



## **Presentation on an Industry Model for Local Government**



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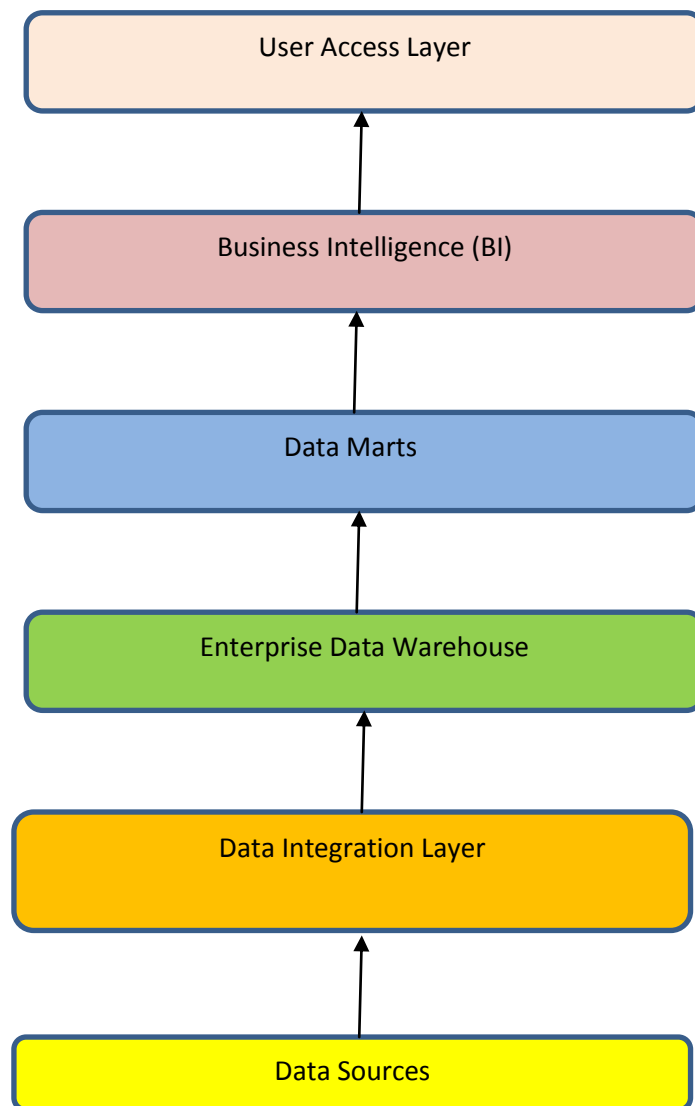
## 1. Target Data Architecture – Overview

This is an extension of the simpler Architecture in Barry's CV.

He has designed this Architecture based on his many years experience as a Solutions Architect in data integration projects.

It shows the six major layers in an End-to-End Architecture for Data Migration from Data Sources, through a Data Integration Layer and into an Enterprise Data Warehouse.

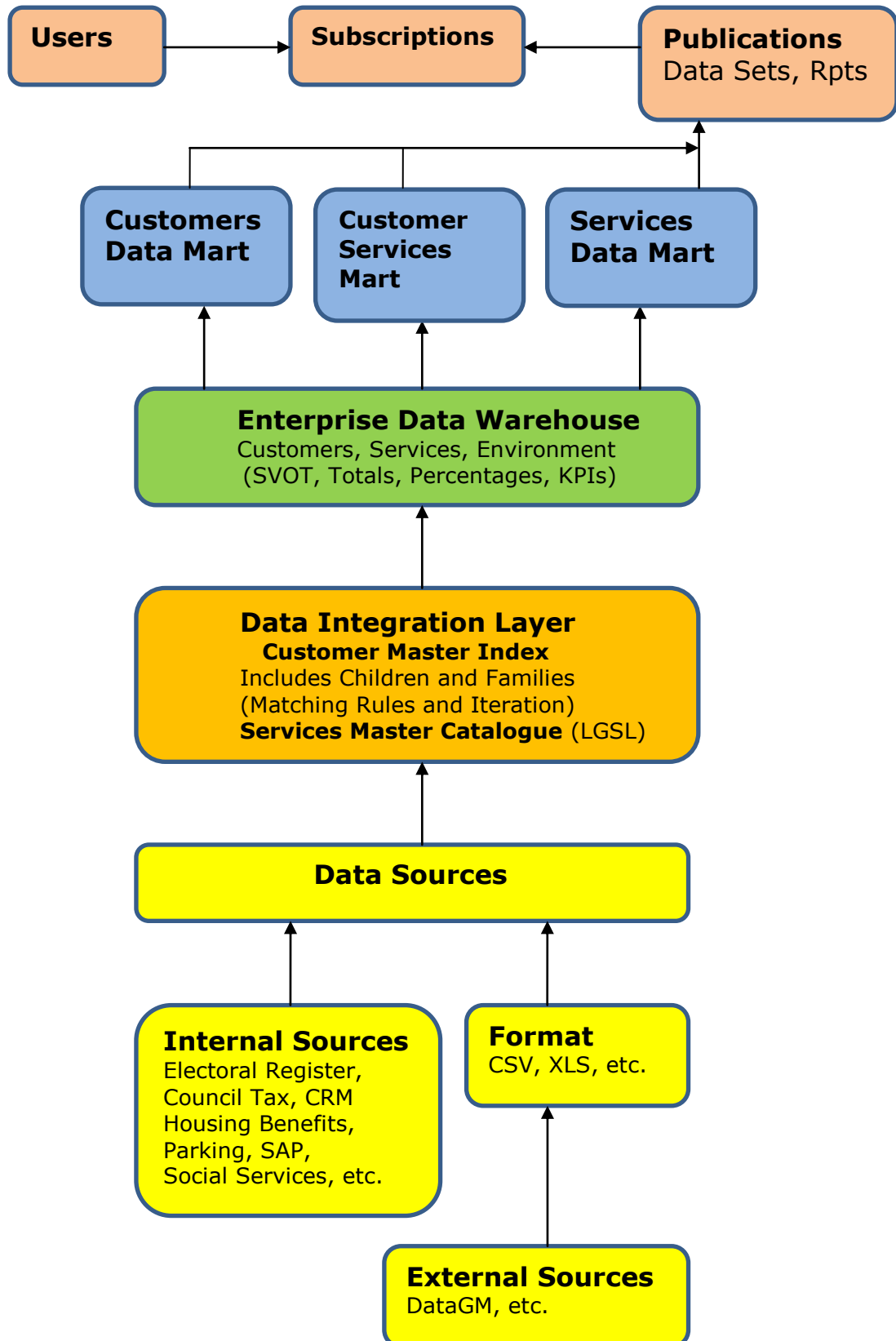
Data Marts for specific requirements are then prepared with functionality and a User Access Layer provides tailored Reports and Data Sets for users on a Publish and Subscribe approach.



