



Satellite transmission technologies
applicable to automotive safety / 'intelligent
car initiative'



Your Satellite Connection to the World

Introduction

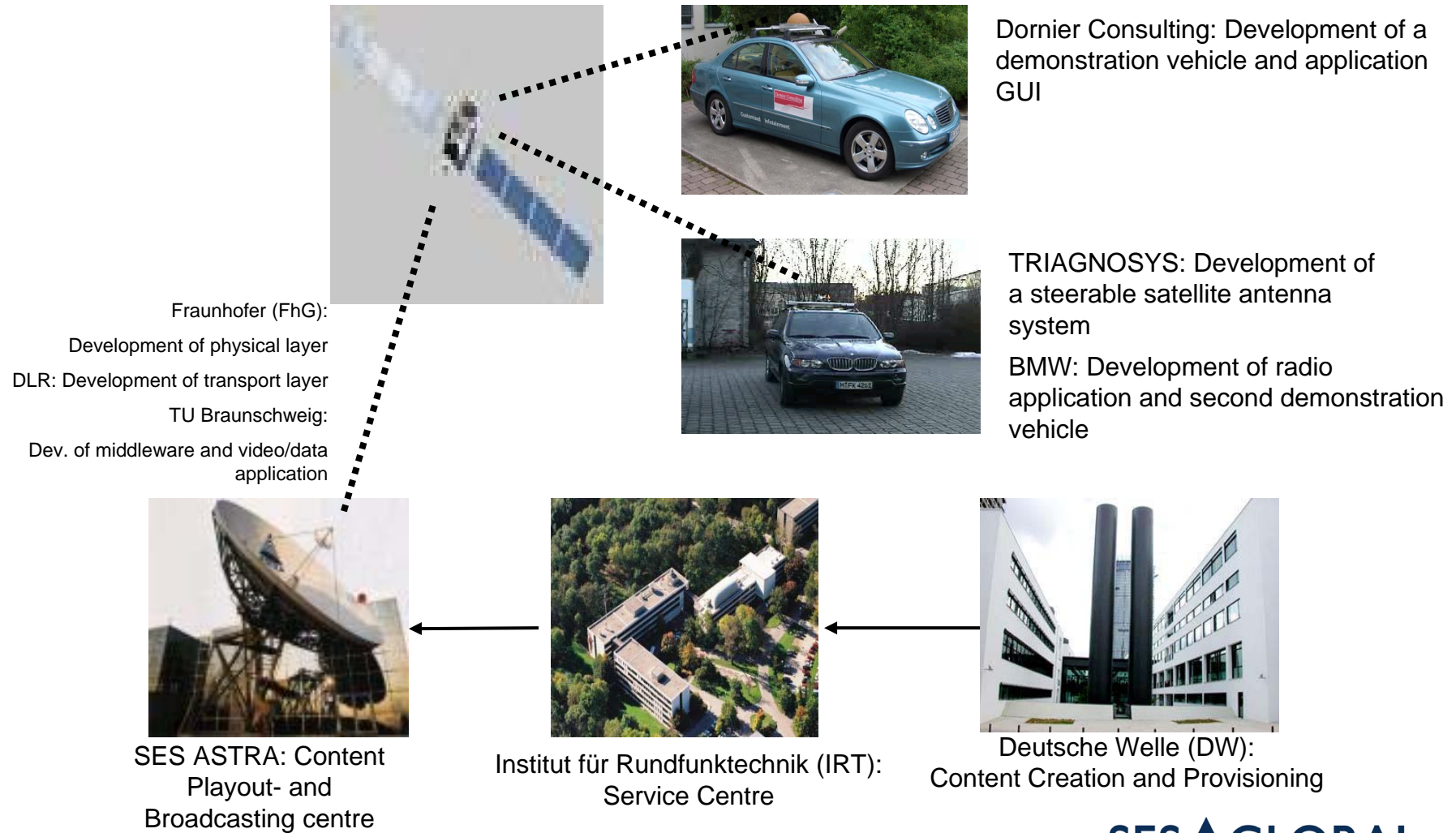
- ▲ Both technologies presented Focus on: **existing space segment** (no need to deploy new satellite fleet/constellation)
- ▲ Satellite allows for:
 - Ubiquitous coverage
 - Reliable transmission
 - Easy system deployment
 - High capacity (broadcast)
 - Cost efficiency
 - Very efficient spectrum utilisation (no new spectrum allocation required)
- ▲ Transmission technologies / corresponding applications:
 - Broadcast to automotive (Ku mobile)
 - 2 way messaging (Orbcomm)

