



TRUSTLESS.AI



Summary

Vers. 1.28 (1/20/2018)

**An Ultra-Secure Parallel Computing Universe.
For All. Seamlessly. Anywhere.**

Contacts:

Rufo Guerreschi, CEO.
rufo@trustless.ai

Incorporation:

Luxembourg, EU.
Delaware, USA.

Locations:

Luxembourg - Rome - Berlin -
Menlo Park - Bangalore - Denver

Stage:

Prototyping. Pilot deals
being discussed.

Legal Counsels:

George Frost (US), Laurent
Schummer (Luxembourg).

Funding to date:

Bootstrapping by founders:
\$140K cash, \$300K sweat.

Elevator Pitch

At TRUSTLESS.AI, we are building an open hardware and software computing platform and device, **CivicNet** and **CivicPod**, that will measurably deliver **radically-unprecedented levels of confidentiality and integrity** for the most critical **communications, negotiations, e-banking and cryptocurrency transactions** of high profile persons and enterprises; while concurrently enabling offline legitimate and constitutional cyber-investigations. Through a **unique form factor** and minimal features, we enable a seamless user experience that is 2-3 times faster than smartphones.

Members of our the **Trustless Computing Association** will earn and spend our native SAGO coins and conventional means of payment, to participate in CivicNet community whereby they can (A) *consume* cybersecurity by using CivicPods, independent **2mm-thin touch-screen WiFi computing devices** that are attachable to the back of any smartphone via a case, or inserted into a dedicated leather wallet, and/or (B) *produce* cybersecurity by running **ultra-secure blockchain and anonymization network nodes** on their **CivicDocks** docking stations, or by *proposing* technical or organizational security improvements, core software upgrades, apps and decentralized apps (dApps), voting and participating in the governance.

We achieve such security levels by merging **uniquely uncompromising endpoint security paradigms** and custom semi-permissioned blockchain based on **best-of-breed industry-proven blockchain technologies**, the **CivicChain**. We uniquely remove all unverified upfront trust - all the way down to CPU, hosting management, chip fabrication oversight, and standards-setting governance - and therefore essentially reducing cybersecurity to a cyber-social governance problem.

An extremely user-accountable, citizens-accountable, expert and decentralized Trustless Computing **Association**, and its **Certification Body**, will ensure extreme and ethical **security-review relative to the complexity** of all critical lifecycle and supply chain components, all the way down to the CPU, fabrication oversight, and especially the standards and certifications governance where, ultimately, the “buck stops”.

CivicChain will be made of thousands of TC-compliant **CivicNodes** inside CivicDocks, made of CivicPod chip and OS running industry-validated blockchain middleware based on Tendermint - to deliver to enterprises and governments levels of integrity and confidentiality of data - and resiliency of **AML/KYC** - that are substantially higher than other leading and emerging blockchains. While CivicNet can only be accessed by members via CivicPods or other TC-compliant devices - to retain an ultra-high baseline of security - CivicChain can be accessed by any paying user via any client device, even by non-members.

The technical security of CivicNet and CivicChain will ultimately wholly rely on the intrinsic resilience of the **cyber-social** governance of the Certification Body, whose **governance and statutory dynamic constituent dynamics will be conceived to maximize technical proficiency, user accountability, and altruistic concern**. We re-conceptualize cybersecurity has the byproduct of critically involved cyber-social governance and consensus processes.

Problem & Market

Confidentiality and integrity of *lawful* communications and transactions is a problem for all, but it is a crucial one for high-profile individuals and organizations. Their attempts to mitigate the resulting **espionage by competitors, financial fraud, or blackmail** are not only largely unsuccessful but often result in additional costs in form of unwanted travel, self-censorship and missed opportunities.

Even though the **cybersecurity market** has grown 30 times in the last 10 years to **\$120 billions**, the cost of **cybercrime** keeps growing and is expected to accrued to **\$8 trillion between 2017 and 2022**, with an average of **\$17 million per year for an enterprise**.

Cryptocurrency thefts and “Cyberlocker” losses amount to tens of billions, are very often underreported by victims involving individuals, and represent a rapidly escalating security concern as total market capitalization has been ranging between **\$500-800 billion** over the last month.

