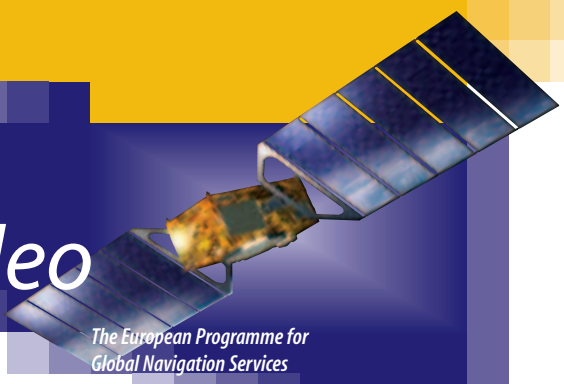
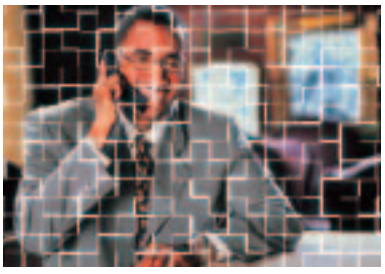


Galileo

The European Programme for Global Navigation Services

Telecommunications



Knowing your position can be useless if it cannot be communicated. Telecommunication is indispensable for the majority of satellite-navigation applications. Reciprocally, satnav techniques will become inevitable for the telecommunication community, to increase the level of communications and the efficiency of their networks. The integration of Galileo receivers with mobile phones will generate a multitude of combined uses in positioning, direction finding, real-time traffic information and many others.

Some examples of practical uses of Galileo

Location of mobile telephones

The need to locate callers has two main drivers:
– emergency calls (E-112 in Europe, E-911 in US);
– new services based on the location.
The first arises through new legislation in several countries aiming to offer efficient emergency services to their citizens by precise and fast response to distress calls. The second is more commercial and points to increasing traffic in the coming years.
Technically, location can be achieved by integrating a Galileo receiver in the mobile phone (handheld solution) or by using the communication network itself. Once the caller's location is known, a great number of services can be offered. All these services are grouped under the generic term of Location Based Services (LBS).

Communication network

New digital technologies and value-added time-sensitive services (real-time video, video conferencing, bank-to-bank encrypted exchange) need reliable network architectures (GSM, UMTS, Internet, ATM). Subscriber growth and consumer demand are driving the operators to emphasise quality, reliability and breadth of services. It is therefore imperative that network timing is addressed and that synchronisation problems are solved. Galileo will provide high-precision timing and frequency information without the need to invest in expensive atomic clocks.

LBS: Location Based Services

Location Based Services encompass all services where information about the location of the consumer is needed. The integration of communications with LBS promises to open the door to many interesting applications. A classical example is someone asking the way to the nearest hospital. The service provider compares the user's location with the hospitals stored in a database, and then tells the user the nearest hospital and the fastest route. Service providers could also point customers to restaurants, movie theatres or parking lots. Taxis can be directed to customers who just press a

button. In the business area, companies will rely on LBS to monitor and dispatch external staff.
LBS will increase communication traffic significantly and generate important revenue to telecommunication operators and service providers.

Capacity of communication networks

Satellite-navigation techniques could improve the communication capacity of networks. This is especially relevant for the UMTS third-generation using CDMA techniques. A precise time-synchronisation of the different base stations (the UMTS emitter-antennas) can significantly increase the traffic capability of the system. Galileo will be a reliable tool not only for positioning but also for timing. It will provide the mobile communications operator with a reliable and precise tool, with service guarantee, for increasing their network performance.

Location billing

This is another direct application linked to the location of the caller. The communications providers could price their services in relation to the call location. For example, a mobile phone call made in a business area would be charged more than one from a residential area.

Galileo Benefits

Integrating Galileo with other technologies will:

– provide a precise and low-cost tool for network synchronisation

– ensure the stability of synchronisation

– increase communication traffic via LBS

– offer customised services to clients

– increase flexibility for pricing and billing

How is Galileo different from other systems?

√ increased accuracy, service guarantees, certification and liability of the service operator

√ traceability of past performance and operation transparency

√ increased availability of signals in demanding environments

Galileo: The European Satellite Navigation Programme is a joint initiative of the European Commission and the European Space Agency. Galileo will offer positioning and timing services worldwide.

For additional information, please contact the Galileo Joint Undertaking: JU@galileo-pgm.org

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