

COBS INTERACTIVE APPLICATION SOFTWARE USING DATABASE MANAGEMENT

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1. INTRODUCTION.

1.1 The Author.

Jeanette Nutsford has spent thirteen years in the computer industry specialising in programming and systems design for a variety of mainframe computer systems. Particular skills in ANSI COBOL programming for transportable business systems have been used to develop application software for mini computers during the last three years. An in-depth study of database management has been pursued during this period.

1.2 The Company.

Computometric Systems Ltd was formed 11 years ago as a software house developing systems and programs under contract on a N.Z. wide basis. The company gained a reputation for producing effective and efficient business solutions to meet individual requirements.

1.3 The Reason for COBS.

In its continual search to provide clients with a dynamic computer processing environment, Computometric Systems had determined, by 1972, that the user of its application software should be communicating directly with the computer at all times. A separate company was set up to investigate the feasibility of achieving this facility in the most cost effective manner. During 1973 Timeshare Systems had determined that the mini computer provided the best cost effective solution for terminal communication but did not have the necessary system software for commercial applications development. By 1976 the HP 3000 provided the required environment for Computometric Systems to commence its development of on-line interactive application software. The only problem to be resolved was getting Hewlett Packard to release the HP 3000 on the N.Z. market.

2. WHAT IS COBS.

2.1 The Total Business System.

The Computometric On-line Business System (COBS) provides the complete processing environment for any industrial or commercial organisation. It consists of an open ended structure of system modules to perform the various functional processing needs of a business. The system modules consist of sets of easily modifiable ANSI COBOL programs.

2.2 System Modules.

2.2.1 Order Control.

Enquiry, Order Entry, Order Adjustments, Back Order Reporting, AR Customer & Product Maintenance & Master Lists.

2.2.2 Stock Control.

Enquiry, Stock Transactions, Stock On-hand Valuation, Stock Reports, Product Maintenance & Master Lists, Entry of Deliveries & Adjustments.

2.2.3 Packing Slips (requires Order Control & Stock Control)

Enquiry, Print Picking Slips, Re-confirm Packing Slips, Hold & Release Customers, Price Changes.

2.2.4 Invoicing.

Enquiry, Print Invoices, Entry of Sales & Adjustments, Invoice Document Control, AR Customer & Product Maintenance & Master Lists, Price Changes.

2.2.5 Sales Analysis.

Enquiry, Sales Reports, Entry of Sales, AR Customer & Product Maintenance & Master Lists.

2.2.6 Accounts Receivable.

Enquiry, AR Balance List & Exceptions Report, Cash & Journal Entry, Print Statements, AR Customer Maintenance & Master Lists.

2.2.7 Product Costing.

Costing Data Entry, Product Recosting, Product Cost Structure report, Product & Operation Indexes, Cost & Price Analysis Report, Operation Cost Schedules, Product & Department Maintenance & Master Lists.

2.2.8 Employee Recovery (requires Product Costing).

Employee & Department Cost Recovery Reports, Product Rejection Cost Report.

2.2.9 Work-in-progress Valuation (requires Product Costing).

WIP Component Cost Report, Materials On-hand Cost Report.

2.2.10 Product Linkage (requires Product Costing).

Component & Materials Where-used Reports.

2.2.11 Accounts Payable.

AP Customer Maintenance & Master Lists, AP Transactions & Adjustments, Recurring Payments Control, AP Charge Status Report, AP Balance Report, AP Payment Report, Cash Requirement Report, Computer Payment Pre-list, Computer Cheques & Remittance Advices.

2.2.12 General Ledger.

Account & Department Maintenance & Master Lists, Forecasts & Budgets Maintenance & Master Lists, GL Transactions, Standing Journals Posting & Report, GL Report, Year End Closing Report, Trial Balance, Account & Department Ledger Analysis, Operating Statement, User Defined Reports.

