Cryptocurrency tumbler: legality, legalization, criminalization[1]

Bruno Moslavac[2]

ABSTRACT

Tumbler is a service provided for cryptocurrencies in cases when anonymity is endangered and the owner of virtual "coins" can be traced. Legality of cryptocurrency tumblers can be described as a "grey zone", for the reason that not even cryptovalues are legalized and "mixing" in tumblers is a special treatment of it. In this paper author by analytical method, by descriptive method and by comparative method explores and displays the all open questions of cryptocurrency tumblers, conducting their legality, legalization and especially potential criminalization in the future. Finally, the author concludes that legality, legalization and criminalization are firmly connected, interdependent and legislators worldwide should de lege ferenda pay extreme caution during tumbler legalization, especially for the purpose of later criminalization.

Keywords: *Cryptocurrency. Cryptocurrency tumblers. Legalization. Criminalization. Anonymity.*

1 INTRODUCTION

Subject of an interdisciplinary research in this paper are cryptocurrency tumblers, service for mixing of cryptovalues. Legal framework doesn't exist for those values itself, neither for tumblers. Three main questions are to be researched here: legality, legalization and potentially criminalization of cryptocurrency tumblers. The results of the previous research have so far not been published in scientific form. Legality is questionable for at least two reasons; first, why mixing of cryptocurrencies if not to hide the real origin of some amount of money; and second, privacy is *modus operandi* for cryptovalues, so why hiding in addition. Legalization is a wish for public authorities worldwide. Criminalization is related to the question of legality: focus for creator(s) of cryptovalues was on (i) creation of value that public government can't usurp like raw naphtha, stock exchange, bonds and (b) avoidance of centralization in process of issuing cryptocurrencies.

2 PRIVACY ON INTERNET AS AN INDIVIDUAL (HUMAN) RIGHT

Every transaction with any cryptovalue included is recorded on a public database that anybody can view any time they want. Safety on the Net isn't first neither one of firsts our concern's when we are online. The most common method to improve our levels of privacy protection is to use a mixer called tumbler. To avoid the inconveniences brought about by using funds from sources not regarded as "clean," cryptocurrency tumbler services offer a solution. "Dirty" coins have to be "washed" to assure owners anonymity. It's ideally to send payment to multiple addresses in order to maximize the effectiveness of the mixer. More addresses included, more secure privacy protection will be. For each address a different delay should be chosen. This affects how long coins will be inside the mixer. The bigger the gap between then the better. A tumbler attempts to sever

the links between your old address and a new address by sending coins from you to other people and coins from them to you. It also randomizes transaction amounts and sometimes adds time delays to the transactions. Sender also need to pay the mixing fee. Peer-to-peer tumblers appeared in an attempt to fix the disadvantages of the centralized model of tumbling. These services act as a place of meeting for cryptocurrencies users, instead of taking coins for mixing. Users arrange mixing by themselves. There should be no link between the original transactions and the final address of the coins. Apart from mixing server, none of the participants can know the connection between the incoming and outgoing addresses of coins. Operation can be carried out several times with different recipients to complicate transaction analysis. The complete procedure and mixing activities in the tumbler are not normatively regulated by any regulation. Legality therefore is questionable and legalization doubtful. There are cryptocurrency tumblers (e. g. MixTium.io) that does not require registration and it does not store logs and therefore provide complete anonymity.

