Supplemental Materials for

Blockchain: Data Malls, Coin Economies and Keyless Payments

by

Zura Kakushadze and Ronald P. Russo, Jr.

Notes

1. Data marketplaces (or data markets) have been discussed in, e.g., [Balazinska, Howe and Suciu, 2011], [Koutris *et al*, 2012], [Koutroumpis, Leiponen and Thomas, 2017], [Li *et al*, 2017], [Liu *et al*, 2017], [Maruyama, Okanohara and Hido, 2013], [Morrison *et al*, 2011], [Muschalle *et al*, 2012], [Nakamura and Teramoto, 2015], [Perera *et al*, 2014a,b], [Schomm, Stahl and Vossen, 2013], [Smith, Ofe and Sandberg, 2016], [Stahl, Löser and Vossen, 2015], [Stahl *et al*, 2016], [Yu and Zhang, 2017], [Zuiderwijk *et al*, 2014].

2. See, e.g., [Buterin, 2014], [Christidis and Devetsiokiotis, 2016], [Cuccuru, 2017], [Fairfield, 2014], [Koulu, 2016], [Levy, 2017], [Marvin, 2016], [Mik, 2017], [Omohundro, 2014], [O'Shields, 2017], [Piasecki, 2016], [Raskin, 2017], [Savelyev, 2017], [Sillaber and Waltl, 2017], [Szabo, 1996, 1997], [Werbach and Cornell, 2017], [Wood, 2014], [Xie, 2017a,b].

3. See, e.g., [Azaria *et al*, 2016], [Dooley, 2017], [ECS, 2017], [Gipp, Jagrut and Breitinger, 2016], [Kuo, Kim and Ohno-Machado, 2017], [Lemieux, 2016], [Liang *et al*, 2017], [Neisse, Steri and Nai-Fovino, 2017], [Ramachandran and Kantarcioglu, 2017], [Rogers, 2015], [Wilkinson and Lowry, 2014], [Zikratov *et al*, 2017], [Zyskind, Nathan and Pentland, 2015].

4. There are web-based services for sending BTC "by email", etc., e.g., MoneyBadger.io. The sender provides the recipient's email and sends BTC to a BTC address provided by MoneyBadger, then MoneyBadger sends an email with a code to the recipient, the recipient enters the code along with a cryptocurrency address (BTC, ETH, etc.) on MoneyBadger's website, and MoneyBadger transfers the corresponding cryptocurrency to the recipient's address.

5. For some literature on mobile payments, see, e.g., [Au, 2008], [Carton *et al*, 2012], [Chandra, Srivastava and Theng, 2010], [Chen, 2008], [Crowe, Rysman and Stavins, 2010], [Dahlberg *et al*,

2008], [De Albuquerque, Diniz and Cernev, 2014], [De Reuver *et al*, 2015], [Dennehy and Sammon, 2015], [Dewan and Chen, 2005], [Donner and Tellez, 2008], [Gowal and Gowal, 2014], [Hayashi, 2012], [Isaac, and Zeadally, 2014], [Jacob, 2007], [Jaradat and Al-Mashaqba, 2014], [Karnouskos, 2004], [Karnouskos *et al*, 2008], [Kemp, 2013], [Kim, Mirusmonov and Lee, 2010], [Kreyer, Turowski and Pousttchi, 2003], [Laukkannen, 2008], [Liébana-Cabanillas, Sánchez-Fernández and Muñoz-Leiva, 2014], [Liu, 2016], [Liu, Kauffman and Ma, 2015], [Lu *et al*, 2011], [Mallat, 2007], [Mallat and Tuunainen, 2008], [Mbogo, 2010], [Niranjanamurthy, 2014], [Ondrus and Pigneur, 2006], [Polasik *et al*, 2013], [Pousttchi, 2008], [Rodrigues *et al*, 2014], [Schierz, Schilke and Wirtz, 2010], [Shaw, 2014], [Shin, 2009], [Slade *et al*, 2015], [Tan *et al*, 2014], [Thakur and Srivastava, 2014]. See [Hanly, 2017] on Square accepting mobile payments in BTC.

6. Such applications have been discussed in, e.g., [Barnes, Brake and Perry, 2016], [Ben Ayed, 2017], [Boucher, 2016], [Firth, 2017], [Gabison, 2016], [Higgins, 2017], [Koven, 2016], [Lee *et al*, 2016].

7. See, e.g., [AST, 2017], [Crichton, 2017], [De, 2017a], [Kovlyagina and Yakovlev, 2016], [NASDAQ, 2017], [Rizzo, 2017].

8. See, e.g., [Andreesen, 2014], [Krugman, 2013], [Vigna and Casey, 2015], [Wang and Vergne, 2017].

9. See, e.g., [De, 2017b], [Del Castillo, 2017a], [Martin, 2016], [Rohlfing and Davis, 2017], [Ito, Narula and Ali, 2017].

10. See, e.g., [Crosby *et al*, 2016], [Nash, 2016], [Tian, 2017].

11. See, e.g., [Olenski, 2017], [Tapscott and Tapscott, 2016].

12. See, e.g., [Beck *et al*, 2017], [Guo and Liang, 2016], [Mendling *et al*, 2017], [Prybila *et al*, 2017], [Weber *et al*, 2016].

13. See. e.g., [Atzori, 2017], [Piazza, 2017], [Yermack, 2017].

14. See, e.g., [Al Omar *et al*, 2017], [Azaria *et al*, 2016], [Hoy, 2017], [Orcutt, 2017], [Xia *et al*, 2017], [Yue *et al*, 2016].

15. See, e.g., [Roberts, 2017], [Ryan, 2015], [Vigna, 2016].

16. See, e.g., [MBW, 2017], [Willms, 2016], [Zellinger, 2016].

17. See, e.g., [Ali *et al*, 2017], [Callahan, 2017], [Romano and Schmid, 2017], [Sengupta *et al*, 2016], [Suberg, 2017].

18. See, e.g., [Chohan, 2015], [Deegan, 2014], [DuPont, 2018], [Harrison, 2016], [Jentzsch, 2016], [Merkle, 2016].

Rank	Name	Symbol	Market Cap, $B	Price, $	Volume (24h), $M	Mined
1	Bitcoin	BTC	289.156	17,226.10	20,295	Yes
2	Ripple	XRP	119.344	3.08	4,135	No
3	Ethereum	ETH	101.746	1,050.98	5,269	Yes
4	Bitcoin Cash	BCH	47.069	2,785.68	1,635	Yes
5	Cardano	ADA	26.602	1.03	365	No
6	Litecoin	LTC	16.590	303.61	2,374	Yes
7	NEM	XEM	14.663	1.63	119	No
8	Stellar	XLM	12.950	0.724340	595	No
9	TRON	TRX	11.414	0.173607	2,675	No
10	IOTA	MIOTA	10.993	3.96	181	No

Table S1. Top 10 cryptocurrencies by market capitalization. The data (market capitalization and volume are rounded) is taken from [CoinMarketCap, 2018] as of approximately 11:51 PM EST on January 6, 2018. Note that cryptocurrency prices are volatile and this data is a snapshot.

