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- : Alex Pazaitis(((Alex Pazaitis) Ragnar Nurkse Department of Innovation and Governance, Tallinn University of Technology P2P P2P . Ragnar Nurkse Department .)), Primavera De Filippi(((Primavera De Filippi) Berkman Center for Internet & Society at Harvard Law School P2P . European University Institute in Florence .)), Vasilis Kostakis(((Vasilis Kostakis) Ragnar Nurkse Department of Innovation and Governance at Tallinn University of Technology Berkman Klein Center for Internet & Society at Harvard University Institute of Environmental Science and Technology at the Autonomous University of Barcelona 가 . P2P Lab P2P .))
 - : [“Blockchain and value systems in the sharing economy: The illustrative case of Backfeed”](#) (2017.5.25)
 - :
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 - : Technological Forecasting and Social Change 125(2017)
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가 :

(...)

4. (Backfeed)

가 , 가 , 가 가
가 가 가 .
가 , 가 .
(CBPP, commons-based peer production)
가 가 가
가 , 가
가 가
가 가
(Ito, 2016; Tapscott and Tapscott, 2016).
P2P ICT()
CBPP (polycentricity),
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가 가 가

4.1 () (“[r]evolution”)

가

(Davidson et al., 2016).

(backbone)

가 .

(Wright and De Filippi, 2015:6).

(batches)

‘ (blocks)

—P2P

(Wright and De Filippi, 2015).

(Davidson et al., 2016)

가

(Wright and De Filippi, 2015).

(Davidson et al., 2016; Tapscott and Tapscott, 2016).

(Swan, 2015). P2P
2008),
(nodes)

가

(Nakamoto,

가

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’(proof of work)

(Davidson et al., 2016).

가

가 (Wright and De Filippi, 2015).

가
(Van Valkenburgh et al., 2014).

가
,
,
(Wright
and De Filippi, 2015).

4.2

가
(Free and Open-Source Software),
(OpenStreetMaps), (CouchSurfing),
(WikiHouse)

가 가

가
(Fuster Morell et al., 2014).

가
(Arvidsson et al., 2016).

가 가

가
(Bauwens, 2011; Johnson, 2011).

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(reputation)

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(Reilly, 2010).

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(Reason & Bradbury, 2008).

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(Reilly, 2010).

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 (OuiShare) .
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4.3. (Backfeed)

(Van Valkenburgh et al., 2014).

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 가 (layer)
 ' (trustless) ([] trustless :
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 3 ' 가 ,

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 (Decentralised Cooperation, DC)

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. DC

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‘ ’(stigmergy,)
(, ,) ,

(Davidson et

al., 2016; Marsh and Onof, 2007).

(peers, 가)

(generic)

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PoV)

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가(Proof-of-Value,

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(Davidson et al., 2016).

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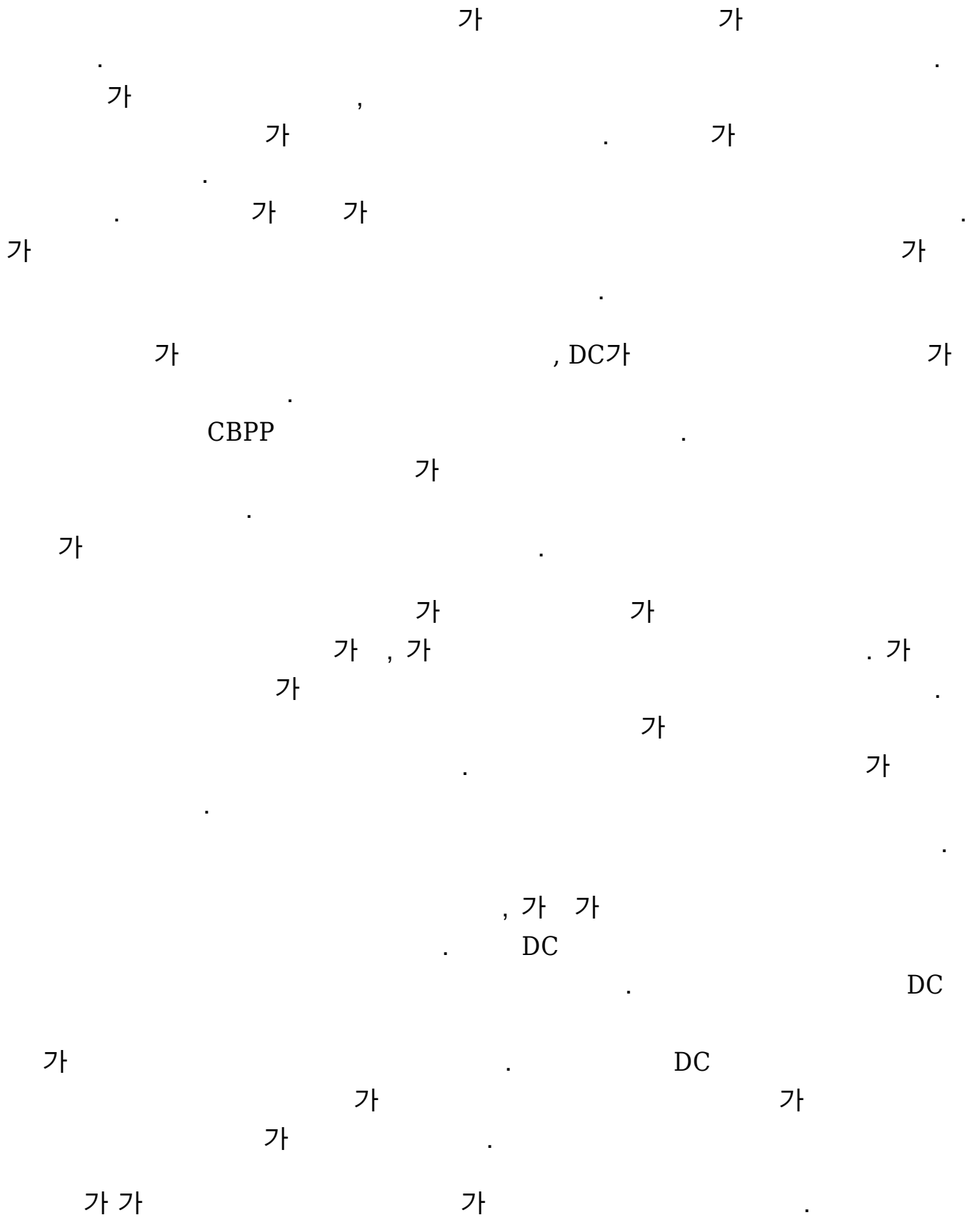
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(2009) 7