Current best attempts to tackle this problem correctly rely on open implementations of time-proven cryptographic protocols, such as **end-to-end encryption** and **blockchains**. But these have failed to date to deliver on their promise because, the former, **relies on radically untrustworthy endpoints**, and the latter, relies on **inadequate human governance systems** for its upgrades, which incentivizes centralization of unaccountable power, “gaming” and unacceptable security vulnerabilities.

Mission

We are on our way to restore and improve upon the pre-Internet balance between the **public sphere** of streets and squares, and the **private sphere** of businesses, homes and spaces for private assembly, that was crucial to sustain democracy, freedom of speech and freedom of thought in our democratic societies, while still enabling targeted, constitutional and legitimate lawful access. In the long run, we aim to become the standard *root-of-trust* for security-critical AI systems.

Secret Sauce

We’ll achieve previously unimagined levels of security by applying the following to critical endpoints and nodes, and to our blockchains components:

- **Reconceptualizing cybersecurity as a *cyber-social* problem**, ultimately reliant on the governance of critically-involved organizations.
- **Uncompromisingly applying security-by-design** endpoint paradigms and the best blockchain security paradigms.
- **Ensuring consistently extreme public inspection of all critical components** and life-cycle processes in relation to complexity, from high-level software stack down to the CPU and fabrication oversight.
- Aggregating a global community of **unique and globally-rare providers of open high-assurance technologies along the entire supply chain**, as well as worldwide experts, public and private pilot clients.

CivicNet is a secure communications platform, but also represents a system of *continuous democracy* combining the vested, delegated Proof-of-Stake technology and incentive model with the deliberated and direct election of the Certification body, via CivicPods, on the basis of a strict “one active user, one vote” principle. Uniquely accountable and experts incentive model and governance structures makes CivicNet and Certification Body highly resilient to technological or managerial influence or outside control from nation states or banking/business syndicates.

“Our Kryptus SCuP architecture - the only secure CPU in the World publicly verifiable in HW and SW design, according to the former Head of Information Superiority of European Defence Agency - is immune from such kind of vulnerabilities “as the underlying core does not employ speculative execution”. But we go way beyond, implementing fabrication oversight processes that are well in excess in user trustworthiness than even NSA Trusted Foundry Program processes.” Roberto Gallo, Endpoint Security Lead at Trustless.AI

Solution

The full range of CivicNet and CivicChain services will be available to members leasing or owning a **CivicPod**, a **standalone 2mm-thin Wifi-enabled touch-screen handheld device** that is designed, fabricated, programmed, and tested according to Trustless Computing standards.

Through the CivicDock, users will be able to connect the CivicPod to the desktop screens via micro-HDMI for long-form text editing. Several add-on accessories like a leather case and a foldable keyboard will also be available. The CivicPod gives access to a basic features yet **with radically unprecedented levels of confidentiality and security and** a minimal ultra-fast UI/UX:

- **Text messaging** between CivicPods
- **Text co-editing and commenting** between CivicPods
- **E-banking client interface**, through affiliated banking and financial networks.
- **Cryptocurrency** transaction and storage
- **Access to dApps on public blockchains and CivicChain.** CivicDapps are TCA-compliant smart-contracts, accessible only on CivicChain, advanced functionalities can be implemented here far cheaper and faster than on a virtual machine
- **Access to apps** on the CivicStore, including: password manager, journal, notes, one-time password generator, multiple personas, and basic enterprise device management.

CivicChain is also available to users of any ordinary client devices.

Business and Tokenization Model

CivicNet and CivicChain services and devices will be sold or leased directly - and via **partnering financial institutions** - to enterprises and individuals. Initially at high price to establish it as a premium product, and the at lower prices by leveraging our extremely low long term royalty costs. Revenues will be generated by CivicNet through a *Platform-as-a-Service (PaaS)* model, and by the CivicChain, available to both CivicPod and other client devices, through (a) an *Infrastructure-as-a-Service (IaaS)* model, exclusively open to TC-compliant devices, and (b) a *blockchain-as-a-service* model, to enterprises wishing to run a small-scale permissioned

blockchain network composed of custom CivicPods and CivicNodes. Constant enhancement of the security levels of CivicNet requires an ecosystem of actors aligned with **a scalable, sophisticated and low-friction set of economic and social incentives**, that will be provided by our SAGO Coins.

