BEDA Accelerator Year 1 outcome report and Year 2 planning

Nora Wang, Kevin Keene, Mark Borkum
Use Cases in FY19

- **Energy benchmarking**
  - create UBIDs for covered buildings list and track building energy use and floor area more accurately.

- **Green building certification**
  - create UBIDs for a building, a portion of a building, or a group of buildings to better document what is being certified.

- **Real estate data management**
  - add UBIDs to buildings, properties, or parcels when storing or exchanging building data for real estate transaction.

- **Smart cities**
  - Add UBIDs to multiple building databases and match building data to generate intelligence/insight about building stock for 5G, IoT, etc.
Example of Energy Benchmarking Application

- San Jose (new benchmarking program) and DC (existing benchmarking program)

  - Some complications in DC with matching covered parcel IDs to parcel data due to organization of common ownership lot and condo IDs
  - Question is how to organize the UBIDs in portfolio manager for edge cases (not one meter to one building)
Example of Real Estate Application

- Ran the subset of dataset in San Jose, CA
- Purpose is to be able to assign UBIDs to real estate datasets that only have address information

1. Geolocate addresses from dataset
2. Assign UBID to parcel and footprint data and UBID₀ to addresses
3. Conduct UBID cross-reference between the address and parcel/footprint datasets
4. Compare results to GIS matching (GIS not perfect but best possible)

- Parcel matching (94% success) better than building (84%), but real estate data usually stored at parcel level → initiates question of “Parcel UBID”

← Addresses matching to buildings

Addresses matching to parcels →
Released tooling

Capabilities

• Assign UBIDs to records in comma-separated values (CSV) and tab-separated values (TSV) files using:
  ▪ Lat/long coords of centroid for geometry;
  ▪ Geometries represented in well-known text (WKT) format; and
  ▪ Geometries represented in well-known binary (WKB) format.

• Cross-reference records in UBID-assigned CSV and TSV files using a UBID-aware spatial index.

Supported programming languages

• Python (CLI and API);
• Ruby (API only);
• JavaScript (API only); and
• C# (API only).

Documentation

• Source code comments and "docstrings";
• Developer's notes; and
• Frequently asked questions (FAQs).
Major questions from the partners

• How to assign UBIDs to a property (when multiple buildings exist)?
• How to maintain UBIDs as building stock changes?
• Who is responsible to create and maintain the UBIDs? What skillset is needed?
• How to add UBIDs to the existing tool and workflow?
• How to differentiate Unique Building ID and Unique Land/Parcel/Tax-Lot ID?