References

1. Al Omar, A., Rahman, M.S., Basu, A. and Kiyomoto, S. (2017) MediBchain: A Blockchain Based Privacy Preserving Platform for Healthcare Data. In: Wang, G., Atiquzzaman, M., Yan, Z. and Choo, K.K. (eds.) *Security, Privacy, and Anonymity in Computation, Communication, and Storage. SpaCCS 2017. Lecture Notes in Computer Science, Vol. 10658.* Cham, Switzerland: Springer, pp. 534-543.

2. Ali, M., Nelson, J.C., Shea, R. and Freedman, M.J. (2016) Block-stack: A global naming and storage system secured by blockchains. In: *Proceedings of the 2016 USENIX Annual Technical Conference.* USENIX, pp. 181-194.

3. Andreesen, M. (2014) Why Bitcoin Matters. *The New York Times* (January 21, 2014). Available online: https://dealbook.nytimes.com/2014/01/21/why-bitcoin-matters/.

4. Armknecht, F., Karame, G.O., Mandal, A., Youssef, F. and Zenner, E. (2015) Ripple: Overview and Outlook. In: Conti, M., Schunter, M. and Askoxylakis, I. (eds.) *Trust and Trustworthy Computing. Trust 2015. Lecture Notes in Computer Science, Vol. 9229.* Cham, Switzerland: Springer, pp. 163-180.

5. AST (2017) AST Completes Successful Pilot of Blockchain-based Solution for Proxy Voting, Processing at Volumes Simulating the Largest Proxy Campaigns. *AST Financial* (December 13, 2017). Available online: https://www.astfinancial.com/us-en/news-events/newsroom/news/ast-completes-successful-pilot-of-blockchain-based-solution-for-proxy-voting-processing-at-volumes-simulating-the-largest-proxy-campaigns/.

6. Atzori, M. (2017) Blockchain Technology and Decentralized Governance: Is the State Still Necessary? *Journal of Governance and Regulation* **6**(1): 45-62.

7. Au, Y.A. and Kauffman, R.J. (2008) The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application. *Electronic Commerce Research and Applications* **7**(2): 141-164.

8. Azaria, A., Ekblaw, A., Vieira, T. and Lippman, A. (2016) MedRec: Using blockchain for medical data access and permission management. In: Awan, I. and Younas, M. (eds.) *Proceedings of the 2nd International Conference on Open and Big Data (OBD 2016).* IEEE Computer Society, pp. 25-30.

9. Baird, L.C. III (2016) The Swirlds hashgraph consensus algorithm: fair, fast, Byzantine fault tolerance. *Swirlds, Inc. Technical Report SWIRLDS-TR-2016-01.* Available online: http://leemon.com/papers/2016b.pdf.

10. Balazinska, M., Howe, B. and Suciu, D. (2011) Data markets in the cloud: An opportunity for the database community. *Proceedings of the VLDB Endowment* **4**(12): 1482-1485.

11. Bang-Jensen, J. and Gutin, G.Z. (2009) *Digraphs: Theory, Algorithms and Applications.* (2nd ed.) London, UK: Springer-Verlag.

12. Bariviera, A.F. (2017) The inefficiency of Bitcoin revisited: A dynamic approach. *Economics Letters* **161**: 1-4.

13. Barnes, A., Brake, C. and Perry, T. (2016) Digital Voting with the use of Blockchain Technology. *Plymouth University Report*. Available online: https://www.economist.com/sites/default/files/plymouth.pdf.

14. Beck, R., Avital, M., Rossi, M. and Thatcher, J.B. (2017) Blockchain Technology in Business and Information Systems Research. *Business & Information Systems Engineering* **59**(6): 381-384.

15. Ben Ayed, A. (2017) A conceptual secure blockchain-based electronic voting system. *International Journal of Network Security & Its Applications* **9**(3): 1-9.

16. Bershidsky, L. (2017) Government-Run Digital Currencies Could Disrupt U.S. Dominance. *Bloomberg View* (December 4, 2017). Available online:

https://www.bloomberg.com/view/articles/2017-12-04/government-run-digital-currencies-could-disrupt-u-s-dominance.

17. BitInfoCharts (2018) *Ethereum average transaction fee historical chart.* Available online: https://bitinfocharts.com/comparison/ethereum-transactionfees.html.

18. Boucher, P. (2016) What if blockchain technology revolutionised voting? *European Parliamentary Research Service. Science and Technology Options Assessment.* Available online: http://www.europarl.europa.eu/RegData/etudes/ATAG/2016/581918/EPRS_ATA%282016%29581918_EN.pdf.

19. Buterin, V. (2014) A Next-Generation Smart Contract and Decentralized Application Platform. *Ethereum White Paper.* Available online: https://github.com/ethereum/wiki/wiki/White-Paper.

20. Callahan, M.A. (2017) Blockchain: Is it the future of data storage? *CSO Australia* (November 7, 2017). Available online: https://www.cso.com.au/article/629644/blockchain-it-future-data-storage/.

21. Carton, F., Hedman, J., Dennehy, D., Damsgaard, J., Tan, K. and McCarthy, J.B. (2012) Framework for Mobile Payments Integration. *The Electronic Journal of Information Systems Evaluation* **15**(1): 14-25.

22. Chandra, S., Srivastava, S.C. and Theng, Y.L. (2010) Evaluating the role of trust in consumer adoption of mobile payment systems: An empirical analysis. *Communications of the Association for Information Systems* **27**(29): 561-588.

23. Chaum, D. (1983) Blind Signatures for Untraceable Payments. In: Chaum, D., Rivest, R.L. and Sherman, A.T. (eds.) *Advances in Cryptology – Proceedings of Crypto'82*. Boston, MA: Springer, pp. 199-203.

24. Chaum, D. (1985) Security without identification: Transaction systems to make big brother obsolete. *Communications of the ACM* **28**(10): 1030-1044.

