Sufficiently Engaged? How smart metering systems help local authorities become smart cities

Professor Richard Bull	(Nottingham Trent University)
Dr. Leticia Ozawa-Meida	(De Montfort University)
Dr. Graeme Stuart	(De Montfort University)
Dr. Ken Dooley	(Aalto University)
Dr. Muhammad Mazhar	**(Nottingham Trent University)**

EDI_Net
The Energy Data Innovation Network

NOTTINGHAM TRENT UNIVERSITY

DE MONTFORT UNIVERSITY LEICESTER

Horizon 2020
GA-No. 695916

Overview

- Smart Cities – an evolving concept
- Introducing EDI-Net
  - The Dashboard
  - Forum
  - Benchmarking Tool
- Methodology
- Key Findings from EDI-Net
- Conclusion

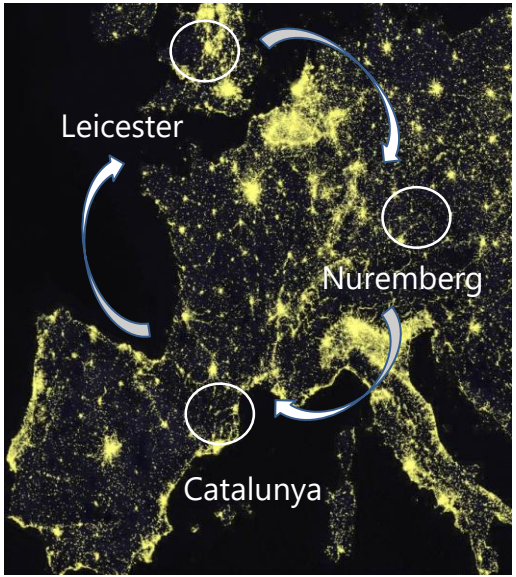
Horizon 2020
GA-No. 695916

Is this a smart city? Narratives of city smartness and their critical assessment

(Huber and Mayer 2015)

1. **The Instrumental Perspective:** Information and Communication Technology for Improved Resource Efficiency
2. **The Administrative Perspective**: Smart city to unify the work of institutions, structures/departments belonging to the same organisation unify efforts to develop a vision for the city
3. **The Governance-perspective:** Citizens' role and overcome traditional top down governance, the Learning, Interactive and Creative City

