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A CROSS SECTOR EVENT ON 8TH MARCH 2023

DATA MANAGEMENT
IN A DECARBONISED WORLD

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Discussion Documents   March 23

A cross sector event on 8th March 2023
Data management in a decarbonised world

A discussion dinner was held on the 8th of March, sponsored by Hitachi Vantara and attended by senior executives from multiple sectors such as education, healthcare, media retail, manufacturing and construction. The title of the event was 'Data management in a decarbonised world'. The speaker was Tom Christensen, Global Technology Advisor and Technology Analyst at Hitachi Vantara, and the session was moderated by Roger Camrass, Research Director of CIONET International.

Context for the discussion

During the introduction each delegate shared his or her specific interests in the topic. These included:

- How could organisations deliver better customer experience with less carbon emissions?
- How could manufacturers reduce carbon emissions through the entire product lifecycle?
- Does a move to public cloud from on-premise imply a greener solution for infrastructure?
- How do businesses measure and control their carbon footprints on the journey to net-zero?

Tom introduced the topic by describing how the recent data explosion was heading in the opposite direction to eco-savings. This presents a particular challenge for the CIO community. He shared his experience of Hitachi's global clients who are making extensive efforts to reduce the carbon footprint but failing to achieve aggressive targets such as net-zero by 2030.

In Tom's opinion, there are two main drivers for organizations to achieve their sustainability goals. The first is from the 'C' suite who are faced with a combination of investor pressure how to improving opportunity for business growth with a green profile and a tougher regulatory environment. From the middle and bottom of the organisation, managers are facing pressures from customers and suppliers to reduce carbon emissions. They also need to address workforce expectations when recruiting and retaining top talent.

Tom observed that from a Hitachi survey of senior executives, the most pragmatic way to deal with the problem is through tighter regulation. This can have an immediate effect of organisations, especially when large fines are imposed. Governments are convinced that organisations are not doing enough to tackle carbon emissions. The EU is introducing a new law that addresses eco-friendly products and digital services for 27 countries including UK.

The German government implemented a new supply chain law in January 2023 to prevent and address human rights and related environmental violations at their own and their direct suppliers. The fine can amount to up to 8 million euros or up to 2% of the annual global turnover.

The United States (US) Securities and Exchange Commission (SEC) is setting April 2023 as the release date of its final climate-related disclosure rule. Public companies would be required to provide disclosures about GHG emissions (with attestation for Scope 1 and Scope 2 disclosures), certain financial statement disclosures, and qualitative and governance disclosures within its registration statements and annual reports.

Is data at the heart of the problem?

Delegates acknowledged that developments such as OpenAI and ChatGPT have accelerated the amount of data being generated, processed and stored across the globe with 100,000 ChatGPT users coming on board since last November. AI workloads are now doubling every two months. At the same time, IoT and 5G encourage machine-to machine interactions consuming ever more network capacity and data storage. A media delegate highlighted the impact of streaming over the past decade as a further source of carbon emissions. Social media is also an alarming source of emissions. Tom mentioned that a six second video transmitted from an iPhone to Instagram is equivalent to boiling twenty two gallons of water.

Delegates from construction and manufacturing commented that we need to look carefully at the entire product lifecycle. Constructing a new building is energy intensive, both in labour and materials. However, buildings emit far more carbon emissions across their lifetimes. Data centres are an extreme example here. They consumer water and electricity at rates not seen in other commercial premises. One forecast predicts that data centres could consume 70% of the Irish national grid in ten years' time.

How can the IT community address the problem?

As we move towards a fully digital society, the current emissions from data centres, devices and communications networks are likely to double from their current level of 4% in this decade. It is likely that data processing will exceed transportation and manufacture by this time. Hitachi is a global organisation with several hundred businesses ranging from energy and transportation to manufacturing and technology. It recognises a unique opportunity to build a sustainable eco-system linking all its activities, with IT as a key enabler.

