New Task

Big Data for Energy Efficiency

Matthias Stifter, AIT

Leonardo ENERGY

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Big Data for Energy Efficiency

- Use of **data analytic methods** and approaches to identify **energy efficiency potentials** in consumption and other areas of energy usage.

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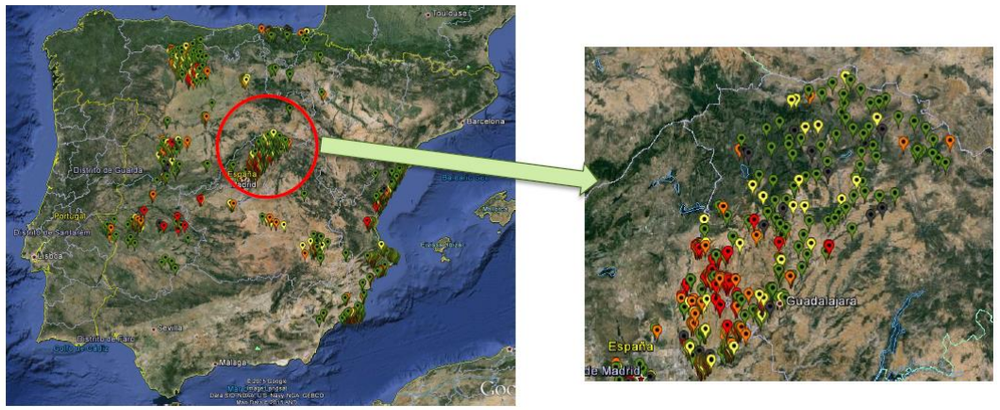
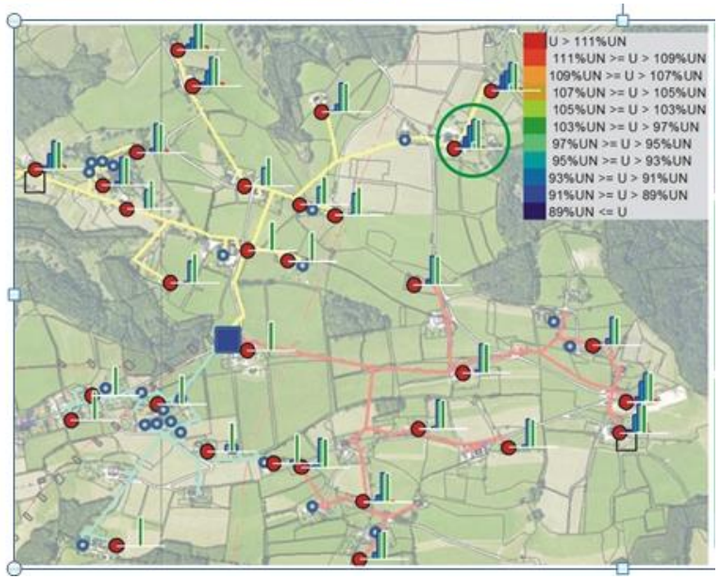
Use Cases

- Power Systems
  - Power System Network data from sensors and meters (e.g. smart meters) to identify losses and other inefficient network conditions.
  - High losses ("non-technical")
  - Renewables impact