25. Chen, L.D. (2008) A model of consumer acceptance of mobile payment. *International Journal of Mobile Communications* **6**(1): 32-52.

26. Chohan, U.W. (2017) The Decentralized Autonomous Organization and Governance Issues. *Working Paper.* Available online: https://ssrn.com/abstract=3082055.

27. Chowdhry, A. (2017) How To Use Apple Pay Cash. *Forbes* (December 19, 2017). Available online: https://www.forbes.com/sites/amitchowdhry/2017/12/19/how-to-use-apple-pay-cash/#4b0d2821c1fb.

28. Christidis, K. and Devetsiokiotis, M. (2016) Blockchains and Smart Contracts for the Internet of Things. *IEEE Access* **4**: 2292-2303.

29. Cohen, G. (2005) *The bible of options strategies: the definitive guide for practical trading strategies.* Upper Saddle River, NJ: Financial Times Prentice Hall.

30. CoinMarketCap (2018) *Cryptocurrency Market Capitalizations.* https://coinmarketcap.com/all/views/all/ (data accessed on January 6, 2018).

31. Crichton, M. (2017) Blockchain proxy voting taking off – HSBC's Van Verre. *Global Investor Group* (October 19, 2017). Available online: https://globalinvestorgroup.com/articles/3688848/blockchain-proxy-voting-taking-off-hsbcs-van-verre.

32. Crosby, M., Nachiappan, Pattanayak, P., Verma, S. and Kalyanaraman, V. (2015) BlockChain Technology: Beyond Bitcoin. *Sutardja Center for Entrepreneurship & Technology Technical Report, UC Berkeley.* Available online: http://scet.berkeley.edu/wp-content/uploads/BlockchainPaper.pdf.

33. Crowe, M., Rysman, M. and Stavins, J. (2010) Mobile Payments at the Retail Point of Sale in the United States: Prospects for Adoption. *Review of Network Economics* **9**(4): 1-31.

34. Cuccuru, P. (2017) Beyond bitcoin: an early overview on smart contracts. *International Journal of Law and Information Technology* **25**(3): 179-195.

35. Dahlberg, T., Mallat, N., Ondrus, J. and Zmijewska, A. (2008) Past, present and future of mobile payments research: A literature review. *Electronic Commerce Research and Applications* **7**(2): 165-181.

36. De, N. (2017a) CSD Blockchain Consortium Advances Work on Proxy Voting System. *CoinDesk* (November 10, 2017). Available online: https://www.coindesk.com/csd-consortium-reveals-requirements-for-first-project/.

37. De, N. (2017b) Mastercard Seeks Patent for Instant Blockchain Payments Processing. *CoinDesk* (November 14, 2017). Available online: https://www.coindesk.com/mastercard-patent-filings-detail-blockchains-use-speeding-payments/.

38. De Albuquerque, J.P., Diniz, E.H. and Cernev, A.K. (2014) Mobile payments: a scoping study of the literature and issues for future research. *Information Development* **32**(3): 527-553.

39. De Reuver, M., Verschuur, E., Nikayin, F., Cerpa, N. and Bouwman, H. (2015) Collective action for mobile payment platforms: A case study on collaboration issues between banks and telecom operators. *Electronic Commerce Research and Applications* **14**(5): 331-344.

40. Deegan, P. (2014) The Relational Matrix: The Free and Emergent Organizations of Digital Groups and Identities. In Clippinger, J.H. and Bollier, D. (eds.) *From Bitcoin to Burning Man and Beyond: The Quest for Identity and Autonomy in a Digital Society.* Chapter 14. Amherst, Massachusetts: Institute for Institutional Innovation, pp. 160-176.

41. Del Castillo, M. (2017a) Swift Blockchain Success Sets Stage for Sibos. *CoinDesk* (October 13, 2017). Available online: https://www.coindesk.com/unanimous-swift-blockchain-success-sets-stage-sibos/.

42. Del Castillo, M. (2017b) Encyclopedia Blockchainica: Wikipedia Co-Founder to Disrupt His Own Creation. *CoinDesk* (December 6, 2017). Available online: https://www.coindesk.com/encyclopedia-blockchainica-wikipedia-co-founder-disrupt-creation/.

43. Dennehy, D. and Sammon, D. (2015) Trends in mobile payments research: A literature review. *Journal of Innovation Management* **3**(1): 49-61.

44. Dewan, S.G. and Chen, L.D. (2005) Mobile payment adoption in the USA: a cross-industry, cross-platform solution. *Journal of Information Privacy & Security* **1**(2): 4-28.

45. Donner, J. and Tellez, C.A. (2008) Mobile banking and economic development: Linking adoption, impact, and use. *Asian Journal of Communication* **18**(4): 318-332.

46. Dooley, B.J. (2017) Blockchain and Your Data. *Upside* (June 1, 2017). Available online: https://tdwi.org/articles/2017/06/01/blockchain-and-your-data.aspx.

47. DuPont, Q. (2018) Experiments in Algorithmic Governance: A history and ethnography of "The DAO," a failed Decentralized Autonomous Organization. In: Campbell-Verduyn, M. (ed.) *Bitcoin and Beyond: Cryptocurrencies, Blockchain, and Global Governance.* Chapter 8. New York, NY: Routledge.

48. ECS (2017) Cyber security collaboration wins Health Data Provenance Challenge. *Electronics and Computer Science, News & Events, University of Southampton* (July 18, 2017). Available online: https://www.ecs.soton.ac.uk/news/5438.

49. Ethereum (2018) *Create your own crypto-currency with Ethereum.* Available online: https://www.ethereum.org/token.

50. Fairfield, J.A.T. (2014) Smart Contracts, Bitcoin Bots, and Consumer Protection. *Washington and Lee Law Review Online* **71**(2): 35-50.

51. Figlewski, S., Chidambaran, N.K. and Kaplan, S. (1993) Evaluating the Performance of the Protective Put Strategy. *Financial Analysts Journal* **49**(4): 46-56.

52. Firth, N. (2017) Want to make your vote really count? Stick a blockchain on it. *New Scientist* (September 6, 2017). Available online: https://www.newscientist.com/article/mg23531424-500-bitcoin-tech-to-put-political-power-in-the-hands-of-voters/.

53. Gabison, G. (2016) Policy Considerations for the Blockchain Technology Public and Private Applications. *SMU Science and Technology Law Review* **19**: 327-350.

54. Gajanan, M. (2017) PayPal Now Lets You Use Facebook Messenger to Send and Receive Money. *Fortune* (October 20, 2017). Available online: http://fortune.com/2017/10/20/facebook-messenger-paypal-send-money/.

