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BLOCKCHAIN TECHNOLOGIES AND ADVERTISING INDUSTRY: THE PERSPECTIVES OF NEW ERA DISTRIBUTED REGULATION

The main issues of existing advertising regulation in the USA and Ukraine have been examined. It has been found that the advertising regulation in these countries has a lot of common flaws such as weak administrative software, lack of transparency, slowness of the trial procedures, separation of the state regulatory bodies and the self-regulatory associations. It has been highlighted that blockchain network proposes a wide range of effective solutions that could form the basis of a new decentralized regulatory system of advertising. Potential weaknesses of the regulatory process via blockchain have been revealed. The organizational chart and the main advantages of the advertising regulatory system in Canada have been described. It has been substantiated that open blockchain administrative network is able to provide a new level of democratization and transparency of the advertising market.

Keywords: advertising market, blockchain, smart contract, self-regulation, voluntary codes of best practices, Advertising Self-Regulatory Council, Ad Standards Canada.

Problem statement. In recent years we have been witnessing a dramatic spreading of the concept of distributed digital systems in various spheres of economics, social and political life. Despite the bitcoin hype, which has not always been helpful, it is not possible to ignore the fact that blockchain technology proposes a wide range of tools which can be used to deal with many actual issues of the modern Information Age. Blockchain can be described as an immutable and distributed ledger of transactions inside a participants' network. It is a "chain" of validated secured transactions due to cryptographic hashing. Each block in the "chain" is stored with timestamp and transaction data along with a cryptographic hash pointer to the previous block¹. Technology of distributed networks allows to achieve full transaction transparency, protecting information and vanishing any unnecessary intermediaries: public or private.

Author's past research² of advertising regulatory systems proves that issues connected with information protection, public transparency and regulatory bureaucratization are very relevant to advertising industry, regardless of country's level of economic development. Thus, modern advertising markets are seeking for special tools which would allow business to decrease the amount of unnecessary intermediaries and to limit the influence of central regulatory bodies, ensuring high level of economic freedom. That explains the dynamic grow of advertising startups which propose the effective blockchain solutions. While private companies are able to meet the increasing demand just partially, the central state regulation continues to be marginalized from the global market tendencies.

Analysis of the recent research. Nowadays, blockchain distributed networks have become important subject of research in many countries, owing to its huge unexplored hidden potential and rapid worldwide development. Considering the public regulation sphere, it may be noted that the perspectives of blockchain usage by court system have been highlighted by Di Graski, Paul Embley³ and Adrian Clarke⁴.

¹ Delahunty, S. (2018). Developments And Adoption Of Blockchain in the US Federal Government. *Forbes Technology Council*. <www.forbes.com/sites/forbestechcouncil/2018/01/25/developments-and-adoption-of-blockchain-in-the-u-s-federal-government/#5981c1f13d99> (2019, August, 02).

² Leskiv, O. (2019). Regulation of the US Advertising Market: Trends towards Decentralization and Digitalization. *European Journal of Economics and Management*, 5 (2), 56-57.

³ Grasky, D., Embley, P. (2018). When Might Blockchain Appear in Your Court? *Trends in State Courts*: 62-66. <<https://www.ncsc.org/~media/Microsites/Files/Trends%202018/When-Might-Blockchain-Appear.ashx>> (2019, August, 02).

⁴ Clarke, A. (2018). Why Blockchain belongs in the Courtroom. *Entrepreneur*. <<https://www.entrepreneur.com/article/322880?fbclid=IwAR3nqxFSdCy25pUyFESyQfl6v54kNlnpEHjUS8hHqGwBcnbdQMYFCdJXgo>> (2019, August, 02).

Mahdy Miraz and Maaruf Ali¹ emphasized that blockchain can be used to secure human-to-human transaction, as well as this technology is particularly suitable for countries with low level of public trust. The phenomena of decentralized autonomous organizations which are developing as a consequence of blockchain spreading has been examined by Ying-Ying Hsieh, Jean-Philippe Vergne, Philip Anderson, Karim Lakhani and Markus Reitzig²³. However, this topic still requires deeper investigations, especially with regard to the perspectives of blockchain implementation into public regulatory systems of advertising.

