

The Role of AI & Blockchain in Renewable Energy

EQ Renewable Energy Conference

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AXVECO

Sustainable innovation



Introduction: Alex Dowdalls



(AXVECO.com)

Transforming business in a digital world

- Data Driven Business, Ecosystems
- AI, Blockchain and business models
- Venturing, Innovation



Guest lecturer

- AI and Blockchain, Data Driven Transformation
- Innovation and venturing



Startup Coach

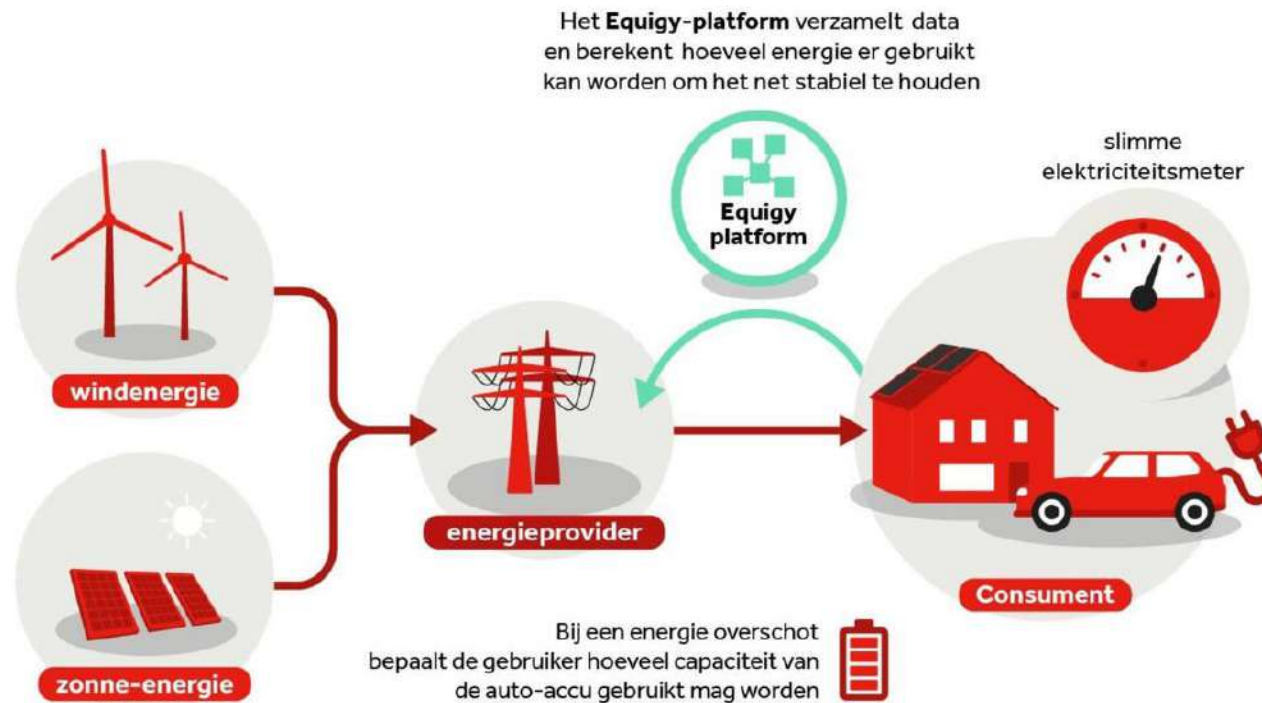
- Validation lab



- *Scottish, British, ~~European~~*
- *Three children and a dog*

- *Propeller head*
- *Redundant sailor*

Tennet enables smart energy micro-markets with blockchain for commercial administration

