



The Retailer's all in one solution turning your
transaction data into actionable information:
Real-time

DMK-ERP Intelligent Retail Solution

Functional and Requirements Description



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1. Overview

The purpose of this document is to provide a description of the functionalities and capabilities of the DMK-ERP system. The document is structured in a manner where an initial high-level description is given and this is indexed to more comprehensive information in the form of attachments.

In order to gain an understanding for the necessity of the system, it is important to analyse what currently happens in the market and why an organisation would consider implementing DMK-ERP. There has been a major shift in the way that organisations are managed over the last several decades and it is these initiatives that have prompted the development of DMK-ERP.

Organisations have now come to realise how imperative it is to adopt a business process oriented culture. This means viewing outputs and results from a customer focused and holistic perspective, rather than concentrating on individual departmental performance. In order for organisations to become efficient and capable of maximising profits and market share they must transform the business process data and information produced on a daily basis into knowledge that can be used to make appropriate business decisions. This is in addition to the requirement that the systems used in the business actually support the business objectives and result in economic benefit.

DMK-ERP is a leading edge management tool that is used to capture and collate the diverse forms of data and knowledge produced within the business processes in an organisation. This ensures that data actually becomes a corporate asset. In order to qualify as an asset, appropriate and detailed data must be correctly summarised and marshalled into management information that can easily be accessed and manipulated for decision-making purposes. The traditional ERP approach does not always lend itself to this, as the focus is usually primarily focused on producing accounting information.



Systems also need to be flexible to enable an organisation to respond to market changes as well as to constantly diverging reporting and analysis requirements. The business systems that are deployed must also be able to accommodate new requirements and opportunities that arise from technological advances such as the Internet and e-enablement. DMK-ERP is the solution to this as it is an intuitive business solution, that is seamlessly integrated into operations rather than being a stand alone accounting or ERP system that runs in conjunction with the business operations.

1.1 The Product Objectives

A high level review of the objectives of DMK-ERP is as set out in the section that follows. The objectives are to provide businesses with:

- Fully Integrated Enterprise Management System
- Business process management and data responsibility tracking
- Proactive data warehousing and data mining
- Scalable solutions
- Microsoft standards compliant and Windows driven systems
- Real time analysis
- Distributed system deployment.
- Internet enablement to allow international deployment at a low cost
- Flexibility and the ability to decompose summarised data into the specific levels of detail required
- Multi-company, Multi-brand, Multi-user and Multi-currency solution
- Multiple warehouse structures that reflect the real world structures
- Multiple site warehouses situated in different geographical regions and countries
- Integrated stock management
- Integrated Point of Sale system
- Stock tracking that enables interactive queries and analysis to occur
- Distribution oriented processing to facilitate stores and resource allocations
- Detailed life cycle tracking of stock and products
- Ability to allocate and reserve stock to specific sales orders at a purchase order level
- Integrated financial accounting and warehouse management
- Fully detailed tracking of stock movements from ultimate customer right back to initial supplier at document line level
- Proactive review of cash flows, profits and performance
- Resource utilisation determination
- Customer based pricing and costing at a container level per deal, with prices and methods of charging set at a customer or specific order level
- Credit management
- Foreign currency management and foreign exchange variance management



- Determination and review of break-even points
- Resource consumption
- Review of selling and cost price impacts
- Marketing mix analysis
- Analysis of performance
- Management by exception (variance analysis)

The warehouse and distribution management capabilities included in most software systems do not cater for the management of stocks at sufficient levels of detail. It is usually impossible or extremely difficult to obtain real time warehouse, container, product, stock, and style or market level information.

It is therefore important that the system caters for sophisticated warehouse management and does not translate into being a glorified accounting system. Companies that fall into this trap usually have to resort to a number of supplementary and stand-alone systems to address their needs. This often defeats the objectives of stock, container and warehouse management, and the issues are complicated by the integration efforts that are required in order to obtain a holistic perspective. This also effectively precludes the warehouse, container and stock results from being used as an integrated marketing tool, as a result of the fact that accurate knowledge of stock details are crucial for effective customer relationships. DMK-ERP is totally integrated and data can be decomposed down to stock, container and bin level. This is important when determining enterprise wide resource capabilities and requirements.

The entire system is supported by integrated and fully detailed budgeting capabilities that can in fact be decomposed down to stock, container and bin level. In addition to the above, it is also of vital importance to ensure that performance and marketing orientated budgets are not divorced from the financial budgets. An effective budget must meet the accounting, marketing, statistical and performance measurement needs of the organisation.

1.2 The Product Foundation

A core design concept that has been focussed on is ensuring that the entire life cycle cost of the system is kept as low as possible. We have also concentrated on ensuring that the minimum management overhead is required and that the IT infrastructure requirements are minimal. This is achieved by ensuring that the solution is:

- Microsoft standards compliant and be database independent to allow for ease of migration to other databases
- Windows driven and Microsoft standards compliant to reduce training time and integration efforts
- Real time and capable of being operated in a distributed mode

DMK ERP

- Written in an object oriented and multi-tiered manner to reduce the time required to modify functionalities
- Fully Internet enabled to allow international deployment at a low cost
- Flexible
- Able to be decomposed to the specific levels of detail required
- Company specific
- Multi-company
- Multi-user
- Multi-currency
- Fully integrated
- Capable of allowing the users to define appropriate levels of access and security
- Able to be structured to reflect the exact corporate structure of the enterprise without limitation
- Able to dynamically emulate and represent the product structures and groupings of the enterprise
- Able to be manipulated and queried at many levels
- Capable of using built in scenario and “what if” capabilities
- Easily altered and capable of restating accounting and other information without significant effort
- Capable of empowering the users to do their own flexible reporting without knowledge of a query tool or language
- Able to be queried at multiple levels in respect of queries and analysis

1.3 How The Product Works

1.3.1 General System Operation



DMK-ERP has been designed to enable warehouse and distribution management to occur at differing levels of complexity as required. The strength of the system lies in the fact that it allows the user to emulate and customise the parameter settings and set up to map the organisation and accounts as well as the debtors, creditors and product structures. Once these are mapped they can be decomposed into increasingly complex levels of detail. This will for example allow for data to be displayed by cost centre, by container, by pricing method, by account, by product, by debtor and any or all of the above combinations. This is in direct contrast to the constraints created by limited structuring capabilities in existing legacy systems.

The warehouses, product, product attributes, debtor, creditor, accounts and organisation structures and many other structures are set up as trees or hierarchies, similar in concept to the view that is obtained when working through the Explorer part of the main Windows system. Each of the trees is user definable with various levels and branches represented as nodes. The structures can have an unlimited number of nodes and levels. These structural nodes are then used to represent the various product and organisational summarisation, or grouping levels or points.

Another benefit inherent in using a nodes and level type structure is that the structure also creates a reporting framework as each node includes and encompasses all implied parent and child characteristics and relationships. This means that reporting, reviewing and manipulation is facilitated as all relationships between the various components are contained in, or implied by the structures. Changes made at any level automatically adjust all levels above and below, thereby creating on-line and visual review and restructuring capabilities.

1.3.2 Conceptual Design



The strength and power of DMK-ERP lies in the use of the hierarchies that can be manipulated as a set of seventeen interlinked conceptual multi-dimensional cubes. In this regard the organisational cost centres and warehouse bin cost centres form the foundation for the cost centre cubes. The accounts hierarchies, which include customers, suppliers, general financial accounts, fixed assets and products form the foundation for the account cubes. By analysing transaction postings in relation to accounts and cost centres, a multi faceted view can be obtained of the data from an accounting perspective. In a similar fashion, each of the four incoming stock document hierarchies and the four outgoing stock document hierarchies form additional cube foundations that enable multi-faceted views to be obtained from a business process document perspective. The selection of one or many hierarchy points in addition to date, group or specific accounting criteria enables the various forms of data stored in the system to be analysed from many perspectives simultaneously. For example alternative perspectives of data can be obtained from an accounting only, or a business process document only, or a combination of both accounting and business process documentation perspectives. In addition, the use and selection of groups enables multiple alternative views to be obtained of the same core data, without having to rework or manipulate the data.

2. System Design Framework

2.1 Vision and Objectives

DMK-ERP has been designed as a multi tier system, aimed at meeting all of the transaction processing and information and data analysis needs of an enterprise. Whilst the focus is on medium or Midrange companies, installations at larger distributed organisations also suit the architecture. The vision is to provide an organisation with a single point of data capture and entry, and through the use of a holistic and integrated system, provide the capability to proactively collect and collate data in the manner that it is most likely to be used for analysis purposes later on. In order to achieve this vision a number of core objectives have been used in the design of the system. These objectives include the following:

- Business process focus
- Single point of data capture
- Predetermined integration
- Predetermined document management
- Predetermined data storage
- Real time data

The impact of the above is a system that is managed from a business process perspective wherein the major documents are captured and tracked within the process boundaries and where the relevant accounting transactions are launched at appropriate



points in the business process. This means that three major focuses are possible. These are the analysis and review of data from a purely accounting perspective, alternatively the analysis and review of data from a purely document based and process perspective or a combination of both accounting a process perspective.

The above approach means that data and information is pro-actively managed and that the storage and collation of data is focused on management information, rather than on only producing accounting reports. This does not mean that limited attention has been given to the accounting requirements or that focus has been removed from accounting principles. In fact the entire system is designed in a manner where international accounting standards have been used as a yardstick, and the entire system complies with both the international accounting standards as well as generally accepted accounting practise.

2.2 System Functionalities

In order to obtain a detailed view of the system functionalities, a high level description is provided in this document. More detailed descriptions of each area of functionality is contained and described in the business rules section that has been attached to this document. The major functionalities are as follows:

2.2.1 Multi Company

DMK-ERP is a multi company and a multi brand system. This means that several companies can use the system simultaneously. In order for this to operate successfully each company or business unit that is added must be able to control security access to data, be able to structure and manage its reports independently, in addition to having its own numbering structures and sequences. The above requirements are achieved by creating multiple company profiles. Each profile is linked to a number of users and roles and ensures that when a user logs on, that the correct access level and documentation numbering sequences are used for transactions. In addition to the profiles, a company or organisation structure is used to control cascading levels of reporting and access, and also facilitates data capture and storage. In addition profiles manage VAT percentages and keep general details about an organisation for example logo's, addresses, telephone number, fax numbers. These details can then be used on various reports without having then to re-enter the data on each report. In addition, the posting rules in respect of depreciation are facilitated by the use of profiles

2.2.2 Real Time System

In order for a system to be regarded as real time, there are two major criteria that need to be met. These are that no multiple transaction processing batches are used and that all financial information can be extracted as and when required, without the necessity for day-end and month-end procedures to be conducted. DMK-ERP uses a real-time



posting method in that all accounting transactions are immediately posted in a transaction ledger at the point of capture and are therefore immediately available for analysis and review.

As transactions are posted at the lowest level, there is no requirement for subsidiary books to be balanced and for totals to be re-posted as transactions are always managed at a general ledger level. This means that real-time income statements and balance sheets can be viewed as and when necessary. At a technical level a number of summarised management information tables are kept to reduce the sorting and analysis requirements that this type of operation necessitates.

2.2.3 Multi Currency

Although transactions are kept in a base or local currency in the transaction ledger, daily transactions can be performed in a variety of currencies at different exchange rates. Each document and transaction is associated to a currency and an exchange rate, and these are confirmed and refined at the point of transaction. This means for example that stock related transactions are always posted at the spot rate, whilst the actual payments can be transacted using either a forward cover or actual exchange rate. Exchange rate variances are automatically calculated and posted at the point of customer receipt or supplier payment. This is done at an individual transaction level and, enables a detailed analysis of exchange rate variances to be able to be performed. Price and cost tables and their related versions can be kept in multiple currencies and invoices and purchase requests can therefore be printed in the appropriate currencies of transaction. Foreign invoices or purchase requests can therefore be printed in either the local or foreign currency involved.

2.2.4 Multiple Calendars

Calendars are used in DMK-ERP as reporting structures. This means that calendar periods are merely reporting buckets, and that calendars can be modified as and when required with all the historical data automatically restated using the new calendars. In addition to the default financial calendars, a number of alternative reporting calendars can be used to facilitate the analysis of data.

2.2.5 Access And Password Management

DMK-ERP can be deployed across an enterprise, including enterprises that contain multiple companies. In this respect it is important to be able to determine the nature and type of data that a user may have access to and is allowed to modify, in addition to the functionalities that a user may perform. In this regard a number of system roles are specified per company profile. Each role is granted access rights to screens, cost centres, accounts and documents.



As a further layer of security, a users right's to perform transactions within a business process are constrained by the implementation of multiple authorisation levels. Authorisation levels are set at cost centre level, enabling users to perform tasks and authorise transactions, documents or activities, provided that they have access rights to the cost centres involved.

In addition security is also managed by the maintenance of passwords at a user level in respect of sensitive transactions or activities, for example the ability to reprint invoice, credit limit overrides or when releasing goods in circumstances where a customer's account is in a "on hold" status.

2.2.6 Credit Terms

In order to facilitate the assessment of cash flows, credit terms are applied at a transaction and document level rather than only at a customer or supplier level. This means that each transaction is individually aged with its own credit terms, rather than applying a specific master file default during the ageing process. Credit terms that are set up can be applied to customers, suppliers or both. In setting a credit term, a selection can be made as to whether the credit term operates using days or periods. This enables ageing to be calculated on a daily basis or for rolling of ageing to occur at the expiration of a period.

