspended Item	<input type="checkbox"/>
Second Conversion Factor	1				

Buttons at the bottom: Add, Edit, Save, Delete, Cancel, Exit, Warehouse

Fig 8.1.2: Item Master screen to add, update, delete different items



Using the Item Balance maintenance functions, user can 'assign' the warehouses where to store the items. A certain number of warehouses can be maintained this way. Balance information such as Quantity on Hand, Number of Transactions, etc. are maintained automatically via the Inventory Transactions.

Item Balance

Item Number: 1000000001
 Description: PACKING BOX 17-MAV
 Warehouse ID: T1
 Warehouse Name: PHILIPS BEIL
 Location: Dhaka

Minimum Stock Level: 0.0000
 Minimum Order Quantity: 0.0000
 Multiple Order Quantity: 0.0000
 Maximum Order Quantity: 0.0000

Buttons: Add, Edit, Save, Delete, Cancel, Exit

Fig 8.1.3: Input screen to 'assign' the warehouses to store the items

Every movement of goods is executed via Inventory transaction. Transactions such as Receipts, Issues, Transfers, etc. are performed via this function. The results of the transactions are directly reflected in the Item Balance file.

Issue Module

Transaction Number: 10006
 Entered By: CPL
 Transaction Date: 21 Mar 2001
 From Warehouse: []

Item Number	Item Description	Quantity	Min. Qty	Max. Qty	Multiple Qty

Buttons: Add, Edit, Save, Delete, Cancel, Exit

Fig 8.1.4: User level interface for Inventory Transaction



Every transaction is logged in a Log-file. This file is meant to be used in case of failure or program error. It helps to save time and reduce errors in case of system breakdown. Various Reports ranging from Item Master to Stock Evaluation can be generated depending on the needs of the users. At the end of the month (or year), period closings can be executed which performs various functions such as Price update, 'clean-up' of the Transaction file, Generation of the History data, Stock Status, Goods Movements reports etc.

Product Structure module gives the user the possibility to create relations between Assembly-Items and Component-Items. It has many useful functions specifically in the Purchasing and Manufacturing modules, which are still on the developing stage. The Product Structure module can also be used to calculate costprices, rejection, quantities, etc.

Issue Module Using Product Structure				Farid	
Transaction Number	30009	Entered By	CPU	Transaction Date	21-Mar-2001
From Warehouse				Ref. Number	
Production Line				Quantity	
Assembly					
			OK	Cancel	Exit

Fig 8.1.5: User level interface for Product Structure

Other applications of PMS like Purchasing Control Module, Manufacturing and Controlling Module and System Module are in the developing process at the ISA of TEL.

Proposition on the derived system PMS

instead of its Data Dashboard development requires knowledge about the problem in some computer language and its intent as to choosing the system

Presently there is not much work done on the system since the Management System (PMS) is still at the level of getting used. The existing

uses MS Access with a front end and back end of PMS. The design of the dashboard includes different levels of data. The system is not really providing any granular data for the purpose of being used for some time.

Still, considering the requirements and reports as stipulated in different departments, the following proposition for the purpose of being used:

A robust and secure system which supports various applications to support various access and security requirements using Oracle 5 for enterprise or as the mid-level application using MS SQL.

Object oriented design for the easy expansion of the system as well as the adaptation of the system to the changes of the business process (BPs) in response to changes in the business world.





9.0 Proposition on the derived System - PMS

Today information and databases are centralized. The database management systems have evolved a lot. A database system provides an organization with centralized control of its data. Database development requires knowledge about translating a problem to some computer language and/or database or choosing the combination of components and integrating them to solve the problem.

Presently there is not much scope to improve the system since Production Management System (PMS) is still at the level of getting used. The existing system uses MS-Access both as front end and back end of PMS. The design of the database includes different level of complexity though MS-Access ensures certain security, data integrity, redundancy check but not truly a client server model of RDBMS. The system as mentioned is in the final stage of customization and does not really provide any space for the proposition until it is fired up and being used for some time.

Still, considering the level of complexity and usage requirements as stipulated in different departments, I would like to come up with the following proposition for the purpose of future enhancement of PMS.

- A robust and reliable client server model for the application to support remote access and on-line transactions preferably using Oracle 8 for enterprise or at the mid level corporates using MS-SQL server.
- Object oriented design model for the easy expansion of the system as well as for the adaptation of the system to the changes of the business rules which is likely to happen frequently in the business world.

- On-line help manual along with the direction to install and use such a system.
- Provide user level administration of database with proper authentication.
- An intuitive and user friendly Graphical User Interface (GUI) would provide easy maintenance and smooth operation to allow entry time check of the data beside the redundancy check of the database system.
- System life cycle should be considered to allow future expansion of the system by generating system design documentation.

