

Smart Meters Programme

Schedule 4.1

(Contractor Solution) (Billing System version)

Schedule 4.1 (Contractor Solution)

This Schedule 4.1 (Contractor Solution) is formed of the following parts:

Part A - Introduction	3
Part B – Solution Overview	Error! Bookmark not defined.
Part C – Solution Detail	Error! Bookmark not defined.

Part A - Introduction

1. This schedule sets out the Contractor Solution to meeting the DCC Requirements for Billing System Services.
2. The Contractor Solution shall deliver the requirements set out in Schedule 2.1.

Part B – Solution Overview

The Billing System solution provides processing from the point of DSP data delivery to secure ftp through to payment receipt. The billing solution comprises of the following stages;

1. data collection from secure ftp, import of the data to the billing system (validation during import),
2. conversion of the data to sales orders,
3. consolidation of the orders to a single billing document,
4. issuing of invoices via e-mail and finally processing of payments received.

In addition to the DSP data use it is also possible to create manual sales orders for either debit or credit values, these also being consolidated at point of billing.

Billing will be performed on a monthly basis allowing draft invoices (multiple iterations possible, not financially relevant) to be created which permits a detailed checking of the invoice proposals prior to the generation of the VAT and financial relevant invoices. These will by default be automatically e-mailed to the nominated SEC Party e-mail address.

Two invoices per SEC Party per month will be generated, one for the CHuRP financing elements and the other detailing all charges for the period (showing the CHuRP value as a discount).

The Billing system is an integrated operational and financial system so all Accounts Receivable processing is also managed here, avoiding any requirement to pass the billing data to another system making for a more robust and efficient solution.

Part C – Solution Detail

As the Billing Solution is being delivered in SAP ECC then the descriptions contained herein relate to the SAP ECC system, both for master data and functional processing.

Key design decisions

SAP ECC6 – to be used for all billing processes. This is already used across Capita group for billing and financial purposes and is proven to be a robust, effective and scalable ERP system.

SAP PI – to be used to collect data files provided by the DSP and transfer these to a SAP related secure ftp location from where the data is loaded into SAP SD for generation of the SAP sales documents. Again, PI is already used in this capacity within Capita group.

Inbound interface structures and content will be as per the Enterprise System Interface Specification

1. Assumptions and Risks

Assumptions

Item	Comment
Tharion	Tharion is not part of the Billing Solution and it is assumed that Tharion will not be used by DCC Finance. It is detailed simply due to the Capita Group AR processes that are made available to all Capita Group companies
Credit Cover Requirements	Credit Cover related functions have been deemed out of scope for the billing solution.
Bulk Load of Service Catalogue	The automated load of Service catalogue is out of scope for the billing solution. Service Catalogue charges will be interfaced, but not the list of items.
New Service Users	The automated creation of new service users is out of scope for the billing solution
Workflow Items	It is assumed that some are still required, but no precise requirements have been provided to date so nothing is as yet noted in this solution document
Data Migration	It is assumed that no transactional data will need to be imported to SAP ECC as part of data migration.
Calculation of Interest	Calculation of interest on default amounts has been deemed out of scope for the billing solution
ESI file footers	That a change request to be submitted for the inclusion of a sum of the quantities in the footer line of each file is approved and delivered by the DSP. This is required to improve the validation on data entry to SAP ECC.
Service catalogue requests	There will be a manual process to create the Billing items with the potential to introduce an interface at a later date.
Master Data Maintenance	It is assumed that the current controls in SAP ECC are sufficient to a degree that no system based approval processes are required. This for SEC Parties, Price Conditions and Materials.

Risks

Item	Comment
Communications Hubs	<p>Late decisions on the charging process for Communications Hubs, particularly in relation to the Arqiva Financing, means the information contained herein may not reflect the true/full requirement.</p> <p>This has the potential to trigger re-work slowing solution development</p>
Additional Changing Business Requirements	<p>/ Any additions or changes to business requirements has the potential to delay delivery of the billing solution</p>
Workflow Items	<p>The delivery of workflows is complex and cannot commence until precise rules and requirements are communicated. This may therefore have an impact on the delivery of the full billing solution</p>
Automatic Alerts	<p>Until these are all know it will not be possible to estimate the necessary development time required for delivery within the Billing Solution</p>

2. Solution

System map

The following image shows a high level summary of the technical system landscape for the import of billing statistics and subsequent processing.

Processing Overview

There are two scenarios for creating data in SAP ECC for the invoicing of clients, via interface from the DSP and also by manual Sales Document creation.

The above shows the relationship for the interface aspects where SAP PI is used to move data files from the point of delivery to a SAP ECC specific ftp for data load to SAP ECC. This will include some simple validation around file duplication ensuring no file submitted by the DSP carrying the same reference is processed more than once.

There is then a second level of validation as the data is loaded to SAP ECC, confirming data passed is as expected conforming to the SAP ECC requirement. Once the data has been successfully imported to SAP ECC further processes will run to convert the DSP provided data to sales documents and then through to billing. It is from billing documents that customer invoices are issued. The billing system will be set-up to provide all relevant controls and price calculations and issue invoices to the clients either via e-mail or they can be printed for posting.

The billing system is also used to enter all billing corrections (credits/debits) post invoice issue and also be used to create ad-hoc billing data not provided directly from the DSP. These processes will be manual.

Daily, billing data relating to unpaid Invoices can be exported from SAP ECC to Tharion, Tharion being used by Group AR for debt collection purposes. **Tharion does not form part of the billing solution**, but information is included here as it will optionally be available to DCC should you wish to utilise its functionality for debt collection purposes.

Billing Requirement Overview

Per period (monthly) the billing solution is to produce two invoices per qualifying SEC Party, the first based on overall charges relating to the goods and services provided minus the CHuRP invoice value (proportionally applied against Comms Hubs Fixed Cost) and a second to invoice the CHuRP value (proportionally applied).

2.1 Application Design Blueprint

The section below outlines how SAP ECC will be used to provide the solution..

2.1.1 Sales & Distribution Processes Overview

The Sales & Distribution (SD) module is the area of SAP which controls all Sales Order and Billing related activities. The DCC solution will be based on non-deliverable materials, meaning there is no requirement for any goods handling processes.

Invoices will be created based on information provided via the relevant reports with the option to manually create sales documents for ad-hoc charges or credits.

Examples of ad-hoc being interest charges for late payment, consulting, explicit charge schema development etc. Not all manual charges or credits are known at present.

From all interfaced data received and manual billing data generated during the billing period consolidated invoices (all Sales Orders combined to a single Billing Document) will be raised and issued to the SEC Party.

There will be a process to create Draft Invoices (not financial relevant) to enable checking followed by a process to generate the finance relevant invoices for issue to the SEC Party.

2.1.2 Inbound Data Handling

It is required that data be provided by the DSP **once per month**, per data set required for billing purposes. These will be required to provide all relevant information to support the calculation of charges, meaning it is possible in SAP ECC to determine the SEC Party to be invoiced and a material per type of charge and also providing sufficient information to support the generation of customer invoices.

