

**UNITED NATIONS COMMISSION ON SCIENCE AND TECHNOLOGY  
FOR DEVELOPMENT (CSTD), twenty-fourth session  
Geneva, 17-21 May 2021**

**Harnessing blockchain for sustainable development:  
prospects and challenges**

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## *Harnessing block-chain for sustainable development: prospects and challenges*

Ministers, Mr. Gonzales Sanz, Ladies and Gentlemen,

**blockchain technology and its applications provides advantages that allows to create trusted, transparent and independent digital ecosystems.**

**Currently one of the most mature applications of this technology is in the fintech industry.** Without it, the existence of such **cryptocurrencies as Bitcoin, Ethereum, Litecoin**, and many others would not be possible.

However, the use of blockchain technology is **not limited to the use of cryptocurrencies.**

Blockchain technology **can be implemented in a number of activities where it is essential to ensure trust among independent or even competing members. Blockchain can be an effective solution to optimize also government regulatory and controlling functions by partnering with industries on setting up sector specific blockchain applications rather than building centralized government systems.**

**To mention few examples from Latvia:** apart from fintech industry, as government we see potential in use of Block-chain to move from traditionally centralised state systems to solutions provided by market participants, one of such examples is eCMR system. eCMR is electronic document necessary when transporting goods by road. Instead of building national central database it would be more efficient to build it as decentralize database managed by private sector participants thus providing higher level of transparency and trust among participants.

Similar concept can increase trust in origin of food products. All supply chain processes can be documented in blockchain thus providing trusted end to end – from field to table information on food products origin, their production, processing methods and conditions, that is especially essential for bio products, and others.

Another promising application of blockchain is next level automation possibilities by implementing smart contracts, for example by automatically registering ownership of immovable property as payment transaction has been successfully processed, etc.

I believe we all have promising examples of potential value of blockchain applications. But today our focus is to look beyond that – to take a look from perspective of sustainability.

**Digital technologies, including blockchain can facilitate green transition** in two ways:

- a) **by smart application of digital technologies** to the sectors that have a greatest impact on climate and environment - contributing to the environmental sustainability, better energy and resource efficiency and facilitating circular economy.
- b) **by facilitating development and use** of clean and sustainable ICT technologies.

**Due to time limitations in context of blockchain discussion, I would like to focus on second aspect - development and use** of clean and sustainable ICT technologies.

ICT technologies are consuming 5-9% of global energy resources and are responsible for 2% of greenhouse gases.

**On one hand technologies have a potential to reduce emissions 7 times more than produce, on the other hand, there are technologies which are not sustainable and climate friendly.**

A crucial question being raised more and more often is how to operate blockchain based solutions in a sustainable way.

As an example - mining of Bitcoin, in 2017 consumed 9.6 terawatt-hours, as in 2021 annual electricity consumption is estimated at around already 89 terawatt-hours. This generates between 22 and 22.9 million metric tons of carbon dioxide emissions a year.<sup>1</sup>

This undesired effect has resulted also in strategies of known hi-tech companies to adjust their strategies regarding investments and support in these energy consuming applications.

**Thus, we call to think and act globally to shift unsustainable technologies or their application practices towards cleaner to reduce technological carbon footprint.**

**In our perspective we have to act in two directions:**

- 1) **by working on climate friendly information systems** that are smart to consume energy only when in active mode, reducing energy consumption when in idle mode.
- 2) **By investing in next generation energy efficient technologies**, such as microchips and edge computing

**Let me mention few initial steps Latvia has made to contribute on the green and sustainable digital transformation:**

1. For long time **Latvia is widely using green ICT procurement** for government ICT purchases
2. Now we are setting up a National federated cloud program and are **migrating government systems from traditional architecture to microservices based architecture** that lowers energy consumption generated by information systems and their environmental footprint.
3. And also, on industry side **we are supporting European Union initiatives on development of infrastructures and components have a substantial potential to make digital technologies greener, in particular by supporting development of beyond state of art microchip and edge computing technologies.**

In 2016 ambitions Parise Climate Agreement was set, where we commonly agreed to **reduce Greenhouse Gas emissions. Shift unsustainable technologies practices is on of aspects to reach our agreed ambitions. And if there is a market gap to invest in green ICT, it's our duty as government to act!**

Thank you.

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<sup>1</sup> <https://www.nbcnews.com/tech/tech-news/big-bitcoins-carbon-footprint-rcna920>