3 ANONYMITY AS A REVERSE OF PRIVACY

An idea of whole technology conducting to cryptocurrencies is based on anonymity. Today, Monero preserves complete anonymity without the need for a tumbler, as in case of a bitcoin. Blockchain technology is to seize freedom of the technology and watch over privacy of an individual. Keeping the wallets private is a major concern for many crypto users. At that point tumbler comes on scene, enabling crypto values users and holders to trigger traces. Privacy is generally a wider term of anonymity but can be seen as the other side of the same coin. Anonymity can be further strengthened by use of TOR-onion proxies to obfuscate users' IP addresses and tumbler software to render transactions obscurely (Engle, 2016). As cryptocur-

rencies evolve stronger privacy protections and become more flexibly programmable, we'll face the demands of criminalization. The right to privacy must be guaranteed because this fact attracts new users to the system. On the other hand, illegal activities burst into every life situation when a potential perpetrator of the criminal offense "knows" that he will not be caught "with his fingers in the pie". Cryptocurrency address can be potentially mapped to a physical entity by examining its related history of transactions (namely edges on the transaction graph) that are stored on the publicly accessible blockchain. This has prompted researchers to introduce various techniques for achieving anonymity. Suppose each one of the addresses A, B, C, and D wish to send one bitcoin to addresses A', B', C', and D' respectively. If these transactions are posted directly on the blockchain, everybody can deduce exactly how money flows. Tumbler „mixes" transactions so the amount of information that becomes public is minimized—with mixing one would just find out that A's coin went to one of A', B', C', or D', but not to which address exactly. The simplest way to achieve that is to use a trusted mixer (as we will discuss) who first receives the money from A, B, C, and D and then sends the money to A', B', C', and D' respectively. Clearly such an approach does not reveal information about the exact transaction edges. In order for this process to truly hide the link between input and output addresses, all users must participate with the same amount. There are various ways of mixing, achieving different levels of privacy, security, and efficiency. The simplest and easiest way to implement a form of mixing is via a trusted third party that serves as the *mixer.* To send an amount of bitcoins from an address A to another address A', A first performs a transaction transferring a fixed amount to the mixer and sends an encryption of A' under the mixer's public key to the latter. After collecting a number of such transactions (assuming the same amount in each transaction) from multiple users—or, alternatively, after a certain amount of time has elapsed—the mixer sends, in a

single Bitcoin transaction containing the recipients' addresses in a randomly permuted order, the same amount back to recipients' addresses. This achieves k-anonymity for a set that is as large as the number of parties that use the mixer within the given time increment, as there is no way for an external observer to distinguish the mapping between input and output addresses. The anonymity set can be further increased beyond the number of parties that use the mixer in the given time increment by sequentially mixing the coins multiple times (using several mix transactions), at the cost of reduced efficiency. One thing to note is this approach does not hide the fact these users used the mixer (and may, therefore, have "something to hide"). However, the most notable problem is that this approach requires "blindly trusting" the mixer (Genkin *et. al.,* 2018). Here is pointed out that users of a tumbler disguise their identity and identity of their coins, but can›t hide the facto of using the tumbler. What someone might notice to use a mixer is certainly not worrying them about.

4 DIGITAL MONEY AS THE FUTURE: CREDIBLE CASH

Realistically, most of today's money is digitized, numbered in a digital book, without physical existence. The more it is, by the way, it copies (multiplies) the money, it is less valuable. Bitcoin is the first case in history to have a certification system for electronic transactions without intermediaries. Digital cash can only exist if we have a solid proof of its credibility. Blockchain is the first technology to do, and bitcoin is the first case of mass application of this technology. However, this technology, in the black markets, is being abused by paying bitcoins (Pavic, 2017). Again, it is about the future and we have to accept that crypto currencies will become our everyday life soon. Bitcoin abuse should be understood in the sense that it, like other crypts of currencies, is used in a particular one, it is difficult to tell how much or as widely as possible against conventional currency,