Energy Data Innovation Network (EDI-Net) Project

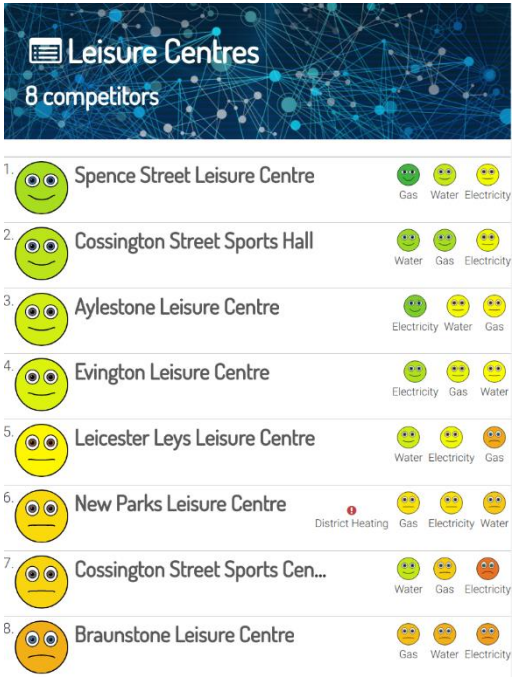


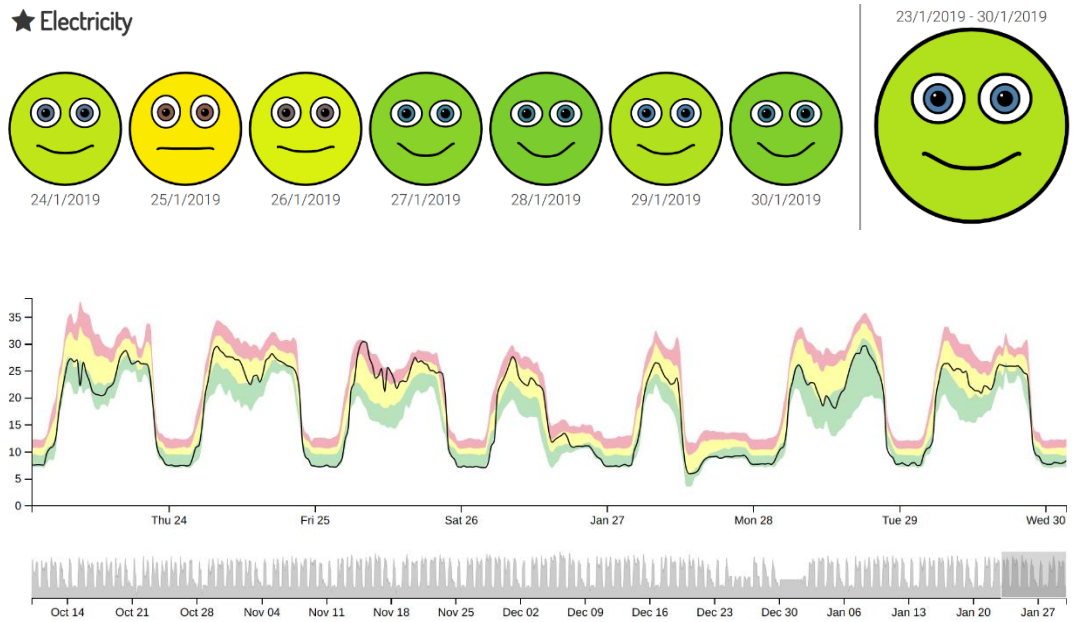
3 Pilot Sites

EDI-Net assists in building a city's or region's capacity to more effectively implement **energy management** and **sustainable energy policies**. It analyses metered energy and water data from public buildings and building energy management systems in order to **reduce energy consumption** and **save money**.

EDI_Net The Energy Data Innovation Network
NOTTINGHAM TRENT UNIVERSITY
DE MONTFORT UNIVERSITY LEICESTER
Horizon 2020
GA-No. 695916

EDI-Net (1) The Dashboard





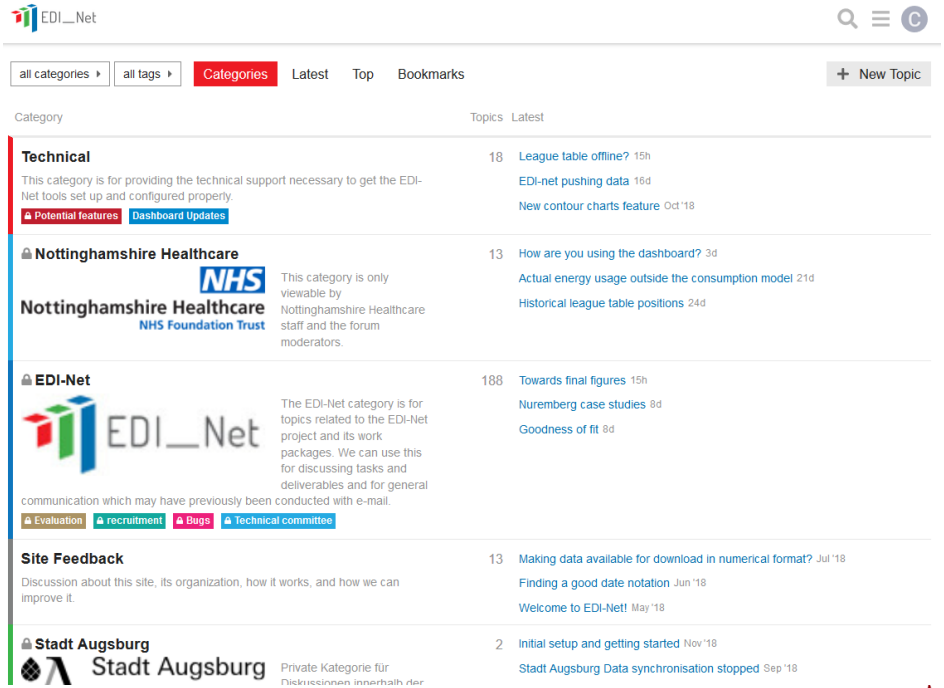
EDI_Net
The Energy Data Innovation Network

