

CHAPTER ONE

1

INTRODUCTION

1.1 ELECTRONIC DATA INTERCHANGE - THE ELECTRONIC COMMERCIAL FRONTIER

The concept of EDI, is a product of the two most rapidly advancing technologies in modern times, namely computing and telecommunications. EDI is a technique which contains a set of standards for formatting, sending and receiving documents, electronically. (Refer to Figure 1)

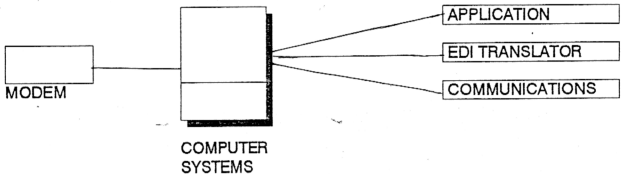
"IT IS THE ELECTRONIC TRANSFER FROM COMPUTER - TO - COMPUTER OF COMMERCIAL OR ADMINISTRATIVE TRANSACTIONS, USING AN AGREED STANDARD TO STRUCTURE THE TRANSACTIONS OR MESSAGES DATA".

Electronic transfer implies no human intervention during exchange of data. EDI, is essentially trading through an electronic medium. It allows the information systems from one company to "speak" to and communicate with the information systems of another company. It is the electronic linking of business partners. A manufacturer can have on-line connectivity with his suppliers and retailers, facilitating business transactions between them. Such a link is commonly called "EDI COMMUNITY SYSTEM". Basically, businesses are allowed to communicate electronically. (Figure 2 and Figure 3)

This includes, internal links - companies linking with

COMPONENTS OF EDI

THE KEY ELEMENTS OF AN EDI SYSTEM ARE: -



(FIGURE 1)

1. HARDWARE

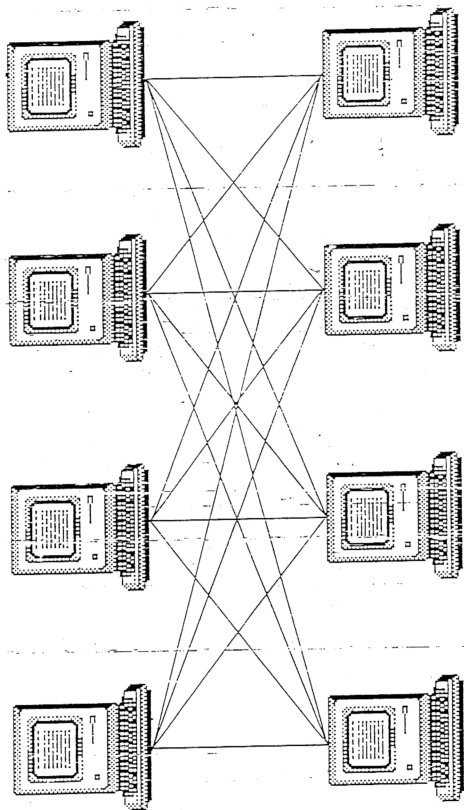
- HARDWARE IS THE TECHNICAL TERM FOR ALL TYPES OF COMPUTERS (EG : PC MINI - OR MAIN FRAME) AND THE RELATED PHYSICAL EQUIPMENTS (EG : MODEMS)

