



Delft University of Technology

## Workshop on Blockchain based applications

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**DOI**

[10.1145/3325112.3325272](https://doi.org/10.1145/3325112.3325272)

**Publication date**

2019

**Document Version**

Final published version

**Published in**

Proceedings of the 20th Annual International Conference on Digital Government Research

**Citation (APA)**

Ubacht, J., Tan, Y. H., Janssen, M., & Rukanova, B. (2019). Workshop on Blockchain based applications. In F. Salem, A. Zuiderwijk, & Y-C. Chen (Eds.), Proceedings of the 20th Annual International Conference on Digital Government Research: Governance in the Age of Artificial Intelligence, dg.o 2019 (pp. 522-523). Association for Computing Machinery (ACM). <https://doi.org/10.1145/3325112.3325272>

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# Workshop on Blockchain based applications

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## ACM Reference format:

Drs. Jolien Ubacht, Prof.dr. Yao-hua Tan, Prof.dr.ir. Marijn Janssen and Dr. Boriana Rukanova. 2019. Workshop on Blockchain based applications. In *Proceedings of dg.o 2019: 20th Annual International Conference on Digital Government Research (dg.o 2019), June 18, 2019, Dubai, United Arab Emirates*. ACM, New York, NY, USA, 2 pages. <https://doi.org/10.1145/3325112.3325272>

## 1 Objective of the workshop

The use of blockchain technology has the potential to change many core processes in society, industry, education, healthcare, business and government by introducing new ways of transacting that are expected to change the traditional ways in which organizations exchange data and money. Proponents of developing blockchain applications suggest that many benefits can be created by using blockchain, including (enhanced) trust, privacy, transparency and control. As a consequence the traditional role of the middleman in transactions processes might be substituted by blockchain based applications. Although blockchain technology was pioneered in the financial sectors by initiating cryptocurrencies, currently its use is not limited to this sector. Blockchain can be considered as a general purpose technology and as such offers a myriad of options to create blockchain applications. To date, many pilots are conducted and prototypes are developed to better understand its potential, its limitations and its transformative effect on a wide range of application domains.

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*dg.o 2019, June 18, 2019, Dubai, United Arab Emirates*

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ACM ISBN 978-1-4503-7204-6/19/06.

<https://doi.org/10.1145/3325112.3325272>

The objective of our workshop is to inform participants on the characteristics of blockchain technologies and architecture design and to critically assess the possibilities and limitations of blockchain based applications for a diversity of G2B, G2G and G2C processes & services.

Our target group consists of researchers, business and policy decision makers that want to:

- gain insight into the characteristics of blockchain technology,
- learn about the choices that can be made for a blockchain architecture design that needs to match with the relevant process,
- be informed on the state of affairs in blockchain applications in several domains.

We expect that after the workshop the participants will be able to assess how blockchain applications can contribute to their own domain of interest.

## 2 Workshop design

To address the above take aways, we propose the following workshop design (including the estimated time required for each component):

- an introductory lecture on the special characteristics of blockchain technology and the related governance issues by Marijn Janssen, including discussion with the participants (1 hour)
- an overview of case-based applications to illustrate the types of applications by Jolien Ubacht (½ hour)
- an in-depth case analysis in the domain of international trade lanes (B2G) to illustrate the challenges and the limitations of blockchain based applications by Yao-hua Tan & Boriana Rukanova (1 hour)

### 3 Bio's of workshop organizers

**Prof. dr. Yao-Hua Tan** (y.tan@tudelft.nl) is full professor of Information and Communication Technology at the department of Technology, Policy and Management of the Delft University of Technology. He is program director of the Master Customs and Supply Chain Compliance of the Rotterdam School of Management of the Erasmus University Rotterdam. He was also Reynolds visiting professor at the Wharton Business School of the University of Pennsylvania. His research fields are IT innovation for e-customs to make international trade more secure and safe; IT architectures for data sharing and compliance management for international supply chains; artificial intelligence and data analytics for customs risk targeting and improve logistic efficiency in international trade. He published five books and over 220 conference papers and journal articles. He is scientific coordinator of various research projects on IT innovation for e-customs to facilitate international trade; including the EU funded projects ITAIDE (2006-2010), CASSANDRA (2010-2014), CORE (2014-2018), PROFILE (2018-2021) and PEN-CP (2018-2023). He was vice-chair (2012-2014) of the Committee on Trade of the Trade Division of the United Nations Economic Commission for Europe. He also regularly acts as an expert for the Dutch government's Top Sector Logistics committee and the Netherlands Logistics Information Platform (NLIP), and the European Commission.

**Prof.dr. Marijn Janssen** (M.F.W.H.A.Janssen@tudelft.nl) is a full Professor in ICT & Governance and chair of the Information and Communication Technology (ICT) research group of the Technology, Policy and Management Faculty of Delft University of Technology. He was ranked as one of the leading e-government researchers in surveys in 2009, 2014 and 2016, and has published over 450 refereed publications. He was nominated in 2018 by Apolitical as one of the 100 most influential people in the Digital Government <https://apolitical.co/lists/digital-government-world100>. More information: [www.tbm.tudelft.nl/marijn](http://www.tbm.tudelft.nl/marijn)

**Dr. Boriana Rukanova** (b.d.rukanova@tudelft.nl) is a senior researcher at TU Delft and since 2006 she has been working on a series of EU-funded innovation projects in the area of international trade and eCustoms such as projects ITAIDE (2006-2010), CORE (2014-2018), PROFILE (2018-2021) and PEN-CP (2018-2023). In these projects IT innovations that aim to increase

safety and security and at the same time ensure trade facilitation are developed and tested in real-life settings in public-private collaboration processes including large multinational companies and authorities. Her research interests include mobilization of collective action for initiation and upscaling of digital trade infrastructure innovations, business-government information sharing to create public value, public-private governance, cost-benefit sharing and the use of big data. Her research work appears in leading international journals such as *Government Information Quarterly*, *European Journal on Information Systems*, *Electronic Markets*, *Transforming Government: People, Processes and Policies*, book chapters and proceedings of international conferences in the area of eGovernment and Information Systems.

**Drs. Jolien Ubacht** (J.Ubacht@tudelft.nl) is assistant professor in ICT & Governance in the Information and Communication section at the Faculty of Technology, Policy & Management at Delft University of Technology. She is also department manager of the Engineering Systems and Services department. Her research focus is on the institutional aspects of the design of ICT-based innovation and services. She is specialized in the design of governance arrangements for complex socio-technical systems that require public, private and civic interests to be aligned, with special focus on privacy, security and end user participation.

### Relevant literature

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