



**UNIVERSITI PUTRA MALAYSIA**

**QUALITY TRACKING SYSTEM AND COWBOY  
SEMICONDUCTORS (M) SDN BHD**

**Tan It Hong**

**GSM 1998 26**

**QUALITY TRACKING SYSTEM AND COWBOY  
SEMICONDUCTORS (M) SDN BHD**

By

**Tan It Hong**

51381

A case study presented to Faculty of Economics and Management, Universiti  
Putra Malaysia, in partial fulfillment of the requirement for the degree of  
Master of Business Administration (MBA).

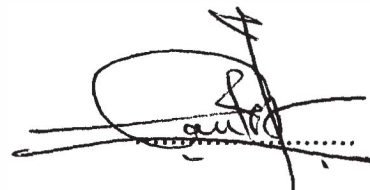
August 1998



## PENGESAHAN KEASLIAN LAPORAN

Saya, Tan It Hong (Matrik nombor 51381), pelajar program Master in Business Administration (MBA) mengakui bahawa kajian kes untuk kursus ini adalah hasil asal saya sendiri.

Tarikh: 28hb Ogos 1998

A handwritten signature in black ink, appearing to be 'Tan It Hong', written over a horizontal dotted line.

(Tan It Hong)

51381

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## **LIST OF ABBREVIATIONS**

CSSB – Cowboy Semiconductors SDN BHD

QTS – Quality Tracking System

OBIS – Open Business Information System

QRA – Quality and Reliability Assurance

IS&S – Information System and Support

FA – Failure Analysis

RELDB – Reliability Data Base

IT – Information Technology

# ABSTRACT

## QUALITY TRACKING SYSTEM AND COWBOY SEMICONDUCTORS (M) SDN BHD

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August 1998

Supervisor: **Professor Dr. Mohd Ghazali Mohayidin**

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This case was about the implementation of a new software system in Cowboy Semiconductor (M) Sdn Bhd (CSSB). During the course of implementation, the company encountered several foreseeable and unforeseeable problems. The objective of this case study was to identify the lessons learned and how to overcome these problems.

Quality Tracking System (QTS) program was introduced to CSSB in October 1997 with the intention to improve productivity. However after 6 months of implementation, management found that there was continuous resistance from employees to accept this new system.

From the analysis of this case, it was found that the resistance was mainly due to lack in proper planning during the initial implementation. The QTS software itself was not ready during initial release. This has created a lot of

problems for the users and users refused to use the system. Employees were also resistance to change because QTS changed the way they used to work. Support given by information group and management toward this project was very bad due to a shift in management's priority.

CSSB management needs to make some changes on QTS in order for it to be successful implemented. It is recommended that the period of implementation be extended. A new well-thought plan must be developed and implemented and motivation programmes for employees should be part of the plan. Finally an evaluation and control programme need to be incorporated into the plan to ensure the project was always on the right track.

**ABSTRAK**

**SISTEM PENGESANAN KUALITI DAN COWBOY**

**SEMICONDUCTORS (M) SDN BHD**

Oleh:

Tan It Hong

Augos 1998

**Penyelia: Professor Dr. Mohd Ghazali Mohayidin**

Fakulti: Fakulti Ekonomi dan Pengurusan

Kes ini adalah mengenai penggunaan satu sistem perisian baru di Cowboy Semiconductor (M) Sdn Bhd (CSSB). Semasa perancangan, syarikat menghadapi masalah yang diketahui dan yang tidak diketahui. Objektif pengajian kes ini ialah mempelajari pengalaman melaksanakan sistem ini dan cara untuk mengatasi masalah yang dihadapi.

Sistem Pengesanan Kualiti (SPK) diperkenalkan kepada CSSB pada bulan Oktober 1997 dengan hasrat memperbaiki produktiviti. Tetapi selepas 6 bulan ia dilaksanakan, pengurus mendapati masih ada tentangan yang berturutan dari perkerja.