## 2. Target Data Architecture - Details

Now we would introduce three Data Marts for specific categories of data :-

Customers (for total counts, also by Ethnic Origin), Customer Services – for example, the most popular, most expensive Services, Services – eg Environment, where Customers are not involved.



### 3. Phase 1 – Load Electoral Register (TBC)

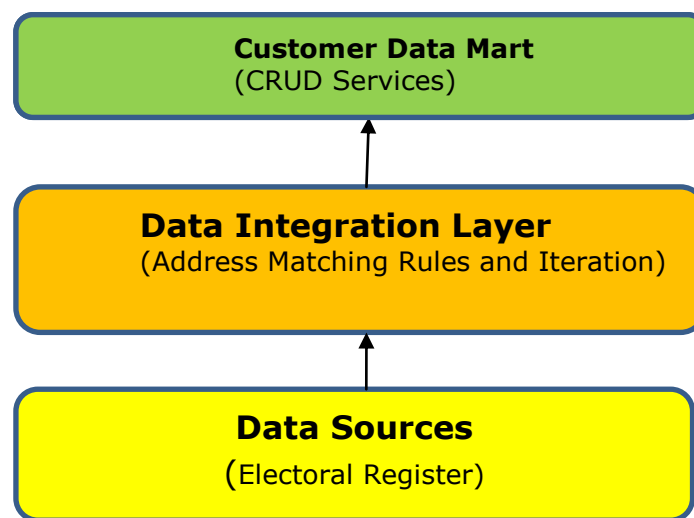
#### 3.1 Loading Data from the Electoral Register

In Phase 1, we are getting started, using only Customer data from the Electoral Register. We plan to load data from the Electoral Register directly into a Customers Table and an Address Table.

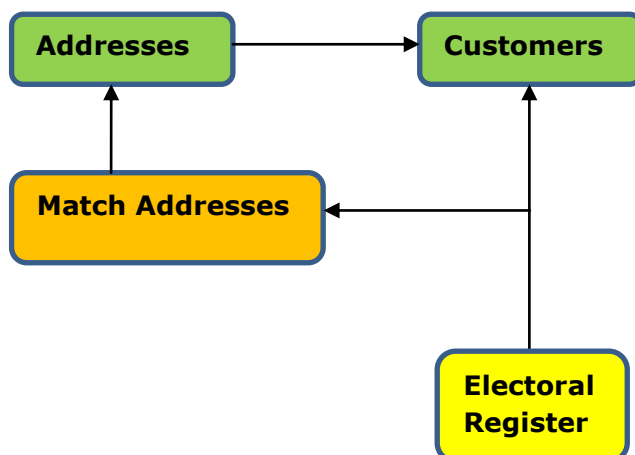
We would introduce Web Services for CRUD ('Create, Read, Update and Delete') operations on the data in the Customer Data Mart.

In fact, we should say 'CRUA' because we would expect to Archive data, rather than Delete it. We need to provide for Address matching because more than one member of the same Family can be on the Electoral Register.

They can have different names (like Barry and his Malaysian wife)



#### 3.2 Tables in the Customer Data Mart



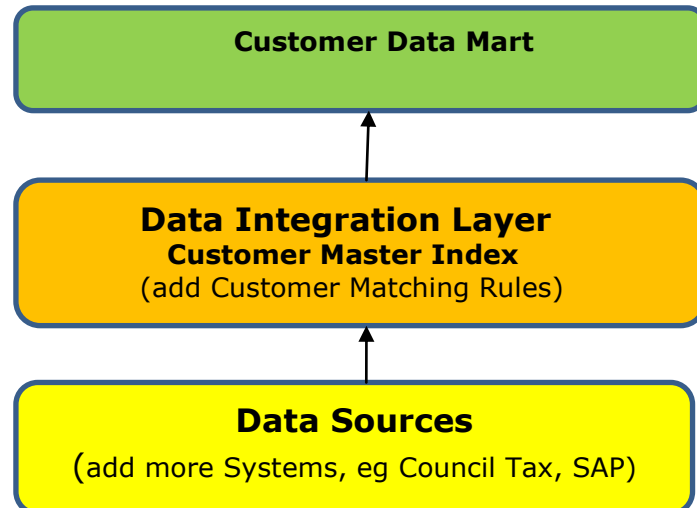
## 4. Phase 2 – Add Council Tax (TBC)