In addition to the selection of ageing based on days or periods, a further parameter that is set per credit term is the number of days that should be used in ageing calculations. For example, if periods are used, sales made during the current month can either be treated as been current for the month that the transaction is posted in only, or alternatively, can be treated as been current until the time of the next period roll.

The credit terms are used to proactively highlight the cash flow impacts of debtor and creditor items. In order to achieve this, a dual ageing method is used. The first of these is the traditional method where ageing is calculated from the date of invoicing. This method is usually used in the preparation of statements, as it is the method that is conventionally used, and that debtors are familiar with. In addition, the credit terms are also used to calculate the cash flow impacts of ageing. For example, if a sale is made and 60 days credit are granted, the transaction is reflected as having an ageing status of minus 60 days. This means that only those transactions that are due or overdue are treated as collectable, facilitating the analysis of comparing outstanding balances versus collectable balances. The same applies to supplier payable versus due balances.

2.2.7 Auto Posting Accounts

Although the system is a multi company enterprise solution, it would obviously be inappropriate and unrealistic to expect end-users to have to select cost centres and accounts when posting transactions that are frequently conducted. In this regard a



number of auto posting accounts are used to facilitate these transactions. This process is augmented by the deployment of several rules that have been introduced into the software that determine which cost centres should be used when postings are transacted. This means that provided that the minimum mandatory data has been captured into the various process documents, that the transactions are automatically posted to the correct account and cost centre combinations without the end user having to select accounts or cost centres for posting purposes.

The only transactions that therefore require detailed knowledge of the financial structures are the various journal entries that can be captured in the general ledger or from a bank account management perspective or with regard to non- stock related customer or supplier postings. The transactions that use automated posting accounts in conjunction with the related cost centre selection rules include the following transactions:

- Stock-in-transit liabilities
- Supplier liabilities
- GRV or stock receiving
- Ad-hoc cost liabilities
- Pick notes
- Invoicing
- Invoice ad-hoc charges
- Inventory moves
- Inventory cost adjustments
- Inventory count adjustments
- Inventory quantity increases
- Inventory quantity decreases
- Inter-branch inventory movements
- Customer receipts and allocations
- Supplier payments and allocations
- Cash sale transactions
- Point of Sale account customer transactions
- Point of sale cash-ups
- Point of sale reconciliation
- Cashbook receipts
- Cashbook allocations



2.2.8 Inventory Catalogue Management

DMK-ERP uses a sophisticated, user driven process to manage the inventory catalogue. A product only becomes a stock item once it is included in a purchase order. Prior to this point, it only exists as a catalogue item. This approach enables products to be included in purchase and sales orders based on customer requests and planning inputs. In DMK-ERP, a catalogue product is created based on the attributes that define a specific product. This means that any number of attributes and attribute values can be used in order to differentiate products from each other. The basic methodology is that a product catalogue structure is constructed in a manner similar to that utilised in building report structures in Windows Explorer. In Windows Explorer, folder nodes and files are specified to facilitate file storage and retrieval activities. The same approach is used in DMK-ERP, but each folder represents a reporting node for aggregating or decomposing data into various levels of complexity and summarisation.

The lowest level in the product hierarchy represents a product class, group or style. Each unique combination of a number of attribute values with a product class represents a catalogue product. For example, the lowest level may represent a specific brand of running shoe. If for example, men's UK sizes, shoe colours and shoe fabrics are used, each specific combination of a size, colour and fabric linked to that style of running shoe, would represent a catalogue product. In the same manner a lounge suite would be defined by using the manufacturer or style as the group, class or style with the number of divisions, colour and fabric used as the defining attributes. Once a catalogue product has been generated, a number of product groups can also be linked to the product to facilitate product group analysis.

In addition to the above, inventory catalogue management is facilitated by the use of a number of predetermined parameters. For each of the parameters a number of values are specified. This enables subsequent selection of these parameters during the product generation process. These parameters include the following:

- Images – a number of image types can be specified for example a top or side view. These are used for example when a visual catalogue is used. Digital photographs can be stored in the system and a number of views can be specified per product or product group, class or style. The database storage requirements would need to be assessed if images are to be kept at a product level.
- Units of measure – a number of units of measure can be specified for products for example pairs, each or kilograms. For each unit of measure, a level of precision can be specified, determining whether only whole units or proportions or fractions of units are capable of being purchased or sold.
- Specifications – a number of specification types can be used for each product. For example, a technical description, an installation guide or a repair manual can all be defined as specification types and stored in respect of each product.



- Product groups – several product groups can be specified in order to facilitate ongoing product analysis. One or more product groups can be assigned to products or product styles/classes.
- Attributes – many attribute groupings and attribute values can be specified in the system. For example sizes may need to be tracked for a number of products. For each size specification a number of sub-categories may need to be determined and inside each specification a number of values can be assigned. For example shirt sizes may need to be tracked and specific values could include small, medium and large or may be represented by a size curve or grid e.g. 37, 38, 39, etc. An attribute may represent either a physical property of a product or may alternatively relate to a quantitative or qualitative aspect of a product, e.g. high heat tolerance or soft etc.
- Product types – a number of product types can be specified for example, stock products or non-stock products. A product can only be generated once a product type has been assigned to the group, style or class that a product is linked to. For each product type a number of factors can be specified, for example whether the product type has units of measure and specifications. These selections alter the functionalities that apply to a product, for example whether an image can be stored for a product or not.
- Tariffs – a number of tariffs can be specified and assigned to products to facilitate tariff management and tariff liability assessment.
- Introduction seasons – season analysis can be deployed throughout the system. To facilitate this type of analysis, a number of introduction seasons can be specified to facilitate the analysis of the performance of a product based on its date of entry into the product catalogue or system.

2.2.9 General Ledger

A typical general ledger structure is not required to be specified during the set up of the system or at any stage thereafter. Transactions are always posted in a manner where the transaction type, transaction date, account and cost centre details are stored with together with all the other relevant financial transaction data and details. Although transactions are stored in transaction tables, all the typical general ledger functionalities are catered for in DMK-ERP.

In this regard, multiple formats of balance sheets, income statements and any other financial reports can be extracted for any organisational entity at multiple levels. Because a multi company approach is utilised, transactions are always posted together with the selected cost centres associated to the accounts that have been used in respect of a financial transaction. Cost centres are summarised and grouped into their relevant reporting structures with the highest level being the entry level to a specific company profile.



In order to facilitate the speed of access to data, a number of groups are attached to cost centres and accounts, and it is these groups that are used for constructing income statements and balance sheets and any other financial reports. As a real-time system approach is deployed, postings are always performed at a general ledger level. The general ledger is therefore always up to date and in balance. Specific general ledger functionalities that are available include general journals, indirect and recurring journal templates, accruals and pre-payments and year-end rolls.

In order to facilitate the analysis of general ledger postings, cost centre groups, account groups and journal type groups are used. Journal type groups allow for a journal to be classified at the point of transaction, obviating the need to analyse postings at a later stage. For example, customer credit notes can be analysed into discounts, marketing issues, quality related discounts, etc. The general ledger report capabilities are based on an analysis of the transaction ledger. This is done by transaction type as well as by account and cost centre grouping. This approach allows for the analysis to be conducted according to a number of additional criteria, as these are the details that are posted in the transaction ledger. These include:

- Cost centre reference
- Cost centre description
- Account reference
- Account description
- VAT rate
- Vat Indicator
- Vat Amount
- Bank used
- Initial capture date
- Captured by
- Posting date
- Posting date modified by
- Credit Terms Reference
- Credit Terms Description
- Credit Terms Days
- Transaction document number
- Transaction document source
- Transaction document Reference
- Transaction batch number
- Transaction line number
- Transaction Reference
- Currency
- Exchange Rate



- Amount debited
- Amount credited
- Line balance
- Debit amount allocated
- Credit amount allocated
- Allocated balance
- In-use indicator
- Ignore date indicator
- Transaction type
- Transaction description
- Line comment

2.2.10 Customers

Customers are also managed through the use of a customer hierarchy. This enables group credit limits, consolidated statements and representative access to be effectively managed. Each customer is represented by the lowest node in the customer structure. and a number of master file details are kept per customer. In addition to the master file details, a number of parameters relating to debtors are also maintained. These include priority ratings, general debtor ratings, credit terms, currencies and exchange rates. Specific customer related functionalities that are included in DMK-ERP, are the following:

- Management of customer's statuses including active, on-hold, suspended status
- Default representatives
- Default currencies
- Default credit terms
- Default price tables
- Default cost centre
- Default delivery addresses
- Default electronic addresses
- Default banking details
- Default posting or mailing addresses
- Default additional addresses
- Credit application details
- Credit application status
- Rebate percentages
- Rebate threshold levels
- Credit limits
- Insurance limits
- Trade discount percentages



- Settlement discount percentages
- Account inception date
- Customer ageing analysis
- Customer statement management
- Customer receipting
- Receipt allocation and re-allocation
- Customer's journals
- Customer debit and credit note
- Customer notes
- Customer call cycle management
- Customer letter management

2.2.11 Suppliers

Suppliers are also managed through the use of a Supplier hierarchy. This enables group credit limits, consolidated statements and buyer access to be effectively managed. Each Supplier is represented by the lowest node in the Supplier structure and a number of master file details are kept per Supplier. In addition to the master file details, a number of parameters relating to suppliers are also maintained. These include priority ratings, general creditor ratings, credit terms, currencies and exchange rates. Specific Supplier related functionalities that are included in DMK-ERP, are the following:

- Management of Supplier's statuses including active, on-hold, suspended status
- Default buyers
- Default currencies
- Default credit terms
- Default cost tables
- Default cost centre
- Default delivery addresses
- Default electronic addresses
- Default banking details
- Default posting or mailing addresses
- Default additional addresses
- Credit application details
- Credit application status
- Rebate percentages
- Rebate threshold levels
- Credit limits
- Insurance limits
- Trade discount percentages
- Settlement discount percentages



- Account inception date
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- Supplier payments
- Payment allocation and re-allocation
- Supplier's journals
- Supplier debit and credit note
- Supplier notes
- Supplier call cycle management
- Supplier letter management

2.2.12 Warehousing

DMK-ERP facilitates multiple warehouse management. Warehouses are represented in a warehouse structure with the lowest node being a bin. For example, warehouses can be structured per country, per region, etc and inside a particular warehouse many levels can exist, for example, rows, levels, aisles, bays, bins, etc. Each bin is associated to a cost centre in the organisation structure for accounting posting purposes. In order to facilitate the management of the business rules related to purchasing management each bin is associated to a bin type. There are five bin types catered for in the system. These are:

- Virtual on order bins – These bins are used to manage virtual stock and enables a company to reserve stock on order, prior to receiving the stock in the various warehouses. This is particularly useful in companies where purchase orders that have delivery dates that extend far into the future need to be placed, accompanied by the capability of reserving sales orders against the potential future stock receipts.
- Holding / QA bins – Incoming stock is managed in a holding or quality assessment bin when it is first received. This enables costing, shipping and tariff management to be able to be completed prior to the goods being released for general resale. This ensures that a landed cost costing approach can be used. In selected industries release certificates, bill of entry documents or other release related documents are used, and holding bins facilitate managing incoming inventory in this regard.
- Bonded bins – When an ad hoc cost is added to a product and the ad hoc relates to custom's duty, bonded bins facilitate the management of bond stock from a custom's duty and tariff liability perspective.
- Issuing bins – This is the only type of bin from which stock can be picked for invoicing purposes.
- Virtual on hand bins – These bins are used to manage stock that is in transit between various units in an organisation. For example, whilst stock is in transit from one city



to another, it cannot be picked while it is in a truck or a train. These transit bins facilitate picking management.

Bins can either be a representation of a logical or physical bin in an organisation. The exact warehouse operation will determine which type of warehouse structure set up will best suit the business. In instances where internal stock movements are cumbersome or difficult to track, and where stock movements cannot be constrained by the necessity to track moves by documents, or where picking can occur without the ability to enforce bin picking rules, a logical structure as opposed to a physical structure is recommended. All the activities that are associated with bins ultimately result in a financial accounting transaction being transacted. The warehousing functionalities that are bin related and which are catered for in DMK-ERP, include:

- Stock receiving
- Inventory moves
- Inventory cost adjustments
- Serial number tracking
- Inventory value adjustments
- Picking and invoicing
- Interbranch purchases and sales
- Inventory increases and decreases
- Inventory counts
- Inventory ageing analyses
- Inventory pareto analysis
- Re-order analyses
- Recommended purchasing analyses

2.2.13 Fixed Assets

Fixed assets are also managed through the use of a hierarchy where the lowest node represents a fixed asset. A fixed asset can either be a physical asset, or could alternatively represent an intangible asset such as goodwill. For each asset the cost price, acquisition date and method of depreciation are captured in addition to master file details relating to the description and physical storage of an asset. This would include issues such as serial numbers, supply details, etc.