Daripada analisis kes, penentangan adalah hasil dari kekurangan perancangan pada peringkat awal pelaksanaan. Perisian SPK juga belum cukup mantap pada masa itu. Ini telah memberi banyak masalah kepada pengguna sehingga mereka tidak mahu menggunakannya. Perkerja juga menentang SPK kerana ia telah mengubah cara biasa mereka berkerja.

Sokongan dari kumpulan maklumat dan pengurus juga kurang baik terhadap projek ini kerana adanya keutamaan syarikat telah berubah.

Pengurus CSSB mesti mengambil perhatian terhadap SPK supaya ia boleh dilaksanakan dengan sempurna. Adalah dicadangkan supaya masa untuk pelaksanaan sistem ini dipanjangkan. Satu perancangan baru yang dibuat dengan teliti hendaklah dibentuk dan dilaksanakan dan program motivasi perkerja hendak dijadikan sebahagian dari rancangan tersebut. Akhir sekali, satu program menilai dan mengawal hendak dicipta dan dimasukkan kedalam rancangan tersebut supaya projek ini sentiasa berjalan mengikut perancangan.

# Part One

CASE FACT

## **Part 1- Case Fact**

### **QUALITY TRACKING SYSTEM AND COWBOY SEMICONDUCTORS (M) SDN BHD**

#### **Introduction**

In early Jan 1998, Quality Services Section Manager Mr. Jo came out from weekly Monday department meeting. On the way back to his office, his footstep is much heavier than usual. In his mind, he is thinking about what the Department Manager had just said, "We need the software, Quality Tracking System (QTS), to be fully run by the middle of this year. A bigger project, Open Business Information System (OBIS), will be implemented by end of this year. As we know QTS is just a small part of OBIS and we are already running into so many problems. How are we going to handle OBIS which going to involve every department? I want you to show me the status of QTS implementation in our weekly meeting."

He knew that this was going to be a very difficult task to handle when it was first given to him. Now he must find a way to ensure that this project is implemented as per schedule. Or else he has to answer to the boss every Monday. The main problem is that he has no experience in how to implement a computer software system. He relies on all instruction that given by corporate information department. Local Information Technology department is not very cooperative and they treat this software implementation as though

nothing to do with them. Users of this software treat it as additional non-value added job to them.

## **Cowboy Corporate**

Cowboy Corporation is based in Dallas, Texas, USA. It is a typical American Multinational Manufacturing Company with very diversified products. However its major business is in the production of semiconductor. It has over 10 assembly sites in different countries. The products are sold to customers all over the world. Examples are computer manufacturer like IBM, Compaq, Apple, SUN Microsystems, HP, Motorola and etc.

## **Cowboy Semiconductors (M) Sdn Bhd**

Cowboy Semiconductors (M) Sdn Bhd (CSSB) was one of the major assembly site for Cowboy Corporate. It is also one of the pioneers in the Malaysian electronics industry. It grows from just 200 people in 1972 to more than 3,500 today. It is presently situated in one of Malaysia free trade zone. As being a typical assembly site, company management structure is basically functional. A Managing Director heads the company. Production function is lead by an operation manager. Under the operation manager, there are several managers who are in charge of specific function. Examples are quality and reliability assurance, manufacturing, assemblies technical, test



technical engineering. There are also few managers who provide support to the production. They are directly report to the managing director. They are the information technology, human resource, facility, procurement and finance. For each manager there are several section heads reporting to him. (See exhibit 1 for organization structure.)

