UniOGS Winter School 2021 Training Activities

Proposed Week: 11/2021 (15.3.2021 to 20.3.2021)

Responsible Teacher: Teck Ming (Terence) Tan (teckming.tan@oulu.fi)
Co-teacher: Tero Huhtala (tero.huhtala@oulu.fi)

Proposed Course: Strategic Blockchain Management

ECTS Credits: 6

Language of instruction: English

Learning outcomes:
Upon completion of this intensive course, the student can systematically analyze how blockchain technology could serve as a strategic technology and compare it with different technology strategies. The student is able to assess the strategic value of using blockchain technologies from the perspectives of a firm, customers, competitors, and different stakeholders. Moreover, the course provides the students the knowledge to understand blockchains as platforms of innovation and value creation. The student will be able to critically discuss the blockchain phenomenon and related business concepts (i.e., marketing, management, and organization). In addition, the student is able to analyze different capabilities and blockchain attributes (i.e., a trade-off between benefits) of current business operations, as well as discover opportunities for business transformation. Accordingly, the student is able to make technology-related decisions and apply blockchain as a strategic technology in business management. Students are also able to communicate and popularize research results and scientific knowledge to public audiences, such as asset tokenization – the underlying economic theory of blockchain economics.

Contents1:
Day 1: Blockchain fundamentals
- Values perceptions of Bitcoin and Altcoins
- Double-spending problem
- Review of technical details
- Types of blockchain
- Blockchain infrastructure

Day 2: Strategic values, consensus, and use cases
- Value of using blockchain technology
- Cost and benefits analysis (e.g., trade-off stakeholders’ benefits/well-beings) while adopting blockchain

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1 Illustrated topics of the contents for each day. Practicality, other relevant topics will be covered.
- Types of consensus mechanisms
- Industry relevant use cases

Day 3: Bootstrapping network effects through blockchain technology and blockchain economics
- Trustless business environment
- Blockchain governments
- Network-of-networks effects
- Blockchain sustainable/circular business model

Day 4: Tokenization as new type of digital business transformation
- Digitalization-sustainability convergence in the value chain
- Programmable properties
- Operational transformation
- Applications in logistics and industry 4.0

Day 5: Decentralization in business research
- Marketing
- Management
- Organization
- Legal

Mode of delivery: Online lecture via Zoom

Learning activities and teaching methods:
*Pre-exam based on strategic management of blockchain (25h), 5-full days intensive online lecture (35h), reading the assigned articles (20h), analysis of blockchain as a business strategic technology in group work (40h), learning diary after the course (40h)

*Pre-exam is an assignment where the doctoral students will familiarize themselves with the core concepts of the intensive course from the given reading materials and analyze how the “strategic management” of blockchain technology can be leveraged to benefit their current and future research. 4-5 pages with double spacing (font-size: 1; Times New Roman)

A list of 154 blockchain-related scientific articles is available for reference (see the reference list).

Target group:
Doctoral students (i.e., Health and Biosciences, Human Sciences, Information Technology and Electrical Engineering, and Technology and Natural Sciences) who are interested in blockchain technology from the strategic management perspective.

Prerequisites and co-requisites:
The course is an independent entity and does not require additional studies carried out at the same time.

Recommended optional programme components: N/A
Recommended or required reading:

Assessment methods and criteria:
Assessment will be at three stages: pre-examination (20 %), group work during the intensive course (50 %), and an individual learning diary after the intensive course (30 %). The assessment is based on the learning outcomes of the course unit. Before the course, follow Moodle for announcements regarding pre-exam material, and sign in for the course preferably by two weeks before the course starts.

Grading: Pass and Fail

Person responsible: Dr. Teck Ming Tan

Working life cooperation: Frankfurt School of Blockchain Center (Note: Teck Ming has a connection with the FSBC and also part of the research community of the FSBC)

Other information: N/A

Reference list (select the one you feel interested in)
1. Ahluwalia, S; Mahto, RV; Guerrero, M (2020). Blockchain technology and startup financing: A transaction cost economics perspective. Technological Forecasting and Social Change
3. Allen, DWE; Berg, C; Davidson, S; Potts, J (2020). Blockchain and investment: An Austrian approach. Review of Austrian Economics
4. Allen, DWE; Berg, C; Markey-Towler, B; Novak, M; Potts, J (2020). Blockchain and the evolution of institutional technologies: Implications for innovation policy. Research Policy


15. Boreiko, D; Risteski, D (2020). Serial and large investors in initial coin offerings. *Small Business Economics*


17. Bumblauskas, D; Mann, A; Dugan, B; Rittmer, J (2020). A blockchain use case in food distribution: Do you know where your food has been?. *International Journal of Information Management*


19. Cai, CW (2020). Triple-entry accounting with blockchain: How far have we come?. *Accounting and Finance*

20. Castka, P; Searcy, C; Mohr, J (2020). Technology-enhanced auditing: Improving veracity and timeliness in social and environmental audits of supply chains. *Journal of Cleaner Production*