55. Gillette, F. (2014) Cash Is for Losers! *Bloomberg* (November 21, 2014). Available online: https://www.bloomberg.com/news/articles/2014-11-20/mobile-payment-startup-venmo-is-killing-cash.

56. Gipp, G., Jagrut, K. and Breitinger, C. (2016) Securing Video Integrity Using Decentralized Trusted Timestamping on the Blockchain. In: *Proceedings of the 10th Mediterranean Conference on Information Systems (MCIS)*, Paper No. 51. Available online: http://aisel.aisnet.org/mcis2016/51/.

57. Gowal, J. and Gowal, D. (2014) Design of Improved Algorithm for Mobile Payments Using Biometrics. *International Journal of Research in Engineering & Advanced Technology* **1**(6): 1-6.

58. Guo, Y. and Liang, C. (2016) Blockchain application and outlook in the banking industry. *Financial Innovation* **2**: 24.

59. Hampton, N. (2016) Understanding the blockchain hype: Why much of it is nothing more than snake oil and spin. *Computerworld* (September 5, 2016). Available online: https://www.computerworld.com.au/article/606253/understanding-blockchain-hype-why-much-it-nothing-more-than-snake-oil-spin/.

60. Hanly, K. (2017) Mobile payments company Square introduces Square Register. *Digital Journal* (October 30, 2017). Available online: http://www.digitaljournal.com/tech-and-science/technology/mobile-payments-company-square-introduces-square-register/article/506380.

61. Harrison, D. (2016) Decentralized Autonomous Organizations. *Allen & Overy Report*. Available online: http://www.allenovery.com/SiteCollectionDocuments/Article%20Decentralized%20Autonomous%20Organizations.pdf.

62. Hayashi, F. (2012) Mobile Payments: What's in It for Consumers? *Federal Reserve Bank of Kansas City. Economic Review* **97**(1): 35-66.

63. Hertig, A. (2017) Ethereum Meets Zcash? Why IPFS Plans a Multi-Blockchain Browser. *CoinDesk* (April 29, 2017). Available online: https://www.coindesk.com/ethereum-meets-zcash-why-ipfs-plans-a-multi-blockchain-browser/.

64. Higgins, S. (2017) Moscow Government Open-Sources Blockchain Voting Tool. *CoinDesk* (December 4, 2017). Available online: https://www.coindesk.com/blockchain-voting-code-made-open-source-moscows-government/.

65. Holmes, F. (2017) This Week In Bitcoin: The IRS Targets Coinbase, Venezuela To Mint Its Own Cryptocurrency. *Forbes* (December 11, 2017). Available online: https://www.forbes.com/sites/greatspeculations/2017/12/11/this-week-in-bitcoin-the-irs-targets-coinbase-venezuela-to-mint-its-own-cryptocurrency/#346a9f846fb8.

66. Hoy, M.B. (2017) An Introduction to the Blockchain and Its Implications for Libraries and Medicine. *Medical Reference Services Quarterly* **36**(3): 273-279.

67. Hull, J.C. (2012) *Options, Futures and Other Derivatives.* Upper Saddle River, NJ: Prentice Hall.

68. IBD (2017) What's in a Name? Data Lakes and "Bazaars". *Inside Big Data* (December 5, 2017). Available online: https://insidebigdata.com/2017/12/05/whats-name-data-lakes-bazaars/.

69. Informatica (2011) Big Data Mall Opens On The Informatica Marketplace. *Informatica.com* (June 6, 2011). Available online: https://www.informatica.com/about-us/news/news-releases/2011/06/20110606-big-data-mall-opens-on-the-informatica-marketplace.html#fbid=K0-xv9-EHUV.

70. Investopedia (2018) *Proxy Vote.* Available online: https://www.investopedia.com/terms/p/proxy-vote.asp.

71. Isaac, J.T. and Zeadally, S. (2014) Secure Mobile Payment Systems. *IT Professional* **16**(3): 36-43.

72. Ito, J., Narula, N. and Ali, R. (2017) The Blockchain Will Do to the Financial System What the Internet Did to Media. *Harvard Business Review* (March 8, 2017). Available online:

https://hbr.org/2017/03/the-blockchain-will-do-to-banks-and-law-firms-what-the-internet-did-to-media.

73. Jacob, K. (2007) Are mobile payments the smart cards of the aughts? *Chicago Fed Letter* **240**: 1-4.

74. Jaradat, M. and Al-Mashaqba, A.M. (2014) Understanding the adoption and usage of mobile payment services by using TAM3. *International Journal of Business Information Systems* **16**(3): 271-296.

75. Jentzsch, C. (2016) Decentralized autonomous organization to automate governance. *White Paper.* Available online: https://download.slock.it/public/DAO/WhitePaper.pdf.

76. Kakushadze, Z. (2015) On Origins of Alpha. *The Hedge Fund Journal* **108**: 47-50. Available online: https://ssrn.com/abstract=2575007.

77. Kakushadze, Z. and Liew, J.K-S. (2017) CryptoRuble: From Russia with Love. *Risk,* January 2018, pp. 53-54. Available online: https://ssrn.com/abstract=3059330.

78. Karnouskos, S. (2004) Mobile payment: A journey through exiting procedures and standardization initiatives. *IEEE Communications Surveys & Tutorials* **6**(4): 44-66.

79. Karnouskos, S., Kauffman, R.J., Lawrence, E. and Pousttchi, K. (2008) Guest editorial: Research advances for the mobile payments arena. *Electronic Commerce Research and Applications* **7**(2): 137-140.

80. Kemp, R. (2013) Mobile payments: Current and emerging regulatory and contracting issues. *Computer Law & Security Review* **29**(2): 175-179.

81. Kim, C., Mirusmonov, M. and Lee, I. (2010), An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior* **26**(3): 310-322.

82. Kostakis, V. and Giotitsas, C. (2014) The (A)Political Economy of Bitcoin. *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society* **12**(2): 431-440.

83. Koulu, R. (2016) Blockchains and Online Dispute Resolution: Smart Contracts as an Alternative to Enforcement. *SCRIPTed* **13**(1): 40-69.

84. Koutris, P., Upadhyaya, P., Balazinska, M., Howe, B. and Suciu, D. (2012) QueryMarket Demonstration: Pricing for Online Data Markets. *Proceedings of the VLDB Endowment* **5**(12): 1962-1965.

85. Koutroumpis, P., Leiponen, A. and Thomas, L.D.W. (2017) The (Unfulfilled) Potential of Data Marketplaces. *ETLA Working Papers No 53*. Available online: http://pub.etla.fi/ETLA-Working-Papers-53.pdf.

