Is your business ready for Blockchain?

Bayo Adewolu

The Power in the possible

The potential for blockchain to deliver substantial value to businesses and society is enormous. Not only does blockchain offer the promise of cost reduction and efficiency, it could also enable revenue growth for businesses, increase transparency and drive transformation across numerous business processes in multiple industries, generating cost savings and creating trust for complex ecosystems.

Thought up as the underlying architecture for the Bitcoin cryptocurrency in 2008, blockchain technology is currently a hot topic and the subject of numerous studies in sectors outside the payments industry to which it has often been confined in the past. Blockchain is considered by some to represent the next technological revolution after the Internet. Gartner forcats that by 2025, blockchain will generate an annual business value of over $175 billion, rising to over $3 trillion by 2030.

Blockchain is a technology that allows data to be stored and exchanged on a peer-to-peer (P2P) basis. The technology, which enables exchange between parties without the need for a trusted intermediary Structurally, blockchain data can be consulted, shared and secured thanks to consensus-based algorithms. It is used in a decentralised manner and removes the need for intermediaries, or "trusted third parties.

There are many different types of blockchain, components, standards and approaches for example, permission, non-permissioned and private blockchains. The technology is still maturing and the business potential of blockchain while still exploratory is gradually coming out of the labs. There are number of successful practical use cases of the technology even in Nigeria and this was the crux of a recent executive breakfast meeting hosted by PwC in Lagos.

Advantages of blockchain technology

- Transparency: The blockchain offers an audit trail that can be consulted at any time by all participants on the blockchain

- Automation: The rules set upstream by blockchain members via smart contracts allow for automatic settlement

- Autonomy: The blockchain works according to the rules set by its members. There is no need for a central decision-making body.

- Security: Operating data input on the blockchain is deemed secure owing to the stacking of the blocks.

- Client accountability: Each blockchain participant has rights and obligations with regard to the blockchain community.

Who is this solution for?

If the following conditions apply, then blockchain has strong potential to provide a solution:

- Multiple parties share data – multiple participants need views of common information

- Multiple parties update data – multiple participants take actions that need to be recorded and change the data

- Requirement for verification – participants need to trust that the actions that are recorded are valid

- Intermediaries add cost and complexity – removal of ' central authority' record keeper intermediaries have the potential to reduce cost (e.g. fees) and complexity (e.g. multiple reconciliations)

- Interactions are time sensitive – reducing delay has business benefit (e.g. reduced settlement risk, enhanced liquidity)

- Transaction interaction – transactions created by different participants depend on each other.

Ultimately, the adopted blockchain solution must reflect the specific needs of the business or organisation.

Core focus areas

Smart Contracts

Stemming from the capabilities afforded by the distributed nature and security mechanisms associated with blockchain technology, smart contracts have emerged as an area in which blockchain networks can be utilised to record and execute contractual agreements directly between parties to the agreement.

At the most basic level, smart contracts can be described as a vehicle that combines the ability to specify and record the obligations of contractual agreements in a shared, digital record with sets of protocols that automatically execute actions related to these agreements based on the validity of inputs submitted by parties to the contract. This allows parties to agree or this leads parties to an agreement to objectively verify and execute contractual obligations, and provides greater transparency, lower risks, and lower costs for contracts associated with a plethora of use cases.

Supply chain

Heightened risks, multiplying pain points and reduced accountability have resulted from increasing complexity and opaqueness of the supply chain. The public are becoming more aware of these weaknesses and there is an upward demand for transparency in what they are purchasing and consuming to bridge this trust gap.

Through the use of blockchain, the supply chain journey could become more streamlined, accurate, audited and secure. At every stage of the process, barcodes could be scanned and recorded onto a blockchain ledger system, meaning the product could be tracked from creation to customer. This would be visible to all authorised parties in real-time and the information could be trusted as the data would be immutable.

We believe in a supply chain that offers better visibility, better efficiency, reduced fraud and more importantly, a safer and more reliable service for all involved.

Payments / Crypto-Currencies /Assets / Tokens

While the Internet has created environments in which individuals and businesses can instantly share information on a global scale at minimal or no cost, the same cannot be said for payments, which can take days to settle and often impose high transaction costs. This is because the fragmented, legacy infrastructure providing the rails for payments is not equipped to handle the class of instant, low cost services that has become an expectation in the digital age.

The emergence of crypto-currencies/tokens/assets and blockchain technology provides financial institutions with the potential to address these challenges by replacing infrastructure based on the correspondent banking model with a shared, digital ledger layer in which messages and payments can be posted and reconciled in near real-time across a distributed network that does not rely on costly intermediaries, and is secured through a combination of network consensus and cryptography.

Digital Identity

Proving your identity online is difficult and there is currently little transparency about how the information you provide to identify yourself is used. Hence, there is a strong demand for verified, trusted and immutable identities.

Any permissioned blockchain use case requires authorised digital identities and Blockchain provides decentralised control and ownership of identity attributes, giving control and ownership back to users instead of organisations. Each participant's transactions are added to the blockchain with other participants maintaining and verifying their legitimacy, enhancing security, fraud detection and trust in the individual's digital identity. In addition, the decentralisation of control and ownership of identity attributes removes the need for intermediaries, giving individuals more control and ownership over their digital identity.

We believe in a digital identity that can be trusted, secure and empowers individuals to have more control over how their information is used and PwC currently consults on a number of councils around digital identity.

DLT Security

To reach a production phase DLT projects need to face both new and traditional security challenges. With the rate of change of technology accelerating at an unprecedented rate, cyber security is becoming increasingly complex, with security risks regarding the confidentiality, security, and availability of services and data.

Consensus ensures that tampering on a blockchain is obvious. Participants could trust that the information they are seeing is accurate as blockchain provides an immutable audit trail and transactions are time and date stamped. It is also resilient, providing no single point of failure, storing information securely, through data encryption, with permissioned blockchains only giving access to authorised individuals.

Despite Blockchain's obvious merits regarding security, at PwC we realise that we must adhere to good practice and procedures to avoid issues regarding key management, smart contracts, privacy, architectural security, governance and consensus hijacking.

DLT Assurance

As organisations progress blockchain initiatives towards production readiness, they require a structured framework to ensure that technology implementations are robust and resilient. This is because while a blockchain protocol may itself be secure, various integration points, human interfaces and network design may expose critical vulnerabilities.

PwC's Blockchain Go Live Assurance offering provides organisations with a customised risk assessment program for identifying threats and risks associated with a specific implementation. The output of the program is a detailed cyber security, IT resilience, data and controls assessment, an accompanying controls framework and testing strategy, and a report outlining test results and recommendations.

Conclusion

Blockchain will help to manage increasing global complexity by combining security, decentralisation and transparency. As with all such technologies, it will potentially disrupt market players that are not agile and responsive while helping to bring new players into the market. There are a number of use cases that are already live today.

We are careful to stress though that not all cases will be amenable to a blockchain-based solution. Where simpler, proven solutions exist, it will not be useful to force-fit a blockchain solution. As the saying goes, if your only tool is a hammer, the every problem looks like a nail. Blockchain only works well for challenges it is well positioned to address.

The key challenge for all players, irrespective of their industry, will be to identify the use case that will be of most benefit to them and to explore others if their first choice proves unsuccessful. At PwC we have the knowledge and development capabilities to identify how blockchain can benefit your organisation.

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- enquiry@ng.pwc.com

About the Authors

Bayo Adewolu is a Senior Manager with PwC Nigeria's Technology Consulting Practice. He can be reached at bayo.adewolu@pwc.com