

Development of an Agency-wide GPS Technology Management Plan

GIS-T 2012

Jeff Barnett
Inner Corridor Technologies, Inc.
Houston, Texas



- 🌐 Issues surrounding GPS technology management
- 🌐 A sample study
- 🌐 Study results
- 🌐 The management plan based upon the study
- 🌐 Lessons Learned

- 🌐 GPS technology has been increasingly used by many organizations without uniform standards or management plan.
- 🌐 It is commonly unknown within an agency who is using GPS, and for what purposes.
 - Many different kinds of GPS units in the field
 - Many different procedures for using the equipment
 - Many different uses and data
 - Many different (or non-existent) standards
- 🌐 Can't support, can't train, can't manage



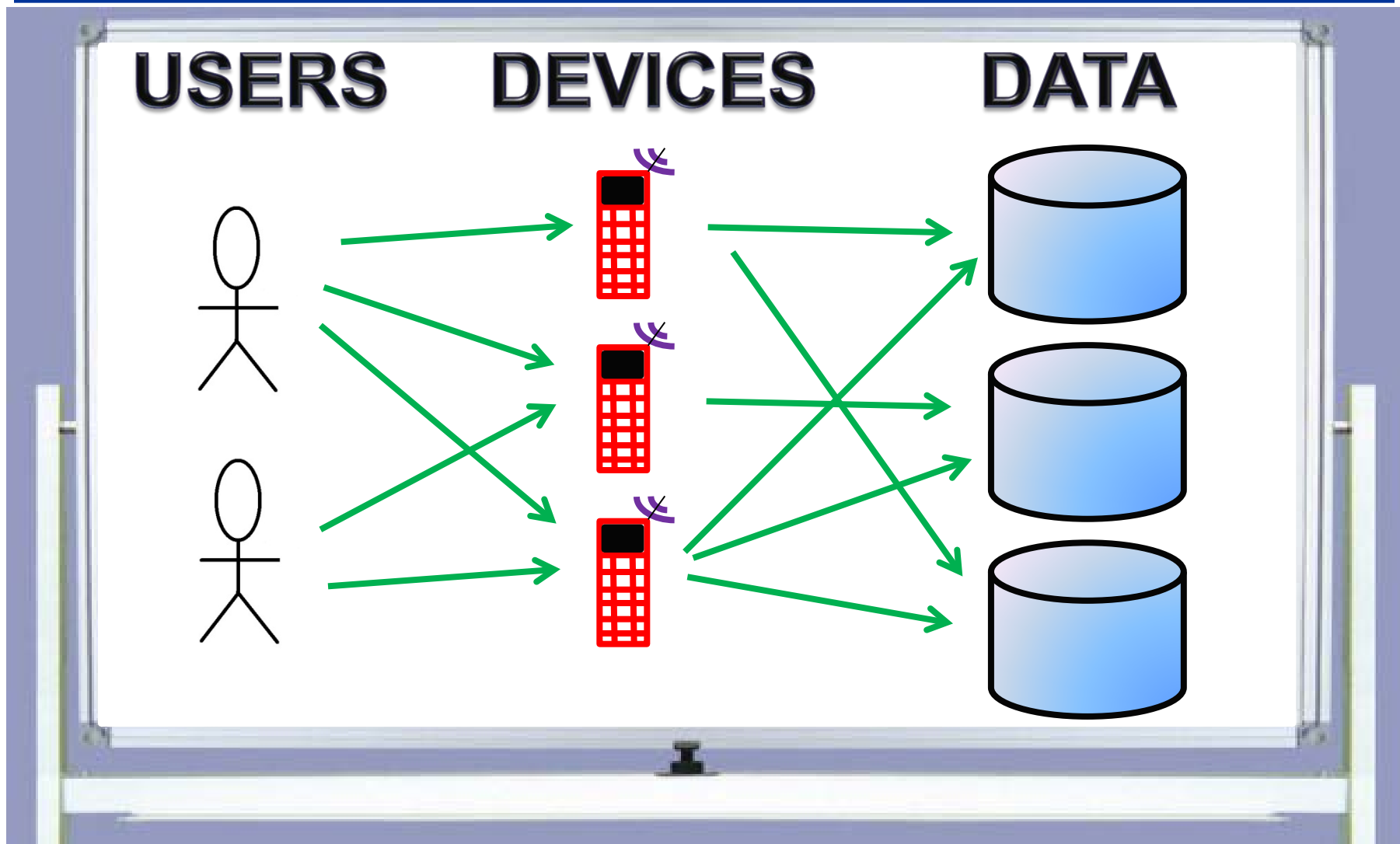
- 🌐 Louisiana Department of Transportation and Development (LADOTD) & Louisiana Transportation Research Center (LTRC)
 - 2011 Study to develop a GPS technology management plan
 - Compare to evolution and adoption of computers.