Data will be transferred on an inbound basis only; the billing solution will not provide outbound data streams back to the DSP. For Billing purposes only some, not all, of the interface reports will be required for import to SAP ECC.

2.1.3 File validation and logging

At time of inbound processing the Billing Solution will check that;

- There has not been a previous submission for the same period – if Yes will not load and report an error
- The header file reference combination of Organisation_name, File_type, Sequence_number, Creation_date and Creation_time has not previously been successfully processed – if Yes will not load and report an error
- Each line contains a full complement of data, all keys are valid and that the quantity field is numeric – if No will not load and report an error
- The number of lines within the file (excluding the header and footer line) matches the control total in the file footer – if No will not load and report an error
- The quantity in the footer matches the sum of quantity from all data lines (see assumptions) – if No will not load and report an error
- Where a file contains records with a duplicate key the file will not be loaded and an error will be recorded. It is expected that the DSP data extract process will also check for duplicates so the situation should not arise.

All files received via the interface will populate an internal control table that will hold sufficient data to ensure the import of a single file more than once is not possible.

Files that are passed for processing will be recorded in this table with a successful flag.

Files that fail any validation check will not be processed. The file name will be recorded in an internal table together with at least one reason for rejection, from this table a rejection notice will be issued to an appropriate DCC nominated e-mail contact address. Files that pass all validation checks will be imported to SAP.

2.1.4 Data Storage in SAP

Each different file format will have data recorded in an individual table within SAP. These tables will hold each data field required for billing purposes within the file in the

same sequence as presented, excluding the Header and Footer lines. In addition to these fields there will be a field to record the date the data was imported to SAP ECC.

Each table will be associated with a transaction code allowing DCC employees to view and extract data as required for analysis and reconciliation purposes. It will not be possible to manually amend this data.

These tables will have an internal authorisation group 'ZDCC' assigned. This group is used to restrict access to data ensuring only personnel authorised to browse the tables will be able to view the content.

For each file format there will be an individual programme to populate a process specific table.

A report will be used extract data and e-mail as a pdf to a DCC Finance Capita e-mail address based on the data import date, only positive results will be issued.

2.1.5 Reporting of Stored Data

There will be a transaction provided per table that will enable the extract of data for reporting and analysis purposes.

Additionally where required a report per data table will be developed to provide trend analysis to enable validation that data loaded in the current month is within acceptable variances compared to the previous x months data.

A full specification for each report will be provided.

2.1.6 Data Conversion

For SAP to process the data further it needs to be converted to sales orders, to do this the following steps will be required. Again, for each inbound data stream a bespoke programme will be required, but the principle is the same for each.

2.1.7 Create SAP document load file

There will be a bespoke programme to extract data from the appropriate data storage table and create a file suitable for data load via a single SAP ECC bespoke programme.

This will extract all lines based on the year and Month being billed, using logic to determine the relevant SAP Business Partner (SEC Party / Participant ID) from a mapping table referred with a similar procedure used to determine the SAP Material (Service Type).

Each individual Service Type line will contain sufficient information to enable accurate pricing calculations to be performed and provide all detail required on the Invoice Supplementary page(s).

It has been noted that not all data passed from the DSP will need to be processed for Billing. There are a number of options in SAP ECC to prevent the use of the data, a decision on how this will function will be made once full details are known.

Regardless of the source data and data table, all outputs from this step will use a single data file format to reduce development costs and simplify support.

2.1.8 Process document load file

There will be a second process to import the data files created above. A single programme will be developed to process these. It will create the Sales Documents which are subsequently used to generate the Billing Document and Invoices.

During creation of these Sales Documents the individual line NET and VAT values will be determined based on the appropriate combination of Service Type, Quantity, Charging Group, Region, Property Type and Utility type.

2.2 Sales Documents

The following data tables form the basis of the SAP ECC sales document.

The SAP Sales Document is a precursor for the generation of SAP Billing Documents and for this solution the following types will be provided;

The Sales Order will definitely be used, the Billing Contract may be used for Communication Hubs Periodic Billing with the Credit Memo Request provided with the understanding currently that it may not be used.

2.2.1 Sales Order

All interfaced data will automatically create sales orders, whilst it will also be possible to create and amend these manually.

SAP provides logging of all document changes (who/what/when) so ensuring full traceability and transparency in case of disputes where manual intervention has occurred.

Sales orders will also be used to charge 'second comers' of Elective Services to reapportion the development costs.

Every sales document has three distinct levels, Header (data common to all items in the order), Item and Schedule Line. Schedule line is concerned only with the delivery of product so for the DCC solution this is ignored.

2.2.2 Sales Order Types

Due to the different Invoice content required in relation to the Comms Hubs financing there will be two different order types, one type that will be consolidated and the other that will not. This split is due to accounts receivable information being different for the CHuRP invoices.

The two types are liable to use different Billing Document types, but this will not be confirmed until solution configuration is underway. Where different types are used this will be fully documented.

2.2.3 Sales Order Header

2.2.4 Sales Order Item

Again there will be a number of data fields that will be mandatory in the sales order item. As a default material, unit sales value, VAT rate, material description and quantity will be mandatory.

To ensure invoice values are correct the interface will be used to populate fields key to pricing control and calculation.

The description for individual Service Type charges will be drawn from the Material Master, but for manual creation of these items it will be possible to insert a manual description. These descriptions will be printed on the Invoice Supplementary Schedule where applicable.

There will be two Item Categories required;

- ZDCH – for CHuRP invoice values

- ZDCS – for non-CHuRP invoice items

The Item categories will be Billed using different Billing Document types to ensure the correct Invoice style and bank account details are written for the CHuRP invoice.

2.2.5 Sales Order Controls

To exclude DCC Service User Ids from Billing calculation and processing per type of charge there will be a programme control driven from a user maintained table that will automatically apply a Reason For Rejection to Sales Order Items that are to be excluded.

To ensure data loaded that is not to be invoiced based on Variance reporting showing the load is invalid the respective sales orders will have a Reason for Rejection set meaning they cannot be invoiced. This enables a fresh data load to be processed with no risk of values being duplicated.

2.2.6 Billing Contract, creating Invoice

This process can be used to enter data once for charges recur at the same value each month. These values will be included in the same Invoices as Sales Orders above to ensure a single invoice per SEC Party, per period. This may not be required, but is included as it has been mentioned during workshops.

The charge rates can be updated to allow for annual RPI/CPI increases, a rate change will only impact invoices created post change.

2.2.7 Credit Memo Request, creating VAT Credit

This process may be used to issue a credit for any purpose. Within the Billing System it will be expected that credits will be created with reference to a invoice against which a correction is required.

It can be used for all credit purposes including, but not exclusively, to an 'initial contributor' for Elective Services, correction in relation to a 'manifest error credit of unrecovered bad debt payment where subsequently paid by the defaulting service user etc.

Calculation of the credit value will be manual, but by creating with reference a full value is automatically proposed.

