



Blockchain Strategic Business Value in Construction



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“Blockchain
technology”

Introduction

Blockchain technology is widely accepted as a major disruptor of the status core in the commercial sector innovating in transactions, transforming industries and driving global economic development. The technology is believed to increase global gross domestic product (GDP) by USD 1.76 trillion, which represents 1.4 percent of global GDP, by 2030. This technology has gained significant hype, during 2017 and 2018, as a very promising field being able to achieve a worldwide impact, with projections showing that it could reach 10 percent of global GDP by 2025. ¹

Its powerful presence in numerous sectors including finance, insurance, logistics, energy and transportation is a reality. However, it is also crucial to realize its potential value when applied in construction problems. Despite the fact that the construction industry has traditionally demonstrated a conservative nature regarding digital transformation, the adoption of innovative technologies has generally contributed to a significant growth.

For example, Building Information Modelling (BIM) was very successful in transforming design paradigm. It was unable, though, to leave a positive mark on procurement.

Blockchain, on the other hand, has the power to tackle procurement challenges meeting the unfulfilled needs of BIM. The combination of the two technologies, hence, will effectively make the aspired transition a reality.



1. Herweijer, C., Combes, B., Swanborough, J., Davies M., et al. World Economic Forum. (2018, September). Building Block(chain)s for a better planet.

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The first section of this research paper will analyze the four key points regarding blockchain's footprint in a global scale. It also discusses the tremendous economic opportunities in blockchain technology, while it presents the adoption rates from various sectors. In addition, the definition types of blockchain networks (public, private, consortium and hybrid networks) are provided and thoroughly discussed in order to understand the technology in depth.

The second section demystifies the hype of blockchain, breaks down its complexity and sees the various drivers that lead to the implementation of blockchain in construction, to help the industry become more effective, collaborative and transparent in the digital age. Furthermore, the section extensively analyzes top risks and challenges towards adopting blockchain technology in the construction industry.

The third section describes in detail how the new 'blockchain' technology (or distributed ledger technology) can be introduced into the construction industry, while it explores the potential of recognized use case applications of blockchain for the sector. ²

This insightful study manages to put the industry on the same page with other leading ones, with regards to blockchain and distributed ledger technologies, and effectively demonstrate best practices towards valuable technology adoption where significant benefits can be achieved. ³