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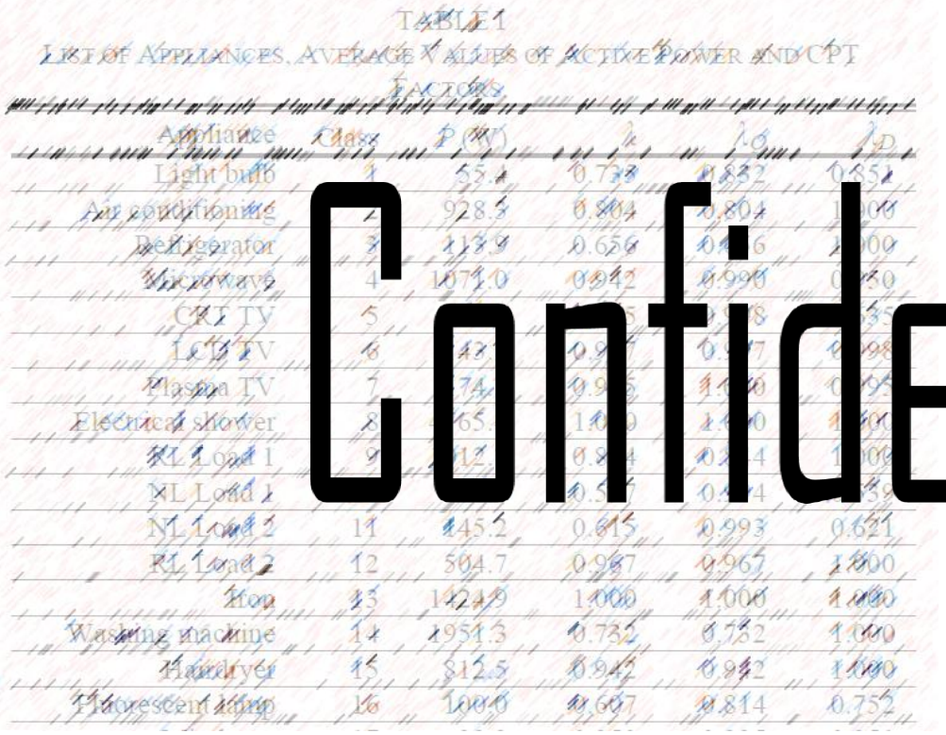
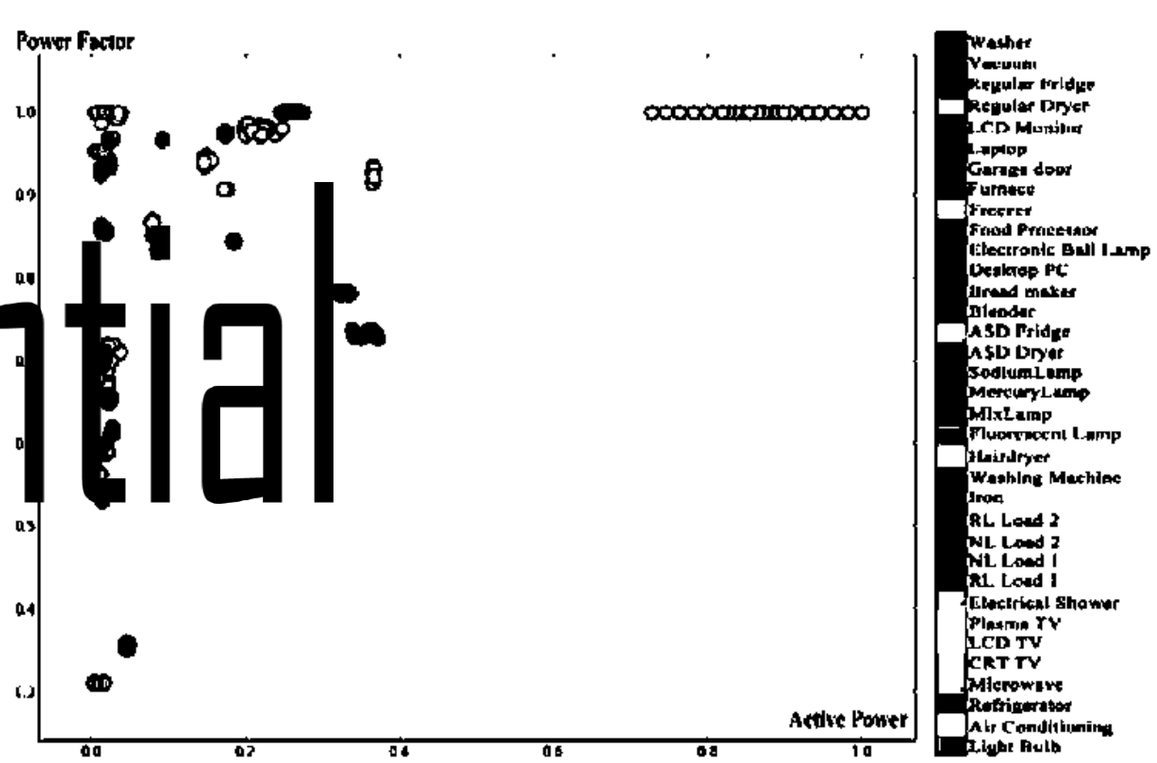
Use Cases

- Consumer devices
  - Consumption of electronic devices: use meter data and data discovery to identify the energy consumption of gadgets.