### 4.1 Adding Data from second System

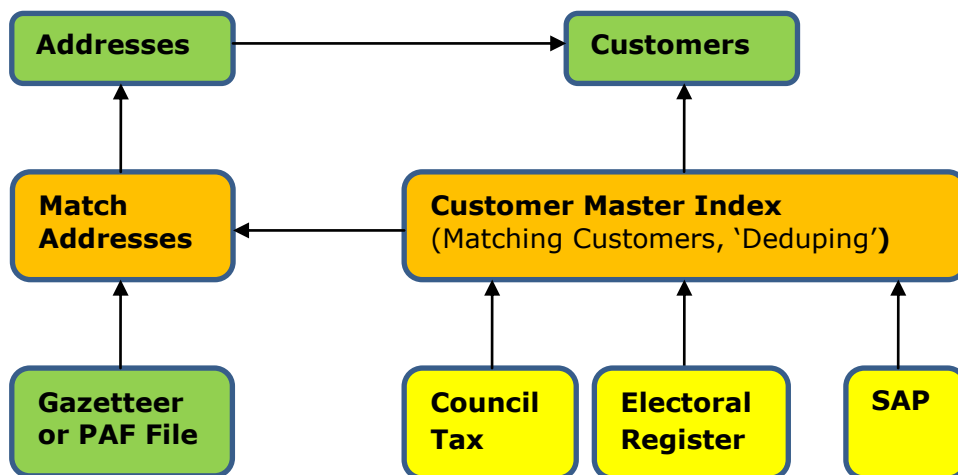
At this point, we would add data from a second System.

We would choose a System from the 'Top 20' – such as Council Tax, Housing Benefits, Parking, Social Services and so on.

We would choose depending on criteria such as Data Quality for Customer Names and Addresses.



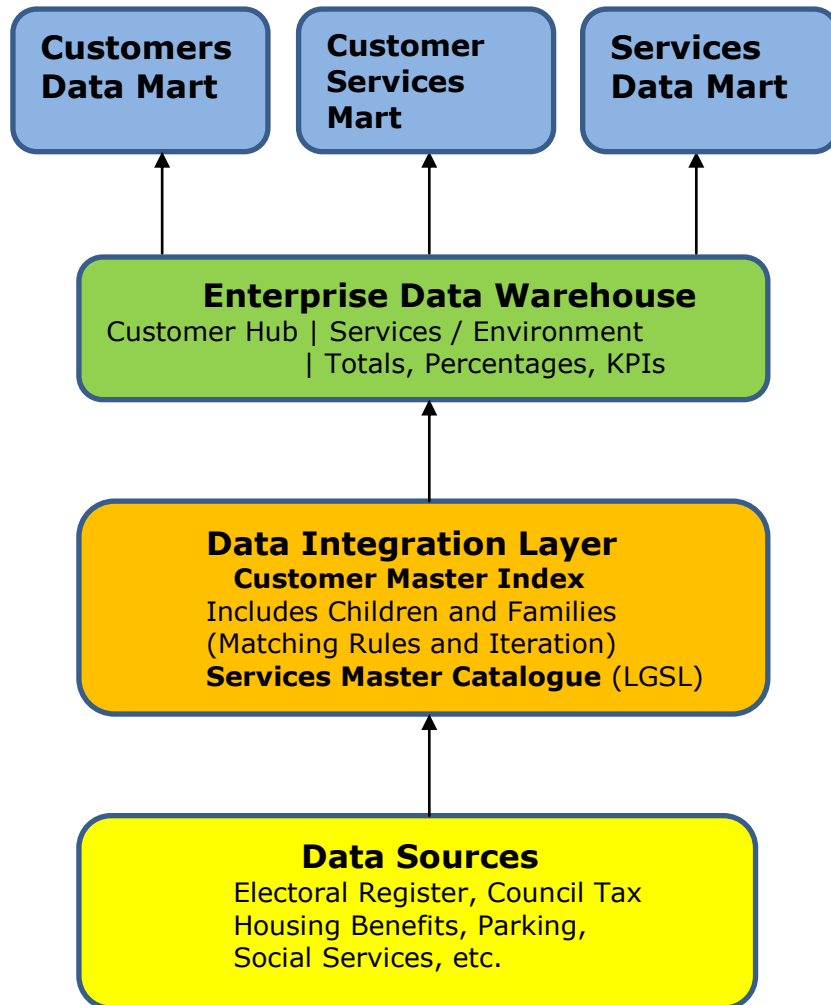
### 4.2 Tables in the Customer Data Mart