Conclusion



10.0 Conclusion

I have tried giving a brief description of the overall industry and Transcom Electronics Ltd, in particular and analyzed the Production Management System (PMS) of Bangladesh Electrical Industries Limited (BEIL) of Transcom Electronics Ltd. with related studies and tried to make recommendations from the perspective of the existing system and database, and how effectively it can be applied in the automation process related to the production management system.

I analyzed the previous system PICCOLO of the Transcom Electronics Limited (TEL) and the current system PMS to put them into the correct context and discussed some of the advantages and disadvantages of the system design and different user level approaches. I also tried to keep a focus on the conceptual differences of the two systems. The whole study has brought many perspectives of the system analysis and design and situations where design methodology shows the ultimate means to handle the complexity of the system.

First of all, the database, which has been found to be in MS-Access for the purpose of the user interaction, reporting as well as the backend storage seems to be not a true client server implementation but rather a single user model.

Such a system analysis helped me visualize the real life requirements for automation and the various components that has to be taken care of in the critical dimensioning of a seriously scaleable and reliable information system.

Appendix



**Figure 1A: Logical Schema of the table Item Balance of PMS
Database of BEIL**

Name	Type	Size
ItemCode	Number (Long)	4
WarehouseID	Text	2
Location	Text	6
MinimumStockLevel	Number (Single)	4
AverageMonthlyUsage	Number (Single)	4
MinimumOrderQuantity	Number (Single)	4
MaximumOrderQuantity	Number (Single)	4
MultipleOrderQuantity	Number (Single)	4
QuantityOnHand	Number (Single)	4
OpeningBalanceJanuary	Number (Single)	4
OpeningBalanceThisMonth	Number (Single)	4
NoOfTransactionThisMonth	Number (Long)	4
NoOfTransactionThisYear	Number (Long)	4
QuantityReceivedMTD	Number (Single)	4
QuantityReceivedYTD	Number (Single)	4
QuantityIssuedMTD	Number (Single)	4
QuantityIssuedYTD	Number (Single)	4
QuantitySoldMTD	Number (Single)	4
QuantitySoldYTD	Number (Single)	
QuantityAdjustedMTD	Number (Single)	4
QuantityAdjustedYTD	Number (Single)	4
QuantityScrappedMTD	Number (Single)	4
QuantityScrappedYTD	Number (Single)	4
LastUpdateOrTransactionDate	Date/Time	8

Figure 1B: Logical schema of the table Supplier of PMS Database

Name	Type	Size
SupplierID	Number (Byte)	1
SupplierName	Text	50
ContactPerson	Text	40
ContactPersonDescription	Text	30
MailingAddress1	Text	40
MailingAddress2	Text	30
MailingAddress3	Text	30
MailingAddress4	Text	30
MailingAddress5	Text	30
CountryID	Number (Byte)	1
PhoneNumber	Text	50
FaxNumber	Text	30
EmailNumber	Text	50

**Figure 1C: Logical schema of the table Product Structure For
Finished Item of PMS Database**

Name	Type	Size
FinishedProductItemCode	Number (Long)	4
AssemblyItemCode	Number (Long)	4
Quantity	Number (Integer)	2
StandardRejectPercentage	Number (Single)	4
UserSequenceNumber	Number (Integer)	2

Figure 2A: Screen caption of the table Supplier of PMS Database of BEIL

Supplier : Table			
Field Name	Data Type	Description	
SupplierID	Number	Supplier ID.	
SupplierName	Text	Name of the supplier.	
ContactPerson	Text	Contact person.	
ContactPersonDescription	Text	Description of the contact person.	
MailingAddress1	Text	Mailing address.	
MailingAddress2	Text	Mailing address.	
MailingAddress3	Text	Mailing address.	
MailingAddress4	Text	Mailing address.	
MailingAddress5	Text	Mailing address.	
CountryID	Number	Country ID.	
PhoneNumber	Text	Phone number.	
FaxNumber	Text	Fax number.	
EmailNumber	Text	E-mail number.	

Field Properties

General		Lookup
Field Size	Byte	
Format		
Decimal Places	Auto	
Input Mask		
Caption		
Default Value		
Validation Rule		
Validation Text		
Required	Yes	
Indexed	Yes (No Duplicates)	

This property cannot be modified in linked tables.