86. Koven, J.B. (2016) Block The Vote: Could Blockchain Technology Cybersecure Elections? *Forbes* (August 30, 2016). Available online: https://www.forbes.com/sites/realspin/2016/08/30/block-the-vote-could-blockchain-technology-cybersecure-elections/#10e764d82ab3.

87. Kovlyagina, T. and Yakovlev, A. (2016) НРД проголосовал за блокчейн (National Settlement Depository has voted for Blockchain). *Bankir* (April 15, 2016). Available online: http://bankir.ru/publikacii/20160415/nrd-progolosoval-za-blokchein-10007428/ (in Russian).

88. Kreyer, N., Turowski, K. and Pousttchi, K. (2003) Mobile payment procedures: scope and characteristics. *e-Service Journal* **2**(3): 7-22.

89. Krugman, P. (2013) Bitcoin Is Evil. *The New York Times* (December 28, 2013). https://krugman.blogs.nytimes.com/2013/12/28/bitcoin-is-evil/.

90. Kuo, T.-T., Kim, H.-E. and Ohno-Machado, L. (2017) Blockchain distributed ledger technologies for biomedical and health care applications. *Journal of the American Medical Informatics Association* **24**(6): 1211-1220.

91. Laukkannen, T., Sinkkonen, S., Laukkanen, P. and Kivijarvi, M. (2008) Segmenting Bank Customers by Resistance to Mobile Banking. *International Journal of Mobile Communication* **6**(3): 309-320.

92. Lee, K., James, J.I., Ejeta, T.G. and Kim, H.J. (2016) Electronic Voting Service Using Block-Chain. *Journal of Digital Forensics, Security and Law* **11**(2): 123-135.

93. Lemieux V. (2016) Trusting Records: Is Blockchain Technology the Answer? *Records Management Journal* **26**(2): 110-139.

94. Levy, K.E.C. (2017) Book-Smart, Not Street-Smart: Blockchain-Based Smart Contracts and The Social Workings of Law. *Engaging Science, Technology, and Society* **3**: 1-15.

95. Li, C., Li, D.Y., Miklau, G. and Suciu, D. (2017) A Theory Of Pricing Private Data. *Communications of the ACM* **60**(12): 79-86.

96. Liang, X., Shetty, S., Tosh, D., Kamhoua, C., Kwiat, K. and Njilla, L. (2017) ProvChain: A Blockchain-Based Data Provenance Architecture in Cloud Environment with Enhanced Privacy and Availability. In: *Proceedings of the 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGRID)*. IEEE Computer Society, pp. 468-477.

97. Liébana-Cabanillas, F., Sánchez-Fernández, J. and Muñoz-Leiva, F. (2014) Antecedents of the adoption of the new mobile payment systems: The moderating effect of age. *Computers in Human Behavior* **35**(4): 464-478.

98. Liu, B., Yu, X.L., Chen, S., Xu, X. and Zhu, L. (2017) Blockchain Based Data Integrity Service Framework for IoT Data. In: Altintas, I. and Chen, S. (eds.) *Proceedings of the 2017 IEEE International Conference on Web Services (ICWS).* IEEE Computer Society, pp. 468-475.

99. Liu, J. (2016) Decision modeling and empirical analysis of mobile financial services (Ph.D. Thesis, Singapore Management University). *Dissertations and Theses Collection.* Available online: http://ink.library.smu.edu.sg/etd_coll_all/2.

100. Liu, J., Kauffman, R.J. and Ma, D. (2015) Competition, cooperation, and regulation: Understanding the evolution of the mobile payments technology ecosystem. *Electronic Commerce Research and Applications* **14**(5): 372-391.

101. Lu, Y., Yang, S., Chau, P. and Cao, Y. (2011) Dynamics between the trust transfer process and intention to use mobile payment services: A cross-environment perspective. *Information & Management* **48**(8): 393-403.

102. Mallat, N. (2007) Exploring consumer adoption of mobile payments – A qualitative study. *The Journal of Strategic Information Systems* **16**(4): 413-432.

103. Mallat, N. and Tuunainen, V.K. (2008) Exploring Merchant Adoption of Mobile Payment Systems: An Empirical Study. *e-Service Journal* **6**(2): 24-57.

104. Martin, K. (2016) CLS dips into blockchain to net new currencies. *The Financial Times* (September 27, 2016). Available online: https://www.ft.com/content/c905b6fc-4dd2-3170-9d2a-c79cdbb24f16.

105. Maruyama, H., Okanohara, D. and Hido, S. (2013) Data Marketplace for Efficient Data Placement. In: Ding, W., Washio, T., Xiong, H., Karypis, G., Thuraisingham, B., Cook, D. and Wu, X. (eds.) *Proceeding of the 2013 IEEE 13th International Conference on Data Mining Workshops (ICDMW)*. IEEE Computer Society, pp. 702-705.

106. Marvin, R. (2016) Blockchain in 2017: The Year of Smart Contracts. *PC Magazine* (December 12, 2016). Available online: http://www.pcmag.com/article/350088/blockchain-in-2017-the-year-of-smart-contracts.

107. Mbogo, M. (2010) The Impact of Mobile Payments on the Success and Growth of Micro-Business: The Case of M-Pesa in Kenya. *The Journal of Language, Technology & Entrepreneurship in Africa* **2**(1): 182-203.

108. MBW (2017) ASCAP, PRS and SACEM Join Forces for Blockchain Copyright System. *Music Business Worldwide* (April 9, 2017). Available online: https://www.musicbusinessworldwide.com/ascap-prs-sacem-join-forces-blockchain-copyright-system/.

109. McMillan, R. (2014) The Inside Story of Mt. Gox, Bitcoin's $460 Million Disaster. *Wired* (March 3, 2014). Available online: https://www.wired.com/2014/03/bitcoin-exchange/.

110. Mendling, J., Weber, I., van der Aalst, W., vom Brocke, J., Cabanillas, C., Daniel, F., Debois, S., Di Ciccio, C., Dumas, D., Dustdar, S., Gal, A., García-Bañuelos, L., Governatori, G., Hull, R., La Rosa, M., Leopold, H., Leymann, F., Recker, J., Reichert, M., Reijers, H.A., Rinderle-Ma, S., Rogge-Solti, A., Rosemann, M., Schulte, S., Singh, M.P., Slaats, T., Staples, M., Weber, B., Weidlich, M., Weske, M., Xu, X. and Zhu, L. (2017) Blockchains for Business Process Management – Challenges and Opportunities. *Working Paper.* Available online: https://arxiv.org/pdf/1704.03610.pdf.

