

## 1.6 – Stakeholders

These are the organisations and companies that we identified as playing key roles in the management of the current London Congestion Charge infrastructure.

**TfL(Transport for London)** – Government agency which controls all aspects of transport in London

**\*Capita** – Professional support service provider – Implement and manage LCC scheme

**\*\*IBM** – Manage the technology for the LCC scheme (in partnership with NCP Services)

**\*\*NCP Services** – Manage the enforcement of charges for the LCC (in partnership with IBM)

**Initial Electronic Security Systems (IESS)** – Supply and maintain CCTV infrastructure

**COLT Telecommunications** and **BT RedCARE Vision** – Provide and maintain telecommunications infrastructure used for the sending of images to the ANPR (Automatic Number Plate Recognition)

**TOWER Technology** – Provide the data storage

**Mastek** (India) – Responsible for most of the IT infrastructure

\*2003-2009  
\*\*2009 - 2014 initially

## 1.7 - Glossary

While we were investigating and researching the existing TfL system, we compiled a glossary of terms that are relevant throughout our project.

| Glossary of Terms            |              |   |                          |                      |
|------------------------------|--------------|---|--------------------------|----------------------|
| Term                         | Abbreviation | Definition  | Synonym: Allowed         | Synonym: Not Allowed |
| Administrator                |              | This actor represents an individual with an administrative function within the LCCS. Tasks include updating and deleting customer account information, validating and rejecting user requests, blocking and unblocking customer accounts, and backing up and archiving customer and payment data. |                          |                      |
| Blue Badge                   |              | Offers parking concessions to people with mobility difficulties or severe problems with vision. A Blue Badge holder is eligible for a 100% Congestion Charge discount.  |                          |                      |
| Cart                         |              | Provides payment of charges in the form of shopping functionality to the customer. At the technical level, the cart is represented within the system by the Order object.   |                          |                      |
| Charge Certificate           |              | A notice issued for non-payment of the Penalty Charge.  |                          |                      |
| Charging hours               |              | The hours between 7:00am and 6:00pm, Monday to Friday, excluding weekends, public holidays, and the period from 25 December to 1 January inclusive.   |                          |                      |
| Congestion Charge            | LCC          | A fee for most vehicles travelling within those parts of London designated as the Congestion Charging Zone.   | London Congestion Charge |                      |
| Congestion Charge suspension |              | Suspension of the Congestion Charge in response to exceptional circumstances.   |                          |                      |
| Congestion Charging Zone     | CCZ          | Those parts of Central London in which the Congestion Charge applies.   | Congestion Charge Zone   |                      |
| Customer                     |              | This actor represents an individual or organisation who uses the LCCS functionality. A customer can be a registered or non-registered user.   |                          |                      |
| Customer account             |              | An account containing a customer's details, information about their vehicles, payment history, and approved discounts or exemptions.  |                          |                      |
| Customer details             |              | Basic information about a customer, such as name, address, phone number, and e-mail.  |                          |                      |
| Customer registration number |              | A number assigned when a customer registers as a user.  |                          |                      |