Figure 2B: Screen caption of the table Product Structure for Finished Item of PMS of BEIL

ProductStructureForFinishedItem : Table

Field Name	Data Type	Description
FinishedProductItemCode	Number	Finished product item code.
AssemblyItemCode	Number	Assembly item code.
Quantity	Number	Quantity.
StandardRejectPercentage	Number	Standard Reject Percentage
UserSequenceNumber	Number	User sequence number.
Faltu	Number	This field was defined to make a unique index on AssemblyItemCode

Field Properties

General	Lookup
Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (Duplicates OK)

This property cannot be modified in linked tables.

Figure 2C: Screen caption of the table Item Balance of Production Management System (PMS) of BEIL

ItemBalance : Table			
Field Name	Data Type	Description	
ItemCode	Number	Item code.	
WarehouseID	Text	Warehouse ID.	
Location	Text	Location.	
MinimumStockLevel	Number	Minimum stock level.	
AverageMonthlyUsage	Number	Average monthly usage.	
MinimumOrderQuantity	Number	Minimum order quantity.	
MaximumOrderQuantity	Number	Maximum order quantity.	
MultipleOrderQuantity	Number	Multiple order quantity.	
QuantityOnHand	Number	Quantity on hand.	
OpeningBalanceJanuary	Number	Opening balance january.	
OpeningBalanceThisMonth	Number	Opening balance this month.	
NoOfTransactionThisMonth	Number	Number of transaction of this month.	
NoOfTransactionThisYear	Number	Number of transaction of this year.	
QuantityReceivedMTD	Number	Quantity received month to date.	
QuantityReceivedYTD	Number	Quantity received year to date.	

Field Properties	
General	Lookup
Field Size	Long Integer
Format	
Decimal Places	Auto
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Indexed	Yes (Duplicates OK)

This property cannot be modified in linked tables.

Figure 3A: User level Interface for Finished product Structure Form of PMS Database of BEIL

Finished Product Structure Form 21-Mar-2001 ISA4 Farid

Finished Product Number: Description:

Assembly	Description	Quantity	Seq. No
17 MAV A	17 MAV A LIST	1	0
17 MAV C	17 MAV C LIST	1	0
17 MAV D	17 MAV D LIST	1	0
	<input type="text" value="Assembly Description"/>		0

Figure 3B: Screen caption of the form Supplier of PMS Database

Supplier Field ISA4 21-Mar-2001

Supplier ID: Supplier Name: Country ID: BANGLADESH

Contact Person: Contact Person Description:

Mailing Address:

Phone Number:

Fax Number:

Email:

Figure 4A: Screen caption of the report - List of Article Groups sorted by Article Group Description

Bangladesh Electrical Industries Limited

List Of Article Groups

Sorted By Article Group Description

Printed on : 21-Mar-2001 04:05

Description	ID	Description	ID
1 BAND RADIO PHILIPS	6		
14" B&W TV PHILIPS	1		
14" CTV DAEWOO	13		
14" CTV PHILIPS	3		
14" CTV SAMSUNG	9		
17" B&W TV PHILIPS	2		
2 BAND RADIO PHILIPS	7		
20" CTV DAEWOO	14		
20" CTV PHILIPS	4		
20" CTV SAMSUNG	10		
20" CTV SANYO	8		
21" CTV DAEWOO	15		
21" CTV PHILIPS	5		
21" CTV SAMSUNG	11		
22" CTV SAMSUNG	12		

Bangladesh Electrical Industries Limited

Item Number Hierarchy

Grouped By Item Type

Printed on : 21-Mar-2001 04:17 pm

Finished Product

Item Number	Description
17 MAV	17 MAV
TX 1704	TX 1704

Total Finished Product 2

Assembly Item

Item Number	Description
17 MAV A	17 MAV A LIST
17 MAV C	17 MAV C LIST
17 MAV D	17 MAV D LIST
TX 1704 A	TX 1704 A
TX 1704 B	TX 1704 B
TX 1704 FULL	TX 1704 FULL