## 5. Phase 3 – Add Data Marts

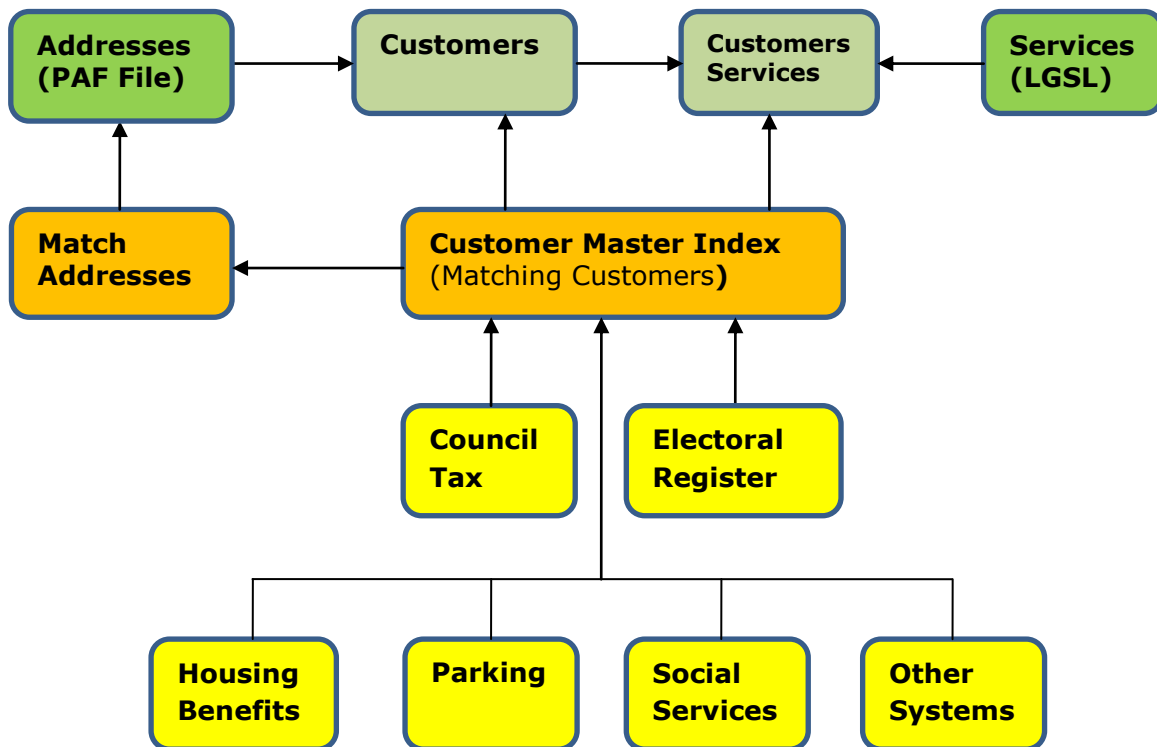
### 5.1 Introduction

Here we can see that we have three Data Marts to provide data for the BI Layer.



## 5.2 Tables in the Customer Data Marts

At this point, we add LGSL as Services Reference Data and switch to the PAF File (the Royal Mail Postcode Address File) for Address Reference Data.



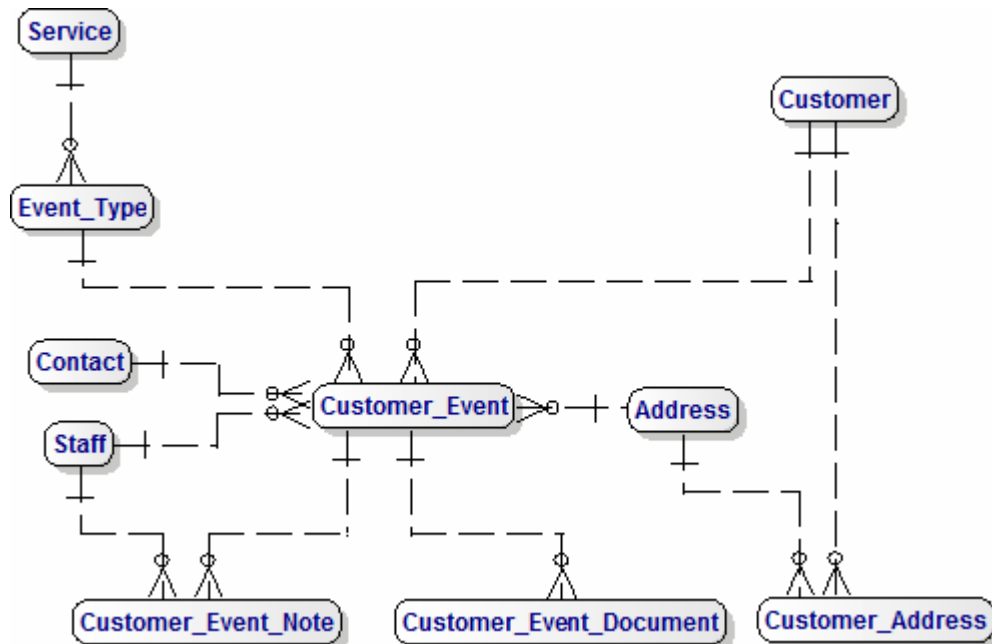


## 6. Customer-Services Data Model

### 6.1 Introduction

This version shows Entity names only and is from this page on Barry's Database Answers Web Site :-

