

Blockchain Working Group
Meeting Minutes
December 5, 2019
10AM - 3PM

1) CALL TO ORDER

Chair Crittenden called the meeting to order at approximately 10:02AM

ROLL CALL: Quorum Established

Working Group Members Present:

Camille Crittenden, Chair

Ian Calderon, Assemblymember (Voleck Taing staffing)

Robert Hertzberg, Senator (Freddie Quintana staffing)

Benjamin Bonte, Kem Musgrove, Sergio Gutierrez, Amy Tong, Ted Ryan, Arshad Noor, Sheila Warren, Michele Neitz, Anne Neville-Bonilla, Ben Bartlett, Meredith Lee, Brian Behlendorf, David L. Tennenhouse, Audrey Chaing, Kai Stinchcombe, Radhika Iyengar-Emens

Jason Albert - By phone

Liz Chien - Not available

Working Group Members Participating Remotely:

Jason Albert

Other Participants:

Orit Kalman, Facilitator

Viana Barbu, Attorney

Swearing in of Blockchain Working Group Members

Assemblymember Calderon to give the Oath of Office to the following working group members:

Audrey Chaing

Kai Stinchcombe

Radhika Iyengar-Emens

2) APPROVAL OF SEPTEMBER MEETING MINUTES

Motion has been passed to approve the September meeting minutes as submitted.

3) AGENDA AND MEETING GUIDELINES

Orit went over the meeting guidelines with the members.

4) ASSESSMENT INTERVIEW PROCESS

- Highlights of assessment interviews
 - Purpose of interviews: (1) Gather expectations of working group; (2) Ask about blockchain definitions and challenges/opportunities for blockchain; (3) Collect ideas for how we will consider blockchain applications; (4) Think through the working group process.
 - California should be a leader
 - Blockchain is moving quickly, we must also work quickly. May be challenging to match the pace of technology development with academic research or legislative calendar.
 - On definitional aspects, many members talked about how it should be related and relevant to applications
 - How does blockchain add value in light of other technologies
 - The technology represents a fundamental shift from centralized control
 - Blockchain's immutable nature may be at odds with emerging privacy protections.
 - Consider fraud mitigation; data and ownership issues.
 - The role of government in blockchain--will come back to this in a later meeting
 - Overall: applicability is important. We will learn from working groups in other states/countries

5) DECISION-MAKING PROCESS

- Any other principles for collaboration?
 - Public comment: CEO of Coinstructive (company based in San Diego) says he wants to see cross-collaboration with the working group that's working on a uniform commercial code in California (California Lawyer's Association)
 - *All working group members agree on these principles*
- Steps of deliberation
 - When Orit interviewed the Blockchain Working Group members, there was disagreement over whether the group should come to complete consensus on recommendations. Most agreed that we didn't need complete consensus but should instead document majority and minority opinions.

- Meredith Lee: Says “silence is consent” seems problematic. Assemblymember Calderon recommends change to “Silence is neutrality,” in accord with principles in the legislature.
- *All working group members agree. Vote to adopt the deliberation framework as amended.*

6) WORKING GROUP PROCESS WORK PLAN

- Senator Hertzberg: The plan to be done by June 1, 2020 is problematic because the the CA legislative session will be over. He asks whether the group might divide up the work plan and bifurcate the approach to get something in by January and finish the rest later. It requires us to get some low-hanging fruit soon.
 - If we submit the report in June 2020, nothing will happen legislatively until January 2022--we need to keep that in mind
 - It's important if we can adopt a way that speeds up the timeline
- Ben Bartlett: Agrees with the Senator Hertzberg approach. As we come across items and measures that are complete and we agree on, we should move
- Sheila Warren: What does this mean in terms of the timing? What's the drop dead date?
 - Senator Calderon: February-ish
 - Sheila Warren: Also the problem is that we don't have a fundamental definition of the technology. Once we figure that out the use cases should be much easier.
- Arshad: To clarify, we need consensus on something by March 1 for it to become law by January 2021, correct?
 - Senator Hertzberg and Calderon: Correct.
 - Senator Calderon: It's not saying that we're rushing this report. It's just we need enough info to do a spot bill and then make adjustments later down the road. We just need to agreement so we can put something in concept into a piece of legislation, and we can add in the guts later
- Anne Neville: Are there specific pieces that would be helpful to come to consensus sooner rather than later?
 - Ian Calderon: The definition is huge. When it comes to business, they want to know the definition they're getting into when they start a business in this space.
- Audrey: I think this process is a great idea

