

Blockchain Solution Risk Assessment Considerations

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DEMONSTRATION ONLY



Amitabh Srivastav (AS)

Mission

To evaluate the risk associated with using blockchain solutions

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1. Governance

Address the governance requirements

1.1. Records Management

Manage records effectively

Performance Indicators

1.1.1 Mission Critical

Description	Type	Yes/No	Start Date	End Date
Determine if you have electronic records of the mission-critical digital assets.	Target			
	Actual			

1.1.2 Large Volume

Description	Type	Yes/No	Start Date	End Date
Determine if you have a large volume of digital content (structure and unstructured) that needs to be managed.	Target			
	Actual			

1.1.3 Classification

Description	Type	Yes/No	Start Date	End Date
Determine if you need to classify your digital assets that will be stored on the blockchain.	Target			
	Actual			

1.1.4 Classifying

Description	Type	Yes/No	Start Date	End Date
Determine if you currently classify your digital assets.	Target			
	Actual			

1.1.5 Preservation

Description	Type	Yes/No	Start Date	End Date
Determine if you require long-term preservation of your digital assets.	Target			
	Actual			

1.1.6 Monetization

Description	Type	Yes/No	Start Date	End Date
Determine if you plan to monetize your digital assets such as a subscription-based service.	Target			
	Actual			

1.1.7 Validation

Description	Type	Yes/No	Start Date	End Date
Determine if you need to validate information from off chain sources before hashing the information to the blockchain.	Target			
	Actual			

1.2. Compliance & Reporting

Address compliance and reporting requirements

Performance Indicators**1.2.1 Authoritative Source**

Description	Type	Yes/No	Start Date	End Date
Determine if you have an authoritative source for your digital assets.	Target			
	Actual			

1.2.2 Audit Requirements

Description	Type	Yes/No	Start Date	End Date
Determine if you have specific blockchain audit requirements for the transaction records in order to be compliant.	Target			
	Actual			

1.2.3 Third-Party Compliance

Description	Type	Yes/No	Start Date	End Date
Determine if your third parties need to comply with the same or similar regulations.	Target			
	Actual			

1.3. Senior Management Oversight

Provide oversight

Stakeholder(s):

Senior Managers

Performance Indicators**1.3.1 Knowledge & Experience**

Description	Type	Yes/No	Start Date	End Date
Determine if your board have knowledge and experience to provide pro-active oversight for the DLT initiative using a blockchain solution.	Target			
	Actual			

1.3.2 Expertise

Description	Type	Yes/No	Start Date	End Date
Determine if your board have access to expert opinions to provide information for the DTL using a blockchain solution.	Target			
	Actual			

1.4. Business Impact Assessment (BIA)*Assess business impacts***Performance Indicators****1.4.1 All Content**

Description	Type	Yes/No	Start Date	End Date
Determine if you need to store all of you digital content or just the mission-critical digital assets on the blockchain.	Target			
	Actual			

1.4.2 RTO & RPO

Description	Type	Yes/No	Start Date	End Date
Determine if you have specific recovery time objectives (RTO) and recovery point objectives (RPO) for the blockchain infrastructure.	Target			
	Actual			

1.4.3 Buy-In

Description	Type	Yes/No	Start Date	End Date
Determine if you have "buy-in" from board and / or management level committees for the BIA report.	Target			
	Actual			

2. Operational Structure

Determine operational structure

2.1. Transaction Fees

Consider transaction costs

Performance Indicators

2.1.1 Cost Reduction

Description	Type	Yes/No	Start Date	End Date
Determine if you want to reduce your transaction cost but not use third parties.	Target			
	Actual			

2.1.2 Transaction Reduction

Description	Type	Yes/No	Start Date	End Date
Determine if you need to reduce your unit transaction.	Target			
	Actual			

2.2. Liquidity

Consider issues related to financial liquidity

Performance Indicators

2.2.1 Dispute Resolution Plan

Description	Type	Yes/No	Start Date	End Date
Determine if you have a plan to resolve disputes and counterparty risks without intermediaries to take on liquidity risks.	Target			
	Actual			

2.2.2 Transaction Dispute Resolution Plan

Description	Type	Yes/No	Start Date	End Date
Determine if you have a plan to resolve financial transaction disputes that cross jurisdictional boundaries without intermediaries.	Target			
	Actual			