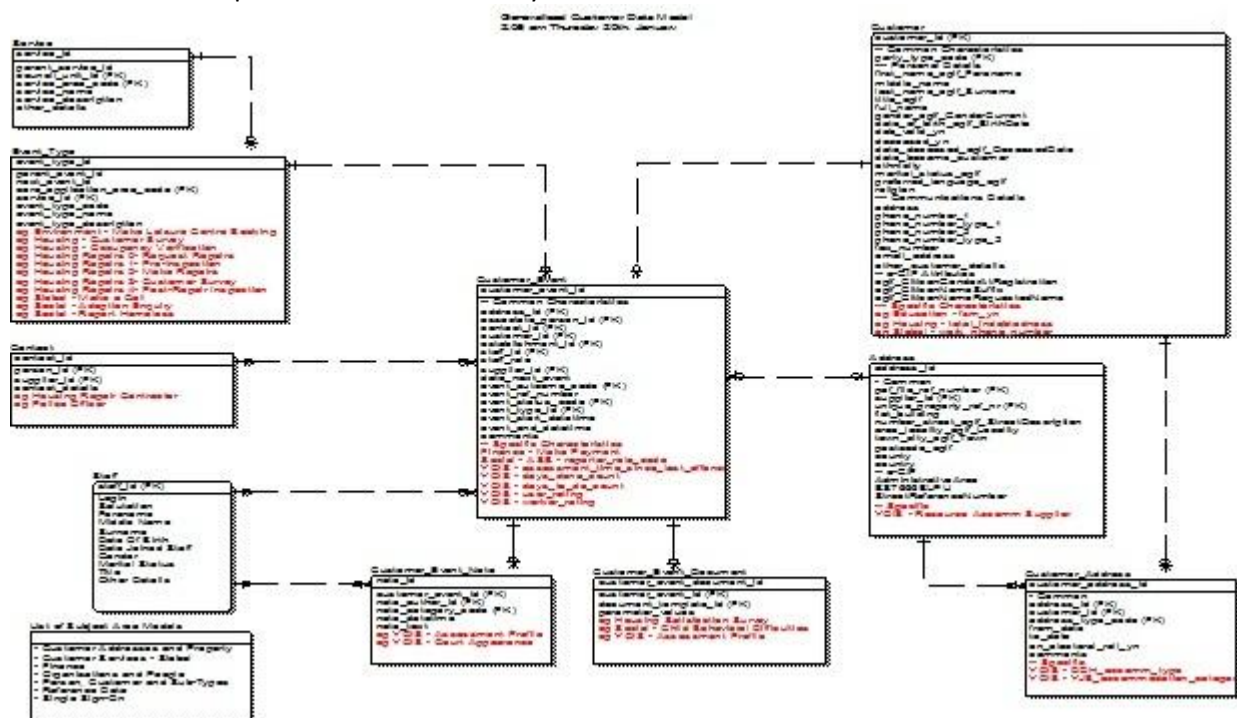
- [http://www.databaseanswers.org/data\\_models/local\\_govt\\_uk\\_residents/data\\_model\\_entity\\_names.htm](http://www.databaseanswers.org/data_models/local_govt_uk_residents/data_model_entity_names.htm)



### 6.2 Detailed Attributes

This Generalised Data Model establishes a common way of thinking of information which is consolidated across different Services.

We can use it to load data for any Council Service into the Data Warehouse in a consistent format so that it can be manipulated in a common way.



## **7. Business Drivers**

Typical Business Drivers could include –

- 1) Confirm the population for Central Government funding.
- 2) Trace missing children
- 3) Identify Families
- 4) Predict Youth Offenders
- 5) Check Fraud – eg trading in Blue Badges (Disabled Parking)

## **8. Stakeholder Involvement**

Typical Stakeholder Involvement will include :-

### **1. Agree the Approach and Objectives**

For example, “To obtain a Single View of the Truth”

### **2. Agree Top-to-Bottom Solutions Architecture**

### **3. Define initial thin slice – from BI Layer with KPIs, down to Data Sources, Data Quality, etc..**

KPIs – Total number of Residents, by Ethnic Origin and change on a monthly basis.

### **4. Obtain Commitment**

From senior management (already achieved ?), middle management.

Identify the Data Stewards for major Systems – Council Tax, Housing Benefits, Social Services, Parking and so on.

### **5. Establish Priorities**

For example, build a Customer Master Index.

### **6. Review Technology Base**

Identify features in a Phased MDM Platform

### **7. Interview Suppliers**

Draw up a short Statement of Requirements and circulate to potential Suppliers.

## 9. Phases in Delivery

These Phases have been drafted for discussion.

	<b>Phase 1</b> (‘Quick and Dirty’)	<b>Phase 2</b>	<b>Phase 3</b>	<b>Phase 4</b>
	Start-Up			
<b>BI / KPIs</b>	Customer Counts			
<b>Customer Count</b>	Count by Age Group, Gender, Street, Ward		Count by Ethnic Origin	
	Identify Families			
<b>User Access</b>	Publish and Subscribe			
<b>Data Mart</b>	Families, Deceased	Create Customers Mart	Create Customers Services Mart	
Families, Deceased	Yes	Add Source Data		
<b>3NF Data Warehouse</b>	Customers , Addresses	More Customers, CMI		
<b>Data Integration</b>	Enterprise DQ (Names, Addresses)	Addresses in Gazetteer or PAF File	Security – Sensitive Data	
<b>Data Source (TBC)</b>	Electoral Register	+ Council Tax	+ Housing Benefits + SAP (???)	+ Social Services + External Data + Parking
<b>Organisation</b>	Data Stewards	Data Stewards, Governance, PDA	Classify Data, Role-based User Access	
<b>Suppliers</b>	Confirm Requirements (CMI,DQ, MDM)	Talk to Suppliers		

MCC will retain ‘Thought Leadership’ and talk to Suppliers from a position of superiority.

The Plan :-

- 1) Agree Target Architecture  
This defines the long-term goal and provides a direction
- 2) Get started simply and increment in a controlled manner

Terminology could include CMI (Customer Master Index), Customer or MDM Hub or Data Marts.

## 10. Table Details

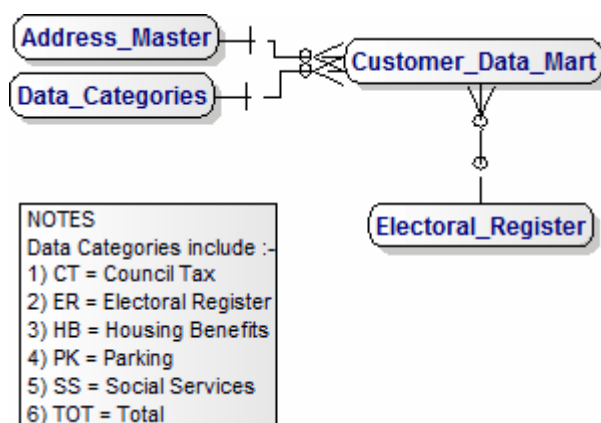
### 10.1 Direct Load from Electoral Register to the Customer Hub

Phase 2 would add an early version of the Customer Master Index.