However, if the value of the credit is to be included on the Invoice then a manual negative value item will have to be added to a Sales Order. It is not possible to include Credit Memo Requests in a sales Invoice.

2.2.8 Bulk Invoice and Credit Upload

An existing Capita SAP ECC process will be used for the bulk creation of Sales Documents for the purpose of recovering unpaid debts and where subsequently required to reimburse these values should the original Debtor finally make payment.

An excel template will be provided for the population of SEC Party and values, this converted to an upload format and subsequently loaded to SAP ECC creating Sales Documents, these Sales Documents will be Billed either in combination with the monthly Billing run charges or optionally as a separate run.

All existing processes provide for error reporting, there will be no change to the process used.

2.3 Billing Documents

A Billing Document is the electronic version as stored in SAP, the 'Invoice/Credit' (printed/transmitted output) is covered later in the document.

Each Billing Document will have a unique, sequential system generated number with different ranges for Invoices, Credits and Cancellations.

These number ranges will be unique to the DCC business.

The Draft process provides the necessary control point for the validation and approval of data for Billing within the period.

It is possible to delay the issuing of the outputs (Draft or VAT) so that document values can be checked via on-line reports before the printing or e-mailing of these is manually triggered.

2.3.1 Billing Document Creation

The process of billing in SAP is used to create both Draft and VAT Invoices/Credits; the process is the same in each case with different document types used.

Billing can be performed manually or via a scheduled batch job. For DCC it is expected that first cut Draft Invoices will be generated via a batch job with a manual approach for all subsequent steps.

Billing Documents are always created with reference to Sales Documents. To support the generation of a single Invoice per SEC Party per period SAP ECC will consolidate the content of all Sales Documents created via data uploads and also those manually created.

A control will be introduced that will prevent the creation of Invoices where the total value is less than a DCC specified minimum. This control value will be set/maintained by DCC employees. It will only be possible to invoice all outstanding values by deleting any control value.

Outputs Types will be automatically assigned (and optionally issued/printed) on creation of the Billing Document, but for Invoices this assignment will only occur providing the postings to SAP ECC FI have been made. This is to prevent the issue to customers where the Debtor Ledger has not been updated.

Where Billing Documents are not posted to SAP ECC FI immediately investigation by DCC employees and/or Group AR and/or SAP ECC technical team will be required to identify the cause. Amendments are made where possible to enabling posting.

In some cases it will be necessary to cancel and re-process.

DCC will identify an employee, or department, who will monitor the SAP ECC transaction VFX3 during Billing to ensure problems are identified and resolved in a timely manner.

2.3.2 Billing Creation Controls

Key control reports will be identified in the excel file DDC Design Billing Control. These will be used at specific points during the billing cycle to ensure that each data load is within expected parameters. All reports and lists run to screen in SAP can be downloaded to excel, this is a standard function everywhere.

2.3.3 Billing Document content

The Billing Document content will be copied directly from the preceding SAP ECC Sales Document, with no manual intervention ensuring consistency of data.

Further, SAP provides logging of all document changes (who/what/when) so ensuring full traceability and transparency in case of disputes caused by manual intervention.

A detailed list of table and field usage together with Sales Document to Billing Document mapping rules will be provided.

Billing document Payment Terms

Payment terms will determine a due date being the later of: (a) 5 Working Days following the creation of each invoice or (b) 8 Working Days following the end of the billing month.

A bespoke table will hold the due date, this table will be maintained by a DCC employee and a bespoke piece of programme code will perform a direct read of this table and pass the date to the SAP ECC FI document.

2.3.4 Billing Cancellation

SAP ECC provides standard functionality for the complete Cancellation of Billing Documents where these need to be corrected and re-processed, however use of this

process is subject to Capita Group AR approval. The decision on whether this can be used or not will need to be addressed by DCC with the head of Capita Group AR.

If permitted by Capita Group AR then the SAP ECC standard document types S1 (invoice cancellation) and S2 (credit cancellation) will be used.

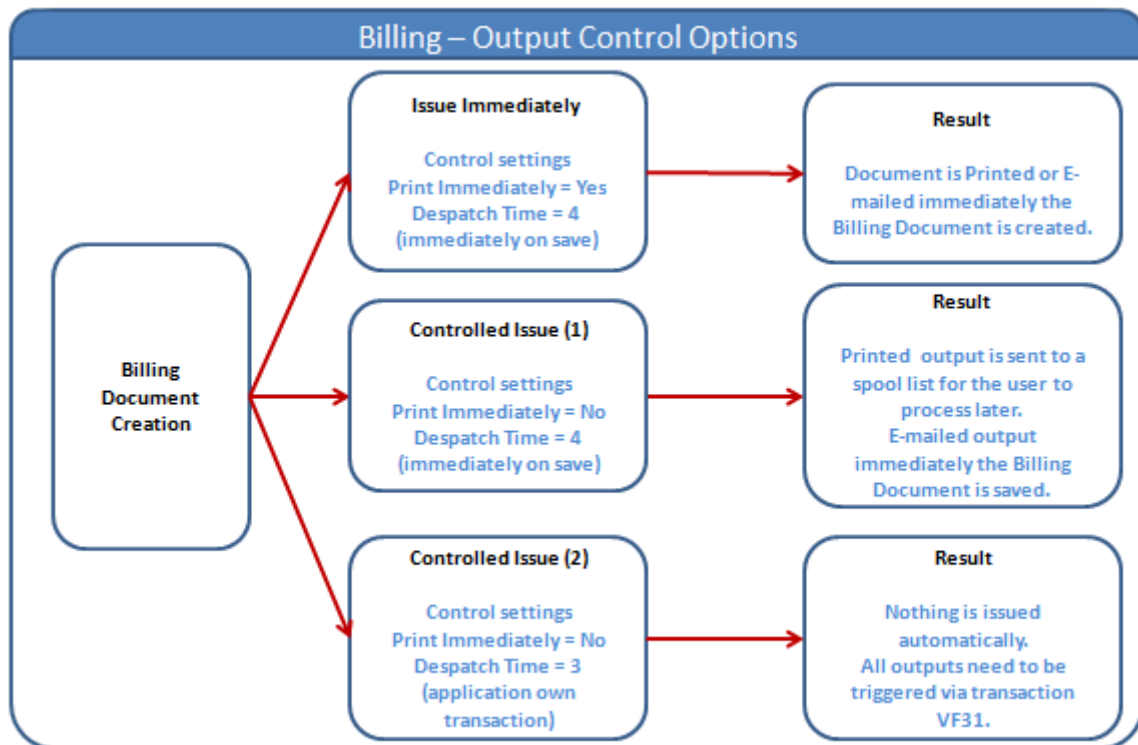
These documents reverse all SAP ECC FI postings into the original period, if still open, or if not then the current period and enables a second Billing of the referenced Sales Document(s).

Where changes are made to the Billing Document SAP ECC will log these (who/what/when) so ensuring full traceability and transparency in case of disputes.