7) UPDATED TABLE OF CONTENTS

- Orit: Spending a significant amount of time honing

- Ian Calderon: The definition and the role of state government are the two sections to focus on with legislation. When it comes to a piece of legislation, those are the two that will be the most relevant. That'll inform the different uses and applications it'll be used.
- Senator Hertzberg: A lot of interest groups will care about this. Title insurance companies could go out of business because of this, for example. So, we need to try find low-hanging fruit where it works that won't offend people. Managing interests and framing the legislation appropriately may be challenging.
- Radhika: When we're looking at practical implications of this technology, those who understand it might see more opportunities than those who don't.
- Amy Tong: There's a general interest of "yes lets go faster", but I want more clarification. I'm hearing two flavors of legislative intent. Is the goal for the legislation for: (1) overarching tone-setting "blockchain is something the state of California is interested in, thus those who are interested in this business can stay in California"; (2) industry-driven legislation where we talk about "here are some industries where this is a prime candidate" and "this is the beginning of serious potential for the next couple of years." Our scope of deliverable should be more focused.
 - Senator Calderon: A lot of this tends to work itself out in the discussion. We want to do something useful in terms of industry interests and consumer protection.
- Kai: What is the bill trying to get at? Looking at this, it seems like there's (1) getting out of the way of the private sector ("yes, a company can make blockchain technology for healthcare technologies"); and (2) identifying public sector applications
 - Senator Hertzberg: Let's see what happens. We can also do more than one bill.
 - Senator Calderon: And with the reality of how California legislates, there won't be a #1 without regulations and guidelines for the private sector.
- Orit: In summary, we need to be mindful of the legislative calendar. Don't just wait until the July report. I want to come back to the Table of Contents
- Camille: We don't have to vote on the Table of Contents, but it was good to see the areas we should be prioritizing.
- Jason: I wanted to include the cross section about digital identity, and that's in the new version of the Table of Contents so it's great
- Senator Hertzberg: Had a meeting with the animal cruelty world, interest in using blockchain to tag animals, e.g., validating the supply chain for legitimacy reasons.

- Radhika: When thinking of use cases, we should think of the biggest bang for the buck. We can't tackle them all. How many people will this affect? We should add that to part IV of the Table of Contents.
 - Another thing we should think about is infrastructure. We might choose to pursue something that has no infrastructure for it to roll into. We need to think of mechanisms to roll it out for applications.
- Ben Bartlett: I want to encourage this body to err on the side of boldness and leadership. Just today, Berkeley is going to issue an RFP for a blockchain-based vendor to issue bonds.
- Kai: Something that might bubble up over time. We should think of use cases where the public stated "wow, I'm glad this technology exists" versus use cases where the government spent millions of dollars and nothing happened. We should add sections to identify both successes and failures.
- Orit: Lets wait to talk about use cases in the afternoon.
- David: In part 7, the closest thing we get to is a "recommended roadmap" and not recommendations. Are we trying to not get to recommendations?
 - Sheila: We could either be drafting a decision-making framework OR roadmap of "do this then this then this."
 - Orit: We are specifically charged with #7 part II: recommended amendments to California statutes
 - Orit: Creating a way to think about how to move forward may be more beneficial than specific actions.
- Public comments:
 - Alex W., with the Government Blockchain Association. *Is reading commentary posted online. Chairman of the Securities and Exchange commission of GBA says we need to figure out what problems we're trying to solve first and then use cases. We shouldn't get lost or seduced by new technologies. Need to agree on principles first.*
 - Michael Callahan, Account Director for a large blockchain consultancy group: I don't see this as proactive, it should be reactive. The first question we get from clients is basically "how can we get out of California." The industry thinks California is hostile. We've helped \$100 million move out of California. We're working with privacy rights for refugees, efficient energy distribution. The innovators working on this are fleeing.
 - Brittany Kaiser: Representing a lobbying group working to bring technologists and legislators together in Wyoming. She's happy that the conversation has turned toward actionable legislative recommendations. The reason we've been able to pass blockchain legislation in WY is that we make actionable recommendations. You should perhaps have