Total Assembly Item 6

Raw Material

Item Number	Description
8111 053 10676	ANTENA PLATE WITH RF. & DC. S
8111 032 11081	ANTENNA PCB
8111 032 10081	ANTENNA PCB RS 1081/2
8110 053 10673	ANTNNA PLATE RF AND D.C.SO
8110 053 11276	BACK COVER
8110 053 11272	BACKCOVER SLD.STOP.WITH ANT
8113 035 22511	BALUN 300E TO 75E
8113 034 22210	BATTERY CORD
8110 053 10172	CABINET HARDWARE TRX.PLATE
8110 053 10572	CABINET HARDWIRE CONTROL PLY
8110 053 10472	CABINET HARDWIRE TUNER ASSY
2020 558 90228	CAPACITOR CERAMIC 2KV 2N2
2020 557 90347	CAPACITOR CERAMIC 500V 100P
2015 641 04203	CAPACITOR CERAMIC 50V
2015 641 03152	CAPACITOR CERAMIC 50V CLII 1
2020 556 90002	CER CAP 1 NF 500V
2015 641 04103	CER CAP 10 NF
2015 640 02101	CER CAP 100PF
2215 693 03103	CER CAP 10NF
2020 640 02121	CER CAP 120PF
2215 685 56151	CER CAP 150PF
2015 640 62151	CER CAP 150PF
2215 691 02181	CER CAP 180PF
2015 640 62181	CER CAP 180PF
2215 689 01102	CER CAP 1KPF 500V
2020 558 90001	CER CAP 1NF 2KV
2215 691 01102	CER CAP 1UF
2015 641 04222	CER CAP 2.2 NF
2215 693 03222	CER CAP 2.2NF
2020 558 90282	CER CAP 2.2NF 1KV
2020 557 90034	CER CAP 2.2NF 500V
2215 685 56221	CER CAP 220PF
2015 641 03221	CER CAP 220PF
2020 558 90368	CER CAP 3.3NF 2KV
2015 641 03331	CER CAP 330PF

Model Wise Raw Material List

Grouped By Finished Product, Assembly Product, Raw Materials

Item Number	Description	Quantity
Finished Product : 17 MAV		
Assembly : 17 MAV A LIST		
3115 210 50020A	CRT-17"	1
3115 217 30020	L D T	1
3115 217 30041	SMPS TRANSFORMER	1
3115 217A	DEFLECTION -17"	1
3115 219 00500	TRANSISTOR BUL 216	1
3115 219 01150	L.O.T.	1
7115 160 10120	TRANSISTOR 2N 6107	1
7115 160 16530	TRANSISTOR KSD 363R	1
8110 051 11176	FRONT CABINET WITH PANEL	1
8110 053 11276	BACK COVER	1
8111 032 10916	MAIN PCB RS-916	1
8111 053 10676	ANTENA PLATE WITH RF. & DC. S	1
8112 021 12116	SPEAKER 5X3"8E.8W	1
8113 034 12201	MAINS CORD	1
8113 034 22210	BATTERY CORD	1
8113 035 22512	INDOOR ANTENNA	1
8119 019 11105	TUNER 38.9 VHF	1
9330 439 80112	IC TDA 8303	1
9330 911 60127	TRANSISTOR BD 135-16	3
9330 911 70127	TRANSISTOR BD 136-16	2

Total Raw Material for the Assembly 17 MAV A is 20

Assembly : 17 MAV C LIST		
1312 501 48201	HEAT SINK COMPOUND	0.2
2015 039 02331	ELCO 330 MFD 10V	1
2015 039 03109	ELCO 10MFD 16V	2
2015 039 03221	ELCO 220 MFD 16V	3
2015 039 03471	ELCO 470 MFD 16V	1
2015 039 03479	ELCO 47 MFD 16V	1
2015 039 04102	ELCO 1000UF 25V	1
2015 039 04229	ELCO 22 MFD 25V	3
2015 039 04331	ELCO 330 MFD 25V	1
2015 039 04471	ELCO 470 MFD25V	1
2015 039 04479	ELCO 47MFD 25V	1
2015 039 05101	ELCO 100MFD 16V	1
2015 039 05109	ELCO 10MFD 35V	1
2015 039 05221	ELCO 220 MFD35V	1
2015 039 05331	ELCO 330 MFD 35V	1
2015 039 08338	ELCO 3.3 MFD 63V	2
2015 039 08477	ELCO 0.47 MFD 63V	2
2015 039 08478	ELCO 4.7 MFD 63V	1
2015 640 02689	CER CAP 68PF	1
2015 640 62151	CER CAP 150PF	1
2015 640 62181	CER CAP 180PF	1
2015 641 03102	CR CAP 1NF	1
2015 641 03152	CAPACITOR CERAMIC 50V CLII 1	1
2015 641 03221	CER CAP 220PF	1
2015 641 04103	CER CAP 10 NF	4
2015 641 04203	CAPACITOR CERAMIC 50V	1
2015 641 04222	CER CAP 2.2 NF	2
2020 556 90002	CER CAP 1 NF 500V	1

PACKING LIST

LIST ATTACHED TO THE PACKING LIST FOR INVOICE NO: EXP/AE/056 Dt:11.10.2000
 WITH 1% SPARE OF ALL PARTS & COMPONENTS FOR F.O.C.
 L/C NO: 17/AWF/12180/ZY Dt:27.09.2000.
 BUYER : M/S BANGLADESH ELECTRICALS INDUSTRIES Ltd., DHAKA-BANGLADESH.