CivicNet: Platform-as-a-Service

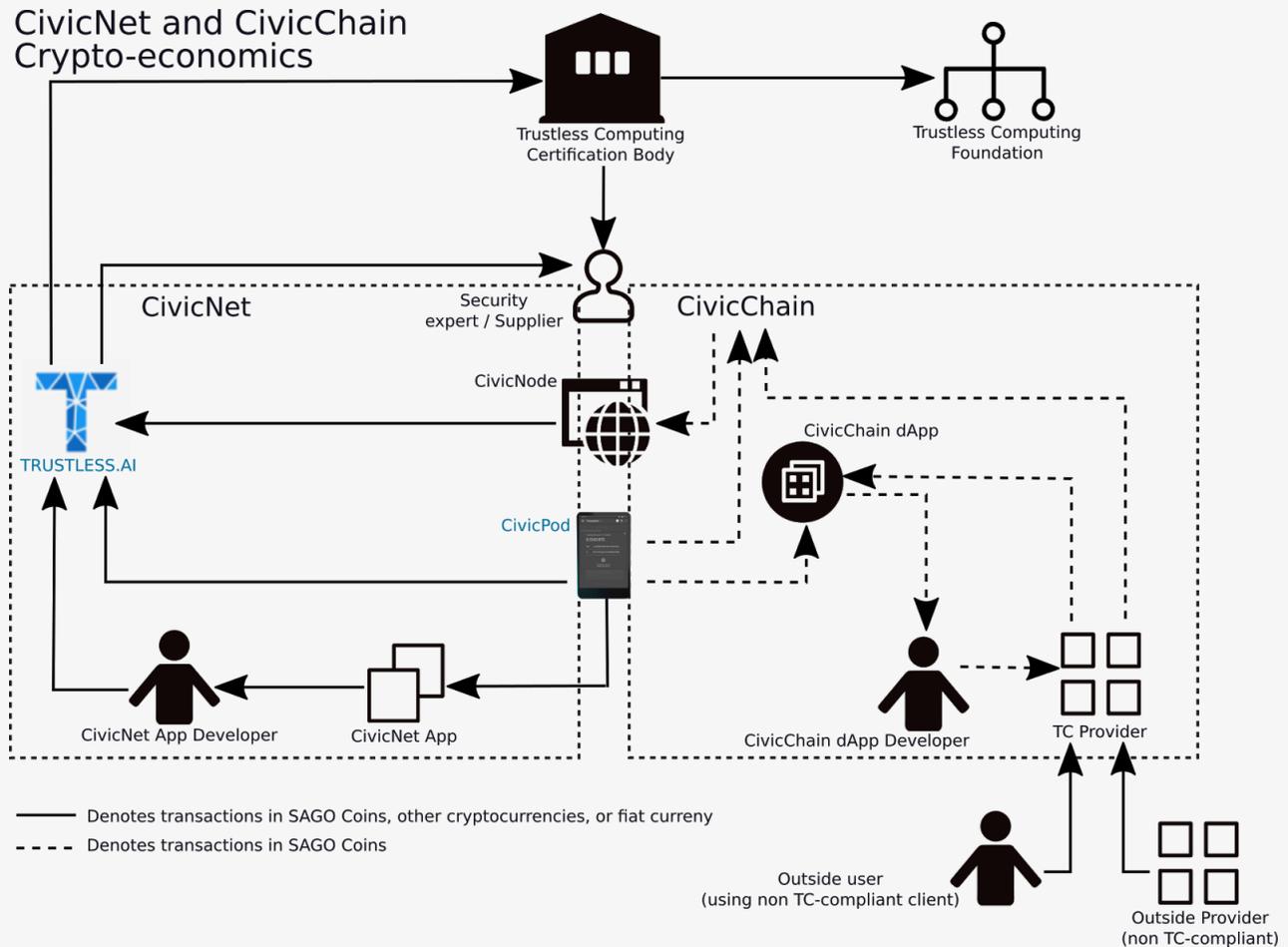
CivicNet services will be offered as PaaS to high-profile individuals and enterprises directly and through **partnering global financial institutions**, and can be accessed using CivicPods. Customers will lease (or buy) CivicPods which will, by default, also embed hardware cryptocurrency wallet and SPV node functionality for the Bitcoin, Ethereum and CivicChain networks, with cross-chain swaps, side-chains, and exchange links to many other crypto-asset classes. Users can then subscribe and access CivicNet platform ultra-secure communications and transactions services, and as well as vetted third-party applications from the CivicStore.