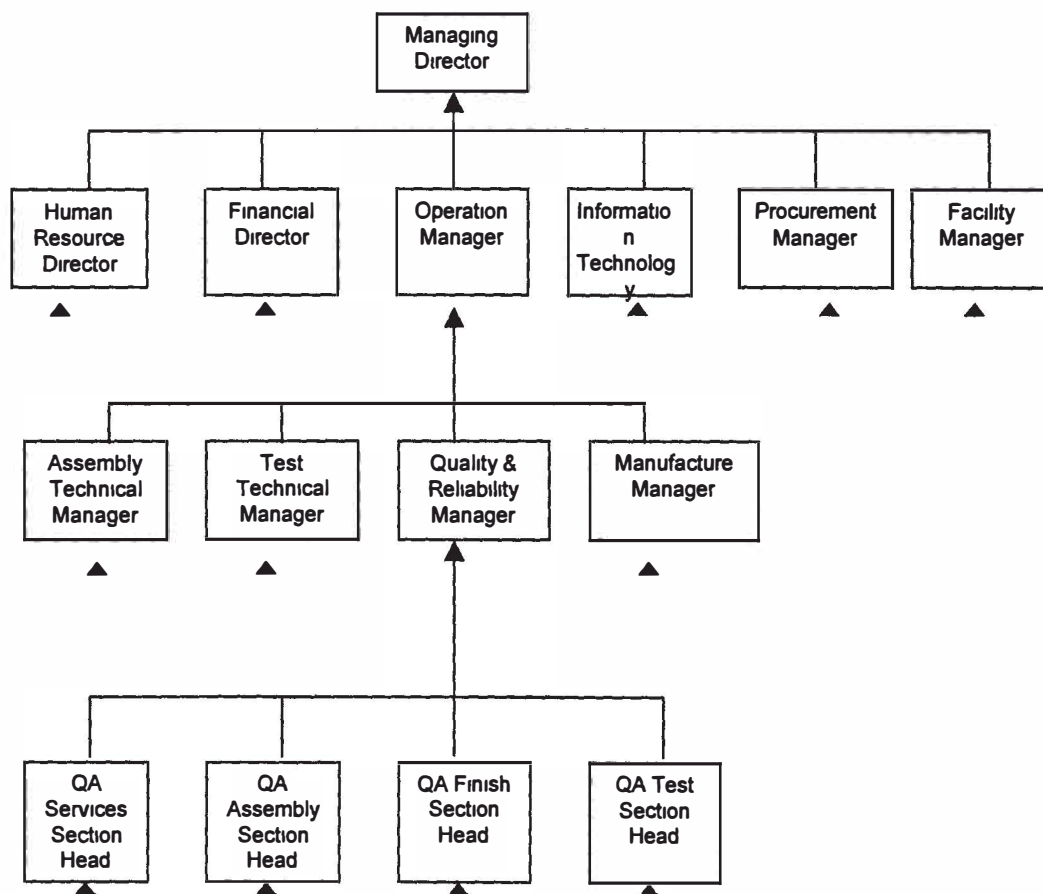


Exhibit 1

Organization Chart and Position of QA services Section head in the

## **Quality and Reliability Assurance Department**

Quality control of products is a key function in company dairy operation. The department of Quality and Reliability Assurance (QRA) Department manage this job function. QRA act as independent body to check manufacturing and engineering for any deviation from specification. It also responsible for answering any quality issues from customers.

### **QRA Services Section**

QRA Services Section is a section in QRA to provide support services to the total QRA department. It has five functions, i.e. Specification Control, Auditing, Reliability Laboratory, Equipment Calibration and Failure Analysis Laboratory. All these functions are to enhance the operation of QRA. Mr. Jo is this section manager and he is in this position for the past ten years.

### ***Failure Analysis Laboratory***

Failure Analysis (FA) Laboratory is under the QRA Services Section and acts as a service center for QRA department to analyze product failure during product quality sampling check. It also helps to analyze customer complained return devices and



help engineering to do special evaluation. All analysis reports and devices need to be files and retained for a period of 5 years.

In CSSB failure analysis laboratory, there is one engineer and two technicians. Before implementation of QTS, requesters for device to be analyzed submit sample after filing a FA job request form. Job tracking was using MS Excel. After completion of analysis, FA report was written using MS Word with the engineer written macro program and put them into an Intranet web page. FA also needs to enter completed job record into mainframe system called Failure Device Analysis Laboratory system. These records are reviewed by Failure Analysis Laboratory in Dallas for their quarterly report. From the result of dialog session between FA and all job requesters, it was found that requesters were very satisfied with this arrange.

