"CLIMATE BLOCKCHAIN"

Tommi A. Vuorenmaa, PhD, CEO Aekraes Kodex (aekraes.com) May 16, 2018

DISTRIBUTED LEDGER DATABASE



Shared top-layer data ownership

"Unsilo"



CONFIGURABILITY



Algorithmic surveillance

Tokenized incentives and reputation

Integrated intelligent systems

AUTONOMY



Self-governing ecosystems

Shared economy principles

Grassroots democracy

CENTRALIZATION RISKS

<u>Hypothesis (Rule of Three and Four):</u> "A stable competitive market never has more than three significant competitors, the largest of which has no more than four times the market share of the smallest." (Bruce Henderson, 1976)

Example (Market Capitalization of the Top3 cryptos on May 9th, 2018): (1) Bitcoin \$158B; (2) Ethereum \$74B; (3) Ripple \$31B



DATA QUALITY (1/3)

Asynchronous observations

Accurate time-stamping

TRANSPARENCY (2/3)

Wide information dissemination

Easily verifiable processes

TRUST (3/3)

Immutable data

>> Increased "market efficiency" (EMH >> no information asymmetry)

WHEN DOES BLOCKCHAIN WORK?



A world map of the 2015 Corruption Perceptions Index by Transparency International which measures *"the degree to which corruption is perceived to exist among public officials and politicians".* -Wikimedia

SMARTPHONE USERS

China India United States Brazil **Russian Federation** Japan Germany Indonesia Mexico United Kingdom

1,388,233,000 51.7% 717,310,000 1,342,513,000 22.4% 300,124,000 326,474,000 69.3% 226,289,000 211,243,000 37.7% 79,578,000 143,375,000 54.7% 78,364,000 126,045,000 50.1% 63,089,000 80,636,000 68.8% 55,492,000 263,510,000 20.7% 54,494,000 130,223,000 40.7% **52,993,000** 65,511,000 68.6% **44,953,000**

CLIMATE DATA MANAGEMENT "Long-term, high-quality and reliable climate instrumental time series are key information required in undertaking robust and consistent assessments in order to better understand, detect, predict and respond to global climate variability and change." (World Met. Org.)

http://www.wmo.int/pages/prog/wcp/ wcdmp/CDM_3.php

BENEFIT AREAS

Climate monitoring and risk mngmnt

Climate studies and predictions

Calibration of satellite data

"The use of climate data is becoming more sophisticated, meaning that more data are required more frequently and rapidly and often combined with other environmental data to inform decisions..." (Martin et al. 2015, Meteorol. Appl. 22)

> https://rmets.onlinelibrary.wiley.com/doi/ epdf/10.1002/met.1461

"This creates added complications in that nearreal time high frequency observations are only feasible <u>using automatic electronic instru-</u> <u>mentation..." (Ibid.)</u>

"National meteorological services ... have particular challenges owing to their small operational budgets, such as difficulty in maintaining suitable expertise, the large quantity of data that still remain only on paper records, and the requirement that data management solutions be low cost and sustainable." (Ibid.)

"Over the years, many computer backup files were damaged through disk crashes, PC failures and so on, and the loss of historical electronic data was notable in countries around the world... Without such efforts, the electronic data would have been lost permanently." (Ibid.)

Links

"Blockchain ClimateCup Round Table" (https://www.cigionline.org/ sites/default/files/documents/2017_Toronto_ClimateCupWEBfinal1.pdf)

"What Blockchain Means for the Sharing Economy" https://hbr.org/ 2017/03/what-blockchain-means-for-the-sharing-economy

"UN Supports Blockchain Technology for Climate Action" (https://unfccc.int/news/un-supports-blockchain-technology-for-climateaction)



info@aekraes.com

aekraes.wordpress.com



ROCK (RG)

SCISSORS (CC)

PAPER (CB)

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