CivicChain: Semi-permissioned blockchain network

CivicChain will be a semi-permissioned¹ blockchain based on a *delegated proof-of-stake* (DPoS) blockchain consensus and transaction system, based on an implementation of the Byzantine Fault Tolerant Consensus protocol from the Tendermint team, linked with a Merkle-tree database storage to form a custom, purpose-built blockchain with superior performance and scalability characteristics including blocks as fast as 1s, able to achieve 20.000+ transactions per second. The most exciting and powerful feature of CivicChain, however, is the decentralised and democratic human governance via the TCA and Trustless Computing Certification Body. To ensure` extreme levels of client endpoint security, only Trustless Computing (TC) compliant devices will be able to connect to CivicChain. CivicChain will cater to enterprises, public sector institutions, and individuals who want to use secure blockchain infrastructure with predictable and user-accountable governance. CivicChain will feature its native **Sago Coins** (or "**SAGOs**"), protocol tokens that will act as the unit of account in the Trustless Computing ecosystem and constitute the 'fuel' for CivicChain. A fixed number of SAGOs will be distributed during a token sale, and a fixed number will be newly issued (with decreasing supply) as part of the block reward to incentivize CivicNodes to mine CivicChain. SAGOs will be required to access CivicChain and to use dApps running on CivicChain. SAGOs will also be used to incentivize third-party developers to build applications on CivicNet and CivicChain to reward ethical hackers and bug hunters, and will be accepted as an alternative payment method for all CivicNet services.

¹ Semi-Permissioned here means the network serves public queries, and the consensus validator network is open to new participants, but only after AML/KYC verification and approval by TCA.

CivicNet and CivicChain Crypto-economics



Sago means “wisdom” in Esperanto. Wisdom is the most valuable asset, arguably worth more than diamonds or even good health, and its value increases for all parties when shared. Similarly, sharing of SAGOs will help ensure that the future of IT and AI technologies leads to artificial wisdom(s), for the benefit of all. In fact, intelligence is not correlated to positive utility for society nor for those bearing it, unless it is in the form of wisdom.

CivicChain Advantages for Enterprise and Government Use

The CivicChain is mainly targeting government and enterprise use case scenarios requiring high to extremely high levels of: data confidentiality and/or data integrity; logging integrity and availability for compliance; strength of AML/KYC; which also require relatively high levels of scalability and uptime. The democratic decentralized governance model of CivicChain via “one member, one vote” in the Association and Certification Body is the very basis of its greatest short and long-term security, providing network robustness to technical hacks, governance gaming, contentious hard forks, and to undue influence from governments or large business/banking syndicates. Members can also participate as block validators, where they can earn rewards (transaction fees and freshly dispersed SAGO) on their token balances for helping process new blocks in the network.

Comparison chart with Ethereum and CivicChain features:

Ethereum Mainnet & EVM Functionalities	Bespoke DPOS CiviChain Functionalities
<ul style="list-style-type: none"> - Industry leader, working VM, used by millions - Huge development community - ERC20 easy to deploy, proven fundraising tool - No mining needed by users, SPV wallets - Possible tx anonymity via ZKSnarks protocol - web3.js platform (easy web/apps design) - transferability & exchanges for ERC20 tokens - 1min transaction times, \$0.10-\$0.25 tx fees ave. - 15 tps currently, scalability planned in future dev - multisig, timelock not supported for ERC20 - homomorphic encryption much harder here 	<ul style="list-style-type: none"> - Resilient democratic decentralized governance via Association - DPoS energy-wise consensus, from day one - Vested validator sets, similar to EOS platform - Smart-contracts in any language, GoLang native - homomorphic encryption far easier to implement - instant transaction finality for SPV wallets - 1-5sec blocktimes, even on slower hardware - 20,000+ tps throughput from day one - Orders of magnitude cheaper transactions - multisig supported day one, timelock tx later - uses ED25519 encryption curve, not ECDSA