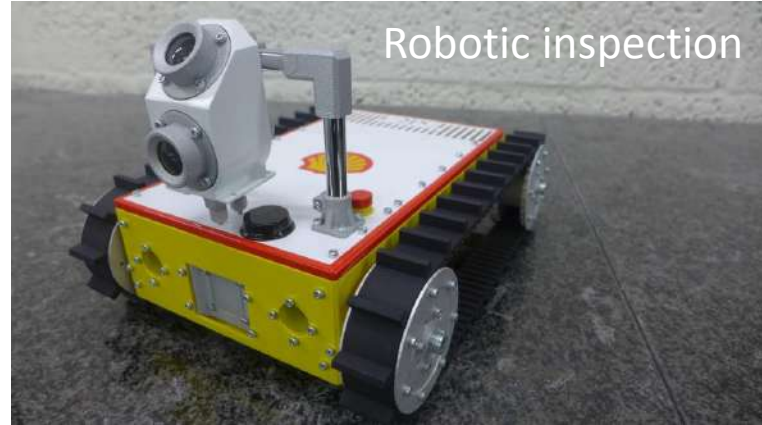


AI in Renewable Energy

Forecasting power



Robotic inspection



Smart Buildings



AI Driven Sales



Planning grid infrastructure is data driven

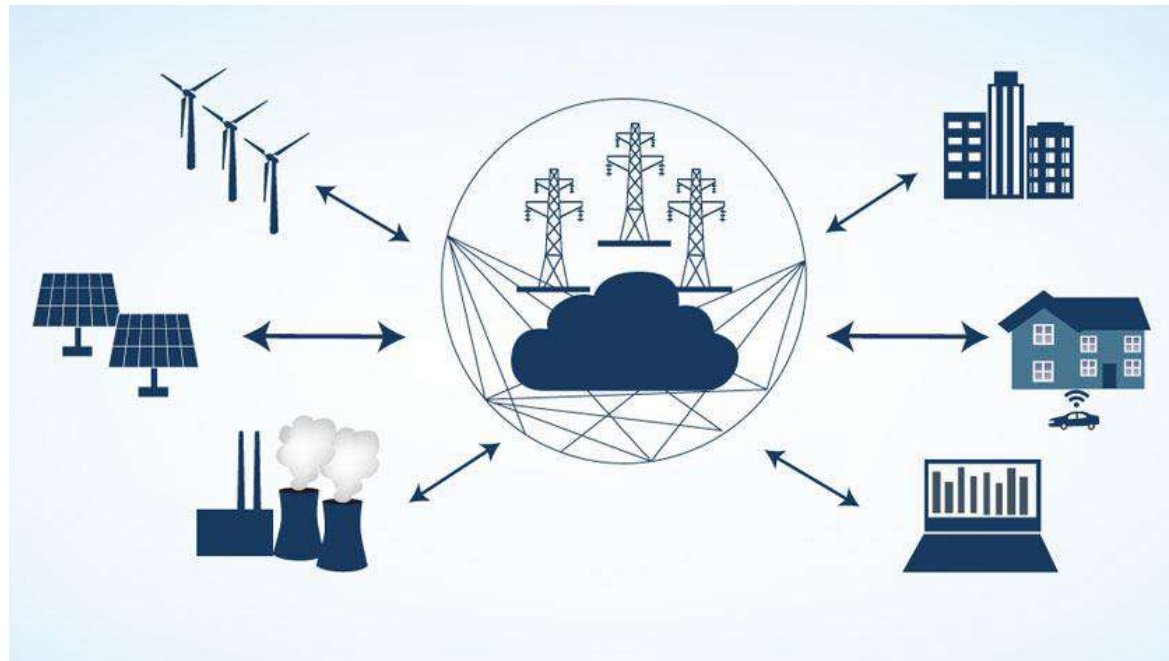
Variable supply

Variable demand

Public policy

Shift to
renewables

Legacy vs new
infrastructure



Smart Cities,
Smart Buildings

Electrification of
transport, heating
and power

Fluctuations
and Seasonality

Planning and Investment in supply
depends upon ability to forecast demand

We are at the beginning of a new revolution

1780-1840

Industrial Revolution



The steam engine mechanises production and revolutionises transport.

1870-1920

Technical Revolution



Electricity enables communication, urbanisation and mass production.

1940-2015

Digital Revolution



Rise of computing - Apollo mission results in microchips and automation of work.

Today

AI Revolution



Convergence of physical, digital and biological worlds, rise of platforms and shift in power.

Klaus Schwab on the Fourth Revolution



Klaus Schwab

Founder and
Executive Chairman,
World Economic
Forum

Three aspects make this revolution different:

1. Velocity:

Contrary to the previous industrial revolutions, this one is evolving at an exponential rather than linear pace.

