Case Study

A Complex Distribution System using Open Source Technology

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Program Specific Changes

Call Centre Operations

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1 Executive Summary

1.1 Introduction

In 2008 Adaxa was requested to provide a proposal for an ADempiere based system to be used by a Company that distributed medical products directly to consumers throughout Australia. The Company was owned by a not-for-profit entity.

The Company's operations consisted of:

- distributing products that the Company sold on its own account, and

- distributing products to consumers under a number of schemes and with costs reimbursed to the Company by government departments. Each government scheme had its own rules for the entitlements of the consumers who were recipients under their particular program. The Company administered some schemes under delegated authority from the government departments (i.e. accept and approve applications and define entitlements).

The project was performed over a period of nine months with resources provided by Adaxa and a third party project management organisation. Some of the early issues revolved around:

- replacement of the ADempiere webstore with an open source content management system called Drupal, including a modified version of Ubercart, and its real time integration with ADempiere

- integration of the client's supply chain with the warehousing systems of a third party logistics provider

- functional requirements of a sixty person call centre and the integration of an Asterisk soft PABX with ADempiere

- replacement of the client's internal 'issues management' system with ADempiere Request functionality

- migration of large volumes of data from the existing ERP system

- management of complex relationships between Business Partners

The system was developed during 2009 and went into production in the last quarter of the same year. The issues that were encountered during the first few months of production were frequently traced to inconsistent data that had been migrated from the previous ERP system. There were, of

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course, other issues which had arisen from incomplete or not-well-understood functional requirements.

1.2 The Open Source Stack

The system runs on Dell Server hardware which hosts multiple virtual machines using Red Hat Linux and the Xen Virtual Machine Manager.

The application software consisted of ADempiere 3.5.3, Drupal 6.x and Ubercart.

Postgres 8.3 and MySQL were deployed for data storage for ADempiere and Drupal respectively.

The details are shown at http://www.adempiere.com/index.php/X64_Hardware (refer to the 100 user system description).

1.3 Business Operations

The company managed its order taking process via a sixty person call centre and web sales. It operated two small warehouses for specialist products but the majority of its products were stocked, picked and shipped on its behalf by a third party logistics organisation.

The company had outgrown its proprietary ERP system for a variety of reasons.

1.4 Functional Requirements

Adaxa was asked to become familiar with the functional requirements of the company and propose a solution to those requirements using ADempiere and making such modifications as were necessary to meet the functional requirements.

Initially, it was planned to use the ADempiere web store to meet the web sales requirements however it was subsequently agreed that a more professional and flexible result could be achieved by using the Drupal Content Management System to provide the company's web presence coupled with a highly modified version of the Ubercart e-commerce platform (a Drupal plug-in) to provide web store functionality.

The first stage of the project consisted of a series of workshops which resulted in an eighty page document identifying how ADempiere would meet the requirements and what modifications would be needed to fill any functional gaps.

The Company has allowed us to make public this 'functional requirements' document (suitably de-identified) and we have subsequently modified it to reflect the changes that were made to the original plans to show an "as-built" view of the system. The Company has also requested that we make available the modified code to be used by others who may have a similar need.

1.5 Major Changes from Standard ADempiere

- Business Partner, Contacts and BP relationships allowing many-to-many links

- Extended use of the concept of "Activity" to implement complex business rules

- Multiple UoM based price lists

- Functionality to suit Call Centre Operator needs in a single window

- Complex Sales Order rules and Delivery Status displayed on order header.

- Management and recording of complex incoming paper application forms.

- Semi-automated form evaluation and response letter creation

- Customer address validation

- Enhanced replenishment functionality for 'fast moving consumer goods'

- Integration with a third party logistics provider

- Automated Freight Cost calculation

- Automatic feeding of Pentaho BI System

- Automation of Delivery and Manifest documentation

- Automated recording of Package and Tracking information from the third party logistics provider

- Government Payment Gateway access via XML based files

- Drupal Content Management System

- eCommerce platform with rich functionality including sales promotions

- Web Service linkage of ERP to Drupal and eCommerce platform

- Intelligent Call register and integration to ERP & CRM

- Asterisk Telephony Integration to Call registration and ERP & CRM

1.6 Access to the Modified Software

For those interesting in exploring the software further, the complete system package is constituted by:

- this document is available at (TBA)

- a customisation.jar which will apply all the required changes to an ADempiere 353a release available at (TBA)

- a Postgres database configured to work with the ADempiere modified code and containing a small set of indicative test data (available at TBA)

- The Drupal/Ubercart demonstration system which links to the ADempiere instance. (available at TBA)

- the source code for the ADempiere system can be downloaded from this link (TBA)

[please see here http://www.adempiere.com/index.php/Complex_Distribution_System:_Case_Study to check any changes to these links as we are still finalising the storage details]

1.7 Inclusion in Core ADempiere?

There is no plan to try to migrate the functionality contained in this system into the ADempiere core because much of the functionality would be of little interest to the majority of users. There are, however, a number of changes that are quite suitable for inclusion in the ADempiere core and anyone who feels that a component of the functionality is suitable for inclusion should feel free to incorporate it.

1.8 Acknowledgement

Adaxa would like to thank its Client for the opportunity of working on this project and for their generosity in allowing us to share so much with the ADempiere community.

Much of the material presented in this document has been derived from the working experiences and documentation developed during the project implementation. We would like to express our thanks to the staff and management of our Client for their wonderful co-operation and assistance during the project.

2.1 Conventions in this Document

The name of Adaxa's client has been removed from this document and replaced with the term "Company".

In the ADempiere database any term or text which previously displayed the client's name has been changed to 'Adaxa'.

The terms "Government Scheme 1" and "Government Scheme 2" are used to represent two types of government schemes used to provide medical products to scheme participants. 'GS1' is a scheme that provides products from a prescribed list up to a maximum value per year. 'GS2' is a scheme that provides products which are prescribed by medical practitioners from a list and the quantity ordered by the customer must not exceed time based maximum quantity limits.

Text in the original gap analysis document is shown in black. Text which has been added to describe the 'as built' functionality is shown with text styled as follows.

(...as built ..)

Parts of the original requirements specification that are either commercially sensitive or not relevant to understanding the system have been deleted. Deletions are indicated with the tag **<snip>**.

2.2 The Company's System Needs are Complex

<snip>

While at a superficial level it may seem that the Company's requirements are in many respects routine for any ERP type software system **<snip>** significant complexity is introduced by the business model insofar as it acts as an agent for other companies or government departments. These arrangements (which we will later call "Programs") result in conflict between the need to manage the customer as a unified operation with a single point of reference for each customer and the need to treat that same customer in different ways depending on who the Company is acting on behalf of in a given context.

<snip>

ADempiere offers a "middle path" between off-the-shelf software and a completely custom-written solution by providing a well designed, highly functional, ERP system that is easily extended using its model-driven architecture and with full control over the source code offered by its open source

license. The purpose of this document is to outline how ADempiere could be (and was) implemented to support the Company's complex business processes as identified during the requirements gathering phase, in a way that minimises complexity and cost while offering sufficient flexibility for future development.

2.3 ADempiere Modification Processes

There are three distinct levels of activity undertaken during an ADempiere implementation:

- **Configuration**: this represents the mapping of business processes to standard functionality in the ADempiere ERP system. Implementation requires the appropriate configuration of ADempiere to enable required processes to operate in a manner suitable for Customer's needs.

- **AD changes**: this is where alterations are made to the data model using the standard ADempiere user interface to match information and reporting requirements. This involves adding appropriate data structures (tables and/or columns) to the Application Dictionary to store data relevant to the Company's business that is not covered by the standard functionality. These changes can be made with ease in ADempiere, though some care must be exercised to ensure the correct information is being stored in an appropriate format. These will be flagged in the following with the tag **<AD>**.

- **Code changes**: this entails the customisation or extension of ADempiere functionality. Source code is altered to fine-tune standard processes to suit the Company or to make full use of the data captured by the AD changes in order to automate processes and enforce business rules. These will be flagged with **<CC>.**

<snip>.

The primary focus of this document will be on the AD Changes and Code Changes needed to fill the gaps in standard ADempiere functionality identified by our analysis of the Customer's requirements. These changes are shown with a **<CC>** or **<AD>** flag as required.

<snip>

3.1 Activities

Activities (also known as 'Campaigns' or 'Programs' by Company staff') are the different schemes through which the Company provides products and services to customers on behalf of its clients like 'Government Scheme 1' (GS1) and 'Government Scheme 2' (GS2). These will be represented in ADempiere using the existing Activity functionality. An Activity provides an identifier that can easily be applied to any document. This identifying code is then automatically added to any resulting accounting transactions that relate to those documents. The 'Activity' identifier will be enabled in the accounting schema. The intent is that Activity/Program records will be created for each period of entitlement so, for instance, we will have a "GS1 2007-8" record and a "GS1 2008-9" record.

Each Activity will be classified according to an Activity Type (selectable from a reference list initially containing GS1, GS2, and Consumer Direct (and now many more). The Program Type acts as a means of grouping together related Programs, and can be used both in financial reports and for other reporting requirements **<AD>**. The Program Type can also be used in implementing rules and security policies that apply to all Programs of a given type.

Generic Program level information that will be stored on each Program record will include:

- Program Type
- Bill-to Business Partner
- Sales Order print format
- Sales Invoice print format
- Shipment print format
- valid 'from date'
- valid 'to date'
- (and probably some others) **<AD>**.

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Note: Later expanded to store the following

The Schedule

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The Entitlement record of a Business Partner

3.2 Accounting Facts and Reporting

The table of Accounting Facts (essentially general ledger transactions with many additional columns of information used for financial and quasi-financial reporting) or its related Views will be modified to record both the ship-to party and also the invoice-to party. This will enable easy reporting on questions like "which products did we send to Consumer group X on behalf of Client Y under Program Z in the period between start-date and end-date".

3.3 Program Business Rules

Each type of Program has a specific set of business rules **<snip>** and there is little common ground between each set of rules. Therefore each Program type will be treated separately, with separate data and coding structures created to store each type of Program specific information and rules. This implies that the addition of a new Program type will require code changes to implement its particular rules. However we believe that this is unavoidable and certainly

preferable to expending effort in attempting to anticipate and write code to deal with rules that cannot be imagined at this stage.

3.4 Price Lists Linked to Programs/Activities

Price lists are used in ADempiere to assign prices to products and to restrict what products are available for selection in a particular context. This maps well onto the requirement that each different Program will have different products available with different pricing policies. Each program will therefore be associated with a price list that will govern what products are available together with their pricing. This will be achieved by adding a reference to the Activity/Program to the Price List record **<AD>**.

3.5 Tax Management

Price Lists in ADempiere are flagged as either 'Tax Inclusive' or alternatively 'Tax extra' if applicable. Additionally individual Business Partners can be flagged as 'Tax Exempt'. The combination of these facilities appears to enable us to achieve the combination of tax outcomes necessary.

3.6 Sales Price Lists

Sales price lists will be tax-inclusive or tax-exempt for existing programs since existing programs are either tax exempt or retail activities where tax must be shown as included in the price. If a new Program is introduced on the commercial side where sales should properly be shown as "plus GST" then this can be handled by setting the price list tax flags accordingly.

> **<...As built...>**
>
> **Price Lists are modified so that the a product can appear twice on the same price list with different UOMs. This means price control is absolute and not dependent on calculations based on UOM conversions. The same unit of measure conversions are used to allow purchasing transactions to always be stated in the supplier's preferred unit of measure as recorded in the replenishment records.**

3.7 Purchase Price Lists

Purchase price lists will be set as not 'tax inclusive' and the prices set accordingly.

3.8 Price List Validity Dates

Standard functionality in ADempiere allows multiple versions of a Price List to be created with different validity dates. Sales orders are automatically priced according to the most recent valid Price List Version for the relevant Order Date, removing the need to suspend ordering while price changes are being applied. There also exists a process for repricing existing orders in the case of a price change.

4 Business Partners and Contacts

4.1 Types of Business Partner

The core of the Company's business is its relationship with its customers. **<snip>** It is essential, therefore, that there is high visibility of all the customer's interactions with the business. This objective, however, is constrained by contractual and privacy obligations imposed on the Company when it is acting primarily as the agent for a third party (typically a government department).

A priority when implementing ADempiere is to achieve a solution that allows the Company to manage their customer as a single entity, while having the ability to deal with them under their different aspects as clients of different programs and ensuring that the contractual and privacy obligations are not breached.

In ADempiere, any entity (either corporate or individual) that the Company does business with is represented as a Business Partner (BP), e.g. employees, customers, suppliers. A person who is associated with the BP is represented as a 'Contact'. All business transactions (orders, invoices, etc) are conducted in relation to BPs, but each BP can have multiple Contacts who are associated with, and may be permitted to act on behalf of, the BP. These 'permissions' need to be recorded and applied to ensure that privacy obligations are managed successfully.

The Company has identified the following parties and relationships that are important to them from a customer relations standpoint:

<snip>

- **Clients:** parties on whose behalf the Company has contracted to provide a service (e.g. GS2, GS1, Commercial Services companies). In ADempiere terms clients are BPs to which the Company may invoice in place of the party who receives the goods or service. There is some existing functionality allowing the creation of billing relationships between BPs so that an order may be placed for one BP but invoiced to another. This will be extended so that orders related to a particular Program/Activity (see below) will automatically be billed to the appropriate client. (CC).

- **Customers:** are parties that the Company invoices for goods and services provision (e.g. trustees, insurance providers).