It is not possible to provide detailed information on the Cancellation process. It is SAP ECC standard delivered functionality and due to the complexity it would be inefficient to document as a programmer would need a significant number of days to unpick and document exactly how this works

2.3.5 Billing Output

The diagram below shows the variations in control for Output Conditions. The controls available will be used to ensure that nothing is issued fully automatically until such time as DCC are confident that the Billing process is robust and accurate. Draft Invoices will be assigned but not printed automatically and VAT Invoices likewise will not be sent automatically giving the DCC an opportunity to review the content before sending.



Billing Output relates to anything issued from a Billing Document either physically (printed invoice/credit) or electronically (e-mailed pdf / data stream) that is provided to the SEC Party or DCC employees. All VAT Invoice Outputs are Electronically Archived in pdf format and held for a period of 7 years, with access directly from the SAP billing document.

It is understood that a number of Invoice Styles may be required due to a difference in content. This is still to be confirmed but for each additional Invoice Style a new specification will be produced and a bespoke print programme will be developed in SAP ECC.

Each Invoice Style will be approved by the Capita Taxation department prior to development to ensure they meet HMRC legislation with regard to content.

2.3.6 Printed Document Structure

The Invoice Style as currently identified requires two different page Layout Sets.

The VAT invoice page

The Supplementary Schedule page

These different Layout Sets will generate a single pdf or printed Invoice per SAP ECC Billing Document to ensure that there is no risk of data spillage between documents and remove any risk of manual mix-up should they be printed for sending via postal services.

2.3.7 Printed Document content

The Draft and VAT designs will be exactly the same except for literals and the printing of a 'Draft' watermark on the Draft Invoice.

The VAT Invoice will contain all legally mandated information, e.g. DCC registered address, Invoice number, Invoice date, issue date, Net value, VAT rate & value, Gross payable etc. It will also break down the Net value to sub-totals per type of charge, payment terms, contact details etc. The due date will again be taken from the bespoke table referred to in section 4.4.3 to ensure consistency between the date written to the database and that printed.

There will be an additional bespoke table to hold the payment details. This will have a key that includes the Billing Document type so that different Bank account details can be printed on the CHuRP and non-CHuRP invoices.

The Supplementary Schedule will carry direct reference to the VAT (or Draft) invoice number and include the Company account number and name. It will also contain a full list of item charges applied in the SAP billing document with their quantities and rates. Some of these data lines will be per group rather than each individual line, exact requirements to be confirmed during Realisation.

2.3.8 PDF invoices

Where required, invoices will be issued directly to the client as a pdf attachment to an e-mail. These will be created by the same print programme, which a standard SAP function will convert to pdf. It will be possible to send the same e-mail to many contacts within a SEC Party, although in principle our recommendation is for the SEC Party to provide a single e-mail account that equates to a distribution list within the SEC Party address book, for example an AP department. This gives the SEC Party control over addition and removal of individuals rather than there being a communication requirement between the SEC Party and DCC for all changes.

The body of the e-mail message will be customised to provide a business specific statement and structure.

The sending e-mail account will also be fixed to an address as required by the DCC, rather than use the standard option that is always the address of the person raising the document.

There is no process for notifying of receipt by the client, but in SAP standard form delivery failures (e.g. receiving e-mail address not found/not valid) are returned to the e-mail account from which it was sent.

2.3.9 Electronic Data Transmission

We currently provide an XML output for Tungsten Corp. that we would expect to be able to use should SEC Parties require a data stream.

Electronic transmission is not currently known to be required but is mentioned for completeness. Some UK businesses require their suppliers to send all Invoice and Credit information via Tungsten Corp., we fully support this requirement. This will not be the subject to a detailed specification until/unless it is required.

2.4 Sales Pricing – Rules engine

SAP uses their 'Condition Technique' for pricing which offers flexibility and control and is built up as follows.

- Condition Table – contains the data fields used to construct the Condition Record
- Access Sequence – contains one or more Condition Tables to be searched for a condition record and is set to use either 'Exclusive (first found)' or 'Best Price'
- Condition Type – is the object against which prices are held/entered and generally contain an Access Sequence
- Pricing Procedure – contains all Condition Types which are read in sequence to provide the appropriate calculation for List/Net/VAT/Cost prices
- The Pricing Procedure is assigned to a combination of Sales Organisation, Customer Pricing Procedure and Document pricing procedure.

Against each condition type in the procedure bespoke programme code can be included where very complex calculations are required and in addition to this it is possible to provide condition exclusion rules which will provide best price, least favourable, exclusive options.

All pricing conditions within SAP are date delimited with these being called based on the 'Pricing Date' in the sales documents. This usually defaults to current date during document creation but it can be amended manually to invoke pricing from a future/past period.

All future changes to the charging methodology, other than changes to master data, will be provided by the SAP technical team.

All changes to Price Conditions are recorded and can be reported on for audit purposes.

2.4.1 Price determination – decimal place consideration

As standard the number of decimal places available in price conditions in SAP ECC are dependent on the setting of the currency code, in this case GBP meaning only 2dp.

To accommodate the required flexibility conditions will be created that use a 'Condition Pricing Unit'. So where pricing needs to be at 3dp then the unit will be per 100, where it needs to be to 4dp the unit will be per 1000 and to 5dp then the unit will be per 10000 units, e.g. £47.19 per 1000 equates to £0.04719, or £0.06per 10000 equates to 0.00006.

SAP ECC uses commercial rounding (down from 4, up from 5) and as all net and gross values need to be to 2dp using the 'Condition Pricing Unit' option provides the pricing flexibility required.

Invoices will be created to provide unit price to the required number of decimal places.

2.4.2 Automatic Price determination

The following data elements will be available to ensure the accurate pricing of invoices and are represented in SAP as noted;

- SEC Party – SAP Sold-to party
- Region – SAP field KDKG1
- Charging Group – SAP field KDKG5
- Property type – Domestic and Non-Domestic will be different Material Masters
- Utility Type SAP field KDKG4
- Service Request Type/Band – Material Master
- Service Request Timing – SAP field KDKG2
- Comms Hub Status – SAP field MVGR1
- Service Request (Core or Elective) – SAP field MVGR1

All the SAP fields KDKG* above will be populated based on information provided in the reports from the DSP, the field MVGR1 will be taken from the Material Master. Where it specifies a Material Master, this will also be determined in SAP during processing of the inbound data.

2.4.3 Automatic Price determination

The following conditions will be used for the determination of the customer price.

In the case of data load from the DSP the customer will be determined from the interface file data.