111. Merkle, R. (2016) DAOs, Democracy and Governance. *Cryonics Magazine* **37**(4): 28-40.

112. Mik, E. (2017) Smart contracts: terminology, technical limitations and real world complexity. *Law, Innovation and Technology* **9**(2): 269-300.

113. Morrison, N., Hancock, D., Hirschman, L., Dawyndt, P., Verslyppe, B., Kyrpides, N., Kottmann, R., Yilmaz, P., Glöckner, F.O., Grethe, J., Booth, T., Sterk, P., Nenadic, G. and Field, D. (2011) Data shopping in an open marketplace: Introducing the Ontogrator web application for marking up data using ontologies and browsing using facets. *Standards in Genomic Sciences* **4**(2): 286-292.

114. Mourning, J.R. (2007) The Majority-Voting Movement: Curtailing Shareholder Disenfranchisement in Corporate Director Elections. *Washington University Law Review* **85**(5): 1143-1194.

115. Muschalle, A., Stahl, F., Löser, A. and Vossen, G. (2012) Pricing approaches for data markets In: Castellanos, M., Dayal, U. and Rundensteiner, E. (eds.) *Proceedings of the 6th International Workshop on Business Intelligence for the Real-Time Enterprise (BIRTE 2012)*. Berlin, Germany: Springer, pp. 129-144.

116. Nadarajah, S. and Chu, J. (2017) On the inefficiency of Bitcoin. *Economics Letters* **150**: 6-9.

117. Nakamoto, S. (2008) Bitcoin: A Peer-to-Peer Electronic Cash System. *White Paper.* https://bitcoin.org/bitcoin.pdf.

118. Nakamura, J. and Teramoto, M. (2015) Concept Design for Creating Essential Hypothesis, Rules, and Goals: Toward a Data Marketplace. *Open Journal of Information Systems* **2**(2): 16-26.

119. NASDAQ (2017) Nasdaq to Deliver Blockchain e-Voting Solution to Strate. *Nasdaq.com* (November 22, 2017). Available online: http://ir.nasdaq.com/releasedetail.cfm?releaseid=1049610.

120. Nash, K.S. (2016) IBM Pushes Blockchain into the Supply Chain. *The Wall Street Journal* (July 14, 2016). Available online: https://www.wsj.com/articles/ibm-pushes-blockchain-into-the-supply-chain-1468528824.

121. Neisse, R., Steri, G. and Nai-Fovino, I. (2017) A Blockchain-based Approach for Data Accountability and Provenance Tracking. *Working Paper*. Available online: https://arxiv.org/pdf/1706.04507.

122. Niranjanamurthy, M. (2014) E-commerce: Recommended Online Payment Method – PayPal. *International Journal of Computer Science and Mobile Computing* **3**(7): 669-679.

123. Olenski, S. (2017) Will Blockchain Reinvent Social Media? *Forbes* (August 9, 2017). Available online: https://www.forbes.com/sites/steveolenski/2017/08/09/will-blockchain-reinvent-social-media/#314d811b3ec1.

124. Omohundro, S. (2014) Cryptocurrencies, smart contracts, and artificial intelligence. *AI Matters* **1**(2): 19-21.

125. Ondrus, J. and Pigneur, Y. (2006) Towards a holistic analysis of mobile payments: a multiple perspectives approach. *Electronic Commerce Research and Applications* **5**(3): 246-257.

126. Orcutt, M. (2017) Who Will Build the Health-Care Blockchain? *MIT Technology Review* (September 15, 2017). Available online: https://www.technologyreview.com/s/608821/who-will-build-the-health-care-blockchain/.

127. O'Shields, R. (2017) Smart Contracts: Legal Agreements for the Blockchain. *North Carolina Banking Institute* **21**(1): 177-194.

128. P2P Foundation (2017) Ceptr. *P2P Foundation Wiki*. Available online: http://wiki.p2pfoundation.net/Ceptr.

129. Perera, C., Liu, C.H., Jayawardena, S. and Chen, M. (2014a) A survey on Internet of Things from industrial market perspective. *IEEE Access* **2**: 1660-1679.

130. Perera, C., Zaslavsky, A., Christen, P. and Georgakopoulos, D. (2014b) Sensing as a service model for smart cities supported by Internet of Things. *Transactions on Emerging Telecommunications Technologies* **25**(1): 81-93.

131. Piasecki, P.J. (2016) Gaming Self-Contained Provably Fair Smart Contract Casinos. *Ledger* **1**: 99-110.

132. Piazza, F.S. (2017) Bitcoin and the Blockchain as Possible Corporate Governance Tools: Strengths and Weaknesses. *Penn State Journal of Law & International Affairs* **5**(2): 262-301.

133. Pitta, J. (1999) Requiem for a Bright Idea. *Forbes* (November 1, 1999). https://www.forbes.com/forbes/1999/1101/6411390a.html.

134. Polasik, M., Górka, J., Wilczewski, G., Kunkowski, J., Przenajkowska, K. and Tetkowska, N. (2013) Time efficiency of Point-of-Sale payment methods: Empirical results for cash, cards and mobile payments. In: Cordeiro, J., Maciaszek, L.A. and Filipe, J. (eds.) *Proceedings of the 14th International Conference on Enterprise Information Systems (ICEIS 2012). Lecture Notes in Business Information Processing, Vol. 141.* Berlin, Germany: Springer, pp. 306-320.

135. Ponciano, J. (2017) IOTA Foundation Launches Data Marketplace For 'Internet-Of-Things' Industry. *Forbes* (November 28, 2017). Available online: https://www.forbes.com/sites/jonathanponciano/2017/11/28/iota-foundation-launches-data-marketplace-for-internet-of-things-research/#26e028bbf52b.

136. Pousttchi, K. (2008) A modelling approach and reference models for the analysis of mobile payment use cases. *Electronic Commerce Research and Applications* **7**(2): 182-201.

137. Prybila, C., Schulte, S., Hochreiner, C. and Weber, I. (2017) Runtime Verification for Business Processes Utilizing the Bitcoin Blockchain. *Working Paper.* Available online: https://arxiv.org/pdf/1706.04404.

138. Ramachandran, A. and Kantarcioglu, M. (2017) Using Blockchain and smart contracts for secure data provenance management. *Working Paper.* Available online: https://arxiv.org/pdf/1709.10000.

