



## DEPARTMENT OF ADMINISTRATIVE SERVICES

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December 23, 2021

SUBJECT: RFI #21PSX0098 Blockchain Technology Results

Dear Chairs Hartley, Flexor, Currey, and Fox; Vice Chairs Cohen, Haskell, Rochelle, and Thomas; Ranking Members Martin, Sampson, Buckbee, and Mastrofrancesco; and Distinguished Members of the Commerce and GAE Committees:

Pursuant to Section 1 of [Special Act 21-25, An Act Concerning Blockchain and Emerging Technologies](#), the Department of Administrative Services (“DAS”) was required to (1) develop and issue a request for information (“RFI”) for “the incorporation of blockchain technology to make a state administrative function more efficient or cost-effective,” and (2) evaluate the responses received from the RFI and submit a report to the Commerce and GAE committees identifying department functions that may be made more efficient or cost-effective by such blockchain technology no later than January 1, 2022.

DAS issued RFI #21PSX0098 on September 30, 2021, pursuant to its authority under Connecticut General Statutes sections 4a-2, 4a-52 and 4d-2, to acquire information to gain a better understanding of blockchain technology and how the business community can help the State further technological advancements in the State of Connecticut. The RFI closed on November 8, 2021, and the results identified department functions that may be made more efficient or cost-effective through the use of blockchain technology, as well as major industries that have witnessed substantial impacts from utilizing blockchain technology – those results are attached hereto.

Although there may be value in utilization of blockchain technology by state agencies, DAS recommends against the incorporation of specific technologies into statute, and instead recommends that blockchain technology, along with other emerging technology ideas, be evaluated through the testbed process. This recommendation is also supported by the challenges that were identified and described in the RFI responses. A list of those challenges is also attached hereto.

If you have any questions, please do not hesitate to contact Eleanor Michael, Policy & Legislative Advisor, at [Eleanor.M.Michael@ct.gov](mailto:Eleanor.M.Michael@ct.gov).

Sincerely,

A handwritten signature in blue ink that reads "Josh Geballe".

Josh Geballe  
Commissioner

Attachments



**Department Functions Identified that May be Made More Efficient Through Use of Blockchain Technology**

1. Digital identity and identity management - Simplifies the management and digital identity of issuers, individuals and organizations.
2. Shared ledger - Blockchain's shared ledger functionality can help governments register and authenticate invoices and prevent paying out on previously used or fraudulent invoices.
3. Data - Instead of data being collected by a range of different agencies, blockchain technology allows all transactions relating to a person to be kept in one place, reducing the potential for error or fraud.
4. Record keeping - Provides a permanent and auditable record that can help governments resolve disputes. When there is shared accessibility of trusted data of records among citizens and governments, there is increased trust in government by the citizens.
5. Claim verification - Decreases the time it takes to verify claims from several hours or weeks to several seconds.
6. Vaccination verifications - Supports the verification of health credentials for employees, customers and visitors for criteria specified by an organization.
7. Occupational Licensure - Streamlines licensing for regulated professions and occupations; e.g. medical professionals, barbers, Certified Public Accounts ("CPAs"), attorneys, etc.
8. Driver Licenses - Enhances security and management of digital driver licenses.
9. Asset Titling - Streamlines digital asset titling; e.g. land and motor vehicle titles.
10. Benefits Eligibility - Eliminates redundant benefits program application and eligibility verification.
11. Human Resource Information System ("HRIS") - Simplifies the management of digital interactions between employees and employers.
12. Learning Credential Network - Supports the skills-based economy with verified academic, skills and industry credentials.
13. Reduction in Bureaucracy - Allows the ability to access immutable and secure time stamped ledger, to multiple parties, increasing the level of trust within different processes in business and the government.
14. Public bidding - Contract management from bidding to acquisition could be made transparent and accessible to verified stakeholders with blockchain technology.
15. Tax Collection - The net salary transfer and tax payments can be automatized with a blockchain-based system.
16. Voting system - A blockchain-based voting infrastructure could enable more trustworthy and representative elections with accurate identification, prevention of subuplicate votes, and many other possibilities.
17. Modernize management of the State workforce - Improves the way the State conducts hiring, compensates employees, manages overtime and workers' compensation costs, and structures teams could generate seventy (70) million to one hundred (100) million dollars of cost savings, as well as, improve conditions for State employees.
18. Streamline services and pool resources - Streamlines services offered to residents and creating common platforms across agencies could generate twenty (20) million to forty (40) million dollars of cost savings and avoidance for the State, as well as, improve coordination state-wide.
19. Digitize resident services and internal processes - Using blockchain technology to accelerate and automate could generate one hundred ninety (190) million to three hundred (300) million dollars of value for the State, largely through cost savings, while improving the quality of services offered.



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20. Design services to meet residents' needs - Improving the alignment of State services to residents' needs can generate three hundred (300) million dollars in increased revenues and cost savings, as well as, improve outcomes for residents. With longer-term reform, this value could be significantly higher.
21. Digitize document in-take and automate repetitive processes - Blockchain technology can allow more do-it-yourself services online (e.g., DMV, DRS), better data sharing across government and improved electronic records.