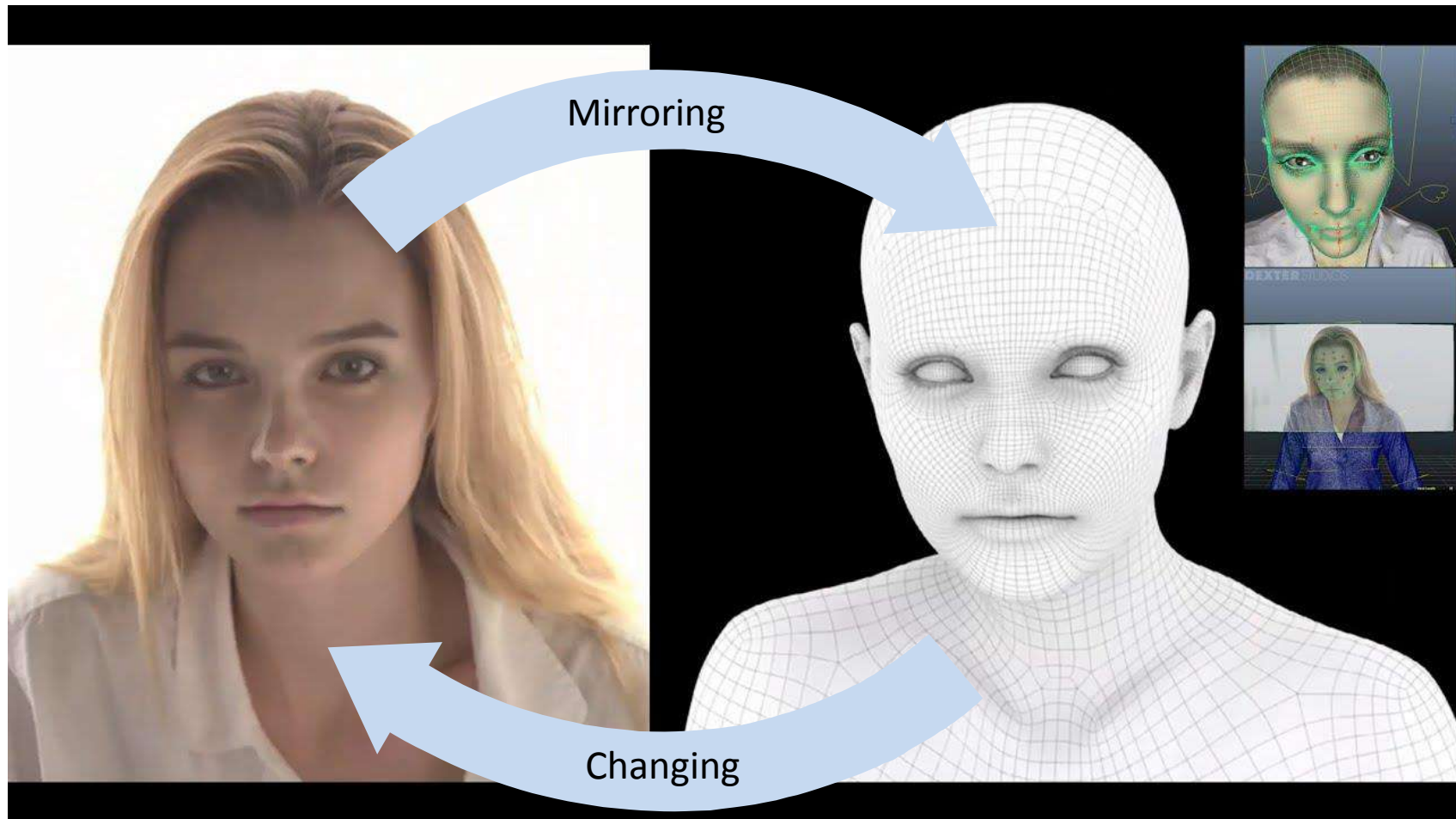
2. Breadth and depth:

It builds on the digital revolution and combines multiple technologies that are leading to unprecedented paradigm shifts in the economy, business, society, and individually. It is not only changing the “what” and the “how” of doing things but also “who” we are.