legislative drafters at the next meeting. A lot of clients are fleeing California. I'm interested in federal legislation, and California is going to be the leading voice for that. We need to start legislating now because Wyoming is leading right now. Also, if we're going to talk about use cases, with CCPA coming into enactment, looking at definitions of infrastructure for digital identity/privacy/etc. is "how can I become compliant with CCPA?"

- Chris: I want to second Brittany's comments. Yesterday, I sent along a link to a podcast. If we are looking to move forward quickly, I'd see what topics they focused on first in Wyoming, as opposed to what they think they need.
- Aaron: Founder of a blockchain company called Govern, using blockchain for campaign finance reform. Question: where is the user demand for the legislation? Who are you building legislation for, government or constituents?

8) BLOCKCHAIN AND ITS DEFINING CHARACTERISTICS

Brian Behlendorf and David Tennenhouse provided a presentation on the overarching definitions of blockchain, applications and consequences of providing a too narrow or broad definition.

Brian Behlendorf & David Tennenhouse presentation

- We were asked to look at existing blockchain definitions, and consider what an overarching definition should be?
- How have others defined blockchain?
 - We've looked at other states. There seems to be a range of definitions from very concrete to more abstract. We also found both application-specific and independent definitions.
 - Where you go depends on how you think the definition will be used in the future.
 - We assumed that this group would turn toward the upper right (more abstract, more application-independent).
- Vocabulary of other states
 - Legislation used the term "datastore" more than "ledger"
 - Some legislation talked about smart contracts, others talked about governance.
- Decided on the term "datastore"
 - A consensus mechanism is typically used to maintain the verifiable ordering of transactions

- Smart contracts: Allow participants to automate pre-agreed business processes
- Proposed definition incorporates: datastore, smart contracts. Doesn't include "consensus" because that didn't seem necessary.
- Also looked at: permissioned vs. permissionless; public vs. private

Comments on definition presentations

- Senator Hertzberg: We want to create bridges to communicate to the public. For example, labor advocacy might be interested in blockchain because it could be used to prevent wage theft. That's the kind of application we want to communicate that we can do. Make the definition more accessible to consumers and social justice advocates.
 - Brian: Perhaps I came in with the bias of de-hyping the technology.
- Michelle: Radhika and I overlapped a bit with your definition. I've been hearing from entrepreneurs the need for uniformity across jurisdictions. How much is CA going to jump into the intra-jurisdictional definition? As we're considering definitions, it might be a good idea to consider reaching out to other states.
- Radhika: I take issue with the fact of including public vs. private. What are the implications of using the word public versus private? In a business context, a business might construe private to be "within one entity," which defeats the purpose of blockchain.
 - I would prefer using permissioned versus permissionless rather than the public vs. private. People are confused and they use the words interchangeably. I propose using language with more clarity.
- Kai: I'm nervous about definitions and choice of language; if something brings verifiability and trust into the system, that's good, but throwing things like that into a definition assumes that the goal is achieved rather than stating the system is a good way to achieve that goal.
 - For example, we took the word "centralized" out of the table of contents specifically. Is blockchain decentralized?
- Sheila: I have issue with the part that says "brings increased trust." As Kai notes, its pre-supposing that there is a better-ness of this. That's arguable.
 - Also, why didn't you include disintermediation as a point in the definition?
- Brian: "Which brings increased trust" does imply that simple mechanical adoption will bring more trust. We toyed with the idea of using the word "so as to bring increased trust."
 - Why we didn't call out disintermediation? Well, the internet was first hyped as being disintermediation and look at how wrong we were. And, is it central to the definition?