2.4.4 Automatic Price determination for Service Requests

This price condition will have a single step access sequence to determine the appropriate unit price. This will be structured as follows;

The following Price Condition will be created

ZDSR Service Requests – two step Access Sequence

- Customer/Region/Premises Type/Timing/Material(each message type will be a unique material)
- Region/Premises Type/Timing/Material(each message type will be a unique material)

2.4.5 Automatic Price determination for Meters ZDM1 – ZDM3

These price conditions will be structured as follows

ZDM1 Meters by Group/region/Type/Premises – three step access sequence

- SAP Sold-to, SAP Ship-to, Charging Group, Region, Premises type, SAP Material
- SA P Sold-to, Charging Group, Region, Premises type, SAP Material
- Charging Group, Region, Premises type, SAP Material

ZDM2 Meters by Region/Type/Premises – three step access sequence

- SAP Sold-to, SAP Ship-to, Region, Utility Type, Premises type, SAP Material
- SA P Sold-to, Region, Utility Type, Premises type, SAP Material
- Region, Utility Type, Premises type, SAP Material

ZDM3 Meters by Group/Region – three step access sequence

- SAP Sold-to, SAP Ship-to, Charging Group, Region, SAP Material
- SA P Sold-to, Charging Group, Region, SAP Material
- Charging Group, Region, SAP Material

2.4.6 Automatic Price determination for Comms Hubs ZDC1 – ZDC4

These price conditions will be structured as follows

ZDC1 Comms Hubs Delivered – two step access sequence

- SAP Sold-to, SAP Material
- SAP Material

ZDC2 Comms Hubs Commissioned/Installed – three step access sequence

- SAP Sold-to, SAP Ship-to, Charging Group, Premises type, SAP Material
- SA P Sold-to, Charging Group, Premises type, SAP Material
- Charging Group, Premises type, SAP Material

ZDC3 Comms Hub HAN Variant – three step access sequence

- SAP Sold-to, SAP Ship-to, Region, SAP Material
- SA P Sold-to, Region, SAP Material

- Region, SAP Material

ZDC4 Comms Hub Faults – three step access sequence

- SAP Sold-to, SAP Ship-to, SAP Material
- SA P Sold-to, SAP Material
- SAP Material

2.4.7 Comms Hubs Financing Price determination

As detailed above there are several Price Conditions specifically for the Comms Hubs Fixed Rate Charges and Stock Costs to accommodate the financing agreement with Arqiva.

For this to function, the value of the invoice submitted by Arqiva will be stored in a location that can be accessed by the SAP ECC pricing function.

This value will be used to calculate the proportion of the total value that is to be made payable to the CHuRP account via one Sales Document with this proportional value showing as a discount on the invoice payable to the DCC account.

A bespoke programme will be developed to perform the required calculations. Also as noted above, there will be two Billing Documents provided to ensure the CHuRP and standard invoices carry the correct values and payment details..

2.4.8 VAT Calculation

VAT will be determined in the sales document using the existing rules in SAP which have been approved by the group taxation department. VAT will always be re-determined at the point of Billing, except where value based credits are raised with reference to an original SAP ECC Billing Document. These reference documents will always use the VAT rate from the original.

VAT calculation uses the SAP standard condition type MWST.

2.4.9 VAT determination routine

SAP logic is as follows, where the Country of Supply is GB and the customer is deemed to be 'In Business'

- Is the country where the service is provided/delivered the same as the country the service is supplied from?
 - Local VAT rate is applied
 - currently 20% (tax code AB) for materials/services attracting the full rate
 - Zero rated (A2), Outside the Scope (AA) and Exempt (A0) are also available
- Is the country where the service is provided/delivered an EU country?
 - VAT is applicable at the local standard rate 20% (AB) unless
 - The customer is registered for VAT in the Destination country and we have their registration number recorded in SAP, in which case

the Reverse Charge rule applies and no VAT is charged, 0% (E5) for goods, 0% (E2) for services

- Is the Country where the service is provided/delivered outside the EU?
 - VAT is not applicable
 - 0% (E6) for goods, 0% (E3) for services

Please note, these are the standard rules but there are variations and other options that may apply.

2.4.10 Changes to Calculation Method

SAP ECC is structured in such a way that changes other than to Price Condition rate will be the subject to a SAP Change request.

The underlying pricing schema will only be maintained by Capita Group Systems who employ SAP certified consultants. Changes to the schema will not be maintainable by DCC employees.

2.4.11 Reporting Price Conditions

A single report will be developed that will enable the extract for validation purposes of all DCC related price conditions.

2.5 Operational Reporting

There are a number of reports available within SAP ECC that can provide information for the various application areas and master data. It is expected that more will be identified or new reports identified that will need to be generated from SAP ECC as the implementation progresses.

A full list of transactions, both for reporting and functional purposes, will be provided.

2.6 SAP ECC FINANCE

Whilst there is obvious integration between other SAP ECC modules and SAP ECC FI in respect of this new business implementation, there are no identified changes to existing SAP ECC FI configuration for the DCC billing solution. All Billing document Values are posted to the Debtor Account without exception.

SAP ECC FI will be used for payments processing where payment is reconciled to the Billing Document number or SEC Party purchase order reference.

As a result of this level of integration very comprehensive reporting is provided as standard.

In Addition to full integration described above, open debtor can optionally passed to a debt collection tool Tharion.

Tharion is used to manage all outstanding debtor invoices and as such can generate chasing letters and provide work lists for AR personnel to chase overdue payments.

Everything described above is as used across Capita Group. However the DCC fixed billing as currently being issued is excluded from the data transfer from SAP ECC FI to Tharion.

2.6.1 Revenue Account Determination

General ledger accounts are determined in Sales Documents based on the key fields, Customer Account Assignment Group, Material Account Assignment Group and Price Condition. The rule is carried to the billing document and used to post to Finance.

All SEC Party account numbers will be assigned the Account Assignment Group value 1 – Domestic revenue. Each Service Type will be assigned an Account Assignment Group that directly reflects the G/L account to which the revenue is to be posted.

2.6.2 Profit/Cost Centre Determination

The Profit Centre is assigned directly in the Service Type master, this is then copied to the Sales Document at time of creation and is carried through to Billing and from there is posted to SAP ECC FI.

2.3.1 Debtor Account Determination

The Debtor (SAP Payer) account is determined from the SEC Party (there will be a 1:1 relationship SEC Party to Debtor) used in the Sales Document, this is then carried through to Billing and from here is used to post the debt in SAP ECC FI.

