

BLOCKCHAIN-BASED AUTOMATION: A NEW FRONTIER FOR BUSINESS EFFICIENCY AND COLLABORATION

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Abstract

This article explores the benefits of using blockchain technology for business automation, including improved communication, data privacy, control, traceability, and notarisation. Blockchain technology can transform the operability of businesses, providing greater efficiency, security, and transparency. However, enterprises must also consider the challenges and considerations associated with implementing this technology, such as integration, scalability, regulatory and legal issues, security, cost, and user adaptability. Further, this article highlights the potential of OpenDSUs, Data Sharing Units (DSU), and Self-Sovereign Applications (SSApps) as solutions for implementing blockchain-based automation. By adopting a thoughtful, strategic approach to implementing blockchain-based automation and leveraging the right tools and platforms, businesses can improve their operations, build trust with their customers and stakeholders, and stay ahead of the competition in a rapidly evolving digital landscape.

Key words: blockchain-based automation, data privacy, Self-Sovereign Applications (SSApps)

MATERIAL AND METHOD

In today's rapidly evolving business landscape, companies continually look for new ways to improve their operations and stay competitive. One area that has seen significant development in recent years is business process automation, which involves using technology to automate repetitive and manual tasks. However, in their haste to automate, some companies have begun to use the tools in other ways than they originally designed them to be used. For example, communication tools (e.g. WhatsApp) originated for personal use, but some businesses have started using them to communicate with customers (Terkan *et al*, 2020). Similarly, application suites built on top of email ecosystems can generate a lot of noise and reduce the efficiency of the initial communication process.

By harnessing the power of data privacy-focused tools and technologies built on distributed ledgers, enterprises can automate their processes securely and transparently without relying on any tools not designed for business use. This is where blockchain-based automation and solutions come in.

In this article, we explore the concept of blockchain-based automation and discuss its potential to revolutionise how businesses operate. Three key features make blockchain-based automation attractive: unreliability, non-repudiation, and tamper-resistance. These should be maintained by any extension or modification of blockchain architectures (Alboaie S. *et al*, 2019).

Blockchain-based automation offers a range of benefits, including improved security, transparency, and trust, which are essential for businesses operating in today's rapidly changing digital environment. We will next discuss the key components of blockchain-based automation, examine some real-world examples of its use, and discuss the challenges and considerations businesses should keep in mind when implementing this technology.

Finally, we will look to the future and discuss potential developments and trends in blockchain-based automation.

RESULTS AND DISCUSSIONS

Blockchain-based automation offers several advantages over resolving every task with an email. Email is one of the most widely used communication tools in business, but it has its limitations when it involves outsourcing processes.

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Emails can easily get lost in cluttered inboxes, and tracking progress can be difficult when multiple stakeholders are involved. In addition, emails can be vulnerable to security breaches, and it can be complicated to ensure the authenticity of email communications.

Firstly, blockchain-based automation provides a secure and transparent way to track progress and ensure the authenticity of communications. Because blockchain is a distributed ledger, all stakeholders involved in a transaction can see the same information, which promotes trust and transparency. For granularity access and more privacy and data control, frameworks can be used, such as OpenDSU, to create a more attractive, adaptable, and easily customisable solution for every business need.

In addition, blockchain-based automation can significantly reduce the time and effort required to complete specific tasks. For example, by automating supply chain processes using blockchain, businesses can reduce the time and costs involved with tracking goods from one location to another. These days, communication tools such as emails, sms, and other kinds of text messaging are exchanged between stakeholders to send status updates. In that way, contextual information is lost or difficult to obtain, and valuable messages are even lost. Blockchain can also help streamline processes such as invoice management and payment processing, reducing the risk of errors and fraud.

Another benefit of blockchain-based automation is that it allows businesses to take a more proactive approach to compliance. Because all transactions are logged on the blockchain, companies can easily track compliance with regulations and standards. Confidentiality can be achieved by using Data Sharing Units and anchoring strictly just the basic data. This can help businesses avoid legal fines and sanctions and promote a culture of ethical and responsible business practices.

Overall, blockchain-based automation offers a range of benefits compared to resolving every task with an email. By providing a secure and transparent way to track progress, reducing the time and effort required to complete tasks, and promoting compliance, blockchain-based automation can help businesses operate more efficiently and effectively in today's digital landscape.

KEY COMPONENTS OF BLOCKCHAIN-BASED AUTOMATION

Blockchain-based automation relies on several key components to provide the benefits of

security, transparency, and trust. Here are some of the critical elements of blockchain-based automation:

Data privacy is one of the most significant components of blockchain-based automation. Blockchain enables the creation of private databases, where only authorised parties can access information. That guarantees that sensitive data is protected from unauthorised access, ensuring data privacy.

Another key component of blockchain-based automation is data control. Blockchain gives users full control over their data, deciding who can access it and for what purpose (Alboaie S. *et al*, 2020). It gives users greater autonomy and privacy and is essential for building trust in the digital environment.

