Energy-Information Exchange Approach to the Ethics Web Regulation

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Abstract

Purpose of research is rethinking the basic legal concepts in view of two key terms of modern science: energy and information, and role of the psyche in their exchange.

Methodology/approach constitutes five principles: any object exists as a structured consistent flow of energy and information and is in the permanent inner and outer exchange; energy transforms permanently into information and vice versa; exchanged processes creates clusters named levels of virtualization; the psyche is an independent physical force that creatively forms and regulates information-energy exchange, moving between levels of virtualization and driving meanings.

Results apply the mentioned principles for revision of legal ecosystem, namely principles of regulation, especially freedom of interpretation as the tool for dividing the energy-informational flow into fragments shaped by the meaning nucleus (ethics, science and religion are sources of such meanings). These fragments constitute a transforming circle of subjects and objects of law relations (subjectivity of artificial intelligence; uber-phenomena and cryptocurrency as objects). The efficient and ethics regulative environment, tools and sources are based on collective consciousness, crowdsourcing, customs development.

Discussion section/research limitations are caused by format of conceptual paper: many applied aspects were voluntarily ignored.

Practical/social implication is in inspiring to rethinking of the basic legal constructs for the ethics legal (including Web) regulation development.

Originality/value is in a synthetic approach on intercrossing of jurisprudence, psychology and informational technologies that let organize energy-informational exchange flow in efficient way.

Keywords: *Energy, information, psyche, virtualization, freedom of interpretation, meaning, legal regulation, crowdsourcing.*

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Introduction

The modern science from physics, starting from Einstein's E=mc^2 and Wheeler's approach (Wheeler, 1989), to economics (Hidalgo, 2016) operates with two key categories of energy and information to explain the nature at least during century. Periodically the accent moves from energy to information and vice versa. However, jurisprudence and partly psychology avoid these fundamental categories despite of their potential for the wide range of phenomena understanding and efficient management. Nevertheless, the digital world development and the virtualization of humanity inspire looking for new approaches. Purpose of the study is describing a general energy-informational exchange approach and the role of the psyche in these processes as the clue for deeper understanding of unpredictable phenomena arising in the digital sphere and parallel changes in individual and collective consciousness for their effective and ethics legal and wider social regulation and self-regulation.

Design/methodology/approach.

Any phenomenon has five features:
1) Any object exists as the structured and consistent flow of energy and information in the certain point of space-time and is not obligatory related with the tangible property.
It explains the increasing replacement of property with service agreements, development of uber-phenomena in different areas and forming of experience, knowledge and informational economy (Kelly, 2017). Moreover, it stimulates to rethink whether information and energy are property (including the total legal doctrine of subjects and objects of rights) and to solve arising issues more efficiently. Thus, a person saves his/her legal identity despite of total his/her cells replacement each 7 years. The same, a legal entity saves its formal identity even if all founders and employees are changed.

2) Any object is in a permanent energy-information exchange with the environment. Each object, including any subject of legal regulation, is a piece of energy-information flow only. Its borders in space, time and way of behavior (or usage) are relativistic and depend on the current social circumstances. These existing in individual and collective consciousness artificial borders make the definitive impact on the legal qualification. For instance, free viewing a movie (the object of IP rights) on the YouTube may create other consequences than the same movie pirate downloading for individual watching. Grant Hammond (1982) made the great analysis of this aspect almost 30 years ago.

3) Energy transforms permanently into information and vice versa.
Frightening by the Heat Death of the Universe, the second law of thermodynamics concentrates on transformation of energy into information (called entropy in absence of understanding capacity for the new ordering level) and ignores the inverse process. However, as G. Nicolis and I. Prigogine (1977) described and B. Allen, B. C. Stacey, Y. Bar-Yam (2014) recently proved any disordered systems exceeding some scale might not stand against the ordering system of the bigger scale.
It means that part of energy accumulates on this new level of complexity as information.
As photosynthesis converts energy (sunlight) into information (a structure of ATP and ANDPH molecules) using by the cell as the energy storage in a biological system, in the economic system energy of physical work is converting into information of the next level of virtualization in form of currency for further transformation into different types of energy and information. It works for any economic exchange even before epoch of crypto-currency mining when pure energy-information conversion becomes the most obvious.