2.3. Business Continuity

Address business continuity issues

Performance Indicators

2.3.1 Critical Assets

Description	Type	Yes/No	Start Date	End Date
Determine if you manage digital assets that are critical to your operations.	Target			
	Actual			

2.4. Operational Resiliency

Performance Indicators

2.4.1 Security Breach Continuity

Description	Type	Yes/No	Start Date	End Date
Determine if you have specific requirements to confirm that the blockchain infrastructure will continue to operate after a security breach, other specific types of failures.	Target			
	Actual			

2.4.2 Volume Spikes

Description	Type	Yes/No	Start Date	End Date
Determine if you have specific projections or forecasts for the increase or sudden spikes in transaction volumes, etc..	Target			
	Actual			

2.5. Intermediaries

Consider issues related to interaction with intermediaries

Performance Indicators

2.5.1 Middlemen

Description	Type	Yes/No	Start Date	End Date
Determine if you work with third parties that act as "middlemen" to complete the transaction.	Target			
	Actual			

2.5.2 Partners

Description	Type	Yes/No	Start Date	End Date
Determine if you partner with other organizations to run your business.	Target			
	Actual			

2.5.3 Third Parties

Description	Type	Yes/No	Start Date	End Date
Determine if you need to work with a trusted third party to complete the transaction.	Target			
	Actual			

2.5.4 Multiple Parties

Description	Type	Yes/No	Start Date	End Date
Determine if you need multiple third parties to verify and validate transactions.	Target			
	Actual			

2.5.5 Anonymity

Description	Type	Yes/No	Start Date	End Date
Determine if you need one or more the third parties to be anonymous to one another.	Target			
	Actual			

2.6. Management Committees

Consider the adequacy of management committees

Performance Indicators**2.6.1 Board Support**

Description	Type	Yes/No	Start Date	End Date
Determine if your management committee has board-level support for the DTL using a blockchain solution.	Target			
	Actual			

2.6.2 Senior Participation

Description	Type	Yes/No	Start Date	End Date
Determine if the management committee has senior-level participation to monitor and manage pro-actively the risks and issues.	Target			
	Actual			

2.7. Privacy

Address privacy issues

Performance Indicators

2.7.1 PIA Buy-In

Description	Type	Yes/No	Start Date	End Date
Determine if you have "buy-in" from board and / or management level committees for the privacy impact assessment of sensitive information that will be stored on the blockchain.	Target			
	Actual			

2.7.2 Privacy Plan

Description	Type	Yes/No	Start Date	End Date
Determine if you have a plan to address privacy issues when using a permissionless blockchain.	Target			
	Actual			

2.8. Smart Contracts

Consider using smart contracts

Performance Indicators

2.8.1 Transaction Ordering

Description	Type	Yes/No	Start Date	End Date
Determine if you need to maintain the order in which buy and sell transaction were completed.	Target			
	Actual			

2.8.2 Legal Limitations

Description	Type	Yes/No	Start Date	End Date
Determine if you know the legal limits of using smart contracts in the jurisdictions that you are operating within.	Target			
	Actual			

2.9. Legal Liability

Consider legal liabilities

Performance Indicators

2.9.1 Transparency

Description	Type	Yes/No	Start Date	End Date
Determine if you need to provide transparency to your transaction information and digital content.	Target			
	Actual			

2.9.2 Liabilities

Description	Type	Yes/No	Start Date	End Date
Determine if you know the liabilities of using permissioned and / or permissionless blockchains in the jurisdictions that you are operating within.	Target			
	Actual			

2.9.3 Insurance

Description	Type	Yes/No	Start Date	End Date
Determine if you need liability insurance that is specific to using a blockchain solution.	Target			
	Actual			

2.10. Contract Enforcement

Consider contract enforcement issues

Performance Indicators**2.10.1 Contract Management**

Description	Type	Yes/No	Start Date	End Date
Determine if you need to manage contracts in the blockchain or off chain in order to stay compliant.	Target			
	Actual			

2.10.2 Jurisdictional Limits

Description	Type	Yes/No	Start Date	End Date
Determine if you know the jurisdictional limits when managing contract on the blockchain.	Target			
	Actual			