With implementation of QTS, all requesters now have to submit jobs request through the system. They then print a FA job request form the system and submit together with sample to FA laboratory. FA will perform the analysis after accepting the job through the system and generate report through the QTS system. Report generated also is in MS Word and was attached

to system record. The original requester then pulls the report from the QTS system.

The different comparing the formal way for FA laboratory and using the QTS are:

1. Report writing using the formal way is much easier as report writer can always use previous similar failure result report to modify. This saves a lot of typing. In QTS every report has to start from fresh.
2. The report tracking and report generation runs on independent computer system. There is no delay time compare to QTS that is network to central server. FA personnel complained the waiting time for system responds for every data entry is too long. It takes three times longer to generate a report.
3. QTS also require FA personnel to perform a lot more entries to the system compare to previous they only need to key job information into an Excel file. (See exhibit 2 for QTS job flows.)

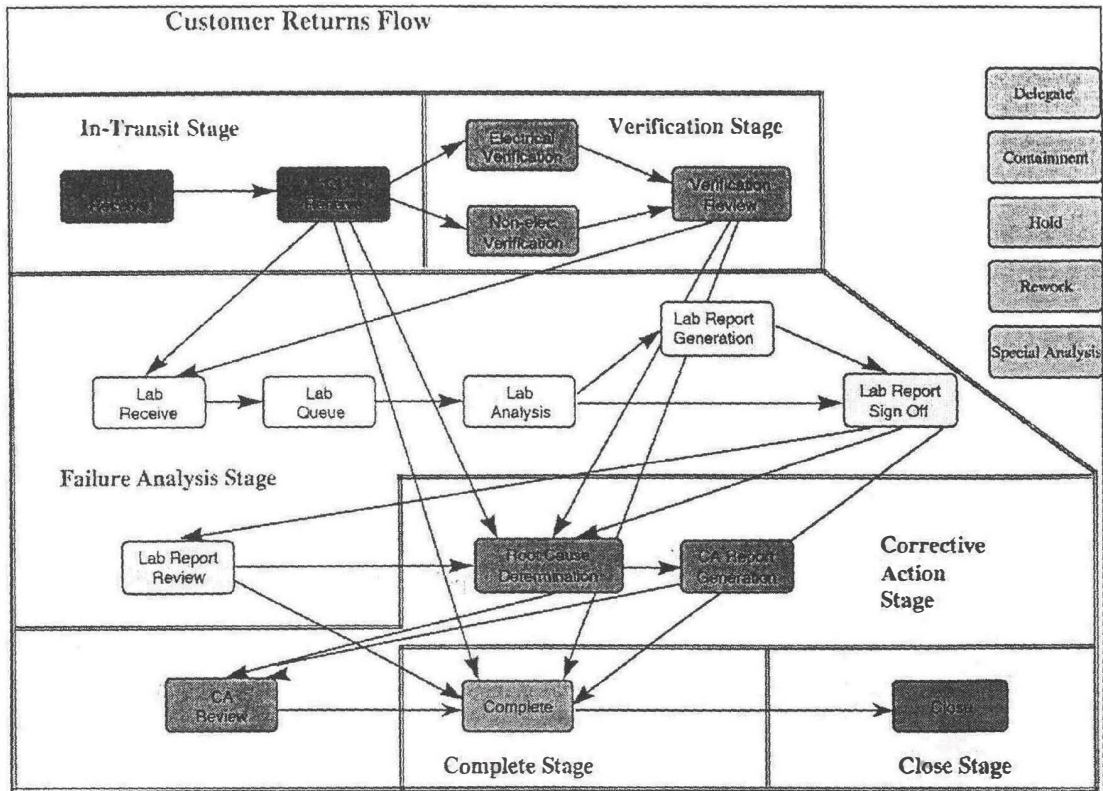


Exhibit 2: QTS jobs flow-chart

### QRA Test Section

QRA test section main job function is to ensure that all out going product meets company specification. They pull sample of products during product testing to check quality of product. If one lot of sampling sample failed, the sample will send to FA for analysis. From result of FA analysis, then disposition of the lot will be given.

