Transport Order and Request System (TORS)

Overview

The **Transport Order and Request System**, '**TORS'**, is a '***Cooperative Software Product***' where the designers used their extensive knowledge of Community Transport requirements and evolving technology to help resolve passenger transport supply and demand by using the ***Internet.***

Abstract:

Cooperative software engineering typically involves many actors and resources that cooperate in a complex distributed and heterogeneous world.

The main focus of **TORS** is one of transport co-ordination and management. Passengers have demands for transport on one side, whereas Transport providers may be able to meet such demands on the other side. **TORS** automates the manual process:

- Requests are taken from passengers, and '***Transport Providers'*** such as Community Transport or commercial operators, including taxi operators, commercial bus operators, statutory transport, community transport or a mix of any of these or other providers, can respond to **Transport Order requests** from passengers.

- The system is driven by a **Transport Order Request** that is entered into the system by a passenger or someone acting on their behalf. This request may be impossible to carry out, but the intention is that it will become a **Confirmed Booking**. **TORS** opens up the possibility of the demand being met quickly and efficiently by publishing the passenger's request amongst registered '***Transport Providers'***.

The overriding problem of reliable communication is important, so with this in mind, the designers of **TORS** set out to provide a system with the following **objectives**:

- **Effective**
- **Accountable**
- **Easy to use**
- **Low cost**

Effective

Passengers have a much better chance of having their **Transport Order Requests** met and at a competitive price because all registered '***Transport Providers***' have equal access to the **Requests** and can make a price quotation. Appropriate users of the system also have access to track the progress of requests and quotes.

Accountable

TORS records every transaction movement within the system. All users of the system must have a login (and password). This has the following advantages:

- A full audit trail (who did what and when). It allows you to identify where and when a problem may have occurred so that remedial action can be taken to minimise its re-occurrence.
- Producing Reports to analyse data recorded over a specified period of time, for example, how many Transport Order Requests did we fail to deliver over the last three months?

Easy to use

TORS is '*straightforward and easy to use'*. From the initial concept, **TORS** was designed so that the system is intuitive and we hope that you will agree.

Low cost

- As long as users have standard access to the Internet, no extra software need be installed on their computers.

- We believe that **TORS** reduces the cost of maintaining a comparable central system such as a large 'Call Centre' and also has other significant advantages.

- The number of phone calls and opportunities for error are reduced.

How does TORS work?

We need to describe the types of users (or roles) and the **TORS** infrastructure. The following diagram and the notes that follow should help with this task, but before that, let's take a look at the history of **TORS** then what follows will hopefully make more sense.

TORS was initially designed and implemented in a large District Borough in the Home Counties implementing a Government initiative known as the '***Subsidised Taxi Scheme (STS)'.***The idea was, where applicable, to use transport in the private sector, especially Taxi Companies instead of Council provided transport for '***special needs passengers'***. The term '***special needs'*** is rather generic because it included not only people with medical issues, but also, for example those needing support when seeking work.

These people usually qualified for funding in the form of transport subsidy. This subsidy took the form of:

- A percentage of the total fare to actually pay.
- An allocation of money to make up the difference. This did not take the form of actual cash handed out, but kept on record within the **TORS** system.

So how it worked was that the passenger paid the transport provider an agreed percentage of the fare and at the end of the month, the transport provider was reimbursed the balance of all subsided fares outstanding.

As there were potentially hundreds of people qualifying, it was decided to delegate the administration to what was termed '***Partner Organisations'***. For example 'Connexions' would handle those seeking work, and other associations specialising in specific medical conditions such as Multiple Sclerosis. The people registered with these organisations (passengers) were termed '***Partner Members'.*** Each of these organisations would have one or more '***Partner Administrators'*** who would maintain their member's details including allocation of any funding and if needed, process transport requests on behalf of their members (more on this later).

The original **TORS** implementation required those members requiring transport would contact the Council and give their details to what was termed a '***Booking Officer'*** who entered those details into the **TORS** system. These were made available on the Internet where the registered '***Transport Providers'*** could view and quote (bid) for the work. The '***Booking Officer'*** would review the quotes and allocate the work accordingly.