- 🌐 The current state of GPS adoption needed to be assessed and compared with current best practices as defined by:
 - internal users,
 - other large agencies,
 - the overall GPS industry
 - Used literature review, surveys, & interviews.



- 🌐 Literature review
 - Searching for publications about GPS management plans
 - Many studies and papers about GPS technology
 - Some published practices and standards
 - Nothing related to GPS management

- 🌐 Everybody using a GPS takes surveys on how GPS used
 - Exception of surveyors and PDA users
- 🌐 Evaluate use compared with “Best Practices”
- 🌐 Create plan for LADOTD GPS
 - Procurement
 - Management
 - Training
 - Support



- Four parts to the internal survey
 - Users
 - Training, frequency, devices, proficiency, comfort level
 - User Groups
 - Devices, standards, procedures, management, support
 - Devices
 - Make & model, OS, settings, capabilities, satisfaction
 - Fit for use, maintenance, management
 - Data
 - What & why, specific application, correction methods
 - Loading process, standards, formats



- From internal survey hoping to find:
 - Scope of GPS use in LADOTD
 - Inventory of known GPS equipment
 - Census of current GPS users
 - Conceptual map of data flow from field to database
 - Understanding of GPS needs including level of use
 - Internal practices to determine “best” practices

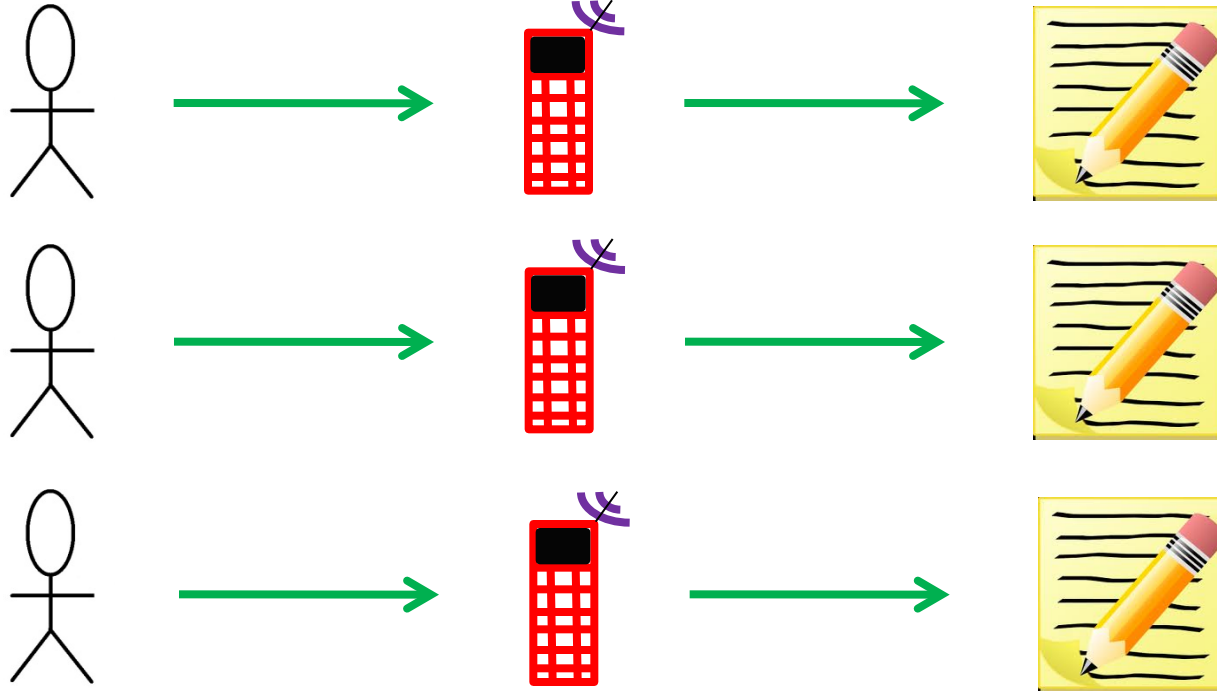


- 🌐 From external surveys and GPS industry meetings, seeking:
 - Management practices
 - Support systems for users
 - Training and certification
 - Satisfaction with current GPS operations
 - Known GPS management plans
- 🌐 Many organizations doing many of these things but not set into a comprehensive GPS technology management plan.

- 🌐 LADOTD Mapping grade GPS uses
 - Road Inventory
 - Facilities and landscape maintenance
 - Environmental and archeological sites
 - Levee inspection

- 🌐 LADOTD Recreational grade GPS uses
 - Outdoor advertising permits
 - Water well permits
 - Driveways permits
 - ROW borings
 - Borrow pits
 - Railroad crossings
 - Bridge Inspection
 - Utility location
 - Accident reports

USERS DEVICES Paper Form



- 🌐 LADOTD Mapping grade users
 - Varying undocumented procedures, standards
 - Maintenance by breakdown
 - Good but aging equipment
 - No internal support system
- 🌐 Need better support, training and standards

- 🌐 LADOTD Recreational grade users
 - No user standards or procedures
 - Response to need in paper forms
 - Maintenance by trashcan
- 🌐 Needs
 - Proper equipment
 - Training
 - Procedures