2. APPLICATION SOFTWARE.

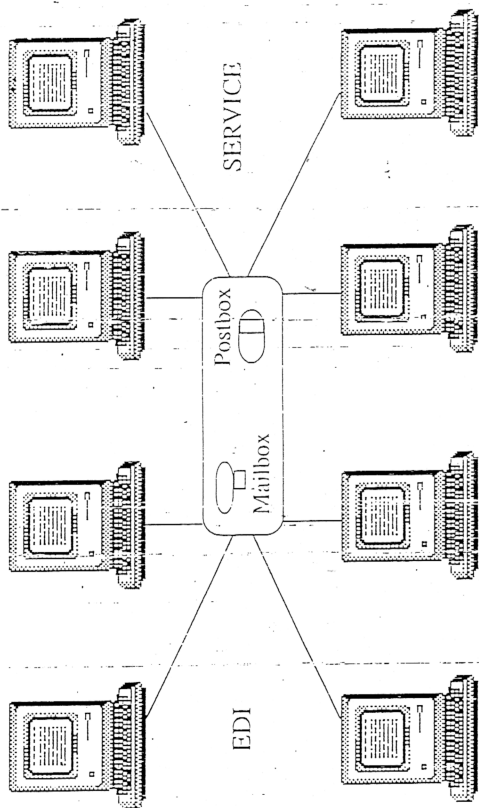
- AN APPLICATION TO GENERATE AND INTERPRET THE BUSINESS TRANSACTION

3. COMMUNICATION AND TRANSLATION SOFTWARE.

- COMMUNICATION SOFTWARE ENABLES MESSAGES TO BE TRANSMITTED AND RECIEVED BETWEEN COMPUTERS.
- TRANSLATION SOFTWARE ENABLES MESSAGES TO BE MAPPED BETWEEN TH INTERNAL APPLICATION AND THE EDI STANDARD DATA FORMAT.



TELECOMMUNICATION NIGHTMARE



TELECOMMUNICATIONS SOLUTION

FIGURE 3

their subsidiaries - or departments/nations communicating with each other, creating the EDI community.

In essence, EDI simply refers to the much-used term of "PAPERLESS TRADING", and it is growing fast in many countries. In fact, one of the principal reasons for using EDI is the mountain of paper documents used in the normal business transactions. EDI is not new. In the early days of EDI, the data was put onto a magnetic tape and either posted or sent by courier to the recipient, who then loaded the tape on a deck, and the computer system read in into its system.

However as more organisations got involved, problems arose with tape interchanges:-

1. Time -it took some time for the tape to be sent physically to the other party.
2. Scheduling and handling
 -problem in scheduling and handling as number of tapes increased.
3. Vulnerability
 -the tapes are vulnerable, easily damaged.

In the early 1980's , the preferred method was to send data by telecommunications, where one organisation's computer is directly linked to the computer system of another organisation. This method created its own problems as well:-

1. Timing and Scheduling
 -This method required both organisations to schedule the link at the same time. If an organisation had many trad-

ing partners, the problem of timing and scheduling became a problem.

2. Incompatible computer systems

-The biggest technical problem was the incompatibility of computer systems. Your trading partners would have a different system from yours. Until every computer system was able to talk the same telecommunications language (known as "protocol"), this was a nightmare (as in Figure 2 and Figure 3).

Companies using EDI, have found that electronic communications, have certainly contributed towards an accelerated growth in the relevant services. Order leadtimes have been found to be drastically reduced and so have the costs associated with generating, posting and processing orders.

That would place an organisation in an advantageous position and if the organisation is able to provide a rapid response, it would do a great deal to strengthen and secure the business relationship. Successful EDI creates a WIN-WIN situation. It begins an evolutionary process towards a more productive partnership.

1.2 CREATING AWARENESS OF EDIFACT -

EDI involves exchanging messages in an open environment. Therefore there is a need for an agreed standard structure within an EDI business community. It would be

impractical for each company within the EDI community to design a message to suit it's own computer system or business practice, which will result in frequent alteration to the computer software for each new message.

Hence the need for EDIFACT -(EDI for Administration, Commerce and Transport).It is the standard message or language which is needed for computers to talk to each other, locally and internationally.It is the brain-child of the United Nations, after it felt that international trade which is to blossom, will come to a grinding halt, if the language is not universal.A common barrier in electronic linkages would be incompatible computer systems between trading partners, however, UN/EDIFACT , provides a framework for the cooperative development and sharing of expertise/experience among member countries at regional and international levels.

