

## 1. Blockchain challenges and opportunities: a survey

Zibin Zheng (1); Shaoan Xie (1); Hong-Ning Dai (2); Xiangping Chen (3); Huaimin Wang (4)

**Source:** *International Journal of Web and Grid Services*, v 14, n 4, p 352-75, 2018; **ISSN:** 1741-1106; **Publisher:** Inderscience Enterprises, Switzerland

**Author affiliation:** (1) Sun Yat-sen University, School of Data and Computer Science, China (2) Macau University of Science and Technology, Faculty of Information Technology, China (3) Sun Yat-sen University, National Engineering Research Center of Digital Life, China (4) National University of Defense Technology, National Laboratory for Parallel and Distributed Processing, China

**Abstract:** Blockchain has numerous benefits such as decentralisation, persistency, anonymity and auditability. There is a wide spectrum of blockchain applications ranging from cryptocurrency, financial services, risk management, internet of things (IoT) to public and social services. Although a number of studies focus on using the blockchain technology in various application aspects, there is no comprehensive survey on the blockchain technology in both technological and application perspectives. To fill this gap, we conduct a comprehensive survey on the blockchain technology. In particular, this paper gives the blockchain taxonomy, introduces typical blockchain consensus algorithms, reviews blockchain applications and discusses technical challenges as well as recent advances in tackling the challenges. Moreover, this paper also points out the future directions in the blockchain technology. (0 refs)

**Inspecc controlled terms:** cryptocurrencies - distributed databases

**Uncontrolled terms:** blockchain technology - technological application perspectives - blockchain taxonomy - reviews blockchain applications - blockchain consensus algorithms - cryptocurrency - financial services - Internet of things - public services - social services

**Classification Code:** C6130S Data security - C6160B Distributed databases

**IPC Code:** G06F9/44 - G06F17/30 - G06F21/00 - G06Q30/00 - G06Q40/00

**Treatment:** Bibliography (BIB) - General or Review (GEN)

**Database:** Inspecc

Copyright 2019, The Institution of Engineering and Technology

**Data Provider:** Engineering Village