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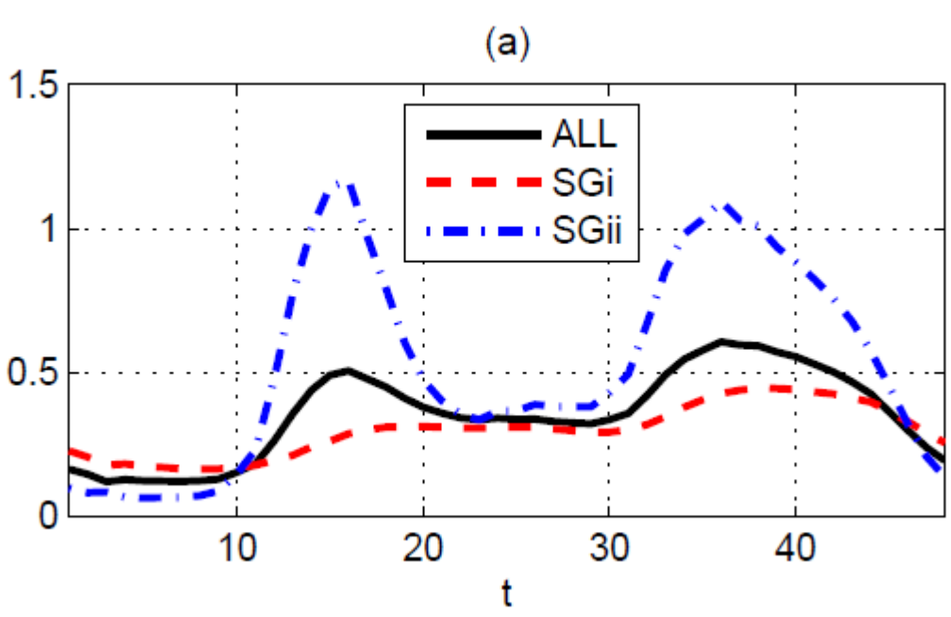
Use Cases

- Consumer behavior and segmentation
  - Identification of energy intensive user behavior (segmentation, etc.), using demographic data for more detailed information.

Socio-demographic variables	Description	Number of categories	Example(s)
GSP group	Grid Supply Point Group in UK, which are regional electricity distribution networks	Total 14 3 in dataset*	Southern; South Wales; North Scotland
Age	Age of head of household	6	Age 26-35
Decision Maker Type	Type of person deciding household matters	13	Young Couple
Family Lifestage	The combined stage of life and family status including children	14	Young family with children
Household Composition	People living together and their relationships to one another	13	Male homesharers
Household Income Band	Total household income per year	10	£30,000 to £39,999
Mains gas flag	Whether a household is connected to the Main gas network; if Yes, it's assumed that the household uses gas	2	connected to gas; not connected to gas
Mosaic Public Sector Group	Classification on citizen's location, demographics, lifestyles and behaviors	15	Young, well-educated city dwellers; Wealthy people living in the most sought after neighborhoods
Mosaic Public Sector Type	Subcategories of Mosaic Public Sector Group	69	Young professional families settling in better quality older terraces
Number of Bedrooms	Number of Bedrooms of the property	5	5 + bedrooms
Property Age	When the property was built	6	1871-1919
Property Type 2011	Type of property in 2011	5	Purpose built flats; Farm
Property Value Fine	Estimated property value	25	£500,001 to £600,000
Tenure 2011	Property ownership in 2011	3	Privately rented



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Use Cases

- Energy Efficiency in Industry - Industry 4.0
  - Predictive Maintenance and Quality
  - Field Asset Monitoring

The Value of PMQ

1. Lowering Unit/Item Cost (Improving profit/margin)
2. Increasing Production "Yield"(Productivity)
3. Superior ROA and "Asset Optimization"
4. Higher Revenue due to Quality Improvement
5. Increased Competitiveness due to higher Quality
6. New Services for Health Monitoring of Assets
7. Lower Risks due to fewer or elimination of Asset Failures

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Questions

AIT Austrian Institute of Technology	TNO Netherlands organization for science and technology
Matthias Stifter	**René Kamphuis**
Energy Department Electric Energy Systems	Energy efficiency program Service enabling and management
Giefinggasse 2 1210 Vienna Austria T +43(0) 50550-6673 M +43(0) 664 81 57 944 F +43(0) 50550-6613 matthias.stifter@ait.ac.at http://www.ait.ac.at	Eemsgolaan 3, 9727 DW Groningen T +31 (0) 621134424 PO Box 1416 9701 BK Groningen The Netherlands rene.kamphuis@tno.nl www.tno.nl

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