

Indian interest in Galileo

Presentation by

Dr.S.V.Kibe

Programme Director,SATNAV

ISRO Hq,Department of Space

Government of India

Dec.8,2003

UN workshop on GNSS,Vienna

Indian interest in Galileo

- ISRO/DOS has followed the European SATNAV programmes closely from EGNOS to Galileo since 1996. DOS expressed interest in Galileo concession program in writing on April 9, 2003.
- ISRO/DOS is interested in Galileo from various angles – Services, Participation, Technology & Management

Services

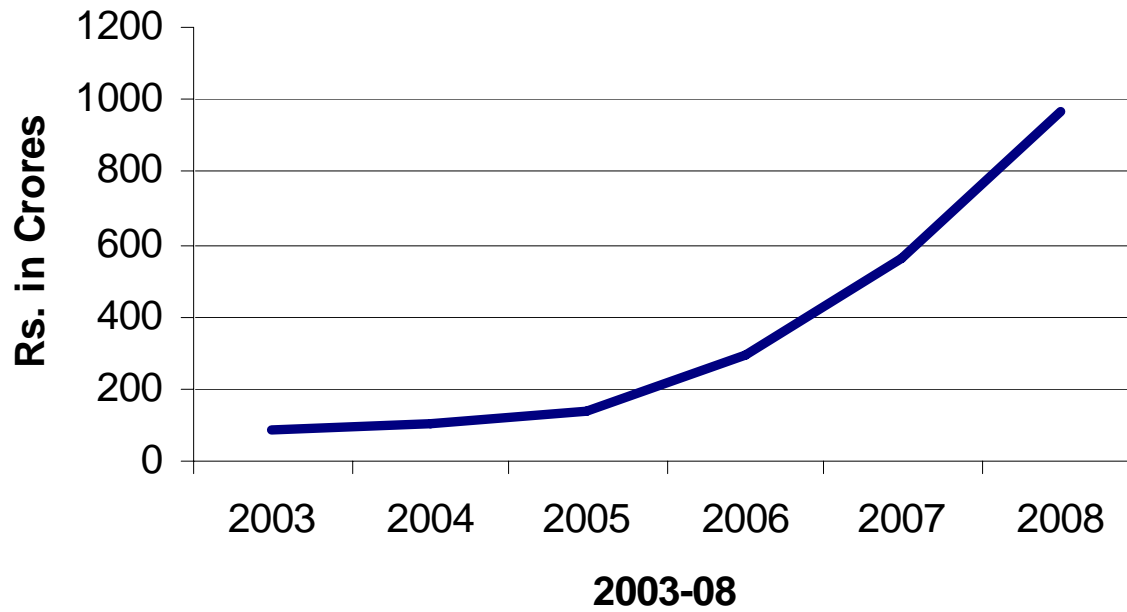
Galileo is proposing to provide an open service, a safety of life service, a commercial service, a public regulated service & search & rescue service. Use of these services in the Indian context needs to be understood.