75% (mining pools) 가
(Blockchain.info, 2017).

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(Wikimedia Foundation, 2011).

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(Forte and Bruckman,

2005).

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production, CBPP) '(commons-based peer 가

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References

Aristotle, 1897. The Nicomachean Ethics. Translated by J. E. C. Welldon London .

Arvidsson, A., Colleoni, E., 2012. Value in informational capitalism and on the Internet. Inf. Soc. 28 (3), 135-150.

Arvidsson, A., Fuster Morell, M., Berlinguer, M., Caliandro, A., Cossu, A., Deka,

M.,

Gandini, A., Luise, V., Orria, B., Salcedo, J., Anselmi, G., 2016. Value in CBPP. Deliverable 4.3, P2Pvalue: techno-social platform for sustainable models and value generation in commons-based peer production in the future Internet. FP7-ICT-2013-10 (project: 610961). Available from: https://p2pvalue.eu/wp-content/uploads/2013/07/Deliverable_4.3.pdf (Accessed: 15.01.2017).

Baldwin, J.W., 1959. The Medieval Theories of the Just Price: Romanists, Canonists, and Theologians in the 12th and 13th Centuries. American Philosophical Society, Philadelphia.

Bauwens, M., 2005. The Political Economy of Peer Production. CTheory Journal. available at: <http://www.ctheory.net/articles.aspx?id=499> (accessed: 11 July 2016).

Bauwens, M., 2011. On Couchsurfing becoming a B corporation: The controversy. In: P2P Foundation Blog, . available at: <https://blog.p2pfoundation.net/on-couchsurfingbecoming-a-b-corporation-the-controversy/2011/09/02>, (accessed: 15 January 2017).

Bell, D., 1973. The Coming of Post-Industrial Society: A Venture in Social Forecasting. Basic Books, New York.

Benkler, Y., 2004. "Sharing nicely": on shareable goods and the emergence of sharing as a modality of economic production. Yale Law J. 114, 273-398.

Benkler, Y., 2006. The Wealth of Networks: How Social Production Transforms Markets and Freedom. Yale University Press, New Haven, CT.

Blockchain.info, 2017. Bitcoin hashrate distribution: an estimation of hashrate distribution amongst the largest mining pools. available at: <https://blockchain.info/pools> (accessed: 15 January 2017).

Bollier, D., 2014. The commons as a template for transformation. Great transition initiative. available at: <http://www.greattransition.org/document/the-commons-as-a-template-for-transformation> (accessed: 15 January 2017).

Bollier, D., 2016. State Power and Commoning. A Report on a Deep Dive Workshop Convened by the Commons Strategies Group in Cooperation with the Heinrich Böll Foundation, 28 Feb-01 Mar 2016, Berlin Commons Strategies Group. available at: <http://cdn8.commonstrategies.org/wp-content/uploads/2016/07/State-Power-and-Commoning.pdf>. (accessed: 15 January 2017).