139. Ramakrishnan, R., Sridharan, B., Douceur, J.R., Kasturi, P., Krishnamachari-Sampath, B., Krishnamoorthy, K., Li, P., Manu, M., Michaylov, S., Ramos, R., Sharman, N., Xu, A., Barakat, Y., Douglas, C., Draves, R., Naidu, S.S., Shastry, S., Sikaria, A., Sun, S. and

Venkatesan, R. (2017) Azure Data Lake Store: A Hyperscale Distributed File Service for Big Data Analytics. In: *Proceedings of the 2017 ACM International Conference on Management of Data (SIGMOD'17).* New York, NY: ACM, pp. 51-63.

140. Raskin, M. (2017) The Law and Legality of Smart Contracts. *Georgetown Law and Technology Review* **1**(2): 305-341.

141. Rizzo, P. (2017) Broadridge Completes Blockchain Proxy Voting Trial. *CoinDesk* (April 13, 2017). Available online: https://www.coindesk.com/broadridge-blockchain-proxy-voting-jpmorgan-santander/.

142. Roberts, J.J. (2017) Why Delaware Made It Easier for Businesses to Use Blockchains. *Fortune* (August 22, 2017). Available online: http://fortune.com/2017/08/22/fortune-500-blockchain-ledger-delaware/.

143. Robin, S. (2016) America's Biggest Banks Have a New Name for Their Venmo-Killer: Zelle. *The Wall Street Journal* (August 24, 2016). Available online: https://www.wsj.com/articles/americas-biggest-banks-have-a-new-name-for-their-venmo-killer-zelle-1472047872.

144. Rodrigues, H., José, R., Coelho, A., Melro, A., Ferreira, M.C., Monteiro, M.P. and Ribeiro, C. (2014). MobiPag: Integrated Mobile Payment, Ticketing and Couponing Solution Based on NFC. *Sensors* **14**(8): 13389-13415.

145. Rogers, C. (2015) *Virtual authenticity: authenticity of digital records from theory to practice.* (Ph.D. Thesis, The University of British Columbia, Vancouver). Available online: https://open.library.ubc.ca/cIRcle/collections/ubctheses/24/items/1.0166169.

146. Rohlfing, J.L. and Davis, S.C. (2017) *Method and System for Instantaneous Payment Using Recorded Guarantees* (United States Patent Application 20170323294, Assignee: MasterCard International Incorporated).

147. Romano, D. and Schmid, G. (2017) Beyond Bitcoin: A Critical Look at Blockchain-Based Systems. *Cryptography* **1**(2): 15.

148. Rubin, P. (2017) The Wikipedia Competitor That's Harnessing Blockchain For Epistemological Supremacy. *Wired* (December 6, 2017). Available online: https://www.wired.com/story/everipedia-blockchain/.

149. Ryan, P. (2015) Start Your Company… on the Blockchain? *Bank Innovation* (April 13, 2015). Available online: https://bankinnovation.net/2015/04/start-your-company-on-the-blockchain/.

150. Savelyev, A. (2017) Contract law 2.0: 'Smart' contracts as the beginning of the end of classic contract law. *Information & Communications Technology Law* **26**(2): 116-134.

151. Schiener, D. (2017) *IOTA's Data Marketplace: Setting the record straight.* Available online: https://blog.iota.org/iotas-data-marketplace-setting-the-record-straight-576fbf0b4513.

152. Schierz, P.G., Schilke, O. and Wirtz, B.W. (2010) Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications* **9**(3): 209-216.

153. Schomm, F., Stahl, F. and Vossen, G. (2013) Marketplaces for data: an initial survey. *ACM SIGMOD Record* **42**(1): 15-26.

154. Sengupta, B., Bag, S., Ruj, S. and Sakurai, K. (2016) Retricoin: Bitcoin based on compact proofs of retrievability. In: *Proceedings of the 17th International Conference on Distributed Computing and Networking (ICDCN'16).* Article No. 14.

155. Shaw, N. (2014) The mediating influence of trust in the adoption of the mobile wallet. *Journal of Retailing and Consumer Services* **21**(4): 449-459.

156. Shin, D.H. (2009) Towards an understanding of the consumer acceptance of mobile wallet. *Computers in Human Behavior* **25**(6): 1343-1354.

157. Sillaber, C. and Waltl, B. (2017) *Datenschutz Datensich* **41**(8): 497-500.

158. Silver, A. (2017) Loose-change payment network Microraiden launches on Ethereum. *The Register* (December 1, 2017). https://www.theregister.co.uk/2017/12/01/micropayment_transaction_scaling_solution_microraiden_comes_to_ethereum/.

159. Slade, E., Williams, M.D., Dwivedi, Y. and Piercy, N. (2015) Exploring consumer adoption of proximity mobile payments. *Journal of Strategic Marketing* **23**(3): 209-223.

160. Smith, G., Ofe, H.A. and Sandberg, J. (2016) Digital Service Innovation from Open Data: exploring the value proposition of an open data marketplace. In: Bui, T.X. and Sprague, R.H. Jr. (eds.) *Proceedings of the 49th Hawaii International Conference on System Sciences (HICSS 2016)*. IEEE Computer Society, pp. 1277-1286.

161. Sønstebø, D. (2017) *IOTA Data Marketplace.* Available online: https://blog.iota.org/iota-data-marketplace-cb6be463ac7f.

162. Stahl, F., Löser, A. and Vossen, G. (2015) Preismodelle für Datenmarktplätze. *Informatik-Spektrum* **38**(2): 133-141.

163. Stahl, F., Schomm, F., Vossen, G. and Vomfell, L. (2016) A classification framework for data marketplaces. *Vietnam Journal of Computer Science* **3**(3): 137-143.

164. Stanley, A. (2017) EOS: Unpacking the Big Promises Behind a Possible Blockchain Contender. *CoinDesk* (June 25, 2017). Available online: https://www.coindesk.com/eos-unpacking-the-big-promises-behind-a-possible-blockchain-contender/.

165. Stinchcombe, K. (2017) Ten years in, nobody has come up with a use for blockchain. *Hackernoon.com* (December 22, 2017). Available online: https://hackernoon.com/ten-years-in-nobody-has-come-up-with-a-use-case-for-blockchain-ee98c180100.

166. Suberg, W. (2017) First Government Blockchain Implementation For Russia. The *CoinTelegraph* (December 19, 2017). Available online: https://cointelegraph.com/news/first-government-blockchain-implementation-for-russia.

167. Szabo, N. (1996) Building Blocks for Digital Markets. *Extropy: The Journal of Transhumanist Thought #16.* Available online: http://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/smart_contracts_2.html.

