

Please put translation after English sentence, otherwise I won't know what Japanese goes with what English.

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TITLE: Sustainable Value Chain Generative AI Toolkit

Most firms are aware that their climate change impact is mainly dictated by their supply chain.

However, more than half have not started measuring this category of scope 3 emissions. In turn, they are unable to provide accurate carbon metrics to *their* customers.

We need to break this vicious circle, and NTT is well placed to help solve this global problem.

Now, there are three methods for calculating supply chain emissions, and mature organisations are using them in combination.

- The best case is where data is provided directly by suppliers, but that's often unavailable
- We can substitute with supplier-level factors – for example using our C-Turtle platform, NTT can automatically gather corporate emissions data, declared through CDP
- Or we can fall back on a spend-based approach for different categories of purchased goods and services.

Fuzzy matching technology can tackle simple lookup problems that can arise in this process, like fixing supplier names which have been recorded inconsistently.

However, calculating emissions based on spend carries a greater challenge: that is, allocating goods into spend categories. And this needs a new approach.

Even asking human beings to analyse invoices line by line can be a challenge, because the quality of information on each invoice line can be poor.

However, at NTT DATA UK, we are using OpenAI on Azure to tackle this challenge.

While generative AI it isn't perfect at categorising data, we've found it can out-perform a human being, because of its embedded general knowledge.

How does it work? Well, we start by sub-setting the purchased goods and services categories that are relevant to the client.

In NTT DATA UK for example, we need 108 categories for our own supply chain.

Next, we pre-process the data, before asking a large language model to perform the categorisation.

The next step then is to work with the client on hotspot analysis – we ask for product data from those suppliers who represent the greatest carbon footprint in the supply chain.

But we want to go further than just helping clients with measurement, because we have to use that data to *actually* drive change.

And once again our generative AI expertise can help.

So we've done our hotspot analysis, let's think about how we manage suppliers to encourage emissions reduction.

This is a challenge for many Chief Sustainability Officers, me included. We're looking for a mixture of quantitative and qualitative information.

Suppliers provide this in a variety of different formats

My observation is that each organisation asks the questions in a slightly different way.

I know that because some of my time I spend with customers when we're bidding for new work.

There's a better way.

What if we simply judged suppliers based on the information they publish?

After all, transparency is a key principle of climate change regulation in jurisdictions world-wide.

But finding the information you want from what are called non-financial disclosure reports can be time consuming.

As a case in point, let's take NTT DATA EMEA's sustainability report.

It's as long as Homer's Odyssey, although this one contains more information about the Trojan War.

And that's partly my fault, because I contributed some of the content.

But Large Language Models have proven extremely successful at extracting the necessary information.

And that means supplier engagement programmes deliver rapid results.

Here you can see our application in action, finding the required data

As we've started working with financial services firms, we've realised that supplier engagement is only *one* use-case for this technology.

It's also required for scenarios like risk management and investment portfolio analysis.

So, we have powerful generative AI technology ready to be deployed for supplier measurement and engagement.

And since the supply chain is roughly 60% of emissions worldwide, there isn't a single initiative NTT could be involved with that would have a more powerful impact on climate change.

Of course, the environmental impact of large language models is greater than traditional digital solutions.

But with NTT's expertise in this area, we can for example optimise the number of times we need to use the model.

And in March, NTT releases tsuzumi, a Large Language Model that requires significantly less computational power.

Since I first started working in supply chain emissions, we've seen many welcome developments, and the technology we've described here will one day become commonplace.

However, the toolkit we've developed is technology that every large firm on the planet needs now.

Thank you for watching.