Depreciation is automated and can either be managed on a straight line or reducing balance method or according to a user specified depreciation method. In addition to the acquisition date of an asset, a depreciation inception date is specified. A depreciation schedule is generated per asset based on the depreciable cost, the depreciation method, the minimum balance that an asset will be depreciated to, the rate of depreciation and the date of depreciation inception. Journals are posted to the



depreciation and accumulated depreciation accounts in respect of each asset for each financial period. Specific features that are catered for, include:

- Acquisition cost management
- Depreciation date management
- Depreciation period management
- Automated depreciation runs
- Fixed asset registers
- Asset number tracking
- Asset location management
- Net book value management
- Asset disposal management
- Profit and loss on disposal management

2.2.14 Cash Books

Physical and virtual bank accounts are maintained in the system. A virtual bank account would for example be created for the management of cash on hand, petty cash, etc. Each bank account is a representation of a bank name, a general ledger account and an organisational cost centre. The functionalities that are available for cash book management include:

- Bank reconciliation
- Cash book journals
- Debit and credit notes
- Interest
- Charges
- Direct payments
- Direct receipts
- Balance management
- Inter branch transfers
- Float management
- Multi currency banking



2.2.15 Incoming Stock Management

DMK-ERP is based on the management and tracking of business processes. In this regard the core processes from a value chain perspective are tracked. Included in the core processes are the management of incoming and outgoing stock. There are four methods for managing incoming stock and four methods for managing outgoing stock. The incoming stock management methods are in respect of purchase orders, customer returns, incoming inter-branch transfers and inventory increases.

2.2.15.1 Purchase Orders

Purchase orders are managed in a purchase order hierarchy with the lowest node representing a specific purchase order. The objective of purchase order management is to ensure that a business process perspective is maintained with regard to the purchasing process. Several additional parameters are utilised to facilitate the analysis of purchase orders, including purchase order groups. A number of sub documents are managed for each purchase order. These include:

- Purchase requests
- Purchase confirmations
- Liability documents
- Ad hoc liability documents
- GRV receipt documents
- GRV transaction documents
- Purchase order bill of entry documents
- Purchase order release certificates
- Purchase order shipment details
- Purchase order reserved stock

Many products can be included on one purchase order with multiple invoices reserved against a combination of product lines. For each purchase order inventory can be received partially on multiple GRV documents. The liability in respect of purchase orders can either be posted as a single total in instances where a transit liability is appropriate or liabilities can be posted per GRV.

In addition to the main purchase cost, a number of ad hoc costs can be attached to each purchase order, enabling landed cost accounting to be deployed. The main purchase creditor as well as the creditors in respect of each ad hoc cost can be raised in multiple currencies with various exchange rates and credit terms. Each of these is individually posted and individually aged.

The ad hoc costs can be apportioned to a single product, a single GRV of all the products and can be apportioned according to quantity, a percentage or a specific value. In order to ensure that accounting standards are complied with, liabilities are raised according to



the principles specified in the accounting standards, and subsequent payments automatically generate currency difference transactions. The various business rules required to achieve this are managed through the use of bin types and specific minimum mandatory data and processing requirements.

2.2.15.2 IBT IN

In many instances, it is more appropriate to transfer stock at a cost or price other than the purchased or landed cost, as well as being able to ensure that accountability and responsibility for stock being moved can be tracked and documented. In these instances, inter branch transfers are preferable to use, as opposed to stock move documents. Outgoing stock is managed through the use of IBT Out documents, while Incoming stock is managed through the use of IBT IN documents.

Inventory can be moved between branches, or organisation units in one of two manners. The first of these is by the use of an inventory move document whilst the second is through the use of an Inter Branch Transfer (IBT) document. The IBT In document manages incoming inventory while the IBT Out manages outgoing inventory. IBT's are actually purchases and sales between branches. In order to avoid the IBT sales from affecting sales totals in the financials, separate sales and cost of sales accounts are used to track postings for IBT's. Inventory received via an IBT IN is captured on a Goods Received Voucher, (GRV) and thus forms part of normal inventory. The only ultimate distinction is the source document. Management of IBT documents in their own hierarchies provides a further level of analysis.

If a simple move with limited control or accounting impact is required, an inventory move document can be used. If there are transfer costing impacts, or if documentation is required to track responsibility or accountability, or if different legal entities are involved, or if inventory can get lost or be stolen en route, then the preferred method is an IBT document. Inventory re-enters the cycle by being transacted on an IBT In document. Either an IBT In or an IBT Out can be the initiating document dependant on the business requirements, viz. an IBT In can be used as a request for stock document that would trigger an IBT Out creation. Once the Inventory is received the IBT In can be completed. Alternatively Inventory can be distributed as part of a push cycle, and in this instance, the IBT In is merely documenting and managing the receiving side of the transactions. If both documents have not been completed and transacted in an accounting period, a difference in stock totals will arise, and an appropriate in transit entry will need to be generated. In this regard the in transit liability can be used to fulfil this function.

IBT IN orders are managed in an IBT IN order hierarchy with the lowest node representing a specific IBT IN order. The objective of IBT IN order management is to ensure that a business process perspective is maintained with regard to the interbranch transfer process. Several additional parameters are utilised to facilitate the analysis of



IBT IN orders, including IBT IN order groups. A number of sub documents are managed for each IBT IN order. These include:

- IBT IN requests
- IBT IN confirmations
- Liability documents
- Ad hoc liability documents
- GRV receipt documents
- GRV transaction documents
- IBT IN order shipment details
- IBT IN order reserved stock

Many products can be included on one IBT IN order with multiple invoices reserved against a combination of product lines. For each IBT IN order inventory can be received partially on multiple GRV documents. The liability in respect of IBT IN orders can either be posted as a single total in instances where a transit liability is appropriate or liabilities can be posted per GRV.

In addition to the main transfer cost, a number of ad hoc costs can be attached to each IBT IN order, enabling landed cost accounting to be deployed. The main branch creditor as well as the creditors in respect of each ad hoc cost can be raised in multiple currencies with various exchange rates and credit terms. Each of these is individually posted and individually aged.

The ad hoc costs can be apportioned to a single product, a single GRV of all the products and can be apportioned according to quantity, a percentage or a specific value. In order to ensure that accounting standards are complied with, liabilities are raised according to the principles specified in the accounting standards, and subsequent payments automatically generate currency difference transactions. The various business rules required to achieve this are managed through the use of bin types and specific minimum mandatory data and processing requirements. In order to facilitate the management of IBT's, the products and quantities from an IBT IN can be copied into an IBT Out by specifying the IBT In document number

2.2.15.3 Inventory Increases

Inventory increase documents are managed in an inventory increase hierarchy with the lowest node representing a specific inventory increase document. The objective of inventory increase document management is to ensure that a business process perspective is maintained with regard to the inventory increase process. Several additional parameters are utilised to facilitate the analysis of inventory increases, including inventory increase document groups. A number of sub documents are managed for each inventory increase document. These include:



- Inventory increase recommendations
- Inventory increase confirmations
- Liability documents
- Virtual GRV receipt documents
- GRV transaction documents
- Inventory increase document reserved stock

Many products can be included on one inventory increase document with multiple invoices reserved against a combination of product lines. For each inventory increase document inventory can be received partially on multiple GRV documents. The liability in respect of inventory increase document can either be posted as a single total in instances where a transit liability is appropriate or liabilities can be posted per GRV.

In order to ensure that accounting standards are complied with, liabilities are raised according to the principles specified in the accounting standards, and subsequent payments automatically generate currency difference transactions. The various business rules required to achieve this are managed through the use of bin types and specific minimum mandatory data and processing requirements. The value of increased stock is credited to a stock adjustment account.

2.2.15.4 Customer Returns

Customer return documents are managed in a customer return documents hierarchy with the lowest node representing a specific customer return document. The objective of customer return documents management is to ensure that a business process perspective is maintained with regard to the customer return process. Several additional parameters are utilised to facilitate the analysis of customer return documents, including customer return documents groups. A number of sub documents are managed for each customer return documents. These include:

- Customer return requests
- Customer return confirmations
- Credit note documents
- Ad hoc liability documents
- GRV receipt documents
- GRV transaction documents
- Customer return documents shipment details
- Customer return documents reserved stock

Many products can be included on one customer return documents with multiple invoices reserved against a combination of product lines. For each customer return documents inventory can be received partially on multiple GRV documents. The liability



in respect of customer return documents s can either be posted as a single total in instances where a transit liability is appropriate or liabilities can be posted per GRV.

A customer return can be generated for those instances where an invoice number is known and the initial sale and cost values are known or traceable, or it can alternatively be generated in respect of product returns where only limited information is known or available. In these instances, specific costs and sales values need to be specified in order for a financial transaction to be posted.

In addition to the main customer return cost, a number of ad hoc costs can be attached to each customer return document, enabling landed cost accounting to be deployed. The main customer return debtor as well as the creditors in respect of each ad hoc cost can be raised in multiple currencies with various exchange rates and credit terms. Each of these is individually posted and individually aged.

The ad hoc costs can be apportioned to a single product, a single GRV of all the products and can be apportioned according to quantity, a percentage or a specific value. In order to ensure that accounting standards are complied with, liabilities are raised according to the principles specified in the accounting standards, and subsequent payments automatically generate currency difference transactions. The various business rules required to achieve this are managed through the use of bin types and specific minimum mandatory data and processing requirements. In order to facilitate the ease of capture of customer returns, products can be manually chosen or alternatively if the initial invoice number is known, this can be specified. In instances where the invoice number is known, the products, the costs, quantities and selling prices are automatically populated into the customer return document. These can then be edited to reflect only certain items in instances where a partial return has been made.

2.2.15.5 Packs In

The objection of this document type is to allow the user to:

- Add a Pack
- Select Bin
- Prepare For Split
- Allocate in Stock
- Create Pick Note
- Perform Pack Transaction
- Perform Pack Components' Transaction

2.2.16 Outgoing Stock Management

DMK-ERP is based on the management and tracking of business processes. In this regard the core processes from a value chain perspective are tracked. Included in the core processes are the management of incoming and outgoing stock. There are four methods



for managing incoming stock and four methods for managing outgoing stock. The outgoing stock management methods are in respect of sales orders, supplier returns, outgoing inter-branch transfers and inventory decreases.

2.2.16.1 Sales Orders

Sales orders are managed in a sales order hierarchy with the lowest node representing a specific sales order. The objective of sales order management is to ensure that a business process perspective is maintained with regard to the selling process. Several additional parameters are utilised to facilitate the analysis of sales orders, including sales order groups. A number of sub documents are managed for each sales order. These include:

- Sales requests
- Sales confirmations
- Inventory reserved against on hand stock
- Inventory reserved against on order stock
- Pick Note Requests
- Consolidated Pick Note Requests
- Pick Note Confirmations
- Invoices
- Invoice ad hoc charges
- Delivery notes
- Proof of delivery management

Many products can be included on one sales order with multiple invoices reserved against a combination of product lines. For each sales order inventory can be invoiced partially on multiple invoice documents. The initial invoice as well as any subsequent invoices can be raised in multiple currencies with various exchange rates and credit terms. Each of these is individually posted and individually aged.

The sales order ad hoc costs are apportioned to an invoice. In order to ensure that accounting standards are complied with, invoices are raised according to the principles specified in the accounting standards, and subsequent receipts automatically generate currency difference transactions. The various business rules required to achieve this are managed through the use of bin types and specific minimum mandatory data and processing requirements.

2.2.16.2 IBT OUT

In many instances, it is more appropriate to transfer stock at a cost or price other than the purchased or landed cost, as well as being able to ensure that accountability and responsibility for stock being moved can be tracked and documented. In these instances, interbranch transfers are preferable to use, as opposed to stock move



documents. Outgoing stock is managed through the use of IBT Out documents, while Incoming stock is managed through the use of IBT IN documents.

Inventory can be moved between branches, or organisation units in one of two manners. The first of these is by the use of an inventory move document whilst the second is through the use of an Inter Branch Transfer (IBT) document. The IBT In document manages incoming inventory while the IBT Out manages outgoing inventory. IBT's are actually purchases and sales between branches. In order to avoid the IBT sales from affecting sales totals in the financials, separate sales and cost of sales accounts are used to track postings for IBT's. Inventory received via an IBT IN is captured on a Goods Received Voucher, (GRV) and thus forms part of normal inventory. The only ultimate distinction is the source document. Management of IBT documents in their own hierarchies provides a further level of analysis.

If a simple move with limited control or accounting impact is required, an inventory move document can be used. If there are transfer costing impacts, or if documentation is required to track responsibility or accountability, or if different legal entities are involved, or if inventory can get lost or be stolen en route, then the preferred method is an IBT document. Inventory re-enters the cycle by being transacted on an IBT In document. Either an IBT In or an IBT Out can be the initiating document dependant on the business requirements, viz. an IBT In can be used as a request for stock document that would trigger an IBT Out creation. Once the Inventory is received the IBT In can be completed. Alternatively Inventory can be distributed as part of a push cycle, and in this instance, the IBT In is merely documenting and managing the receiving side of the transactions. If both documents have not been completed and transacted in an accounting period, a difference in stock totals will arise, and an appropriate in transit entry will need to be generated. In this regard the in transit liability can be used to fulfil this function.

IBT Out orders are managed in an IBT Out order hierarchy with the lowest node representing a specific IBT Out order. The objective of IBT Out order management is to ensure that a business process perspective is maintained with regard to the interbranch transferring process. Several additional parameters are utilised to facilitate the analysis of IBT Out orders, including IBT Out order groups. A number of sub documents are managed for each IBT Out order. These include:

- IBT Out requests
- IBT Out confirmations
- Inventory reserved against on hand stock
- Inventory reserved against on order stock
- Pick Note Requests
- Consolidated Pick Note Requests



- Pick Note Confirmations
- Invoices
- Invoice ad hoc charges

Many products can be included on one IBT Out order with multiple invoices reserved against a combination of product lines. For each IBT Out order inventory can be invoiced partially on multiple invoice documents. The initial invoice as well as any subsequent invoices can be raised in multiple currencies with various exchange rates and credit terms. Each of these is individually posted and individually aged.