Phase 1) SAGO Token: ERC20 Token Version of SAGO

SAGO tokens will be issued during the initial Token-sale event, as an ERC20 token on the Ethereum blockchain, and with full support of transferability and exchange. Tokens in vesting agreements to Founders, advisors, and early investors to Trustless.AI will have their unvested tokens held on their behalf by Trustless.AI. No mining or independent consensus is required in Phase 1 since ERC20 tokens run on the Ethereum Mainnet, however we will be “downstream” of the Ethereum Foundation in terms of codebase and governance structure during this period, functionality is limited and energy-burn and transaction fees are comparatively higher.

Phase 2) SAGO Coin: Purpose-Built Ultra-Secure Blockchain - CivicChain

Independent CivicChain node network running on dedicated servers with custom hardware security modules based on the CivicPod chipset, DPoS (Tendermint) consensus and Merkle-tree DB, testnet planned 3-months after token-launch, livenet launch 6-9 months after token-launch.

Tokens will “roll-over” to become SAGO Coins on a specified day, and we will no longer run on the Ethereum Mainnet as an ERC20. The Association will assume full decentralized governance meaning contentious forks are radically minimized, on-chain technical capabilities will be greatly expanded, energy-burn and transaction fees will be drastically reduced.

Traction

Over the last 9 months we have ramped-up initial, expanding traction with large prospective clients and sales partners, and a valuable feedback loop. Since April 2017, we have been working with 3 Luxembourg-based international banks (originally based in Italy, Luxembourg, and USA) interested in becoming paying pilot clients and/or channel partners for our CivicPod. Furthermore, most showed initial interest to join our long-term wide-ranging LoI for *Partnership for Trustless Computing*, signed in April 2017 with the fastest growing IT security R&D center in Europe, the Univ. [Luxembourg SnT](#), and which will be expanded to our Trustless Computing Association [partner](#) and U. Luxembourg SnT [partners](#) in Q1 2018. Since November 2016, we have been

meeting with 3 global mobile operators (EU, US, Japan). We recently had initial talks with the COO of one of the world's top three wealth management banks. On the **dual-use** front, we were asked by Cyber Innovation Hub of the German Armed Forces to submit a 200k€ proof-of-concept proposal of our a dual-use implementation of our techs, called *DualPod*, which we did. Approval in a few weeks. A new edition of our Free and Safe in Cyberspace event will be held in [Rome on Feb 23rd](#) with top German, Austrian and USA national security officials to jointly work on the definitions of a Trustless Computing Certification Body.

Fundraising Strategy and Roadmap

We are on track to close in early February our ongoing **\$400k-1M** private equity and token sale, which is a bridge for a **\$6-35M+** public token sale in late Q2 2018. (See Overview for details).

Proceeds of this round will be used to: complete 8 CivicPod fully-functional mockup prototypes, and CivicNode prototype; sign up of 4+ pilot clients agreements with enterprises, banks and governmental agencies; ICO legal strategy, opinion, and compliance; ICO promotions and logistics; deferred payments for past work of team/consultants.

Scaleup Vision

Once market-proven as the most secure **enterprise** endpoint computing platform, we will leverage our open low-level computing base, uniquely resilient ecosystem and security certification governance model to become (1) **world's 1st ultra-secure computing and applications platform** - via an increase in apps, a reduction in basic model prices, and by embedding our CivicPod into the back panel of **tens of millions** of enterprise and consumer high-end Android smartphones, and, then (2) become the standard *root-of-trust* computing platform for the most privacy-sensitive or safety-critical ([pdf](#)) autonomous/AI systems, and blockchain applications.