The latest version of **TORS** allows members not only to self-register online, but also enter and process their own transport requests. The level of computer expertise required is analogous to doing a weekly grocery shop online.

Alternately they have the option of contacting their '***Partner Administrator'*** or a '***Booking Officer'*** who would process transport requests on their behalf.

What is the difference?

- A '***Partner Administrator'*** is limited to the members registered within the 'Partner Organisation'.

- A '***Booking Officer'***
  - Relates to one ***Office***.
  - More than one ***Partner Organisation*** may be registered with that same ***Office***.
  - Therefore a '***Booking Officer'*** potentially has access to all the ***Partner Members*** for all those ***Partner Organisations***.

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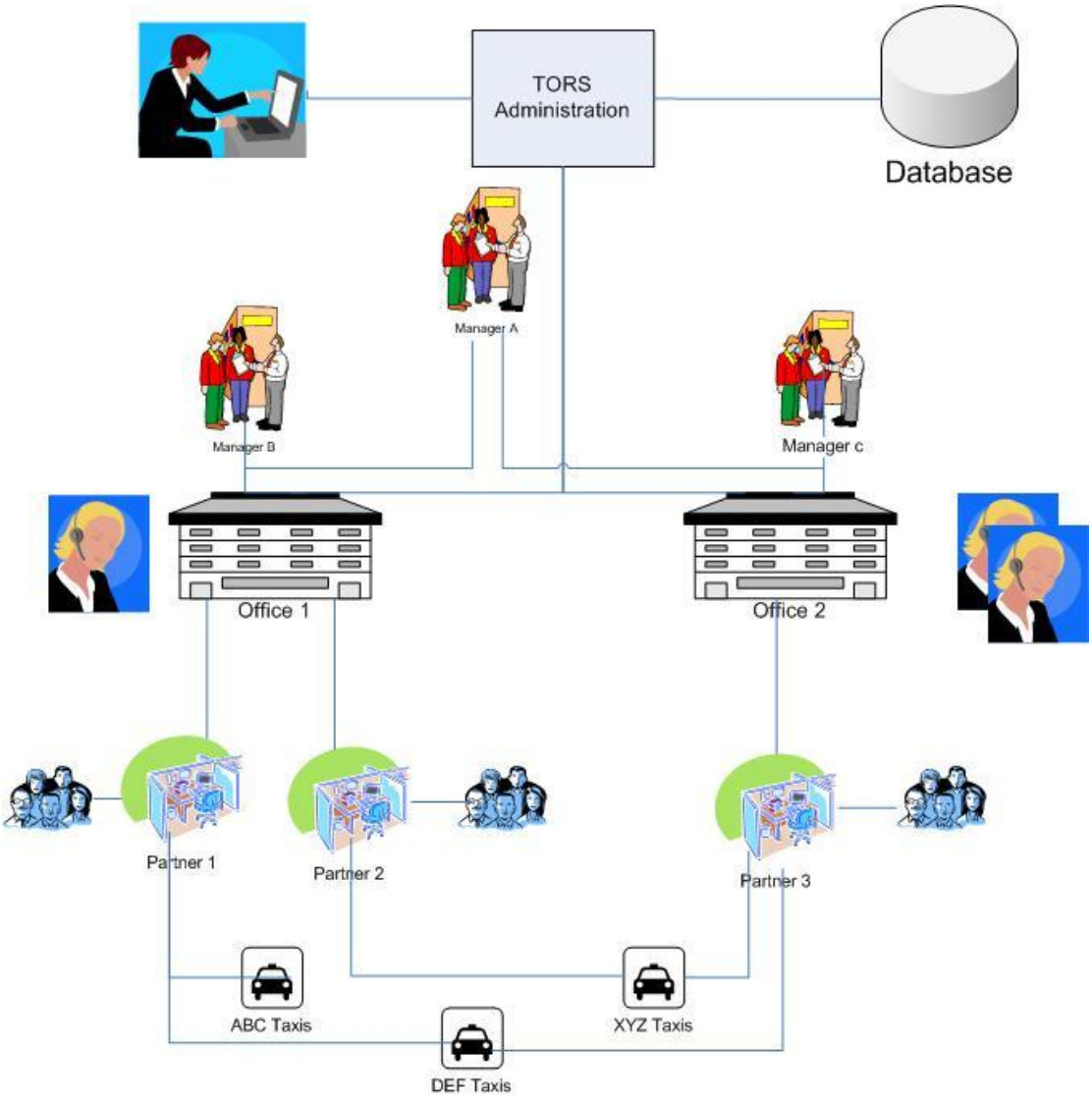