- Sheila: I do think we should be honest that this might seriously disrupt certain industries.
- *Working group comments about definition*
 - Anne: I get concerned about the “so as to” or “brings increased trust.” Most people reading this report don’t know about blockchain. It’s not by its nature more trustworthy, and it’s not immutable. I would rather see “a goal of which is to bring increased trust.” **I’d like to see trust as more of a projected goal or outcome.**
 - Kai: If I was making line edits to this, I would perhaps say that the definition is the “specialized datastore” and have that be the first paragraph. The goals are decentralization, disintermediation, increased trust, etc. That goals paragraph should be last.
 - Ben: I agree with a lot of what Kai is saying. I’d suggest flipping it. The preamble to the definition should be the intent. Wyoming’s definition has already been adopted by 12 states. Maybe if we just start with that and add the California flourish we might be able to reduce companies fleeing CA.
 - Arshad: I would remove the word decentralized and start with the participants. I would perhaps wait until my presentation on cybersecurity and then go back to the definition. If we’re looking for a generic definition, removing the word “decentralized” and starting with participants is better.
- *Public comments about definition*
 - Add the word “consensus” between “decentralized” and “systems”. Consensus is the important point
 - Chris: represents a tiny non-profit in decentralization space. I don’t love using the word “Blockchain.” It used to have an article before it and marketing took away the article.
 - The goals of blockchain are so wide, it’ll be too much to try and get legislation immediately. I would suggest working on narrower things, like privacy first.
 - Chris: Disintermediation is the result of a technology, not part of the definition.
 - Michael Callahan, PR representative: Several companies that he’s been texting with think that this definition is not broad enough. This definition encompasses what blockchain looked like in 2014/15. If you want to encompass all use cases, this doesn’t do it.
 - This isn’t a definition of blockchain IS, its what blockchain DOES.
 - Luke, Berkeley Blockchain Accelerator:

- I was CMO at a blockchain firm. It's not just decentralized, centralized blockchain has a place.
 - Trust is not what is accomplished. Blockchain makes me not trust you, and I'm fine with it. It's not like we're trusting each other more.
- Blockchain created economic incentives to verify data. We're not saying "increase trust in the dataset," it's "increased trust in the system and processes." I like that this says "increase the verifiability of the data and trust to the overall system."
- We could use these systems to get things down to the state and local level. "This is something that might make me feel more connected to my government."
- People understand the word "ledger," people don't understand the word "blockchain. You might want to take that word out altogether.

9) CONSIDERATIONS FOR APPROPRIATE APPLICATION: ETHICAL CONSIDERATIONS

Michele Neitz and Radhika Iyengar-Emens provided a presentation on what ethical guiding principles should be adopted by the State for blockchain applications.

Presentation

- Radhika: As we move forward, we must consider the California Consumer Privacy Act (CCPA) and look at obstacles as well. What are the financial incentives or disincentives?
- Michele: CA is the first state to specifically think about the ethics--this is a step forward.
- Here's what we should look out for in terms of permissionless vs. permissioned chains:
 - Conflicts of interest
 - Bias: We shouldn't be biased toward people who are already informed about this
 - Confidentiality, privacy and trust. Who "owns" the data on the ledger?
 - Accountability and other ethical considerations
- Issues for permissionless vs permissioned chains
 - Decentralization
 - Immutability
 - Security
 - Privacy
- Path forward for blockchain implementation