- **Consumers:** these are the recipients of Company's products and services. They may be BPs against whom orders are raised and invoices are issued, although the invoice may instead be directed to a Client or the Customer. They will also have a Contact record that is directly linked to the BP record to store their personal details and will be kept synchronised with the BP (CC).

Optionally, additional attributes (e.g. health conditions) about the consumer could be recorded for reporting purposes (AD).

- **Carers:** are Contacts who may transact on behalf of one or many BPs (e.g. family member, friend, social worker, advocate). In some cases a Carer may be the Customer and the Customer may not have any direct knowledge or contact with the Consumer.

- **Care Centres:** represent groups of Consumers. They may be Customers in their own right or their Contacts may act on behalf of Consumers in their care and are often Health Professionals. In ADempiere we would record a Care Centre as a BP, which like a Customer BP could have "Bill To" arrangements set up with another BP. A Care Centre will also have Contacts and these Contacts can be assigned as having specific permissions to act on behalf of other BPs (e.g. Customers and/or Consumers).

- **Health Professionals:** are medical practitioners who may act on behalf of a Consumer. They will be stored as a Contact with additional fields recording their type (e.g. doctor, physiotherapist), prescriber numbers, etc (AD). Depending on the rules of a Program, a Health Professional may be required to prescribe products to a Consumer or they may simply offer advice and recommendations. Health Professionals may also be BPs in their own right. Health Professionals will be linked to the Customers and/or Consumers that they are allowed to order for. Health Professionals may also place orders on behalf of Consumers and may do so at a single time on behalf of a group of Consumers.

- **Suppliers:** These are simply a type of BP. We can optionally track additional information about suppliers if required.

To track the complex interrelationship of these parties it will be necessary to make a significant change to ADempiere's data model to allow a single Contact to be linked to multiple BPs, as well as continuing to allow each BP to have multiple Contacts (CC). By doing so we will be able to map all of the relationships outlined above, either by linking Contacts to BPs or by linking BPs to other BPs. Different types of BP can be distinguished either by assigning them to a Business Partner Group (existing functionality) or by adding Customer specific fields to the BP record to identify them. As yet little concrete functionality (aside from the "bill-to" and "order on behalf of" scenarios addressed elsewhere) has been associated with some of these relationships, so we will chiefly be interested in accurately capturing them to allow for detailed reporting and analysis.

	Business Partner	**Contact**
Client	Yes	
Customer	Yes	
Consumer	Yes	Yes
Carer	Yes	Yes

Care Centre	Yes	
Health Professional		Yes
Supplier	Yes	
Peak body	Yes	No

4.2 Addresses

Each Business Partner can have multiple addresses, each of which can be flagged as a shipping and/or billing address. The standard ADempiere behaviour is to assign each address a short name (generally just the suburb/city) for display purposes. This can make it more difficult to identify a particular address if a BP has many locations, so for the Comapany we we will modify this behaviour to instead assign an address identifier consisting of the street address, suburb and postcode **<CC>**.

4.3 Automatic Address Validation

Automatic validation of an address against an external data source has also been proposed (e.g. selection of suburb and state based on postcode). ADempiere comes with an interface that has successfully been implemented in the UK to extract addressing information from postcode data provided by Royal Mail. We can leverage this existing work but it will need to be adapted to suit the Australian postal system (and the supplied data) **<CC>**. This type of validation is beneficial in reducing shipment errors caused by simple data entry mistakes, as well as making it quicker and easier to add addresses.

<...As Built...>

Significant changes were made to the handling of location data to assist call centre operators to enter the correct address. The principal change was to allow the entry of a badly spelled address and then search a list of addresses to find the best matches. The address list is provided by a third party and imported into extra tables in the ADempiere database. The reason for the validation is that the 3PL also validates addresses against the same list and will reject a shipment instruction if the address can not be validated against the list.

Note that in the demonstration database the table of addresses has be compressed to delete all streets whose names do not commence with "A", "B" or "C".

The address matching is done using Metaphone based searching.

<...As Built...>

Note that in the webstore where users are entering their own address details the address is best validated using Levenshtein distance functions. Note that this is not used in the uploaded version.

<...As Built...> Revised Location entry screen

<...As Built...> enter a misspelled street name and a partial city/suburb/postcode and click search. Note the 'bad' spelling of street name.

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Select a matching address from the dropdown ...

<...As Built...> Save the address record

4.4 Sales Regions

4.4.1 The Company planned to do all geographic sales analysis in the Pentaho Business Intelligence application. As a consequence the ADempiere sales region table was pre-populated with numbers 0000 to 9999 (standard format for AU postcodes). When a new location is added the sales region field on Location is populated with the postcode selected in the address form.

4.5 Duplicate BP and Contact records

Adaxa will add to the BP and Contact search screens the option of using a Metaphone algorithm to convert names into a code representing the phonetic value the name **<CC>**. Before new accounts are added users will be able to quickly and easily search to see whether there is already a record present with a similar sounding name, as well as using the standard search methods on fields such as date of birth or phone number.

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4.6 Privacy and Contact Validation

The basic Business Partner Search box will be modified to display additional fields of information such that the fields that the Company defines as being needed to be validated to satisfy proper identification and privacy requirements will be available in the BP Search box whenever it is used in the application. Adaxa understands that the extra fields presently identified are "Full Address and Postcode", "Date of Birth", "Known-As" and "PIN".

5 Program Specific Changes

Aside from the need to restrict availability and control prices on a per Program basis covered by the Price List, each Program has a detailed set of business rules governing the conditions under which products can be purchased from the Company by a given customer. Below is an outline of our understanding of each of the existing Program Types and our suggestions for implementing the associated business rules and processes.

5.1 GS1 type Programs

The **Government Scheme Type 1** Scheme (GS1) is funded by the government which provides clients with a subsidy for medical products ordered through the Company. The current value of the subsidy for the full year 2008-9 is $$$$**<snip>**. Clients whose applications are approved for part of the year receive a scheduled amount for that year based on the month in which they join the scheme.

Clients also receive an allowance for freight that covers up to N deliveries (maximum value $$$$ recoverable).

Each year of the scheme will be represented in ADempiere as a separate Program/Activity (e.g. there will be "GS1 2008-9", "GS1 2009-10" Programs). These will be linked to a new table containing the subsidy amount scheduled for that year (a simple map of year and month to dollar value) **<AD>**. Each GS1 Program will have a Program Type of "GS1", and the Government Department as the "Bill To Business Partner". GS1 specific print formats can also be created and assigned if required (i.e. order and invoice documents that display GS1 branding rather than Company's).

Currently, Consumer entitlements are handled by manually crediting the Consumer debtor account with the value of the subsidy once their application has been approved and then decrementing that balance for each sale, when their balance is zero they can order no more as their credit limit is set as zero and a new order without pre-payment would break this rule.

In ADempiere we intend to manage the customer GS1 entitlements separately from their debtor account balance. This change is required because we will now have "one debtor account per business partner" rather than the "one debtor account per business partner per program" as presently exists.

The GS1 entitlement balance for each customer will be used to independently control the completion of any Sales Orders related to the GS1 Program. Orders related to other programs (e.g. Consumer) will not be affected by a Consumer's GS1 entitlement status.

5.2 Government Scheme 1 (GS1) Entitlements

Individual clients' entitlements will be recorded in a new table in ADempiere. Each record will be linked to a Business Partner (the Customer) and a program (e.g. GS1 2008-9). This table will be used as the primary reference to control Consumer expenditure through the program. The table will contain fields for.......

<...As Built...>

From this can be calculated the balances remaining (amount and number of deliveries).

The expended amount and deliveries will be updated when a new order against the GS1 program is created for this customer.   *The information will be displayed on the Sales Order Header and Line record so the operator always knows the remaining GS1 entitlement.* A value will also be shown for Returns which have been advised to the Company but not yet approved (perhaps because the goods have not yet been returned) .

The value used by a GS1 customer on a GS1 related order will be updated and written to their entitlements table when an order is completed by the Call Centre Operator.

No GST will be applied to any GS1 Sales Order because the Company is processing the transaction as agent of the government and the government does not charge GST to these Consumers.

The customer can order products available from the GS1 program price list up to the total value of their entitlement valid as at the order date.

The operator could also select a different price list such as the Consumer price list at the Sales Order Header level in which case a more traditional sales transaction would occur and the Sales Order would show the invoice-to party as the Consumer and automatically add GST to any product where GST applied. (In addition to ordinary product sales, this may be needed to cover an excess delivery charge payable by the Customer).

The Sales Order would generate a Shipment and then Sales Invoice. If multiple Shipments are arranged for the same Consumer these will be (optionally) consolidated to a single delivery instruction to 3PL.

Products that are flagged as 'hazardous' will generate an extra shipment.

On completion of the Sales Order, payment can be received and applied against the Order. If desired the order type for the Consumer can be set as a "Prepay Order" in which case the Shipment will not be released until the Payment is made and associated with the Sales Order. Note that an unpaid Customer-program Sales Order for additional freight associated with a GS1-program order will not cause the GS1 order to be held back.

> **<...As Built...>**
>
> **all orders are created as Standard Orders and the BP's credit limit is set to $0.01. There are a number of reasons for this but the main one is that if the customer has (say) a $5 credit on their account either due to payment error or because of a marketing credit for (say) "introducing a friend" we want to be able to ask for a payment amount different than the order value.**

5.3 GS1 Invoicing

Invoices will be generated to GS1 for each "sale" in the following manner.

Example:

GS1 Sales Order 12345 to Consumer Mary

Blue Widget	qty 1	value $25.00
Green Widget	qty 1	value $30.00
Delivery – free delivery number 2 –		value zero
Order Total		**total $55.00**

GS1 Invoice 34567 to debtor "GS1 No 2 account"

Blue Widget	qty 1	value $25.00	account "Revenue"
Blue Widget	qty 1	value ($25.00)	account "GS1 Suspense"
Green Widget	qty 1	value $30.00	account "Revenue"
Green Widget	qty 1	value ($30.00)	account "GS1 Suspense"

Delivery – free delivery number 2   value zero

GST Invoice Total   **total $0.00**

(there is no GST because this GS1 customer account is flagged as tax exempt and the total is zero anyway)

5.4 GST Treatment

Because the invoice total value is zero, no AR transaction will be created however lines 2 and 4 will create debits in the General Ledger account called "GS1 Suspense" which will show the amount that Customer is ultimately entitled to recover from GS1 in addition to any service fees.

The amount actually invoiced to GS1 as **funding for the work done** under the GS1 program will be subject to GST. A manual reconciliation will be required to ensure that the Company has ultimately invoiced the correct amount for the year to GS1.

5.5 GS1 Statements

Each quarter, statements will be created and sent to GS1 Consumers showing their entitlement under the GS1 program, the products supplied, their cost and the balance remaining together with the number of free deliveries remaining.

5.6 GS1 Application Forms

GS1 application forms are received by the Company for processing by mail and fax. The data must be captured for reporting and if the application is approved a new GS1 account must be created. This may involve creating a new business partner or identifying an existing one, adding contacts and locations and recording the GS1 entitlement amount.
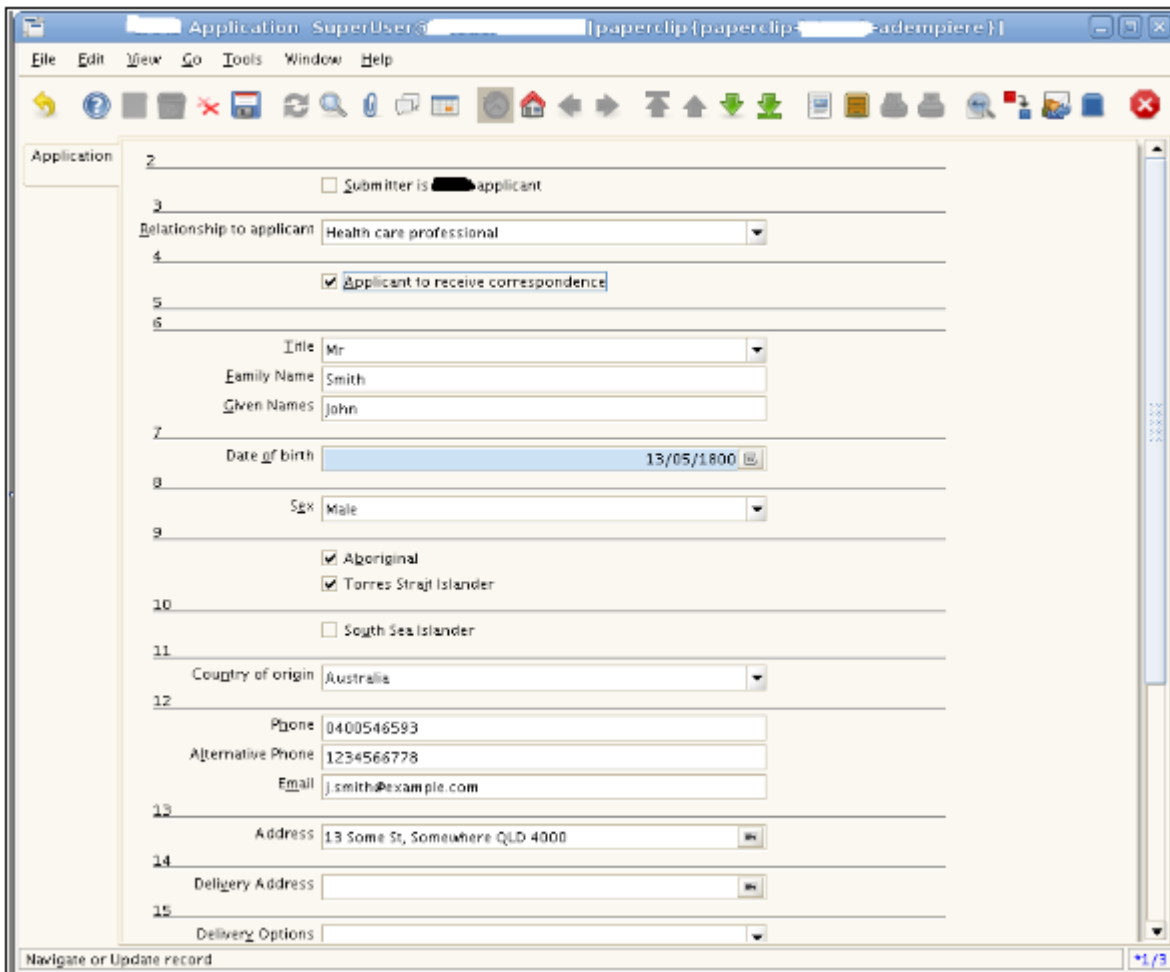
Currently this data is entered by consultants who must manually create an account and update all necessary information using a process that is based on an old version of the application form. Responses are stored as "attributes" making reporting more difficult. Adaxa suggests a that a new table be created for capturing all the details contained within the application form (in all its many versions). Data will be entered into the table through windows configured to match the order of questions in the printed application version and automatically 'un-display' questions 3, 4 and 5 if the answer to (say) Q2 is 'YES' and the form says go to Q6 if Q2 is "Y". This will enable faster data entry and will reduce errors.