4) Energy-information exchange (or circulation) processes are structuring into cluster, which have varying degree of stability and

adaptability in different scales in space (micro, macro, etc.), time and complexity. The sustainable energy-information exchange processes cluster may be called a level of virtualization.
As the physical, chemical and biological laws describe the different levels of virtualization, the same jurisprudence, ethics, economics, geopolitics, etc. create the relatively closed systems of different levels of virtualization.
For the efficient Web regulation, we should take into account the nature of maximum quantity of the mentioned levels, constituting the corresponding phenomenon, and their interaction. Partly it is realized by layers Internet theory (Harvey, 2017, p. 110; Yee, 2014).

5) The key roles in forming, sustainability and development of any level of virtualization plays knowledge (particularly understanding) that is the special case of data and energy processed by the carrier of the psyche.
Citing Max Planck, "I regard consciousness as fundamental. I regard matter as derivative from consciousness. We cannot get behind consciousness. Everything that we talk about, everything that we regard as existing, postulates consciousness." (Planck, 1931).
The psyche is an independent physical force that creatively forms and regulates the information-energy exchange in its movement between different levels of virtualization driven by meanings.
It is the psyche, which converts in steps data into information, information into knowledge, knowledge into understanding and meaning, which define behavior transforming environment and the carrier of psyche.
In short the mentioned categories means following.
Data is defined as "a fact given or granted" from 1640s, "numerical facts collected for future reference" from 1897, "transmittable and storable information by which computer operations are performed" from 1946 (Online Etymology Dictionary, 2019) and "factual information (such as measurements or statistics) used as a basis for reasoning, discussion, or calculation; information in digital form that can be transmitted or processed; information output by a sensing device or organ that includes both useful and irrelevant or redundant information and must be processed to be meaningful" (Merriam-Webster Dictionary, 2019).
Thus, data is the aggregate of elements' values of the previous level of virtualization (where these values are very tangible) and needs an active agent to extract information and to move into the next level of virtualization (for which data becomes the intangible being at the same time).
Meaning of "information" evolved from Latin informare "to train, instruct, educate; shape, give form to", informationem "outline, concept, idea" to "act of informing, communication of news" in XIV century (Online Etymology Dictionary, 2019). Today information means "the communication or reception of knowledge or intelligence" and specifically "a numerical quantity that measures the uncertainty in the outcome of an experiment to be performed" (Merriam-Webster Dictionary, 2019), that is rooted in Shannon's definition of information (Shannon, 1948). Based on this, information is connecting element between different levels of virtualization that reflects the unexpected (uncertain or probabilistic) aspects of certain level of virtualization from perspective of an agent acting on another level. Semantically "in-form-ation" means the first appearance of the constrained and well-structured shape on the next level of virtualization. This stage needs a subject to not only create this shape outside, but also construct it inside in form of knowledge as the very first step toward the future creation.
Knowledge derives from Old English cnawan "perceive a thing to be identical with another," also "*be able to distinguish*" generally; "perceive or understand as a fact or truth" (opposed to believe); "*know how (to do something)*" and perhaps from Scandinavian -lock "action, process" (Online Etymology Dictionary, 2019).
The Cambridge Dictionary defines knowledge as "awareness, understanding, or information that has been obtained by ex-

perience or study, and that is either in a person's mind or possessed by people generally" (Cambridge Dictionary, 2019).

Even the collective consciousness named Wikipedia defines "knowledge" as "a familiarity, awareness, or understanding of someone or something, such as facts, information, descriptions, or skills, which is acquired through experience or education by perceiving, discovering, or learning" and emphasizes that "data represents values attributed to parameters, and knowledge signifies understanding of real things or abstract concepts. As it regards data, the information's existence is not necessarily coupled to an observer (it exists beyond an event horizon, for example), while in the case of knowledge, the information requires a cognitive observe" (Wikipedia, 2019).