classical money, when trading in black markets. Crypto currency is usually used as a means of payment for prohibited items, goods and services, mostly covered with a certain definition of a criminal offense. If we can start proclaiming abuse in the beginning, it is difficult to define it with unanimity. Payment verification is no news, people have resorted to a variety of ways of exchanging goods and services, from things to things, over certain counterparts for the corresponding services or goods, up to the present or today's usual payment with fewer or more real currencies. *A priori*, any payment to bitcoins, even if it is executed on a black market, does not necessarily mean abuse of blockchain technology or the realization of the legal features of a criminal offense. Digital money is in its early stages of development and these complex and inter-related contextual factors will influence its future direction and adoption, adding to the unpredictability of its trajectory of adoption and influence. Nonetheless, a combination of globalization, urbanization and digitalization has seen an irreversible shift in the way money flows in economic systems. The digital money ecosystem will require new talent in management, science and technology, and as with most emerging innovations it is likely that the organizations that employ multidisciplinary staff, are market facing in orientation, and operate with a collaborative and open approach are likely to be favoured. There will be an enormous challenge for regulators, and the most effective of them will be proactive to protect societal interests whilst encouraging entrepreneurship and experimentation. If privacy can be protected, the data that surrounds digital money provides insights that allow governments to be much more effective in delivering services to citizens. Governments will continue to try to develop effective regulations that pre-empt rather than respond to financial challenges. Digital readiness will continue to emerge as a key element of national competitiveness. While digital money will not remove poverty and inequality, it will provide a vital new tool in helping them to be addressed (DODGSON *et. al.*, 2015).

5 LEGALITY OF CRYPTOCURRENCY TUMBLER

Tumblers have arisen to improve the anonymity of cryptocurrencies, since the currencies provide a public ledger of all transactions. In general, tumbler is a service for consumers offered to mix identifiable cryptocurrencies with other. Mixing is double sided: (i) helps protect privacy and (ii) can also be used for illegal activities such as money laundering by mixing illegally obtained funds. Mixing large amounts of money may be illegal, being in violation of anti-structuring laws. There is a double dilemma, ethical and legal. For itself, tumbler is not a legally regulated phenomenon. On the other side, cryptovalues of all kind are conceived as a means of absolute protection of the privacy of their creators and users. Ethical dilemma is obvious: privacy on first place or legality? Second question is how to achieve legality of something which can't be legal or isn't legal at all at this time. Also, there is a serious risk that wrong legislation will or may kill innovation or destroy developments. Giving the advantage to privacy or legality pulls on the question why don't have both. Whole idea of blockchain still isn't legalized, so there aren't obstacles to consume tumbler regardless though there is no customary framework.

5.1 Independent or official authority/service to superintend tumblers

After legalization of cryptocurrencies tumblers public authorities would establish an official service to guide over tumblers and their "owners". Maybe there would be a space for an independent authority, regarding nature of all cryptocurrencies as "private". Privacy was, as previously stated, one of the first reasons to take into a founding of cryptovalues itself. Since cryptovalues originally were "private project", government should not accuse or attack on it or creators of tumbler now-days, but to ask questions to public authorities that

didn't or should issue a permit for tumblers to "work". If tumblers are legalized, government must declare should official authority is to supervise tumbler activity or tutorage could be entrusted to independent service. Public interest can be disregarded only if there is a long-term interest.

6 CONTENT OF DIGITAL GOVERNANCE

Governance of the digital (DG) is not identical with digital regulation. The latter is inseparable part but not the only part of the content of DG. Digital ethics is a "missing link" (CHOHAN, 2017). Digital governance is the practice of establishing and implementing policies, procedures, and standards for the proper development, use and management of the infosphere. It is also a matter of convention and good coordination, sometimes neither moral nor immoral, neither legal nor illegal (FLORIDI, 2018). A tumbler is used to hide, disguise or at least make it difficult to prove where cryptocurrency came from. It attempts to severe links between IP addresses by sending currency from different people to another one and them to other currency owners. Therefore, that action is called mixing. Data of all kinds, including personal and non-personal data, are at the core of every modern society and legal order. They can create tremendous values for society and every single person, person, citizen, but equally, they can become a "victim" in mobility. The legal regulation of a particular issue unquestionably opens up the debate on the public authorities' wish to control every citizen's conduct, with the rule of resistance to the normative activity of the rulers. Information and Communication Technology (ICT) means, among other things, research and management of IT systems, especially software and hardware, and in the core is data processing, information. Transferring, processing, storing and protecting data in ICT involves the use of computers of all kinds. A particular and