2.11. Threat Risk Assessment (TRA)

Address threats and risks

Performance Indicators**2.11.1 Risk Prioritization**

Description	Type	Yes/No	Start Date	End Date
Determine if you have a prioritized list of quantitative and qualitative risks and corresponding risk management strategies.	Target			
	Actual			

2.11.2 TRA Buy-In

Description	Type	Yes/No	Start Date	End Date
Determine if you have "buy-in" from board and / or management level committee for the TRA report.	Target			
	Actual			

2.11.3 Crisis Management Plan

Description	Type	Yes/No	Start Date	End Date
Determine if you have a crisis management plan to respond to failures when using the blockchain solution.	Target			
	Actual			

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3. Blockchain Architecture

Determine the blockchain architecture

3.1. Permissioned versus permissionless

Determine whether to use a permissioned or permissionless blockchain

Performance Indicators

3.1.1 Blockchain Type

Description	Type	Permissionless/ Permissioned	Start Date	End Date
Determine if you need to use a permissionless or permissioned blockchain solution.	Target			
	Actual			

3.1.2 Scale-Up Capacity

Description	Type	Yes/No	Start Date	End Date
Determine if the permissionless blockchain solution has the capacity to "scale up" as transaction volumes increase.	Target			
	Actual			

3.2. On-premise versus cloud-based

Determine whether to use an on-premise or cloud-based blockchain

Performance Indicators

3.2.1 Resources, Skills & Experience

Description	Type	Yes/No	Start Date	End Date
Determine if you have resources, skills, and experience to manage on-premise blockchain infrastructure.	Target			
	Actual			

3.2.2 Infrastructure

Description	Type	Yes/No	Start Date	End Date
Determine if you need to have the blockchain infrastructure on-premise, cloud-based, or hybrid.	Target			
	Actual			

3.3. BaaS versus Proprietary

Determine whether to use Blockchain as a Service (BaaS) or a proprietary blockchain

Performance Indicators

3.3.1 Internal Use

Description	Type	Yes/No	Start Date	End Date
Determine if you need an enterprise-wide blockchain only for internal use.	Target			
	Actual			

3.3.2 Use Cases

Description	Type	Yes/No	Start Date	End Date
Determine if you have one more or use cases that fit a BasS solution.	Target			
	Actual			

3.4. Consensus Protocol

Determine which consensus protocol to use

Performance Indicators

3.4.1 Consensus Mechanism

Description	Type	Yes/No	Start Date	End Date
Determine if you know which consensus mechanism is appropriate for the blockchain solution.	Target			
	Actual			

3.4.2 Transaction Volume

Description	Type	Yes/No	Start Date	End Date
Determine if you need to consider whether a Proof of Work (PoW) or Delegated Proof of Stake (DPoS) consensus algorithm can handle large volumes of transactions.	Target			
	Actual			

3.4.3 Delays & Prevention

Description	Type	Yes/No	Start Date	End Date
Determine if you need to consider a whether DPoS consensus algorithm can delay or prevent completing the transfer for value.	Target			
	Actual			

3.5. Mining Architecture

Address the mining architecture

Performance Indicators**3.5.1 Volume Increases**

Description	Type	Yes/No	Start Date	End Date
Determine if you expect the volume of digital content to increase rapidly.	Target			
	Actual			

3.5.2 High Volumes

Description	Type	Yes/No	Start Date	End Date
Determine if you need to support a high volume of transaction.	Target			
	Actual			

3.5.3 Hybrid Architecture

Description	Type	Yes/No	Start Date	End Date
Determine if you require hybrid architecture where some nodes are off-premise.	Target			
	Actual			

3.5.4 Distribution

Description	Type	Yes/No	Start Date	End Date
Determine if you require nodes to be distributed, but not decentralized.	Target			
	Actual			

4. Legislation & Regulations

Address the applicable laws and regulations

4.1. Customer Information

Protect customer information

Performance Indicators

4.1.1 Commercial Sensitivity

Description	Type	Yes/No	Start Date	End Date
Determine if you need to manage and secure commercially sensitive digital information on the blockchain platform.	Target			
	Actual			

4.2. Personal Information

Protect personal information

Performance Indicators

4.2.1 PII

Description	Type	Yes/No	Start Date	End Date
Determine if you need manage and secure personally identifiable information (PII) on the blockchain platform.	Target			
	Actual			