Traceability is another key component of blockchain-based automation. Blocks are added in consensus with other nodes. This enhances trust and eliminates the trusted third party (Sultan *et al*, 2018). With blockchain, all transactions get logged and time-stamped, creating an immutable data record. The immutability of data is another major strength of using blockchain technology (Balan A. *et al*, 2023). Doing so facilitates traceability of the history of a particular transaction or asset, promoting transparency and responsibility.

Notarisation is the process of verifying the authenticity of a document or transaction. With blockchain-based automation, notarial authentication can be performed decentralised and automated, reducing the need for intermediaries and increasing efficiency.

Data Sharing Units (DSUs) are a new technology that can play an important role in blockchain-based automation. DSUs allow users to share data securely and transparently, fostering collaboration and information sharing while returning control of the data ownership.

Self-Sovereign Applications are viable solutions for the user interface layer when performing blockchain-based automation. These apps allow users to control their data and digital identity, enabling them to interact with others securely and privately (Alboaie S. *et al*, 2020)

By combining these key components, blockchain-based automation provides a powerful tool for businesses looking to improve their operations and build trust in the digital environment. By ensuring data privacy, data control, traceability, notarisation, usage of DSUs, and self-sovereign applications, blockchain-based automation can help businesses operate more efficiently, effectively, and securely in today's rapidly changing digital landscape.

CHALLENGES AND CONSIDERATIONS

While using blockchain technology for business automation offers many benefits, there are also several challenges and considerations that businesses must keep in mind when implementing this technology.

Integration is one of the biggest challenges of adopting blockchain technology for automation. Integrating this technology with existing business processes and systems can be difficult and require significant investment in IT infrastructure. The transition process can also be complex without a good strategy or proper framework choices.

Another challenge is scalability. Blockchain technology is still in the early stages of development, and it can be hard to scale blockchain-based automation to meet the needs of the largest organisations.

Regulations and legal considerations are also relevant when implementing blockchain technology as a foundation for automation. As a relatively new technology, there are still many legal and regulatory considerations that businesses need to consider when deciding to store data in a blockchain, as blockchain is a distributed ledger that stores all data.

Security is another important factor. Although blockchain technology is, overall, considered to be very secure, there are still risks associated with this technology. Businesses need to take steps to ensure the security of their blockchain automation systems, including implementing strong access controls and perhaps using private blockchain networks with strict control over which nodes are part of the network.

Cost is also a factor to consider. The investment required to adopt this technology can be significant, and businesses must carefully weigh the costs and benefits.

Despite these challenges, for sure, there are businesses in many domains that are willing to invest in blockchain technology for automation that can offer significant benefits. By carefully considering these challenges and taking steps to address them, businesses can leverage the power of blockchain technology to improve their operations and build trust with their customers and stakeholders.

Finally, user adoption can be a challenge when implementing blockchain technology for automation. Users may be unfamiliar with this technology, and training and education may be necessary to ensure users understand how to use these systems effectively. But as shown above, user creativity can push the boundaries and determine new features or applications to be built.

FUTURE OF BLOCKCHAIN - BASED AUTOMATION

Blockchain technology (Balan A. *et al*, 2023) has the potential to revolutionise the way businesses operate, offering greater efficiency, security, and transparency. However, businesses must carefully consider the challenges and considerations associated with implementing this technology. One promising solution for implementing blockchain-based automation is using OpenDSU, Data Sharing Units. These enable businesses to create self-sovereign applications that give users greater control over their data and enable secure, decentralised communication and collaboration.

Businesses can achieve greater data privacy and control, traceability, notarisation, and improved communication by leveraging and choosing the right technologies for their needs. OpenDSU provides a flexible and scalable platform for implementing blockchain-based automation while Data Sharing Units enable secure, decentralised data sharing and collaboration. SSApps provide a user-friendly interface for interacting with blockchain-based automation systems, making it easier for users to adopt this technology.

Ultimately, the key to successfully implementing blockchain-based automation is to consider the challenges and considerations associated with this technology carefully and to leverage the right tools and platforms to achieve the business goals. By adopting a thoughtful, strategic approach to implementing blockchain-based automation, businesses can improve their operations, build trust with their customers and stakeholders, and stay ahead of the competition in a rapidly evolving digital landscape.

CONCLUSIONS

In conclusion, blockchain-based automation provides several benefits, including improved security, transparency, and trust, that can help businesses operate more efficiently and effectively in today's digital landscape. By harnessing the power of data privacy-focused tools and technologies built on distributed ledgers, enterprises can automate their processes securely and transparently. However, businesses must consider the challenges and considerations associated with implementing this technology, such as integration, scalability, regulatory and legal issues, security, cost, and user adaptability.

The potential of OpenDSUs, Data Sharing Unit (DSU), and Self-Sovereign Applications (SSApps) have also been highlighted as solutions for implementing blockchain-based automation. By

adopting a thoughtful, strategic approach to implementing blockchain-based automation and leveraging the right tools and platforms, businesses can build trust with their customers and stakeholders and stay ahead of the competition in a rapidly evolving digital landscape.

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