specific issue in the fluctuation of personal and non-personal data is the control of cross-border movements, e.g. data manipulations and, in addition, the Internet manipulation of such data, which at the beginning implies the absence of a legal regulation (only) of a state or public authority. However, legal planning and standardization must be directed to fulfilling the functions of each new technology (e.g. cloud). Legally historically, no legal framework has been able to define and regulate a certain social relationship to the full. Therefore, it is almost in itself a question of the question when it is justified, necessary or necessary to legally regulate certain issues that make up the contents of a social relationship (Moslavac, 2018).

7 LEGALIZATION AFTER PROHIBITION: ALCOHOL, PROSTITUTION, DRUGS, SAME-SEX MARRIAGES

Every legal regulation implies the activities of social institutions and institutions of public authority. The legal consequences of drug use were different during time and places. Legalization or decriminalization of drugs might reduce some of them, but at the end, only truth is that drug abuse will produce harm for people's health. Legalization of so-called soft drugs, primary marihuana was conducted after the original legal ban. Same was with prohibition of alcohol, prostitution, same-sex marriages etc. Prohibition in the United States was a nationwide constitutional ban on the production, importation, transportation, and sale of alcoholic beverages from 1920 to 1933. Adult use of cannabis is legal in California under Prop. 64, the Adult Use of Marijuana Act (AUMA), approved on Nov 8, 2016. AUMA allows adults 21 and over to possess, privately use, and give away up to one ounce of cannabis, and to cultivate no more than six plants for personal use at their residence at one time. It also legalizes the commercial sale, distribution and production of cannabis for adult use at state-licensed facilities beginning January 1, 2018, under terms spelled out in the

Medical and Adult Use of Cannabis Regulation and Safety Act) approved by the legislature in 2017. Local city and county governments can restrict or ban cannabis businesses in their jurisdiction. Violation of restrictions on personal use cultivation is a $250 infraction for six plants or less. Every single case of legalization of forbidden social behavior for the forerunner had the existing legal ban on particular same behavior. As a matter of general cultural perception, recognitions of same-sex domestic partnerships are baby steps toward the legalization of gay marriage. Whether domestic partnership legislation is a stepping-stone or a distracting impediment to gay marriage cannot be known categorically. Whether it is one or the other depends on a number of factors: the specific content of the legislation, the social circumstances of its passage, and the likely social consequences of its passage. I conjecture that states will take the route of domestic partnership legislation until they find out that a "separate but equal" structuring of gay and non-gay relationships is hopelessly unwieldy. Then states will resort to the benefits of simplicity and recognize gay marriages straight out (Mohr, 2014). For centuries prostitution has been one of the most hazardous professions in which women can engage. Not only are sex workers subject to physical abuse at the hands of pimps and johns, but they are also vulnerable to atrocious health standards and discriminating criminal codes. The analysis of the jurisprudence indicates that the environment for these sex workers has not gotten better, but rather, conditions have worsened over time. Although the stigma associated with sex work is slowly lessening as society becomes more liberal towards sex work, conservative ideology fails to acknowledge the risks criminalization embodies in terms of the regulation of sexual labor. Prostitutes have never been able to truly embrace and experience the benefits of their civil liberties, as they have been historically limited in one way or another (Abrol, 2014). Proposals for decriminalizing prostitution have been met with stiff opposition. Legalization has been a polarizing issue not only in

individual nation states but also for international political bodies. An example is a recent report submitted to the European Parliament by the parliamentary Committee on Women's Rights and Gender Equality, a product of lobbying by prohibitionist groups (Weitzer, 2010). Legalization is closely related to complete decriminalization in theory and in practice. Proponents of legalization and decriminalization often proceed from the standpoint that prostitution arises from personal choice, is an indication of women's empowerment, and is a business agreement made between consenting adults with equal power. Though local ordinances may place restrictions on prostitution, it is important to note that national legalization and decriminalization of prostitution activities remove the legal barriers to the growth of the "legal" commercial sex industry. Legalization generally refers to the regulation of prostitution through labor laws that legalize the majority of the following: pimping, buying, brothel ownership, and the sale of prostitution sex (Mathieson, 2015).