This Phase creates a separate Address\_Master table.

Otherwise, the work involved is trivial and we would not make serious progress.

People who are on the Register with different names can live at the same address.

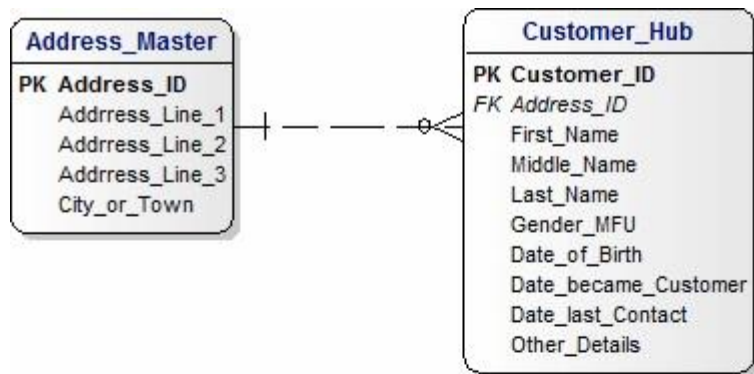


### 10.2 Typical Electoral Register

**NOTE**  
An early step would be to validate the Addresses against a standard Address File, such as the PAF File, and replace the Address in the Register with a reference to a standard Address File .

Typical_Electoral_Register	
<b>PK Voter_ID</b>	
PERSONAL DETAILS	
First_Name	
Middle_Name	
Last_Name	
Gender_MFU	
Date_of_Birth	
ADDRESS DETAILS	
Address_Line_1	
Address_Line_2	
Address_Line_3	
City_or_Town	
DATE REGISTERED	
Date_Registered	
Date_Unregistered	

### 10.3 Direct Load from Electoral Register to the Customer Hub



- 1) Load data direct into the Customer Hub Table
- 2) Load Address data and look for matches (eg Families)



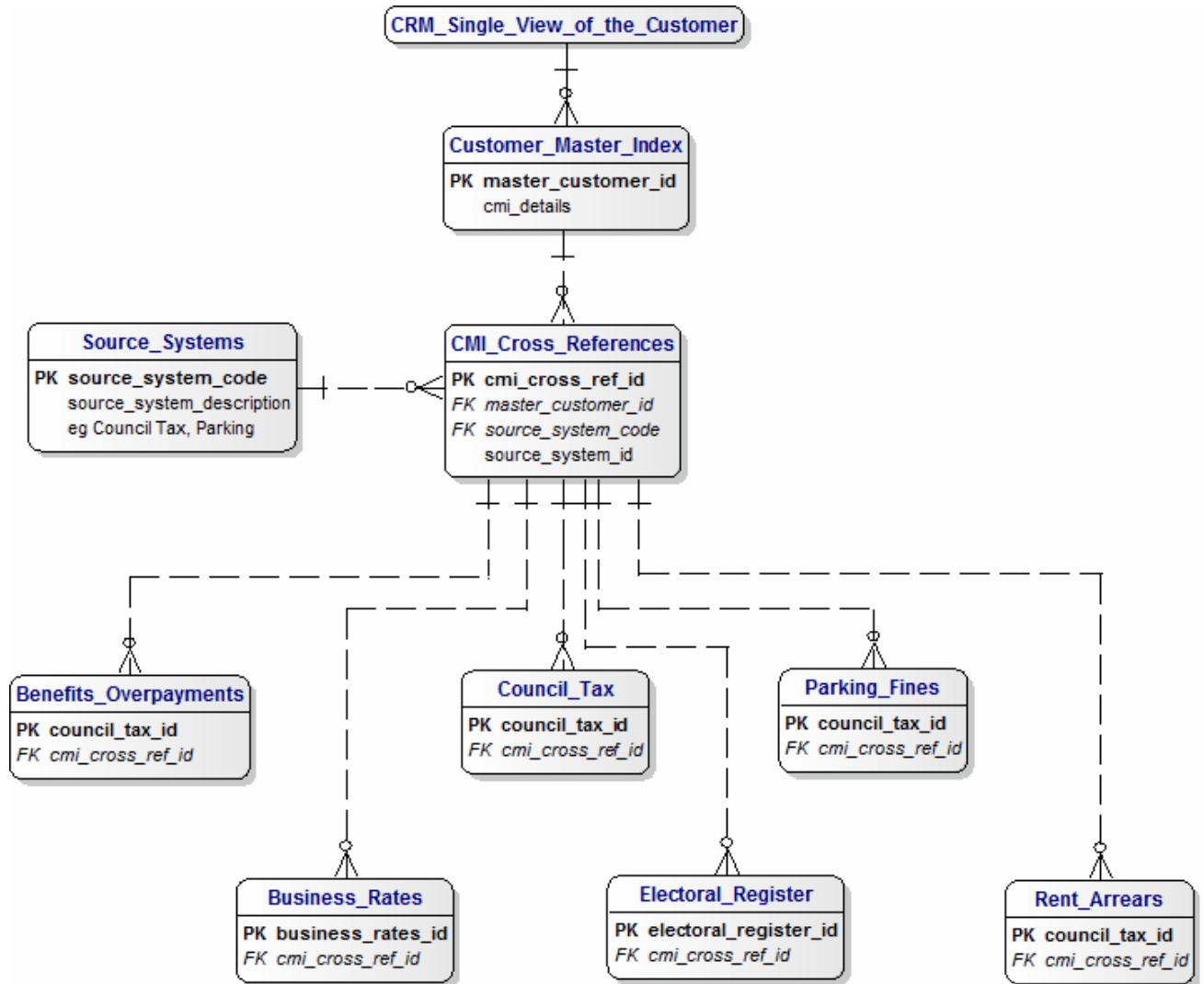
## 10.4 Customer Master Index

This Model shows an early version of the Customer Master Index ('CMI').