C/T No	PART NAME	DESCRIPTION	PART CODE	QTY/SET	TOTAL	PACKING DETAIL		LOCATION	N.WEIGHT KGS	G.WEIGHT KGS
						QTY.	PKD.			
<u>17" B/W TV PARTS - MODEL 17 MRC</u>				<u>1000</u>		<u>PCS.</u>				
W001 TO 253	CABINET	FRONT FITTED WITH PANNEL	8110 051 11177	1 NOS	1010	4x252	2x1		1212	1706
W254 TO 455	"	BACK COVER, SLIDER, STOPPER FITTED WITH ANT. HOLDER	8110 053 11277	1 NOS	1010	5x202			1110	1514
C456 TO 708	CRT	44 AP4	3115 210 50020	1 NOS	1010	4x252	2x1		5302	5806
W709 TO 717	SPEAKER BAFFLE		8110 053 10377	2 NOS	2020	225x8	220x1		100	260
W718 TO 731 W732	SPEAKER	5x3 4Ω 5W	8112 211 12116	2 NOS	1904	4x34	EACH BOX		296	506
W733 TO 734 W735	CABINET HARDWARE	TRANSFORMER PLATE -do-	8110 053 10477	1 NOS	700	LOOSE		FOR MAIN TX FITTING	40	60
W736	CABINET HARDWARE	PCB SLIDER	8110 053 10177	1 NOS	1010	101x10			15	25
"	"	ON-OFF PLATE	8110 053 10277	1 NOS	1010	505x2			24	34
"	"	FUSE HOLDER BRACKET	8110 054 10777	1 NOS	1010	"		FOR FUSE HOLDER MOUNTING		
"	"	FUSE COVER	8110 053 10677	1 NOS	1010	101x10		FOR FUSE MAIN COVERING		
W737	"	MAIN CORD HOLDER	8110 053 50006	1 NOS	1010	505x2		FOR MAIN CORD HOLDING	10	20
"	CRT SHIELD SPRING	ASSEMBLY	8111 053 50011	1 NOS	1010	505x2		FOR CRT GROUNDING		
"	WIRE HARNESSING TAG		8111 053 50451	9 NOS	9090	2500x3+1590x1		FOR WIRE HARNESSING		
"	MAIN CORD TAG	J-112	8111 053 50351	1 NOS	1010	1010x1		FOR MAIN CORD		
"	DECORATION	WORD MARK (PHILIPS)	8111 825 11172	1 NOS	1010	"		FRONT		
"	ON-OFF SWITCH	DPST (SMALL TYPE)		1 NOS	1010	250x3+260x1		POWER ON-OFF		
W738	TACT SWITCH	DT 1102A		3 NOS	3030	3030x1		FUNCTION OPERATION MENU. VD-, VD+	10	20
"	"	DT 1102		2 NOS	2020	2020x1				
"	KNOB ON-OFF SWITCH	WITH SPRING	8111 033 10177	1 NOS	1010	FILLED IN CABINET		ON/OFF SWITCH		
"	KNOB TACT SWITCH	WITH SPRING	8114 033 10277	5 NOS	5050	-do-		KEY BOARD SWITCH OPERATION		
"	DURUFIX		8117 063 01001	2 ML	2020	1000x1+1020x1		DEFLECTION YOKE		
"	HEAT SINK COMPOUND		1312 501 48201	0.2 GRM	202	202 GRM x 1				
"	BALUN	300E TO 75Ω	8113 035 22511	1 NOS	1010	101x10		ACCESSORY		
"	KEY BOARD PCB	RS 1292/2	8111 032 11081	1 NOS	1010	101x10				
"	FUSE HOLDER TRX			1 NOS	1010	1010x1				
W739 TO 741	INDOOR ANTENNA	5 SECTION DOUBLE ROD	8113 035 22512	1 NOS	909	101x3	EACH BOXES	ACCESSORY	64	84



Bibliography

- (1) Silberschatz, Korth, Sudarshan," Database System Concepts", 3rd ed., McGraw-Hill, Singapore, 1997.
- (2) L.Fertuck, "System Analysis & Design", Wm.C.Brown Communications, Inc.,United States, 1995.
- (3) Leaflets ,brochures of TEL.
- (4) R. Elmasri, J. Larson, "Fundamentals of Database Systems", 2nd ed., Benjamin Cummings, Redwood City, CA, 1994.
- (5) PICCOLO User Manual – volume –I & II.