The IBT Out order ad hoc costs are apportioned to an invoice. In order to ensure that accounting standards are complied with, invoices are raised according to the principles specified in the accounting standards, and subsequent receipts automatically generate currency difference transactions. The various business rules required to achieve this are managed through the use of bin types and specific minimum mandatory data and processing requirements. In order to facilitate the management of IBT's, the products and quantities from an IBT Out can be copied into an IBT In by specifying the IBT Out document number.

2.2.16.3 Inventory Decreases

Inventory Decrease documents orders are managed in an Inventory Decrease documents hierarchy with the lowest node representing a specific Inventory Decrease documents. The objective of Inventory Decrease documents management is to ensure that a business process perspective is maintained with regard to the inventory decrease process. Several additional parameters are utilised to facilitate the analysis of Inventory Decrease documents, including Inventory Decrease documents groups. A number of sub documents are managed for each Inventory Decrease documents. These include:

- Inventory Decrease requests
- Inventory Decrease documents confirmations
- Inventory reserved against on hand stock
- Inventory reserved against on order stock
- Pick Note Requests
- Consolidated Pick Note Requests
- Pick Note Confirmations

Many products can be included on one Inventory Decrease documents with multiple invoices reserved against a combination of product lines. For each Inventory Decrease documents inventory can be transacted partially on multiple pick notes.

In order to ensure that accounting standards are complied with, pick notes are transacted according to the principles specified in the accounting standards. The various



business rules required to achieve this are managed through the use of bin types and specific minimum mandatory data and processing requirements. The cost associated to an inventory decrease is posted to the inventory adjustment account.

2.2.16.4 Supplier Returns

Supplier return documents are managed in a supplier return documents hierarchy with the lowest node representing a specific supplier return document. The objective of supplier return documents management is to ensure that a business process perspective is maintained with regard to the supplier return process. Several additional parameters are utilised to facilitate the analysis of supplier return documents, including supplier return document groups. A number of sub documents are managed for each supplier return order. These include:

- Supplier return requests
- Supplier return collection notices
- Supplier return confirmations
- Inventory reserved against on hand stock
- Inventory reserved against on order stock
- Pick Note Requests
- Consolidated Pick Note Requests
- Pick Note Confirmations
- Invoices / Credit note requests
- Invoice/credit note ad hoc charges

Many products can be included on one supplier return document with multiple invoices reserved against a combination of product lines. For each supplier return document inventory can be invoiced partially on multiple invoice documents. The initial invoice as well as any subsequent invoices can be raised in multiple currencies with various exchange rates and credit terms. Each of these is individually posted and individually aged.

The supplier return documents ad hoc costs are apportioned to an invoice. In order to ensure that accounting standards are complied with, invoices are raised according to the principles specified in the accounting standards, and subsequent receipts automatically generate currency difference transactions. The various business rules required to achieve this are managed through the use of bin types and specific minimum mandatory data and processing requirements.

2.2.16.5 Bundles

Products are individually entered onto sales orders as well as other stock out documents. In order to facilitate the population of documents we have created bundles. These bundles are a collection of products and related quantities that are sold at once.



For example a PC could be sold that is comprised of a number of elements such as a monitor, a CPU, Ram etc. The various items that are sold as a PC can be defined as a PC bundle. When this bundle is selected, all of the products that constitute a PC, together with their related quantities are selected and populated into the document.

2.2.17 Direct Sales Management – Point of Sale/Service

DMK-ERP includes an integrated point of sale and direct sales management system. This capability includes many of the functionalities that would normally be managed in a debtors department, or at the picking and invoicing point in a warehouse.

A number of direct sale or point of sale (POS) sites can be set up from a point of sale perspective and attached to one or many company profiles. The POS functionality enables a company to perform the following activities:

- Configure multiple point of sale profiles
- Manage multiple sale and cash up locations
- Integrate sales, cost, banking, margin and customer returns data across point of sale and non point of sale transactions.
- Establish password levels and printing standards per point of sale profile
- Create multiple tills per profile
- Establish passwords and printing standards per till
- Specify field level access and screen layouts per till
- Manage cash sales and account sales at tills
- Manage customer returns
- Accept multiple methods of payment per sale including cash payments multiple cheque payments, multiple credit card payments, multiple gift vouchers and multiple credit notes
- Sell, redeem and manage gift vouchers and goodwill gift vouchers
- Manage account sales after taking credit limits into account
- Adjust inventory levels in respect of sales at the point of sale point
- Manage multiple cash-ups per user per till
- Integrate sales and turn data with the main system sales and return information
- Manage floats and till differences
- Manage banking and multiple till withdrawals
- Create customers at a till point
- Accept and issue receipts in respect of account payments at the till point

2.2.18 Process Tracking

As the system is business process based, it is possible to review tasks, activities and transactions from a business process perspective. In order to manage this, there are two



major views related to inventory business processes. The first of these relates to incoming inventory while the second relates to outgoing inventory. From an incoming inventory perspective, enquiries can be launched per business process activity and per business process document. For each level of the analysis or enquiry, a number of additional selection criteria can be specified. This enables user's to draft and manage their own reports without having to resort to programming interventions. The same applies to inventory from an outgoing inventory perspective. Searches can be conducted using document criteria only, accounting criteria only, or combinations of both. Once the data, based upon the selection criteria is displayed on the screen, it can be dynamically re-arranged and grouped according to the specific information requirement.

The process tracking grids are used from both a management reporting perspective as well as a daily operational perspective. For instance, warehousing staff can use outgoing process tracking to determine which products should be picked during a particular period and plan accordingly. It is also useful from a customer enquiry perspective as it is possible to determine how far in a particular process a customer's order has progressed.

2.2.19 Enquiries And Reporting

There are multiple alternative methods in which enquiries can be launched and reports specified. Each hierarchy provides cost centre, account, warehouse, fixed asset, debtor or creditor related information. This also applies to each of the document hierarchies. Reports can be generated for debtors and creditors and general ledger transactions at a detailed transaction level or can alternatively be queried at a summarised level. In addition multiple stock related reports can be constructed and reviewed. Some of the major reports and enquiries that are available include:

- Creditor's age analysis
- Creditor's payment schedule
- Creditor's master file
- Creditor ratings
- Creditor's credit terms
- Creditor payments
- Creditor payment allocations
- Creditor discounts
- Creditor credit and debit notes
- Creditor notes
- Creditor VAT analysis
- Creditor call tracking
- Creditor ledger entries
- Creditor's balances



- Debtor's age analysis
- Ageing per rep
- Ageing per credit controller
- Held accounts
- Overdue accounts
- Debtor's payment schedule
- Debtor's master file
- Debtor ratings
- Debtor's credit terms
- Debtor receipts
- Debtor receipt allocations
- Debtor discounts
- Debtor credit and debit notes
- Debtor notes
- Debtor VAT analysis
- Debtor call tracking
- Debtor ledger entries
- Debtor priorities
- Debtor ratings
- Debtor's statement runs
- Debtor's balances
- Returns per customer return code reason
- General ledger transaction listings
- Audit trails
- General ledger debit and credit note postings
- Journal listings
- Bank transactions
- Bank reconciliations
- Un-reconciled items
- General ledger balances
- Trial balances
- Fixed Asset Ledger
- Fixed Asset Acquisitions
- Fixed Asset Disposals
- Profits and Losses on Disposals
- Depreciation Runs
- Fixed Asset Details
- Fixed Asset Balances
- Net Fixed Asset Values



- General ledger account transaction listings
- Cost centre balances
- Cost centre transaction listings
- Warehouse balances
- Warehouse transaction listings
- Product attribute listings
- Product type listings
- Product specification listings
- Product tariff listings
- Product image listings
- Product attribute value reports
- Product catalogue reports
- Inventory availability per product
- Inventory availability per style
- Inventory availability per bin
- Inventory bar codes
- Inventory move history
- Inventory move reports
- Inventory value adjustments
- Buyer's reports
- Re-order reports
- Document reports
- Reports per document type for all incoming stock documents specified in the sections above
- Reports per document type for all outgoing stock documents specified in the sections above
- Bin content reports
- Bin allocations
- Purchase order allocations
- Reports per process segment as specified in the incoming process tracking section above
- Reports per process segment as specified in the outgoing process tracking section above
- Calendars
- Credit term master files
- Currency master files
- Auto posting accounts
- Depreciation methods
- Journal groups



- Sales types
- Return code reasons
- Profiles
- Roles per profile
- Security access per role
- Role authorisation levels
- Password set-ups
- Cash-ups
- Point of sale shortages and overages
- Banking
- Float balances
- Stock ageing
- Stock takes
- Stock counts per bin

2.2.20 Price Table Management

In order to facilitate sales order or other incoming stock documents completion, a number of price tables can be specified in the system. To reduce the maintenance effort required, a price table is linked to a customer as a default. Each price table can have many price versions and can be linked to one or many customers. Each price version has a validity period and can contain one or many products. Each product has a standard and actual selling price per version.

When a sales order is created and a debtor is selected, the default selling price table is automatically populated into the sales order. This can be manually overridden and an alternative sales price table can be selected. When products are selected into a sales order, the system checks the due date against the validity dates for each version attached to the sales price table selected for the sales order. If the product is in a version and the version is valid in respect of the due date, the default price is automatically populated for the product in addition to the relevant discounts. This can be manually overridden.

If no valid price version is found or if the selected product is not in a valid price version or any price version attached to the price table, no price is populated into the sales order. A price will have to be manually determined before any financial transactions are capable of being processed.

2.2.21 Cost Table Management

In order to facilitate purchase order and any other outgoing stock documents completion, a number of cost tables can be specified in the system. To reduce the maintenance effort required a cost table is linked to a supplier as a default. Each cost



table can have many cost versions and can be linked to one or many suppliers. Each cost version has a validity period and can contain one or many products. Each product has a standard and actual purchase cost per version.

When a purchase order is created and a supplier is selected, the default cost price table is automatically populated into the purchase order. This can be manually overridden and an alternative cost price table can be selected. When products are selected into a purchase order, the system checks the due date against the validity dates for each version attached to the cost price table selected for the purchase order. If the product is in a version and the version is valid for the due date, the default cost is automatically populated for the product in addition to the relevant discounts. This can be manually overridden.

If no valid cost version is found or if the selected product is not in a valid cost version or any cost version attached to the cost table, no cost is populated into the purchase order. A cost will have to be manually determined before any financial transactions are capable of being processed.

2.2.22 Inventory Moves (Including IBTs)

Inventory can be moved between branches, or organisation units in one of two manners. The first of these is by the use of an inventory move document whilst the second is through the use of an Inter Branch Transfer (IBT) document. The IBT In document manages incoming inventory while the IBT Out manages outgoing inventory. IBT's are actually purchases and sales between branches. In order to avoid the IBT sales from affecting sales totals in the financials, separate sales and cost of sales accounts are used to track postings for IBT's. Inventory received via an IBT IN is captured on a Goods Received Voucher, (GRV) and thus forms part of normal inventory. The only ultimate distinction is the source document. Management of IBT documents in their own hierarchies provides a further level of analysis.

If a simple move with limited control or accounting impact is required, an inventory move document can be used. If there are transfer costing impacts, or if documentation is required to track responsibility or accountability, or if different legal entities are involved, or if inventory can get lost or be stolen en route, then the preferred method is an IBT document. Inventory re-enters the cycle by being transacted on an IBT In document. Either an IBT In or an IBT Out can be the initiating document dependant on the business requirements, viz. an IBT In can be used as a request for stock document that would trigger an IBT Out creation. Once the Inventory is received the IBT In can be completed. Alternatively Inventory can be distributed as part of a push cycle, and in this instance, the IBT In is merely documenting and managing the receiving side of the transactions. If both documents have not been completed and transacted in an accounting period, a difference in stock totals will arise, and an appropriate in transit



entry will need to be generated. In this regard the in transit liability can be used to fulfil this function.

2.3 Specialised Functionalities

2.3.1 Margin Based Pricing

Although “Pricing” is a standard functionality in all traditional software systems the innovative nature of the DMK-ERP Business Solution, results in unique information and results. In a typical system, costs and prices are stored at a product level. This means that the table containing data related to a specific product also contains its costs and prices. This means that only a limited number of prices can be captured and that differences usually have to be managed by a complicated discount matrix. A further complication arises when a supplier of a company revises several thousand prices (e.g. Bosch has 13 000 products). An immense amount of time and effort must be applied to capture new supplier prices and to update selling prices. This functionality is also important in the management of Jobs.

We have taken a business process based approach to pricing and costing. In addition, the business relationships of price, cost, customer, demographic and product are stored as mark up, margin and relationship data. This is in stark contrast to merely specifying and saving a cost and prices or managing discount matrices.

Our approach has been to separate prices and costs from products and to store these in separate price and cost versions. These are attached to cost and price tables that are in turn linked to customers and suppliers. A further refinement is that products can be assigned to price mark up groups and a mark up relationship can be then be assigned per product per price table.

- An unlimited number of costs can be maintained per product
- An unlimited number of prices can be maintained per product
- Mark up relationships can be assigned and managed
- Mark up and margin variations can be easily managed on an exception reporting basis
- Our catalogue structure facilitates the task of uniformly pricing linked products e.g. strawberry yoghurt, peach yoghurt etc.
- Prices are attached to versions and validity periods can be specified per version. This means that future price tables can be defined, and these will automatically come into operation and expire as per the predetermined validity dates.
- A set of prices can be set per customer or market sector. An unlimited amount of cost tables can be set up and used.
- Supplier costs can be directly imported into the system as the costs are captured into a supplier cost version. This saves time and cost.