7.1 Legalization act

In the core of every cryptocurrency lies blockchain. Blockchain is independent of the underlying consensus algorithm. a linked list data structure, that uses hash sums over its elements as pointers to the respective elements (Judemayer et. al., 2017). The lack of "third party" control over data exchange transactions is the result of a distrust of the user in the imaginary third person, who as a sort of arbitrator, from a legal aspect of observing the structure and content of the whole system, supervised the transactions with the appropriate earnings. In that case, centralization of the whole system was also discarded. Unknown computers on the net, managed by people interested, for example, to obtain a cryptovalue, confirm a single transaction based on a specific algorithm. Interdependence is manifested in the mutual need of the user to affirm the other party to their transaction.

Blockchain is probably the most important and fastest method of writing and authenticating in the history of human history. The first application was found just in finances. Editing a certain area of life and man labor is not necessarily bad, although we are witnessing that digital currency creators are trying to avoid any control of any public authority. At the same time, everything that can have a negative impact on people, their property and other values in life should be regulated by regulations and subjected to control. Particularly the scope of this control is particularly concerned. Giving legal power to cryptocurrency tumbler must be provided through law. No one has a (special) incentive to carry out legislative activities regarding the editing and arrangement of social relationships that appear on the internet domain. Combined with anonymity and unobtrusive data flow within blockchain, a "deadly" combination of traditional lawyers is created with radical solutions and changes. We must avoid repeating the same mistakes from the past and i establish the legal framework in which the blockchain will develop. Despite a strong demand for anonymity, which needs to be deeply respected, the formal framework and legal regulations will attract new investors and researchers to blockchain. The Blockchain Transaction Registration System can also be applied to the entry of ownership rights on any type of property: shares, gold, real estate, but the state must register such changes in the public accounts in order to have the required power in the legal transaction. There is a need for a symbiosis between public authorities and all people involved in the "chain". The legal framework must be unconditionally established in the form of a Directive ("the law"). The accompanying recommendations may relate to certain segments of blockchain: smart contracts, right of ownership, trademark and etc. The unique blockchain directive must uniquely cover all areas in which blockchain implementation or implementation can't be accessed by partial solutions as it has been (e.g. cryptocurrencies). The blockchain directive must be a regulation that allows something,

gives someone the freedom or the ability to do it. Any violation of such regulation shouldn't be unlawful and related to sanctioning (punishment). The content of the regulation should be expressed by the EU's attempt to legally regulate the blockchain, allowing all citizens to work freely, creating new values using blockchain, for the general well-being.

8 QUESTION OF OBFUSCATING LEGALITY

There isn't "legislative framework" and we can't talk about the framework because there aren't any legislative act at all, not a single one, about tumblers. We are in basics on start and framework itself is way ahead in future. Process of obfuscating the trace of moving cryptocurrency, its origin and connection between identity of the owner and other persons involved in mixing yet isn't regulated in any way. Anonymity is the key for cryptocurrencies in general. Everything related to them is no exception. Blockchain technology doesn't bring anything new to itself, if one doesn't believe in the social changes that are being announced. Why does society bring laws? The basic legal rule for something to be unlawful is that you have to legalize it first. The area for possible illegal acts, including potential criminal offenses, almost doesn't exist when applying blockchain technology. Discarding the „legalization" of blockchain technology, with a strong demand that a regulation that regulates or needs to address issues associated with the ubiquitous use of blockchain technology must have the character of a regulation that allows something without sanctions in case of violation of the positive provisions of the regulation itself will not result in termination of blockchain technology development.