28. Dai, J; He, N; Yu, HZ (2019). Utilizing Blockchain and Smart Contracts to EnableAudit 4.0: From the Perspective of Accountability Audit of Air Pollution Control in China. *Journal of Emerging Technologies in Accounting*


31. Dhagarra, D; Goswami, M; Sarma, PRS; Choudhury, A (2019). Big Data andblockchain supported conceptual model for enhanced healthcare coverage The Indiancontext. *Business Process Management Journal*


34. Dubey, R; Gunasekaran, A; Bryde, DJ; Dwivedi, YK; Papadopoulos, T (2020).Blockchain technology for enhancing swift-trust, collaboration and resilience within ahumanitarian supply chain setting. *International Journal of Production Research*

35. Duran, RE; Griffin, P (2020). Smart contracts: will Fintech be the catalyst for the nextglobal financial crisis?. *Journal of Financial Regulation and Compliance*


38. Erol, I; Ar, IM; Ozdemir, AI; Peker, I; Asgary, A; Medeni, IT; Medeni, T (2020).Assessing the feasibility of blockchain technology in industries: evidence from Turkey. *Journal of Enterprise Information Management*


41. Feng, HH; Wang, X; Duan, YQ; Zhang, J; Zhang, XS (2020). Applying blockchain technology to improve agri-food traceability: A review of development methods, benefits and challenges. *Journal of Cleaner Production*


43. Filimonau, V; Naumova, E (2020). The blockchain technology and the scope of its application in hospitality operations. *International Journal of Hospitality Management*


45. Franca, ASL; Neto, JA; Goncalves, RF; Almeida, CMVB (2020). Proposing the use of blockchain to improve the solid waste management in small municipalities. *Journal of Cleaner Production*
46. Frizzo-Barker, J; Chow-White, PA; Adams, PR; Mentanko, J; Ha, D; Green, S (2020). Blockchain as a disruptive technology for business: A systematic review. *International Journal of Information Management*

47. Fry, J; Serbera, JP (2020). Quantifying the sustainability of Bitcoin and Blockchain. *Journal of Enterprise Information Management*

48. Gattringer, R; Wiener, M (2020). Key factors in the start-up phase of collaborative foresight. *Technological Forecasting and Social Change*

49. George, RV; Harsh, HO; Ray, P; Babu, AK (2019). Food quality traceability prototype for restaurants using blockchain and food quality data index. *Journal of Cleaner Production*

50. Ghode, D; Yadav, V; Jain, R; Soni, G (2020). Adoption of blockchain in supply chain: an analysis of influencing factors. *Journal of Enterprise Information Management*

51. Goertzel, B; Goertzel, T; Goertzel, Z (2017). The global brain and the emerging economy of abundance: Mutualism, open collaboration, exchange networks and the automated commons. *Technological Forecasting and Social Change*


53. Grover, P; Kar, AK; Janssen, M; Ilavarasan, PV (2019). Perceived usefulness, ease of use and user acceptance of blockchain technology for digital transactions - insights from user-generated content on Twitter. *Enterprise Information Systems*


61. Hughes, L; Dwivedi, YK; Misra, SK; Rana, NP; Raghavan, V; Akella, V (2019). Blockchain research, practice and policy: Applications, benefits, limitations, emerging research themes and research agenda. *International Journal of Information Management*


67. Kamble, SS; Gunasekaran, A; Sharma, R (2020). Modeling the blockchain enabled traceability in agriculture supply chain. *International Journal of Information Management*

68. Kher, R; Terjesen, S; Liu, C (2020). Blockchain, Bitcoin, and ICOs: a review and research agenda. *Small Business Economics*


70. Kshetri, N (2018). Blockchain's roles in meeting key supply chain management objectives. *International Journal of Information Management*


72. Kshetri, N (2017). Will blockchain emerge as a tool to break the poverty chain in the Global South?. *Third World Quarterly*


74. Kumar, A; Liu, R; Shan, Z (2020). Is Blockchain a Silver Bullet for Supply Chain Management? Technical Challenges and Research Opportunities. *Decision Sciences*

75. Kwok, AOJ; Koh, SGM (2019). Is blockchain technology a watershed for tourism development?. *Current Issues in Tourism*


77. Lezoche, M; Hernandez, JE; Diaz, MDEA; Panetto, H; Kacprzyk, J (2020). Agri-food 4.0: A survey of the supply chains and technologies for the future agriculture. *Computers in Industry*

78. Liu, JJ; Li, XR; Wang, SY (2020). What have we learnt from 10 years of fintech research? a scientometric analysis. *Technological Forecasting and Social Change*

79. Malherbe, L; Montalban, M; Bedu, N; Granier, C (2019). Cryptocurrencies and Blockchain: Opportunities and Limits of a New Monetary Regime. *International Journal of Political Economy*