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Each Application Form will then be assigned a status (e.g. awaiting further information, letter sent, approved, etc.) and workflow processes could be invoked to ensure that the application is processed in a timely fashion (AD).

Once the application has been approved, a new process would be run to automatically create a BP record (if required) with the required contacts, locations and entitlements without further intervention (CC). If the account or contacts can be identified as already existing when the form is entered, those existing records will be updated instead.

The total entitlement amount will be populated from the schedule containing the subsidy values according to the date the Consumer joined.

[Note: A similar process will be required for GS2 applications and Prescriptions (CC)]

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5.7 GS1 Order Rules

There is no minimum order value on GS1 orders. Freight is free for the first four orders. If a customer order exceeds their entitlement of free deliveries, the Company is permitted to raise an order for the freight charge be sent directly to the customer. This will be automatically created upon completion of an order. The Operator may need some kind of warning to pop up so that she/he knows what the value will be before the order is completed.

There is no flammable freight surcharge on GS1 orders.

NOTE: A freight line will be added automatically to every order and the price will come from the price list associated with the order.

5.8 Government Scheme 2 Program (GS2)

The "Government Scheme 2 program" (GS2) is a program where goods are supplied to consumers at no cost provided they are on an approved medical prescription and meet certain time/quantity limits of the scheme.

GS2 provides a mechanism for electronically billing the GS2 government department for the products supplied under the scheme (GS2 Payment Gateway). Normal commercial invoices are generated to GS2 for each delivery made to a GS2 client. The invoice must show the GS2 client's account code and possibly an extra code where an increased entitlement has been authorised by GS2. XML documents need to be generated and uploaded to the GS2 website for validation, processing and payment.

5.9 Contracts

A GS2 contract defines what products can be supplied by the Company to the Consumers under the GS2 program, what their corresponding GS2 Item code is and the price that will be paid by GS2 to the Company.

A valid contract reference must be uploaded to the GS2 Payment Gateway system before any invoices can be processed.

In ADempiere the GS2 Item code will be stored against each product and the GS2 program price list will control which products are available.

5.10 Direct Order Form – Medical Products Prescriptions

The 'Authorised Order Form' is in two logical parts (on a single page), the top part details the Prescriber, the Prescriber qualifications, the Patient and their details and various other pieces of

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information about the patient, and the start date and end date of the Authorised Order Form.   The second part identifies the individual items that GS2 has authorised to be supplied to the consumer.

Adaxa understands that the start-date and end-date rules for a prescription are as follows: the prescription has a nominal life of two years which commences on the date of the first draw down of product under the scheme (which we wont know at the time of entering the prescription form in the system) and lasts for a nominal period of two years although it is possible for the Company to continue supplying product after the two year limit provided that the operator alerts the patient to the need to get their prescription updated.

The above items of information will be captured in a new form in the same way as is described earlier for GS1 consumers (although apparently only for a single form layout) **<CC>**.

Information about each prescription will be stored in two new linked tables: GS2 Prescription Header and GS2 Prescription Line.

5.11 GS2 Prescriptions

The GS2 Prescriptions table will store the identifier for the patient, the identifier for the Prescription (and hence its authoriser, etc.) and the individual items in each "GS2 Item No" product class. There will also be start-dates and end-dates inherited from the Prescription.

5.12 GS2 Item Number

Each product that can be supplied under the GS2 program is identified in a table that lists the GS2 Item Number (effectively a Product Category concept), the Product Code, the Supplier Item Number, the Product name/description and UOM. These values will be stored in additional fields (where required) to the standard Product table in ADempiere.

5.13 GS2 Products Schedule

This Schedule contains the 'rules' about the quantity of product that can be supplied over time to a GS2 patient. A table containing these rules will be created and each Sales Order entered into the system by an Operator will be automatically compared to the entitlement(s) that exist for the patient to see whether a particular order is within the rules of the scheme.

In evaluating the rules the system needs to understand:

- there will be a primary prescription for the patient

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- there may be additional prescriptions for the patient

- there may be a specific authorisation for an increased allocation given by GS2 (see next section). An example of a reason that this may occur is that the "schedule" sets a monthly limit on the quantity of product X that can be supplied as (say) 96 but the standard pack size for this product is 100 and for hygiene reasons the pack cannot be broken into smaller quantities.

5.14 GS2 "Extra Approval Request Form"

Some GS2 recipients require deliveries that are outside the basic GS2 rule book. A process exists for such things to be authorised.

<snip>

These approval numbers need to be recorded on Sales Orders and Sales Invoices and must be uploaded to GS2 Payment Gateway to allow payment. **<CC>**

5.15 GS2 Orders

No minimum order value. Freight charged at $N depending on delivery location. No flammable freight surcharge.

<...As Built...>

Late Change: The GS2 rules for ordering were added to the system as an automated process in Sales Order creation. When a call is answered in the call centre and a new GS2 order is created, the operator is able to click on a "create order" button. The system will then consider the items on the customer's multiple prescriptions, the pension status, the qty of each product supplied to the customer in the previous two years, the 'quantity-allowed' rules for each product over time and will then fill in the maximum allowable order quantities for each product on the prescriptions in accordance with the GS2 rules. The call centre operator can then reduce the quantities, particularly for bulky items where the customer can not store the whole quantity they are presently entitled to, click a button and the system creates the sales order lines. A Freight line is automatically added in accordance with the GS2 rules for freight.

5.16 GS2 Payment Gateway

The GS2 Government Department provides for online invoicing of GS2 related orders by suppliers through its "GS2PaymentGateway" software. It requires the production of XML files in a specified format that are then uploaded to their website for processing. This is currently achieved through custom software that combines data pulled from the existing accounting system together with data and configuration information stored in an SQL Server database to produce the requisite XML files. Occasionally the generated files are rejected by "GS2 Payment Gateway" for simple data validation failures (e.g. too many decimal places in a price), in which case they are manually edited and resubmitted.

<snip>

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5.17 GS2 Payment Gateway Invoice Accounting

A single invoice for each GS2 related delivery will be created with GS2 as the invoice-to-party.

After the successful upload of a GS2 Payment Gateway payment request a payment will ultimately be received together with a .pdf listing the invoices being paid. An existing program will convert the .pdf to text from which a list of the paid invoice numbers and amounts will be constructed (this is assumed to occur now and no functionality is suggested by Adaxa related to this process). ADempiere provides the capability to import Payments and associate them with the invoice being paid. This process will automatically cause the paid invoices to be cleared from the AR Ledger.

<snip>

5.18 Consumer Type Programs

The Company's customer accounts may also be split into different programs with potentially different rules (e.g. "Commercial", "Bill to", "General"). These may be managed in a similar manner to the GS1/GS2 programs.

Attributes of the programs could include: minimum order value, whether individuals order on their own behalf, who should pay, whether freight will be fixed or calculated on weight/volume etc.

<snip>

A product can presently only appear on a Price List once. A modification is suggested so that the price list stores a value for each Product/UOM combination. This should simplify invoicing of a product at the Carton/Box/Single Packet at a separate price without requiring multiple product

records or complex calculations based on quantity breaks. This is a fairly significant change in standard functionality. (CC)

> **NB: this is in the <...As Built...>**

<snip>

6 Call Centre Operations

6.1 Call Recording and Management

Business is transacted through the Call Centre so it is vitally important that the ADempiere implementation should be suitable for use by the consultants who operate the call centre. **<snip>**

The complexity of the present system undoubtedly requires that the Call Centre staff (hereafter "consultants") receive extensive training. **<snip>**.

While ADempiere is not designed as a call centre application, it can be configured and modified to provide an effective interface for consultants that draws together all the information they require to manage a customer call in a single place or at the very least allows right-click functions to take them directly to any fields or screens that are not immediately available. During the requirements gathering phase Adaxa spent a significant amount of time with the Call Centre delegate displaying the proposed changes and obtaining confirmation that the changes would be suitable. May we again stress that we believe that the new system will only succeed if the consultants are able to make effective use of the system and the interface it provides to the consultants and request that the proposed changes be further validated by the delegate.

6.2 The Call Window

Using the standard ADempiere tabbed window interface Adaxa will create a Call Centre specific screen for consultants to identify the party to whom they are talking and to enter and view data related to their current call. This has the advantage of enabling the capture extra information about calls and implement additional privacy validation that would not be available using the default ADempiere order entry process.

The proposed Call Window will look similar to the following mock-up.

> **<snipped – see "as built" below>**

Upon receipt of a new Call, the consultant will create a new "Call" record which will automatically record the start time. Adaxa has displayed a "Call Type" field which can be used to provide for categorisation (and display different information based upon the call type selected).

When the Call has been completed the consultant will press the "End Call" button which will record the end time of the Call, and could be used to display a form for entering Notes about the Call.
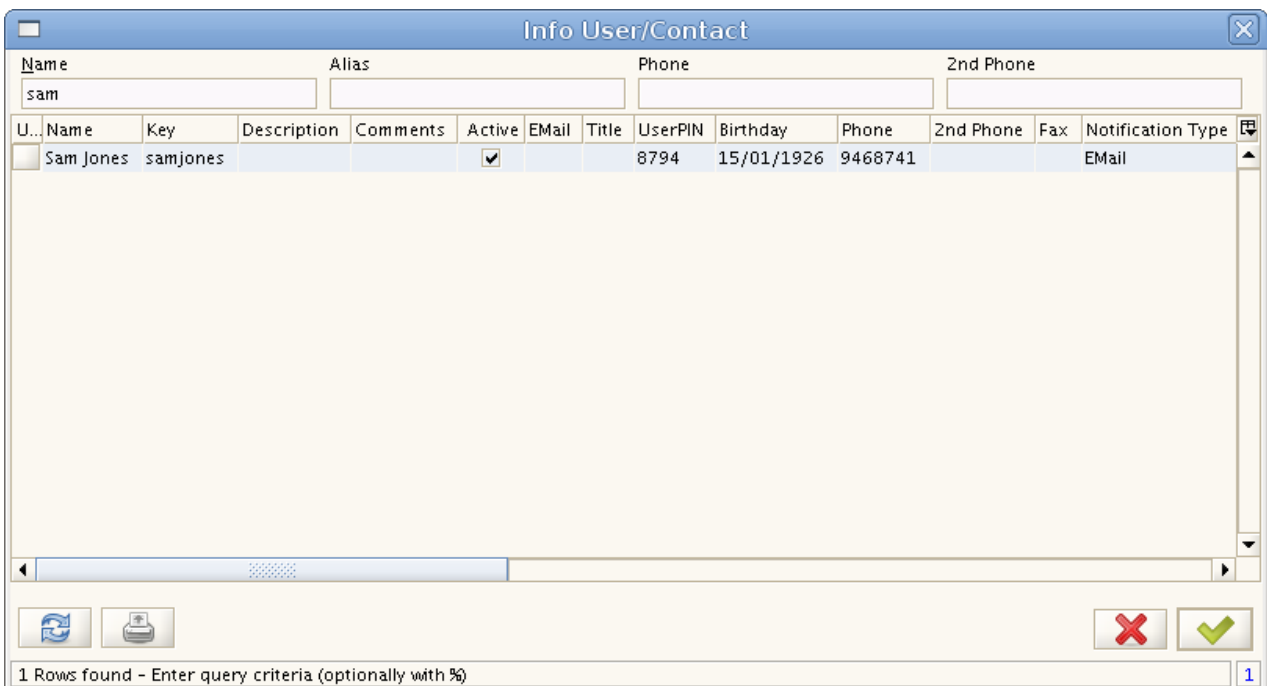
6.3 Searching for a contact

On receipt of a call the consultant must be able to identify the contact within the system from the following information:

- First, middle, last name and alias (known as).
- GS1 number, GS2 number, Customer account code .
- Date of birth
- Gender
- Address or part thereof

A Contact search can be initiated from the Contact field shown in the illustration, which will cause the BP Search form to be displayed. Below is shown the standard ADempiere Contact search.

Illustration 1: Standard contact search

This will be enhanced to add all the additional search fields required to the filters shown along the top of the form **<CC>**. As with BP searches, Adaxa will add Metaphone search capabilities to the name type fields to allow phonetic matches to be located.

