

Nanosensor and Digital Twin Technologies Come Together at COP26 to Help Deliver a Circular Economy as Part of The Race to Zero

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Deploying billions of highly accurate and secure nanosensors interconnected to a global Digital Twin network can enable real-time monitorisation of emissions within urban and agricultural environments.

Nanosensors and Digital Twins are forecast to be pivotal to discussions between international nations and bodies at COP26 in Glasgow, the [UK](#), from October 31st until November 12th and predicted to have a significant impact on the future of carbon tracking.

This technology collaboration will enable global organisations to reward organisations and people globally for tracking and managing emissions to reverse Climate Change while holding to account countries and industries that don't.

Sensors can be positioned in every urban and rural space, including major rainforests and polluting cities, allowing global carbon emission tracking with unprecedented real-time accuracy.

Digital Twin technology will calculate the carbon emission data gathered by nanosensors, providing a globally sharable, highly accurate representation of how countries, companies, households, and individuals manage emissions in a way that supports the creation of a circular economy - a key sustainability strategy for the world as well as industry leaders to fight climate change.

This particular model for a circular economy is still evolving in terms of data and metrics, but indicators suggest this approach and enabling technologies such as Nanotechnology, and Digital Twins are vital to holding people to account while rewarding industry, governments, and the public for their work in driving down carbon emissions to net-zero.

Former Brazilian ambassador, diplomat and Harvard scholar, Arnildo Schildt, has been

developing a project based on this new model and will be presenting this at the COP26 summit in Glasgow, [UK](#) (October 31st to November 12th) – an event being billed as a catalyst for action and tech adoption in the Climate Change battle.

This project will use nanosensors to track deforestation and pollution to help accurately manage carbon credits and offsets, enabling the reduction of emissions and highly accurate tracking of data on deforestation.

Schildt said: "We have been working tirelessly now for two years developing a model with governments, the UN, international banks, academics and industry partners as well as investors to harness the power of Digital Twin and nanosensor technology to solve two massive challenges for our environment simultaneously.

"We have a delegation going to COP26 and will follow this with other partnership meetings in the [UK](#), [Canada](#) and the US straight after the Glasgow event to make this a reality.

Schildt's initiative in vital rural areas mirrors the urban and agricultural work conducted by US-based Cityzenith, which uses Digital Twin technology to decarbonise the built environment, tracking, managing, and reducing emissions in buildings across metropolitan areas and major international cities as well as linking this to carbon rewards, credits, and other global incentive programs for sustainability.

[Cityzenith](#) was referenced by an independent global research group report from ABI research on the 28th of October, naming the company one of three, including The Ellen MacArthur Foundation and Vodafone, that can deliver the infrastructure required for a functional circular economy.

Currently, cities generate 70% of world emissions. Cityzenith's international Clean Cities – Clean Future initiative has major world cities joining the program, using its Digital Twin platform SmartWorldOS to reduce carbon emissions in buildings by 50-100%, operating costs by 35% and increase productivity by 20%, another independent report by Ernst and Young report on Digital Twins aligns with this.

Las Vegas and New York were the first two cities to sign up, with projects in Phoenix and others expected to follow over the next few months.

Cityzenith CEO Michael Jansen said: "We are confident that the Clean Cities – Clean Future initiative will demonstrate the combined power of Digital Twin and IoT technology to transform mobility, walkability, and emissions/air pollution, while linking all of this to carbon rewards and other carbon related incentives via one interconnected Digital Twin platform.

"And COP26 can play a huge role in bringing the climate crisis into the public spotlight, by acknowledging and backing technologies such as Digital Twins and nanotechnology to make a difference in the fight to protect the planet."

The [UK](#) will also bring a national Digital Twin program to the summit through Anglian Water, BT, and [UK](#) Power Networks, which have partnered to foster better outcomes for the built environment.

The project aims to deliver an Information Management Framework which can ensure secure, resilient data sharing and effective information management. At the same time, the program identifies a range of benefits to society, business, the environment, and the broader economy.

Co-Founder of the World Nano Foundation, Paul Sheedy, said:

"Nanotechnologies such as nanosensors and quantum dots can track and monitor anything, holding and transmitting infinite amounts of secure data around the world.

"Combining nanotechnology with advanced Digital Twin platforms is game-changing for the UN's Sustainable Development Goals and ESG investors that support such impact investing."

Nanotechnology and Digital Twins were both named in 2021 as the top 5 tech growth sectors forecast to quadruple over the next five years; each sector is predicted to enjoy a combined growth of more than 400% in that time.

Read the [original article](#) on Nano Magazine.