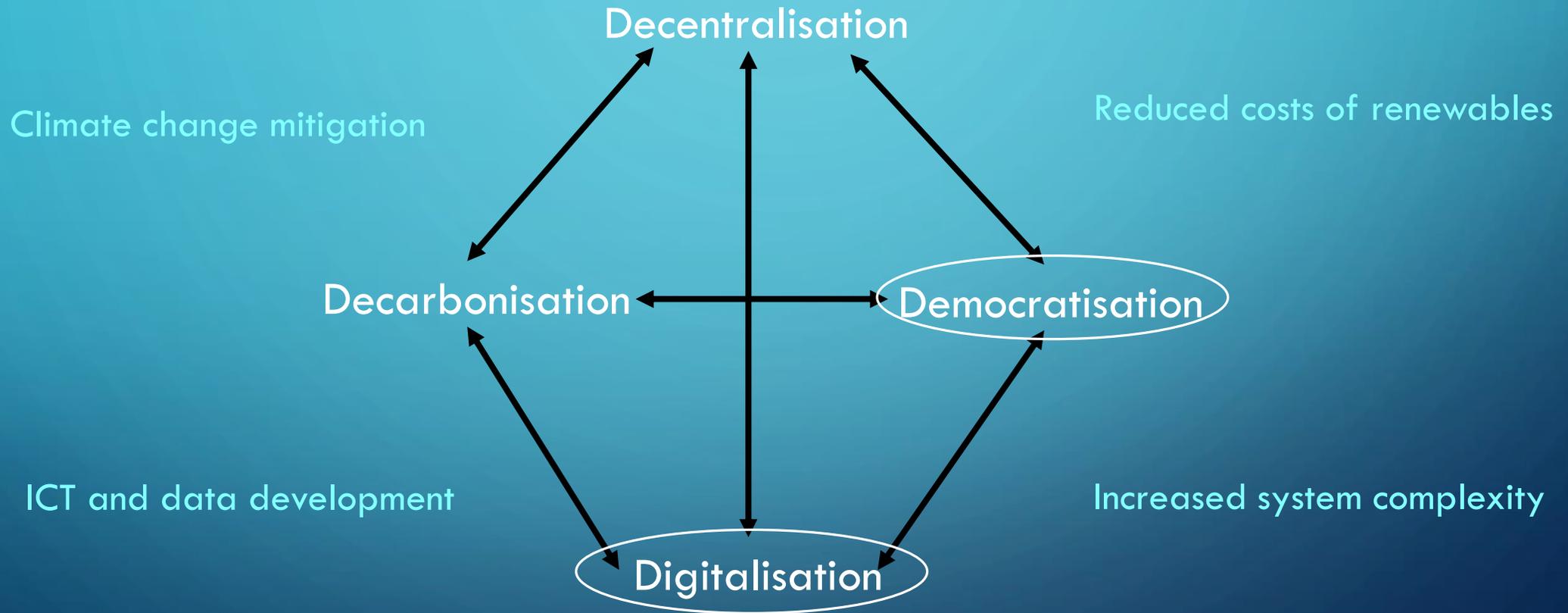


GOVERNING DIGITAL ENERGY: FAIR, SECURE AND SUSTAINABLE

EMILY JUDSON, PHD RESEARCHER, ENERGY POLICY GROUP

4 DS OF ENERGY TRANSFORMATION



Source: Soutar 2019

WHAT DOES DIGITAL ENERGY LOOK LIKE?

National Grid

AI and drones turn an eye towards UK's energy infrastructure

National Grid using artificial intelligence to check drone footage of 7,000 miles of wires and pylons



Adam Vaughan

@adamvaughan_uk

Sun 2 Dec 2018
14.05 GMT



Ikea creates blockchain solution to "democratise" renewable energy

11 March 2019, source [edie newsroom](#)

Plans have been created by furniture giant Ikea's innovation lab Space 10 to develop a blockchain-powered solar microgrid.



Google AI hikes wind power value by 20%; UK targets 30 GW offshore wind by 2030

Mar 7, 2019

Our pick of the latest wind power news you need to know.

Google uses machine learning to increase wind power value by 20%

Google has combined machine learning with turbine data and weather forecasting to increase the value of its **wind assets** by 20%, the company said in a statement February 26.

Google applied DeepMind applied machine learning algorithms to 700 MW of U.S. wind capacity.

"Using a neural network trained on widely available weather forecasts and historical turbine data, we configured the DeepMind system to predict wind power output 36 hours ahead of actual generation," the company said.



Analytics is raising the forward power value of wind farms. (Image credit: Leigh Trail)

DIGITAL INNOVATION CLUSTERS IN ENERGY

Automation

- Monitoring, analysis and control
- System optimisation
- 'Smart' hardware and IoT
- Predictions, forecasting, pattern detection
- Decision-making (solo 'AI' or human/computer teams)

Ledgers

- Trading (P2P and HFT)
- Smart contracts and certificates
- Cryptocurrencies

Ancillary

- Customer engagement
- Cyber security
- Data management, storage, processing

AI IN ENERGY?



