


 [dstI]

Location Based Services



Are they beginning to emerge?

Tony Pratt


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 Opportunities [dstI]


- **Asset Tracking**
 - **Geo Information Systems**
 - GPS/Galileo only delivers position in numbers
 - **People**
 - **Personal safety**
 - E112/E911
 - **Operational emergency services**
 - Police, ambulances, fire
 - » *Quality of service*
 - **Railways**
 - **Where is the rolling stock?**




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 **Opportunity** [dstI]

- **Timing**
 - **GPS – clocks**
 - Telecommunications systems
 - » *Cell-based*
 - **Galileo**
 - Opportunities for new transmissions
 - » *Signal structure is still emerging*
 - Operative in low signal conditions
 - » *Lower cost of ownership*




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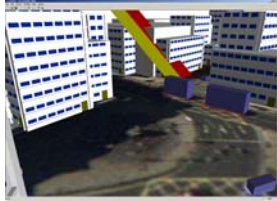
 **Opportunity** [dstI]

- **Transport**
 - **Road Tolling**
 - **GPS + GSM technology concept**
 - German / Dutch experience
 - Opportunity for DSRC technology
 - **Navigation**
 - **Well developed**
 - **Intelligent Public Transport systems**
 - Where to, when, how
 - Accessibility and integration
 - **Railway**
 - **Signaling has high integrity requirements**


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 **Technology Investment** [dstI]

- **UK Investment**
 - **Integrated GPS/Galileo in cell phone**
 - Significant IP issues for GPS
 - » *Galileo structure addresses some of these*
 - Integration at chip level
 - » *>20M users in US*
 - **Costs of implementation falling rapidly**
 - Under \$1 by 2010 per unit?
 - **Accuracy Improvement**
 - **Weak signal operation**
 - **Multi-path mitigation**
 - Important for Galileo
 - **Wet atmosphere prediction of tropospheric delays**



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 **Conclusions** [dstI]

- **Development of Galileo**
 - **Ethos assumptions**
 - Location is a right of every citizen
 - Adds to the expectation of communication
- **IPR**
 - **Strong ownership in the USA**
 - Time and location solutions
 - GPS in cell-based wireless combinations
- **Costs of Ownership**
 - GPS and Galileo
 - Borne by all through *various* forms of taxation

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