Multiple sources of customer-related data bare integrated in a single Customer Master Index.

It is on this page :-

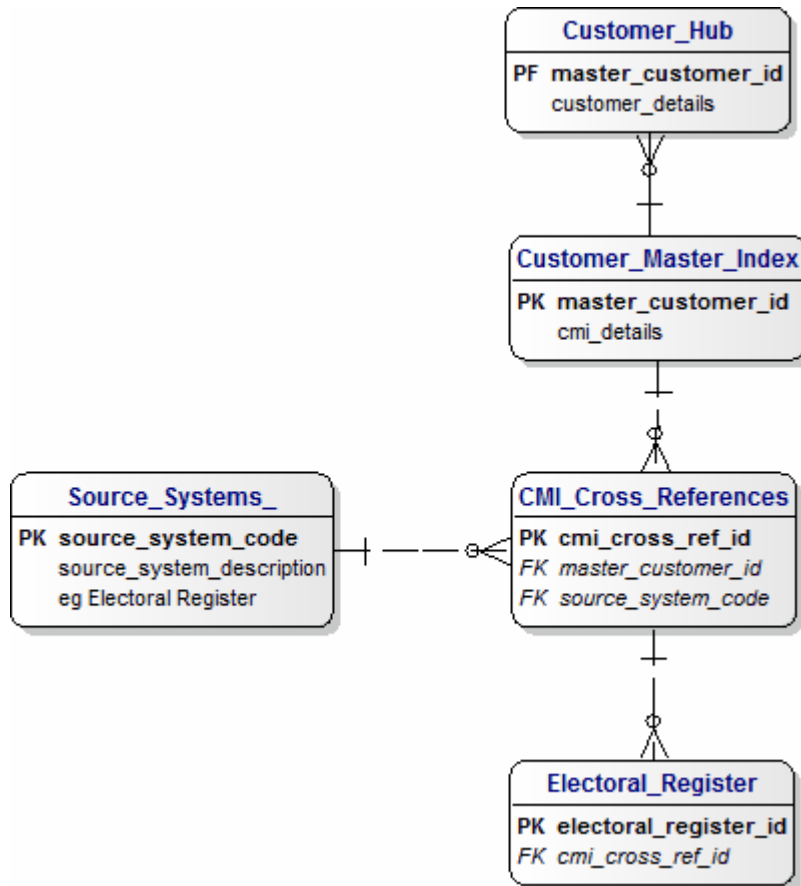
- [http://www.databaseanswers.org/data\\_models/master\\_data\\_mgt/master\\_data\\_mgt\\_customers.htm](http://www.databaseanswers.org/data_models/master_data_mgt/master_data_mgt_customers.htm)



## 10.5 Early Customer Master Index (CMI)

This Model shows multiple sources of customer-related data being integrated in a single Customer

- [http://www.databaseanswers.org/data\\_models/local\\_govt\\_top\\_level/getting\\_started\\_phase\\_1\\_hub.htm](http://www.databaseanswers.org/data_models/local_govt_top_level/getting_started_phase_1_hub.htm)