9 NEED FOR LAW REGULATION OF SOME ISSUE

Legislation is necessary but often insufficient. Law regulation doesn't give full or identical answer to all open questions regarding some theme. It has to be "guiding thought". Even when it looks alike

that legislation is sufficient, there is always the space above what the law strictly requires. Compulsory regulations are not always a solution to social problems. It does not matter that we solve every open social issue legally. On the other hand, the law is – and always has been – made by humans and for humans (EIDENMÜLLER, 2017). Does really exist a necessary to put every open question into a laws chain? Public governments worldwide are questioned if they are willing to let the issue – not the problem – of tumblers unregulated. In the same time, we have a "not in my backyard" syndrome and an override of public interest. It is good that some issue is legislated but not in "my backyard", what causes syndrome of resistance toward legality. Public interest shouldn't be spanned in situation where governance imposes taxes on trading on cryptovalues and in the same time put out-of-the-way same values as money of any kind. Three critical barriers that a digital currency must have to be successful: 1. cryptocurrency must be considered intangible personal property similar to trademarks, copyrights, and patents. Without being considered personnel property, legal protections are not ensured and consumer confidence can be diminished. Legal protection could decrease market volatility by reducing the risk of loss on an asset; 2. ownership disputes must be subject to a system such as a Judicial Proceeding or Binding Arbitration to resolve property conflicts. While point one is an important barrier, without means of a resolving ownership rights, the risk of loss is not reduced; 3. currency must be subject to similar regulation as other financial instruments (e.g., legal tender, scrip, and credit cards) used in facilitating exchanges (MCKINNEY *et. al.,* 2013). A clear demand for legalization of all open questions related to cryptocurrencies hereby is stated.

9.1 Creating electronic money and "legality"

Electronic money is electronic stored monetary value that is issued after the receipt of cash funds for the purpose of executing payment transactions in the sense of a law regulating payment transactions and accepted by a natural or legal person other than the issuer of that electronic money. Currency is money issued by the state bank as a legitimate means of payment or a type of monetary system. E. g. bitcoin is a substantial unit of digital currency, but also the currency itself, if we take into account the overall functioning of bitcoin, because it is undoubtedly about the monetary system. Germany defines the bitcoin as an accounting unit (*Rechnungseinheiten*), therefore it doesn't recognize it as a special currency, money, although it does not deny its existence. The issue of creating electronic money using blockchain is legal question: countries worldwide, especially European Union Member States don't acknowledge any virtual "coin" as electronic money. Blockchain Law must define cryptocurrencies and stated if they are to be perceived as a "electronic money" or not and what are the consequences of such interpretation. Without that, digital currency will never "live". Stakeholders to provide "Blockchain Law" are governments since data protection impact personal freedoms & rights, national regulatory agencies for personal data protection, civil society organizations, specialized task forces for monitoring and analysis of the effects of the new legal regulation, initiatives of different kind.

10 PEER-TO-PEER TUMBLERS

In a "Peer to Peer" (P2P) network, the "peers" are computer systems which are connected to each other via the Internet. Files can be shared directly between systems on the network without the need of a central server. In other words, each computer on a P2P network

becomes a file server as well as a client. The only requirements for a computer to join a peer-to-peer network are an Internet connection and P2P software. Common P2P software programs include Kazaa, Limewire, BearShare, Morpheus, and Acquisition. These programs connect to a P2P network, such as "Gnutella", which allows the computer to access thousands of other systems on the network. Once connected to the network, P2P software allows you to search for files on other people's computers. Meanwhile, other users on the network can search for files on your computer, but typically only within a single folder that you have designated to share. While P2P networking makes file sharing easy and convenient, is also has led to a lot of software piracy and illegal music downloads. Therefore, it is best to be on the safe side and only download software and music from legitimate websites.[3] Involving sharing files or other between computers connected through a network, rather than using a central server. It's all about anonymity. Peer-to-peer tumblers appeared in an attempt to fix the disadvantages of the centralized model of tumbling. These services act as a place of meeting for bitcoin or other cryptocurrencies users, instead of taking coins for mixing. Users arrange mixing by themselves. This model solves the problem of stealing, as there is no middleman. One obvious benefit of this approach is that it eliminates the need for mixing fees. Moreover, it is closer in spirit to the decentralized principle behind cryptocurrency; if the participants can themselves perform this service, why rely on a central provider? Each party individually observes the transaction; if her own output address appears in the list of recipients, she signs the transaction as a payer with her private key. Eventually, the transaction carries k different signatures. This simple idea has served as the core of multiple subsequent implementations and optimizations. One issue with the peer-to-peer approaches is that their anonymity set is upper bounded by the number of participants in the mixing