2.6.3 SAP ECC Finance reports

FB5LN - Customer line item report; to be used for any Value At Risk projection calculations

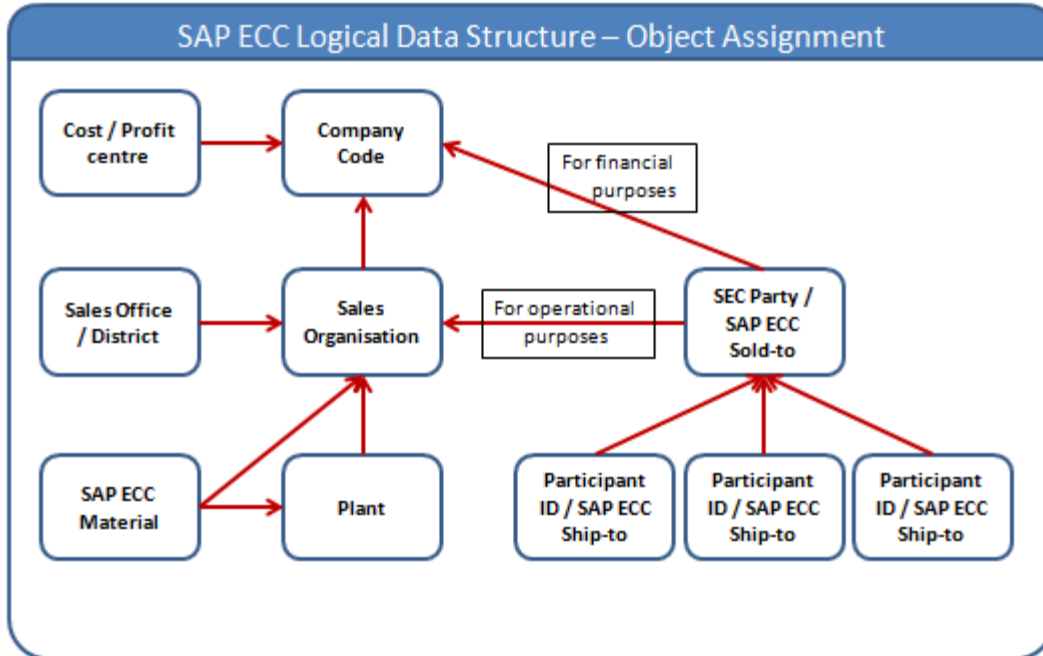
FD10N – Display Balances; to be used for any Value At Risk projection calculations

ZARINVREG – Invoice Register report

FB03 – Display Finance document

3. Logical Data Model

The following data objects form the basis of the SAP ECC billing solution.



3.1 SAP ECC Organisational Objects

3.1.1 Company Code

The Company Code is an organizational unit used in accounting. It is used to structure the business organization from a financial accounting perspective and is additionally used as one of the key control elements for User Authorisations.

The DCC business will have one Company Code.

3.1.2 Cost/Profit Centre

Represents a subset of a business unit and is one of the objects used to control User Authorisations to add, change and view master and transactional data.

These are assigned to a Company Code.

The DCC will have many Cost and Profit centres, there currently being 15.

3.1.3 Plant

This is a logical segregation for Materials Management, Inventory Management and Purchasing purposes. Whilst the DCC solution does not use these functions they do need Plant as the Profit Centre is assigned based on the Plant in the Service Type master data records.

The DCC will have one Plant.

3.1.4 Sales Organisation

This is used to identify a particular business within a Company Code, although generally Capita uses a 1:1 relationship with Company Code. Within Capita there is no fixed use, with some Sales Organisations containing several business units, others just one. This is additionally used as one of the key control elements for User Authorisations.

The DCC will have one Sales Organisation.

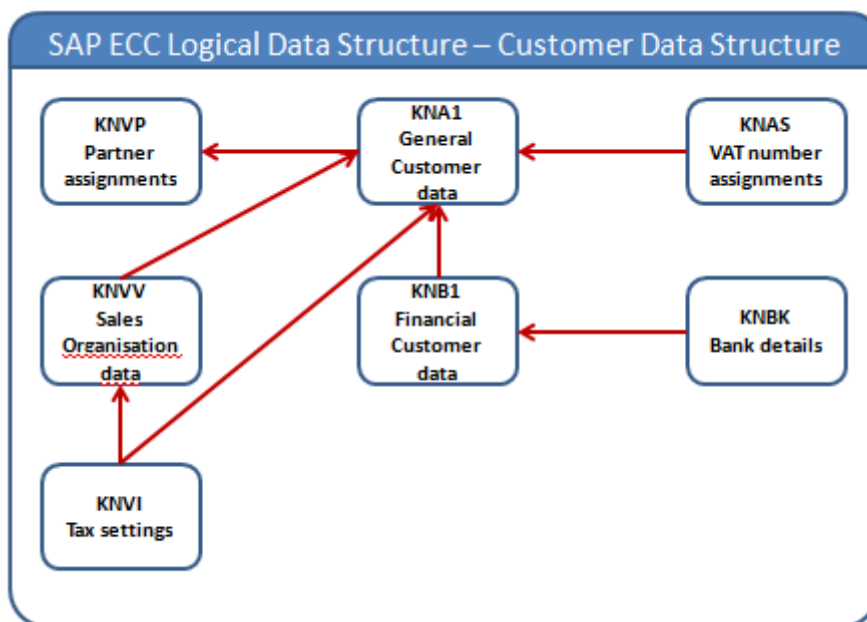
3.1.5 Sales Office/District

Represents a business unit for operational purposes and primarily allows controls over inbound interface processing rules and to determine the type and content of invoice/credit outputs. There is a 1:1 relationship between Sales Office and Sales District

The DCC will require at least two options to provide the necessary control over data included on their invoice footers. These will be assigned to the SEC Party Business Partner.

3.2 SAP ECC Business Partner

The following data tables form the basis of the SAP ECC Business Partner structure.



Within SAP ECC the following standard structure exists:

Sold-to Party – the organisation with whom you contract to provide goods/services

Ship-to Party – an address to which goods/services are provided

Bill-to Party – the address to which invoices are sent

Payer (Debtor) – the company that is responsible for payment debts

The Sold-to is the prime party for all sales related transactions with the other three being mandatory. Each Sold-to party will as a minimum have each of the other three assigned, addresses for which can be different. Multiple Ship-to, Bill-to and Payer parties can be assigned to a Sold-to.

The DCC customer structure will be applied to SAP ECC as follows

SEC Party – SAP ECC Sold-to

SEC Party – SAP ECC Bill-to

SEC Party – SAP ECC Payer

Participant ID – SAP ECC Ship-to

Chargeable Service User ID – SAP ECC Ship-to

Within SAP ECC the Participant ID will be represented by a single Ship-to partner. The Ship-to will be assigned to a single Sold-to, a Sold-to having many Ship-to parties assigned.

The Sold-to and Bill-to are liable to be a single SAP Business Partner ID used for both functions.

The SAP ECC Payer is always a different partner within Capita, it is to this account that the debt is posted and is legally liable for payment of the debt. The Payer account is assigned to the Sold-to.

The creation and maintenance of Business Partners is the responsibility of the business users. There is a creation request form on the Capita intranet that is normally completed and submitted to the SAP Data Team (team within Group AR), and for initial customer checking and creation this process will need to be adopted. There is currently no approval process within SAP for either the creation or maintenance of this data, If a change to the Capita Group AR process for Business Partner creation or change this will need to be agreed first between DCC and Group AR. User Roles and Span Of Control restricts creation/maintenance to a small group of SAP ECC users so there are tight restrictions in place.

As previously stated, the appropriate business partner combinations used in sales documents generated via the data flows from the DSP will be determined by look-up to a customer mapping table. In manually created sales documents the user will be presented with a valid combination of Ship-to accounts for the SEC Party.

3.2.1 SAP ECC Business Partner determination

As the DSP will not hold any reference to the SAP ECC Business Partners a table will be developed to link the appropriate DSP provided reference with the correct master data record for billing purposes.

