



Large event logistical and support traffic management

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Abstract

Transport planning and management schemes for large cultural, sporting and commercial events, fairs, exhibitions, ... are generally exceptional arrangements which depend greatly on the type, magnitude, duration and programming of the venues, whether single or multi-site, urban, suburban or rural. Besides spectator/visitor traffic management, this research project deals mainly with the **logistical support** of events and mega-events, often underestimated.

Logistical support, traffic & periods

Logistical support may be defined as the set of all of the means and methods relating to the organisation of an event, which can include administration and services such as security, medical and health services, reception, accommodation, catering, technical assistance, general maintenance, the setting up and dismantling of structures and equipment, transport of passengers, goods and supplies, media and communication, cleaning and waste removal, etc. This logistics may account for up to a quarter of the event participants or, by deduction, more than a quarter of the traffic generated by the event.

The **logistical traffic** may be defined as $Logistical\ traffic = \Sigma\ traffic - (base\ traffic + spectator\ traffic)$. In other words, logistical traffic is all of the traffic generated by the event except for spectator traffic.

From the point of view of logistics, large events consist of three chronological periods or sequences with distinct characteristics and organisational constraints :

- **the pre-event period** : setting up of all the installations, equipment and technical systems connected with the event, special requirements for sporting or cultural events (training, rehearsals) ;
- **the period of the event** itself, live before the public ;
- **the post-event period**, comprising the dismantling and restoration of the site.

The pre-event and post-event periods have their own special characteristics and their logistical traffic are generally not on a scale which would affect traffic conditions within the perimeter of influence of the event.

Logistical categories

Six categories of participants may be distinguished : **spectators, players, logistical personnel** (organisers and service providers such as security, reception, transport of goods, catering ...), **volunteers, VIPs** (VIP, guest, sponsors) and **media**. Each of these categories has its own specific mobility (transport and accessibility) requirements. The success of the event can be ensured only if these specific needs are systematically taken into account and fully met. They are grouped under six headings : **time, space, transport services, infrastructure utilisation, services, transport of goods**.

These headings are the basic elements in drawing up a system of accreditation (see planning and management).

Planning and management

Traffic planning and management, which applies to all logistical periods, is divided into three distinct parts :

1. Organisation of functions into a hierarchy or drawing up hierarchical transport plans;
2. The use of suitable means of intervention for the event and its needs ;
3. Event management.

1. Organisation of functions into a hierarchy

Given the variety of players involved and their special needs, there will certainly be conflict in the planning process. It is therefore necessary to organise the groups of participants or functions into a hierarchy, on the basis of a comparison of the functions depending on their role and their requirements for mobility and accessibility. The desired result is a grouping by family that allows us to establish for each family a transport and accessibility plan.

2. Means of intervention

Three basic means of intervention are used to manage effectively these complex logistical flows covering very different requirements.

- **accreditation / ticketing;**
For events with perimeter access control, accreditations are passes or access authorisations to specific perimeters or sectors. Apart from spectators, whose entrance ticket (ticketing) is a form of accreditation with limited rights, all other participants at an event (players, logistical staff, the media, charities, VIPs) must be accredited.
Every vehicle, as well as all of the occupants accessing the perimeter under control or the different sectors, must have accreditation. For deliveries during "high security" events, the goods must also have specific accreditation.
- **the information / communication system;**
Information is the link between the organiser and the participants, logistics and spectators. This is a key aspect that merits particular attention. We would like to stress the need to keep these target audiences regularly informed, i.e. throughout the event, using suitable means : road and pedestrian signposting, radio messages, broadcast road information, stickers, folders, plans, etc.

- **signposting.**

Signposting covers all systems for signs, guides, marking routes and variable or fixed message panels, using complementary (and usually temporary) installations, to :

- Provide information and ensure easy traffic access flows to the event (access to car parks, bus parks, public transport, taxis, pedestrians, etc.) and to exits without traffic congestion ;
- Provide information and guide non-participants at the event so that they can use the bypass routes ;
- Provide information about security aspects and the provisions of the system (danger due to vehicles parked on the street, parking authorised on the street up to a given time) ;
- Separate and guide traffic with an accreditation (VIPs, players, etc.) to special access points (special pedestrian access, reserved parking, etc.). **This point is the logistical signposting.** Pedestrian signposting is easily adapted to meet the needs of logistical traffic because there are few constraints in this field and many signposting options. In the case of road signalling, the addition of signposting for spectators is already very complex. It is almost impossible to place suitable logistical signposting for all logistical functions.

The use of one of these means, for example special accreditation for handicapped vehicles, often requires interaction with one or more of the other means of intervention, in this case information for the target audience and suitable signposting.

3. Dynamic management of the event

The **command, control and communication centre (CCC)** is the nerve centre of the event. Its role is to group together those responsible for the event in the main domains (general and health security, event organiser, transport and accessibility, communication, etc.) in a headquarters for controlling the event. By gathering all information, the headquarters can coordinate, control, take decisions in crisis situations and communicate decisions. The CCC centre operates at two complementary levels : continuous management and event management.

All information received by the centre is stored and analysed by the command / communication unit in the form of data elements. Depending on the type of data element, an "operational" decision is taken by the department manager or a planned procedure is applied (reserved decision). These procedures always involve a communication order and/or the internal dissemination of information and, depending on the case, "external" dissemination of information to the media and the general public.

For major events, the CCC centre is indispensable for :

- Satisfying the specific needs of logistical traffic ;
- Responding quickly to new requirements such as protocol constraints associated with a visit by a head of state ;
- Taking necessary decisions in the event of a crisis situation.

For example, an accident requiring the replacement of a judge involves implementing measures according to a planned reserved decision : calling in a reserve judge, rapid personal transport with a chauffeur supported by police motorcycles, warning of the urgent arrival of a convoy to the control access personnel, postponing the event according to a predefined scenario, communication to the athletes, media, general public, etc.

Conclusions & Prospects

Because they vary so much in nature, major events have an exceptional and unique character that requires special organisation for security, accessibility and transport. Traffic flows are unusually large with heavy concentrations in space and time, requiring measures to superimpose them on normal traffic, which is often heavy in large cities or urban zones.

It is not widely known that **logistical support traffic** covers all of the traffic generated by the event with the exception of spectator traffic. The scale and complexity of these flows of people and goods are **generally underestimated**, even if performance and reliability of the logistical supports are essential to the success of the event. The associated costs are also generally underestimated.

In order to define planning and management that responds to the mobility requirements of logistical support traffic, transport plans are based on three basic forms of intervention : accreditation, information/communication and signposting. These measures are complementary and adapted to suit the event.

Dynamic management of the event, with the installation of a command, control and communication centre [CCC], is a fundamental element of the organisation. It is essential for any event that requires security and a suitable accessibility and transport mechanism.

What are the **prospects** for an improvement in logistical traffic management in the medium to long term using new technologies? Dynamic signposting, road telematics (using GPS or not), electronic accreditation systems (access control with extraordinary flexibility of use), ... are technologies which would require a precise approach and refinement to respond to the logistical support traffic mobility needs and requirements.