Europe's AI start-ups often do not use AI, study finds

Research shows two-fifths have no artificial intelligence programs in their products

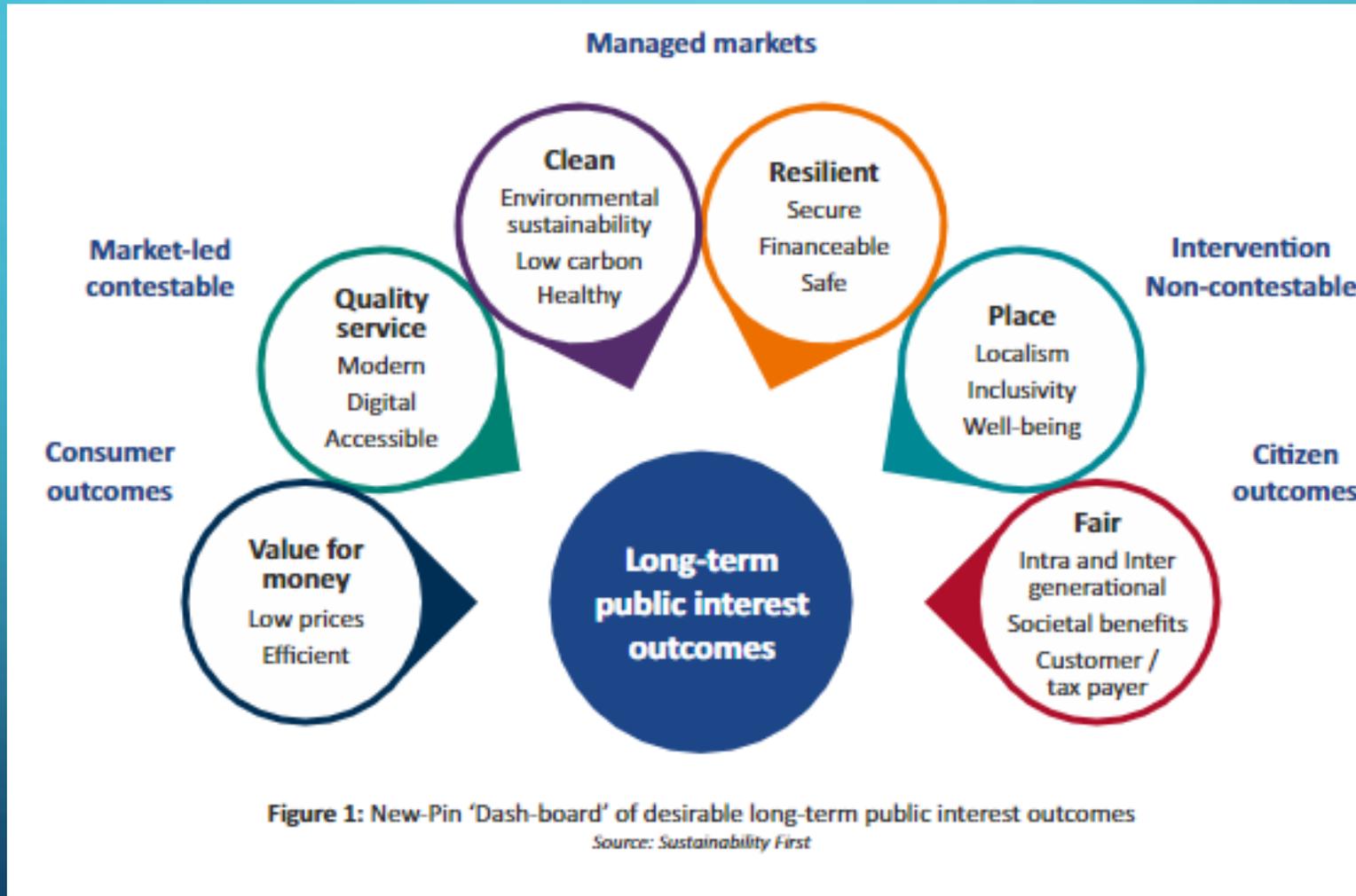
Aliya Ram in London MARCH 5, 2019

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Two-fifths of Europe's artificial intelligence start-ups do not use any AI programs in their products, according to a report that highlights the hype around the technology.

Source: *Financial Times*

A USEFUL CONCEPT: 'PUBLIC INTEREST' IN ENERGY



PUBLIC INTEREST GOALS CAN HELP STEER GOOD POLICY AT THE INTERSECTION OF ENERGY AND DIGITAL

- Digitalisation blurs boundaries of the traditional energy system.
- Current energy governance 'not fit for purpose' (iGov 2014-2019).
- Technology is made by humans – potential for unintended consequences.
- Frequent tech and data scandals – e.g. privacy, tax evasion, hacking, behavioural modification.
- Political support for regulation of technology across different spaces – e.g. social media, health, transport... energy?



FUTURE RESEARCH

- How is algorithmic decision-making changing processes of decision-making throughout the UK energy system?
- How does algorithmic decision-making interact with the transformation to an equitable, secure and sustainable energy system?
- Should energy data and algorithms be regulated in the UK, and what could that look like?

ANY COMMENTS OR QUESTIONS?

e.judson@exeter.ac.uk

[@TheEmilyJudson](#)

[@exeterepg](#)