- Defining practical use cases
- Figure out interim steps of success

Comments from the working group

- Meredith: Nothing specific about privacy or ethics really jumps out in the framework
 - We should provide a path or framework
 - Radhika: Privacy, ethics and sustainability are really crucial to build into the framework
- Ben Bartlett: Would it make sense to track HIPAA?
 - Radhika: Yes, but the biggest problem with HIPAA is that it doesn't deal with identity. HIPAA writers chose not to include the identity piece.
 - Michele: Is there political appetite to include privacy in blockchain legislation, or should we leave it to CCPA?
 - Calderon: Hard question, we're still working through CCPA. We don't know if CCPA yet to know if we should include privacy in this conversation.
- Arshad: From a security perspective, HIPAA is the worst example ever. Other regulations are more progressive in terms of security, which leads to privacy, but none that will satisfy everybody.
- Orit: **It seems like one thing to consider is how other legislative efforts in addressing privacy will intersect with this. More research on this is required.**
- Anne: There are some lessons from the history of the internet in thinking about how California was a leader. For example, accessibility. From the federal level, there was a light-touch approach to internet policy purposefully. "We didn't want to impinge on this new industry." But when this becomes enshrined, it becomes hard to add regulation. When a lot of industry has been built up around that, it's hard to regulate.
- Brian: It's important that this has "the right to fork"--the right to take these data and start a new chain and ledger with it (open source speak).
 - Radhika: But if you add that in an enterprise setting, there's a lot of potential uncertainty.

Public comment

- Sustainability is important. The incentive system is baked right into making blockchain as sustainable as possible though.

- Aaron: Another ethical question that hasn't been addressed is: build a framework that forces blockchain companies to answer the question "whom do we hurt with our technology?"
- *Reading online comments: "I feel like IT can be considered a key component of government administrative reform. When looking at privacy issues, more important Q is data sharing.*
- Brittany Kaiser: Some companies want to use the term "data protection" and not "privacy". "Privacy" just makes companies think that no person can share data, when really the question is whether people are willing to share data anonymously.
 - Changing fiduciary rules to make sure that companies are also bound to citizen wellbeing, not just shareholder profits
 - Criminal liability is essential for data breaches.
- Michael Callahan: The vast majority of new blockchain do not use either individual Proof of Work or Proof of Stake. For example, Libra isn't producing more energy than a traditional bank.
 - Right now the blockchain market is very unsustainable. In 10 years, the vast majority of blockchain applications will not be mining-based at all.
 - If we frame conversation around sustainability, we're already scaring good companies.
- Lily, used to work at OECD's blockchain team: Clara L. at Georgetown created an ethical framework for blockchain companies to think about ethics.
- Sheila Warren: At the World Economic Forum, we are creating a blockchain user bill of rights that's focused for consumers.

10) CONSIDERATIONS FOR APPROPRIATE APPLICATION: CYBER SECURITY, PRIVACY, AND RISK MANAGEMENT

Arshad Noor and Jason Albert provided a presentation on the balance of security, privacy, and risk management for blockchain application decisions.

Presentation

- Blockchain technology has been around for 30 years (public key infrastructure). 90 percent of what blockchain can do practically has already been accomplished. Cybersecurity and privacy needs to be critically addressed. The DoD is dramatically changing its framework on how to deal with risks.
- What considerations should public or private orgs undertake regarding the security requirements of a proposed implementation of blockchain?
 - Security must be a primary role and it must leverage *disruptive defenses*

- Blockchain developers must be certified to write secure blockchain apps (state- blockchain apps at least)
- State should only use permissioned blockchains
- Risk of social-engineering attacks and fraud must be mitigated
- Risk of smart contracts must be mitigated; if the state wants to do it, the state must take into consideration the risks of code
- Disruptive Defenses: Uncommon defenses, based on industry standards, that raises application security to new and higher levels
 - Public key cryptography is great.
- What components of blockchain should be highlighted?
- **How can we ensure that we forge an adaptive path forward for blockchain implementation in CA, one that is neither too permissive nor too constrained?**