Keywords

Accessibility, accreditation

Base traffic

Communication

Event

Information

Logistical support, logistical traffic

Monitoring, media, main entries, management

Organisers

Parking, participants, pre-event, post-event, players, planning

Spectators, support traffic, service entries, signposting

Transport, ticket, traffic, ticketing

Volunteers

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INTRODUCTION

In our highly mobile world, leisure activities now play an ever increasing role. Indeed, it will come as no surprise that most travel is now connected with leisure. In Switzerland, for example, leisure is the reason for almost 40% of travel, accounting for 49% of the time spent travelling and 44% of the distances travelled.¹ Within the field of leisure activities, sporting events are reckoned to account for 33% and other events 9%.²

A number of large cultural, commercial and sporting events which take place on a yearly or four-yearly basis have become firmly established over the years : for example, the 17th Football World Cup in Korea/Japan, the 19th Winter Olympics in Salt Lake City, the 27th Summer Olympics in Sydney, the 27th Paleo Festival in Nyon, the 36th Montreux Jazz Festival and the 72nd International Motor Show in Geneva.

These mega-events are tending to increase not only in size but also in terms of technological and organisational sophistication. For this reason, it is increasingly difficult to keep the resulting logistical support costs under control.

Being so different in nature, these events offer a great variety of "exceptional" situations connected with their scale, programme, spatial structure (single-site or multi-site) and capacity. For example, events with a pre-determined capacity (i.e. where the maximum number of spectators is known) are much easier to manage than so-called "open" events, such as parades, processions and street festivals (i.e. where the maximum number of spectators is undetermined).

Since the events are of short duration, they tend to rely on the existing transport infrastructures. These latter systems, which are already under heavy pressure at normal times, especially in urban areas, then have to cope with additional flows of "event" traffic that are generally very intense and highly polarised. Accordingly, special planning is needed for the organisation of transport and the management of traffic.

Such planning is based on actions affecting both the supply side (new or temporary infrastructures and adaptation of services) and the demand side. In the case of regular events, such actions are the object of more or less systematic monitoring.

¹ Census 2000, Mobility in Switzerland, Federal Statistics Office

² Estimate in terms of kilometres covered; PNR41 / D5: Swiss national research programme "Transport and environment".

The main points with regard to transport are as follows :

- the one-off and exceptional nature of the events ;
- the unusually large flow of spectators and visitors connected with the attraction of the event and the logistical flows ;
- the geographical and spatial concentration of flows on the site or sites, whether permanently equipped or temporary ;
- the concentration of flows at particular times, giving rise to peaks for road traffic, public transport and movements of pedestrians ;
- the superimposition of "event" traffic flows on ordinary traffic which, in many cases, is already intense in metropolitan areas or city centres ;
- the multi-partner relationship needed between the organiser(s) of the event, the transport companies, the public services and the administrative authorities to arrange a special temporary organisation for "safety - accessibility - transport" ;
- specific complementary measures for information, communication, signs, ticketing and accreditation connected with more or less one-off and non-repetitive travel.

The organisation of travel must be designed not only for the dominant flows (generally spectators/visitors) but also for all of the logistical support flows generated by the event. The role of logistics is often underestimated in the absence of a comprehensive approach to the different functions.

We will begin with a review of the overall significance of logistical support traffic for large events and then proceed to a typological analysis in order to classify and give an understanding of the various logistical functions. A real function database can be established, incorporating their various specific needs for the three logistical periods defined. Finally, we will present the means available for action, i.e. the planning and management tools which permit the development of strategic and operational orientations for logistical support traffic for a wide range of events.

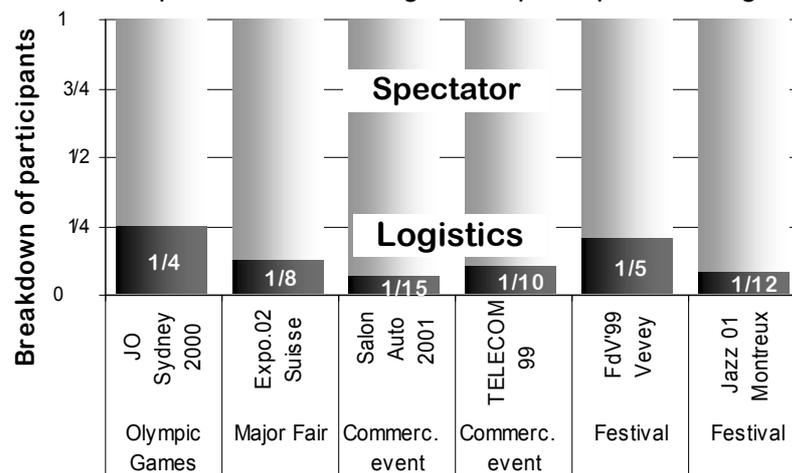
PART I – Definition

1. Logistical support

Logistical support may be defined as the set of all of the means and methods relating to the organisation of an event, which can include administration and services such as security, medical and health services, reception, accommodation, catering, technical assistance, general maintenance, the setting up and dismantling of structures and equipment, transport of passengers, goods and supplies, media and communication, cleaning and waste removal, etc.

On the basis of an estimate of the main groups of persons involved - principally volunteers and personnel directly connected with the event - logistics may account for up to a quarter of the participants or, by deduction, more than a quarter of the traffic generated by the event. [cf. Fig. 1]

Figure 1 Breakdown of « spectator » and « logistics » participants in large events



2. Traffic

A mere representative list such as the one given above is not sufficient to determine the various types of logistical support traffic and particularly those event-related flows which are superimposed on the ordinary daily traffic patterns.

Three different types of traffic may be distinguished :

- spectator traffic, i.e. all of the movements of spectators coming to and going from the event ;
- logistics or accredited traffic, i.e. all of the traffic flows connected with the organisation, running, supply, maintenance, security and media cover of the event, as well as flows connected with the player-participants ;
- base traffic, i.e. the existing traffic maintained or subject to specific temporary modifications within the perimeter of influence of the event.

More concisely, logistical traffic may be defined as :

$$\text{Logistical traffic} = \Sigma \text{ traffic} - (\text{base} + \text{spectator traffic})$$

In other words, logistical traffic is all of the traffic generated by the event except for spectator traffic. It is very difficult or even impossible to give a precise measure of the scale of logistical traffic as it is so diverse and complex. The flows of persons and goods needed for the extremely varied functions will be explained in more detail below.

It should be noted that the base traffic is generally reduced, whether deliberately through measures taken locally (at the site level, diversions or access restrictions) or globally (an ad hoc transport policy for the whole agglomeration), or "naturally" (changes in user behaviour connected with the presence of an event which reduces the capacity available for ordinary traffic).