Thus, knowledge assumes the key role of an active subject, who has some degree of freedom to extract an information from data and further to interpret (including to extract, reject, squeeze and systematize) this information to receive knowledge and participate in the next level of virtualization creating by means of understanding and subsequent acting.

At last, understanding is inter alia defined as "to grasp the meaning of", "to accept as a fact or truth or regard as plausible without utter certainty", "to interpret in one of a number of possible ways", "to supply in thought as though expressed" (Merriam-Webster Dictionary, 2019). As Seth Lloyd mentioned, "meaning is one of the most important features of information" (Lloyd, 2014, p. 40).

On this stage, the subject gets the maximum freedom of interpretation as transformation process "data – information – knowledge" significantly decreases the strong dependence on data (the certain values of the nature of the very first level of virtualization) and provides the wide range of opportunity (or probabilities) to construct the structures of the next levels of virtualization. Thus, entropy increases.

As Norbert Wiener (1985, p. 56) mentioned entropy is the measure of probability. Probability is closely related with uncertainty, which plays the crucial role for the arising any legal collision or litigation as any legal norm is undefined (open) in view of its highly virtualized nature and concrete circumstances ignoring. We always can include the disputable situation in a wider or narrower context that is not taken into account by the applied legal norm.

Consequently, uncertainty overcoming is the key element for not only the development of personal and society order and stability (Holmes, 2016), but also for the efficient law enforcement.

The instrument for the uncertainty overcoming is meaning, taking however in the account, that an optimal level of uncertainty is the precondition for any development and life as phenomenon. This optimal uncertainty is the Goldilocks zone for any levels of virtualization from astronomy to society (including legislative system) and psychology.

Meaning extracting has been a human prerogative for a very long time. However last year the *universal concept of meaning* (or semantic information) was presented by Artemy Kolchinsky and David Wolpert (2018). It works for any systems from physical to social and psychological.

Meanings is the fundamental tool (or means) for the transition from one level of virtualization to another and maintenances the integrity of system (or Universe) as the wholeness.

Semantically meaning derives from Latin *medianus* in the middle, central as a none and from Old High German *meinen* to have in mind, Old Church Slavonic *měniti* to mention as a verb (Merriam-Webster Dictionary, 2019). It also explains very well why the meaning is the driving force or the Pole Star in the concept "*compass instead of map*", developed as the trends of the modern science (Ito & Howe, 2016).

The fundamental search in looking for meaning has primary concentrated around the living and non-living categories from very ancient times, and the modernity (with its singularity phobia or mania) is not an exception.

Results/implications.

The mentioned energy-information exchange features encourages the basic legal paradigm rethinking including such initial concepts as principle, subjects, objects, forms and tools (sources) of regulatory environment. This revision is necessary for constituting basis for an efficient and ethics Web regulation.

I. Principles of regulatory approach.

We propose four key meta-principles take into account in digital sphere regulation.

1) Any actor of regulatory initiative should exercise **humility and deliberateness** in regulation in view of understanding of relativeness of human knowledge grounded on the freedom on interpretation.

2) The freedom of interpretation means that any individual and collective consciousness (including legislature) partly randomly and freely divides the energy-information exchange flow into fragments called objects and subjects for the further regulation. Of course, in some measure this dividing is caused by the efficiency considerations in view of the actual purposes dominating in society. For instance, personal data was separated as an independent fragment of energy-information exchange and object of legislative regulation only after these data became irrespective of the medium, momentary expanded and easily converted into monetary active. However, many cases need value judgment, whether the concrete data set may be considered as the personal data. In fact, a widespread name and surname may be qualified by the court as non-identification data, but a set of cookies together with information concerning a specific physical location will be recognized as the personal data. When changes in society and natural environment happen slowly, the changes of borders of the fragment of the energy-information exchange flow (hereinafter called EI flow fragment) may evolve very softly. However, controlled fast (or, using the popular term, agile) and multiplied transformations of these borders become critically necessary in the situation of sharp environment fluctuations, which is typical for our times. Awakening (including the corresponding scientific concepts development) is the very first step in this direction.