1.3. EDI DEVELOPMENT IN MALAYSIA

Trade facilitation initiatives in Malaysia can be traced back to the 1980s with the formation of the Export Malaysia incorporated as a joint-effort, between the public and private sectors to expand the country's external trade.EPC had identified three (3) major strategies :-

1. Institutional development in trade promotion
2. Export promotion and market
3. Trade facilitation and export support.

The National Trade Facilitation Committee (NTFC) , under the secretariat of Ministry of International Trade and Industry

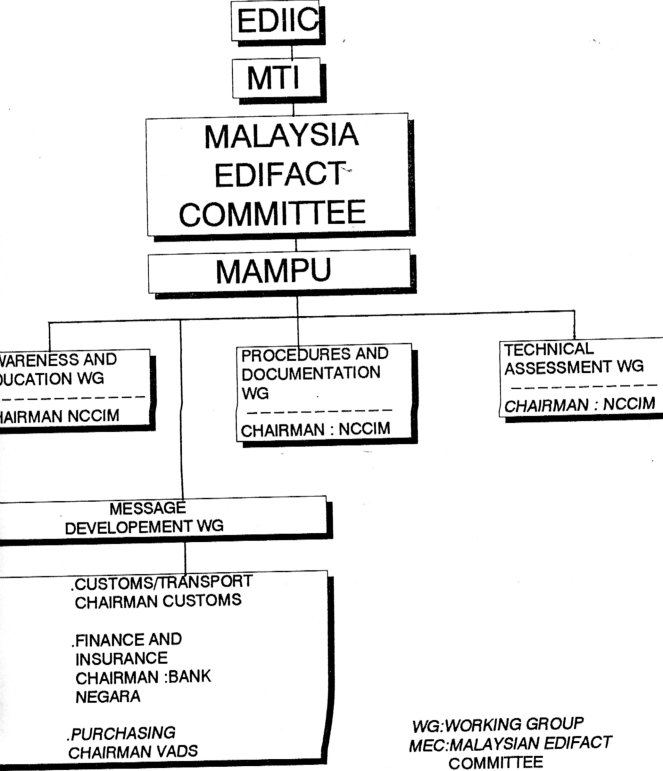
(MITI), was formed as the result of, the third strategy, to study the specific paper-work and procedural problems encountered by Malaysian traders in international trade.

In October 1987, the Banking Credit Insurance and Exchange Control (BCIEC), one of the sub-committees of NTFC which is chaired by Bank Negara Malaysia (BNM), resolved that there was a need to simplify and standardise trade documents originated from the business community. BCIEC further resolved that National Chamber of Commerce and Industry of Malaysia (NCCIM), being the apex organisation representing the private sector, to undertake the responsibilities of soliciting and organising the private sector to undertake this task.

NCCIM willingly accepted this responsibility and having considered the heavy investments and long-term risks associated with this project - known as the ADS/EDI (Aligned Documents System/Electronic Data Interchange) project, formed the company called EDI (Malaysia) Sdn. Bhd. as the vehicle for a consortium, to provide the necessary funding requirements to implement the project. The aim of ADS/EDI project is to catalyse the development of EDI community systems in Malaysia for trade facilitation.

In December 1992, the EDI Implementation Coordination Committee (EDIICC) was established, to oversee the implementation of the ADS/EDI project. (see MEC Organisation Structure chart).

MEC ORGANISATION STRUCTURE



1.4. NEED FOR TRADE FACILITATION IN MALAYSIA

Under the Second Outline Perspective Plan (OPP2), Malaysia is targeted to become a world class nation by the year 2020. Along with this mission, several national goals have been set focusing on the development of strategic infrastructural facilities to support the projected economic growth to transform Malaysia into an export-oriented economy. Malaysia is currently ranked 23rd in terms of imports and 24th in terms of exports in the world economy. During the OPP2 period, Malaysia's total exports is projected to increase from RM94.7 billion in 1991 to RM255.6 billion by the year 2000. In the process, export of manufactured goods is projected to increase from RM64.5 billion in 1991 to RM209.2 billion (or 81.8%) of the total exports by the year 2000. The economy is targeted to grow at 12.4% and 11.8% per annum respectively in the Outline Perspective Plan 2 (OPP2) period.