3. General remarks on logistical traffic

The special nature of logistical traffic is encapsulated in the following three points :

- the traffic flows can be relatively large, being generated by nearly a quarter of the participants in the event ;
- while logistical traffic is easier to control than spectator traffic, its requirements are even more important, the whole success of the event depending on the performance and mobility of the logistical back-up ;
- the complexity of the flows of persons and goods connected with all the various logistical functions necessitates ad hoc measures and gives rise to costs which can all too easily be underestimated.

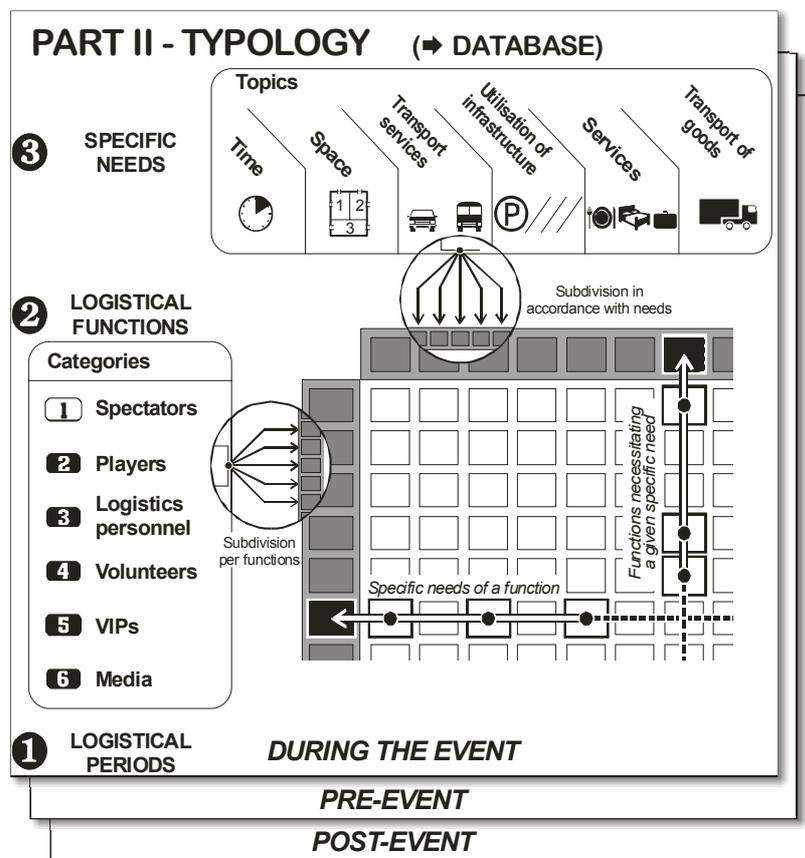
PART II – Typology

The typological approach reveals the complexity of logistical support traffic and its requirements. Using **three indicators**, it is possible to establish a representation of the diversity of the types of logistical traffic :

1. **logistical periods** : chronological breakdown of the event from the construction and/or installation of the equipment through to its complete removal and/or the restoration of the site or sites ;
2. **logistical functions** : list of the categories of active participants in the logistics of the event ;
3. **specific needs** : requirements to be met by the organisation relating to mobility or connected with the mobility of the various logistical functions.

The diagram below [cf. Fig. 2] illustrates the interrelations and complementarity of the three indicators forming the typology of logistical support traffic.

Figure 2 Typology of logistical traffic – three fundamental indicators



1. Logistical periods

1.1 The three logistical periods

From the point of view of logistics, large events consist of three chronological periods or sequences with distinct characteristics and organisational constraints :

- **the pre-event period** : setting up of all the installations, equipment and technical systems connected with the event, possible testing of certain subsystems, special requirements for sporting events (training) or cultural events (rehearsals) ;
- **the period of the event** itself, live before the public ;
- **the post-event period**, comprising the dismantling and restoration of the site.

The pre-event and post-event periods have their own special characteristics :

- apart from a few exceptions, the number of logistics participants is generally smaller than during the event itself ;
- the logistical traffic is not on a scale which would affect traffic conditions within the perimeter of influence of the event. Thus, local measures to reduce or restrict traffic in the vicinity of the site(s) are needed only in the event of new large scale construction or works ;
- as the public is not present, access to the site may be either free or controlled, depending on the circumstances.

1.2 Sequences in series and ratios

In general, the three sequences follow the series : pre-event - event - post-event. Two ratios can be used to highlight the special features of certain events :

- **duration ratio** :

$$\alpha = \frac{\text{duration of pre-event and post-event sequences}}{\text{duration of event sequence}}$$

$1 < \alpha < 2$: most large events of an annual nature require an installation phase with a long duration, e.g. the Montreux Jazz Festival ($\alpha=1.3$) and the International Motor Show ($\alpha=1.8$)

$\alpha > 10$: large events requiring an exceptional infrastructure, e.g. Telecom 1999 with three-tier stands erected inside the exhibition halls at Palexpo, Geneva ($\alpha=10$) and the Fête des Vignerons 1999 with the construction of a 16 500-seater arena in the main square of Vevey ($\alpha=11$)

- **ratio of logistics personnel per day** (estimate) :

$$\beta = \frac{\text{participants in event sequence}}{\text{participants in pre-event and post-event sequences}}$$

$\beta > 1$: most events have a large logistical requirement during the event itself, e.g. the Fête des Vignerons, the Montreux Jazz Festival and the International Motor Show (β between 1.2 and 1.6)

$\beta < 1$: events having a very large logistical requirement for specific works and multiples constructions, e.g. Telecom ($\beta = 0.6$)

1.3 Interference between sequences

Interference between sequences may arise where a number of events take place simultaneously on the same site, as in the case of exhibition and conference centres. Here, events may be taking place in one hall, while others may be at the setting up or the dismantling stage. Proper management is needed to ensure that such interference does not result in conflicts.

Where several small events are held on such a site, this can generate as much spectator traffic as a large event and the logistical traffic management can be even more complex.

2. The logistical functions

Before proceeding to a precise definition of logistical functions, it is first necessary to establish an exhaustive list of the various categories of participants, though these can be highly diversified, depending on the nature and scale of the event. Six categories of participants may be distinguished : spectators, players, logistical personnel, volunteers, VIPs and media personnel. Each of these categories has its own specific mobility requirements, which will be presented in Chapter 3.

2.1 The six categories of participants³

1 - spectators, i.e. persons visiting or attending a single event (spectator-visitor, one-day spectator), several events over several days (festival) and visitor-tourists who are present on the site but not attending the event (non-ticketed spectator).

2 - players, i.e. the persons directly involved in the production of the event, who will vary with the type of event :

- in the field of sport : athletes, trainers, team technical support staff, etc. ;
- in the cultural field : actors, artistes, musicians, extras, producers, etc. ;
- in the commercial field : exhibitors, salesmen, hostesses, etc.

³ Taken from the terms of reference of the PREDIT research project "*Major events, transport and travel management, impacts on development*", provisional version INRETS – ITEP.