Co-founders

Rufo Guerreschi, (Ms) *Cofounder & CEO*.

Leads the **Trustless Computing Association**, which aggregates leading nations, tech providers, R&D centers and industry associations into R&D initiative and global event series to radically increase IT & AI security (2013-present). Brought the valuation **Open Media Park**, EU's 2nd largest planned tech/IT park from €3M to €21M (2008-2012). Founded and exited **ParTecs** Participatory Technologies, open source e-democracy provider with sales in 3 continents (2002-2007). Led EU sales of J2ME provisioning, including the 10M€+ sale to Telefonica, then acquired by **Motorola** (2000-2001). [LinkedIn](#)

Roberto Gallo, (Phd) *Cofounder & Endpoint Security Lead*.

Designed the world's 1st secure CPU inspectable in HW & SW source designs, in dual-use deployment since 2014. Designed the security architecture of the 400,000 **Brazilian voting machines** & the ASI-HSM of the Brazilian PKI-root CA. Founder and Chief Scientist of **Kryptus**, the leading Brazilian strategic defense company, with a 40-strong team. [LinkedIn](#)

Ryan Molecke, (Phd) *Cofounder & Blockchain Lead.*

Technologist, supercomputing specialist, tokens-sales, node/server admin, whitehat. CTO/Co-founder at **EnLedger**, SummitBit, and ChainFoundry. Led development at crypto companies including **ShapeShift**, **Monetas**, and **bridge21**. PhD from University of New Mexico. [LinkedIn](#)

Anish Mohammed, (Phd) *Cofounder & Head of Protocol Security.*

Lead Security Architect at **HSBC** (2017-). Advisor to **Ripple Labs** since (2013-). Lead Security Architect at **Lloyds Banking Group** (2014-2016). Advisor at **Hyperloop Transportation Technologies** (2017-). Advisor to several leading blockchain startups. [LinkedIn](#)

Team

Toby Scholtz, *Head of Marketing.*

Previously Germany country manager and National Marketing Manager EMEA of **Apple-owned Beats by Dr Dre**, the global leader in hi-fi wireless headsets. Formerly marketing director for leading mobile operators. [LinkedIn](#)

Alexander Elkin, *Director of Business Development - Mission-critical NGOs.*

Former Head of Strategy & Internet Projects at **Transparency International Russia**. 17 years in IT, 11 years in Project Management and NGO, 8 years in Finance, Compliance, and Accountability, 5 years in Business Development. [LinkedIn](#)

Keshaw Singh, *Lead Graphics Designer.*

Hardcore 3D animation and graphics designer. Digital Artist background with animation, web, game, VR, 3D. Highly talented, passionate, young and dedicated video creative. [LinkedIn](#)

Joonyoung Park, *Supply Chain & Manufacturability Advisor.*

Previously at **LG** and **Motorola**, led design and development of new devices from concept to manufacturing for **Kudelski**, Swiss global leader in IPTV, CAS, and cybersecurity. Currently, co-managing director of family-owned 200M\$/yr 7-sigma electronics manufacturing plant in South Korea. [LinkedIn](#)

Advisors

Michael Kapilkov. *Advisor for ICO Strategy.*

Consultant for ICO, pre-ICO deals, blockchain. Speaker. Advisor to leading HW and cybersecurity blockchain startup, such as hardware-based **PundiX** and **Cryptyk**. Partner to the NYC-based blockchain and AI accelerator **Datrixo**. [LinkedIn](#)

George Frost, *Strategic Advisor.*

Provides legal consulting services and strategic advice to leading startups and firms in the IT sectors. Among his principal clients are **Bitstamp** Ltd., world's first fully licensed and regulated European bitcoin exchange, **GateHub** Ltd., and **Ripple Labs**, where he served as the company's original founding general counsel. [LinkedIn](#)

Fabrice Croiseaux, *Blockchain and ICO Advisor.*

Currently CEO of the 130-strong enterprise-IT of a **EU nation** and leads its leading public-private

blockchain initiative. Leading advisor to leading blockchain startup like **DomRaider**. Experienced top executive with 25 years of experience in large public and private companies in Luxembourg and France. [LinkedIn](#)

Luca Venturini, *Senior Blockchain Advisor*.