The aim of the research. The main aim of the research lies in exploring the benefits and potential threats of reorganization and regulation on the basis of an open blockchain network.

Main material. In order to determine feasibility of the advertising regulation via blockchain it is necessary to analyze the current state of the advertising administrative system, to identify its main issues which hamper the development of the ad market. In the second phase it is possible to verify if blockchain nature is able to provide some effective solutions for the identified problems. This article focuses on Ukrainian and the US ad regulatory systems in order to find out whether blockchain is helpful not only for the developed ad market, but for the underdeveloped one as well. The main obstacles which hamper the development of advertising market in both countries as well as the decisions which can be provided due to blockchain to eliminate these issues are illustrated in the table 1. The issues 1–4 are common for advertising markets in Ukraine and the US, issues 6 and 7 which are connected with legislation are relevant only for Ukrainian immature ad industry.

As it can be seen from the table, one of the main issues concerns complexity of the online searching process among existing regulatory decisions. The open permissioned blockchain network allows every user to find information easily, however only authorized participants are able to make data creating and processing new «chains». Also, public access to the history of all transactions ensures awareness of all interested parties (defendant, challenger and wide society) in state and voluntary regulatory collaboration. Thus, transparency of the regulatory activity will be increased. Consolidation of governmental regulators and advertising self-regulatory organizations would take place under common blockchain network which would require continual data exchange. Therefore, the communication between state and voluntary regulatory bodies will become more intensive.

Another huge disadvantage of existing regulatory systems of advertising in the US and Ukraine is long duration of the trial procedures as well as implementation of the decisions. It should be noted that potential reduce of the time thank to blockchain may only take place if it not affects objectivity of investigation process. Blockchain smart contract technology allows to execute a sanction automatically, if any actor of the market found guilty.

Along with the issues which are relevant for both countries we define some specific challenges of Ukrainian regulatory system of advertising. The fundamental problem is poor development and obsolescence of the national legislation. For instance, legislator almost ignores needs of self-regulation of the industry, causing its slow development and limited effect. Respectively, Ukrainian codes of best advertising practices are weak and not widely circulated.

Needless to say, the voluntary codes cannot become a correct replacement for the legislation nevertheless they may add more specifics into general state norms. We propose to organize the voluntary standardizing process via blockchain. If some user of the network considers it necessary to adopt a norm into self-regulatory code, this user can create a block which would be approved or rejected by the five parties of the network: associations of advertisers, ad agencies, media companies, consumers and government.

¹ Miraz, M., Ali., M. (2018). Applications of blockchain technology beyond cryptocurrency. *Annals of Emerging Technologies in Computing (AETiC)*, 2 (1), 5-6. *ResearchGate* <https://www.researchgate.net/publication/322215706_Applications_of_Blockchain_Technology_beyond_Cryptocurrency> (2019, August, 01).

² Hsieh, Y., Vergne, J-P., Anderson, P., Lakhani, K., Reitzig, M. (2018). Bitcoin and the rise of decentralized autonomous organizations. *Journal of Organization Design*, 7 (14). <<https://link.springer.com/article/10.1186/s41469-018-0038-1>> (2019, August, 02).

Table 1

**The main issues of the US and Ukrainian regulatory systems of advertising
and potential benefits of blockchain usage**

#	Issue	Vital for:	Blockchain solutions
1	Weak software: online archive of previous decisions is absent or outdated, difficult searching of precedents;	USA/UA	Open permissioned blockchain network facilitates searching, data concerning each “chain” is available;
2	Lack of transparency in communication between public bodies and self-regulatory organizations;	USA/UA	Open blockchain network provides full transparency for all flows of information inside the system;
3	Slowness of trial procedures as well as implementation of the decisions;	USA/UA	“Smart contract” technology for automatic implementation; two-tier blockchain system allows to avoid delaying tactics
4	Separation of state regulatory bodies and self-regulatory ad associations, lack of coordination;	USA/UA	State regulator and voluntary associations are functioning as peers with equal impact in common blockchain system;
5	Imperfection of advertising legislation;	UA	Developing and updating of advertising codes via blockchain network on basis of common agreement.
6	Underdevelopment of voluntary ad self-regulation.	UA	

Elaborated by the author from^{1,2,3}.