|                                     |      |   |                           |  |
|-------------------------------------|------|---|---------------------------|--|
| Database                            |      | Used to store LCCS data, such as user details, VRNs, and payment details.   |                           |  |
| Discount                            |      | Certain categories of drivers of vehicles are entitled to a discounted Congestion Charge.   |                           |  |
| Discount scheme                     |      | A scheme available to regular users who pay in advance.   |                           |  |
| Discounted annual charge            |      | Charge for a year if driving into the CCZ is on a regular basis.  |                           |  |
| Discounted monthly charge           |      | Charge for a month if driving into the CCZ is on a regular basis.   |                           |  |
| Driver and Vehicle Licensing Agency | DVLA | This actor represents a UK government organisation that maintains registers of drivers and vehicles.  |                           |  |
| Exemption                           |      | Certain categories of vehicles are automatically exempt from the Congestion Charge.   | 100% discount             |  |
| Fast Track card                     |      | A card containing information about the user which makes the payment process faster.  |                           |  |
| Fleet                               |      | A group of vehicles registered by a business.   |                           |  |
| London Congestion Charge System     | LCCS | Allows customers to pay Congestion Charges and Penalty Charges online. The application handles all payments made by customers, tracks non-payment and issues penalty notices, registers vehicles for discounts or exemptions, and provides its customers with information about Congestion Charging and the services available to them. |                           |  |
| Non-charging days                   |      | Days on which the Congestion Charge does not apply, such as weekends.   |                           |  |
| Non-registered user                 |      | A customer without a customer account.  |                           |  |
| Observing (monitoring) system       |      | Cameras and image processing system.  |                           |  |
| Payment details                     |      | Information about the payment method such as card type, card number, cardholder name, card issue date, card expire date, and secure number.   |                           |  |
| Payment receipt number              | PRN  | A reference number issued by the LCCS as proof of payment.  |                           |  |
| Payment Service Provider            | PSP  | A company that provides a payment facility for accepting payment online.  |                           |  |
| Penalty Charge                      |      | A penalty payment applicable for non-payment of the Congestion Charge.  | Congestion Charge penalty | Fine                                       |
| Penalty Charge Notice               | PCN  | A notice issued to the registered keeper of a vehicle for non-payment of the Congestion Charge.   |                           |  |
| Penalty Charge number               |      | A number uniquely identifying the Penalty Charge Notice.  |                           |  |
| Primary vehicle                     |      | The vehicle designated as the primary vehicle in a customer account.  |                           |  |
| Registered user                     |      | A customer with a customer account.   |                           |  |
| Registration fee                    |      | A payment required for applications for annual renewals of discounts and exemptions.  |                           |  |
| Transport for London                | TFL  | Name of organisation responsible for the Congestion Charge.   |                           |  |
| User name                           |      | The customer's e-mail address.  |                           |  |
| Vehicle details                     |      | Information about a vehicle such as VRN, exemptions, discounts.   |                           |  |
| Vehicle excise duty                 |      | A British excise duty, which has to be paid to acquire a vehicle licence for most types of motor vehicle.   |                           |  |
| Vehicle registration number         | VRN  | The license plate number that is unique to every registered car in the UK.  |                           | License plate number<br>License plate mark |

## Appendix IV – Project Glossary

### A

**Actors** – Refers to the three users Client, Administrator and Technician.

**Administrator** - A person (or group of people) responsible for the maintenance and performance of a database.

**Architecture** - Refers to the way a system is designed and how the components are connected with each other.

**Access rights** – The powers granted to users to create, change, delete, or simply view data and files within a system.

**Attributes** – Each attribute of a relation stores a piece of information about an object. Attributes are represented as columns in a table. Each attribute in a relation is unique and contains atomic values.

**Application server (J2EE)** – Server software that manages one or more other pieces of software in a way that makes the managed software available over a network, usually to a web server. By having a piece of software manage other software packages it is possible to use resources like memory and database access more efficiently than if each of the managed packages responded directly to requests.

**Assigned ticket** – When a ticket has been assigned to a technician to be resolved.

### B

**Browser** – Software that enables personal computer users to navigate the Internet and perform various operations once linked with a site. The two most often used are Microsoft Internet Explorer and Netscape Navigator.

**Broadcast message** - A message sent from one user to all users on a network.

### C

**Client** – In this project the client are the employees of the organisation.

**Client server**- The data processing interaction in which a program at one site (the client) sends a request to a program at another site (the server) and awaits a response.

**Class** – A class definition defines instance and class variables and methods, as well as specifying the interfaces the class implements and the immediate superclass of the class.

**Class diagram** – A UML diagram showing the object-oriented relationships among classes and their members.

**Closed tickets** – When a ticket is closed by a technician because the problem has been resolved.

**Cancelled tickets** – When a ticket is cancelled by the administrator.

## D

**Database** - A [structured](#) collection of records or [data](#) that is stored in a computer system. A database relies upon [software](#) to organize the storage of data.