3 - logistics personnel, i.e. all the people involved in activities relating to the organisation, services and support of the event. They will depend directly on the type, nature, scale and site configuration of the event, as well as the complexity of the technical and security aspects. They may be divided into two types :

1. **organisers** who are responsible for the command, control and service function connected with the organisation of the event ;
2. **service-providers** who have titles and functions depending on the nature of the service :
 - security (police, firemen, doctors, veterinarians, stadium personnel and the like responsible for all the functions connected with the safety and security of persons and installations, public safety and health, etc) ;
 - reception (guides, hostesses) ;
 - general operations (assistance with operations, maintenance, repairs and cleaning) ;
 - special operations (technical and regulatory functions connected with the nature of the event, e.g. referees or masseurs) ;
 - transport of goods (delivery personnel transporting goods for the supply of the event);
 - transport of passengers (drivers for accredited persons and VIPs, as well as the private transport staff made available by the organiser(s) ;
 - catering, accommodation and sale of related products at the event.

4 - volunteers may be called on by the organisers of large events to act as extras or to carry out logistical and support functions. Their numbers can vary considerably. They are, in principle, accredited, may be uniformed and are treated either as players or as logistics personnel.

5 - special personnel are participants with special or privileged functions (VIPs, guests, sponsors) who may require appropriate procedures or services.

6 - media, i.e. press, radio and television journalists covering the event for the media.

The logistical functions include all categories of participants except for spectators.

2.2 Remarks on the functions

From an organisational point of view, **it is necessary to take into consideration all the categories of participants** if the intention is to manage logistics and traffic logistics as a whole.

This is confirmed by the approach adopted in the case of an event on a closed site where the question of entry to the event is important.

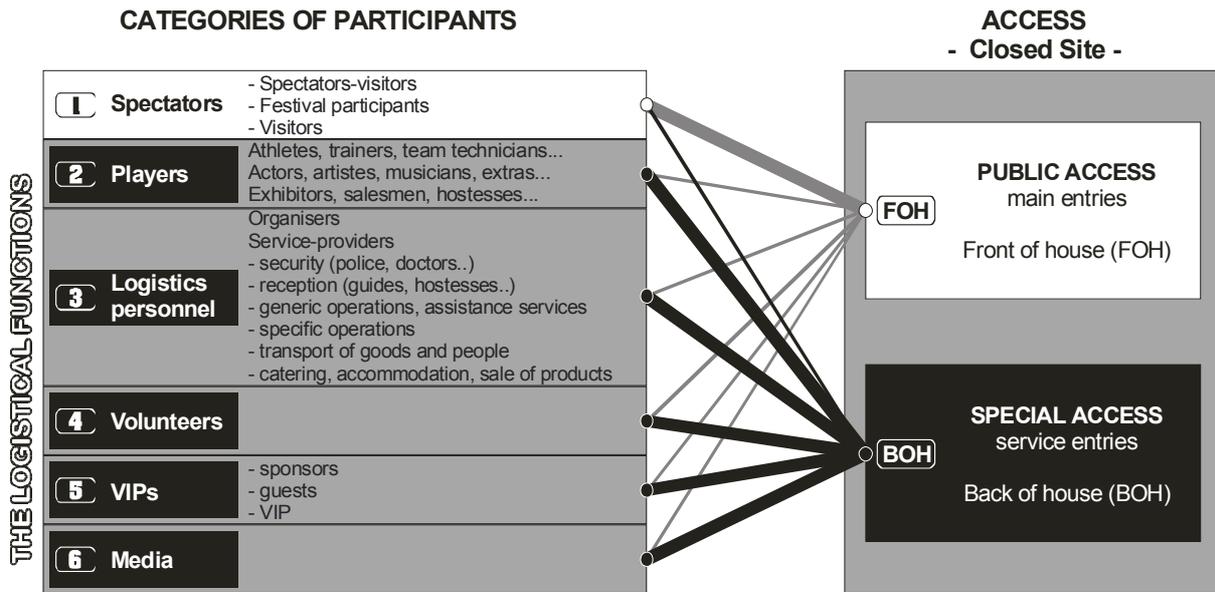
Here, different categories of access are provided : spectators use the **main entries** (FOH, Front of House) whereas players and logistics personnel use the **service entries** (BOH, Back of House). [cf. Fig. 3]

There are, of course, exceptions to this distribution by type of access. For example, disabled spectators are provided with convenient parking and access by a special service entry.

Similarly, certain guests or sponsors may be assimilated to the spectator category if their free ticket does not come with any advantage in terms of a separate access or special entry.

In conclusion, for an event on a closed site, all functions having access via service entries form part of the functions necessitating a logistical type of access organisation.

Figure 3 Events on a closed site - Importance of access in determining functions of a logistical nature



2.3 Identity of functions

Each function in each of the categories may be defined by :

- its structure : individual (separate person), group (association, company, etc) or existing structure with its own logistics (police, army, security company, etc.) ;
- its scale : number of persons involved in this function ;
- its logistical periods : whether the function is active in one, two or three periods.

3. Specific needs

3.1 The six specific needs

Apart from the diversity and complexity of the functions making up traffic logistics, the specific needs in terms of mobility (transport and accessibility) constitute another aspect of such traffic. The success of the event can be ensured only if these specific needs are systematically taken into account and fully met.

The specific needs are grouped under six headings :

- time ;
- space ;
- transport services ;
- infrastructure utilisation ;
- services ;
- transport of goods.

These headings are the basic elements in drawing up a system of accreditation. [cf. 2.1 Part III page 14]

3.2 Presentation of specific needs by subject heading

Time

Accessibility requirements must be defined precisely by notions of time on different scales :

- in accordance with the logistical period (installation solely for one constructor) ;
- in accordance with the days, one or more, whole period (journalist) ;
- in accordance with a particular timetable (usher) ;
- before or after the event (sweeper).

Establishing the time constraints is crucial for certain functions : athletes, judges, referees, TV personnel