Blockchain networks could be used actively not only in the development of advertising voluntary codes, but in the industry trial process as well. Lowering long-term costs and paper documents reducing are the most obvious gains of the new technology. Besides, one of the vital benefits of blockchain implementation into the judicial system is capability of blockchain network to protect digital evidences, ensuring that all parties of the trial process have access to the identical veritable information⁴. Blockchain technology can be used to ensure post-judgement updates which will be reflected immediately for all interested parties. Moreover, recent studies show that blockchain can be integrated into judicial authority in order to initiate the violators’ penalizing using cryptocurrency⁵. Still, there is a problem of adjudicating the value of cryptocurrency, thus such type of fines must be considered as a promising but distant prospect of the distributed advertising regulation via blockchain.

It is important to recognize that blockchain regulation has also some weaknesses which are common to all public blockchain networks. Some of shortcomings lie in transactions irreversibility, potential vulnerability to external attack (e.g. DDoS, spam) and energy consumption⁶. However, large processing

¹ Villafranco, J., Mallen, D., Mudge, A. (2015). Self-Regulation of advertising in the United States: an assessment of the National Advertising Division. *FKKS* <<http://fkks.com/pdfs/SelfRegulationOfAdvertising.pdf>> (2019, August, 01).

² Villafranco, J., Riley, K. (2013). So You Want to Self-Regulate? The National Advertising Division As Standard Bearer. *Antitrust*, 27 (2), 80-81. <<https://www.ascreviews.org/wp-content/uploads/2014/06/2013-John-Villafranco-So-You-Want-to-Self-Regulate-The-National-Advertising-Division-As-Standard-Bearer.pdf>> (2019, August, 01).

³ Toloc, Ye. (2016). Administrative and Legal Regulation of Promotional Activities in Ukraine: Issues, Formation, Development. *Herald of the Kharkiv State Academy of Culture*, 49, 217-219.

⁴ Clarke, A. (2018). Why Blockchain belongs in the Courtroom. *Entrepreneur*. <<https://www.entrepreneur.com/article/322880?fbclid=IwAR3nqxFsdCy25pUyFESyQfl6v54kNInpEHjUS8hHqGwBcnbzdQMYFCdJXgo>> (2019, August, 02).

⁵ Grasky, D., Embley, P. (2018). When Might Blockchain Appear in Your Court? *Trends in State Courts*, 65-66. (2019, August, 02).

⁶ CoinDesk Research’s State of Blockchain Q4 (2017). State of Blockchain. *SlideShares* <<https://www.slideshare.net/CoinDesk/state-of-blockchain-q4-2016>> (2019, August, 02).

power is needed only for the permissionless ledgers (Proof of Work network). Enormous energy consumption is not usual for permissioned ledgers which are far more suitable for public sector. In our view, there are two main issues concerned with blockchain usage in regulation of advertising: high costs and loss of confidentiality¹. High short-term costs are needed to develop specific blockchain network which will underlie the whole reorganized advertising regulatory system. The process compounds by immaturity of the new technology and lack of a clear vision of the ultimate results. Privacy reduce is one of the most undesirable effects, given the nature of advertising market. The open blockchain regulatory network ruins for guilty party any opportunity to eliminate violation willingly in order to avoid undesirable promulgation.

It would be useful to admit that US and Ukrainian advertising administrative systems which were analyzed in our previous article² are less effective than some another national ad regulatory mechanisms. Canadian system of advertising regulation which as with the cases of US and Ukraine, has two main branches: state regulation and industry self-regulation is illustrated in Figure 1

