00:07

For decades now, we've been saying we should reduce our emissions, but they've kept increasing. One of the key reasons is we don't measure accurately the climate impact of our actions. Imagine trying to save money, but when you go shopping, there is no price tag on any item ... or trying to lose weight, but you cannot measure the portion sizes and the calories. You would be bound to fail.

00:37

This level of blindness is close to the one we have when it comes to our climate impact.

00:43

Measuring greenhouse gas emissions is hard. It has no color, it has no smell; it's invisible. We cannot put sensors everywhere, on every building, every track, every field, every cow -- so most of the time, we give up and we don't measure. And when we do measure, we are reduced to relying on estimations and conversion factors. The consequence is we end up working with highly incomplete and inaccurate estimations of our emissions. Often we have a margin of error of 30 to 60 percent. This means targets and action plans are set based on inaccurate data.

01:37

If we look at the corporations that report their progress on climate to the CDP, which is a nonprofit organization that runs a global disclosure system for environmental impacts, what we see is striking: more than two-thirds of the companies are not accurately measuring their emissions, and only seven percent of those companies are ultimately reducing their impact in some way. You cannot reduce what you cannot measure. It is key for corporations to be able to measure across all activities, all sources that drive carbon up or down. In a way, that's just putting the same rigor to carbon measurements that we have for financial accounting. It took more than 100 years to put modern, automated financial accounting in place. We don't have 100 years when it comes to climate. But this is crucial for corporations to set meaningful targets and successful action plans.

02:54

One of the most powerful tools we have to help us accelerate on this journey is artificial intelligence. Artificial intelligence can process data automatically from diverse, unstructured sources like invoices, consumer behavior data. It can work by modeling to better estimate the missing information. It can simulate and ultimately optimize emissions.

03:25

Let me share an example of how this could work. A wine and spirits international company: billions of sales, hundreds of brands, consumers across the globe. When they want to measure their impact, they need to measure across the entire set of their emissions. This means direct emissions from facilities, purchased electricity, raw materials, leased assets, IT emissions business travel, transportation, waste, product end of life, etcetera, etcetera. That's a huge amount of information to collect. And most of it is actually inaccessible to the company itself because it comes from outside its direct scope of activity. For example, from suppliers that are not yet able to calculate their emissions either. So when the sustainability team calculates their impact, they have no choice but to do rough estimates.

04:27

Let's examine the glass for bottles. The way they calculate glass emissions is the following. They take the total amount of glass bought last year -- let's say 1,000 tons. They multiply it by a conversion factor, which represents the average kilos of CO2 equivalent for one ton of glass -- let's say 950. 950 x 1000 makes 950,000. Of course this is hugely inaccurate because it does not take into account all the numerous factors that impact actual emissions, so it's hard to set targets and action plans. This is where the sustainability team calls data scientists to come in and process detailed data about the type of glass, the color of the glass, the recycling share, the supplier country of origin, the transportation mode, by brand, by product. They can simulate the design and the supply chain and integrate in the calculation the importance of the glass color -- 1.5 times more emissions for a clear bottle versus a green bottle; the importance of the country of origin -- twice the amount of emissions for one country versus another one, depending on the energy mix; the importance of the design itself -- for the same total weight, 1.5 times more emissions for one design versus another one. Instead of having one big, average number, you now have a model which correlates and calculates emissions at a granular level.

06:14

With this type of methodology, the emissions figure is typically corrected by 30 to 50 percent. And more importantly, the company can now move to action as they can, one, set meaningful targets, two, identify very concrete initiatives, and three, recalculate emissions over time and measure their progress.

06:40

Let me share another example: cement. Cement is a massive CO2 emitter. If cement were a country, it would rank as the third-largest emitter, right after China and the US, in front of the European Union and India. Most of the emissions come from the process of producing clinker, the key ingredient in cement. To produce clinker, you need to maintain a temperature of over

1,400 degrees Celsius. It requires a lot of fuel, and it's really just carbon containing the whole materials. So the secret sauce is to produce cleaner and higher quality clinker, because the higher the quality of the clinker, the less of it you will need to produce cement ultimately, and therefore the less emissions you will generate. But producing high-quality clinker is a complex science. It depends on multiple factors that influence each other. For example, the process parameters, like the rotation speed of the machine, how quickly you fill it, the type of fuel you use, the raw materials and their exact chemical composition. This is where artificial intelligence can again have an enormous impact. On-site operational teams are trying to manually maintain the best set of parameters possible. AI can help by measuring better through different sources, like direct measurements, material and mass balance, etcetera ... simulate all the potential decisions and recommend the optimal ones to the operators. These techniques implemented in a cement production process enable a substantial emissions reduction in a matter of months.

08:36

There is an infinity of applications possible. There is no company, no industry that cannot derive significant climate impact from the use of artificial intelligence. I'm not saying artificial intelligence alone will save us. But artificial intelligence, by helping us measure accurately, simulate and optimize, enables significant emissions reduction in a quite fast, cheap and easy way. We cannot miss this opportunity.

09:16

Thank you.