Delegates shared some examples of how they see the problem:

- NHS is adopting a 'retail' model for healthcare that might reduce the need for large hospitals and cut down the million visits to doctors each day
- A fashion retailer described the growing pressures from customers to provide green credentials around their products.
- The use of sensors and AI could help reduce traffic congestion and pollution in large cities as we move towards smart cities.

A common concern raised amongst all the delegates was the realisation that we have sufficient data to identify opportunities to reduce carbon emissions but we don't have the necessary tools or processes to act on such information.
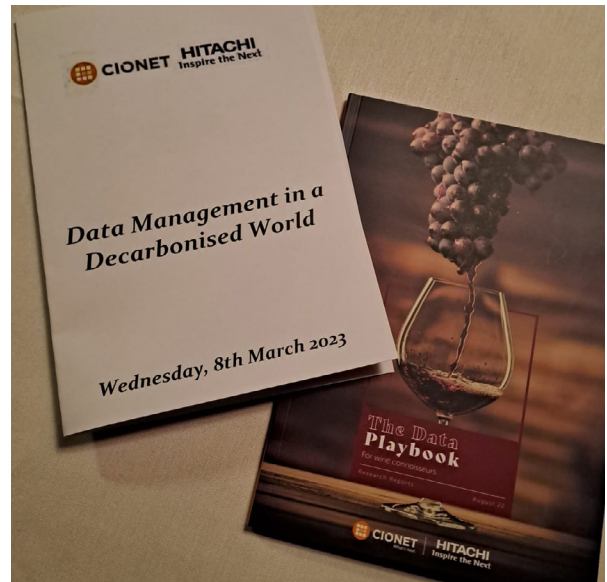
Taking a layered approach to tackle IT emissions

Tom pointed out that a three-layer approach is required to tackle carbon emissions associated with IT:

1. Optimise data capture and energy hungry AI-workloads to reduce processing and storage capacity. Possible energy savings here could amount to 50% of current levels.
2. Eco-friendly application; undertake applications development and management in an eco-friendly environment with appropriate tools and policies.
3. Migrate data centres to eco-friendly hardware, software, and energy sources. This can cut [60-90%](#) of carbon emissions over time.

It is argued that implementing energy-hungry AI workloads makes sense, but it should be used wisely, e.g., to reduce the number of visitors in the hospital sector to reduce fossil fuel and reduce road traffic.

Delegates acknowledged that migrating to the public cloud just throws the problem over the fence, but they are still accountable for the carbon emission. Procurement has a key role to play here in ensuring that vendors meet sustainability standards and reserve 20% of RFPs for this purpose. One concern is the growing concentration of processing and storage into no more than five to six companies such as Amazon, Microsoft and Google. This will require IT organisations to extract verifiable information on sustainability from their strategic partners and related internet communication.

What is next step to reduce emissions?

Delegates concluded that there were several urgent steps to tackle emissions.
These include:

*   Introduce better data management to monitor and control data capture, data processing, data quality, heavy data activity and data storage.
*   Review external factors such as energy supplies, near- and public cloud providers and vendor sustainability credentials to seek lower carbon emissions.
*   Take a holistic approach IT with eco-friendly hardware, software, and data management to look at all aspects of the data center.

For further information, please contact Tom Christensen

Roger Camrass
Researcher director

A pioneer of today's Internet as an ARPA research fellow at MIT in the seventies, Roger has spent over forty five years helping corporations harness the power of new technologies such as cloud, mobile communications, e-commerce, voice recognition and satellite. He was a partner at EY responsible for e-commerce during the dot.com boom. He is a graduate of Cambridge University and MIT, and a visiting professor at the University of Surrey.

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Tom Christensen
Global Technology Advisor & Technology Analyst, Hitachi Vantara

At Hitachi Vantara, Tom Christensen focuses on the information technology and services industry. He has more than 30 years of skilled experience in modernizing the data centre for infrastructure including computing and storage to Hybrid-Cloud and Multi-Cloud, Application Modernization, Solution Applications, DataOps and Big Data Analytics. Tom is also a blogger and advocate for Social Innovation.

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