4.2.2 Removal

Description	Type	Yes/No	Start Date	End Date
Determine if you need to remove information from the blockchain to comply with legislation and regulations.	Target			
	Actual			

4.3. Health Information

Protect health-related information

Performance Indicators**4.3.1 PHI**

Description	Type	Yes/No	Start Date	End Date
Determine if you need to manage and secure personal health information (PHI) on the blockchain platform.	Target			
	Actual			

4.4. Data Residency

Consider issues related to where the data resides

Performance Indicators**4.4.1 Jurisdictional Constraints**

Description	Type	Yes/No	Start Date	End Date
Determine if you know all of the jurisdictional constraints if you use BaaS.	Target			
	Actual			

4.4.2 Residency Restrictions

Description	Type	Yes/No	Start Date	End Date
Determine if you have specific data residency restrictions to consider if you use BaaS.	Target			
	Actual			

4.5. Anti-Money Laundering

Guard against money laundering

Performance Indicators**4.5.1 Suspicious Transactions**

Description	Type	Yes/No	Start Date	End Date
Determine if you know how to identify suspicious financial transactions when using a permissionless blockchain.	Target			
	Actual			

4.5.2 KYC

Description	Type	Yes/No	Start Date	End Date
Determine if you have a process in place to know your customer (KYC) when using a blockchain solution.	Target			
	Actual			

4.5.3 AML

Description	Type	Yes/No	Start Date	End Date
Determine if you have a plan to comply with anti-money laundering (AML) regulations when using a blockchain solution.	Target			
	Actual			

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5. IT Operations and Network Security

Address IT operational and network security issues

5.1. Identity Management

Manage identities

Performance Indicators

5.1.1 Validation

Description	Type	Yes/No	Start Date	End Date
Determine if you need to validate the participant's identity before confirming the transaction.	Target			
	Actual			

5.2. Key Management & Loss Prevention

Manage and prevent loss of keys

Performance Indicators

5.2.1 Processes & Tools

Description	Type	Yes/No	Start Date	End Date
Determine if you have processes and technology tools that will ensure the security of private keys and wallets.	Target			
	Actual			

5.2.2 Theft Processes

Description	Type	Yes/No	Start Date	End Date
Determine if you have processes to manage the loss or theft of private keys.	Target			
	Actual			

5.2.3 Storage Plan

Description	Type	Yes/No	Start Date	End Date
Determine if you have a plan to manage hot and cold storage of private keys.	Target			
	Actual			

5.3. Chain Defense

Defend the chain

Performance Indicators

5.3.1 Response Plan

Description	Type	Yes/No	Start Date	End Date
Determine if you have a response plan in the case when a hacker takes control of 51% of the nodes on the network.	Target			
	Actual			

5.3.2 SIEM

Description	Type	Yes/No	Start Date	End Date
Determine if you have security information and event management (SIEM) software and hardware tools specifically to monitor the nodes on the blockchain network for vulnerabilities, intrusion detection, DDoS attacks, etc..	Target			
	Actual			

5.4. Cryptography

Evaluate the cryptography protocols

Performance Indicators

5.4.1 Protocols

Description	Type	Yes/No	Start Date	End Date
Determine if you have the requirements to evaluate the different cryptography protocols used by the nodes on the network to arrive at a consensus to update the DLT.	Target			
	Actual			

5.4.2 Consensus Mechanisms

Description	Type	Yes/No	Start Date	End Date
Determine if you know which consensus mechanism is appropriate for the blockchain solution.	Target			
	Actual			

5.5. Tokenization

Evaluate the tokens that might be used

Performance Indicators

5.5.1 Requirements

Description	Type	Yes/No	Start Date	End Date
Determine if you have the requirements to evaluate the different tokens that might be used on the permissionless blockchain network.	Target			
	Actual			

5.5.2 Values

Description	Type	Yes/No	Start Date	End Date
Determine if you know the underlying value of item the token will represent.	Target			
	Actual			

5.5.3 Consensus Mechanisms

Description	Type	Yes/No	Start Date	End Date
Determine if you know which consensus mechanism is appropriate for the blockchain solution.	Target			
	Actual			

5.6. Data Management

Manage the data

Performance Indicators

5.6.1 Database Encryption

Description	Type	Yes/No	Start Date	End Date
Determine if you need to secure off chain data by encrypting it databases.	Target			
	Actual			