Castells, M., 2010. The Rise of the Network Society. Blackwell, Oxford.

Davidson, S., De Filippi, P., Potts, J., 2016. Economics of Blockchain. SSRN. URL: <http://ssrn.com/abstract=2744751>. (or <http://dx.doi.org/10.2139/ssrn.2744751>, accessed: 11 July 2016).

Drucker, P., 1968. The age of Discontinuity: Guidelines to Our Changing Society. Harper and Row, New York.

European Commission, 2016. A European agenda for the collaborative economy. In: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM (2016) 356 final, Ref. Ares(2016)2562059.

Forte, A., Bruckman, A., 2005. Why do people write for Wikipedia? Incentives to contribute to open-content publishing. position paper. In: GROUP 05 Workshop: Sustaining Community: The Role and Design of Incentive Mechanisms in Online Systems. Sanibel Island, FL.

Fuchs, C., 2010. Labor in informational capitalism and on the Internet. Inf. Soc. 26 (3), 179-196.

Fuchs, C., 2012. With or without Marx? With or without capitalism?: a re-joinder to Adam Arvidsson and Eleanor Colleoni. TripleC 10 (2), 633-645.

Fuster Morell, M., De Rosnay, M.D., Musiani, F., Capdevila, I., Berlinguer, M., Salcedo, J., Tebbens, W., Arvidsson, A., Caliandro, A., Gandini, A., Rosas, D., 2014. Theoretical synthesis: final theoretical synthesis of WP1, including research reports on data collection. Deliverable 1.2, P2Pvalue: techno-social platform for sustainable models and value generation in commons-based peer production in the future Internet. FP7-ICT-2013-10 (project: 610961). Available from: https://p2pvalue.eu/wp-content/uploads/legacy/files/u28/D12_31July_TheoreticalFi

[ndingsA%20\(1\).pdf](#) (Accessed: 15.01.2017).

Gibson, R.W., Carnegie, G.D., Wolnizer, P.W. (Eds.), 1996. Accounting History Newsletter, 1980-1989 and Accounting History, 1989-1994: A Tribute to Robert William Gibson. Taylor & Francis, Abingdon.

Graeber, D., 2001. Toward an anthropological theory of value: The False Coin of Our Own Dreams. Palgrave, New York.

Hardt, M., Negri, A., 2000. Empire. Harvard University Press, Cambridge, Mass.

Hardt, M., Negri, A., 2004. Multitude: War and Democracy in the Age of Empire. Penguin, London.

Hollander, J.H., 1904. The development of Ricardo's theory of value. Q. J. Econ. 18 (4), 455-491.

Ito, J., 2016. In: Ito, Joi (Ed.), Reinventing Bookkeeping and Accounting (in Search of Certainty), Apr 26, 2016. URL: <http://joi.ito.com/weblog/2016/04/26/reinventingboo.html> (accessed: 11 July 2016).

Jevons, W.S., 1871. Theory of Political Economy. Macmillan, London.

Johnson, B., 2011. After going for-profit, CouchSurfing faces user revolt. In: Gigaom.com, (Available from: <https://gigaom.com/2011/09/01/after-going-for-profitcouchsurfing-faces-user-revolt>). Accessed: 15.01.2017).

Khanna, A., 2012. Who are Wikipedia's donors? Answers from the readers study. In: blog.wikimedia.org, (Available from: <https://blog.wikimedia.org/2012/02/05/who-are-wikipedias-donors>). Accessed: 15.01.2017).

King, J.E., McLure, M., 2015. Value: history of the concept. In: Wright, J. (Ed.), International Encyclopedia of the Social & Behavioral Sciences, second ed. Elsevier, pp. 7-13.

Kostakis, V., Bauwens, M., 2014. Network Society and Futures Scenarios for a Collaborative Economy. Palgrave Macmillan, Basingstoke.

Kostakis, V., Roos, A., Bauwens, M., 2016a. Towards a political ecology of the digital economy: socio-environmental implications of two competing value models. *Environ. Innov. Soc. Trans.* 18, 82-100.

Kostakis, V., Latoufis, K., Liarokapis, M., Bauwens, M., 2016b. The convergence of digital commons with local manufacturing from a degrowth perspective: two illustrative cases. *J. Clean. Prod.* <http://dx.doi.org/10.1016/j.jclepro.2016.09.077>.

Machlup, F., 1962. *The Production and Distribution of Knowledge in the United States*. Princeton University Press, New Jersey.

Marsh, L., Onof, C., 2007. Stigmergic epistemology, stigmergic cognition. *Cogn. Syst. Res.* 9 (1/2), 136-149.

Marshall, A., 1890. *Principles of Economics*, eighth ed. Macmillan, London.

Marx, K., 1976. *Capital*, vol. I, 1867. Penguin, London.