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3 https://techterms.com/definition/p2p.

protocol, which is likely to be much smaller than that achieved by a "popular" centralized mixer. One of the reasons is that typically the produced mixing transaction will have to carry a signature by each of the participants (GENKIN, *et. al.*, 2018).

11 CRIMINALIZATION OF TUMBLERS

Mere prohibitions shouldn't be the only content of a legal order. Through-out regulations and in every single case included, legislator must provide positive measures to preserve and/or reinstate determined law institute. Criminal law itself, considering its primary punishment nature, must not be limited to prohibitions and punishments. Tumblers should be criminalized due to their potential use in illegal activities. On the other side, every technology could be potentially used for unlawful activity. Criminalization must depend about real danger of abuse and potential harm or damage to the society itself. One must ask himself isn't using cryptocurrency tumbler in fact money laundry. Also, every act of making some activity illegal, necessary means that same activity was previously legal. Drug abuse is illegal on a count of the fact that taking drugs is health hazard. But that's not the case with prostitution, because sex isn't illegal mater. Although, prostitution is the misdemeanor offense for the reason of public morality. That's not the case with cryptocurrency tumbler, because we stated before in text, it isn't legal or legalized yet. If criminalization of tumblers at the end takes part, legislators are to instruct jurisdiction--focused principles over punishments. Governments could decide for partial prohibition of a blockchain and tumblers in that context aren't exception, due to possible use for money-laundry.

11.1 Location of crime theory

Internet crimes are "unnatural" to classic nature of criminal law.

They never take place in one single spot and transnational element is often engaged. On the other hand, the location of crime theory is deep-rooted in legal systems because the location of crime should be regarded as the most appropriate jurisdiction for dealing with transnational crimes (CHATTERJEE/LEFCOVITCH, 2016). Despite of location of crime theory, the main way of determining jurisdiction in criminal proceedings for online criminal offenses should be the place where consequence of criminal act was realized. In case of a tumbler, that should be the location of a physical person who for a fee makes "mixing". Problem is with peer-to-peer tumblers, where no exact place exists. Three perspectives suggest the importance of places for understanding crime: rational choice; routine activity theory; and crime pattern theory. Though these perspectives are mutually supportive, routine activity theory and crime pattern theory provide different explanations for crime occurring at different places. When people have direct and personal responsibility for a place (for example, through ownership or assigned employment responsibility) they are much more likely to invest efforts to prevent crime than when they have little personal or professional interest. Unfortunately, modern society has chosen to emphasize the latter forms of responsibility at the expense of the former (Eck – Weisburd).

11. 2 Consequence of a Criminal Offense Theory

Cybercrime is everywhere "*online*" and practical nowhere physically. Perpetrators often use secure software to remain anonymous, like proxy servers that hide their location and route their communications through multiple countries in order to evade direct detection. Anonymity there complicates use of criminal repression. Victims of a crime in general, including victims of a cybercrime are helpless if forces dealing with cybercrime reject jurisdiction. Since Location of a Crime Theory is not usable or not enough usable for combating