**Deployment diagram** – Serves to model the hardware used in system implementations, the components deployed on the hardware, and the associations between those components. The elements used in deployment diagrams are nodes (shown as a cube), components (shown as a rectangular box, with two rectangles protruding from the left side) and associations.

## E

**Eclipse** – Software program used to write the JAVA code.

## F

**Functional requirements** – Defines a function of a software-system or its component. A function is described as a set of inputs, the behavior and outputs. Functional requirements may be calculations, technical details, data manipulation and processing and other specific functionality that show how a [use case](#) is to be fulfilled.

**Frequently Asked Questions (FAQ)** – FAQ's are documents that list and answer the most common questions on a particular subject.

**Functionality** – Refers to the useful features and behaviours that a computer program or application, such as a database. It answers the question, "What does it do?"

## G

**Graphical User Interface (GUI)** – Graphics based user interface that incorporates movable windows, icons and a mouse.

## H

**Help desk** - A support system designed to assist end users with technical and functional questions and problems.

**HTTP** – Hypertext Transfer Protocol is the set of rules for transferring files on the World Wide Web.

## I

**Interface** – The physical means of communication between a person and a software program or operating system.

**Implementation** – The carrying out or physical realization of something from concept to design. A computer system implementation would be the installation of new hardware and system software.

**Integrated development environment (IDE)** - Also known as integrated design environment and integrated debugging environment, is a type of computer software that assists computer programmers in developing software.

## J

**Java Server Pages (JSP)** – A Java technology that allows software developers to dynamically generate HTML, XML or other types of documents in response to a Web client request. The technology allows Java code and certain pre-defined actions to be embedded into static content.

**Java** – Is a programming language originally developed by Sun Microsystems and released in 1995 as a core component of Sun's Java platform. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities.

**JavaBeans** – Are classes written in the Java programming language conforming to a particular convention. They are used to encapsulate many objects into a single object (the bean). So that the bean can be passed around rather than the individual objects.

**Java Database Connectivity (JDBC)** – An API for the Java programming language that defines how a client may access a database. It provides methods for querying and updating data in a database. JDBC is oriented towards relational databases.

## K

## L

**Local area network (LAN)** – Computer network covering a small geographic area, like a home, office, or a group of building e.g. a school. The defined characteristics of LANS, in contrast to Wide Area Networks(WANs), include their much higher data transfer rates, smaller geographic range, and lack of a need for leased telecommunication lines.

## M

**Main flow** – This is described in the use cases where it lists all the steps which are involved in that particular use case.

**MYSQL** – A multithreaded, multi-user SQL database management system (DBMS) which has more than 11 million installations. The basic program runs a server providing multi-user access to a number of databases.

## N

**Non functional requirements** – Requirements which specify criteria that can be used to judge the operation of a system, rather than specific behaviours. This should be contrasted with functional requirements that specify specific behaviours or functions.

## O

**Object orientated analysis** – Is a software engineering approach that models a system as a group of interacting objects. Each object represents some entity of interest in the system being modelled, and is characterised by its class, its state, and its behaviour.

**Operations** – An operation is called an instruction which a processor defined by an instruction is set architecture.

**Object variables** – Are a symbolic representation used to denote a quantity or expression. In computer science, it represents a place where a quantity can be stored.

**Open tickets** – When the user creates a new ticket for a problem.

**Operating system** – The software that manages the sharing of the resources of a computer and provides programmers with an interface used to access those resources. An operating system processes system data and user input, and responds by allocating and managing tasks and internal system resources as a service to users and programs of the system.

## P

**Prototype** – An original type, form, or instance of something serving as a typical example, basis, or standard for other things of the same category.

**Problem statement** – A clear concise description of the issues that need to be addressed by a problem solving team and should be presented to them at before they try to solve the problem.