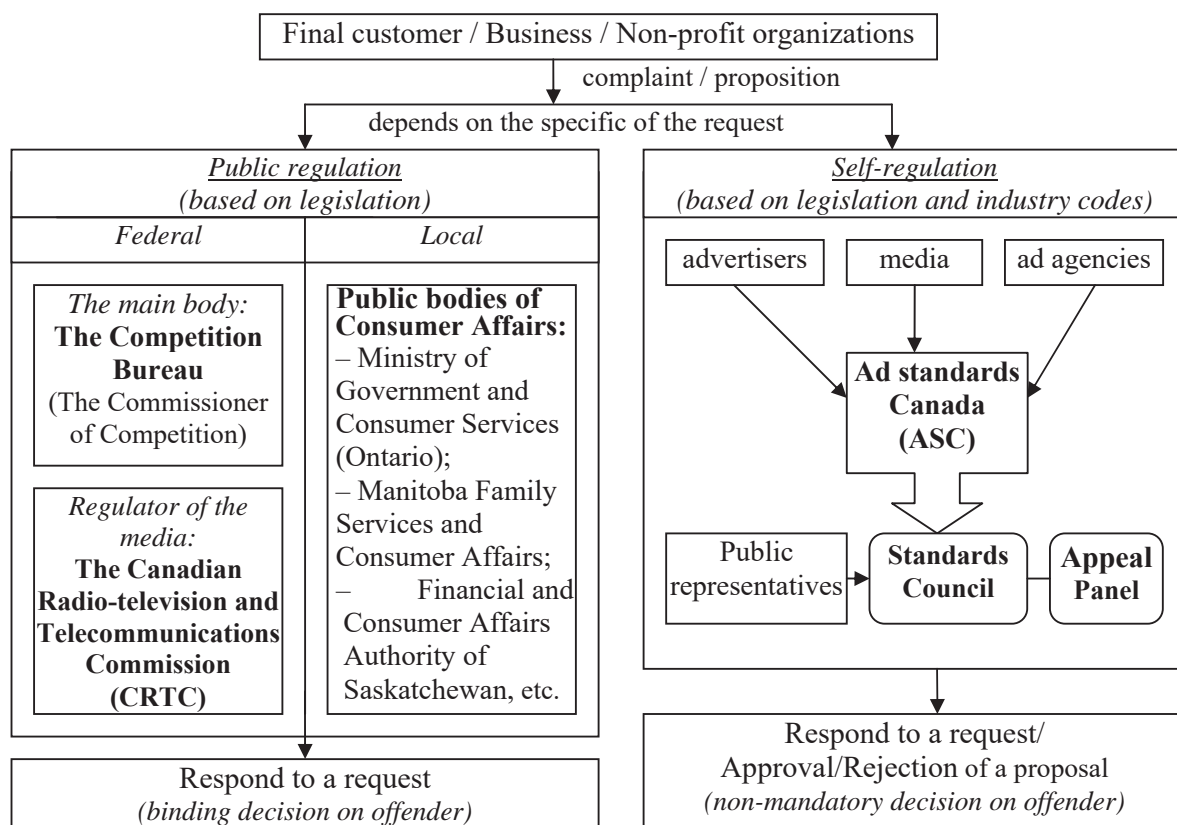


Fig. 1. The regulatory system of Canadian advertising market

Elaborated by the author from^{3,4}.

¹ OPSI (2018). *Blockchain and its Use in the Public Sector*. <<https://oecd-opsi.org/wp-content/uploads/2018/06/Blockchains-Unchained-Slides.pdf>> (2019, August, 02).

² Leskiv, O. (2019). Regulation of the US Advertising Market: Trends towards Decentralization and Digitalization. *European Journal of Economics and Management*, 5 (2), 56-57.

³ Ad Standards (2018). *Ad Complaints report. 2018 Year in Review*. <<https://adstandards.ca/wp-content/uploads/2019/04/AdStandards-2019-Complaints-Report-EN.pdf>> (2019, August, 02).

⁴ Ad Standards (2019). *The Canadian Code of Advertising Standards*. <<https://adstandards.ca/code/the-code-online/>> (2019, August, 02).

The main state body which controls Canadian advertising market on the national level is the Competition Bureau. The bureau and the Commissioner of Competition have a wide range of powers to conduct their investigation. It has to be noted that in specific cases the decision of the Competition Tribunal is needed, especially than it comes to price maintenance, exclusive dealing, market restriction and abuse of a dominant position. There are also some other public bodies which regulate specific spheres of information law such anti-spam, privacy and data protection. For instance, the Canadian Radio-television and Telecommunications Commission regulates the activity of TV media companies¹.