- Recommended prices are immediately calculated and these can be automatically updated, where after the appropriate shelf talkers or barcode labels can be immediately printed.

The above enables the ability to be able to respond quickly to price changes and as this is crucial it provides a foundation for competitive advantage. A significant bottom line improvement can therefore be demonstrated. Revisions can easily be achieved by changing price mark up groups or their mark up relationship to tables. Several thousand cost prices can be changed and their price impacts rippled through the system in a matter of minutes.

2.3.2 Packs and Pack-links

It is important to be able to manage packs. Products are sometimes sold in various forms, either by pallet or box or tray or unit. This issue is complicated by requirement to include various combinations of packs in a single invoice or purchaser order. It is often difficult to manage pricing and to be able to manage stocks, forecasting and replenishment. An attempt is sometimes made to address this by trying to use the Bill of materials functionalities used in other systems. It is important to be able to manage both packs and bundles. A bundle refers to the construction of a set of items that are usually sold together e.g. a cell phone, a pouch, airtime etc. It is also important to be able to specify reporting, ordering and management levels per pack, viz unit or any other level per branch.

The product catalogue and pricing methodologies that we have incorporated into our design provide a foundation for us to be able to include the various factors into our design and to address this functional requirement. The benefits that we are able to provide include:

- Definition and management of multiple relationships between a product and its various pack combinations.
- Ability to set alternative costing and pricing methodology at each level of a pack.
- Ability to quickly assemble or decompose packs
- Multiple pack purchase and sales combinations on a single sales or purchase order.
- Product traceability back to original item source, even when managed and sold as a pack or a bundle

2.3.3 Point of Sale

Most operational systems do not have a fully integrated point of sale system that integrates from the point of sale right back through the financials and into warehousing, purchasing, replenishment etc. This means that significant effort has to go into reconciling stock and sales from a main system and from a POS perspective. Security,



catalogue and pricing issues are also difficult to manage across branches and till points and any financial impacts are difficult to incorporate. In addition many debtor related functions such as debtor creation, accepting account payments at till point, credit checking etc are not addressed in most till offerings. A point of service functionality is often called for.

Our design ensures that sales and transactions from multiple sources or functions are accommodated. The business process and hierarchical frameworks make it simple for us to provide an integrated functionality. The design also ensures that the data from multiple and often stand-alone systems can be easily and effortlessly incorporated and consolidated without programmer intervention.

The benefits that we are able to provide include:

- Multiple pos profiles to cater for branch and multiple cash points
- Full integration obviating reconciliation and data consolidation difficulties
- Use of main system security and access, facilitating operations
- The catalogue and warehousing system set up and usage approach in the system will greatly reduce the cost, time and effort required to manage the introduction of new products and new product ranges into a store or at a till point
- Debtor functions are able to be managed at till point.
- Accept multiple methods of payment per sale including cash payments multiple cheque payments, multiple credit card payments, multiple gift vouchers (sales and goodwill) and multiple credit notes
- Integrate sales and return data with the main system sales and return information
- Manage floats and till differences
- Create customers at a till point
- Accept and issue receipts in respect of account payments at the till point
- Sell, redeem and manage gift vouchers and goodwill gift vouchers
- Manage account sales after taking credit limits into account
- Update inventory records in respect of sales at the point of sale point

A general overview of the functionalities is contained in Annexure “A”.

2.3.4 Off line Point of Sale and multi platform connectivity

Most integrated offerings except for the multi-million dollar offerings can only work if the head office and branches are on line and real time (typical thin client approach). This issue is exacerbated by the requirement to be able to consolidate data and operations. This is also complicated by the requirement to use cheaper solutions at branches and to deploy different architectures and topologies. Our architectural design incorporated into the our offering including the business process based methodology of structuring



data makes it possible for us to address the requirement and add real value. The benefits include:

- Ability to use a mix and match approach across branches using a combination of on-line and off-line approaches, topologies and architectures.
- Primary key generation, table locking, process based approach, warehousing approach and catalogue and masterfile management design ensures that the platform is in place to support this functional requirement.
- The design and the methodology utilised from an architectural specification perspective ensure that we can address the multi platform connectivity issues.
- Costs and management requirements will be reduced, and the difficulties faced by trying to replicate effectively across business units are also catered for by our design approach

2.3.5 Data take-on manager

The unique design that we deploy in addition to the business process based approach taken, means that care must be taken to address data take on issues. This is normally a concern for our new potential customers. This issue needs careful management to ensure that it can be managed as a value added feature rather than becoming a barrier to entry. The design that we utilise has resulted in standard Windows API compatibility. In addition a major component of any installation is data preparation and data cleaning. Automation and upload tools reduce this and ensure that a low life cycle and installation cost are achieved. The benefits that we will be able to provide customers will include:

- Ability to map legacy and new data structures.
- Process multiple alternative take-ons into alternative reporting and hierarchical set ups to assess the impact on reporting.
- Provide dress rehearsal opportunities to ensure that smooth cut over procedures can be instituted.
- Reduce installation costs and time scales
- Provide a tool to clean and correct legacy data
- Avoid manual take on data capture errors.

2.3.6 Product MIS

It is especially important in the areas of product management that multiple alternative views can be obtained of the same data. The fact that we utilise business process based and business relationship data management structures, means that we have, by definition, substantially more detail to store and manage than conventional systems. This is what provides us with the capability to simultaneously provide a system that encompasses data processing as well as analytical functions to address the requirements in this area.



This benefit would not be able to always be able to be utilised to provide real time analysis if the data is always stored at the same level of granularity. This is the reason that many systems use a cube-based approach and reprocess the data in data warehouses through the use of OLAP services. This is costly, and reconciliation is often difficult to achieve. Changes in the core system necessitate a modification to the OLAP structures and consolidation mechanisms. We address this issue by the incorporation of multiple in-built management information systems (MIS) into our offering. This means that data is automatically stored at source or creation in different levels of granularity. Limited additional or supplementary processing of data within the system in off-peak times to provide the relevant data for analysis can expand this. The benefits include:

- Multiple alternative views of the same data without the requirement to utilise external tools.
- Management structured views built while the data is being processed.
- Automatic reconciliation between granular and summarised data.
- Automatic ability to pull data from the MIS without having to restructure it when major product, organisation structuring or other changes occur
- Substantially reduced time between data creation and data availability.
- Cheaper as no external tools required.
- Ease of restatement using different budgets, assumptions, calendars without significant effort or programmer intervention.

2.3.7 Supplier Reconciliation

Although traditional systems cater for supplier reconciliations, our design enables us to provide a completely different end result in this area. Suppliers are normally managed in a supplier ledger with payments processed in a form of cashbook. Data is only available once month end runs have been done, and must be viewed from different points in most systems. It is also at the point of reconciliation that most liabilities are only processed, making proactive and business processed based cash flow analysis and operational reconciliation difficult to achieve.

The business process design used means that liabilities are generated at source and by definition tied back to the originating process. In addition as a transactional data storage approach is taken, live reports are available as month ends are obviated. Vat differences are reconciled at source and managed at a supplier rather than purely cashbook level. Once electronic integration is achieved with supplier sources this function can be automated. The benefits include:

- Integration of supplier data with purchasing, stock, cash flow and all other related views without having to reprocess the data.
- Multiple alternative views of the same data without the requirement to utilise external tools.



- CRM view enabled as all supplier data can be accessed from a single launch point.
- Business process and source documents automatically linked to source purchase orders and supplier invoices as business process approach utilised.
- Supplier data can be accessed from the source documents without having to trace them through the general ledger.

2.3.8 Rebate Management

It is often difficult for suppliers to determine how much discount to grant customers, as discounts are normally allocated in proportion to the quantities purchased during a particular period. In order to address this issue, suppliers normally grant their customers minimum purchasing discounts, supplemented by a period based rebate. This is effectively an additional discount, retroactively determined in relation to the quantity of product purchased from a supplier. Suppliers attempt to motivate their customers to increase the quantities purchased from them by the introduction of multi level thresholds. This means that customers are more likely to aggregate their orders in order to reach the next rebate threshold level, as opposed to spreading orders across suppliers.

In order to ensure that customers give a supplier a reasonable mix of product purchases, a variety of rebate methodologies are deployed to ensure that rebates are calculated on the basis of a combination of rand value, product volume, or product group volumes across multiple product pack configurations.

The retail industry is substantially impacted by the manner in which rebates are dealt with. In many cases the rebates represent the bulk of the margin or profitability of a product. In any event, the management and reconciliation of rebates have a substantial impact on the time taken and the effort involved in completing supplier reconciliations. Incorrect calculation of rebates leads not only to supplier overpayments, but could result in substantial actual profit losses. It is also important to track when rebates are due, as suppliers often offer rebates, but do not institute any actions to ensure that payment actually occurs. This functionality is not contained in competitor offerings. The benefits include:

- Automated capture, storage and management of rebate data.
- Optimisation of rebates available
- Management of customer rebates
- Impact on profitability and bottom line
- Management of purchasing and sourcing rules.

2.3.9 Ad Hoc Sales & Purchases, Drop Shipments and Non Stock Products

In many retail businesses regular stock and non-stock transaction occur. This is especially true in the hardware and furniture industries. Products need to be created on



the fly, ordered and sold and a deposit taken if required, while a customer is being served. This must however occur in an environment where business processes can be formalised and managed, margins and mark-ups can be controlled and transactions automatically integrated with debtors, creditors, receiving, cashbooks, banking and the point of sales. This area is poorly managed in competitor offerings as the designs that they utilise either concentrate on stock or are alternatively loosely managed, informal and do not allow for traceability. The business processed based and transaction based system, means that this functionality can be introduced in a manner that enables control and integration requirements to be addressed and incorporated without compromising the need for flexibility or the ability to focus on customer service. The benefits include:

- Create products and customers on the fly.
- Single business process to integrate sales and purchases of non stock items
- General access and security of the system maintained throughout
- Seamless integration into main system
- Traceability and margin management
- Pos integration
- Banking and receipt management incorporated
- Supplier reporting and expediting facilitation.

2.3.10 Commission Management

Most systems have stand alone or non-integrated sales and Pos functions. This makes commission management difficult. This issue is exacerbated when commissions are to be managed at invoice line level, if more than one representative is involved per line and if overriding or management commissions per sale are to be tracked. The same issue applies in the furniture industry where decorators refer clients and are entitled to commissions. Our design allows for this to be integrated seamlessly. The benefits include:

- Calculation of commissions at line level
- Automated reconciliation of customer return information
- Reporting across clients without having to reprocess data.
- Reporting back to line level per invoice to prove reconciliation of commission calculations.

2.3.11 Stock Re-allocations

We deploy a unique stock management system across warehousing by managing business process rules at a bin level through the assignment of bin types. This enables us to reserve stock prior to receiving it, effectively the inverse of backorders. This is unique and a major requirement of importers where long lead times force them to order and



then pre-sell goods. The issue however is to create a simple and easy to manage functionality to reallocate previously allocated stock when suppliers cancel deliveries, or short deliveries occur or customers cancel orders. Our design will enable us to incorporate and cater for this by creating a new function to address this. The benefits include:

- Rule based reallocation
- Customer type rule deployment to manage priority customer preferentiality to be maintained.
- Generation of actual versus proposed allocation reports
- Automation of reallocations
- Printing of customer letters to do proactive damage control when reallocations become necessary.

2.3.12 Foreign Currency

Our design caters for automated posting and calculation of foreign currency translation variances. We triangulate across a base, a transaction and a payment or receipt currency. Although other systems have foreign currency rules, this is usually not done at transaction level, and even in these cases traceability from period based translation variances back to source documents and products is usually impossible to achieve. Our posting and process based design creates an excellent framework to address this requirement. The benefits include:

- Automated variance determination and posting
- Ability to report and analyse on and retrace source of variances at a transaction level.

2.3.13 Back-Orders

We deploy a unique stock management system across warehousing by managing business process rules at a bin level through the assignment of bin types. This enables us to reserve stock prior to receiving it, effectively the inverse of backorders. This is unique and a major requirement of importers where long lead times force them to order and then pre-sell goods. We also need to convert stock and planning shortages into back orders .The issue is to manage back orders from a simple and easy to manage functionality that can also be launched and managed from the Pos. Our design enables us to incorporate this. The benefits include:

- POS backorders
- Allocation management across stock
- Business process based back order management
- Automated costing, pricing and margin management of backorders
- Process base tracking



2.3.14 Shipment Tracking

We deploy a unique purchase order management approach whereby each purchasing instance is treated as an instance of a business process. This is also facilitated by the warehouse management approach that we deploy. As a result of managing sales, purchasing and warehousing as business processes, we have the data and the foundation to provide a truly integrated shipment tracking capability. Our design caters for this. The benefits include:

- Tracking inter purchase order issues
- Tracking intra purchase order issues
- Integrated end to end tracking
- Supply chain view of all processes
- Inbound and outbound logistics management platform

2.3.15 Replication

Most integrated offerings except for the multi-million dollar offerings can only work if the head office and branches are on line and real time (typical thin client approach). This issue is exacerbated by the requirement to be able to consolidate data and operations. This is also complicated by the requirement to use cheaper solutions at branches and to deploy different architectures and topologies. Our architectural design incorporated into the our offering including the business process based methodology of structuring data makes it possible for us to address the requirement and add real value. The benefits include:

- Ability to use a mix and match approach across branches using a combination of on-line and off-line approaches, topologies and architectures.
- Primary key generation, table locking, process based approach, warehousing approach and catalogue and masterfile management design ensures that the platform is in place to support his functional requirement.
- The design and the methodology utilized from an architectural specification perspective ensures that we can address the multi platform connectivity issues.
- Costs and management requirements will be reduced, and the difficulties faced by trying to replicate effectively across business units are also catered for by our design approach

2.3.16 Financial and Inventory Process Tracking

As the system is business process based, it is possible to review tasks, activities and transactions from a business process perspective. In order to manage this, there are two major views related to inventory business processes. The first of these relates to incoming inventory while the second relates to outgoing inventory. From an incoming inventory perspective, enquiries can be launched per business process activity and per



business process document. For each level of the analysis or enquiry, a number of additional selection criteria can be specified. This enables user's to draft and manage their own reports without having to resort to programming interventions. The same applies to inventory from an outgoing inventory perspective. Searches can be conducted using document criteria only, accounting criteria only, or combinations of both. Once the data, based upon the selection criteria is displayed on the screen, it can be dynamically re-arranged and grouped according to the specific information requirement. The process tracking grids are used from both a management reporting perspective as well as a daily operational perspective. For instance, warehousing staff can use outgoing process tracking to determine which products should be picked during a particular period and plan accordingly. It is also useful from a customer enquiry perspective as it is possible to determine how far in a particular process a customer's order has progressed. The benefits include:

- Traceability
- Integration of document and financial searches at a granular or summarised level
- Foundation to support balanced score card drill downs.