3) Each EI flow fragments (including any legal concept or norm) is forming around the actual meaning, which plays role of a nucleus of this EI flow piece and often is immanent and unconscious. This meaning nucleus has three characteristics:

- It is injected by the carrier of the psyche voluntary;
- It exists in the limited scaling (space, time, level of virtualization) in view of the current situation, purposes and resources of the agent;
- As a rule, it may be understood in full only from another level of virtualization.

Big data, artificial intelligence and other modern high technological tools give us the feedback and help to understand not only the key meaning, lying in the basic of each legal concept, but also the direction of its evolution. Taking away the feeling of firmness of the basic legal categories on one level of virtualization, the mentioned tools gift terminology awareness of the next level of virtualization.
By other words, the borders of EI flow fragments are more natural (inherent) if they take into account the wider and narrower perspectives for each subject and object in space and time.
Thus, criteria for differentiation and merging of EI flow fragments are caused by the current operational practice and, vice versa, the formed tradition of EI flow fragments dividing and their systems constitution fix their borders. However, even the modern civil law distinguishes the objects defined by the individual feature and by the inherent characteristics only (for instance, money, oil etc.). Perhaps, it is the best illustration of the voluntary approach to the dividing of EI flow into fragments into the subjects of the legal regulation.

4) The principles of law together with ethics categories are the concepts of the next levels

of virtualization comparing with the applied legislative norms, thus, include set of meanings, which plays role of the orienteers for thinking and solution design concerning dividing EI flow fragments and their interaction regulating.

At the same time, the meanings emphasize relativeness of the term “fairness” (and any other ethics concepts) and necessity of multi-factor approach to analyzing four key elements of any legal relationship: subject (actors), objects, legal norm and regulatory authority. Each of them is a node of the energy-information flow with changeable borders in space, time, accessible levels of virtualization and capacity to create meanings.

This also explain why the current situation requires an extraordinary velocity and flexibility in permanent movement between levels of virtualization of the legal policy makers and executors of law.

II. Subjects of law relations.

Borders create a shape. Information and energy interaction (inner and outer) also create a shape. It is true for two key elements of any legal relations: a subject and an object.

The modern law accustoms to recognize human beings, some groups of people of the different scale (legal entities, nations) and very seldom some animals as the right-holders. This scope has no solid borders and is changeable in time as each carrier of the psyche is a semi-independent node in the energy-information exchange impacted by three factors:

- Strength of the psyche as a generalized characteristic;
- Different levels of uncertainty of the actual energy-information exchange system;
- Consequently, a free will that is the result of interaction between of an uncertainty degree of the environment (inner and outer) and an actor’s ability to make and implement decisions in the current situation through reality transformation (or to collapse wave in terms of the quantum physics).

As we see above, psyche has four key features:

a) integrality (gravitation),
b) meaning generation (conceptualization),
c) creativity (freedom of interpretation),
d) movement between levels of virtualization.

These features define the strength of the psyche, which is a starting point in recognizing a subject of the right and the basis for the free will and further thinking design of any kind of reality (including personal, physical, legal, economic, political etc.).

The free will relates very closely with legal concept of guilty that is the basis for the possible responsibility. It is common knowledge that guilty is grounded on two psychological elements: consciousness (whether person is or should be aware on consequences) and attitudes (or wishes) toward such consequences. In short, for the criminal law doctrine (at least in Ukraine) formulas are following:

- Understanding + wish of the negative consequences = a direct intent.
- Understanding + conceding, hence no wish of the negative consequences = an eventual recklessness.
- Understanding + conceding, hence attempt to avoid the negative consequences = an overconfidence as a form of negligence.
- No understanding + ought to foresee = a negligence performance of duty or a heedlessness.

Thus, a gift of thinking rests responsibility on gifted subject.

