A New Paradigm For Smart Utilities
LiDAR
Public Utilities – Status Quo

- Electricity & Gas
  - No 24x7 power and gas supply
  - Electricity theft, meter tampering, faulty meters and inadequate investments in transmission equipment
  - Issues with obtaining natural gas from other countries
  - Falling in-house production

- Telecom
  - Delays in auction result in poor voice quality and call drops
  - Non-availability of infrastructure in the form of telecom towers
Smart Utilities

Fundamentally being “Smart” is the knowledge of understanding how to plan, integrate and operate technologies holistically.

- Smart Grid
- Smart Energy
- Smart Health
- Smart Retail
- Smart Mobility
- Smart Home
- Smart Meters
Smart Utilities - Definition

• Applying smart solutions to infrastructure and services to cities in order to make them efficient

• Elements:
  – New-build design, integration of new & existing assets, knowledge management
  – Develop understanding and implications or action required at both the overall as well as at the asset level
  – Knowledge of and ability to model complex assets
  – Leverage tools/capabilities to assess or model what individual assets can do
Smart Utilities - Benefits

- Knowledge as to how the actual pooled assets perform
- Critical information for preventive maintenance of the assets
- Real time alerts of breakdown to mitigate downtime
- Resource optimization to address longer period of time with higher predictability
- Improved ability to efficiently commit various resources into the asset pool
Smart Utilities - Challenges

- Utilities are being directed to big data
- Asset data is an expensive element for utilities, both to obtain and to maintain
- Geographically widely spaced, sometimes in locations difficult to access
- Surveys can also have complex health and safety risks that need to be managed
- Asset data is often limited, and of dubious quality
- Sensors and instrumentation are improving, being both cheaper to install, run and maintain, and more robust

Geo Location of these utilities is the smartest aspect
Every utility has a location

- Geospatial data serves as the bed rock of any planned city
- 3D Models and 360 degree panoramic visual imagery leave no room for misrepresentation or misinterpretation of ground reality
- Solution?
LiDAR – The Smart Way

• Light Detection And Ranging – is fast, exceptionally accurate, safe and more cost-effective

• Produces rich datasets quickly enabling regular, systematic monitoring of assets along utility corridors

• Identifies faults and problems, plan maintenance and reduce outages as a result

• Platforms: Aerial, Mobile, Terrestrial, Backpack

Accurate real world representation in 3D Reality
Solution: Electricity & Gas

- Data collected in the form of 3D Point Cloud and 360 Degree Panoramic imagery helps in extracting accurate geo-referenced Electric & Gas Utility features and attributes to create vector layers.

- LiDAR data also helps distribution companies to plan and design by accurately measuring distance and taking reference of real ground situation using 360 Panoramic Imagery.
Solution: Telecom

- Rapid deployment of new networks and integration of existing networks/assets
- Maintenance of network information accurately and up-to-date
- Demand analysis, RF planning, location based information on customer concentrations representing open networks
- Field reality is captured in visuals and engineering survey grade topographic data
Foundation lies in multi-dimensional Geodata

- LiDAR data is the cost effective way to gather accurate geospatial information as in the real world:
  - A single source of information, which allows a proper measure to analyze the performance of assets help in making the right decisions
  - Added infrastructure intelligence enables increased reliability, efficiency and security
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