2.3.17 Tariff Automation

In many cases, products that are bought or sold are subject to either import or other tariffs. The actual tariffs are treated as ad hoc costs from an accounting perspective. In order to facilitate the analysis of products from a tariff liability perspective independent transactions are launched for tariffs. Many tariffs can be created in the system and each tariff has a unique reference, which can be associated to a description. Each tariff can also be analysed according to tariff classes and tariff types in order to facilitate subsequent analysis. The benefits include:

- Ability to automate tariff allocations
- Minimise tariff payment obligations

2.3.18 Units of Measure

In order to be able to manage stock unit of measures we deploy a number of functions. These in turn use units of measure for costing and pricing management. Units of measure are created in the unit of measure maintenance section of the system. Each unit of measure has a unique reference that has an associated description and each unit of measure has a level of precision. The level of precision defines the number of decimal places that the unit of measure is managed in. For example, a level of precision of zero means that only integers can be used whereas a level of precision of two means that the product can be issued in units that include an accuracy level of up to two decimal places. In addition, it means that units smaller than a quantity of one, for example .75 of a kilogram can be issued. The benefits include:



- Ability to manage units of measure at the Pos
- Ease of cost composition traceability reporting
- Pricing impact management

2.3.19 Margin Reporting

Margin reporting is an important aspect of management control in a retail operation. There are three major types of margin reports that are extracted in order to manage margins. These three areas relate to the various stages at which a business will need to review margins, viz. when:

- initially negotiating deals with suppliers,
- purchasing products and
- reviewing actual performance.

The functionalities these reports is as set out below.

2.3.20 Deal Sheets

A deal sheet is set up in respect of prices that have been negotiated for a specific period of time to obviate the need to debate or discuss prices per purchase order. An agreement is normally concluded with a supplier to set or fix prices for a period, e.g. the next thirty days. This means that all purchases for that period will occur at the predetermined price. The period is usually consistent with a purchasing or buying cycle, such as the fifteenth of a month to the fourteenth of the next month, not necessarily a calendar or financial month.

In terms of the DMK-ERP system, a deal sheet is effectively a price version that has been set up for a specific period, provided that versions are set up per supplier. An appropriate reporting structure and management method will only work if the product only appears in one cost version per period, and one selling price version per table per period.

Deal sheets are assessed by a simple methodology to assess buyer performance over time, and to determine in advance whether to adjust selling prices. The method used is to run a report to examine the trend of costs, margins and selling prices over a period of time. This means that a review is made whereby monthly unit costs from a single set of non- overlapping cost versions and monthly unit selling prices from a price table are compared per buying cycle. A total of four periods history, the current month and the next month must be displayed.

In order to manage deal sheets products are grouped per default supplier irrespective of whether they are attached to a cost version or not.



2.3.20.1 Cost Version Deal Sheet

When a deal sheet report is launched:

- The default supplier must be chosen.
- A portion of the catalogue must be selected to avoid huge queries in instances where a supplier has an excessively large product range.
- In the selection criteria area the buying start date per period must be specified e.g. 15th. This means that the buying cycle is from the fifteenth of a month to the fourteenth of the next month.
- The selling price table to be used must be specified.
- In addition the margin method used should either be including VAT or excluding VAT. The margin calculations are either based upon prices and costs including VAT or both excluding VAT. A tick box to exercise this option is required.
- A further selection criterion is whether the margin % shown is based upon the supplier net list cost or the supplier actual net cost.

Each period must display:

- the default product supplier
- the product class,
- the product description,
- the barcode,
- vatable product flag
- the unit selling price,
- the unit cost price,
- the margin %

This means that the intersection between a default product supplier and the catalogue is firstly used as a filter. The costs for the last four cost versions, the current and the next cost version that the product appeared in will be retrieved. The selling prices for the last four price versions, the current and the next cost version that the product appeared in will be retrieved.

2.3.20.2 Incoming Margin

The incoming margin report is used to determine how much profit is available to be made with regard to existing stock on hand and purchases. This report is only in respect of stock on hand for the current month and stock on order for the next month, from a specific default supplier. . It therefore shows the margin that will be made if the existing stock is sold and the margin that will be made based upon selling the incoming stock.

The incoming margin reports are launched within a selling price version.

- The default supplier must be chosen.



- A portion of the catalogue must be selected to avoid huge queries in instances where a supplier has an excessively large product range.
- In the selection criteria area the selling start date per period must be specified e.g. 15th. This means that the selling cycle is from the fifteenth of a month to the fourteenth of the next month. This also applies to the purchasing period.
- In addition the margin method used should either be including VAT or excluding VAT. The margin calculations are either based upon prices and costs including VAT or both excluding VAT. A tick box to exercise this option is required.
- A further selection criterion is whether the margin % shown is based upon the default supplier net list cost or the default supplier actual net cost in respect of stock on hand for the current month and the purchase order net cost for the next month.

Each period must display:

- the default product supplier
- the product class,
- the product reference,
- the product description,
- the barcode,
- vatable product flag
- the unit selling price,
- the unit cost price,
- the margin %
- Number of units

This means that the intersection between a default product supplier and the catalogue is firstly used as a filter. The costs for the last four cost versions, the current cost version and the purchase order average cost for the selected supplier for the next period, that the product appeared in will be retrieved. The selling prices for the last four price versions, the current and the next cost version that the product appeared in will be retrieved.

2.3.20.3 Outgoing Margin

The outgoing margin report is used to determine how much profit was made with regard to sales. This report is only in respect of sales. It therefore shows the margin that was made in respect of actual sales.

The outgoing margin reports are launched within a selling price version.

- A portion of the catalogue must be selected to avoid huge queries in instances where an excessively large product range exists.



- In the selection criteria area the selling start date per period must be specified e.g. 15th. This means that the selling cycle is from the fifteenth of a month to the fourteenth of the next month. This also applies to the purchasing period.
- In addition the margin method used should either be including VAT or excluding VAT. The margin calculations are either based upon actual prices and costs including VAT or both excluding VAT. A tick box to exercise this option is required.

Each period must display:

- the default product supplier
- the product class,
- the product description,
- the barcode,
- vatable product flag
- the unit selling price,
- the unit cost price,
- the margin %
- Number of units
- Total costs
- Total revenues
- Total margin

This means that the catalogue selection is firstly used as a filter. The costs actual costs and selling prices from ordinary sales orders and point of sales orders must be retrieved.

3. Overview - Design Methodology

DMK-ERP has been designed from first principles utilising best practice principles in conjunction with international accounting standards. The core document management and transaction management frameworks, methodologies and standards were determined prior to finalising the design and the commencement of coding. A holistic integrated approach has been taken from the outset to ensure that the system operates as an integrated enterprise solution. This means that a piecemeal approach has been avoided and that integration occurs as a matter of design and not as an afterthought. Many future functionalities and enhancements have already been catered for and the overall design, and this will ensure that the ultimate design, development and integration will be able to occur seamlessly and without significant effort.

From a technical perspective, DMK-ERP is designed in a manner that exploits Microsoft based technologies in order to ensure that the resulting cost benefits are passed on to end-users. As the system is object oriented in nature and component based, the longevity, durability, scalability and life cycle should be able to withstand the



technological demands that will be encountered in the future as a result of hardware, operating system and database technology changes.

3.1 Database Design Methodology

DMK-ERP currently uses SQL 7.0/2000 as the database. The database has been designed using Power Designer and has been designed in a normalised manner. Power Designer automatically ensures that all key constraints and referential constraints are kept intact. In addition, Power Designer automatically generates database script based on the table structures, referential constraints and indexing requirements as incorporated into the design.

Where possible and appropriate, redundant data has been avoided. This approach will ensure that the impact of future changes will be easier to assess and that conflicting requirements are reconciled. In the future, the system will be ported to several other data bases with the only constraint be syntactical and operational methods with regard to SQL stored procedures.

3.2 Process Based Focus

Although many companies have embarked on re-engineering and re-design initiatives in an attempt to address the problems created by a functionally structured organisation, the accounting and information systems have rarely been capable of providing suitable management and operational information to manage the business processes. In this regard, all systems have some measure of process capability, but in most cases the processes referred to are software processes and normally amount to a simple chaining of transactions in order to attempt to enforce business rules.

DMK-ERP is a true business process oriented system in that the core business processes are clearly defined and the relevant business documents used in each business process are process event driven. The benefits of this approach can obviously only be derived if the process boundaries are clearly defined, inputs, outputs and their relationships are clearly understood and process responsibilities are clearly defined and assigned.

Each business process is managed in the system from conceptualisation up to and including completion and review. For example, purchase order parameters and the purchase order filing structures are determined in advance. All purchase order processes, events, subdocuments, transactions, authorisations and other related data and transactions are clearly visible for a particular purchase order and are filed per document and process event. In order to ensure flexibility, many of the processes can be conducted independently and simultaneously. International accounting conventions and best practice recommendations are used to ensure that the minimum business process requirements needed from a generally accepted accounting practice approach in addition to best practice management requirements are adhered to. In many



instances this constrains the ultimate order that tasks can finally be completed in. In addition the principles required to ensure accountability and traceability also impact on the processing.

Business process conventions and principles are used to manage the following core business processes:

- Purchasing
- Sales
- Direct sales
- Inter-branch transfers
- Inventory moves
- Inventory cost adjustments
- Customer returns
- Supply returns
- Point of sale cash-ups
- Warehousing
- Catalogue management

3.2.1 Financial Accounting Design

The financial accounting systems had been designed in a manner where all financial transactions are immediately posted at the lowest or account level. This means for example, that every single debtor or creditor, fixed asset or general account is effectively a general ledger account. As a consequence of the design approach, no subsidiary books are used or required. This means that no month-end or year-end functionalities are required to be performed and that the income statement and balance sheet are always live and can be extracted at any point in time.

Throughout the system, the major design principle is the fact that financial transactions are launched within the various business processes. In this regard each business process is managed by several major documents, which in themselves have header or parent/child relationships. The financial transactions are specifically launched within one of the documents that are used at the lowest level of control in the business process. As a result of this design, financial accounting transactions are always automatically traceable to the business processes, and business events that relate to the transaction in question.

In order to ensure that queries and enquiries can be quickly dealt with and processed, each financial transaction is posted more than once. All financial transactions are posted to a transaction ledger in addition to being posted to a MIS that maintains ongoing balances per calendar period for each unique combination of accounts and cost centres used for posting purposes in a specific business. In instances where large financial



reports are generated, it is much quicker to summarise the MIS than to attempt to analyse the various transactions that have been posted to the transaction ledger.

Each financial transaction is posted live. In order to ensure that the system always remains in balance, a specific financial transaction is batched and the various debits and credits that constitute a single financial transaction are grouped together and given the same financial posting batch number. Within a financial posting batch, each of the various debits and credits are given a unique financial transaction ledger sequence number. Once a posting has occurred, the MIS is updated and an automatic sum of all the debits and credits in the transaction ledger is computed. This is quite quick to perform in SQL, and as a result the total debits can be compared to the total credits. In the event that an error has occurred, the entire transaction batch is rejected and the end-user is informed that the transaction has failed. At this point, a user has the option to re-submit the financial transaction. A comprehensive listing of the financial postings, the launch points at which postings occur and the minimum mandatory data per financial posting is contained in a document that has been constructed for this purpose called "System Financial Transaction Postings".

3.2.2 Reporting Approach

The system has been designed in a manner where partially disconnected record sets are used. This means that once data has been extracted for the database, it is forwarded to the client's machine in the form of a data set. Once the data set is on the client, the database connection is terminated, providing a user with the opportunity to manipulate the data and to add, capture or populate additional information. Once the user has reached a point where the data is ready for processing, one of the action buttons for example refresh, select, save, transact, etc. can be selected. By invoking an action button, the user is instructing the front-end to communicate with the database. At this point a comparison is made of the data that was initially forwarded to the client and the data at the point of initiating an action. A delta or change file is created and forwarded to the database.

Once the data is received at the database, a form of collision protection is used to determine whether the data initially forwarded to a client has been changed in the interval between the time of forwarding the data to the client and the time of initiating a transaction. If no changes have occurred, the transaction will be completed. If changes have occurred, the transaction will fail. The user will be informed of this, requested to refresh the data and to re-submit the transaction in cases where this is appropriate.