It is important to note that in conjunction with the trans-border flow of goods, there is also the corresponding exchange of information and documents. Studies sponsored by United Nations, identified approximately 2,000 copies of trade documents are generated in the course of international trade and about 50% of these documents are rejected by the banks at the first presentation due to discrepancies. According to the studies, the cost of paperwork is between 7% and 15% of the value of shipment, and for the developing countries, it is estimated to be no less than 10%.

In 1986, an informal study conducted locally, identified as many as 16 parties being involved in a typical international trade transaction. Approximately 30% - 70% of the information on trade documents, were duplicated and transmitted from one party to another. (Figure 4)

During the OPP2 period, the annual costs of paperwork will escalate from the present estimated RM15.2 billion in 1990 to RM26.9 billion by 1995 and RM47.6 by the year 2000 (See Figure 5). Imagine the potential savings, if the costs of paperwork was estimated to be about 10% of the import/export value.

In short, the projected rapid expansion of our national economy during the OPP2 period will create widespread paperwork bottlenecks throughout the country's trade and industry information infrastructure.

The only way to meet these challenges is to be leaner, less bureaucratic, more customer-focussed, continuously improving quality, enhancing efficiency and speeding up decision making. It means exploring new ways of doing things. The solution comes in EDI, the productivity agent in combating inefficiencies in the preparation and transmission of paperwork between trading parties. Based on other countries' experiences, EDI is expected to cut that staggering waste by 60-70 % and Malaysia is expected to save between RM6.2 billion and RM10.3 billion by 1995.

A WORLD BETWEEN SHIPPER AND CONSIGNEE

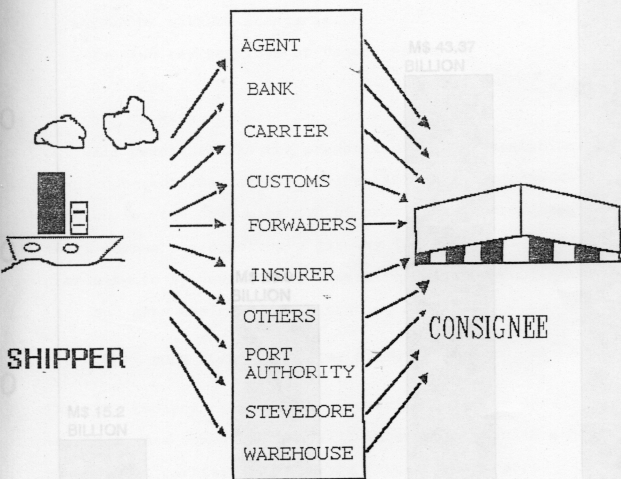


FIGURE 4

0

0

C

0

0

0

1995

(FIGURE 5)

23

1.5 "ONE-STOP NON-STOP" - EDI GATEWAY

In August, 1993, Malaysia saw another milestone in the advancement of the telecommunications industry, with the inauguration of the DAGANG-NET EDI service (Figure 6).. an EDI clearing house. The Dagang-Net EDI service is a business tool for companies to transmit and receive standardised commercial documents electronically, based on internationally agreed UN/EDIFACT standards.

The two key services of Dagang-Net are:

0 EDI

0 E-MAIL

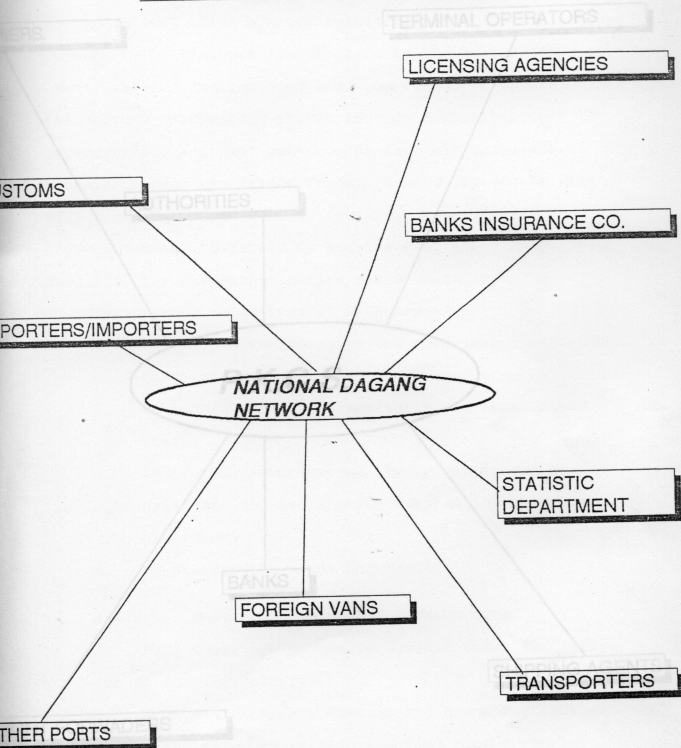
EDI will revolutionise the preparation and presentation of trade documents. Dagang-Net will establish a nation-wide service for the communication of messages electronically. It shall become the electronic gateway for the local trading community to transact among themselves and the public sector, and also their overseas trading partners.

1.6 PORT KLANG COMMUNITY SYSTEM (PKCS)

The PKCS replaces the manual processing stage of documents from a computer that will inter-connect with a host of relevant parties, who will be the shipper, port authority, forwarding and shipping agents, Customs and other agencies. (Figure 7).

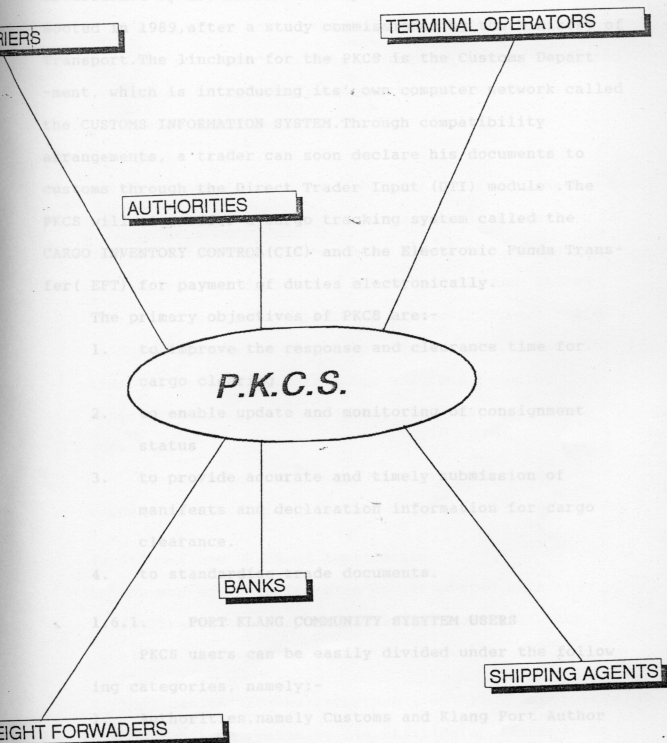
It will ultimately become the system which transits shipping documents from a port user to the Customs office through the hands of the forwarding clerk.

THE PORT KLANG COMMUNITY SYSTEM AND DAGANG NETWORK



(FIGURE 6)

THE PORT KLANG COMMUNITY SYSTEM



(FIGURE 7)

PKCS is the pioneer, EDI community system to be implemented in Malaysia to fulfill the national strategies established by EPC under the auspices of MITI. PKCS was first mooted in 1989, after a study commissioned by the Ministry of Transport. The linchpin for the PKCS is the Customs Department, which is introducing its own computer network called the CUSTOMS INFORMATION SYSTEM. Through compatibility arrangements, a trader can soon declare his documents to customs through the Direct Trader Input (DTI) module. The PKCS will also offer a cargo tracking system called the UN CARGO INVENTORY CONTROL (CIC) and the Electronic Funds Transfer (EFT) for payment of duties electronically.