2.2.13 Purchase Accounting.

Scheduled for 1980/81

2.2.14 Raw Materials Control.

Scheduled for 1980/81

2.2.15 Payroll.

Scheduled for 1980/81

2.2.16 Labour Cost Analysis.

Scheduled for 1980/81

2.2.17 Production Planning.

Scheduled for 1980/81

2.2.18 Production Scheduling.

Scheduled for 1981/82

2.2.19 Job Costing.

Scheduled for 1981/82

2.2.20 Hire Purchase.

Scheduled for 1980/81

2.2.21 Financial Planning.

Scheduled for 1980/81

2.2.22 Investment Analysis.

Scheduled for 1980/81

2.2.23 Asset Register.

Scheduled for 1981/82

2.2.24 Share Register.

Scheduled for 1981/82

2.2.25 Vehicle Scheduling.

Scheduled for 1981/82

2.2.26 Message Communications.

Send & receive message files to & from any user on the same computer system network.

2.2.27 Document Processing.

Process text in Document form for report & Direct Mail requirements.

2.2.28 Subscriptions Accounting.

Subscriber Maintenance, Mailing Labels, Selective Reports, Payment Recording.

2.3 Database Structure.

An identical schema is used for each company's database and a special schema for the controlling database.

2.4 System Generation Modules.

A set of programs to create

- a) the controlling database with all its entries,
- & b) the required company databases and their parameters.

2.5 System Utilities.

A set of programs to provide automatic recovery of databases, re-printing of reports, printing of manuals & audit reports.

3. PHILOSOPHY OF COBS.

- 3.1 To provide a total business system for organisational structures ranging from the single company to the complex multi-national corporation.
- 3.2 To provide access to the system wherever the business generates data or requires information.
- 3.3 To provide access to the system in the same timescale as the business operates.
- 3.4 To provide a system which can be defined by the user to suit individual business requirements.
- 3.5 To provide a system which can be driven by company personnel in their normal job function.
- 3.6 To provide a system which responds to the changing business environment through management control and direction.

4. CONCEPTS INVOLVED IN COBS.

The COBS philosophies are achieved by the use of the following concepts

- 4.1 Independent company databases are integrated through the use of a master controlling database.
- 4.2 A communications network provides flexible control totally through computer terminals which are independent of special terminal features through the use of industry standards for terminal communications.
- 4.3 Interactive processing using multiple databases provides a computer processing facility which is available to the user at all times without the need for specialist operational staff. Database integrity is maintained by user inability to abort a program while the database is in an inconsistent state. In the event of catastrophic failure, automatic control of data recovery for all databases is provided using forward or backward recovery techniques.
- 4.4 User controlled system generation via a special set of interactive user driven programs.
- 4.5 Multi-user, multi-functional interactive programs which are modular at system and program level.
 - 4.5.1 Menu Displays.
 - 4.5.2 Re-entrant code and Process Handling.
 - 4.5.3 Virtual Memory and Program Segmentation.
 - 4.5.4 ANSI COBOL enhanced by SPL modules.
- 4.6 Parameter driven adaptive system controlled at both the global organisational level and the individual company level. Company and user security is controlled by parameters at database and program levels with operations continually and immediately logged on an audit file.

5. THE TERMINAL USER AND COBS.

5.1 Access to COBS.

Account and user codes with passwords are the only user identification required. As the system appears to be one program to the user, one user defined command can be executed to run the system.

5.2 Access to COBS Functions.

This is achieved through the use of menu displays with automatic system control of functional conflicts.

5.3 Interacting With COBS.

Question & answer techniques are used for all data entry, enquiry and report requests.

5.4 How To Use COBS.

Although COBS is self instructional, all manuals may be printed via a COBS function.

6. SUPPORTING THE COBS USER.

6.1 On-line Support.

This requires port access for software support management.

6.2 COBS Manager.

This function is usually retained by the software support management to fulfill the role of database administrator.

6.3 COBS Enhancements.

Computometric Systems is continually looking to extend the functional and operational features of COBS and to enhance its capabilities.

7. THE FUTURE OF COBS.

7.1 Growth with the HP 3000 family of compatible business systems.

7.2 MINI-COBS for the HP250 and HP9845.

Transference of, at least, the General Ledger into BASIC retaining the use of database management.

7.3 MICRO-COBS for the HP85A.

Transference of, at least, the General Ledger into BASIC without dependency on database management.

7.4 International COBS.

The addition of Parameters to cater for differing international business requirements.