The consultant needs to then verify the caller's identity against various details:

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- Date of birth

- Address/Postcode

- Telephone number

- PIN verification

This information is available in the search form, but it will also be displayed on the "Call" tab once a contact has been selected and the record saved.

> **<...As Built...>**
>
> **proposed amendment not yet implemented. The Company uses the Asterisk switchboard. ADempiere has been modified so that when the call is transferred to the Call Centre Operator the customers 'phone number will be queried in the AD_User table and if recognisable a new call record will be created with the customer information pre-filled for the operator. The Program/Activity will also be pre-filled by looking up the switchboard number that was dialled. Each number is associated with a specific program>.**

6.4 The Call Record

Each call will generate a Call record as detailed below. The creation of the record will set it's start time and the action of entering and saving a note about the purpose and outcome of the call will flag the end time of the call. There are constraints on our ability to control the user interaction with standard window handling functionality. These limitations are discussed at the end of this chapter under the heading "Constraints on Ability to Analyse Calls".

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A contact may have permission to create orders for multiple Business Partners (customers/ consumers). For each Business Partner they may be able to raise an order under either a government funding arrangement or through Customer Direct.

6.5 Privacy Issue

Supporting this arrangement with the necessary privacy controls will require a significant code change along the following lines (CC).

The structure contemplated is as follows:

- Consumers: Paul and Steven

    - Steven is registered for GS2 2008-09 and Consumer

    - Paul is registered for GS1 2008-09 and Consumer

- Contact: Nurse Mary provides care to both Consumers

    - Nurse Mary is authorised to know about and place orders for Steven in respect to GS1 but is not authorised to know about or place orders for Steven as a Consumer

    - Nurse Mary is authorised to know about and place orders for Paul in respect to GS1 and as a Consumer.

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If Nurse Mary rings the Call Centre the Business Partner field on the screen will be filtered to display only Paul and Steven. If there is only one Business Partner related to a Contact it will be defaulted into the field when the Contact is selected.

Once Nurse Mary identifies that she is ringing on behalf of Steven then the Program field will be filtered to display the Programs under which Steven has available entitlements. In this case it is GS1 2008-9. The Program field will default to a value based on the available entitlements, with GS1 preferred, followed by GS2, and finally Consumer, on the assumption that customers will prefer to spend the government's money before their own.

To avoid having to add a new Contact/Program record for each Program (i.e. one per year) the Contact (Nurse Mary) will be shown as having permissions relating to a particular Program Type for each BP rather than a specific Program as the system will know which programs relate to each program type. A start date and end date control will also be applied **<CC>**.

6.6 Raising a Sales Order

Once the business partner has been selected and the record saved, the consultant will be able to proceed to the second "Order" tab.

The Business Partner and Program selected in the first "Call" tab will be automatically entered into the order and the price list associated with the order will then default from the price list of the selected program based on the date of the Sales Order **<AD>**.

The Invoice-To Business Partner on the order will automatically update to the bill-to Business Partner of the selected program/activity if applicable. For customers with a "Bill To" type relationship to another Business Partner that is not 'hard-wired' into the Program record, the consultant will have to select whether to invoice directly to the customer or to the related paying Business Partner.

Illustration 2: Mock up of Order entry

The consultant needs to know the available funds for the customer:

- If a GS1 order:

    - Entitlement remaining

    - Free deliveries remaining

    - Pending returns (funds and free deliveries)

- If a GS2 order display valid prescriptions

    <...As Built...> – and create an order what they are currently entitled to order based on prescriptions and previous sales orders).

- If an Consumer order display debtor account balance (and any pending returns).

(Currently shown in the mock up are two of the fields relating to a GS1 order, the GS1 balance and GS1 deliveries remaining.) The other fields will be added and only displayed when on orders for the appropriate Program types **<AD>**. It is understood that the order "Date Promised" will be used to determine the validity of a Program in relation to a particular order, though this remains to be finalised.

The consultant should be able to alter the delivery address for the order using a "quick-add" form available from the 'right-click' context menu **<CC>**. This should add an extra delivery address to the BP record rather than updating the existing address, as previous deliveries may have already been dispatched to the old address. Similarly, a "quick add" form for Contacts will be required. These will extend upon existing functionality that allows modification to the currently selected Contact and Address (CC).

A drop-down box for delivery options will be added with a value that will default from the business partner record **<AD>**. This will be a reference list with values including: "do not card", "leave at front door", "leave at back door". It will be displayed in the "Delivery" area of the order header.

There will also be a flag for "Discreet wrapping" with the value defaulting from the BP record (AD).

The order sales representative field will be defaulted to the currently logged on user/consultant.

6.7 Notes and Warnings

On selecting a business partner or a product a warning pop-up dialogue should be displayed if one exists. These can be used to display special instructions to the consultant. The 'Warnings' will be a special type of 'Note' that can be added by any operator and will appear in a 'Notes' tab at the bottom of the Sales Order tabs. The Note will appear as a Warning (i.e. auto pop-up) if the value "Is Warning" is set to "YES" by an authorised person.

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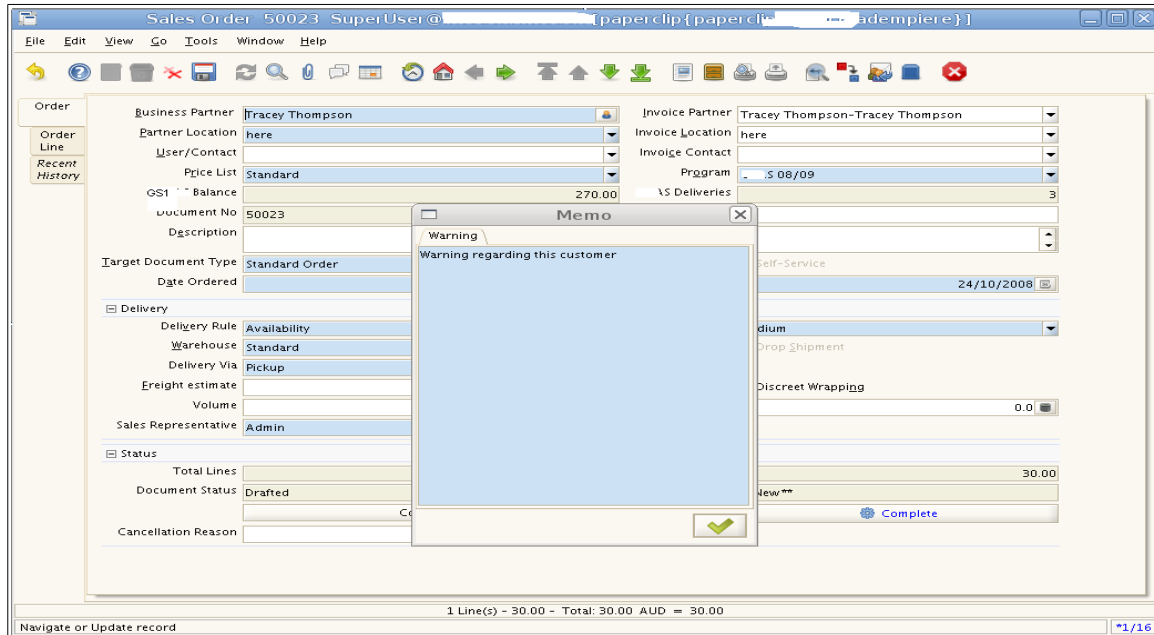
Illustration 3: Example of a warning that pops up when a particular BP is selected.

The Warnings table will have columns for BP, Program Type, Product etc. and whether a Warning is displayed in a particular circumstance will be controlled by "and" logic. For example a warning about Nurse Mary and GS1 will not pop up unless the record being worked on contains both properties. This is intended to control the 'popping-up' of confidential information that did not need to be displayed in the current context.

Non-warning notes will be used by the consultants to record simple text messages about each call. Currently they are used to narrate the details of each conversation and record actions that have been taken. **<snip>**

Notes could be associated with a business partner, a product and/or a program. When accessed from within a sales order only those notes relevant to the partner AND program should be displayed. When accessed from the business partner all would be displayed.

6.8 Recent Purchases

In the order entry screen a tab will be displayed showing a complete history of the customer's purchases with the Company, ordered from the most recent to the oldest **<AD>**.

Illustration 4: Mock up of sales order entry showing history tab

6.9 Product availability

Currently the consultants are able to see, as they place the order, whether a given product is going to require a back order. We can display Quantity Available for a given product as an additional field on the order line tab, and display a calculated value for the resulting back order quantity **<AD>**.

6.10 Related and Substitute Products

Consultants should be made aware of related products for cross-selling and substitute products in the event that a product is unavailable. These could be added to the right-click menu on the product search field **<CC>**. A Warning may direct the operator to cross sell as required.

6.11 Payment Methods

Where possible, online processing of payments should be provided through an extension to the built in ADempiere functionality. **<snip>**

<...As Built...> amount of payment requested automatically adjusted for any credit or debit balance on the customers account (not in uploaded code).

6.12 Freight charges and Automatic Freight Calculation

Volume and weight information recorded in the Product table is already used by ADempiere to compute a total volume and weight for an order when it is completed. We will add a process that uses this information to give an estimate of the freight charges based on the freight schedule provided by Customer **<CC>**. This estimate will then be stored on the order record in a custom field **<AD>**.

If a flammable/hazardous product is included in the order, depending on the rules of the selected Program, a freight surcharge may be applied **<CC>**.

Freight charges will be treated as non-stocked products and automatically added to orders as additional lines, allowing full control of pricing and tax handling. A hazardous product will automatically trigger the creation of the additional order line for the freight charge if it is applicable **<CC>**.

<...As Built...> freight amount is calculated by a <u>Freight Calculation module</u>.

The module automatically calculates freight based on the Shipper used, the source and destination, the number and weight of cartons and whether there is a fuel surcharge in operation. Columns were also added to the Product to allow additional weight information to force an extra cost for difficult to pack items. The product is also flagged to indicate whether it comes from bulk store or "pick many items and box together'.

The data structures to support the new module are as displayed below.

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<...As Built...> The Shipper Record

<...As Built...> The regions defined by that Shipper

<...As Built...> The Postcodes that fall in each Region for that Shipper

<...As Built...> The costing matrix for the Shipper for each of the Shipper's Regions (left screen part)

<...As Built...> The costing matrix for the Shipper for each of the Shipper's Regions (right screen part)

..	Valid from	Freight Region	To ▲	Base Charge	Additional Package Charge	Weight Unit Rate	Weight Multiple	Weight Multiple Rate	Minimum Charge	Surcharge %
	28/06/2010	Q1	BR	.90	.90	0.00	0.00	0.00	0.00	0.00
	28/06/2010	Q1	CB	.90	.90	0.00	0.00	0.00	0.00	0.00
	28/06/2010	Q1	GC	.45	.45	0.00	0.00	0.00	0.00	0.00
	28/06/2010	Q1	GF	5.90	.90	0.00	0.00	0.00	0.00	0.00
	28/06/2010	Q1	GL	.90	.90	0.00	0.00	0.00	0.00	0.00
	28/06/2010	Q1	IP	.45	.45	0.00	0.00	0.00	0.00	0.00
	28/06/2010	Q1	N1	.45	.45	0.00	0.00	0.00	0.00	0.00
	28/06/2010	Q1	N2	.00	.00	0.00	0.00	0.00	0.00	0.00

<...As Built...> Extra Columns stored on Product to be used for Freight Calculation

Product Type	Item
Weight	1.06
Shipping Weight	1.06
Packs per Carton	4
✔ Stocked	
Volume	0.00
✔ Pick from Bulk	
Consolidate Part Cartons	Yes
Locator	02

(note that this functionality is NOT in the uploaded version but will be separately committed)

6.13 Order Cancellation

Before an order can be cancelled, a reason for cancellation must be supplied from a drop down list which includes:

- Not due for supply
- Product not required
- Veteran out of state
- Wrong account invoiced
- No payment received
- Duplicate order
- Consultant error
- Prescriber request
- Client request
- Goods on B/Order

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- Special item unable to return

- RA not required

- Not an RA – Despatch error

- Client deceased

- Ineligible **<AD>**

<...As Built...> Extra processes were added to allow an order to be closed and cancel any undelivered lines. This was necessary to manage some 'period closed' issues that became apparent when operators re-activated orders to achieve the same outcome which resulted in voided Shipments that were "in progress" and already sent to the 3PL.

6.14 Returns Process

The standard ADempiere Return Material Authorisation (RMA) process will be used to process returns and track the reason for a return. This involves creating an RMA that links to existing Sales Order lines relating to the order that is being returned. This allows the user to specify which products and quantities are being returned and for what reason. Once the RMA is completed (optionally requiring an approval process) a "Return Material Order" can be generated from it. A material receipt (opposite of a customer shipment) is then produced when the goods are received back in stock and a credit note issued as per standard invoicing processes.

<...As Built...> significantly modified due to the complexities of returns going to the 3PL warehouse, many received without an RMA.