If we compare ad self-regulatory systems in the US and Canada it is easy to see that Canadian voluntary mechanism is more simplified. Unlike the US, their central self-regulatory body the Advertising Self-Regulatory Council is formed by the four main associations of advertisers, ad agencies and media, Canadian self-regulatory body called Ad Standards Canada (ASC) allows a direct participation of the market players. ASC receives and processes complaints from consumers and business. Some simple complaints about advertising accuracy and clarity or prize claims can be addressed by ASC directly if the guilty party is ready to work together with the regulator. Besides, if complaint is connected with safety or unacceptable depictions, consumer can request a review by the Standard Council. Council consists of ad industry participants plus voluntary consumers' representatives.

Canadian industry regulatory mechanism is more effective than American one due to good coordination between state and voluntary regulation. In particular, a self-regulatory body will not get involved in regulation process if the same complaint is also received by the Competition Bureau or another state body. Along with this, Competition Bureau is the guarantor of the ASC decisions' implementation. The quantity of complaints which are reviewed by the ASC has increased for the past two years². This tendency might mean that consumption culture has developed as well as the national advertising market in Canada. On the other hand, such dynamic could be the sign of the industry regulation inefficiency.

As far as blockchain is concerned, Canada has an enabling environment for distributed networks implementation due to the complex of factors³. Canada has a low energy cost, this is important for the mining process which demands a vast amount of electricity. Besides, even a more important factor provoking fast development of blockchain startups in Canada is favorable government regulation. Canadian authorities are interested in the implementation of this technology into different spheres like telecommunications, financial services, healthcare, retail, public services. Besides, for the time being, Canadian blockchain marketing initiatives are developing primarily on micro-level. For example, there is a promising startup which has already started to advance Ethereum blockchain advertising platform⁴. The main idea is to facilitate the interactions between advertisers and publishers, eliminating mediators such as marketing media agencies. Owing to the smart contract technology, this platform allows not only to reduce expenses for advertisers and increase profit for publishers, but also to eliminate ad fraud, using implemented advertising standards.

Conclusions. Ukrainian and the US systems of advertising control have a number of common shortcomings which are mainly related to weak and non-transparent collaboration between the public regulatory bodies and the self-regulatory organizations. Usage of the open blockchain network allows to create a unified digital distributed platform which should include all regulatory bodies representing public authority, customers, advertisers, media and marketing companies on the basis of equality and synergy. Any decision in such blockchain system can be made only on the basis of awareness and common agreement of all the major ad market players, including state and customers. The immediate decision implementation is guaranteed by the smart contract technology.

Although, potential implementation of the blockchain into ad regulatory process could trigger a number of undesirable effects, such as transaction irreversibility, high short-term costs and loss

¹ Hearn, B. (2017). Canadian Advertising & Marketing Law: An Overview Of The Rules, *The Regulators And Their Powers*. *Mondaq*. <<http://www.mondaq.com/canada/x/568494/advertising+marketing+branding/Canadian+Advertising+Marketing+Law+An+Overview+Of+The+Rules+The+Regulators+And+Their+Powers>> (2019, August, 02).

² Ad Standards (2018). *Ad Complaints report. 2018 Year in Review*. <<https://adstandards.ca/wp-content/uploads/2019/04/AdStandards-2019-Complaints-Report-EN.pdf>> (2019, August, 02).

³ Lashuk, A. (2019). Why Canada is at the Forefront of the Blockchain Sector? *OpenLedger*. <<https://openledger.info/about-us/>> (2019, August, 02).

⁴ Adbank (2019). *Official website*. <<https://www.adbank.network/>> (2019, August, 02).

of confidentiality. Along with this, all problems which are mentioned above do not seem to be unsolvable in the medium and long term perspectives, moreover, described benefits of blockchain outweigh its disadvantages even today. Canadian system of advertising regulation can serve as an example of close cooperation between ad market and its control bodies, which allows to regulate advertising more effectively. Besides, even in Canada a general shift of the ad market to blockchain collaboration is detected. Advertisers, marketing companies, media have already started to use blockchain solution for cost-saving reasons. Thus, it is a matter of time, when public bodies will be forced to respond on the requests of the ad market and to switch from the hierarchical bureaucratic systems to the digital distributed networks.

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