The primary objectives of PKCS are:- (Figure 8), and

1. to improve the response and clearance time for cargo clearing and thus reducing documentation
2. to enable update and monitoring of consignment status
3. to provide accurate and timely submission of manifests and declaration information for cargo clearance.
4. to standardise trade documents.

1.6.1. PORT KLANG COMMUNITY SYSTEM USERS

PKCS users can be easily divided under the following categories, namely:-

1. Authorities, namely Customs and Klang Port Authority (KPA), who is also the Free Zone Authority (FZA)

2. The port operators :-

- Kelang Containers Terminal Bhd. (KCT)
- Kelang Port Management Sdn. Bhd. (KPM)
- Port Klang Distribution Park Sdn. Bhd. (PKDP)

3. The port users, namely forwarding agents, shipping agents, hauliers, transport companies and port-related businesses.

4. Banks

All these parties have the need for the same information to support their business processes. A study by UN has established that as much as 70% of the information on one form was duplicated in another. Through DAGANG-NET, PKCS integrates all these parties (Figure 8), and in doing so, eliminates the unnecessary duplication in time, effort and documentation and thus reducing documents processing and expediting the clearance of cargo.

There are three (3) ways which the users can connect to PKCS through DAGANG-NET, NAMELY :-

1. Stand-alone PC-based Application.

The end-user, application is integrated with the EDI translator and communications software which allows the users to connect to PKCS.

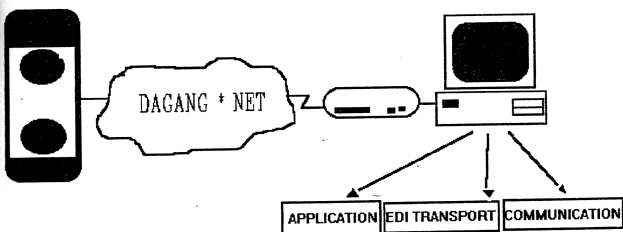
2. Application Program Interface (API).

A user has to customise his existing application to produce an output file in flat file format to be translated into EDIFACT format. Two options are

USERS CONNECTING TO PKCS.

INTRODUCTION

Users can connect to PKCS via dial — up, leased lines, MAYPAC X.25 or INC.25 SERVICES. In its simplest form, a user will need the following components as depicted below: —



(figure 8)

The application generates and processes the EDI messages being transmitted and received from PKCS.

The EDI translation software translates the EDI messages from flat files and vice-versa. The stripped down EDI messages which are then constructed into flat files are readily handled by the application for various internal processing.

The communication software performs the connection and file transfer functions between the end user computer and PKCS.

available:- ng and other offences.

1. Host-to-Host connection where EDI will be
2. PC-to-Host Connection. It's participation in

3. KEDAI EDI.

This option is for users who could not afford to have their own systems. The users could use the service centre which is equipped with data entry operators and systems facilities to enable walk-in users to submit their documents. Then the documents will then be entered into the computer system which will then be submitted electronically to the relevant parties.

1.7 SISTEM MAKLUMAT KASTAM (SMK)

In its effort to improve efficiency and upgrade its computerisation programmes, to be implemented nationwide. Jabatan Kastam dan Eksais Di Raja Malaysia (JKED), has implemented its "Sistem Maklumat Kastam" (SMK or Customs Information System). SMK is an integrated system, which has three(3) main applications, namely:-

1. Kastam System which will handle all import/export activities.
2. CDN System (Cukai Dalam Negeri) will be used to collect and process data on sales tax and excise duties.
3. PENCEGAHAN System - This enforcement application will collect information on smuggling, drug

trafficking and other offences.

There are 3 very specific areas where EDI will be of specific advantage to JKED in it's participation in PKCS.They are:-

1. improves facilitation of trade
2. effective control of cargo
3. electronic payment of duties.