6.15 Orders Placed by Health Professionals

<snip - now managed in the web store where a health professional logs in and can place multiple orders on behalf of the consumers on whose behalf the health professional is authorised to operate.>

6.16 The AJAX HTML Interface for Health Professionals

<snip – no longer used and replaced with the Drupal/Ubercart web store>

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6.17 Constraints on Ability to Analyse Calls
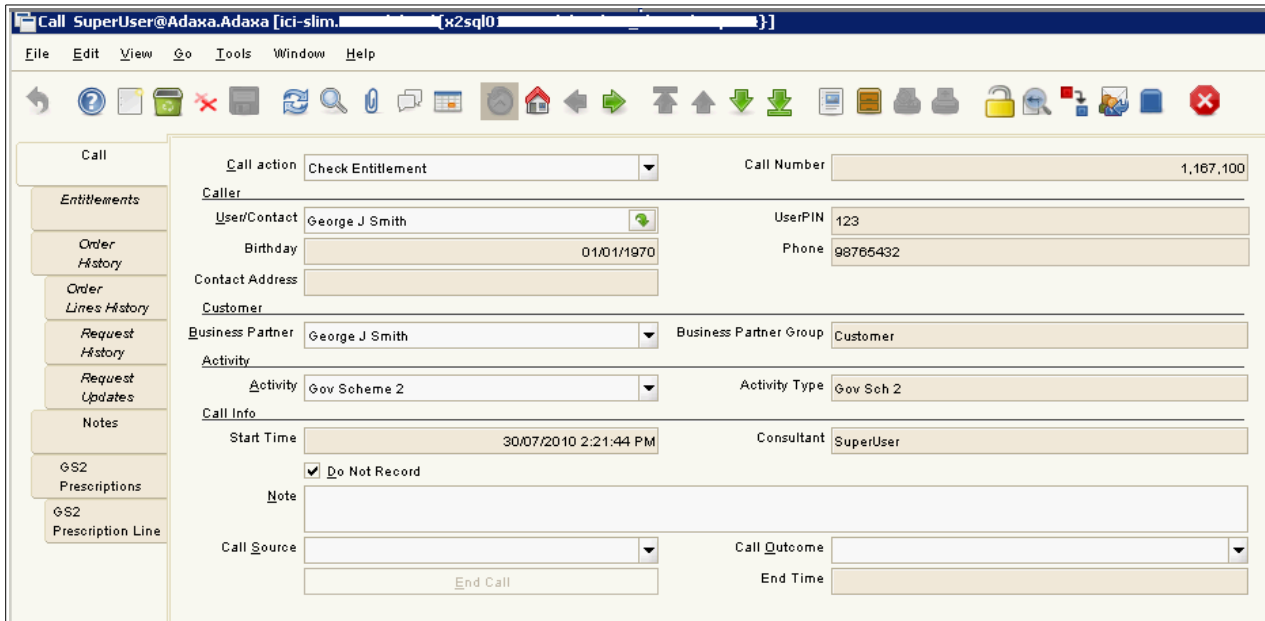
It should be noted that ADempiere is not a Call Centre management tool and there are constraints on the ability to capture data about calls and particularly the time spent on particular **processes within calls.** For instance, on some calls, the caller will want to do/discuss multiple matters and some of these tasks may not be of a type for which we are creating an ERP record. Also some people call to place orders for multiple Consumers. We will undoubtedly find limitations on our ability to analyse calls for the above reasons.

It may be worthwhile to create a 'call number id" for each Call record that is created and to add this value to each sales order that is created during the call.

6.18 The As-Built Call Centre Functionality-As Built

The final "Call Window" has the ability to display a set of tabs which are relevant to the "Call Action". For example if the Call Action is 'Create a Sales Order' then the tabs displayed to the call centre consultant will be those that enable the entry of an order. If the Call Action is Change of Address then the appropriate tab(s) will displayed which enable the change of address. Examples are shown below.

Call Tab with tabs displayed when Call Action is "Check Entitlements"

<...As Built...> Call Tab with tabs displayed when Call Action is "General Enquiry"

<...As Built...> Call Tab with tabs displayed when Call Action is "Link Contact to BP" [note that the system is modified so that Contacts are no longer 'owned' by BP's – it is now many-to-many]

<...As Built...> Call tab to add a new Contact for a Business Partner

**<...As Built...> Call Tab with tabs displayed when Call Action is "New Order"
Note that a warning has been displayed when this BP was selected in the Call
tab.**

<...As Built...> Call Tab with tabs displayed when Call Action is "New Order"

<...As Built...> Order tab when Activity is GS1 – note display of $800 unspent balance and 4 unused free shipments (on second row) Order will throw warnings if this value is exceeded. The value is decremented by each order line value and remaining balance shown in order line also.

<...As Built...> Order window when Activity is GS2 – note button 4th from bottom on left used to auto-generate order lines per program rules.

<...As Built...> Click create GS2 order to evaluate the maximum present entitlement, vary the qty down in discussion with customer and then populate the order lines and freight etc.

<...As Built...>

Extra notes

Due to the involvement of a third party logistics entity (3PL) there were many changes to the standard ADempiere behaviour. For example, a shipment can now be created and be "in progress". Two days later the 3PL sends a confirming message and the date on the shipment then needs to be changed. Shipments that involve a 3PL need to be able to be completed even though the accounting period is closed (etc.).

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7.1 Third Party Logistics - 3PL

Currently, the Company's major warehouse operations are outsourced to the 3PL and picking and despatch of product is achieved through a process of exporting a daily batch of orders to a text file. This file is forwarded to the warehouse and processed overnight. This creates considerable latency and makes it impossible for goods to be shipped on the same day as ordered. This is caused by the shortcomings of the 3PL systems rather than any shortcomings of ADempiere.

The implementation options for warehouse functions seem to be wholly dependent on 3PLs capabilities and more particularly, changes therein.

The first section of this discussion explores the processes that occur at present and how ADempiere can be implemented within the constraints presently imposed by dealings with 3PL.

A later section explores the more generalised EDI functionality that is available within ADempiere that will hopefully be able to be deployed when 3PL are able to receive and process these standard document interchange processes.

7.2 Interactions with 3PL – the Current Position

<snip>

7.3 3PL Order File

<snip>

7.4 3PL Goods Shipped Confirmations

<snip>

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7.5 Purchase Order advice to 3PL

<snip>

7.6 3PL Prioritising Report

<snip>.

7.7 Goods Received Advice from 3PL

<snip>

This file will need to be de-constructed if it is to be used as an input to ADempiere to confirm Material Receipts **<CC>**.

7.8 Stock variance

<snip>

7.9 Delivery Notes

Currently 3PL produces 'invoices' that are sent with the goods. Apparently this causes some confusion for GS1/GS2 orders that are not meant to be paid for by the customer. Ideally 3PL should only provide a Delivery Note if the invoice to party is different from the delivery partner. We therefore need ADempiere to control the format of documents not the 3PL.

> **<...As Built...> was not possible in the end due to constraints at the 3PL.**

7.10 Shipments

The majority of orders are sent via a single carrier linked to the 3PL.

7.11 Shipment dates

The Company requires multiple dates to be tracked for each shipment (e.g. date sent to 3PL, date received, etc.). The standard ADempiere shipment record holds up to seven dates including Pick

Date, Ship Date, Date Received, Date Printed, Date Ordered and if required Adaxa can simply add additional date fields **<AD>**. Some of these dates will need to be automatically updated through the processes used to communicate with 3PL **<CC>**.

7.12 Discreet Wrapping

A flag will be added to the Sales Order to indicate that deliveries should be discreetly wrapped **<AD>**. This will default from a similar flag stored against each BP record and will be copied onto the shipment documentation which relates to the order so that shipments which require discreet wrapping are clearly identifiable.

7.13 Hazardous goods

A flag will be added to products to indicate whether they are hazardous and/or flammable. If an order is placed for such a product, a *separate shipment* must be created for it with handling instructions printed prominently on it **<CC>**. A surcharge is applied to such orders if they are for the Customer direct. The surcharge will be handled as a non-stocked product.

7.14 Drop Shipment

Drop (or "direct") shipment from the Company's supplier to the customer should be supported with a flag on the product level. If that product is ordered, then when a Purchase Order is generated for the sales order it should be created as a drop shipment. **<snip>** Only standard functionality is presently contemplated at this time. This requires running the process "Generate PO from SO" for each sales order for which a drop-ship is required.

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7.15 Back Orders

The delivery of back orders needs to be managed. An additional delivery rule is proposed "Availability + 1 back order" that will cause available stock to be sent immediately and then the remainder of the order to be held until it can be sent as a complete shipment **<CC>**. **<snip>** This is to prevent the situation where many small shipments are made as back-ordered goods trickle into stock.

There will be the ability to override these controls at any time, for example, in the case of urgently required products that should be sent as soon as they are available.

7.16 Communications with 3PL

The 3PL required that records be be flagged as "new" or "modified". This was done by adding a column to the relevant table named "Date/Time Exported" If this column had a null then it was a new record. The export file creation process set the date time. At each export run the standard ADempiere "Updated" date/time was compared to the "Date/Time Exported" and if the latter was the more recent then a record with record-type "M" for modified would automatically be sent to the 3PL.

Export File Naming

The process that generated the tab-delimited files provided the ability to nominate the date/time column to be updated and allowed the created file to be named with a mixture of literals and ADempiere context variable(s) to ensure file name uniqueness and easy identification.

Files sent to the 3PL include

- **Product Master file**
- **Vendor file**
- **Purchase Orders**
- **Customer Shipment instructions (M_InOut)**
- **RMA's**
- **Files received from the 3PL:**
- **Vendor Material Receipts**
- **Customer Shipment confirmations with package information**
- **RMA confirmations**
- **Inventory Adjustments**
- **Stock on Hand Reports**

Incoming files are dumped into specially created ADempiere Import Tables and then purpose built processes import the file content into appropriate ADempiere tables.

Note – this part of the work turned out to be far more time consuming than was allowed for as a result of interaction between the 3PL IT department and

our developers. Every change that needed to be made so the two systems could communicate had to be done in ADempiere since the 3PL's system was already communicating with other customers and was not designed to allow for customer specific modifications.

The following screen shots show the set-up for creating a tab delimited file to be sent to the 3PL. In this instance it is a Purchase Order file that is being sent. The first screen shows the Report and Process set-up. The second shows all the parameters. The third shows a typical parameter in form view.

The fourth screen shot shows the process being run by a User (normally run as an automated Scheduled Task).

The file that is created is a file of all PO's and their lines (denormalised) where the export date/time is null (these have never been sent before and are flagged as type (N)ew plus all lines where the date modified is greater than export date/time (these are flagged as type (M)odified.

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Product Purchase Orders are generated with the following considerations. Is the product A, B or C class. How many days of recent sales history provides a good indication of daily demand? Demand is measured based on customer shipments per business day. What is the purchase lead time? What is the pack size and bulk – can we physically store it – are there transport efficiency considerations? Is there seasonality to the demand for the product?

8.1 Shipment Confirmations

<snip>.

8.2 Stock classification

<snip>.

8.3 Replenishment

The Company's supply department has identified that the existing replenishment rules in ADempiere do not meet their requirements. Adaxa has proposed an alternative method **<snip>**

8.4 Changes Required in ADempiere

Add Table: SeasonalityFactor

- Type 1 <values for each month of year>
- Type 2 <values for each month of year>

Add Table: Every Day of the year for the next 10 years

- One off task but makes it easier to figure out business days

<...As Built...> ended up using the non-business days table in calendar and just pre-loaded the next 10 years of Saturdays and Sundays into the table so that only public holidays needed to be added by the Company.

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8.5 Product window- Replenishment tab

Add columns:

- AverageSalesDaysSample (how many days sales history do we need to see average demand)

- Minimum Recent Daily Usage

- Maximum Recent Daily Usage

- Average Recent Daily Usage

- Average Recent Daily Usage plus seasonality factor

- Safety Stock in Average Days Usage

- Default locator for this Product in this Warehouse

8.6 Modify Replenishment Process.

New Process: "Reset Average Usage, Max and Min Reorder Points"

This is a new Process that is run optionally before replenishment. This process will automatically set or reset the values of Minimum and Maximum Qty of the Product Replenishment record (after which standard replenishment functionality is used).

The Process Parameters are

- "Product Category"

- "ABC Class"

- "Reset Average, Max and Min (Y/N)

- "Reset Minimun based on Average Usage x Days Safety Stock" (Y/N)

- "Substitute Daily Usage x Lead Time for Maximum" (Y/N)

- "Adjust Replenish Max and Min for Seasonality Factor   (Y/N)

<...As Built...>

Each products values can be reset directly within the Product record for that Product. The process was also generalised so that it can be run from the menu for all products in an ABC class or a particular Product Category.

The additional fields in the Replenishment tab on the Product window

<...As Built...> Seasonality Table

8.7 Replenishment Run.

The standard Replenishment Rule "Reorder below Minimum Level" will then generate the required orders.