5.6.2 Transmission Encryption

Description	Type	Yes/No	Start Date	End Date
Determine if you need to encrypt data when it is in transit to / from the blockchain to off chain storage.	Target			
	Actual			

5.7. Development & Operations (DevOps)

Address DevOps requirements

Performance Indicators

5.7.1 SLAs

Description	Type	Yes/No	Start Date	End Date
Determine if you have Service Level Agreements that specifically address the blockchain solution.	Target			
	Actual			

5.7.2 Skills

Description	Type	Yes/No	Start Date	End Date
Determine if you have skilled resources to develop and maintain and proprietary and on-premise blockchain solution.	Target			
	Actual			

5.8. Performance & Scalability

Consider performance and scalability issues

Performance Indicators

5.8.1 Scalability

Description	Type	Yes/No	Start Date	End Date
Determine if you need the blockchain solution to scale up quickly during peak periods.	Target			
	Actual			

5.8.2 Availability

Description	Type	Yes/No	Start Date	End Date
Determine if you require 24/7 availability even during a disaster recovery situation.	Target			
	Actual			

5.9. Off-Chain Information Interoperability

Consider interoperability requirements

Performance Indicators

5.9.1 Integration

Description	Type	Yes/No	Start Date	End Date
Determine if you need to manage and integrate digital information that is off chain.	Target			
	Actual			

5.9.2 Regulatory Reports

Description	Type	Yes/No	Start Date	End Date
Determine if you need provide regulatory reports regarding information that is stored the blockchain and off chain.	Target			
	Actual			

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6. Project Planning

Plan the project

6.1. Business Objectives

Align with the strategic objectives

Performance Indicators

6.1.1 Strategic Alignment

Description	Type	Yes/No	Start Date	End Date
Determine if the blockchain solution aligns with the strategic objectives.	Target			
	Actual			

6.2. Business Case

Obtain buy-in for the business case

Performance Indicators

6.2.1 Selection Option Buy-In

Description	Type	Yes/No	Start Date	End Date
Determine if you have "buy-in" from all key stakeholders to approve the selection option.	Target			
	Actual			

6.2.2 Business Case Buy-In

Description	Type	Yes/No	Start Date	End Date
Determine if you have "buy-in" from board and / or management level committees for the business case.	Target			
	Actual			

6.3. Project Governance Framework

Engage pro-active participation from business team's management

Performance Indicators

6.3.1 Management Engagement

Description	Type	Yes/No	Start Date	End Date
Determine if the project steering committee has pro-active participation from business team's management.	Target			
	Actual			

6.4. Communications & Change Management

Develop a communications and change management plan

Performance Indicators

6.4.1 Change Management Plan

Description	Type	Yes/No	Start Date	End Date
Determine if you need a communications and change management plan that is designed specifically for the blockchain solution that the board and / or management committee approved.	Target			
	Actual			

6.5. Scope Management

Obtain "buy-in" from board and / or management level committees

Performance Indicators

6.5.1 Scope Buy-In

Description	Type	Yes/No	Start Date	End Date
Determine if you have "buy-in" from board and / or management level committees for the scope of the blockchain solution.	Target			
	Actual			

6.6. Request for Proposal

Issue an RFP

Performance Indicators

6.6.1 RFP

Description	Type	Yes/No	Start Date	End Date
Determine if you need to issue an RFP to for the blockchain solution approved in the business case.	Target			
	Actual			

6.7. Business User Training & Support

Develop a training plan and on-going support plan

Performance Indicators

6.7.1 Training & Support Plan

Description	Type	Yes/No	Start Date	End Date
Determine if you need to develop a training plan and on-going support plan that is designed specifically for the blockchain solution that the board and / or management committee approved.	Target			
	Actual			

6.8. Quality Management and Testing

Develop a quality management plan

Performance Indicators

6.8.1 Quality Management Plan

Description	Type	Yes/No	Start Date	End Date
Determine if you need to develop a quality management plan that is designed specifically for the blockchain solution that the board and / or management committee approved.	Target			
	Actual			

Administrative Information

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Submitter:

Given Name: Owen

Surname: Ambur

Email: Owen.Ambur@verizon.net

Phone:

_7e355be2-89c0-11ea-8237-e671c6e29406