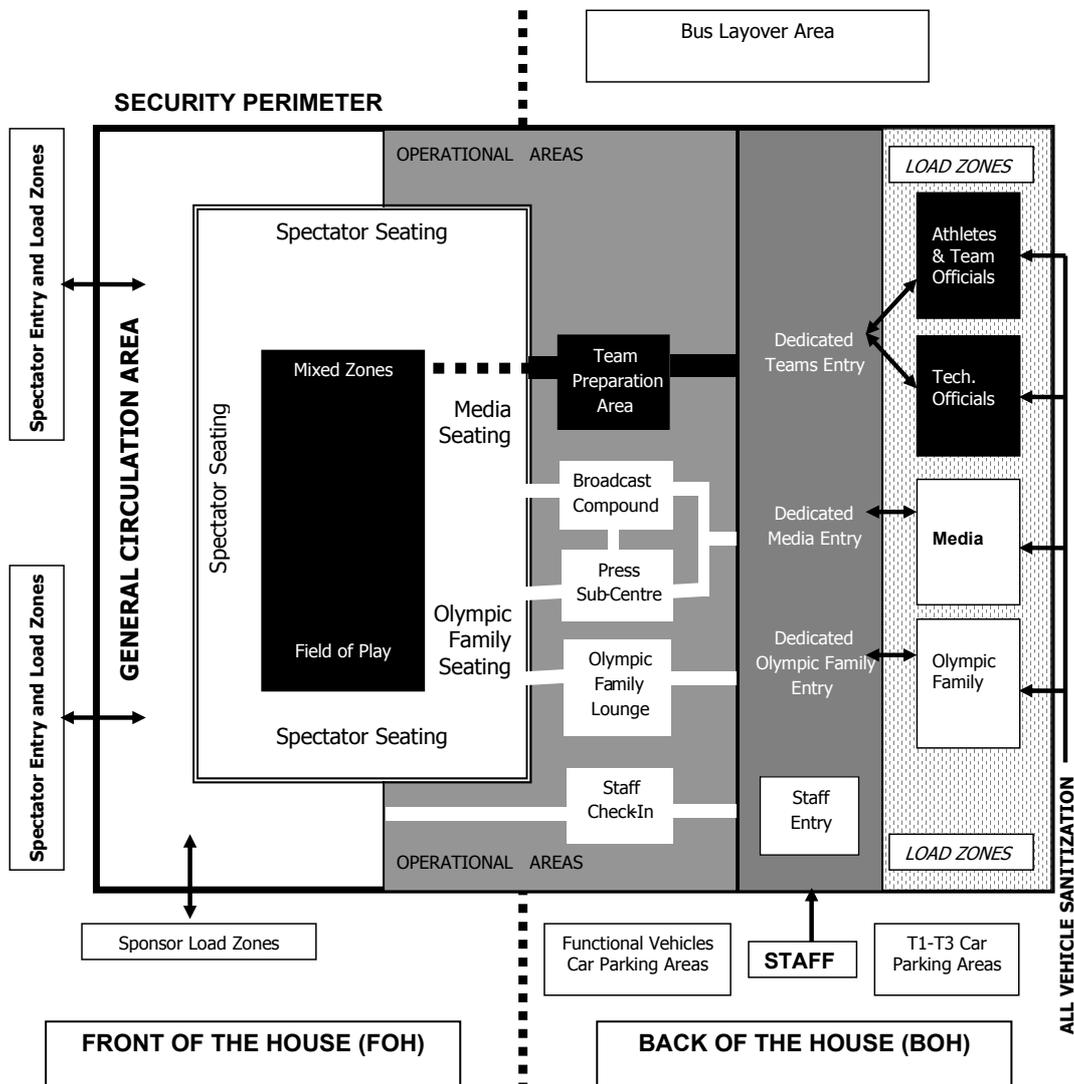
Space

Accessibility needs are defined on a number of spatial levels :

- by site, in the case of multi-site events ;
- by perimeter, space generally restricted by access control for persons and vehicles : with a ticket (main entries) or accreditation (service entries) ;
- by sector, separate functional zones of the event, accessible exclusively to the various categories of participants on the basis of ticket or accreditation ;
- by another spatial subdivision, etc.

For a closed site event, the access control perimeter is subdivided on the basis of the entries (main and service entries) and the various sectors. [cf. Fig. 4]

Figure 4 Plan of a generic site and sectors for accessibility and transport



Transport services

Certain transport needs are defined in accordance with transport services provided to meet the expectations of users or offer them benefits :

- group transport : free transport (staff of Montreux Jazz Festival), special subscription with community tariff (players in the Fête des Vignerons), reserved train, reserved line, etc. ;
- private group transport (car, minibus) : service reserved per team (Olympic Games) ;
- individual car : VIP service with chauffeur (Olympic Games and Montreux Jazz Festival) ;
- shuttle parking : reserved shuttle service (VIPs and sponsors - Fête des Vignerons).

Utilisation of the infrastructure

Certain mobility needs necessitate a specific utilisation of the infrastructure with usage reserved, sometimes in combination with preferential prices :

- parking : reserved parking based on function (VIP, sponsor, guest, disabled, players at the Fête des Vignerons), reserved parking subscription (available only for the players of the Fête des Vignerons), with a special tariff (reduced price or free) ;
- loading : specific definition of loading areas (deliveries, buses, VIPs), as at Palexpo-Geneva and for a limited period ;
- access itinerary : reserved access infrastructure (access route reserved for athletes or other preferential users at the Olympic Games).

Services

Service requirements may necessitate a movement of persons or goods :

- accommodation : depending on how far the accommodation facilities are located from the event site(s) ;
- catering : depending on the location of the various catering and restaurant facilities ;
- transport of baggage : to accommodation for personal effects or to the event locations or sites (training and competition grounds) for athletes' equipment (e.g. more than 600 kg for a skier, horse plus harness, etc for equestrian events) - special attention is needed, given the nature and fragility of the equipment ;
- ...

Transport of goods

Needs for the transport of goods are defined in accordance with the logistical periods :

- pre/post-event : for construction, equipment, dismantling, etc. ;
- during the event : needs which can be satisfied before, during or after an event : supplies, cleaning, removal of waste, etc.

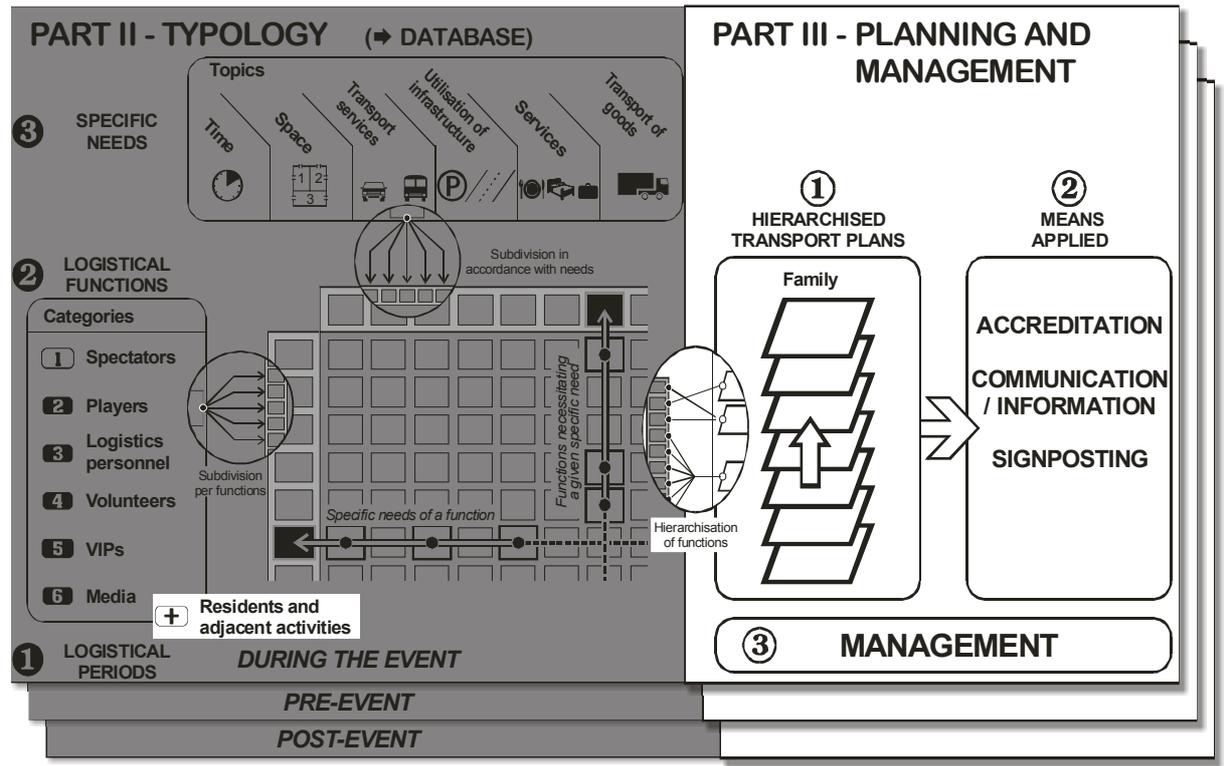
The management of goods transport traffic necessitates :