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The "Reorder below Minimum Level" process will then use the formula

if (Qty On Hand + Qty on Order) is less (Minimum/Safety Stock + Usage during lead time) then place order for Qty of (Safety Stock + (2 x Expected Usage during lead time) – Qty on Hand)

8.8 Other Replenishment Rules

<snip - non ultimately used>
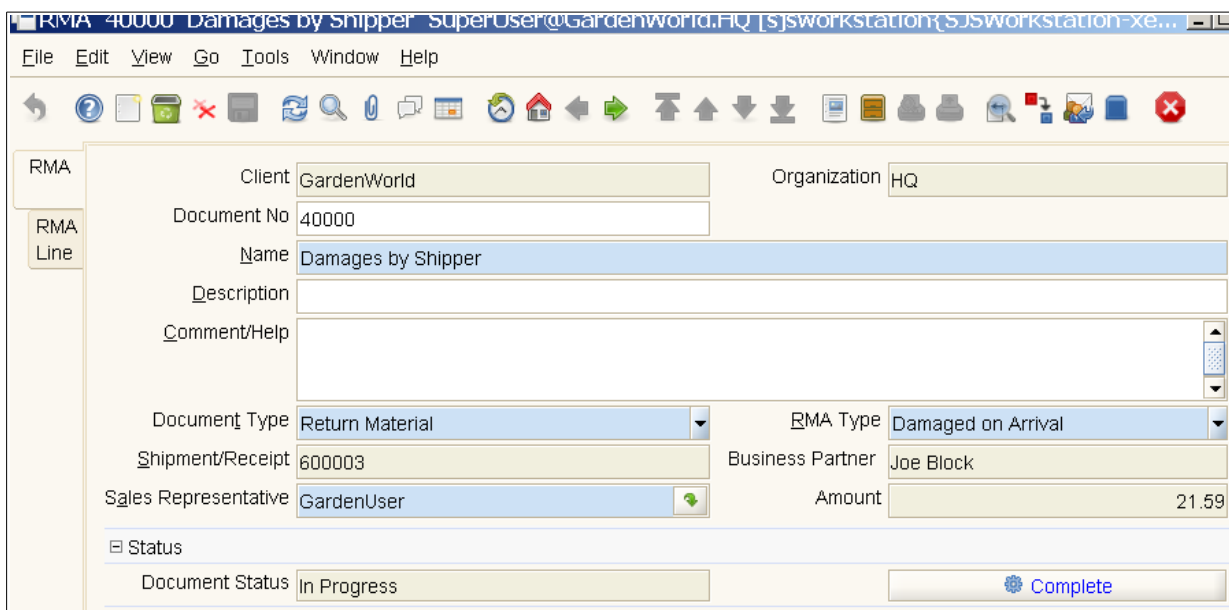
8.9 Customer Spreadsheet sent to 3PL re Impending Vendor Deliveries

<...As Built...> the denormalised file of purchase orders sent to the 3PO provided the necessary information

8.10 Status of RMA's as advised by 3PL

<SNIP>

8.11 The ADempiere RMA Process

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<...As Built...> RMA Line

8.12 Returns Investigation Statement

<snip>

8.13 3PL Morning Report – Goods on Back Order

<snip>

> *<...As Built...> No longer relevant as control of back orders is taken over by ADempiere and the 3PL is now sent shipment instructions for goods which should be on hand, not sales orders for goods which may or may not be on hand.*

9 3PL – Future EDI Options

9.1 Future Interactions With 3PL

<snip>

> **<...As Built...>**
>
> **This section of the document outlined ADempiere's EDI capabilities which were not implemented because the 3PL systems did not provide the required functionality.**

10.1 Web Store

<snipped … initially a discussion of standard ADempiere webstore functionality>

<...As Built...>

The "As Built functionality" is as follows:

A requirement of the new system was to ensure that the shopping cart was an integral part of the client's web presence. The same look and feel was required so that the web user was not able to differentiate between their shopping experience and access to other information and services made available through the web. It was the client's express requirement that they did not wish to have users transferred to a separate website when purchasing products on the web. There were also other significant requirements from the Marketing department that could not be met by the standard ADempiere webstore.

To achieve this outcome Adaxa deployed the Drupal Content Management System, a modified version of Ubercart and the deployment of the web services functionality in ADempiere.

A requirement of the new system was that the web served as a presentation medium only and the storage and management of data and business rules are maintained only in the ADempiere ERP system.

A further reason for replacing the ADempiere webstore is that the Programs/Activities and ordering by medical practitioners for multiple patients (as previously mentioned) would have required substantial additional work in the ADempiere webstore and would still not have met the client's requirements for a common look and feel.

The Ubercart system was modified so that all records related to e-commerce were created and stored directly in the ADempiere ERP system. When a user creates an account for themselves in the webstore, the account is created

directly in ADempiere and ADempiere sends out the account confirmation to the new customers email address. Information about products, images, price lists , etc. is cached in Drupal for performance reasons and refreshed periodically from ADempiere.

When the customer creates a shopping cart in the webstore it is actually created as a draft sales order inside ADempiere. There are about fifty SOAP calls (ADempiere web services) defined to enable the various interactions that need to occur between ADempiere and Ubercart/Drupal.

Product Attribute:

A major challenge was exposing ADempiere's Product attributes directly in the webstore and ensuring that the webstore only exposed valid combinations of (say) size and colour rather than every possible combination, some of which would not have actual product instances. (For example if we have an attribute of size we might have 20 or 30 size indicators like small, medium, large, 10, 12,14, XL 20 gauge, 24 gauge). If the product was only available in small or large we did not want any of the other attributes to be displayed in the webstore for that product).

Another Product issue was that a product may appear in more than one product category which is not supported in ADempiere.

The webstore also needs to be aware of the differing government schemes that a logged in user may be entitled to place orders under. This created a lot of complexity particularly when a medical practitioner may be placing orders for multiple patients/Business Partners at the same time. This required logic like:

- Is the User a medical practitioner?

- Which BP are they ordering for?

- Which Programs does that BP have an entitlement under which they have authorised this medical practitioner to place orders under and which price list applies to that transaction.

- **For each shopping cart/sales order created, is there any breach of the Program Rules and how do we advise the breach.**

- **Do we need to process a payment for the transaction or is it one we need to invoice to the government department?**

There are other complexities but I think the above gives an idea of the general nature of the issues that had to be addressed.

11.1 Interest Areas

The web store also presents functionality described as "Interest Areas". A high level user can define one or more "Interest Areas" and whether the interest area is available to be selected in the web store (i.e. self-service)
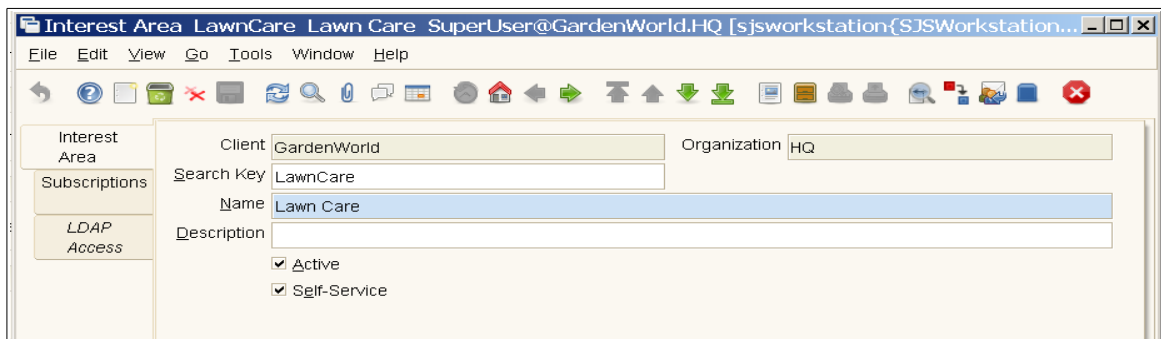
The next tab shows which Contacts have registered to receive emails from the Company about the particular interest area.
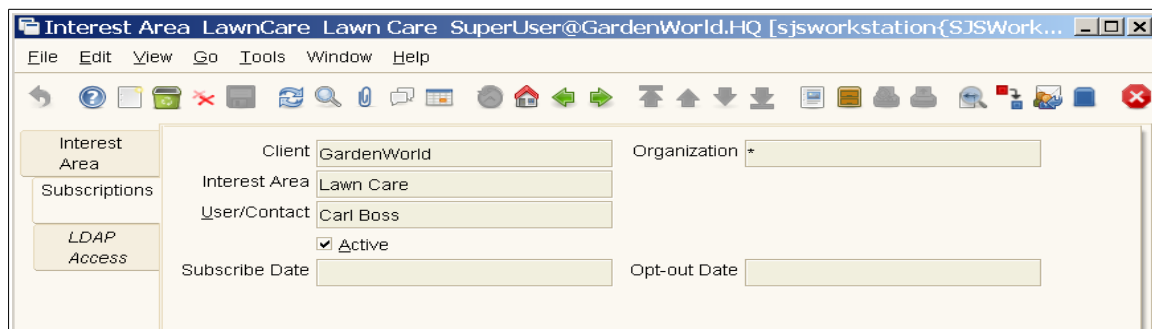
The LDAP Access tab is unlikely to be used at this stage.

11.2 Registering for Interest Areas by Contacts

Registered Users of the Web Store (i.e. Contacts in the application) are presented with the option of registering to receive Company information about a selected "Interest Area".

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The standard ADempiere Web Store shows that the User named Steven has registered to receive information about Lawn Care and Tree Planting. The date when the User either subscribed or unsubscribed is displayed. This information is recorded to meet privacy requirements. Because the standard functionality only allows the subscribe/unsubscribe values to be set by the User from within the webstore the Company can have reasonable confidence that if they use the functionality unchanged then they will not breach the rules governing the distribution of material by email.

It is also possible to change the values to make them able to be modified directly from within the application so that a mailing list can be maintained directly by the Company rather than by the User's subscribe/unsubscribe action. This may be appropriate if on an application form a tick-box is included to allow users to opt out of any email campaigns.

11.3 Mail Templates

Mail Templates are used to format the email messages to be sent to users who are registered to receive messages about a particular Interest Area.
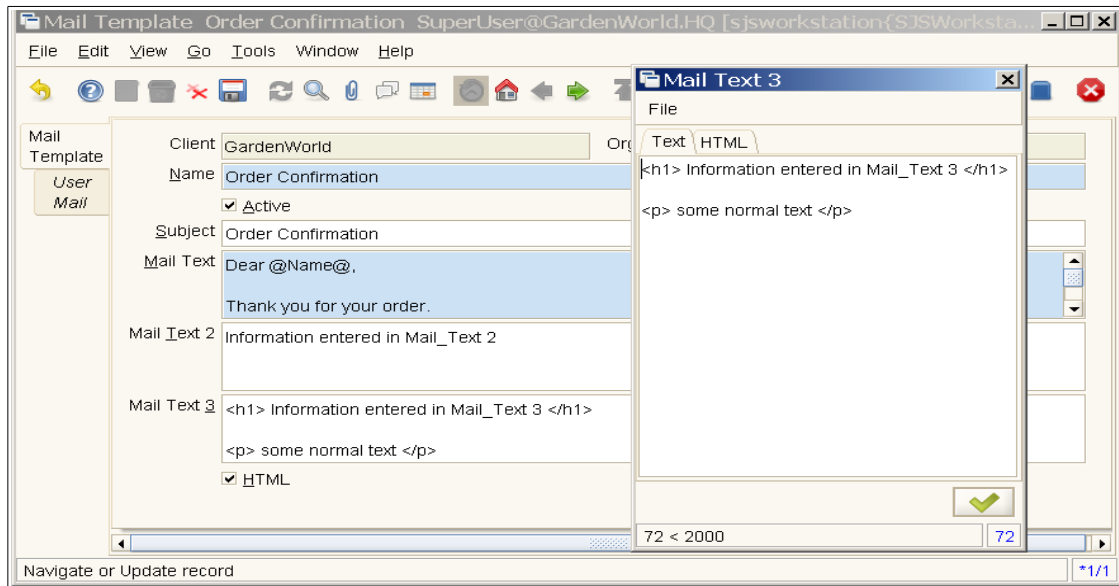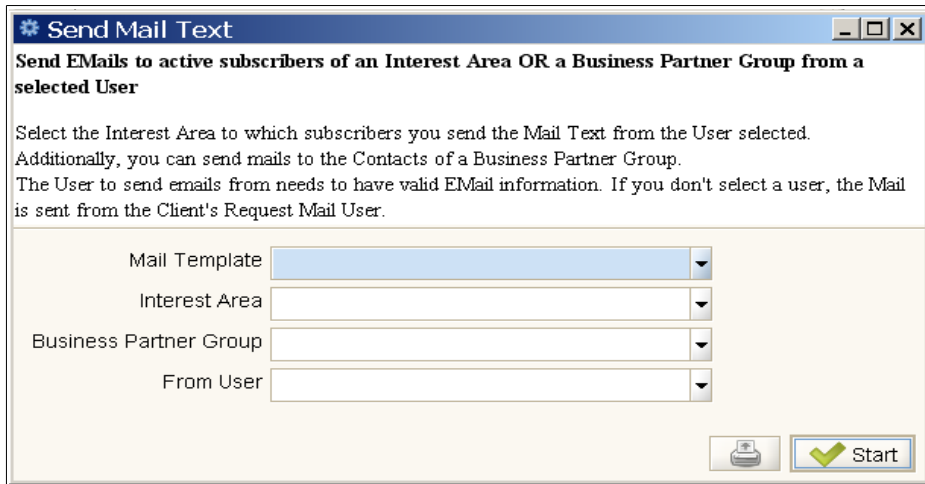
11.4 HTML Output of Emails

Emails can include HTML encoding as shown below.
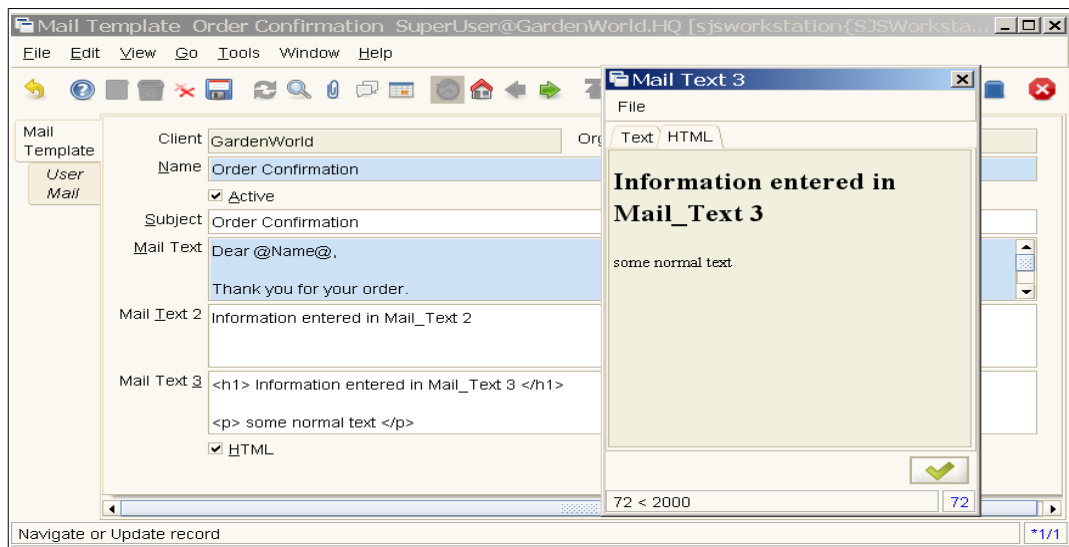
11.5 Sending Marketing Communications

A simple Process box allows the selection of the message to be sent out, the user who is to be the 'sender' and the recipients.

