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Blockchain Readiness Assessment Tool

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Measuring blockchain readiness in public sector organizations

Despite the public sector interest in blockchain technology, few blockchain projects have gone beyond a concept or pilot stage. This means we have limited knowledge of how the particular characteristics and properties of blockchain play out when implemented in public sector services at scale. Organizations which are starting to engage with blockchain technology thus have less evidence to draw from than they might like.

Against this backdrop, BLING is developing a tool for organizations that want to explore the development and use of blockchain-enabled services - even at this early stage of the technology. The **Blockchain Readiness Assessment Tool** (BRAT) is a survey instrument that can be used by organizations to facilitate discussions about their readiness to adopt blockchain and their organization's capacity and capability. BRAT should make the target organization more aware of their capacity to explore/adopt blockchain enabled services, and will identify areas where improvements can be made and where capacity can be developed.

The tool is designed as a set of simple questions that supports discussions around the key aspects that make up an organization's blockchain maturity. It covers the six main domains for public sector actors: business need, organization roles and participants, blockchain architecture, legal requirements, data handling, and the more philosophical aspects which we call 'mandate'. These characteristics are explored in more detail below, and each discussion is followed by a question prompt, which should lead the organization's internal discussions on blockchain exploration/adoption.

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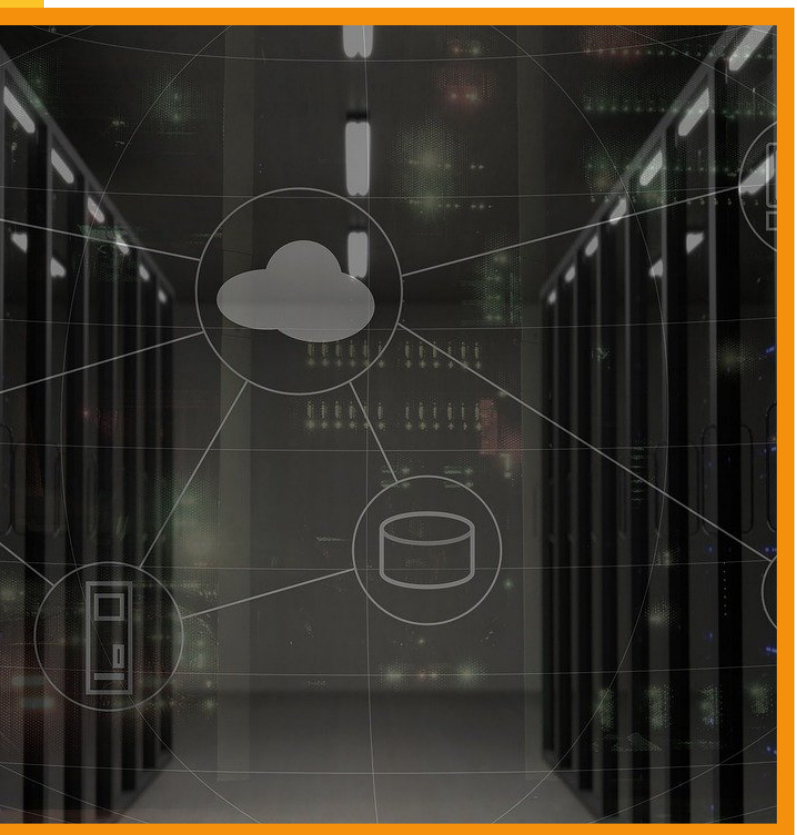
The Blockchain Readiness Assessment Tool

1. Business need
Using blockchain to store and manage data can be slower and less private than conventional solutions, but it removes the need for trust between parties, and is tamper- and censor-proof in ways that conventional solutions may not be. Before spending a lot of money and effort to create a blockchain solution, the organization considering this approach should determine whether there is an actual need for a blockchain solution - that their problem cannot be solved by other approaches, and whether the adoption of blockchain fits into their overall strategy.

Question 1: As an organization we have identified/captured a need that can only be effectively addressed by using a blockchain application.



2. Organizational roles and participants
Before building a blockchain application, you should have an understanding of who the participants of the blockchain solution will be, and what the trust relationships are between these participants.

Question 2: As an organization we have a clear understanding of the roles required in our application and who should fill those roles.

3. Blockchain Architecture
When creating a blockchain application, there are a range of architectural design choices that need to be made about the blockchain. These range from determining how open the blockchain should be, to choosing a consensus mechanism, to deciding on a transaction model. These choices should be made to fit the particular needs and requirements of the particular use case.

Question 3: As an organization we have a thought-out strategy for making design choices about the architecture of our blockchain solution.

4. Legal requirements
There will be legal 'entry points' at the intersection of the blockchain and the physical world, and it follows that the blockchain solution which organizations develop will have to comply with relevant national legislation if it is going to be useful in the physical world. Public sector organizations often have specific sets of legislation regulating their activities, as well as more general regulations such as the GDPR. Public sector organizations are representatives of the state, and therefore must be careful to create systems that comply with applicable laws.

Question 4: As an organization we have identified which area of legislation our blockchain solution must comply with.

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5. Data handling
When considering what data an organization's solution needs to store, and where it will store this data, it is important to consider the regulatory restrictions or possibilities of the blockchain application, and how this aligns with the architecture that the organization has proposed for their blockchain solution. For example, some data may be better suited for storage off-chain, due to legal requirements (such as GDPR compliance) or scalability, whereas other types of data should be stored on-chain or for purposes of transparency and immutability/permanence.

Question 5: As an organization we have a clear understanding of what kind of data we should store on the blockchain and what to store off-chain.

6. Mandate
One of the fundamental ideas motivating the adoption of blockchain is to replace intermediaries and third parties in processes where possible – in finance, in organizations, in governance, etc. – through the use of approaches like self-sovereign identity. These technologies allow organizations to work directly with clients/citizens without requiring other organizations (such as identity providers, certificate providers) to participate in or support the exchange or service. An organization considering a blockchain solution should think about how their operating model and their offer may be shaped by the ways in which blockchain can be used as a way to disintermediate processes and reduce the need for intermediary partners.

Question 6: As an organization we have discussed if/how blockchain-based government services can change the role, need and mandate of the public sector.

Scoring BRAT

Each of the aforementioned six questions receives a score between 1 (Strongly Disagree) and 6 (Strongly Agree). High scores from the BRAT indicate that an organization can feel confident about moving forward and implementing blockchain based applications in their organization – these scores would indicate that the organization is 'mature' enough to use and take advantage of the technology and has a good understanding of the particular challenges and risks involved. Low scores indicate that the organization should work to develop the capacities that they don't yet have, and to address the self-identified capacity gaps in the domains where their scores were low.

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Organisations with relatively low scores should develop their capacity in these areas and then re-take the assessment before beginning a program of blockchain application development.

This instrument has already been tested as part of a research project with high-level blockchain expert stakeholder groups. The Blockchain Research Group in Gothenburg is continuously developing the tool and will implement the tooling and development of a maturity assessment model in 2021. The BRG will continue to iterate the questions in the BRAT, and work with different stakeholders and carry out individual follow-up interviews with municipal stakeholders to gain a better understanding of how the public sector is engaging with blockchain technology.

The research group will also monitor successful cases and pilots that are able to garner user acceptance. At the moment, public sector blockchain pilots are relatively small and struggling to attract any users. However, several promising public sector deployments offer potential for dramatic change, so it will be interesting to monitor their success. Finding some “killer applications” for the public sector will also make it easier to discuss blockchain benefits and readiness.