There is a large potential market in India in various sectors such as,

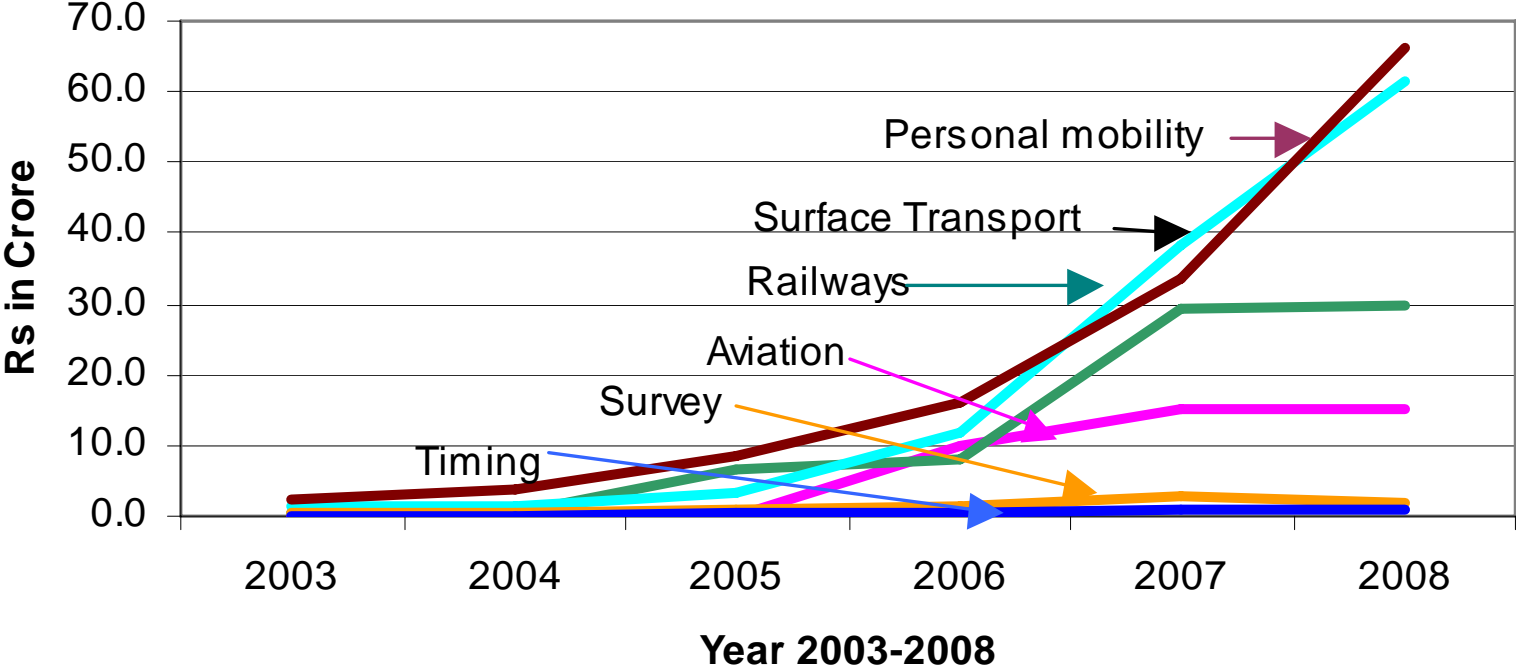
- Civil Aviation
- Railways for wagon tracking & anti-collision
- Surface transport – vehicle tracking
- Mobile communication
- intelligent highway system
- maritime transport & offshore platforms
- survey and marine engineering
- Defence

The size of the Indian market is currently estimated to be about Rs. 100 crores in 2003 and expected to grow @ 25% in the next 4 to 5 years.

GPS Markets Total Turnover



GPS Markets in India by sector wise



Indian interest in Galileo (Contd.,)

Participation

Indian Experience in SATNAV

- ISRO/DOS is implementing GAGAN with Airports Authority of India (AAI) which is expected to be ready for testing by 2005.
- India has developed 1100 kg / 650 kg satellite bus for navigation satellites
- India has PSLV and GSLV launchers to launch these satellites
- Considerable experience in LEO/MEO constellation-management, tracking,uploading corrections etc.
- Iono-tropo model development as part of GAGAN programme
- Indian industry is manufacturing GPS receivers with DO-178B spec.
- Indian partership in GALILEO “In-kind” will help reduce the overall EC expenditure in Galileo system establishment

EC should consider both Monetary and in-kind contributions from India.The monetary contribution must be against agreed contracts to Indian agencies as is the practice in Europe.

Indian interest in Galileo (Contd.,)

Technology

- Building of spacecraft and launching with Indian launcher
- Constellation maintenance, global tracking and upload stations
- Precise orbit calculations and gravity models
- Ground receiver technology
- Regional integrity concept in Galileo
- Iono-Tropo Models
- Hazardously Misleading Information (HMI) analysis
- RF & Baseband data structure, interference analysis & co-existence with GPS
- Spectrum Management

Indian interest in Galileo (Contd.,)

Management

- Management of Galileo concession programme and third country participation
- EU/EC understanding with other investors in Galileo
- Industrial contracts to India
- Support structure, tracking stations & software development that can be contracted to Indian industry