> **<...As Built...> The Company's website has been developed using the Drupal content management system. Drupal pages display the Interest Areas that the visitor can subscribe to. The subscription information is stored in ADempiere as described above.**

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12.1 Intranet Forms and Requests

Currently internal requests are handled using web forms on the intranet. The lack of integration of these forms with the ERP system requires information to be manually duplicated from one system to the other. The following intranet forms can be handled simply as Requests in ADempiere, which can include links to the relevant Business Partner, Sales Order or Product. The standard request functionality of ADempiere provides access to open requests from any of the entities they have been linked to, keeps a history of actions taken on the request and provides automatic pathways for forwarding and escalation of a request based on user defined criteria.

Intranet forms that have been replaced by the ADempiere Request system are set out below:

- Accounts – GS1 Inappropriate Use of Funds

- Accounts – Missing Payments

- Accounts – Duplicate GS1 Account Funding

- Call Back / Follow Up Request

- 3PL Escalation & Complaint Form

- Account closure request

- Call recording – Private flag request

- New product requestGS2 "Prior Approval Request Form" Some GS2 recipients require deliveries that are outside the basic GS2 rule book. A process exists for such matters to be authorised. Currently a template form is printed, filled in by the consultant and faxed to the department. It must have a copy of the prescriber request attached. The department completes the form with declined, approved, approved one-off and approval number. If we had access to a scanned copy of the prescription we could generate a request from the sales order and send it via the email to fax gateway. The scanned copy could be saved as an 'attachment' to the GS2 record for the Consumer in ADempiere.

- These approval numbers need to be recorded on Sales Orders and Sales Invoices and must be uploaded to GS2 Payment Gateway to allow payment. (CC)

- Accounts – Bill-To/Commercial account

- Accounts – Funds transfer

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- Accounts – Escalated GS1 Overspend Authorisation Form

- GS2 Replacement Order – Customer to pay for order

The following forms will be superseded by new or existing ADempiere functionality:

- Accounts – Credit card receipt request (consultants could be permitted to print out customer receipts).

- Accounts – Invoice/Statement request (consultants could print).

- Accounts – Consumer Refund Request (handled through RMA process).

- Accounts - 5th Order freight charge request (allow order to ship without $xx.xx payment)

- Credit card payment (details captured in ADempiere can be processed later).

<...As Built...> Many more forms were discovered and converted to ADempiere "Requests".

"Request Types" were extended to store default values for many columns of the Request to minimise the amount of data entry.

A "Request Subject" field was added so that emails and notifications can display the Request Number AND the Request Subject for improved readability and usability.

The "Email Request Processor" was modified so that emails with attachments caused the attachment to be added to the Request record as an attachment.

Finer control of "Urgency and Importance" was added to the Request so that individual   Requests could have their priority lifted. This is done on a matrix of Urgency and Importance with each pair having a "number of days/hours" allowed automatically set so that "time to breach of SLA" could be computed and displayed.

A "Satisfaction Survey" section was added to meet an ISO 9001 requirement.

The revised "Request" Layout is shown below:

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<...As Built...> The modified 'Request' screen:

top half of the screen...

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bottom half of the screen...

The standard request history tab showing all logged actions relating to the Request

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Values defaulted into a new Request when Request Type is selected

12.2 Recurring Documents

The following Change History log shows the type of issues and their corrections which were encountered during development and then in the first six months or so of production. It captures many of the"little" things that get missed when looking at high level functional requirements documents and specifications built from them. "Go-Live" occurred on release 42. Releases from about 20 onwards were subjected to User Acceptance Testing.

Adaxa0008	Database changes:
	Added foreign key constraints on custom tables.
	Created calendar periods and opened. Disabled auto-period control.
	Renamed Call centre menu -> "Adaxa consultants"
	Renamed Product BOM tab -> Promotion bundle
	Prevented deletion of Call records
	Hide "end call" button unless "call outcome" is filled in.
	code changes:
	Fix infinite loop on saving user in Contact window.
	Prevent new call creation when an unprocessed (not ended) call for the same consultant exists.
	Make GS1 delivery balance update on creation
Adaxa0010	Fixed replication export helper to correctly export files for webstore integration
	Enhancements to 3PL export processes
	Minor improvements in call window handling callouts, from user feedback.
Adaxa0011	display GS1 account number on entitlement
	make contact name field read only until saved
	created "replacement order" document type
	fixed notes saving
	fixed Call -> Notes tab "where" sql error on opening tab.
	removed "Title" field from contact
	changed Contact search birthday field to not display time.
	Call -> Orderline changed qtybackordered virtual column to qtyavailable
	display Call ID number
	prevent BP deletion
	make prescriptions Org = HO
Adaxa0014	database changes:
	GS2 related changes, see documentation page GS2. Included adding additional fields to product for brand name, brand item code, pack qty for GS2 use.

	Call window: Added "Related BP" sub-tab to "Create Contact" to display if call action type is "Create Contact (existing BP). The user must create the new contact, and then in the sub-tab add a new record linking the new contact to the BP (already selected in the call window and setting the relationship type.
	GS1 application: added variants for each of the four application types provided (some fields still missing from some variants).
	prevent inactive BP selection in call window
	Added Target delivery time to product purchasing for use in replenish.
	updated product replenishment functions with new versions.
	Added processes and windows for 3PL integration – import processes of Sales Order Despatch (SOD), Goods Received Notice (GRN), adjustments. (Code= beta).
	GS1 application process: generates applicant contact, business partner with addresses etc. Generates order contact with address and links to applicant BP. Generates Health Professional and links to BP.
	modify contact search functionality to support name search of multiple tokens. e.g. entering "ronald mcdonald" will search for "ronald" and "mcdonald" separately against each contact name field (first name, last name, middle name alias).
	Back ported import price list process from trunk.
Adaxa0015	tabase changes:
	GS2 related changes, see documentation page GS2. Included adding additional fields to product for brand name, brand item code, pack qty for GS2 use.
	Call window: Added "Related BP" sub-tab to "Create Contact" to display if call action type is "Create Contact (existing BP). The user must create the new contact, and then in the sub-tab add a new record linking the new contact to the BP (already selected in the call window and setting the relationship type.
	GS1 application: added variants for each of the four application types provided (some fields still missing from some variants).
	prevent inactive BP selection in call window
	Added Target delivery time to product purchasing for use in replenish.
	updated product replenishment functions with new versions.
	Added processes and windows for 3PL integration – import processes of SOD, GRN, adjustments.
	Added price list import window and process.
	Database changes:
	GS1 application process: generates applicant contact, business partner with addresses etc. Generates order contact with address and links to applicant BP. Generates Health Professional and links to BP.
	modify contact search functionality to support name search of multiple tokens. e.g. entering "ronald mcdonald" will search for "ronald" and "mcdonald" separately against each contact name field (first name, last name, middle name alias).
	Back ported import price list process from trunk.
Adaxa0016	database changes:
	Fixed bpartner -> user dynamic validation (so related contacts can be selected in non SO contexts)
	Added UserList1 = Department to Account Element

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	Database changes:
	import processes.
Adaxa0018	Revised menu layout.
	Fixes to replenishment process
	Addition of further windows and process for 3PL interface testing. These are still BETA and not ready for testing.
	3PL export of inventory, purchase orders and shipments should work, however the export formats are not yet complete.
	Replenishment should now work as planned.
	Note that it is necessary to generate a purchase order directly and not go via a requisition. Only going directly to the PO will decrement the suggested order qty by any undelivered qty on earlier completed orders. Please test the Call window and make changes (and record them) for windows and fields that are to be made read-only for some roles by using the 'role data access' window and functions.
Adaxa0019	Fix bug where Online CreditCard processing failed to complete Prepay Order.
	Fix issues with Return Material adding freight and checking GS1 balance
	Created GS2 prescription available function.
	Replenishment create PO in purchasing UoM.
	General fixes and tidy up of 3PL import processes.
	UoM based pricing implemented
	Product Info form changed to handle UoM – unnecessary columns removed.
	Code fixes to 3PL export process
	Updated 3PL Inventory Master export view
	Remove credit checking at SO completion.
	Fix BP open balance calculation on payment completion.
	Remove activity from Price List (price list is defined on activity instead).
	Make batch export process set export timestamp.
	GS2 postcode lookup for delivery type on order
	Added web product tree table and window
	Created 3PL export formats for PO and Shipments
	Fix contact search (phone number)
	Set sales region on BP location from postcode.
	change batch export process to use "report view" where clause for selection (removed process parameter).
Adaxa0020	General changes
	freight changes see Freight
	removed Client specific product window
	removed unused internal uom flag from uom conversion table
	synchronise standard order window with call order tab
	remove related business partners from contact search (only show the linked bp)
	re-layout call window

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	modifications to entitlements
	removed GS1 entitlement table, replaced with generic entitlement table (existing GS1 entitlements deleted)
	removed GS1 reference number and GS2 file number and Adaxa account number from BP. Use reference number on entitlement.
	added reference number sequence to activity – generate new reference numbers for entitlements (attempts to get existing reference number for activity type/ b.partner first)
	remove stored balance from entitlement table (dynamic lookup always)
	fix lookup of balances on orders
	display entitlement activity type in contact search
	fix contact search to lookup up entitlement reference numbers
	replace dynamic validation on call bp lookup to allow only users with access to specific activity type
	added contact access tab to call (only for call type new contact (existing BP))
Adaxa0021	fix contact search form for prescribers (on bp window)
	fix broken entitlement lookup on order creation in call window
	contact search changed of multiple parameters changed from 'or' to 'and'
	make price list import work with uom based pricing
	created test data as per client request
	configure test UoM
	always display cancel reason field on orders and require before cancelling
	improved algorithm for calculating max GS2 quantity available from prescriptions (including with prior approvals). "Create lines.." on GS2 orders is working though not complete – still need to validate totals on order completion.
Adaxa0022	added processes to prepare for managing migrations
	imported Webservice package
Adaxa0023	Database changes:
	fixed bug in merge entities (failing on virtual column)
	fix NPE on new order line
	rewrite GS2 max available function -> can't exceed prescription qty within expiry period
Adaxa0024	made health condition R/O on first tab of GS1 application
	Display AD item code on GS2 prescription line
	moved addition of freight to "Prepare" stage of order process
	enable all countries (needed for selection on GS1 application)
	fix inappropriate key column setting on Sales Region that prevented insert
	enabled "Prepare" on orders in call window
	fix missing account element tree (misconfiguration)
	back-ported **Promotions** from Adempiere trunk, applied migration script (but promotions not yet enabled)
Adaxa0025	altered Location dialog so default button (when hitting Enter) is Search, until an address has been selected from drop down, then switches to OK.

