Energy Democracy: A Digital Future?

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## Energy democracy and analytical framework

<table>
<thead>
<tr>
<th>Main dimensions</th>
<th>Components</th>
<th>Indicators</th>
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<td>Ownership structure and power in the political economy of energy</td>
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<td>Share of grid infrastructure co-owned by municipalities/communal</td>
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*Source: Szulecki, 2018*
Energy system digitalisation

“the act of incorporating digital systems and information and communications technology (ICT), along with the new business models and interaction opportunities these support, into the energy system.” (Rhodes, 2020, p.5)
Digitalisation as a sociotechnical transition

- ‘Co-evolution’ (Foxon, 2014) or ‘mutual shaping of technology and society’ (Geels, 2002).
- Contests narratives of ‘antipolitics’ (Sadowski and Levanda, 2020).

But...

- Digital transitions are not energy specific and don’t fit neatly with existing theory. A disruptive ‘landscape pressure’ (Geels, 2011), but also there are unique ‘niches’ (Schot and Geels, 2008) within energy.
Data and software considerations

Skills and knowledge gaps, distributional issues, supply chain complexity, transparency challenges, proprietary challenges, scalar slipperiness,

### Popular sovereignty
- Potential interference by industry self-interest in governance (e.g. codes).
- Cross-economy digital governance gaps
- Automation produces new decision-making ‘actors’ (e.g. algorithms, human-machine collectives)
- Accountability challenges (e.g. decision-making chains, liability, ‘black box’ systems)

### Participatory governance
- Potential interference by industry self-interest in governance (e.g. codes).
- Scrutiny opportunities – openness vs security, privacy and commercial interest
- May require new access rights regime? E.g. ‘public interest’. (Frerk, 2019)
- Standards development (Cohen, 2020).
- Introduction of ‘non-human actors’ in decision making
- Human-machine collectives.
- Hidden but powerful processes – e.g. ‘click work’.

### Civic ownership
- No universal concept of data ownership - contested in law (Stepanov, 2020)
- Intellectual property challenges (e.g. dataset combination and reuse). (UKDS, no date).
- Risk of ‘micro-privatisation’ (Sweeney, 2017).
- As a service business models? Ownership vs use.
- Complicates material asset ownership (van Veelen et al, 2021, Kitchin and Dodge, 2014)
- Filters to value access (data and software).
Avenues for digital-democratic response?

Some may take familiar shapes...

• Community ownership of new asset types with mixed material and information-based components – e.g. VPPs (Thombs, 2019), aggregators (Carbon Coop and Regen, 2018).
• Public engagement around data/digital policy development.

Some could look quite different...

• Alternative governance approaches – e.g. commons-based (Hess and Ostrom, 2007)
• Shaping new institutions – e.g. data institutions (Hardinges and Keller, 2021), algorithmic bias audits (Raji et al, 2020), or ‘public interest’ data access mechanisms (e.g. Frerk, 2019).
• Open data licences, open source code and tooling.
• Public or non-profit ownership and development of data infrastructure(s).
• New collectives – e.g. virtual communities, ‘hacktivists’ etc.
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<td>Polycentric approaches across supply chains</td>
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<td>Access to information and data at all levels of the energy system, while ensuring appropriate privacy and security</td>
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<td>Interpretability of decision-making models and appropriate redress mechanisms</td>
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<td>Energy and digital education and awareness raising</td>
<td>Existence of dedicated educational programmes, including digital-focused, for end-users and public sector.</td>
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<td>Inclusive, reflexive tech design and testing practices</td>
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<td>Fair algorithmic outcomes, with opportunity for public contestation and scrutiny</td>
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<td>Share of energy from private, cooperative and communal sources – accounting for different geographic and virtual configurations</td>
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<td>Civic ownership and/or co-production and/or management of: energy, flexibility, data and software assets and infrastructures across different geographies</td>
<td>Ownership structure and power in the political economy of energy</td>
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<td>Open licensing and open source</td>
<td>Share of grid and data infrastructures co-owned and/or co-controlled by municipalities/other communal actors</td>
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Conclusions

• Digitalisation **disrupts core concepts** within democratic theory used in existing energy democracy literature.

• Adaptation of the analytical framework could help **policymakers and practitioners** make valuable adjustments in a new sociotechnical context.

• However some of the bigger **paradigm changes** are left uncaptured.
References


Saharan Africa as a Transition Pathway to

Available at: http://www.see.leeds.ac.uk/sri. (Accessed: 2 September 2019).


Any questions?