NOTTINGHAM TRENT UNIVERSITY

DE MONTFORT UNIVERSITY LEICESTER

Horizon 2020
GA-No. 695916

EDI-Net (2) The Forum



EDI_Net
The Energy Data Innovation Network

NOTTINGHAM TRENT UNIVERSITY

DE MONTFORT UNIVERSITY LEICESTER

Horizon 2020
GA-No. 695916

EDI-Net (3) The Benchmarking Tool

EDI_Net
The Energy Data Innovation Network

NOTTINGHAM TRENT UNIVERSITY

DE MONTFORT UNIVERSITY LEICESTER

Horizon 2020
GA-No. 695916

Methodology

- A total of **31 participants** were interviewed between February and July 2018 & transcribed verbatim & coded.
- Transcripts were initially ‘open coded’ according to the extent to which they aligned with the pre-identified themes of the EDI-Net evaluation framework.
- Subsequently, commonalities among the coded data were sought and connections between categories emerge within and between public authorities (axial coding).
- Responses of the schools’ meeting questionnaire were also included in the analysis.
- Initial findings were presented to representatives of the public authorities to validate results or add further information.

Benefits perceived by users

Perceived benefits	LEI	NUR	CAT	Selected quotes
Timely identification of energy saving opportunities in their buildings (e.g. water leakages, changes in heating settings over holidays)	✓	✓	✓	*"If we detect an incident, we have identified that some buildings operated during the weekend as weekdays rather than as festive days. We definitively have used this type of data for energy management."* [Catalonia]
Effective engagement of building users and managers to promote sustainable energy and positive energy behaviour	✓	✓	✓	*"Pupils of four or five years old can communicate with the smiley and sad faces better than words. So I find* [the dashboard] *very useful for this. Because I can say to them, what's this face? And they will say it is a sad face, that means we are not doing very well, which I find very useful."* [Leicester]
Clearer representation of energy budgets to financial managers to help motivate people to save energy and invest accordingly	✓		✓	"*The* [benchmarking] *tool can provide the technical support to talk to the top levels, I mean 'we need investment' as well as to be able to talk with the bottom levels, to tell them 'we are doing all what we can, but the weather is cold or hot'."* [Catalonia]

Benefits perceived by users

Perceived benefits	LEI	NUR	CAT	Selected quotes
Compare the performance of their buildings with similar buildings to share best practice	✓		✓	*"I think that the availability to look other buildings is good, because then you can get motivated. Look! this building has implemented this, they have changed that."* [Catalonia]
Deliver sustainable energy policy more effectively by the implementation of local or internal climate and energy plans	✓	✓	✓	*"The smiley faces dashboard is helping us to further develop the* [municipal energy management] *policy. Because many technical measures have already been implemented, the user becomes more important in the future. And the smiley faces are one very good measure to engage with the users and to inform the building users about energy."* [Nuremberg]

So, has EDI-Net enabled the local authorities become smarter?

- **Increased social interactions** between users, managers and senior leaders.
- It saw an **increase in the speed of identifying energy saving opportunities** in their buildings (e.g. water leakages, changes in heating settings over holidays).
- The tool enabled **clearer representation of energy budgets to financial managers** to help motivate people to save energy and invest accordingly.

Useful links and contacts

EDI-Net will continue operating and offering its services on a commercial basis.

If you are interested to join this “smart data” user community, please contact EDI-Net using the following details:

E-mail: info@edi-net.eu
Web: edi-net.eu
Dashboard: dashboard.edi-net.eu
Forum: discourse.edi-net.eu

De Montfort University
Graeme Stuart
Leicester, UK
gstuart@dmu.ac.uk

Discussion Points?

- How to get people use these innovative ICT tools?
- Engagement with the tools beyond the life of a project?
- Scale-up/replication?

Horizon 2020
GA-No. 695916