With the successful implementation of the PKCS at Klang Port Authority, the project will entail the submission of electronic manifest declarations, a Cargo Tracking System and Electronic Fund Transfer to facilitate the payment of duties to Customs through any desktop computer.

It will mean vast reduction of time taken to clear cargo at the port and bonded warehouses; improvement of cargo inventory tracking; and standardisation of trade documents for all related trading parties.

1.8 OBJECTIVES OF THE STUDY.

The study attempts to establish an EDI usage profile focussing on the PKCS at Klang Port Authority, Custom's Department.The specific objectives of the study are to assess, the success/failure , and the benefits in implementing EDI at PKCS.It would examine the following variables:-

1. The cost savings from "paperless Trading".
2. The amount of labour cost-effectiveness.
3. and Time saved,

1.11 in relation to their performance, before the implementation of EDI and after the implementation of EDI.

4. Identify some of the perceived and actual challenges and benefits of EDI usage.

1.9 METHODOLOGY

Specifically, the variables that were examined were, activities relating to paper-documentation, time-savings and cost-benefit effectiveness in relation to labour

usage. A comparative analysis was then made of the statistics collected, for performance of the variables during a period before and after the implementation of the EDI system.

1.10 DATA COLLECTION

The PKCS, being a maiden project, was only inaugurated in April, 1994. As such, there was insufficient data to conduct an in-depth survey, in order to arrive at a conclusive appraisal. Hence the analysis was based purely on secondary data collection, interviews conducted with the implementing Party (PKCS), and the user perspective was based on interviews with a few of the Forwarding Agents.

It was found necessary to meet with Pertinent Officials at the Customs Department, Senior Officers at Kedai EDI, in Port Klang and the EDI Resource Center, at Kuala Lumpur.

The study gives an overview of the importance of EDI implementation in international trade, giving particular attention to EDI implementation in international trade, with emphasis placed on the Port Klang Community System. And since this system has not been fully integrated with it's

"community" members, it has not been possible for this study to fully evaluate the system. But, it has attempted to evaluate the implementation of the EDI system at the Customs Division, paying special attention to the elected variables.

In order to fully verify the validity of the objective of the study, the benefits of using EDI, as a tool of trade, was evaluated from the "IMPLEMENTER's" (PKCS), point of view and also a "USER" point of view (Forwarding Agent).

Most of the literature relevant to this study, was from overseas writings. They all support the issue concerning the indispensibility of using EDI, especially as a tool of trade and for handling large volumes of paper documentation, such as in purchasing and ordering and making payments.

Peter a. Gelpe and Henk C. Van Maaren, are in agreement that reliability, speed and quick communication and services and overall cost benefits, in today's commercial environment, can only be achieved through the implementation of EDI.

Robert W. Bone, of Bergen Brunswig, confirms with the concept that, cumbersome paperwork can be eliminated with

electronic communications.

Anthony L. Craig, contended with the fact that to exist in today's international trade, a nation has to acquire a competitive advantage. And to do this it must be cost-effective. According to his paper, electronic communications will provide that edge.

1.13. ORGANISATION OF THE STUDY

The study covers 4 chapters. Chapter 1 gives a general introduction to EDI and the impact of Port Klang Community System (PKCS), in the Malaysian trade documentation. Chapter 2, reviews relevant literature pertaining to global EDI implementation. It also discusses issues on the benefits and challenges, in implementing EDI. Chapter 3 covers the methods that were used to assess the elected variables in relation to the cost-effectiveness of applying an EDI system, at Port Klang Authority. And Chapter 4 is the conclusion arrived at in using EDI as a tool of trade and recommendations for it's successful implementation.

EDI reduces the time and costs of trade document processing through the efficient use of electronic media. It is much easier to key, copy, modify and correct data entered into the computer than with a typewriter and paper. Moreover, because "electronic documents" can be communicated from one computer to another, the common data for all of the documents related to a specific trade transaction need not be re-keyed --- only new information which applies to the next step of the trading cycle is added to the data.