168. Szabo, N. (1997) Smart Contracts: Formalizing and Securing Relationships on Public Networks. *First Monday* **2**(9): 1 September 1997.

169. Tan, G.W.H., Ooi, K.B., Chong, S.C. and Hew, T.S. (2014) NFC mobile credit card: the next frontier of mobile payment? *Telematics and Informatics* **31**(2): 292-307.

170. Tapscott, D. and Tapscott, A. (2016) The Impact of the Blockchain Goes Beyond Financial Services. *Harvard Business Review* (May 10, 2016). Available online: https://hbr.org/2016/05/the-impact-of-the-blockchain-goes-beyond-financial-services.

171. Thakur, R. and Srivastava, M. (2014) Adoption readiness, personal innovativeness, perceived risk and usage intention across customer groups for mobile payment services in India. *Internet Research* **24**(3): 369-392.

172. Tian, F. (2017) A supply chain traceability system for food safety based on HACCP, blockchain & Internet of things. In: Tang, J., Chen, J. and Cai, X. (eds.) *Proceedings of the 14th International Conference on Service Systems and Service Management (ICSSSM).* IEEE, pp. 1-6.

173. Urquhart, A. (2016) The inefficiency of Bitcoin. *Economics Letters* **148**: 80-82.

174. Vigna, P. (2016) Delaware Considers Using Blockchain Technology. *The Wall Street Journal* (May 1, 2106). Available online: https://www.wsj.com/articles/delaware-considers-using-blockchain-technology-1462145802.

175. Vigna, P. and Casey, M.J. (2015) *The Age of Cryptocurrency: How Bitcoin and Digital Money Are Challenging the Global Economic Order*. New York, NY: St. Martin's Press.

176. Vranken, H. (2017) Sustainability of Bitcoin and blockchains. *Current Opinion in Environmental Sustainability* **28**: 1-9.

177. Wang, S. and Vergne, J.-P. (2017) Buzz Factor or Innovation Potential: What Explains Cryptocurrencies' Returns? *PLOS ONE* **12**(1): e0169556.

178. Weber, I., Xu, X., Riveret, R., Governatori, G., Ponomarev, A. and Mendling, J. (2016) Untrusted Business Process Monitoring and Execution Using Blockchain. In: La Rosa, M., Loos, P. and Pastor, O. (eds.) *Business Process Management. BPM 2016. Lecture Notes in Computer Science, Vol. 9850.* Cham, Switzerland: Springer, pp. 329-247.

179. Werbach, K. and Cornell, N. (2017) Contracts Ex Machina. *Duke Law Journal* **67**(2): 313-382.

180. Wilcox, J.C. (2004) Shareholder Nominations of Corporate Directors: Unintended Consequences and the Case for Reform of the U.S. Proxy System. In: Bebchuk, L.A. (ed.) *Shareholder Access to the Corporate Ballot.* Chapter 6.

181. Wilkinson, S. and Lowry, J. (2014). Metadisk: Blockchain based decentralized file storage application. *Technical Report.* Available online: http://metadisk.org/metadisk.pdf.

182. Willms, J. (2016) Is Blockchain-Powered Copyright Protection Possible? *Nasdaq.com* (August 9, 2016). Available online: http://www.nasdaq.com/article/is-blockchain-powered-copyright-protection-possible-cm662619.

183. Wink, S.P. and O'Leary, M. (2009) The Unintended Disenfranchisement of Shareholders (How Certain Everyday Practices of Broker-Dealers Have Detrimental Consequences for Shareholders). *Bloomberg Corporate Law Journal* **4**(1): 214-222.

184. Wood, G. (2014) Ethereum: a secure decentralised generalised transaction ledger. *White Paper.* Available online: http://gavwood.com/Paper.pdf.

185. Xia, Q., Sifah, E.B., Smahi, A., Amofa, S. and Zhang, X. (2017) BBDS: Blockchain-Based Data Sharing for Electronic Medical Records in Cloud Environments. *Information* **8**(2): 44.

186. Xie, L. (2017a) A beginner's guide to Ethereum. *The Coinbase Blog* (February 23, 2017). Available online: https://blog.coinbase.com/a-beginners-guide-to-ethereum-46dd486ceecf.

187. Xie, L. (2017b) A beginner's guide to Ethereum tokens. *The Coinbase Blog* (May 22, 2017). Available online: https://blog.coinbase.com/a-beginners-guide-to-ethereum-tokens-fbd5611fe30b.

188. Yermack, D. (2017) Corporate Governance and Blockchains. *Review of Finance* **21**(1): 7-31.

189. Young, J. (2017) $44 Million in Ethereum Moved With $0.13 Fee, How Can Bitcoin Reach Similar Scalability? *CoinJournal* (August 23, 2017). Available online: https://coinjournal.net/44-million-ethereum-moved-0-13-fee-can-bitcoin-reach-similar-scalability/.

190. Yu, H. and Zhang, M. (2017) Data pricing strategy based on data quality. *Computers & Industrial Engineering* **112**: 1-10.

191. Yue, X., Wang, H., Jin, D., Li, M. and Jiang, W. (2016) Healthcare Data Gateways: Found Healthcare Intelligence on Blockchain with Novel Privacy Risk Control. *Journal of Medical Systems* **40**: 218.

192. Zellinger, M. (2015) Digital Art as 'Monetised Graphics': Enforcing Intellectual Property on the Blockchain. *Philosophy & Technology* (forthcoming). Available online: https://doi.org/10.1007/s13347-016-0243-1.

193. Zikratov, I., Kuzmin, A., Akimenko, V., Niculichev, V. and Yalansky, L. (2017) Ensuring Data Integrity Using Blockchain Technology. In: Balandin, S. (ed.) *Proceedings of the 20th Conference of Open Innovations Association FRUCT.* Helsinki, Finland: FRUCT Oy, pp. 534-539.

194. Zuiderwijk, A.M.G., Loukis, E., Alexopoulos, C., Janssen, M. and Jeffery, K.G. (2014). Elements for the Development of an Open Data Marketplace. In: Parycek, P. and Edelmann, N. (eds.) *Proceedings of the International Conference for E-Democracy and Open Government.* Krems an der Donau, Austria: Donau-Universität Krems, pp. 309-322.

195. Zyskind, G., Nathan, O. and Pentland, A.S. (2015) Decentralizing privacy: using blockchain to protect personal data. In: *Proceedings of the 2015 IEEE security and privacy workshops (SPW 2015).* IEEE Computer Society, pp. 180-184.