How it started …
Why we go for NDS

NDS Public Day, Shanghai, 2012-09-19
Initial Situation of Automotive Navigation

- Enabling Navigation with Limited Technical Resources

  - In the first decade performance was hard to achieve with the technology of that time
  
  - Every system supplier developed and maintained an own storage format tailored to optimally fit the application
  
  - The proprietary formats had a strong functional dependency to navigation software
Initial Situation of Automotive Navigation

- Worldwide Success of Navigation, but High Effort maintaining Proprietary Formats
  - Constant changes of formats due to new navigation generations and feature evolution
  - Different proprietary database formats flooding the market
  - Map updates across vehicle lifecycles cause map version backlog
  - Navigation rollouts into niche markets push map database production

Inflation of maintenance efforts: Compilers, Databases, Testing

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<th>Year</th>
<th>Map data versions per year</th>
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Number of Map data versions per year (single OEM)
Navigation entering Vernon‘s Maturity Phase

• Cost is the Challenge in a Competitive Market
  – High number of map compilers with limited market sizes
  – High efforts for maintaining compilers and testing databases
  – High process cost per delivered map product

• Decreasing Importance of Map Compilers
  – Increasing performance of navigation platforms reduces the need for format optimization down to the bits
  – Declining differentiation potential:
    Map format properties become invisible to the end-user

Vision of a mature map compilation as an enabler to bring better quality maps to the end user - correct, fresh, accurate, detailed and reliable

Insights that bring us together

- OEMs, Map and System Suppliers realized that they invested too long into multiple solutions addressing the same challenges

- The need for a mature Navigation Map Business forces us to **Standardization**
How NDS started …

2004 – Foundation of an Industry Initiative
- Join a small group of international business players with the same goal:
  **A new standardized Navigation Map Format**
- The group started with limited size for efficient development and decision making
- Common development effort by all members to find the best solution for the future

2009 – NDS becomes a Registered Association
- Settled internal procedures and rules
- **Contract for mutual patent cross licensing**
- NDS-Standard documentation and decision processes
- Ongoing technical development with all partners

... to make NDS ready for world-wide market use
NDS Business goals

• Ensure Maturity of compiled Map Databases
  – By enabling multiple use of the same solution
  – By common database testing

• Enable a separate Map Compilation Business
  – Alleviate system providers from compilation task
  – Allow international sourcing, including maps for niche markets
  – Promote interoperability for broader market scale

• Create a Win-Win-Win for all Business Segments
  – Broaden business for map providers
  – Ease sourcing for system suppliers
  – Reduce map delivery and maintenance complexity for OEMs
  – Create quality vs. cost advantages for all
Where we are today

• NDS grew up
  – NDS is designed for international use, including Asia
  – Growing number of members, including Chinese companies
  – NDS is open to accept new partners from all around the world

• 2012 - NDS Standard is touching the Markets
  – OEMs (BMW, Mercedes, Volkswagen) on track with several NDS-based rollouts now beginning to touch the market
  – NDS as a ‘must’ in future OEM Navigation RFQs
  – Alpine, Bosch, Elektrobit, Garmin, Harman, TechniSat, TomTom are currently developing NDS-based systems

▼ Today:
  – First NDS Asia Meeting