





- Veolia is world leader in operating environmental services worldwide w/ turnover of about 40 Md€.
- As mainly an O&M player for cities or industrial customers, Veolia operates infrastructure more than is finances, builds or design them.
- Veolia uses tools. Its business is mainly is people intensive, contractualized locally, it serves all public, all water users with no distinction.
- Far from a platform thing, It develops centralized infrastructure solutions for its digital need and seeks cost savings, reliability, flexibility.

One can see blockchain technology as :

- slow and reliable
- looking like and energy monster
- distributed, local
- without undisputed use case as so many of them can be solved with more traditional technologies.
- with a global questionnable image, not mainstream

Even then :

- enabling transparency and trust
- backbone for circular economy
- fat protocol with value vs. http/thin protocol and value to the platforms

Disruptive in principle, to be tested, disruption potential has still to prove its case (adoption, maturity).





What we see as uses cases that have indeed emerged within Veolia (without techno-pushing or a top down masterplan of any kind) :

- It has value and it is used to **improve some procurement/maintenance streams** in France or in China. The simple fact that on mentions a blockchain implementation in order to bring transparency brings value already.
- It has value in contractual circumstances when a **formal proof of authenticity of one document** produced by Veolia is better obtained through a third party neutral digital anchoring.

Some business one are tested these days :

- Some new business lines (limited) are currently tested in IOT incorporating secured blockchain elements : water quality sensitive surveillance, tokenisation of production of methane/electricity

With great prudence on coin/tokenisation/money/smart contracts values

- Some contracts, some reference documents. Following up : smart contracts are extensivily tested (Solidity) to embed some sensitive contractual clauses (margin split for instance) with no great





CAPTR

birdz

Ledger and Veolia through its subsidiary Birdz decided to work on the integration of secured component in a Kapta Veolia sensor monitoring water quality.

Birdz and Ledger are making progress in capturing, decoding and publishing sensor data onto a blockchain.

Birdz, Ledger and IOTA are having a joint effort and put their knowledge together to have secured sensor data available that means can be activated on the IOTA 'Tangle'.

For Veolia, this cooperation leads to the design and the build of a new generation of blockchain and hardware secured sensor.

Because within Veolia's operation, data collection and IOT management implies installation of computing capabilities on the field hence edge computing, it is envisioned that this computing capabilities can be leveraged as a mesh of blockchain nodes. It is business vision.

Ledger birdz









- Nova Veolia
 - > Supports new technologies introduction within Veolia's businesses and into Nova company' affiliates
 - > Acts as a sponsor for blockchain technology and committed to demonstrate concrete positive impacts of the technology
- Neroxis
 - ➤ Kapta device "blockchain ready"
 - > Ensuring trustworthy in remote collected information
- Ledger
 - End to end security between the Kapta device and the IOTA blockchain based on an open source operating system running on top of a certified EAL5+ secure element, ensuring best in class security
- Birdz
 - > Data analysis and enrichment
 - Creating a bridge between IoT solutions and blockchains
- IOTA
 - ➢ Sharing IOT data in the IOTA Tangle
 - Exploring new ideas through a Virtual Hackathon we're looking at Smart Energy solutions within a Smart Cities context, specifically on how we can trace the green origin of electricity from source to delivery and its consumption from consumer to producer (eg, Peer-to-peer networks; distributed energy exchange and trading networks; energy metering standardization and compliance; energy demand balancing, etc.)