Engineer. Entrepreneur. Head of Bitcoin vertical at **BootUp Ventures**, a Menlo Park-based VC firm with \$4B portfolio worldwide. Bitcoin enthusiast, investor and core developer since 2013. Founder and Managing Director at **Yepa.com**. Blogger. Techno-libertarian. Freethinker. Free software evangelist. [LinkedIn](#)

Shlomi Zeltsinger, *Blockchain Architecture Advisor*.

Created PoCs and collaborated for Ethereum-based startups such as **MatchPool**, **Emerald Medic**, **TantoClinic**. Advisor to the Office of Prime Minister of Israel (2013-2016). Blockchain educator since 2013: courses in Brazil and Israel; tutorials for Bitcoin programming, Solidity course for **Diginomics**. [LinkedIn](#)

Relationship among Team Members

Roberto and **Rufo** met in 2013 in Campina, Brazil to discuss ways in which *constitutionally-meaningful* levels of digital privacy could be achieved for citizens and institutions. Since then they have worked together on 3 large EU-based R&D proposals, a global event series, analyzing and architecting standards and governance models, and framing strong strategic partnerships with stakeholders in high-assurance IT supply chain, ultimately leading to the founding of TRUSTLESS.AI. From November **Ryan** joined, with its much wider expertise, up and worked elbow to revised our blockchain and tokenization architecture. Joonyoung and Rufo have known each other for 16 years now from back when they both worked at 4thpass.com (later acquired by Motorola) and they have stayed friends since. Joonyoung has been onboard TRUSTLESS.AI since November 2016. **Toby** and **Alex** joined in January 2017 and have since been contributing steadily with sweat towards realizing the potential and adaptability of TRUSTLESS.AI offerings. Alex shares at heart the mission given his front-line bio in non-governmental internet-based projects. **Keshaw** has been hugely passionate about the project, and a big believer. **George** is also long-time free software and digital rights activist and has been a close friend and business partner of Rufo for over 10 years now. From July to September, Udit Dhawan, Rufo and 2 temporary blockchain consultants - Michel Rauchs and Shlomi Shlezinger - worked to define technical, economic and utility model of CivicNet and CivicChain. **Anish** and **Michael** joined in January 2018 after months of informal advising.

Location

Rufo is between Rome and Luxembourg, Roberto is in Campina (Brazil), Ryan is in Colorado (USA) and Anish in London.. Alex and Toby are in Berlin. Keshaw in Raigarh, Joonyoung in South Korea, and they will be working remotely, except for company sprints at the main office. We plan progressively **move to Berlin** after closing of the ongoing round for the following reasons:

- We graduated from the Hardware.co 2016 pre-acceleration program, hosted by by Betahaus incubator, Deutsche Bahn, Siemens and MindBox.

- Two of our key R&D partner and suppliers are key German companies, KernKonzept, DFKI and Lfoundry.
- We've had interest from 3-4 Berlin-based leading VCs for over 12 months, and to this round, and dealing actively with 2.
- The 3 main cofounders Roberto (Brazil), Rufo (Rome) and Ryan (Colorado) - are ready to move full time to Berlin if there are at least 2 German funds covering over 50% of the current round.
- Our CEO's daughters go to German school from day one in Rome.
- Since January 2017, 2 key team members are based in Berlin, Toby and Alex. Great pool of relevant tech talents in Berlin.
- Many potential enterprise customers in Germany.
- German Dept of Defense asked us for proof-of-concept proposal.

Other Documents

Summary (this doc)

www.trustless.ai/docs/trustlessai_overview_summary.pdf

Overview (64pp)

www.trustless.ai/docs/trustlessai_overview.pdf

Good Old Slide Deck (25pp)

www.trustless.ai/docs/trustlessai_slide_deck.pdf

Technical Whitepaper Summary (15pp)

www.trustless.ai/docs/tc_whitepaper_summary.pdf

Technical Whitepaper (55pp)

www.trustless.ai/docs/tc_whitepaper.pdf

Website & Video

www.trustless.ai