 - Support

- 🌐 Current best practices as defined by:
 - Internal users (practices and standards from surveys)
 - Other large agencies (Outside LADOTD surveys)
 - The overall GPS industry (interviews with industry reps)
- 🌐 Found that GPS technology management practice varied by size.
 - Large agencies, committees, managers, published standards
 - Small agencies, “the way we do it” (less formal – less need)



- 🌐 Industry representatives highly in favor of better management practices.
 - Better client relations
 - Hosted management sites
 - Higher overall user satisfaction with GPS
 - Less “issues” they have to deal with

- 🌐 Oversight
 - GPS Committee
 - GPS Coordinator

- 🌐 Equipment
 - Standard GPS devices, at least 1 per district office (9)
 - Easier to train, support, and share

- 🌐 Operational GPS practices and standards
 - Establish by GPS committee
 - Guidelines for all uses, data and training

Technology Happens

- GIS
- Internet
- LIDAR
- Cloud computing

Experiments become practices – GPS has become a practice

- Control and manage (best practices) that change
 - “change is inevitable, surprise is optional”
- Someone has to be **responsible** for that new toy

- 🌐 There is value in establishing and documenting a GPS technology management plan.
 - Adopt an overall organizational approach to GPS
- 🌐 A GPS technology master plan will save money in the long run
 - **Procurement** Get the right equipment, and not too much
 - **Management** Less time battling the unknown
 - **Training** Uniformity of training and practices
 - **Support** Uniform systems, able to share in a pinch



- 🌐 Make a management plan that fits
 - Uses and needs of GPS
 - Who collects what and how often
 - What *should* we be doing with GPS
 - Organizational structure
- 🌐 Use the proper equipment
 - **Recreational** vs. **mapping** vs. **survey** grade devices



- 🌐 **Gretchen Hartley**, Trimble Navigation Limited
- 🌐 **Jason Hooten**, Topcon Positioning Systems, Inc.
- 🌐 **Rayward Chung**, Trimble Navigation New Zealand Limited
- 🌐 **Michael W. Harvey**, Leica Geosystems
- 🌐 **John Florio**, Juniper Systems
- 🌐 **Eric Bock**, Navigation Electronics, Inc.
- 🌐 **Darryl Zercher**, Texas Department of Transportation
- 🌐 **Greg Smithart**, Texas Commission on Environmental Quality



- 🌐 Louisiana Department of Transportation and Development
 - **Dr. Jim Mitchell**
 - **Kurt Johnson**
- 🌐 Louisiana Transportation Research Center
 - **Dr. Zhongjie Zhang**
- 🌐 http://www.ltrc.lsu.edu/pdf/2012/fr_489.pdf

(LTRC Project No. 11-2P)