TORS Administrator


Partner Organisation


Office Manager


Partner Members


Booking Officer


Transport Provider

Types of Users

- **TORS Administrators** – who maintain the '***infrastructure'***. This is covered more in depth as we progress through this document. **TORS** Administrators do not participate in the day-to-day processing of transport requests.
- **Office Managers (are optional)** – **TORS** provides for multiple administrative centres (***Offices***) if needed, although there will always be one '***Central Office'*** by default. Note that offices do not have to be physical separate buildings; they can in computer terminology be '***Virtual Offices'***.

  An '**Office'** can have one or more '***Office Manager'*** and an '***Office Manager'*** can be related to more than one ***'Office'***. An '***Office Manager'*** does not participate in the day-to-day processing of transport requests. Their role is to monitor the usage, typically reviewing reports and sorting out any disputes that may arise.
- **Booking Officers** – these enter ***Transport Order Requests*** on behalf of members who cannot enter requests for themselves. A ***'Booking Officer'*** is associated with one specific office.
- **Partner Administrators** – although not actually depicted in the diagram, this would be someone who maintains the details of the '***Partner Members'*** within their ***'Partner Organisation'***. They, like a '***Booking Offi***cer', may enter transport requests on behalf of, but limited to their '***Partner Members'***.
- **Partner Members**:
  - These are the primary reason for **TORS**. These are the '***real'*** people (or passengers) requiring transport. They will be registered with a '***Partner Organisation'*** .
  - They may qualify for transport subsidy.
  - They may be able to enter their own transport requests via the Internet; else they will have a contact number where they will be able to give their requirements to a '***Partner Administrator'*** or a '***Booking Officer'***.
- **Transport Providers** – (for example, taxi companies) have on-line access to information about ***Transport Order Requests***, and respond to them with quotes which may or may not be accepted.

With so many types of users (or roles), you may thinking how complex it all is, but please bear in mind that **TORS** was designed to cater for the smallest of implementations to those of unlimited size.

For example, a small implementation:

- Once the initial set up is complete, there would be very little work for a **TORS** ***Administrator***.
- If all the members processed their transport requests themselves, there would be no need for any ***Booking Officers***.
- ***Office Managers*** are optional
- There will always be a requirement for at least one '***Partner Administrator'***. The amount of involvement will vary on how **TORS** has been configured but may involve one or more of the following:
    - New applicants may register on-line for membership. Before that member may participate, a ***Partner Administrator*** would verify the application and activate the account.

      An alternative, although more risky, is automatic member acceptance as soon as they have self-registered on-line.
    - Entering new member's details if they cannot self-register.
    - Entering transport requests on behalf of any member who cannot perform this for themselves.

Realistically, it would be possible for one person, even on a part-time basis, performing the various '***roles'*** to keep the installation functioning on a day-to-day basis.

Whatever the size of the installation, there will always be a need for:

1. Partner Members
2. Transport Providers

But if we did not have these, there is no point in having TORS in the first place!

Having discussed the different types of users, let's have a look at some of the '***entities'***.

Types of Entities

Transport Providers and Transport Operatives.

Generally ***Transport Providers*** could be taxi operators, commercial bus operators, statutory transport, community transport or a mix of any of these or other providers.

Transport Operatives are people who are associated with a ***Transport Provider*** and are registered as a user of **TORS**. For example **ABC Taxis** would be registered as a '***Transport Provider'*** and 'Peter Jones' who works for, or may be the owner of 'ABC Taxis' would be a ***'Transport Operative'*** who would process transport requests on behalf of 'ABC Taxis'. If the company is large, then the people doing the administration such as taking bookings would be the ***'Transport Operative(s)'.***

Partner Organisations

This subject has been dealt with earlier in this document.