QRA test also acts as customer interface. Any customers return sample will be first verified by QRA test engineer. If sample confirms

fail, they will send the unit for FA Laboratory for further analysis. Using result from FA report, QRA test engineer will inform respective process engineer to take corrective action. Then another report call 8D is written for the customer.

QRA test has five engineers and three technicians. They account for 80% of jobs' request submitted to FA Laboratory. Before using QTS, QA test engineer found submitting job request to FA laboratory is very ease. They just have to fill in a request form manually then attach the sample to FA laboratory. Report can be obtaining from FA web page a day or two later. QTS has caused a lot of inconvenience. First they have only two computers that can use to run QTS. Only one engineer and one technician were trained to use QTS. QTS run so slowly that now they need to use up to 30 minutes to input a request form compare previously that take 5 minutes to fill in a form.

### **The Information Technology Department**

Originally this department was called Information System and Support (IS&S). Cowboy sold IS&S business in 1997. They have rename IS&S department to Information Technology Department. All the while, the company information strategy follows parent company IT direction. There is no local research and development. The information technology department is just act as support to the hardware and

software that dictate by the parent company in US. With the selling of the IS&S corporate, the department now becomes independent from the corporate but functionally reduces to just support local computer need. Implementing any new software project now either sub-contract or the department themselves have to take up the responsibility.

## **Record Retention**

Everyday thousand of quality control data is recorded and kept by QRA department. It is customers' requirement for the company to keep all the records for a period of five years. These records need to be reviewed from time to time either by customer or for internal quality control purposes.

The corporate has set a standard specification on how the record should be kept. However, each assembly site has it own system and control system over how the quality record to be keep as long as it meets the minimum requirement of the world wide specification. Therefore there is no standardization. A lot of records are kept manually and locally. If a request from other site is make, it takes long and tedious effort to retrieve the data. In today competitive environment, data retrievals need to be fast and accurate in order to compete with competitors.

## Information Technology

Corporate Information Technology Department has set projects as early as 1984 to have a system of accessing data globally. In the early year, this data management was design by using of corporate mainframe under the IBM Information Management System (IMS). Software designs are undertake by individual departments and specifically designs cater for individual section use only. There are many pieces of software being used but they are not compatible to one another. As PC gaining popular in the late 80's, more software is written linking PC to the mainframe and making the whole system complicated.

In the early 90's, personal computer system is getting more advance and powerful. Client server system that is cheaper becomes more popular than mainframe. Corporate Information system set up project to integrate and standardize all data storage and queries for various department bases on client server platform instead of mainframe. This is following the directive of management to save cost. They also engaged a software consultant to work together with own software engineer to develop a Data Warehouse and Query System for quality data storage. The strategy is to use of market available shelf software packages with minimum modification. Examples of these shelf programmes are Microsoft Word for word processing, Microsoft Excel for spreadsheet, Microsoft Access for query, Oracle for networking,



InConcert for different platform protocol and some other documentation management software like Saros. With this data warehouse, record will be standardized. Retrieval now can be immediate by everyone who has the software package in all sites over the world.

This project becomes a key strategy for the corporate. First project is to standardize the reliability data. A software system for Reliability Laboratory called Reliability Database (ReIDB) being launch in 1994. All site reliability engineers were sent to headquarters for training. When new revision was released, a software engineer was sent to all sites to help installation and resolve any problem arises.

After two years of successful implementation, a new software call Quality Data Warehouse (QDW) was implemented. This software was design for worldwide access to reliability data. However this time due to budget constraint, only one engineer from each site was set to Dallas for training. This was one of the new strategies called train the trainer program. After the training, the engineer had to install the software for all the users at their sites and conduct training for them.

There were many complaints on QDW because of very slow when run at other sites of Cowboy. In CSSB there was no other user wants to access reliability data. The waiting time was so long that a single information access need to wait for few hours before it would display at