**Major Industries that Are Exploring Adoption of Blockchain Technology**

1. Agriculture - A blockchain record can establish a higher level of trust between merchants. It can also help the market to expand and encourage healthy competition between sellers. It makes managing relationships, from farmers to stock traders centralized and secure.
2. Banking and Finance - Blockchain enhances accuracy and information sharing into the financial services ecosystem. Blockchain has the opportunity to disintermediate the key services that banks provide, to include, payments, clearance and settlement systems. Blockchain can also reduce the taxes and intermediaries, anti-money laundering and cross border payments.
3. Accounting - Blockchain technology could make it easier to keep track of sensitive data as it is processed by accounting firms. Data tracking enabled by blockchain technology may also help to automate certain accounting services using Artificial Intelligence, which could reduce human error and instances of fraud.
4. Construction, Architecture and Building - A blockchain-based ecosystem could help make it simpler for general contractors to verify identities and track progress across multiple teams. Blockchain technology could also help ensure construction materials are sourced from the right places and are of the appropriate quality. Smart contracts may make it simpler to automatically issue timely payments linked to project milestones.
5. Transportation – Blockchain technology can improve transactions, shipment tracking, and fleet management, as well as, protect assets and increase fleet efficiency. It can help optimize routes by matching truckers and items to be delivered with trucks in a certain region.
6. Automotive Manufacturing – The Mobility Open Blockchain Initiative (MOBI), a consortium that includes automakers like Ford, BMW, Honda, and GM, has been working on a vehicle and parts tracking initiative. Its Vehicle Identity (VID) Standard initiative provides “birth certificates” for vehicles, tracing maintenance history and vehicle registration even across borders in a shared ledger.
7. Real estate - Blockchain technology can streamline purchase and sale transactions.
8. Healthcare - Blockchain technology can create portable patient data.
9. Supply chain - Blockchain technology can track items from vendors to customers and can verify authenticity.



**Challenges Identified in Use of Blockchain Technology at State Level**

1. Scalability - Blockchains can be slow and cumbersome as a result of their complexity and encrypted, distributed nature.
2. Storage - The size of the blockchain database will only expand due to the increasing number of transactions. Personal computers cannot store unlimited data.
3. Privacy - While data on a public blockchain is encrypted and anonymous, everyone in the network has rightful access to the data. It is possible that someone could track down the identity of a person in the network through transactional data.
4. Regulations - Regulatory aspects of blockchain technology will need to be determined in order to facilitate broad adoption of the technology. For example, blockchain applications will have to determine the process for identifying the fault when fraud takes place. Governments have to pass regulations to the Distributed ledger technology ("DLT").
5. Security - If 51% of the nodes in a network lie, the lie becomes the truth. The lack of single source of truth will lead to opportunities for distrust and fraud.
6. Blockchain technology can be hard to integrate. Organizations may have to completely restructure their previous system(s) or design in order to successfully integrate with blockchain technology.
7. Inconsistency - The wide variety of frameworks causes a lack of standardization and a lack of interoperability between a large number of blockchain networks. The lack of uniformity across blockchain protocols can impact basic processes like security, making mass adoption an almost impossible task.
8. Reputation challenge – There is a connection with blockchain technology and the crypto world. Because the crypto world is perceived as a place with bad actors, hackers, frauds and speculators, blockchain technology has acquired an unfavorable reputation.
9. Lack of core technology expertise - There are pockets in the blockchain landscape where there is a dearth of adequately trained and skilled/qualified resources for developing and managing the complexity of peer-to-peer networks.
10. Lack of awareness and understanding - Many companies do not understand what blockchain is or what they can do with it. This can negatively impact the investment and the exploration of ideas.
11. Cost - The speed and effectiveness with which blockchain networks can execute transactions can come at a higher cost, which may be greater for some types of blockchain than others.
12. Value transfer risks - Blockchain enables peer-to-peer transfer of value without the need for a central intermediary. The value transferred could be assets, identity or information. This new business model exposes the interacting parties to new risks that were previously managed by central intermediaries.
13. Smart contract risks - Smart contracts can potentially encode complex business, financial and legal arrangements on the blockchain. This could result in a risk associated with the one-to-one mapping of these arrangements from the physical to the digital framework.
14. Underdeveloped standards - With different organizations working on their own blockchain, it is hard to standardize them. Third-party like businesses and retailers will have more difficulty verifying without agreed upon standards.
15. Jurisdiction and dispute resolution - A distributed ledger has a decentralized network, which makes applying jurisdiction an inevitable problem. The process of dispute resolution is also a big challenge, considering the nature of the DLT.



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16. Risks with private and public key - If you do not have the right combination of the public or private key, you simply cannot access the digital content stored within the blockchain. Hackers attack the weakest point (i.e., the system that is used by the user).
17. Technical Challenges - Organizations must pay close attention to their technology since blockchain technology evolves quickly. State initiatives should seek to utilize an agnostic development approach, embracing the potential of blockchain as a technology, without relying on specific protocols throughout the life of the application.
18. Accountability - For government applications, blockchain distributes power from the central system, which could be problematic as it relates to the legal obligations of government activity where data handling is concerned. Private blockchains are either very expensive (if the private blockchain is built and maintained by the State), or they introduce a dependency on a particular vendor, Foundation, or consortium to maintain the blockchain over time. Without the use of such standards, the document validation solution is likely proprietary to that vendor, even if a public blockchain is used.