Offices

Let's go back once again to the history of **TORS**. As the number of users grew significantly (Partners, Members and Transport Providers specifically), it became obvious that:

1. Transport requests would only be of interest to Transport Providers operating within a reasonable distance of the members.
2. Partner Organisations may prefer to use only a 'sub-set' of the Transport Providers registered with **TORS**.

This required some form of graphical solution, especially for the first point. An idea was to divide the area covered by **TORS** into discrete districts and have the ***concept*** of 'District Offices'. This idea was implemented as ***TORS Offices*** with each office dealing with:

1. One or more Partner Organisations.
2. One or more Transport Providers, although a Transport Provider could be registered with multiple offices.
3. One or more Booking Officers.
4. Zero, one or more Office Managers, although an Office Manager could be registered with multiple offices.

Think of a *TORS office* as an administrative centre, not necessarily a separate physical building, and in some ways it is like having a mini **TORS** implementation in their own right.

Realistically, only a large implementation would require separate offices, but **TORS** has been designed to be as extensible and flexible as required.

Funding

The issue of funding was touched on earlier in the history of TORS, but for completeness, let's clarify.

If direct funding is not the organisation's policy, **TORS** offers an alternative for providing transport subsidy:

- Each qualifying person (member) is allocated:
  - An amount of money
  - A percentage of the fare to be paid in cash, ranging from5% to 100%. **TORS** automatically computes this amount for each quote so all parties know in advance what exactly is to be paid.
- The transport provider will either have to claim the remainder of the fare(s) or the Central Office will automatically reimburse at say the month end.
- Although **TORS** in not an accounts package, it does provide a number of reports the will help any necessary consolidation.

Reports

TORS provides several reports, varying with the type of user. For example:

- A ***Transport Provider*** can acquire a '***Drivers Schedule'*** based upon agreed requests.
- A ***Partner Organisation*** can acquire a current '***spend rate'*** for each member if **TORS** funding has been implemented.
- An ***Office Manager*** can acquire a breakdown of any funding subsidy owed to the ***Transport Providers***.

To Conclude

You may be thinking that **TORS** is rather complex but it was designed to be suitable for the smallest organisation (or implementation), to the largest. So let's finish with an example of a small implementation using a fictitious organisation, 'Peterwood Borough Council'who wish to reduce council provided transport as a cost saving exercise.

The types of passengers involve fall into the following broad categories:

- Those with various medical conditions.
- Those seeking work, but also qualify for assistance.
- Children attending school where there is no other alternative such as a school bus.

There are the following organisations within the Borough who would be happy to be involved as '***Partner Organisations'***, all providing '***Partner Administrators'***:

- Connexions (for job seekers).
- Peterwood Mencap.
- Help the Aged (Peterwood Branch)

As these would not cover all requirements, the Borough themselves would also be a ***Partner Organisation*** as a '***catch all'***.

Several taxi companies and Community Transport charities have been accepted after suitable vetting to be the '***Transport Providers'.***

The initial set up of the TORS implementation would take the following typical steps:

- The ***Administrator*** would:
  - Enter the details of all the ***Partner Organisations***, and their ***Partner Administrators***, allocating login and passwords.
  - Enter the details of all the ***Transport Providers*** although **TORS** allows for self-registration on-line.
  - Optional - enter the details of any '***Booking Officers'***, allocating login and passwords.
  - Optional - enter the details of any '***Office Managers'***, allocating login and passwords.

Each ***Partner Organisation*** would enter the details of any of their members who cannot self-register on-line, including any **TORS** funding.

The system would then be available for inputting and processing transport order requests.

If you wish to have a '***hands on'*** experience, we have tutorials available but you will need to arrange that with the **TORS** suppliers as you will need the appropriate access.

Some Technical Facts

- ***TORS*** is an Internet Application using the Microsoft .NET platform. Implementation could be on a customer's own server or a 3rd Party provider.

- Current Database support
  - Open connectivity using either ODBC or OLE/DB for Microsoft Access.
  - Microsoft SQL Server using native .NET classes.