- loading areas, waiting areas (parking), areas for the transfer of goods; long-term parking for vehicles during the event ;
- delivery timetables in accordance with the programme of events.

PART III – Planning and management

The elements described in the typology with the aid of the three indicators (logistical period, logistical functions and specific needs) form the database for spectator mobility demand and logistics. [cf. Fig. 5]

Figure 5 Methodology of planning and logistical traffic management



From the subdivisions in accordance with the functions and the needs, we obtain a summary table for each logistical period. In one line, we see the specific mobility needs of a function (e.g. needs for referees) and, in one column, the different requirements necessitating one given need (e.g. a reserved bus service for referees, athletes, etc).

The difficulty lies in drawing up one exhaustive list of functions based on the different categories of participants and another of specific functions for each topic.

This table offers a working basis for logistical traffic planning and management.

To complete the picture, base traffic must be incorporated into the database in the form of a supplementary category entitled "Resident and adjacent activities". The different functions of this category necessitate the maintenance of a certain level of mobility. They need to be classified, related to the other functions and subjected to specific planning and management, primarily during the event.

Traffic planning and management, which applies to three logistical periods that are more or less independent, depending on the case, is divided into three distinct parts :

1. Organisation of functions into a hierarchy or drawing up hierarchical transport plans ;
2. The use of suitable means of intervention for the event and its needs ;
3. Event management.

1. Organisation of functions into a hierarchy

Given the variety of players involved and their special needs, there will certainly be conflict in the planning process. It is therefore necessary to organise the groups of participants or functions into a hierarchy.

This hierarchical organisation is established on the basis of a comparison of the functions depending on their role and their requirements for mobility and accessibility. The desired result is a grouping by family that allows us to establish for each family a transport and accessibility plan.

This hierarchical organisation will be global in its implementation, but it may require a targeted approach in certain cases. During the *Fête des Vignerons*, parking place allocation required a different hierarchy to that applied to meet other needs : in town – parking places for VVIPs, handicapped persons and residents; on the periphery – parking places for VIPs, sponsors, players, staff and spectators.

2. Means of intervention

The transport and accessibility plans drawn up must provide suitable modular management tools : an innovative and effective concept is only useful if we have the means to manage and communicate it. The systems needed to manage logistical traffic incorporate the tools used to plan and manage spectator traffic. Of these tools, **three basic means of intervention** are used to manage effectively these complex logistical flows covering very different requirements :

- accreditation / ticketing ;
- the information / communication system ;
- signposting.

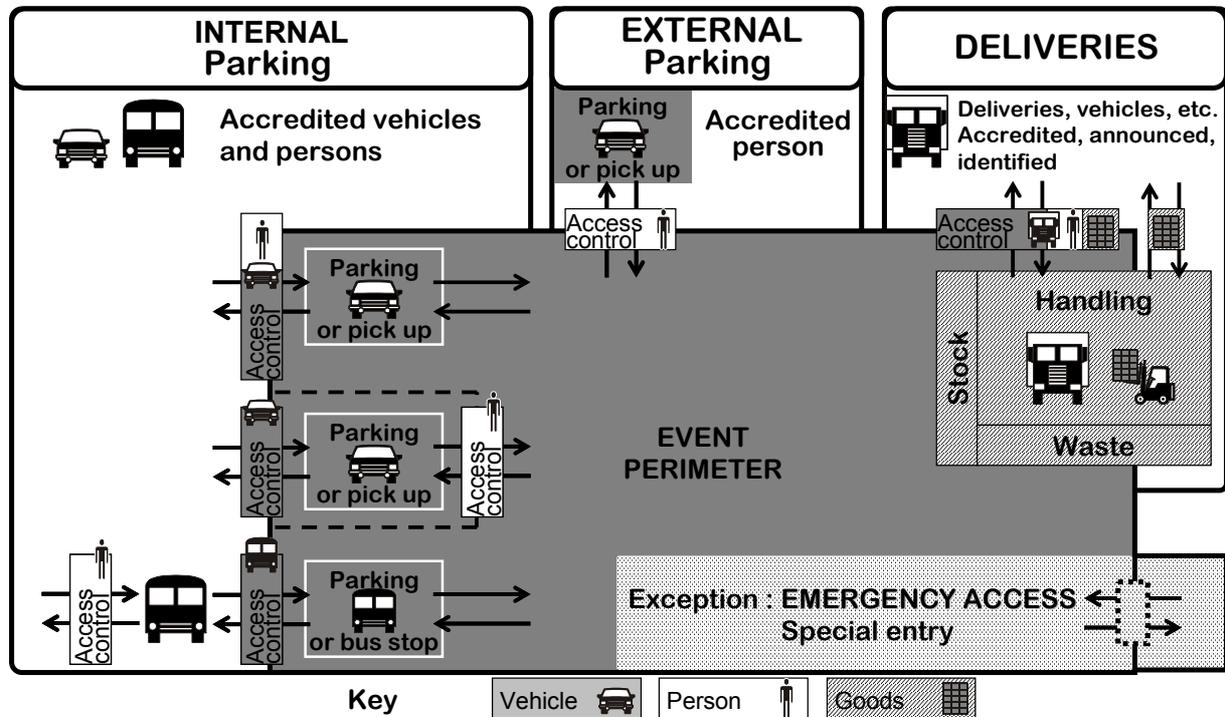
The use of one of these means, for example special accreditation for handicapped vehicles, often requires interaction with one or more of the other means of intervention, in this case information for the target audience and suitable signposting.

2.1 Accreditation / ticketing

For events with perimeter access control, accreditations are passes or access authorisations to specific perimeters or sectors, generally accessible from back-of-the house service entrances. Apart from spectators, whose entrance ticket (ticketing) is a form of accreditation with limited rights, all other participants at an event (players, logistical staff, the media, charities, VIPs) must be accredited.