Broadcast to automotive

- ▲ S band Digital radio systems fastest consumer product adoption ever
- ▲ Next generation Satellite broadcast system offering higher capacity
- ▲ Further, possibility to introduce similar broadcast technology in **Ku band (spectrum /space segment used for Direct To Home TV transmission)**
 - Higher spectral resources availability
 - Cost effective broadcast capacity transmission (one-way)
 - Development still needed for receiver antenna integration and cost reduction
 - Complementary to mobile broadcast terrestrial systems

Ku broadcast to automotive demonstrator

System overview



Ku broadcast to automotive services

▲ Infotainment

- Audio (user defined, service provider defined radio)
- Video
- Brand specific services

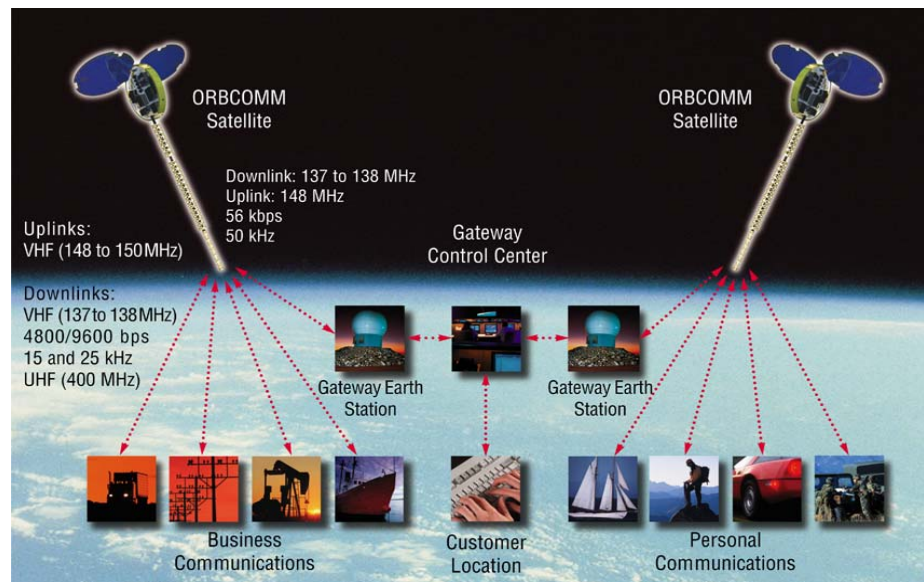
▲ Data services

- Location based services
- Software updates
- **Safety information broadcast channel** (fits with centralized safety information management)

2 Way messaging - Orbcomm

▲ Existing constellation providing:

- Global 2 way data transfer application in monitoring, tracking and messaging (UHF/VHF)
- Low cost equipment & service
- World-wide coverage



User base from large to smaller vehicles



VOLVO



Zur Anzeige wird der QuickTime™ Dekompressor „TIFF (Unkomprimiert)“ benötigt.



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Orbcomm applications for 'intelligent car initiative'

▲ E-Call / E-Safety

- Orbcomm as back-up solution in areas without GSM / UMTS coverage (still 20% in Europe mostly in rural areas with low traffic pattern)
- One off fixed price for car life-time, or at least 5 years available worldwide

▲ Call Back / Part Replacement Activity

- Direct communication to end customer (push-button system related to car ID and not current owner)
- Quick information
- World-wide & low costs (no roaming)
- Interactivity (customer may select a garage of his preference & date of exchange) --> reduction of costs through spare parts management

Orbcomm applications for 'intelligent car initiative'

▲ Car House Keeping Data (Status Reports)

- Immediate reporting on car defaults (component, number, etc.)
- Fast reaction (call back) and information of client / garage
- Manufacturer statistics independent of ADAC etc. figures
- Confidence of customer ("we take care of you")

▲ Toll Data

- Back-up to GSM / UMTS

▲ Software Updates (in complement to Ku broadcast) - confirmation of successful installation through return channel

Thank you

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