This table will be accessed via a user transaction code and it will be the responsibility of the DCC business to maintain.

3.2.2 SEC Party

An instance of a party that has acceded to the SEC.

A SEC Party can be associated with 0 or 1 Billing Organisations

A Billing Organisation can be associated with 0 or many SEC Parties

This will be represented by the SAP ECC Sold-to and also be reflected in the SAP ECC Bill-to and Payer Business Partner functions.

Many Service Users can be associated with a SEC Party

3.2.3 SEC Role

The role of the SEC Party within the energy market.

The SAP ECC Ship-to Business Partner will be used to represent this where necessary.

3.2.4 Service User

An instance of a party that is eligible to use the services provided by the DCC and is identified internally by the Service User ID.

A Service User can be associated with 1 SEC Party.

A Service User can be associated with many Charging Groups.

The SAP ECC Ship-to Business Partner will be used to represent this where necessary.

3.2.5 Participant ID

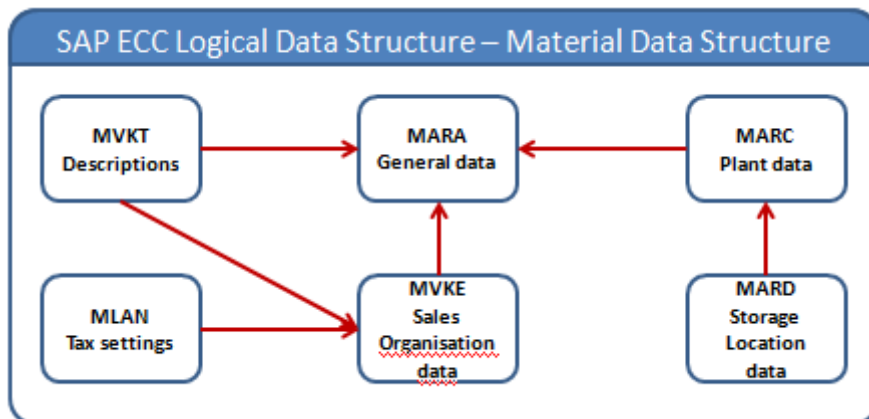
The SAP ECC Ship-to Business Partner will be used to represent this.

3.2.6 Registered Supplier Agent

The SAP ECC Ship-to Business Partner will be used to represent this.

3.3 SAP ECC Material Master

The following data tables form the basis of the SAP ECC material structure.



Within SAP ECC a very simplified version of the material master will be used, this will contain;

- General Data – data common to many organisations

- Sales Organisation Data – data specific to sales via a single sales organisation
- Plant Data – data specific to the Plant associated with the sales organisation
- Sales Texts – text descriptions or notes specific to sales via a single sales organisation

The creation and maintenance of SAP ECC Material Masters is the responsibility of the business users, this may be the DCC business or it could be the Group AR SAP Data team.

There is currently no approval process within SAP for either the creation or maintenance of this data, If a change to the Capita Group AR process for Material Master creation or change this will need to be agreed first between DCC and Group AR. User Roles and Span Of Control restricts creation/maintenance to a small group of SAP ECC users so there are already tight restrictions in place.

3.3.1 Service Type Determination

There is no direct reference in the DSP to the Service Type in SAP ECC.

A bespoke mapping table will be created to hold a cross reference from the DSP key to the SAP ECC Service Type. This table will be used during data import processing to determine the SAP ECC Service type.

This table will be accessed via a user transaction code and it will be the responsibility of the DCC business to maintain.

3.3.2 Required Materials – Service Types

One SAP ECC Material Type will be required but for segregation and sub-totalling on the Invoice Supplementary Schedule the following classifications will be required – using the SAP technical field PROVG

- Fixed Costs
- Service Request
- Comms Hub Charges
- Comms Hub HAN variant
- Comms Hub Faults
- Meter (per meter type/premise type/energy type (e.g. Mandated/Domestic/Gas, Enrolled/Non-Domestic/Electricity))
- Service Catalogue Charges
- Adjustments
- Foundation Meters

3.3.3 Class Charging Group

An instance that defines the category of a Services User:

- a) the Import Suppliers (Charging Group g1);
- b) the Export Suppliers (Charging Group g2);

- c) the Gas Suppliers (Charging Group g3);
- d) the Electricity Distributors (Charging Group g4); and
- e) the Gas Transporters (Charging Group g5).

Each Charging Group will equate to one material master in SAP for the Fixed Charge billing requirement.

The Charging Group will not be assigned to the SEC Party as this information, where required, is always passed from the DSP so the key from the DSP report will be used in SAP ECC for all pricing purposes.

3.4 SAP ECC Price Conditions

The content of Price Conditions will be dependent on the fields in the underlying data tables which hold the information.

As a default, Sales Organisation and validity period (from and to) will be mandatory.

There is currently no approval process within SAP for either the creation or maintenance of this data, User Roles and Span Of Control will restricts creation/maintenance to a small group of DCC users so there will be tight restrictions in place.

Reports are available to provide mitigating controls if necessary.

All new price conditions have no impact on any existing record unless the validity periods overlap, in which case the new condition takes precedence.

Changes to existing price conditions are recorded – who/what/when.

3.5 Monthly Data Validation

It is necessary to perform some validation of data that will be submitted from the DSP to SAP to eliminate, as much as is possible, issues caused by data inconsistency

3.5.1 SEC Party/DCC ID etc.

From any report that the DSP provide DCC will need to confirm that

The mapping exists in ZDCC_CUSTMAP. If not it is to be added, if the account does not exist in SAP ECC this would need to be created.

3.5.2 Material Master

From any report that the DSP provide DCC will need to confirm that

The mapping exists in the control table in transaction ZDCC_MATMAP, if not it is to be added, if the Material does not exist this will need to be created.

Relates to

- Fixed Costs
- Service Request
- Comms Hub Charges
- Comms Hub HAN variant
- Comms Hub Faults
- Meter (per meter type/premise type/energy type (e.g. Mandated/Domestic/Gas, Enrolled/Non-Domestic/Electricity))
- Service Catalogue Charges
- Adjustments
- Foundation Meters

3.5.3 Charging Group

From any report that the DSP provide DCC will need to confirm that

There are no additional Charging Groups. If there are these will need to be created by logging a Query in the Capita Desktop Query Logger. Additions are the subject of Configuration so allow 48 hours for creation.

Where new Charging Groups are introduced it will also be necessary to create new Price Conditions.

3.6 Authorisations

Below are listed the process relevant roles required by the DCC to run the billing processes within SAP. In parallel to the billing solution development a project is being initiated within Group Systems to attain ISO27001:2005.

3.6.1 Existing roles

Detailed below are the existing SAP ECC SD roles relevant for the DCC business. A similar set of roles have been provided for the SAP ECC FI functional area, these already being in use.

3.6.1.1 Create Orders

The role Y_SD_R3_PROC_SALES_ORDER must be assigned to users who need to raise orders, but not raise invoices.