Every vehicle, as well as all of the occupants accessing the perimeter under control or the different sectors, must have accreditation. For deliveries during “high security” events, the goods must also have specific accreditation. [cf. Fig. 6]

Figure 6 Vehicle access to the controlled perimeter



The choice of accreditation system, associated with the type of organisation of the event, is determined largely by the security aspects. Increasingly sophisticated accreditation systems are being created for mega-events such as the Sydney or Salt Lake City Olympic Games.

Accreditation types and systems

There are two main types of accreditation system :

- accreditation by person or group of persons ;
- accreditation by vehicle.

The very specific accreditation of goods is considered to be a secondary type.

Two accreditation systems are used :

- the aggregated system with a single accreditation that satisfies all needs ;
- the non-aggregated system with the coexistence of several accreditation models or procedures.

Each type of accreditation can be part of an aggregated or a non-aggregated system.

The aggregated system must be used in all mega-events such as the Olympic Games, which covers a number of sites, sectors, needs and functions too vast to be managed separately.

Note that in all aggregated systems, even the most sophisticated, special simplified accreditations are issued to meet specific demands. The existence of such exceptions is due to the fact that such a system is very complex and cannot handle all types of need. It is simpler and less costly to manage certain demands separately. Similarly, the need to respond to certain urgent unforeseen demands supports the need for easily issued special accreditations. This means that the access control personnel must be continuously informed of the issue and validity of such exceptions, which is relatively onerous to manage logistically.

Components of the accreditation system

All accreditation and ticketing systems are based on a database of specific needs and different functions depending on the layout [cf. Fig. 5]. In order to grasp the complexity of the logistical traffic of a closed-site event, an analysis of the accreditations issued and the number distributed for each function is the most comprehensive way to understand the phenomenon.

In addition to this database, the very essence of the accreditation system, there is a database of beneficiary identities in the form of :

- persons (individuals) ;
- groups (association, society, company, etc.) ;
- vehicles ;
- goods (companies, etc.).

The approach used to set up an accreditation system must take into account the following elements :

- definition of the specific functions and needs of all categories (logistics, spectators, neighbours and neighbouring activities) ;
- hierarchical organisation into families ;
- information, negotiation with the functions concerned ;
- creation and choice of accreditation system including types of access control (manual, automatic, etc.) under the direction of the security managers at the event ;
- interactions with other means of intervention : targeted signposting and targeted information/communication system ;
- creation and management of accreditation centres for each event or logistical site, at strategic, equipped sites (airport, press centre, etc.), as well as pre-accreditation centres.

2.2 Information/communication system

Information is the link between the organiser and the participants, logistics and spectators. This is a key aspect that merits particular attention.

There are many information and communication systems with their own characteristics (frequency, durability, updating and spatial dissemination of information). To inform the various target audiences, such as the different logistics units, there are many ways to respond easily to their expectations.

I would like to stress the need to keep these target audiences regularly informed, i.e. throughout the event, using suitable means : road and pedestrian signposting, radio messages, broadcast road information, stickers, folders, plans, etc.

2.3 Signposting

Definition

Signposting covers all systems for signs, guides, marking routes and variable or fixed message panels, using complementary (and usually temporary) installations, to :

- provide information and ensure easy traffic access flows to the event (access to car parks, bus parks, public transport, taxis, pedestrians, etc.) and to exits without traffic congestion ;
- provide information and guide non-participants at the event so that they can use the bypass routes ;
- provide information about security aspects and the provisions of the system (danger due to vehicles parked on the street, parking authorised on the street up to a given time) ;
- separate and guide traffic with an accreditation (VIPs, players, etc.) to special access points (special pedestrian access, reserved parking, etc.).

The last point covers logistical signposting.

Logistical signposting

Pedestrian signposting is easily adapted to meet the needs of logistical traffic because there are few constraints in this field and many signposting options.

In the case of road signalling, the addition of signposting for spectators is already very complex, especially in urban zones due to the large number of signs on the road. It is almost impossible to place suitable logistical signposting for all logistical functions. There are however alternative systems (numbered routes, GPS guidance, telematic systems, etc.) but these are only rarely used.

3. Dynamic management of the event

The command, control and communication centre (CCC) is the nerve centre of the event. Its role is to group together those responsible for the event in the main domains (general and health security, event organiser, transport and accessibility, communication, etc.) in a headquarters for controlling the event. By gathering all information, the headquarters can coordinate, control, take decisions in crisis situations and communicate decisions.

CCC centre simulations and tests are must be carried out to assess and improve the functioning of the dynamic management systems and to verify all liaison and communication systems. The aim of these tests is mainly to provide a series of measures for a large number of scenarios covering foreseeable situations, to improve coordination between the executive bodies, both amateur and professional, and to plan all of the reserved decisions.

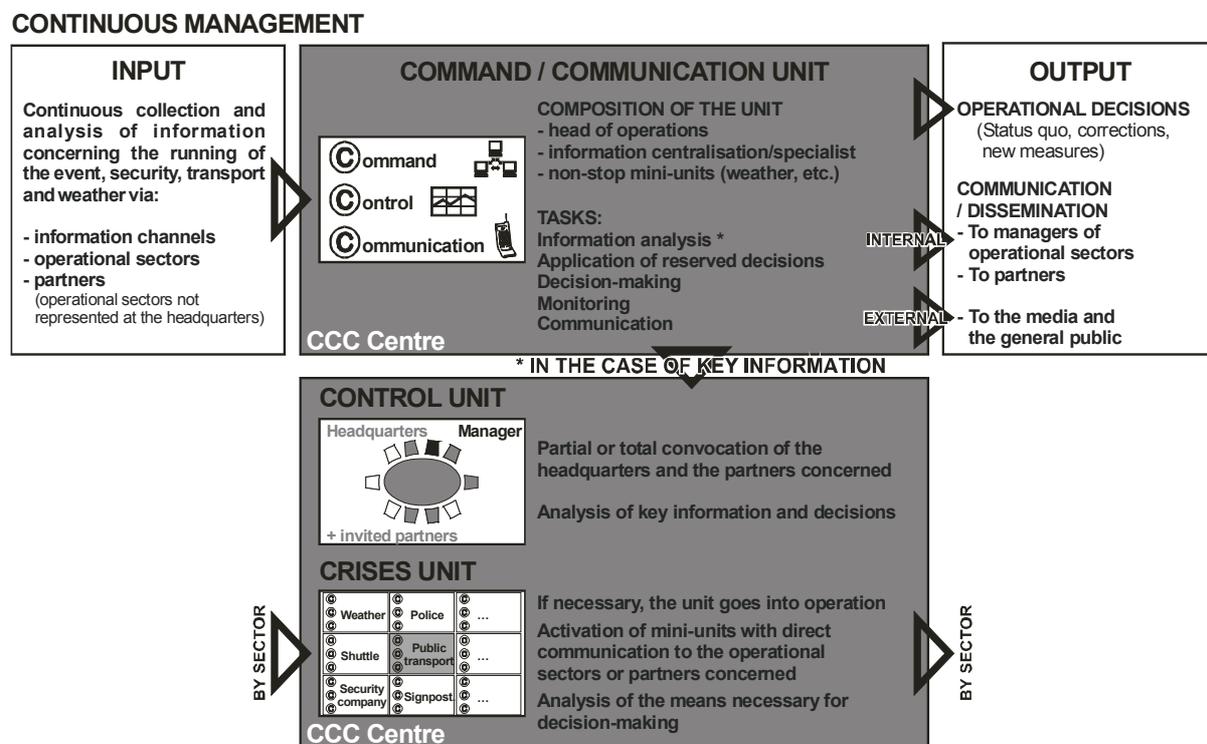
The CCC centre operates at two complementary levels : continuous management and event management.