The same approach is used in generating reports. In order to facilitate and expedite the reporting process, the approach used is to store all of the reports and their formats in blob fields in the database. This means that data and report formats are married at the client in order for reports to be generated. The report and the report format are then



passed on to the Windows operating system, which in turn manages the reporting functionality. This means that no fonts, DLL's or any other reporting variables such as logo's etc need to be stored on the client, as all of these as past as variables from the database.

All reports that are generated are either stored locally on a client machine, or in the database. If a report has been stored in the database, all of the users who have access to the specific screen that the report was generated in will be able to have access to the report. Their ability to alter or create new reports is constrained by a user's security access rights. Reports can either be extracted from the database or from the client, or can alternatively be constructed in real time on the fly on the front end. This means that any report can be printed, faxed or E-mailed directly from the system. The format of the report can either be a system report, an XLS document, a hypertext document, and in addition can be in HTML or in XML format.

In constructing reports, either dynamic or static, report variables, pictures or objects can be inserted. In addition any of the products, bins or any document or any field in any document can be printed in the form of a bar code. If a bar code format is selected, the specific bar code configuration can be selected per field or document. The configuration options that exist include EAN-13, Interleaved, and Code 39 etc. As an alternative to managing reports in the system, all data can automatically be exported to an Excel file. In addition third party reporting tools such as Crystal Reports can be used to construct reports, as an open database format has been used. Care would need to be taken to ensure that the third party reporting tool is capable of supporting variant binary types of data.

3.2.3 Data Mart/Warehousing/Data Mining

The various hierarchies used actually form a virtual 17-dimensional cube that can be used to assess, group and extract data. In addition to the hierarchies, the business process approach ensures that all business related documents have one or many hierarchy associations. As a consequence of this approach, data is actually stored in the manner that it is most likely to be used later. At the point of storing data, the various relationships between transactions, documents, business rules, parameters, software rules, authorisations in conjunction with any other data relationship which is either formal or created by association is actually known. By recording the various relationships and being able to extract data based on the various hierarchy intersections, a virtual data mart or data warehouse is actually maintained. The addition of multiple hierarchy groups to nodes in the various hierarchies creates a capability whereby multiple alternative views can be examined in respect of the same data.

From a data mining approach, the ability to query data from multiple dimensions without having to rearrange it, based on multi-layered criteria, actually creates a data



mining architecture. This approach is facilitated by the fact that the front end-grids used in the system support dynamic multi-layered grouping capabilities. This means that in addition to the grouping and selection criteria used to extract and segment data, that multiple subsequent groupings can be achieved for reporting purposes.

3.2.4 Architecture Rationale

In designing and developing the system, we have taken the approach that assumes that most mid-tier companies do not have sufficient resources to manage architecturally complex systems. This means that installation procedures, ongoing maintenance, upgrade and support capabilities need to be able to be addressed without a significant IT infrastructure having to be in place. From an installation perspective, a script is used to generate the database tables and the database schema. In addition, the various stored procedures are also copied into the database.

At the client machines, a directory is opened and a single client executable and an INI file are copied into the directory. The INI file contains the database and the server name and is used by the client executable to determine where the database is. This means that our system has no registry impacts and that no third party files or DLL's are used or required. In order to ensure speed of operation, we achieve a native access to SQL through the use of an ADO communication protocol. Any new installation of Microsoft Office uses ADO and in fact upgrades previous Windows versions to ADO compliancy. If no new Microsoft Office products have been used, we run MDAC to upgrade previous Microsoft Windows versions to ADO compliancy.

A TCP-IP protocol is used for general connection purposes. This means that from a system perspective it does not matter whether a user is connected via a LAN, WAN connection or through the Internet, as this is transparent to the system. We have designed the system using Delphi 6.0. This enables us to distribute client executables royalty free and ensures that all of the various system requirements can be addressed using a sophisticated and robust language.

We have taken a single executable approach and in this regard always replace the client executable in order to ensure that the latest version is used. This means that we have not taken a patch or DLL approach, thereby simplifying the configuration management requirements. It does however mean that the client either needs to operate on a Windows machine or that some form of emulation such as MTS or CITRIX needs to be used.

In order to ensure that the overall system operates quickly, no database table or row locking is used. A no-lock or dirty read is made of data in the database tables when queries or enquiries are performed. All of the primary keys in the database are in the form of variant binaries, and no incremental primary keys are used. Once a client performs a transaction, the various primary keys required for the specific tables that are



to be updated are generated directly by the client as GUI-ID's. As a consequence row and table locking only occurs during actual table row insertion, deletion or alteration activities.

3.3 Development Tools

A limited set of software development tools have been used in constructing the system. In addition to SQL 7.0, we have only used Delphi coding, tools and objects. The reporting tool has been configured seamlessly into the system as it has also been developed in Delphi. This means that a single database connection is required from a system perspective, thereby ensuring that a minimal number of SQL licenses are required.

In order to be able to operate in more environments as well as providing future customers with cost effective solutions, the POS is also being ported to operate through the use of an application server. We will achieve connection capability by using a JAVA application server. This means that products such as JRUN, WEBSPHERE etc can be used in order to achieve connection to multiple types of databases. This is in addition to providing the capabilities of being able to communicate with multiple alternative technologies such as Unix or Linux.

To facilitate the management of data and data referential constraints, we have used Power Designer to generate the database model. Power Designer is capable of creating database scripts once target databases have been specified and selected. In order to ensure that no conflicting issues are introduced by programmers, the development environment is managed by using Visual Source Safe. (VSS) By using VSS, the developers can identify whether a piece of code is being worked on, who has it and what the current version and status is.

We are in the process of moving to CM Synergy as this product supports parallel development conventions. In addition, it can be seamlessly integrated with Doors, a fully integrated document configuration and tracking tool.

3.4 Software Objects

In order to support the concept of object oriented design, an object and component based approach has been taken. The various components that have been created or purchased exist in one or more component libraries. As a consequence of time and other constraints, we have elected to design the system by using business objects as opposed to software objects. Although this creates an object framework and facilitates the use of components, ultimate integration from a true object approach, will mean that certain of the object oriented requirements such as encapsulation, object calls, inheritance, methods or other CORBA related issues may need to be addressed to facilitate interfacing with multiple alternative systems. The unique business process and



financial accounting conventions used in the system do however mean that the potential impact of this constraint is minimised.

3.5 Testing Approach

In order to ensure that the system can be regarded as a quality tested system, and that when it is delivered, that no defects are likely to arise, an outsourced quality management approach has been taken. This means that all unit, integration and regression tests are conducted outside of the development environment to ensure that an objective set of evaluation criteria are consistently applied. An impact analysis is conducted in respect of all coding changes or in respect of new features and functionalities introduced into the system. This is used to determine which areas of the system need to be tested in detail. Automated tests have been designed using Load Runner and Defect Manager. These tests are also used for load balancing and stress test purposes. Where possible, the entire suites of tests are run, and this is in any case the mandatory approach taken prior to new versions being released.

The testing company also compiles all new versions of the software to ensure that all changes introduced have been tested, and that all documentation throughout the entire suite of documents has been maintained. In this regard, CM Synergy and Doors will be used to check and maintain configuration standards. In order to ensure that an adequate level of test coverage is maintained, a comprehensive list of business permutations has been established and these permutations are used to develop and sequence the various tests. As the system is business process oriented, an output based test approach is followed, given the various permutations and sequence of business process stages that can be followed in different businesses. For example, the state in which a document is in at the time of entry, in addition to the state of preceding activities as well as the ultimate business objectives are required, will determine which functionalities can be used and how these will be used in a particular screen. This means that inputs and outputs are carefully constructed per possible business permutation and a specific test is scripted for each instance.

3.6 Configuration Management

The documentation for the system is to be managed via CM Synergy and Doors and in this regard a comprehensive and detailed numbering and sequencing approach is used. At this stage, the configuration management is managed and conducted by iLab and they have instituted a number of change management and configuration management procedures, policies and systems.

3.7 Security And Data Access

A multi-layered approach has been instituted in order to manage security and data access. At the highest level, the NT and SQL security management conventions and



capabilities are used to restrict initial access to the system. Access can only be granted to a user who has been registered in SQL. Each user is linked to a system profile and is associated to a specific role in the system. Each system role manages access to screens and data. Screen access is either granted or denied, and if granted, either full access or read-only access is granted. In addition to screen access, data access points are determined for each of the 15 cost centre, account and document hierarchies. In each hierarchy one or several points of access can be stipulated and users have access to all data at the point of entry or in respect of data available at any nodes that are children of those to which access is granted.

Activity passwords are used to manage sensitive information, and these are also specified per database user. In order to manage user authorisation rights, a number of authorisation roles are created. These roles are attached to various cost centres. If an authorisation role is attached to a cost centre, and a user is entitled to view or use the cost centre or any other cost centres that have the same parent or which is a child of any parent to which access has been granted, then all of those authorisation roles that have been attached to any of those cost centres will be available for selection to the specific user. In addition each company profile can have one or many point of sale profiles, and a second level of access and password entry authorisation is used in addition to the general system logon.

3.8 Web Approach

Access between the client and the database occurs through the use of a TCP-IP protocol. This means that the entire system is Internet-enabled and can in fact be launched inside a browser. From a web-based perspective, specific screens required for selected transactions for a customer will be developed as and when appropriate.

3.9 Networking And Connectivity

The database sits on an NT Server operating system and is connected to the client via ADO and TCP-IP. General networking is managed via NT or through a terminal emulation approach by using MTS or Citrix. As a single INI is used, and no registry impacts are created, the system is capable of operating as long as the machine on which the database is resident can be pinged.

3.10 Operating Systems



The database resides on an NT operating system. The client however, can operate on Windows NT or Windows 95 or Windows 98. In addition a Citrix session launched via Metaframe can be used as an alternative. The alternative architectures using a JAVA application server and JRUN which are in the process of development and will extend the operating system architectures that can be deployed.

3.11 Peripherals Management

All peripherals including printers, barcode scanners, barcode printers or any other input or output devices are managed and controlled by Windows, and the only impacts introduced by the system are commands passed through either standard API commands or through the execution of Windows commands. In selected environments, the various peripherals cannot manage images. For example, in environments where dot matrix printers are used as opposed to laser printers, and in these circumstances only text-based drivers can be used.

3.12 Operational Management Approach

The system is developed in a manner that requires minimal operational management overhead. Installation of new client executables has been reduced to a copying process. From a database perspective, regular back-ups can be scheduled in SQL, with the only human intervention being the requirement to replace the physical tapes. From a trouble-shooting perspective, as long as the client machine can ping the server, all other impacts can be seen as being environmental issues and not system related. To ensure that the MIS figures remain synchronised with the General Ledger, the various MIS and depreciation runs can be scheduled in SQL. On a daily basis, the only operational management issue that needs to be driven from a procedural perspective is the closure of shifts, the reconciliation of user shift totals. In addition if off-line stock methods are deployed for the POS, this needs to be reconciled before new shifts can be started.

3.13 Database Guides - Design Approach

The database has been designed using Power Designer. All attempts have been made to ensure that a highly normalised data model is used. This means that no redundant data is stored or managed in the database. All database tables use variant binaries as the primary keys. A limited set of database field types has been used in order to ensure that coding and stored procedure development is facilitated. Multiple instances of data table usage is managed through the use of link tables which in many cases consist only of a primary key together with a set of linked foreign keys. All new functionalities and enhancements are always compared to the existing database design to ensure that these can be managed without altering database structures where possible.

3.13.1 Models And Sub Models



A fully integrated database model is maintained in Power Designer. In order to facilitate impact analysis, the overall design has been decomposed into a number of sub-models, to ensure that all the referential constraints are catered for at all times.

3.13.2 Tables

There are approximately 300 tables in the system. These tables contain approximately 3260 fields. A list of the tables, fields, field types and constraints can be obtained directly from Power Designer. In addition, the configuration documentation also contains a technical description, sequenced per business process. Analysis of these documents enables a view to be obtained of table and field impacts per business transaction.

3.13.3 Referential Constraints

In order to ensure data integrity, all of the key business process documents, business rules and software functionalities are tightly managed through the use of a matrix of referential constraints. These constraints ensure that the correct business sequence, software rule sequence and dependency impacts are always catered for from the database perspective. Financial accounting transactions cannot be deleted. If no financial transactions are involved, documents and procedures can be deleted provided the exact reverse sequence to the creation sequence is used during the deletion process. Any data that is referred to or linked to any document, transaction or event cannot be deleted.

3.13.4 Limitations

The design used has imposed two constraints from a database perspective. The first of these is the fact that variant binary fields have been used. This means that a port to an alternative database is constrained to those databases that also support variant binary fields. The second factor is the fact that we have used approximately 180 stored procedures. Each database uses different syntax, and any differences in syntax would need to be addressed before a conversion or port will be possible. In addition, the stored procedures often use temporary tables. Certain databases including Oracle do not support the use of temporary tables and the methodology used inside a stored procedure would need to be modified and/or physical tables would need to be introduced to address this issue.

3.13.5 SQL Conventions

As PC based technologies have been used, care has been taken to ensure that the various methodologies and coding conventions do not create speed impacts. From an SQL perspective, queries are structured in a manner whereby the smallest data set is



always selected first in multi stage queries. Multiple nested queries are each done by using the next smallest data set in order to ensure that queries are optimised.

3.13.6 Business Rules

The Business Rules for the system have been documented and are included in a document titled DMK-ERP – Business Rules.