Meikle, S., 1995. *Aristotle's Economic Thought*. Clarendon Press, Oxford.

Milios, J., Dimoulis, D., Economakis, G., 2002. *Karl Marx and the Classics: An Essay on Value, Crises and the Capitalist Mode of Production*. Ashgate, Burlington.

Mill, J. S. 1848. *Principles of Political Economy with some of their Applications to Social Philosophy*, (7th edition). Edited by Ashley, J. (1909). London; Longmans: Green.

Nakamoto, S., 2008. Bitcoin: a peer-to-peer electronic cash system. URL. <https://bitcoin.org/bitcoin.pdf> (accessed: 11 July 2016).

Ostrom, E., 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press, Cambridge.

Perez, C., 2002. *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages*. Edward Elgar Pub, Cheltenham.

Perez, C., 2004. Technological revolutions, paradigm shifts and socio-institutional change. In: Reinert, E.S. (Ed.), *Globalization, Economic Development and Inequality: An Alternative Perspective*. Edward Elgar Pub, Cheltenham, pp. 217-242.

- Porat M., *The Information Economy: Definition and Measurement*, Washington, DC: US Department of Commerce, Office of Telecommunications, Publication, 1977, 77-12 (1)
- Reilly, R., 2010. Participatory case study. In: Mills, A., Durepos, G., Wiebe, E. (Eds.), *Encyclopedia of Case Study Research*. Sage Publications, Thousand Oaks, CA, pp. 658-661.
- Reason, P., Bradbury, H., 2008. *The SAGE Handbook of Action Research*, second ed. Sage Publications, Thousand Oaks, CA.
- Ricardo, D., 1821. *On the Principles of Political Economy and Taxation*, third ed. Cambridge University Press, Cambridge (1951).
- Rigi, J., Prey, R., 2015. Value, rent, and the political economy of social media. *Inf. Soc.* 31 (5), 392-406.
- Rullani, E., 2004. *Economia della conoscenza. Creativita e valore nel capitalismo delle reti*. Carocci, Rome.
- Sewall, H.R., 1901. *The Theory of Value before Adam Smith*. Published for the American Economic Association. Macmillan, New York.
- Slee, T., 2016. *What's Yours is Mine - Against the Sharing Economy*. OR Books, New York.
- Smith, A., 1776. In: Cannan, E. (Ed.), *An Inquiry into the Nature and Causes of the Wealth of Nations*. 1790 London: Methuen.
- Sombart, W., 1902. *Der Moderne Kapitalismus, Bd. 1: Die Genesis des Kapitalismus*. Duncker & Humbolt, Leipzig.
- Stake, R.E., 1994. Case studies. In: Denzin, N.K., Lincoln, Y.S. (Eds.), *Handbook of Qualitative Research*. Sage Publications, Thousand Oaks, pp. 236-247.
- Swan, M., 2015. *Blockchain: Blueprint for a New Economy*. O'Reilly Media, Sebastopol.
- Tapscott, D., Tapscott, A., 2016. *Blockchain Revolution: How the Technology behind Bitcoin is Changing Money, Business, and the World*. Penguin, New York.

Toms, S., 2008. Immeasurability: a critique of Hardt and Negri. *Ephemera Theory Polit. Organ.* 8 (4), 433-446.

Van Valkenburgh, P., Dietz, J., De Filippi, P., Shabad, H., Xethalis, G., Bollier, D., 2014. *Distributed Collaborative Organisations: Distributed Networks & Regulatory Frameworks*. Coin Center.

Veitas, V., Weinbaum, D., 2017. Living cognitive society: a 'digital' world of views. *Technol. Forecast. Soc. Chang.* 114, 16-26.

Walras, L., 1874. *Elements of Pure Economics*. Irwin, Homewood, IL (1954).

Webster, J., Randle, K., 2016. *Virtual Workers and the Global Labour Market*. Palgrave Macmillan, Basingstoke.

Wikimedia Foundation, 2011. *Wikipedia Editors Survey*. Wikimedia Foundation (April 2012. Available from: https://meta.wikimedia.org/wiki/Research:Wikipedia_Editors_Survey_2011_April#Download_the_Editor_Survey_2011_report: Accessed: 15.01.2017).

Wright, A., De Filippi, P., 2015. Decentralized Blockchain technology and the rise of Lex Cryptographia. Available from. <http://ssrn.com/abstract=2580664> (accessed: 11 July 2016).

Yamey, B.S., 1949. Scientific Bookkeeping and the Rise of Capitalism. *The Economic History Review*, Second Series I(2 & 3). pp. 99-113.

Yamey, B.S., 1964. Accounting and the rise of capitalism: further notes on a theme by Sombart. *J. Account. Res.* 2 (2), 117-136.