Working group comments and questions

- Orit: Given this content, what is important to elevate and further build on? What are the themes?
- Ben: As the state, agreed that we should be prepared before it happens.
- Radhika: Has issues with just calling blockchain “a database.” It’s a *shared* database. The ownership is *shared*. That’s a critical consideration when you think about what data rides in that datastore.
- Brian: Security is not a feature, it’s a process. Corporations are testing unpermissioned blockchain.
- David: A lot of things in your presentation, like page 3 and 4, are technical and people here might not know are not actually widely agreed upon.
 - For example, there’s not an engineering license required for software development. So, should this committee really be the ones defining certification for software development? Probably not
 - Slide 4: Public key in an age of quantum computing is a huge challenge.
 - I worry about the mission creep. Should we be trying to redefine the rules for security of software more generally? That’s probably not in the scope of our work.
- Ben: for this industry to survive, it needs to be insurable. If these new processes are uninsurable, it won’t work. Insurance is going to look for security and quality of the product. There can be 20 hour certifications online, and it’s doable.

Public comment

- With the certification process, we’re keeping people out and that is incredibly problematic

- Security is always going to fail, we need to build an insurance model for this.
- Michael Callahan: Over 50% of blockchain were developed by individuals, not by companies. Lots of blockchain developers are below 18 years old. The certification will exclude them.
 - Certification is going to lock out everyone but the big money players
- Arshad: There was probably a time in the building industry where no certifications were required. People died. The deregulation of banking in 2008 brought down the entire world. We just want to establish a baseline that we can all agree at least as a baseline. Regarding the certification process, it doesn't just need to be college-educated people--we can make up the rules ourselves. We think anyone working on systems should have a core knowledge of cybersecurity.

11) CONSIDERATIONS FOR APPROPRIATE APPLICATION: DECISION-MAKING APPROACH

Sergio Gutierrez and Sheila Warren to provide a presentation on the added value of blockchain over other technologies, how can pilot programs be identified and what are we looking to learn from existing/proposed efforts.

Postponing this presentation

12) USE CASES: ASSESSMENT PROCESS FOR BLOCKCHAIN APPROPRIATENESS AND READINESS

- Meredith: In addition to using best practices, I'd like to identify what the pain points and failures of blockchain have been
 - #2: Describe existing practices and highlight examples
- Camille: Under bullet V in the Table of Contents, does A through H cover all the use cases we want to investigate?
 - We heard maybe something regarding animals
 - We want to do some preliminary writing and come back during our next meeting to discuss

13) FORMATION OF SUBCOMMITTEES/WORK GROUPS

- Overall editing:
- State perspective:
- Blockchain definition, foundational building blocks, overarching considerations: David and Brian
 - Appropriate Applications and Ethical considerations: Michele and Radhika
- Cyber security, privacy, risk management: Arshad and Jason

- Regulatory framework, pilot-sandbox: Sheila and Sergio
- Digital identity:
- Civic records: Senator Hertzberg and David
- Health records: Radhika and Arshad
- Supply chain: Sheila and Radhika
- Property: Audrey and Kai
- Utilities: Anne and Amy
- Financial, Payments and Commercial Business: Michele, Liz, Ben and Audrey
 - Going to form a subcommittee
- Justice and civic participation: Michele and Kai
- Education and Workforce: Jason and Meredith
- *Must make note that Senator Hertzberg is not in the room in official minutes*

14)FUTURE AGENDA ITEMS

Scheduling the next working group meeting in late January or early February. The Blockchain Finance subcommittee will meet at some point in January.

15)CLOSING REMARKS

16)PUBLIC COMMENT ON ITEMS NOT ON THE AGENDA