	fix search for phone no in contact screen –
	make sales rep dynamic validation use Link_BPartner_ID
	fix context problem in BPartner window – loses ID when tabbing past "Personal Info" tab
	enabled Promotions for testing
	if "New assessment" prescription created, automatically deactivate other prescriptions for customer.
	automatically deactivate lines of prescriptions that have been deactivated.
	new beta version of cascade delete entities for Paul to try on test data
	ported changes to promotions (adding activity and campaign)
Adaxa0026	improvements to order import process
	make each order a separate transaction
	propagate save errors back to import table
	add additional test for already existing document numbers
	make "Delete Entities" run (still beta) [does a cascade delete within a client based on AD definitions]
	ongoing improvements to GS2 handling (not yet completed – more details when finished)
Adaxa0027	GS2 order validation completed. Each order line is validated on entry, and before completion of the document.
	Finished "Create GS2 order form". Displays two tables, one with available prescription lines against which quantity to order can be entered. Only quantities within limit can be entered. Second table shows summary for each AD item code, highlighted red if order will go over and prevents creation of lines.
	Added report to display summary of prescription lines for BP.
Adaxa0028	"Child" value set to "INTO" until further notice
	Number formatting (####.00) applied to all amount fields.
	Number formatting (####) applied to all quantity fields.
	Date format (dd/MM/yyyy) applied to all date fields.
	GS1 applications
	Display condition and status related fields on application
	Added process for printing letter (note: print formats have not yet been defined for each status)
	"Process" application now does the following steps:
	creates new applicant contact and business partner
	links contact address and delivery address to business partner
	creates GS1 entitlement
	creates order contact
	creates prescriber contact
	To do:
	link prescriber/order contact to applicant
	add prescriber/order contact permissions on entitlement
	callouts to fill in fields if existing contacts are chosen in form
	break up contact name fields on the application so the created contacts can be correctly

	populated.
	Returns handling
	fixes to underlying returns transaction handling should have addressed these aegis incidents
	GS1 application date received: set to default current date
	GS2 order freight issue. Was not picking up activity type in Call -> order. Fixed.
	Cancel order reason. Made field updatable. Fixed.
Adaxa0029	Implement 2 delivery rule
	Fix issue with call user -> BP filtering (activity type not refreshing)
	Fix order_linetax_v (duplicate lines printing when multiple vendors defined)
	Reactivated vendor on product search window |90729021
Adaxa0030	Clearing the existing user field will now also clear the linked bp field. Fixed "AD_User_ID is mandatory" error when attempting to process an application with a new order contact.
	GS2 order prepare failed – could not reproduce but fixed potentially related issue where multiple prescriptions for the same product existed – only the most recently created one was treated as valid (rather than the one with the most recent prescription start date).
	Fixed trees not displaying under accounting dimensions.
	Displayed cancellation reason field on uncompleted orders as well
	Credit card payment form not displaying on Call.
	Cascade delete using AD process – added restriction to only delete external contacts when deleting from ad_user, also eliminated dependency building on createdby, updatedby columns.
Adaxa0031	Resolved data configuration issue with replenishment set-up: 3PLwarehouse configured with source warehouse = Sarah's warehouse
	error loading GS1 application: caused by migration script failing
	calculation of entitlement spending fixed
	RMA on GS2 orders "exceeded prescription" errors
	Bug where GS2 shipments failed to complete – unable to update order line qtydelivered without invoking GS2 validation inappropriately.
	Related BP on contact couldn't be edited
	Process GS1 application now creates Contact -> BP relationships for the order contact and the health professional, both with access to the BP's GS1 activity.
	Sample GS1 letter (for approved) created.
Adaxa0032	Undisplayed "Create confirmation" button on shipment/receipt windows.
	Performance improvements in GS2 prescription line validation on order line.
	Cancelled order still showing in progress
	GS2 freight prescription requirement (is working as specified)
	Create periods bug when importing accounts
	Prevent shipping where order value exceeds available credit.
	Created export views and formats. Awaiting information re: reason codes.
	Created import table
Adaxa0033	prevent copy role on itself deleting role
	Merge BP fixed.

	moved entitlement check from order prepare to save.
	price list import fails on multiple uom for product.
	promotion discount line had zero line amount
	added prescriber number and type to prescription
Adaxa0034	Change order type values, channel/shipper values etc as per new 3PL comms specification
	Can't save purchase order (requires entitlement). Check removed on purchase order.
	BD info BP group field dynamic validation
	GS1 application: set status to IEAGE (ineligible age) if applicant DOB > "Date received" - 5 years.
Adaxa0035	Allow users to be created at system level (prevent creation of BP).
	application process, don't give Health Professional access by default.
	set Invoice BP from entitlement if specified, else activity, else selected BP.
	inventory valuation fails for price list with dupe products
	Changes to 3PL import routines
	Generate shipments – don't create a shipment with only non-stocked products (eg freight) on it if order has any stocked products remaining to be shipped.
	Add "Prepare" to shipment document action list.
Adaxa0036	default activity from header into order lines
	finishing off RMA import/export from 3PL.
	display warehouse field on sales order.
	Price list on sales list not being set properly from activity
Adaxa0037	no shipments with only non-stocked products
	Import SOD from 3PL was not setting the doc status flag correctly when completing. User could then (re-)complete shipment and double up the inventory movement.
	Import GRN set the doc status flag to complete.
	Import GRN using wrong document type (Shipment instead of Receipt)
	Filter open purchase order process to completed orders not received.
	Check required verification code on CC processing
	Replace voice authorization code with card verification code on Payment form.
	Prevent logging of Credit Card data
	merge products fails on duplicate uom
Adaxa0038	partially shipped orders not included in generate shipment (manual)
	Reviewed – looks like price list setup issue
	Freight product is not being assigned an Activity when added to the sales order
	order sales rep default to logged in user, read-only
	Alter all 3PL import processes to use case insensitive matching. Review affected columns and add unique constraints.
	Modify generate shipment process to split hazardous products into a separate shipment.
Adaxa0039	Generate shipments credit check on Bill-To BP
	Prepare shipment credit check on Bill-To BP

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	Pay selection of invoice previously paid but payment cancelled
	GS1 invoice add offset account line when Prepare not complete.
	selection of uom in product info should populate order line uom
	fix payment form not saving non credit card payment
	update balance on order complete/void/reactivate
	performance improvements
	improve bill-to bp dynamic validation in order window
	improve sales rep lookup filter
	add validation on bp location fields in import order to prevent retrieving all records
	integrate ABA payment export into payment selection print/export
Adaxa0040	GS1 app process isn't setting del option.
	aving application fails if applicant DOB not provided.
	GS1 app set applicant contact type = 'Customer'
	Imported GS1 application records can not be edited and saved because Yes/No fields have null values.
	Hazardous product freight being split into separate shipment.
	new entitlements do not have their balances set
	Tidied up entitlement window
	generated BP not picking up template credit limit
	Generate PO for drop ship warehouse creating empty PO's for other warehouse SO lines
	Added support for searching BPs using contact search form. Not yet enabled on any columns.
Adaxa0041	modify 3PL export (SO line and RA line) to use charge name if no product on line
	GS2 delivery type ref list incorrectly amended
	BP bank account – make bank non-mandatory, move lodgement reference.
	GS2 invoice export issues
GO LIVE	**GO LIVE**
Adaxa0042	GS1 invoice offset not being added when using "Generate Invoice" process
	Make entitlement reference number editable, and mandatory on GS2
	Credit card refunds – out of scope, removed option from trx type list.
	GS2 create order form needs to warn of backorders
	GS1 application Health professional contact type and relationship type not set.
	Order credit hold flag/ status – automatically set status
	order payment terms etc not set from activity/entitlement bpartner
	credit checking on shipment should be against order bill to partner – was addressed in Adaxa0039
	order line freight reservation on prepare prevents deletion of line
	import RMA no longer matches BP – unused field no longer displayed
	Fixed import current stock levels process
	Performance issue with updating entitlement balances – improved GS1delspent, entitlementspent db functions.

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	Make BP address and phone fields not updateable. Removed "Update" option on BP field pop-up menu.
	Create Price List should copy UoM from base price list.
	Changed Order Payment Form to allow payment to be taken on orders that have been prepared but not completed.
	Improve payment rule/tender type name to clarify Direct Debit (outgoing) and Direct Deposit (incoming)
Adaxa0043	next cheque number setting
	PO line bp location not defaulting from header – couldn't reproduce issue, possibly data related.
	Auto archive clarify difference between Document and External – no difference.
	GS2 contract export doesn't update submission field.
	Couldn't prepare payment selection – imported BP Bank account details had isACH flag set to 'N'
	Import stock adjustment was not completing inventory move document
	Sales order history document wouldn't print as invoice location was null
	Import SOD failing on sql errors and invalid header info
Adaxa0044	Make "Generate Shipments" process take pending shipments into account when calculating stock availability for shipment.
Adaxa0045	Improvements to SOD and GRN import processes:
	Don't import header if detail lines have errors
	Fix deadlock in Import SOD
	Fixed error in matching order lines where multiple lines have same product (will still fail to import but without breaking everything else)
Adaxa0046	summary product not visible in web product tree product search
	Prevent revalidation (GS2/GS1) of processed order lines – it is being executed when shipments are being processed and may cause shipment to fail to complete.
	Stop import process rolling back on all errors.
	Reduce DB calls by using cached Activity information where possible.
	GS2PaymentGateway invoice export move </invoiceHeader> tag to before lines
	BP Delivery Option not being set in Order
Adaxa0047	Rewritten 3PL import processes with proper transaction handling
	Fix failure to create payments using ABA export and create export for Direct Deposit instead of Direct Debit
	Cloned generate invoice process – added filter by shipment date
	Delete/obscure Credit Card details following online CC processing
Adaxa0048	GS1 batch print process add filters for date created, status. Added support for specifying printer queue.
	Fix payment completion terminates if no CC number on payment.
	Fix Material Receipt "Create Lines from" using locator from wrong warehouse.
	Fix Vendor Invoice "Create Lines from" mismatch between shipment UoM and order price UoM.
	Add due date parameter to Create Payment Selection process
	Set tender type on generated payment

	Cancelling a purchase order generated from a sales order (eg for drop shipment) failed to clear reference to purchase order, preventing another PO being generated.
Adaxa0049	Alter remittance advice to pick up lines off allocation rather than payment selection line.
	Performance of BP contact dynamic validation
	Fixed error in GS2 available DB functions when multiple prescriptions with same PA
	Amended the GS2 create order form to display all active prescription lines even with 0 available qty
	Fix validation on prescription line creation incorrectly calculating total quantity for AD code
	Set shipment date from SOD delivery date
	Performance improvement on Import SOD (sales orders depatched by 3PL)
	Web store GS1 orders not tax exempt – ensure that if tax is not explicitly set then it is selected based on bill BP. Effectiveness in web store order not tested as I don't have a test environment.
	Validator to set order line activity from header not working on Web Orders.
	hide balance fields in non- GS1 orders
	Develop warehouse selection by product for XXXXX project.
	hide GS1 balance fields
	Changes to GS2 invoice export
Adaxa0050	GS2 prescription after save performance issue.
	Performance on dynamic lookup of bill-to BP – replace 'exists' with 'in' in sql
	Disable GS2 prescription validation on returns
	Zoom performance call order history -> sales order
	CC payments processed online need payment date set to processing date
	Invoice print format – layout and add additional information fields.
	Fix connection leak bug in web service library
	Performance fix on payment allocation linking to order
	Import RAR (3PL Returns) locking when process material receipt fails
	Payment print process not using supplied document number.
	User location can't be set for users created through GS1 application process with no address
	Request enhancements
	default values from request type
	filter request types by request category
	add subject line to request and email notifications
Adaxa0051	invoice generate query performance
	also split process into individual transactions for each invoice generated to reduce the likelihood of tying up the database
	Automatic allocation doesn't allocate prepayments (payments associated with an order).
	Credit limit check incorrect on orders with multiple shipments
	Import SOD set package number and ship date on shipment header
	User/contact not set in call -> order
	Port additional improvements to price list import from adempiere trunk

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	order with no lines can be completed
	GS2 - GS2PaymentGateway rejects encoding="UTF-8" in the XML header file
	Date ordered field not set on material receipt
	Freight only GS2 invoice – analysis of cause, prevent consolidated shipments.
	set date approved on GS1 application process
	over-supply on GS2 orders
	Bank statement account date
	Export ABA add option to print remittance.
	Generate PO from SO setting payment rule incorrectly.
Adaxa0052	Minor revision of Adaxa0051 – no database changes required.
	complete shipment credit check is against shipment BP instead of order bill-to BP
	Generate shipment (manual) fails – was broken by changes to transaction handling
Adaxa0053	Can't complete shipment if product is removed from pricelist.
	bank statement line date causes period closed error
	Import SOD set date acct from movement date
	date lookup handling
	GS2PaymentGateway calculation of ex GST total – workaround for their error
	multiple BPs created for contact. Fix template BP not setting created/updated by.
	don't include credits/negative invoices in GS2PaymentGateway batch
	advanced search enhancements
	replace adempiere logo with <company> logo in standard report header
Adaxa0054	Create GS2 order stock warning on non-stocked product
	GS1 application process – set HP details differently
	Purchase/sales order create multiple lines from Product Info
	fix discount schema quantity break using wrong UOM
	use system date when auto-allocating to closed periods.
	processes to delete and recalculate entitlements for BP merging
Adaxa0055	Entitlement validity dates not enforced.
	UoM conversion not applied when product+uom selected from Product Info screen.
	Future dated price list version picked up in order
	create order form displaying some none available prescriptions – already used single use, and old prescriptions where there is a later "New Assessment" prescription for the customer.
	Order status field not updated on void/close
Adaxa0056	GRN's not importing correctly if multiple GRNs for same order in one file
	Throw error if product is added to order twice [workaround for 3PL constraint]
	make Contact search work with Inactive BP
	BPAY (awaiting confirmation of file format and sample data for testing).
	Request zoom opens Find dialog
	GS2 export sort by invoice number

	Added qty used to Create GS2 order form
	GS1 free deliveries calculation
	GS2 invoice export set DEL as prescriber type for all freight lines
	Prevent Generate shipments being run multiple times at once
	Can't process returns with 2 delivery rule
	allow orders which already have been part invoiced to be included in "Generate invoice (manual)"
	GS2 invoice batching issue - per unit gst calculation is wrong
Adaxa0057	changing quantity resets charge price
	implement no credit check for shipment flag on warehouse
	clean up 3 digit postcodes
	shipments containing only freight with qty = 0
	shipment doc numbers conflict with 3PL GRN numbers – fix because no-one will change their No sequence
	generate consolidated shipments consolidates shipment with return
	GS2 GS2PaymentGateway invoice export error handling
	fix checksum calculation error
	Freight calculation routine

DOCUMENT SUMMARY SHEET

Client:	
Title of Document:	
Summary: *(Brief description of document)*	
Indexing Terms: (Keywords)	

Work Carried Out By: (Team initials or names)	**ADAXA Reference:**

DOCUMENT REVISION RECORD

File Name	Rev No.	Issue Date	Reason for Issue
Case Study - Complex Open Source Distribution System.odt	1.1	11/11/08	First draft
Comparison to "as built" and de-identified	2	12/08/10	draft

NOTES

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