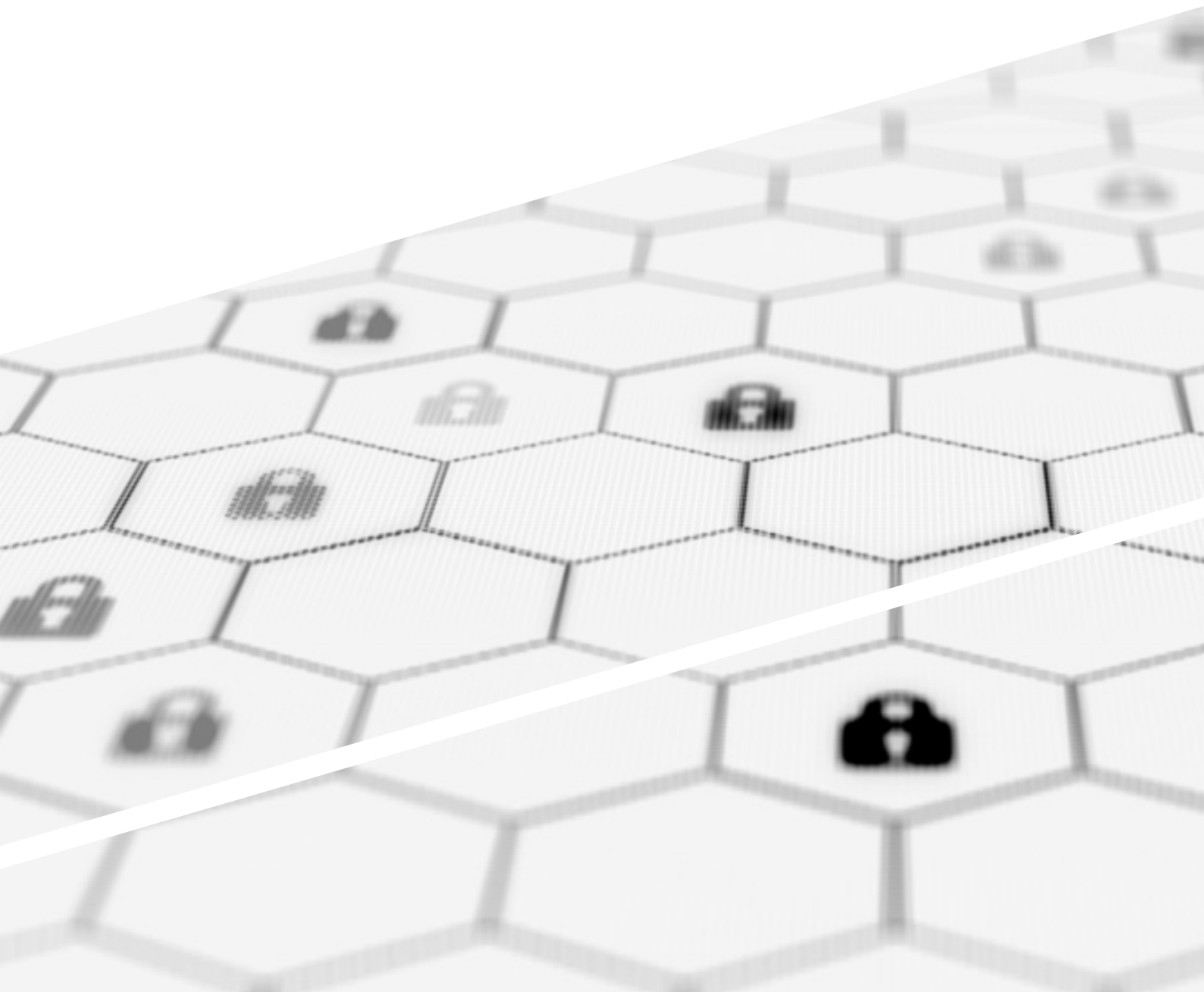
2. Perera, S., Nanayakkara, S., Rodrigo, M. N. N., Senaratne, S. Weinand, R. (2020, March) Blockchain Technology: Is it Hype or Real in the Construction Industry? Journal of Industrial Information Integration 17, 100125.

3. Institution of Civil Engineers. (2018, December). Blockchain technology in the construction industry: Digital transformation for high productivity.

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Section 1

Four key points to start with



1. Blockchain's tremendous opportunity worldwide



3. Blockchain definition



2. Blockchain adoption in the global industry

4. Types of blockchain networks

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1. Blockchain's tremendous opportunity worldwide

Global gross domestic product (GDP) is anticipated to add USD 1.7 trillion by 2030 due to an incredible blockchain growth.⁴ These key economic findings have emerged when professionals assessed how blockchain is presently being used while gauging its potential to generate value throughout a variety of industries, including healthcare, government and public services, manufacturing, finance, logistics and retail. Economists expect that almost all businesses will realize the huge opportunity and will be using blockchain in some form by 2025. Once it is widely accepted, the economic benefits are estimated to increase significantly.⁵



4. Herweijer, C., Combes, B., Swanborough, J., Davies M., et al. World Economic Forum. (2018, September). Building Block(chain)s for a Better Planet.

5. PwC. (2020, October). Time for trust. The trillion-dollar reasons to rethink blockchain.

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1. Critically evaluate need

- *Full understanding of specifications*
- *Trust among parties involved*
- *Interdependent transactions multiparty agreement*
- *Regulatory applicable laws for international contracts*

2. Create capabilities

- *Consolidate databases with processes*
- *Establish new business protocols*
- *Enhance software development team*

3. Begin with a trial phase

*Pick a case for proof of concept that is well defined and ensure that business partners can provide identity and with defined terms of transaction, and success of transaction can be easily measured.*³²



32. Ernst & Young LLP. (2018). Smart contracts using blockchain technology: a better way to deliver construction projects.



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