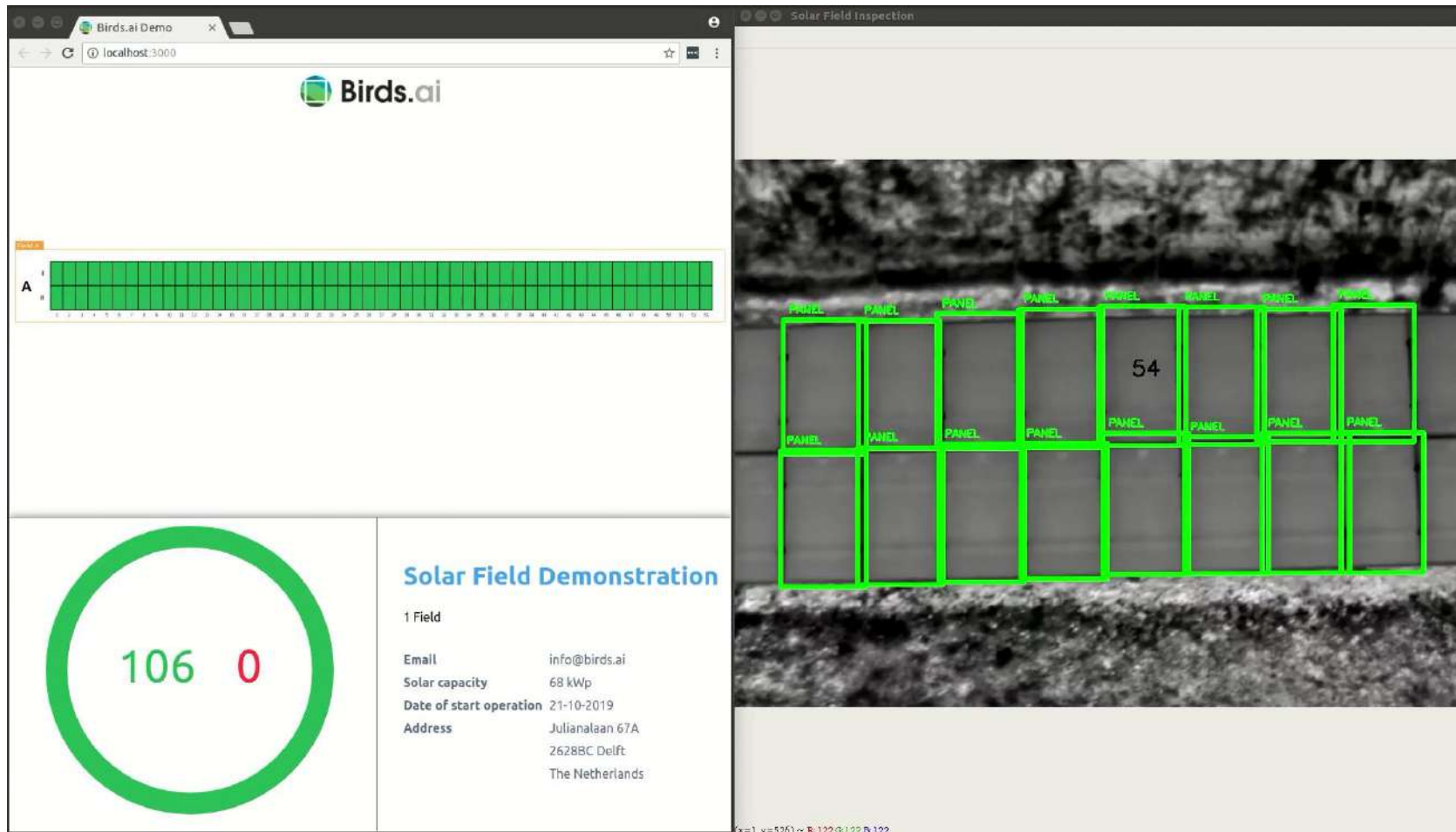
3. Systems Impact:

It involves the transformation of entire systems, across (and within) countries, companies, industries and society as a whole.

Our real world is mirrored in a digital world



Monitoring solar operations



Tokens enable us to manage assets in the real world using a “digital twin” in the digital world



FAIR Data - Rules

 **Findable**

 **Accessible**

 **Interoperable**

 **Reusable**

The goal of FAIR data is that **both people and machines** can use data more efficiently (**but mainly machines!**).

This can be data from different systems within or between organizations or even across industries.