3.6.1.2 Create Invoices

The role Y_SD_R3_BILLING must be assigned to users who need to raise orders and create customer invoices.

3.6.1.3 Create Credit Requests

The role Y_SD_R3_ORDER_CREDITS is to be assigned to users with responsibility for raising credit memos requests. To raise the credit it is necessary to assign the Create Invoices role above.

3.6.1.4 Display sales orders/invoices

The role Y_FI_R3_AR_ENQUIRY is to be assigned to users that need to view in SAP sales transactions and their subsequent financial postings.

3.6.1.5 Customer Pricing Master data

The role Y_SD_R3_PRICE_MAINTENANCE is to be assigned to users with the responsibility for setting and maintaining pricing master data.

3.6.1.6 Set Invoice e-mail recipient address

The role Y_SD_R3_OUTPUT_CONDITION is to be assigned to users who will need to assign e-mail addresses to customer account for automated issuing of invoices via e-mail

3.6.1.7 Material Master Data

The role Y_FI_R3_MATERIAL_MASTERS is to be assigned to users with the responsibility for setting and maintaining material master information.

3.6.2 DCC Specific roles

The following new role(s) will be required

3.6.2.1 Display/Report Billing Statistics

A role will be developed to allow access to view the underlying tables which will be developed to hold the data interfaced to SAP by the DSP, it will also enable the extract of this data for external checking.

4. NON-FUNCTIONAL REQUIREMENTS

4.1 User Interface

DCC users will access the DCC Billing system will be via the SAP GUI software; this is the standard user interface used for SAP ECC processing. The SAP GUI software will be installed on the DCC user's desktop by Capita ITS as it is part of the standard build for Capita Group Systems SAP users.

SAP GUI software upgrades will be available from the Group Systems via an internal link to executable files.

The SAP GUI user interface compliance with the requirements laid out in the Disability Discrimination Act will need to be confirmed with the software supplier - SAP UK (Groups Systems is seeking confirmation with our SAP UK contact). SAP ECC is used by many hundreds of thousands of users globally so it is expected that it meets the necessary legislation in this area.

4.2 Data Retention

The Group SAP ECC application back-ups are retained for 7 years. Data is available online (i.e. not archived) for longer than 18 months on the Group SAP ECC application.

All invoices created on the DCC Billing system will be Optically Archived; the Group SAP application uses the OpenText server for archiving document images; this information is retained for a minimum of 7 years. The underlying data held in the SAP ECC tables will be retained for at least this same period.

4.3 Acceptance and Readiness and Business Configuration

Capita would need to discuss specifically the needs of the DCC. The service needs of the DCC would be documented in an SLA which would include amongst other service requirements (upon agreement between DCC and Capita Group Systems) the following;

- Automation of agreed process; SAP ECC allows processes to be automated; the extent to which processes are to be automated are to be agreed as appropriate (between DCC and Group Systems) upon high level requirements being clarified and detailed requirements being captured for solution design.
- Third line support.
- Provide training material; training along with material to be provided as explained below.

- Provide documentation; documentation will be captured as part of the implementation project.

4.4 Training

Capita has a training team that will be able to provide training required for DCC SAP Billing solution users along with training material. Specific training needs of users and content will need to be discussed / clarified.

Training is normally offered to a limited number of participants (up to 6 people per day) at Capita Group systems training facilities. Alternatively more extensive training can be arranged with advance planning or 'train the trainer' approach could be used if appropriate.

4.5 Service User Input

The DCC Billing system will be designed based on Service User design requirements / input; however all design requirements / input would come to Group Systems via DCC.

Upon Group Systems capturing all requirements in sufficient detail from DCC; Group Systems will use these detailed requirements to implement the DCC Billing system.

4.6 System Performance

Based on system testing in the Group Systems SAP ECC test environment it is fully expected that the timelines required for the generation of invoices will be attainable. There have been no issues identified based on the solution proposal detailed above.

4.7 Data Migration

Due to the volume of master data currently identified it is expected that data migration will be a manual process in the areas of SEC Party information, most of which is already in SAP ECC, and Service Types.

Where required it will be possible to import data from the DSP for previous periods, but this will not necessarily be processed as Invoices will already have been generated prior to the go-live date. This data will therefore only be imported for analysis purposes.

Some reports are available that enable the download of migrated data for data analysis and where not the SAP Functional Consultant will be able to extract data directly from the underlying tables to provide post migration analysis.

5. SAP ECC Data Security Model

The authorisation concept within SAP ECC splits functional access (Roles) from organisation level permissions (Span of Control).

Roles contain one or more SAP transaction with each role based on a business function, e.g. create sales invoice, create customer master, create purchase order etc...

Span of Control comes from the assigned cost/profit centre or profit centre hierarchy per user.

The SAP model used by Capita is as follows and is controlled by SAP Group with changes to user profiles subject to a workflow approval process.

By utilising the combination of SoC and Roles only users approved to access DCC data within SAP will be able to see their data.

Structural changes are subject to an audited review and approval process within SAP Group.

It all falls within the remit of the Chief Information Officer.

A project has been initiated within Group Systems to attain ISO 27001:2005.

5.1 Approach to securing transactions (Roles)

Roles are built to support business functions and are based on external auditor requirements to ensure the best Segregation of Duties principles are enforced within the system. A simple example being a person approving receipt of a vendor invoice cannot set-up the vendor.

Changes to role assignment per user are requested via a Query logging system with a work flowed approval process being followed prior to any changes being made.

Below lists just the Billing operational requirements.

5.1.1 Sales Document Processing

Sales documents have to be created before customer invoices can be created, so any DCC user who needs to create invoices or credits, manually within SAP will need access in this functional area.

5.1.2 Billing Document Processing

Billing is the SAP term for the posting of revenue to the ledgers and debtor account, so any DCC user who will need to generate billing documents from the sales documents referred to above will need access in this functional area.

5.1.3 Sales/Billing Document reporting and display

There is a combined role that covers the reporting and display of documents in these areas. Finance users will again already have access to these reports.

5.2 SAP Data Segregation (Span of Control)

The following Organisational objects are all utilised within SAP to achieve segregation of data as required by Capita business and audit requirements.

5.2.1 Company Code

SAP description: - The company code is an organizational unit used in accounting. It is used to structure the business organization from a financial accounting perspective.

5.2.2 Cost/Profit Centre

Represents a subset of a business unit and is the object use to control user access to add, change and view master and transactional data

These are assigned to a single Company Code.

5.2.3 Profit Centre Hierarchy

At the highest level represents Capita Group, at the lowest level a single Profit Centre.

Capita maintain a PC hierarchy based on organisational operational requirements, providing a control mechanism which ensures a user can only have access to the company code or sales organisation relating to the cost centre they are employed within.

5.2.4 Sales Organisation

This is used to identify a particular business within a Company Code, although generally Capita uses a 1:1 relationship with Company Code.

Within Capita there is no fixed use, with some sales organisations containing several business units, others just one.