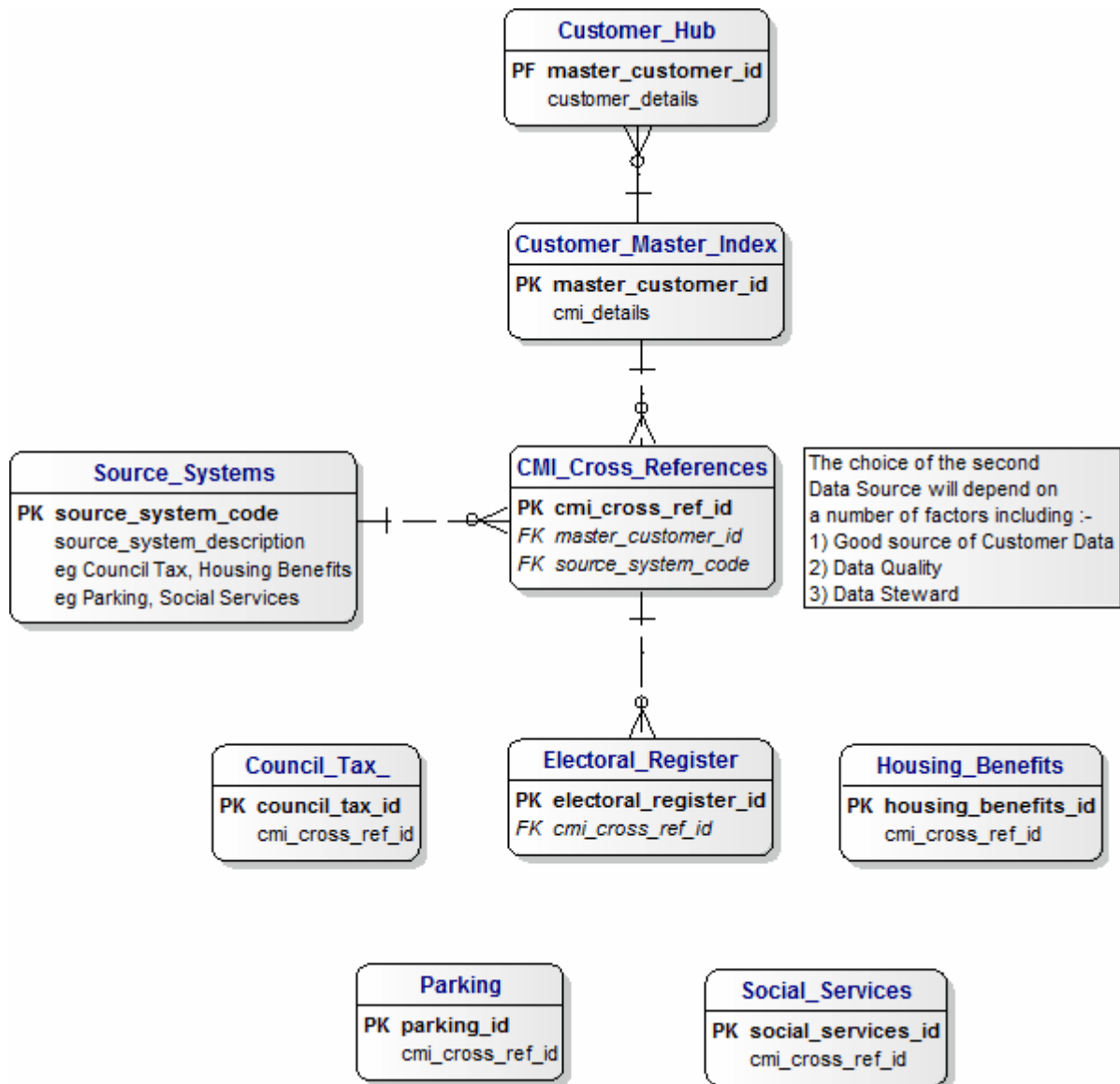


## 10.6 Another Early CMI

### Phase 4 : Add an early version of the Customer Master Index

This Model shows multiple sources of customer-related data being integrated in a single Customer

- [http://www.databaseanswers.org/data\\_models/local\\_govt\\_top\\_level/getting\\_started\\_phase\\_2\\_hub.htm](http://www.databaseanswers.org/data_models/local_govt_top_level/getting_started_phase_2_hub.htm)





### 10.7 BI Dashboard

This was a BI Dashboard produced by Barry as part of a 'Clean and Green' Environmental Monitoring initiative in Ealing

This shows 23 Wards with Red, Amber or Green marking Wards that need management attention.



## 11. Web Links

LGSL - <http://doc.esd.org.uk/LocalGovernmentServiceList/4.00.html>

LGSL Entry - Electoral Register (364) -

<http://doc.esd.org.uk/LocalGovernmentServiceList/4.00.html#/http://id.esd.org.uk/service/364>

The Open Data Institute :-

- <http://theodi.org/>

## 12. Suppliers

### 12.1 Major Players (alphabetic)

#### 12.1.1 IBM

IBM InfoSphere Master Data Management Hub –

“InfoSphere Master Data Management supports flexible management of master, reference and transaction data” -

- <http://www-01.ibm.com/software/data/infosphere/mdm/custom-domain-hub.html>

#### IBM Initiate Inspector

- <http://www-01.ibm.com/software/data/infosphere/inspector/>

#### 12.1.3 Microsoft

Microsoft Master Data Services -

“SQL Server Master Data Services provides a central data hub that ensures the integrity of information and consistency of data is constant across different applications” -

- <http://www.microsoft.com/en-us/sqlserver/solutions-technologies/enterprise-information-management/master-data-services.aspx>

What, Why and How of MDM -

- <http://msdn.microsoft.com/en-us/architecture/bb190163.aspx>

MDM Hub Architecture from Microsoft

- <http://msdn.microsoft.com/en-us/library/bb410798.aspx>

#### 12.1.4 Oracle

Master Data Management

- <http://www.oracle.com/us/products/applications/master-data-management/overview/index.html>

Customer Hub

- <http://www.oracle.com/us/products/applications/master-data-management/customer-hub/overview/index.html>

#### 12.1.5 SAP

Master Data Governance :-

<http://www.sap.com/uk/solutions/enterprise-information-management/master-data-management/master-data-governance/index.epx>

Master Data Management

- <http://www.sap.com/uk/solutions/enterprise-information-management/master-data-management/index.epx>

SAP for Local Government :-

- <http://www.sap.com/uk/industries/public-sector/state-local-government-software.epx>

## 12.2 Niche Players (alphabetic)

### 12.2.1 Bloomberg Polar Lake

Polar Lake Reference Data Management -

- <http://www.polarlake.com/reference-data-management/introduction>

### 12.2.2 Logate Address Validation

Everything Location –

**Webinar:** February 26th, 4pm GMT, 8am PST, 11am EST, 5pm CST

Cloud-based self-service address cleansing :-

- <http://www.logate.com/>

### 12.2.3 Kalido (Open Source)

Kalido MDM -

- <http://www.kalido.com/master-data-management.htm>

### 12.2.4 Object River

Object River uses Web Services to integrate with Salesforce.com -

- <http://www.objectriver.net/>

Object River MDM Architecture –

- <http://www.objectriver.net/partners.htm>

### 12.2.5 QAS Address Validation

QAS is a well-established supplier of specialist software for Address Validation and a Single Customer View and a 'People Tracer' for the Public Sector (used by Surrey Police) –

- <http://www.qas.co.uk/>

QAS also offer the Name exploit the PAF File and Gazetteer :-

- <http://www.qas.co.uk/products/capture-name-and-address-data/gateway.htm>