80. Mandolla, C; Petruzelli, AM; Percoco, G; Urbinati, A (2019). Building a digital twin for additive manufacturing through the exploitation of blockchain: A case analysis of the aircraft industry. *Computers in Industry*

82. Massaro, M; Dal Mas, F; Jabbour, CJC; Bagnoli, C (2020). Crypto-economy and new sustainable business models: Reflections and projections using a case study analysis. *Corporate Social Responsibility and Environmental Management*


84. Meier, O; Sannajust, A (2020). The smart contract revolution: a solution for the holdup problem?. *Small Business Economics*


86. Milian, EZ; Spinola, MD; de Carvalho, MM (2019). Fintechs: A literature review and research agenda. *Electronic Commerce Research and Applications*

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88. Min, H (2019). Blockchain technology for enhancing Check for updates supply chain resilience. *Business Horizons*

89. Min, S; Zacharia, ZG; Smith, CD (2019). Defining Supply Chain Management: In the Past, Present, and Future. *Journal of Business Logistics*


91. Montecchi, M; Plangger, K; Etter, M (2019). It's real, trust me! Establishing supply chain provenance using blockchain. *Business Horizons*

92. Montes, GA; Goertzel, B (2019). Distributed, decentralized, and democratized artificial intelligence. *Technological Forecasting and Social Change*

93. Morena, M; Truppi, T; Pavesi, AS; Cia, G; Giannelli, J; Tavoni, M (2020). Blockchain and real estate: Dopo di Noi project. *Property Management*


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101. Pan, XF; Pan, XY; Song, ML; Ai, BW; Ming, Y (2020). Blockchain technology and enterprise operational capabilities: An empirical test. *International Journal of Information Management*

102. Pathiranage, HSK; Xiao, HL; Li, WF (2020). The inefficiencies of bitcoins in developing countries. *Applied Economics Letters*


106. Rajnak, V; Puschmann, T (2020). The impact of blockchain on business models in banking. *Information Systems and e-Business Management*


110. Rodriguez-Espindola, O; Chowdhury, S; Beltagui, A; Albores, P (2020). The potential of emergent disruptive technologies for humanitarian supply chains: the integration of blockchain, Artificial Intelligence and 3D printing. *International Journal of Production Research*


112. Saberi, S; Kouhizadeh, M; Sarkis, J; Shen, LJ (2019). Blockchain technology and its relationships to sustainable supply chain management. *International Journal of Production Research*


118. Shanaev, S; Sharma, S; Ghimire, B; Shuraeva, A (2020). Taming the blockchain beast? Regulatory implications for the cryptocurrency Market. *Research in International Business and Finance*
119. Sharma, R; Zhang, C; Wingreen, SC; Kshetri, N; Zahid, A (2020). Design of Blockchain-based Precision Health-Care using soft systems methodology. *Industrial Management & Data Systems*


121. Shim, JP; Avital, M; Dennis, AR; Rossi, M; Sorensen, C; French, A (2019). The Transformative Effect of the Internet of Things on Business and Society. *Communications of the Association for Information Systems*


126. Thakur, V; Doja, MN; Dwivedi, YK; Ahmad, T; Khadanga, G (2020). Land records on Blockchain for implementation of Land Titling in India. *International Journal of Information Management*

127. Tham, A; Sigala, M (2020). Road block(chain): bit(coin)s for tourism sustainable development goals?. *Journal of Hospitality and Tourism Technology*

128. Tiscini, R; Testannata, S; Ciaburri, M; Ferrari, E (2020). The blockchain as a sustainable business model innovation. *Management Decision*

129. Tozanli, O; Kongar, E; Gupta, SM (2020). Trade-in-to-upgrade as a marketing strategy in disassembly-to-order systems at the edge of blockchain technology. *International Journal of Production Research*


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132. Tshering, G; Gao, S (2020). Understanding security in the government's use of blockchain technology with value focused thinking approach. *Journal of Enterprise Information Management*

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151. Zhao, GQ; Liu, SF; Lopez, C; Lu, HY; Elgueta, S; Chen, HL; Boshkoska, BM (2019). Blockchain technology in agri-food value chain management: A synthesis of applications, challenges and future research directions. *Computers in Industry*

152. Zhou, L; Zhang, L; Zhao, Y; Zheng, RS; Song, KW (2020). A scientometric review of blockchain research. *Information Systems and e-Business Management*

153. Zhu, S; Song, ML; Lim, MK; Wang, JL; Zhao, JJ (2020). The development of energy blockchain and its implications for China's energy sector. *Resources Policy*

154. Zhu, XB; Shi, J; Xie, FJ; Song, RQ (2020). Pricing strategy and system performance in a cloud-based manufacturing system built on blockchain technology. *Journal of Intelligent Manufacturing*