cybercrime, we should use a Consequence of a Criminal Offense Theory. It allows law enforce to act wherever the consequence of cybercrime takes place. Victims are much more protected that way and the perpetrators won't get away without punishment. Criminal Court wouldn't refuse cases and everything goes by the book (law). Consequence of a Criminal Offense Theory should *de lege ferenda* become a mainstream or core for handling a jurisdiction in cases of a cybercrime. Also, at that point, we could use acknowledgment from cyber criminology, as a study of causation of crimes that occur in the cyberspace and its impact in the physical space. As an academic discipline, cyber criminology encompasses multidisciplinary field of inquiry - criminology, sociology, psychology, victimology, information technology and computer/internet sciences. Cyber criminology involves the examination of criminal behavior and victimization in cyber space from a criminological or behavioral theoretical perspective. Unlike traditional crime or crime committed in the physical world, cybercrime or crime committed in the virtual world has the potential of causing tremendous damage, both tangible (i.e., economic loss) and intangible (e.g., the unauthorized use of personal data) (JAISHANKAR, 2018). Focusing on victim's rights through cyber criminology is very helpful in a case of using the Consequence of a Criminal Offense Theory.

12 CONCLUSION

Legal action of any kind regarding tumbler must be a subject of a subsequent review. Criminalization can happen as a final solution, at the end of a process of legalization. The referring law-court has to verify where-never there are conditions for legalization and afterwards for criminalization of cryptocurrency tumbler. But law-court isn't authorized to create a normative act, a law regulation. Also, at this point, there is no legal act that would guarantee legality of cryptocurrencies tumblers. The main criterion for determining the place of perpetration of a criminal offense should be the location of

the natural person who performed "mixing", since Internet crimes and identifying the place of perpetration of the offense in order to determine the criminal jurisdiction is always a problem. Syndrome of resistance toward legality creates resistance to legal regulation of certain problems. On the other hand, "gray zone" open questions about legality, such as in the case of tumblers. Governments and banks are not willing to regulate cryptocurrencies as values, but taxed orderly trading with those values. Special question is jurisdiction. In this paper, we suggest use of a Consequence of a Criminal Offense Theory for cybercrimes. That theory should *de lege ferenda* become a mainstream for handling a jurisdiction in cases of a cybercrime, since there isn't exactly "spot" where the act of committing a criminal offence took place. Finally, cryptocurrency tumbler isn't legal, but also not illegal. For legalization, they must be prohibited first, but there is no reason for that; and to be criminalized, tumbler has to be legalized at first place. Vicious circle. The simplest solution is, first, to make a legislative framework for cryptocurrencies and in continuation legalize tumblers, because the development of technology can only bring overall prosperity to the whole society. At this point, there are no special reasons for criminalization of tumblers. Lack of legal framework for blockchain general, including cryptocurrency tumbler, the fact is that prevents or doesn't justify a request for its criminalization.

RESUMO

TUMBLER DE CRIPTOMOEDAS: LEGALIDADE, LEGALIZAÇÃO, CRIMINALIZAÇÃO

O Tumbler é um serviço fornecido para criptomoedas nos casos em que o anonimato está em perigo e o proprietário de "moedas" virtuais pode ser rastreado. A legalidade dos tumblers de criptomoeda pode ser descrita como uma "zona cinzenta", pelo motivo de que nem mesmo os valores criptográficos são legalizados e a "mistura" dos tumblers é

aglo que demanda um tratamento especial. Neste artigo, o autor, por método analítico, método descritivo e comparativo, explora e exibe todas as questões em aberto dos tumblers de criptomoeda, conduzindo sua legalidade, legalização e, especialmente, potencial criminalização no futuro. Finalmente, o autor conclui que legalidade, legalização e criminalização estão firmemente conectadas, interdependentes e os legisladores em todo o mundo devem de lege ferenda prestar extrema cautela durante a legalização de tumblers, especialmente para fins de posterior criminalização.

Palavras-chave: *Criptomoeda. Tumblers de criptomoeda. Legalização. Criminalização. Anonimato.*

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