The end result of going FAIR is, that data:

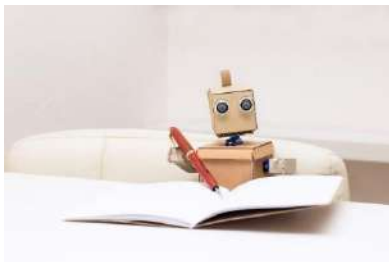
- can talk to each other
- is optimized for analytics and re-use
- increase the value of (implicit) knowledge

Encourage managers to identify relevant questions, the data to answer them and review trustworthiness of AI



Executive leaders

- Identify business questions and data that AI could address
- Review impact and trustworthiness of AI solution



Business Domain Managers

- Ensure understanding of environment
- Identify how to acquire data
- Sense check – does the model work?
- Is the question answered?



AI Team

- Define approach to building and assessing AI solution
- Build and assess model
- Analyse trustworthiness

Data and IT Managers

- Define approach to accessing, sharing and managing data
- Ensure data management in place throughout lifecycle

Three steps: Business Model > Data > AI

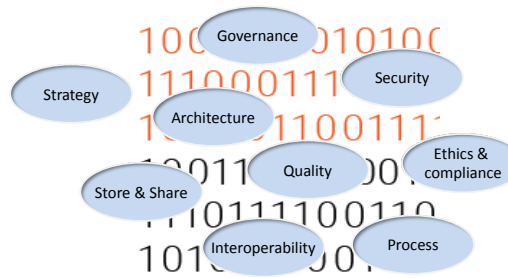
Step 1: Vision for a new Era



Re-vision the business model around data:

- External Environment
- Data driven principles
- Platform, ecosystem and community
- Role of data in business
- Position of technology
- Organisation implications
- Case for action

Step 2: Getting ready



Organise to become data driven:

- Organising to enable use of data and AI
- Identifying applications
- Developing skillsets
- Renew Data Strategy
- Governance
- Interoperability by design (FAIR/Linked Data)

Step 3: Leading with AI



Realise superior performance:

- Focus on business outcomes
- Capturing & leveraging data
- Building smart applications
- Creating human-machine teams
- Augmenting organisation capability with AI
- Create 'learning loop' with needs for new applications

Follow our Data Driven Business journey

AXVECO

[Who we are](#) [What we do](#) [How we do it](#) [Start here](#) [Publications](#) [Vacancies](#)

Transform to be a Data Driven Business in three steps

Prepare for success in the current shift towards data driven, platform and digital business models. Understand the Fourth Industrial Revolution in which data, analytics and smart propositions leveraging AI will be the norm. Our clear three step journey follows a progressive path to help you transform yourself and your business to succeed in a digital world:

1. Data Driven Business Foundation

This first step raises awareness of the data driven and platform business models, how to leverage data for business benefit and gives an overview of associated data management prerequisites. Plot your strategy for digital transformation!
This clarifies *why* it is essential to use data as a key resource in business.

2. FAIR Awareness including Linked Data Stewardship

The second step sets out how to acquire, manage and provision data for business benefit. This is a best practice guide to manage data and provide data stewardship using a range of techniques (as used by leaders such as Google) including FAIR data principles, FAIR Data Stewardship and the Linked Data approach.
This clarifies *how* to manage data as a key resource in business.

3. Organising to win with AI

Take the final step to learn how leaders such as Google and Tesla embed AI capabilities as a core competence across their organisation including Human – Machine collaboration models and continual (Human in loop) Machine Learning.
This clarifies *what* is needed to enable your organisation to use AI in a data driven or platform business model and transform performance to the levels seen by Unicorns and Big Tech leaders.



Data Driven Business I Foundation

Learn about the data driven business model and the fundamentally different approach towards data that this requires.

[See more...](#)



Data Driven Business II FAIR Awareness

Learn how data leaders manage data using FAIR with Linked Data. Includes FAIR Data Stewardship and implementation guidance

[See more...](#)



Data Driven Business III Organising to win with AI

Learn how to augment your organisation's capability through human - machine collaboration

[See more...](#)

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Two accredited learning paths help you start



Understand the basic elements of AI and become able to identify applications

- Webinars + eLearning
- 8-10 hours



Learn how algorithms work and how to build *and* assess simple AI models

- Webinars + eLearning
- 20-24 hours

FEEDBACK

- Any questions?
- Follow through with our set of blended learning paths at www.axveco.com

The AXVECO logo consists of the word "AXVECO" in a bold, sans-serif font. The letters "AX" are white, and "VECO" is gold, all set against a dark brown rectangular background.

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