**Primary actor** – Someone who interacts directly with a system to achieve their goals.

**Precondition** – A condition or predicate that must always be true just prior to the execution of some section of code or before an operation in a formal specification.

**Post condition** – A condition or predicate that must always be true just after the execution of some section of code or after an operation in a formal specification.

**Prerequisite** – A requirement that needs to be fulfilled before the next one takes place.

**Protocol** – A convention or standard that controls or enables the connection, communication, and data transfer between two computing endpoints. In its simplest form, a protocol can be defined as the rules governing the syntax, semantics, and synchronization of communication.

## Q

## R

**Requirements** – Often used as a guideline as opposed to an absolute rule.

## S

**Servlet** – Java objects that implement the Java Servlet API originally defined by Sun for dynamic web page creation.

**SQL** – A database computer language designed for the retrieval and management of data in relational database management system (RDBMS), database schema creation and modification, and database object access control management.

**System architecture** – The design or set of relations between the parts of a system. There is no strict definition of which aspects constitutes system architecture.

**State machine diagrams** – Models the behaviour of a single object, specifying the sequence of events that an object goes through during its lifetime in response to events.

**Software** – A general term used to describe a collection of computer programs, procedures and documentation that perform some tasks on a computer system.

## T

**Technician** – An individual who is responsible for keeping users' computers running and up-to-date, solve software and hardware problems.

**Ticket** - A request send by a client with the description of the problems that they want to solve.

**Tomcat** – A web container or application server developed at the Apache Software Foundation (ASF). Tomcat implements the Java Servlet and the JavaServer Pages (JSP) SPECIFICATIONS FROM Sun Microsystems, providing an environment for Java code to run in cooperation with a web server.

## U

**Unified Software Development Process (USDP)** - A popular iterative and incremental software development process framework. The best-known and extensively documented refinement of the Unified Process is the Rational Unified Process or RUP.

**Use case** – A description of a system's behaviour as it responds to a request that originates from outside of that system.

**Unified Modelling Language (UML)** - A standardized visual specification language for object modelling, UML is a general-purpose modelling language that includes a graphical notation used to create an abstract model of a system, referred to as a UML model.

**User input** – User input can be given in a number of different ways which depend on the particular task which requests the input.

## 1.4 – Project Glossary

During the requirements and analysis workflows, a number of words and phrases were identified as having specific meanings in the context of the project. In order to ensure clarity and uniformity, a project glossary was maintained and used as a reference throughout the project lifecycle. This glossary is shown below in **fig.1c**.

**fig.1c – PROJECT GLOSSARY**

| TERM                   | EXPLANATION  |
|------------------------|--|
| Adjudicator            | A user with responsibility for auditing the election and announcing the results.   |
| Candidate              | A person for whom voters can vote within an election.  |
| Select a Vote          | To select a candidate from the list. Votes are not committed at this stage and can be reviewed and changed.                |
| Cancel a Vote          | Once a vote has been selected but before it has been cast, it can be cancelled.  |
| Category               | A subset of an election (e.g president, vice-president etc) which contains the candidates.                                 |
| Cast a Vote            | To confirm the selected candidate. Votes are committed to the database at this stage.                                      |
| Election               | An election process represented as a single event in the EVS system.   |
| Election Administrator | A user who has access to setup and amend elections and candidates in the EVS system.                                       |
| System Administrator   | A user who has access to setp and amend Election Administrator accounts and perform general administration.                |
| EVS                    | Acronym for Electronic Voting System.  |
| Time                   | The system will perform certain actions based on dates. The passage of time will trigger these actons.                     |
| UCL Student Database   | The main UCL database which holds records of all registered students. This is to be used as a interface to the EVS system. |
| Voter                  | A user who has access to vote on the system. In this version of the application it specifically represents a UCL student.  |
| Auditor                | An agent outside the organisation who performs an independent audit of the vote procedure and system accuracy.             |