3.1 Continuous management

The diagram below illustrates the functioning of the CCC centre during an event.

All information received by the centre is stored and analysed by the command / communication unit in the form of data elements. Depending on the type of data element, an “operational” decision is taken by the department manager or a planned procedure is applied (reserved decision). These procedures always involve a communication order and/or the internal dissemination of information and, depending on the case, “external” dissemination of information to the media and the general public. [cf. Fig. 7]

Figure 7 Command-control-communication centre for a major event
Continuous management

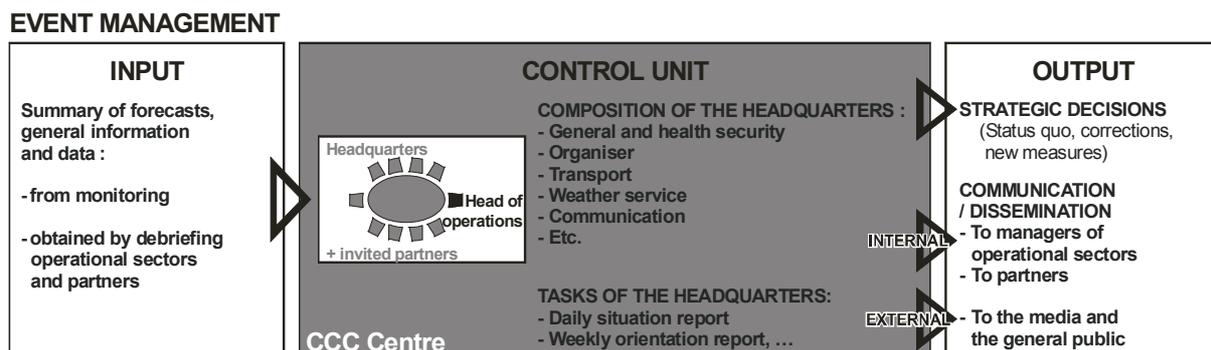


In the case of key information (according to a predefined list of events), part or all of the control headquarters and the partners concerned are instantaneously called to the control unit. The key information is analysed by the persons responsible for the event in question. If necessary, the crisis unit goes into operation. It consists of mini working and communication units for each of the operational sectors and partners concerned. It is used in direct communication to analyse the means necessary for taking operational crisis decisions within the control unit. Depending on the case, the crisis mini-units serve as switchboards for certain operations, such as the weather unit for outdoor events.

3.2 Event management

Event management [cf. Fig. 8] functions according to the same Input and Output principles as continuous management but at a more strategic level. The control unit processes information, data elements and forecasts, compiled by the head of operations, establishing daily and weekly situation reports, etc. In this case, decisions of a strategic nature are taken in the presence of all members.

Figure 8 Command-control-communication centre for a major event
Event management



3.3 Role of logistical traffic management

For major events, the CCC centre is indispensable for :

- satisfying the specific needs of logistical traffic ;
- responding quickly to new requirements such as protocol constraints associated with a visit by a head of state ;
- taking necessary decisions in the event of a crisis situation.

For example, an accident requiring the replacement of a judge involves implementing measures according to a planned reserved decision : calling in a reserve judge, rapid personal transport with a chauffeur supported by police motorcycles, warning of the urgent arrival of a convoy to the control access personnel, postponing the event according to a predefined scenario, communication to the athletes, media, general public, etc.

PART IV – Main guidelines

1. Conclusions

Because they vary so much in nature, major events have an exceptional and unique character that requires special organisation for security, accessibility and transport. Traffic flows are unusually large with heavy concentrations in space and time, requiring measures to superimpose them on normal traffic, which is often heavy in large cities or urban zones.

It is not widely known that logistical support traffic covers all of the traffic generated by the event with the exception of spectator traffic. The scale and complexity of these flows of people and goods are generally underestimated. They fall into five or six categories of participants, which can be subdivided into multiple different functions depending on the event. Although more easily controlled, since these logistical participants are mostly known or listed, their specific mobility needs are extremely varied and highly demanding.

In view of the variety of logistical functions and their specific mobility needs, planning involves some conflicts. The organisation of functions into a hierarchy according to their role and mobility and accessibility requirements makes it possible to establish families for which transport and accessibility plans are implemented.

In order to define planning and management that responds to the mobility requirements of logistical support traffic, transport plans are based on three basic forms of intervention : accreditation, information/communication and signposting. These measures are complementary and adapted to suit the event.

In the case of closed-site events, accreditation, including all functions and requirements, can be used to manage all mobility needs for all types of participants. It is set up under the direction of the security managers for the event.

Information / communication and signposting are targeted at one or other of the functions. Although there are sophisticated solutions for pedestrian information and signposting, for the moment road signposting remains the weak link.

Dynamic management of the event, with the installation of a command, control and communication centre [CCC], is a fundamental element of the organisation. It is essential for any event that requires security and a suitable accessibility and transport mechanism.

The performance and reliability of the logistical supports are essential to the success of the event. Because of the increasing needs of logistical and charitable participants, mega-events highlight the general trend of growth in logistical flows. Because of this, and in view of the special management needs of this traffic, the costs associated with logistical traffic are generally underestimated.

2. Prospects

What are the prospects for an improvement in logistical traffic management in the medium to long term using new technologies?

Dynamic signposting has not yet come up with a suitable system for logistical traffic management. The graphics, colours and messages that can be transmitted are not yet adequate.

Road telematics, using a GPS guidance system combined with an on-board message receiver, can provide an ideal communication system to which it is worth giving serious thought. It can be used to send targeted information to each logistical participant with instant updating. An identical system could be deployed using mobile telephones for all other types of mobility.

The developments in electronic accreditation systems that manage rights and access control provide extraordinary flexibility of use. Accreditations that employ leading-edge technologies can be used for other purposes, such as an electronic purse, on the event sites.

Delivery management could include stock tracking technologies that are currently being developed. The adoption of this technology would affect all delivery logistics and transfer management zones, pricing, etc.

All of these technologies would require a precise approach and refinement to respond to the logistical support traffic mobility needs and requirements.

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