3.13.7 Validations

The design approach has been one where no triggers have been used. Validations either occur at the front end or in the various stored procedures that are deployed. No validations occur at a database level.

3.13.8 Settings

There are no specific database settings required for the system. In order to ensure that correct access is managed from the start however, the system administrator role for SQL namely SA must be configured in a manner where the SA role is granted DBO rights. This means that the SA user is the database owner. Care also needs to be taken to avoid selecting the Integrated Windows setting.

3.14 Technical Implementation Overview

As the system is aimed at midrange companies, the technical implementation requirements have been kept to the minimum. From a system perspective, the only requirements are that TCP-IP protocols exist, that clients can access the server via ADO, that the client's have some form of Windows operating system and that the server is installed on a Windows NT machine with service pack 6.0. In addition, at least Internet Explorer Version 5 must also be installed on the server machine.

3.14.1 Technical Implementation Guides - Site Surveys

Prior to commencing an implementation, it is important to ensure that the system can work within a given environment. In order to ensure that this is possible, the server that is used to host the database must be a dedicated server. This means that no other systems should be allowed to access the server from an SQL perspective and that the server may not be a mail server. No specific cabling requirements need to be addressed, but network traffic impact created through the use of user domains, gateways or firewalls must be obviated where possible. Client machines need to be able to run Microsoft Office and the minimum recommended RAM requirements is 32 Megs of RAM. From a server perspective, at least 512 Megs of RAM should be used. It can be expected that approximately 2.5 to 3.5 gigs of data is created per year at a typical user site not involved in retail sales.



3.14.2 Technical Implementation Guides - Hardware And Peripherals

Hardware and peripherals are not managed by the system, as Windows manages all the interfacing, printing, data input and output devices.

3.14.3 Technical Implementation Guides - Client Machines

If no recent installations of Microsoft Office have been installed on a client machine, MDAC will need to be run in order to ensure that the client machine is ADO compliant.

3.14.4 Technical Implementation Guides - Ini Set Up

A single INI file is used in order for the client executable to be able to establish where the database is resident. In this regard the database name as well as the server name on which the database is installed are captured in the INI. In circumstances where the network is fairly large, or if difficulties are experienced in resolving the server name, the recommended approach would be to capture the IP address of the server in the INI as opposed to the server name. In view of this recommendation, a static server address as opposed to a DHCP issued IP-address is recommended.

3.14.5 Technical Implementation Guides - Trouble Shooting

If problems are experienced during the set-up process or initial operation, the trouble shooting process that should be followed is:

- Check that the server can be pinged from a client machine.
- Run MDAC on the client machine, and restart Windows.
- If system accounts, or bank accounts have been created, close and re-open the client executable in order to be able to refresh the server cache.
- Check to see if one of the calendars has been marked as the financial default calendar, and that this calendar has valid versions and calendar periods.
- If difficulty is experienced in the summarised financial views, run the stored procedure called "SYNC_REFS" followed by running another stored procedure called "RUN_MIS_PERIODS". The two stored procedures must be run independently and in the sequence stated above.
- Ensure that the executable version number has been entered into the system.
- Ensure that a VAT percentage has been populated into the system profile.
- If a database schema has been generated from another database as opposed to being generated by a script from Power Designer, the database needs to be indexed, as these indexes will not have been created.
- Replace all stored procedures.

3.14.6 Technical Implementation Guides - Multi Tier



The system has been developed in a manner that supports multi-tier deployment. This should however only be done in sites that have sufficient technical IT skills. At all the other sites, a two-tier approach should be used. If server capacities become problematic, a second server can always be deployed. In the event of cost constraints or where the client machines have insufficient memory capacity or if users are geographically dispersed, CITRIX or MTS can be used. The point of sale under development is multi tiered in nature, but the application server portion mainly plays the role of addressing connection requirements and load balancing rather than playing a validation or staging role.

3.14.7 Software Configuration And Set-Up Overview

In order to facilitate configuration and data take-on a separate system has been developed. This system and its usage are described in a document called DMK-ERP Installation System. In circumstances where the tool is not used, configuration and set-up usually occurs in a manual set sequence. Certain of the activities may occur in alternative sequence orders, but completion of activities may be constrained or impossible if preceding events have not been completed. The general sequence to be followed is as follows:

- Create a system profile
- Create credit terms
- Create currencies.
- Create calendars
- Create depreciation methods
- Create and populate an organisational structure
- Create and populate an account structure
- Link the auto posting accounts to the accounts created in the accounts structure
- Create and populate fixed asset structure
- Create and populate customer structure
- Create and populate supplier structure
- Create and populate the warehouse structure
- Create and populate the catalogue listing
- Link cost centres and bin types to bins in the warehouse structure
- Create product image types
- Create product attributes
- Create product groups
- Create product types
- Create product specification types
- Create unit of measures
- Link product types to product styles in the catalogue listing

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- Link product attribute groupings to product styles
- Generate products
- Populate customer account details and select customer defaults
- Populate supplier account details and select supplier defaults
- Create the four stock-in hierarchies
- Create the four stock-out hierarchies
- Create activity passwords
- Create and populate system positions
- Allocate system positions to cost centres
- Create journal groups
- Run the various MIS stored procedures
- Creates bank accounts
- Create point of sale profiles
- Populate point of sale profile details
- Populate point of sale tills
- Set-up point of sale till security
- Assign user role access to screens
- Assign user role access to the various hierarchies
- Populate opening stock data
- Populate open debtor items
- Populate open creditor items
- Take on opening general ledger balances
- Take on fixed asset data
- Generate fixed asset schedules
- Run fixed asset depreciation stored procedures
- Take on un-reconciled bank account items
- Take on un-invoiced sales orders
- Take on purchase orders in respect of outstanding stock purchases



4 Annexure “A” – Point of Sale/Service Addendum

The general operations and functionalities addressed by the point of sale are as follows:

- A number of direct sale or point of sale or point of service (POS) sites can be set up from a point of sale or point of service perspective and attached to one or many company profiles.
- Configure multiple point of sale profiles
- Manage multiple sale and cash up locations
- Specify invoice aggregation methodology
- Establish password levels and printing standards per point of sale profile
- Create multiple tills per profile
- Establish passwords and printing standards per till
- Specify field level access and screen layouts per till
- Manage cash sales and account sales at tills
- Allow for customer returns
- Accept multiple methods of payment per sale including cash payments multiple cheque payments, multiple credit card payments, multiple gift vouchers (sales and goodwill) and multiple credit notes
- Sell, redeem and manage gift vouchers and goodwill gift vouchers
- Manage account sales after taking credit limits into account
- Update inventory records in respect of sales at the point of sale point
- Manage multiple cash-ups per user per till
- Integrate sales and return data with the main system sales and return information
- Manage floats and till differences
- Create customers at a till point
- Accept and issue receipts in respect of account payments at the till point
- The ability to sell and goods using bar code scanners, keyboard entry or other point of sale data capture devices
- The sale and redemption of gift vouchers
- Issue and redemption of goodwill gift vouchers
- Creation of account customers at the till point
- Capability of selling to either cash sale or account customers
- Sales to account customers occur after checking credit availability of the customer concerned
- Allocation of reps to sales including the ability to allocate reps at invoice line level
- The ability to pend sales and to return to them at a later stage during a shift.
- The ability to change prices at a line level after entering a valid password

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- Quantity changes performed either by altering values or by using the bar code scanner to reverse entries
- Multiple sales of the same product captured at various points during the sales transaction are aggregated, and changes are cumulatively calculated in order to avoid the process of having to void invoice lines
- Capture of comments at invoice line level
- The capture of additional discounts at line level provided that a valid password is used
- The allocation of second reps or sales assistants at invoice document level.
- The ability to accept payments using multiple alternative methods of payment including payment by cash, credit card, cheque, gift voucher or credit note
- Partial payments can be managed with regard to sales to account customers
- The acceptance and receipting of direct customer deposits without having to perform a sales transaction, including payments on account, lay-byes, deposits, etc
- Selection of postal, physical or delivery addresses based on account customer defaults, or alternatively, by manual entry
- Point of sale transactions are integrated with the main systems transactions, and all queries and reports available can be used for both point of sale or other sales methods
- Each main profile in the system can have one or more direct sales profiles.
- Each direct sale profile has its own numbering sequence.
- Each direct sale profile has its own VAT percentage, manager passwords and cancellation passwords.
- In order to facilitate financial accounting transactions, each direct sale profile has its own posting accounts, cost centres and warehouse bins.
- Reps and rep assistants are specified per point of sale profile.
- Each point of sale profile can have one or many tills, and each till can have one or many users.
- A sales order is created for each main shift for a point of sale profile.
- A reconciliation document is created for each main shift for a point of sale profile.
- Many till users can create cash-ups in a day, and the total sales of all these cash-ups are contained in one shift. This shift can be analysed from a sales order perspective, as all transactions contained in the cash-ups for a shift are also contained in a single sales order.
- Cash up differences are posted per user per point of sale profile.
- Shifts cannot be closed unless all sales documents or invoices created during the shift are either transacted or cancelled.
- Shifts cannot be closed until all the users attached to a shift have cashed up.
- Each point of sale profile can have many tills.

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- A till can be a physical machine or a virtual till. Physical tills per user are the preferred implementation methodology.
- Virtual tills are used in cases where a user can work at more than one till point or where a counter type of operation is used and where cash is accepted at another point in the business.
- Each till has its own numbering sequence passwords, and cancellation passwords
- Additional data can be managed in respect of a till. This data is also kept in the INI file and facilitates peripheral controls such as bar code printers or pole displays.
- The transactions performed by each user are tracked and a cash-up is performed per user.
- A blind cash-up is used in respect of cash receipts. Users are given two chances to count and capture amounts in respect of cash receipts without being aware of the total of which they should balance to.
- Users are also given two counts in respect of credit cards, cheques, credit notes and gift vouchers. If their totals do not match the specific system totals, users are required to mark which items they are presenting for banking, and which are missing.
- At the end of a cash-up, reconciliation details are managed in a reconciliation document for later posting per user
- Once a reconciliation document has been completed, all of the relevant data such as expected cash and counted cash are posted as accounting transactions in the system to facilitate subsequent tracking and analysis. In this regard each point of sale user is created as a cost centre in the organisation structure to facilitate accounting postings.
- A reconciliation document cannot be closed if all cash-ups have not been managed and if the shift has not been closed.
- The fields available for display at the point of sale can be customised per user.
- Each user's access rights can be modified to facilitate managing which of the users need to work by using keyboards and mice and which users will work with F-keys only. Alternatively, the point of sale system is touch-screen enabled, and if touch-screen equipment is used, no necessity for keyboard or mouse transactions are required other than initial logon to the system.
- In order to reduce overall costs, PC's can be used as tills. If this method is used, the till set-up caters for the ability for a kick-string to be kept per point of sale. This means that once an invoice is printed, the printer will send a signal to cash drawer to open.
- Each user can have many cash-ups during the day. Many cash-ups are attached to one point of sale shift.
- Cash-ups are done on a net of float basis, in other words, the float is excluded from system cash and must be deducted before capturing receipts and takings for a shift.



- Gift vouchers are checked at point of sale time to ensure that they cannot be processed more than once.
- Credit note values are checked at point of sale time to ensure that they exist.
- In instances where account customers exceed their credit limits and the password facility is not available to a user, the account customer will be required to make a deposit in order to ensure that sufficient credit is available for the required transaction.
- Each user must be allocated to a cost centre for postings.
- When a transaction is processed, a user's transactions are appended to an existing shift if one is already open.
- If no shift exists, a new shift is started and a shift document is assigned.
- At the same time a new reconciliation document and a sales order for the shift are created.
- Users must be attached to a cost centre in order for reconciliation of transactions to be performed.
- A user can cash up many times during a shift.
- All users must have started and completed a cash up for the shift before a shift can be closed.
- All sales during a shift must have been transacted or must be cancelled in order for a shift to be closed.
- New sales or transactions that occur after a shift has been closed are treated as a new shift with the same initial process being launched.
- All cash ups and transactions for a shift are attached to a single reconciliation document.
- If the "all" button selection is used the reconciliation document is converted to a view only status except for the ability to update count 1 and count 2 details.
- Each user must be selected individually and the reconciliation posted in respect of each user.
- If all users have been reconciled, the reconciliation document can be marked as complete, which will convert it to a read only status.
- Goodwill or sold gift vouchers can be sold at the point of service.
- Each voucher has a system generated number in addition to a manually entered number to cater for pre-printed gift vouchers.
- Gift voucher numbers must be unique
- A gift voucher can only be tendered once as a method of payment.
- It is not physically possible to redeem half of a gift voucher or partially accept a credit note. A gift voucher is either redeemed or not, whilst a credit note is offered as a method of payment or not. As such, the full amount that should have been presented is removed from the cash available from banking account in order to



update the accounts in respect of credit notes redeemed and gift vouchers presented.

- In the event that a voucher or a credit note is missing or a difference has arisen, a manual intervention is required to determine which item is missing or incorrect, to take the appropriate corrective action and to determine what the correct accounting transaction should be. In many cases it will just be to pass the entry, as it would have occurred if the actual voucher or note was found, viz. a manual adjustment is required.
- In order to reflect the necessity for this intervention, the result could be displayed in a separate account called “gift voucher and credit note differences to be accounted for”, or by leaving the variance in the cash available for banking account.
- It would not be appropriate to pass an automated entry to the float adjustment account, as this would obscure the fact that an intervention is required. The entry would have the effect of negating the initial entry that lead to the credit balance appearing in the cash available for banking account in the first place.