The traditional doctrine makes accent on the rational components of behavior and decision-making, when information dominates. It is true not for the jurisprudence only. For instance, politics and economics make the same mistake. However, the modern results of election in many countries (USA, Italy, Ukraine etc.) (Ermann, 2019) emphasize the role of the emotional side, for which energy is dominating. The same, these issues are taking central stage in the tremendous upgrowth of the behavioral economy that is proved by the recent Nobel prizes to Daniel Kahneman (in 2002) and Richard Thaler for nudge theory (in 2017).

In the end of XX century Antonio Damasio (2010) submitted the experimental arguments that human decision-making is not possible without emotions, especially in uncertainty situation on the score of lack, surplus or incoherence of information. As the mentioned traits are inherent to almost each situation in our life, little wonder that in accordance the Daniel Kahneman (2011) people make only 10% of rational decision.

Thus, emotions and feeling may be considered as the specific form of energy-information flow proceeding in situation when energy prevails over information (or the tools to overcome an outer uncertainty by the inner uncertainty according to the third law of dialectics of the negation of the negation).

Another dimension is related to individual and collective consciousness. Western science recognized the collective subjects as the carrier of the specific type of psyche in XIX century only. Later Karl Gustav Jung developed the concept of the collective unconsciousness. However, the term of collective consciousness appears in XXI (Sloman & Fernbach, 2018) and today this direction is developed, among others, in context of so named liquid brain, namely social cognitive networks processing information (Sole´, Moses & Forrest, 2019).

All mentioned concepts (the free will, the role of emotions, the collective consciousness) give the key to understanding evolution of subjectivity in law: from citizens who were free men in Ancient Greek and famous "I am the state" by Louis XIV to the equal human rights, nations subjectivity, rights of animals (Justia US Law, 2018), plants and other living beings (Federal Ethics Committee on Non-Human Biotechnology ECNH, 2019). The current trend is movement to widening of the circle of subjects of the right and to non-discrimination independently on new criteria, including:

- scale in space and time (for instance, many-thousand spontaneous group voting for some petition are recognized as an ad hoc subject of a legislative initiative in some countries);
- cephalization degree (human, animas, plants, other living beings);
- life form (biological, silicone or combine).

Ultimately, fractality (or holographic nature of Universe) works in directions of macro- and microscaling for very different levels of virtualization.

Thus, the next step is a discussion on the legal subjectivity of artificial intelligence (Burri, 2018; European Commission, 2018), which requires synergetic of technical (like built-in function of empathy and ethics function (Banerjee, 2018), psychological and legal solutions.

The described essential features of the psyche gives an efficient approach to the problem of subjectivity in law (including for artificial intelligence, animals etc.). Namely for recognizing a system provided with artificial intelligence as a separate subject of law it should be proved that this certain artificial intelligence has an autonomous meaning-making core, which includes not the cognitive aspects only, but also:

- ethical attitudes (at least on the level of Asimov's three laws of robotics, which are legitimates in EU (European Parliament, 2017);
- empathy function (Banerjee, 2018);
- high degree of existent intelligence, namely understanding meaning of life (in its different forms), what is crucial from our point of view for the legal subjectivity.

Moreover, as the first the stage it would be reasonable to grant a status of special dangerous to systems provided with artificial intelligence.

Concerning to the Web regulation development, the described approach may be fruitful in defining the subjects of legal relations arising from their online role and interactions. Such definition should take into account three characteristic of energy and informational flow operated by the corresponding person or entity (by service provider, blogger, network, group, and so on):

- Intension of flow (including selectivity of information, energy, target audience);
- Stability in time and space (rhythm, regularity, scale, geography, etc.);

- Level of transformation of energy and information separately and their mutual conversion (for instance, when emotionally neutral news are transformed mainly into negative emotion-laden headlines of tabloid press).

For this purpose, the characteristic of incoming energy and information should be compared with the same for outgoing energy-informational flow. Nodes of tension are the signal to revise if the corresponding subject may or should be classified as an independent agent of relationship with corresponding legal obligations and liability.

III. Objects of law relations.

In view of the proposed approach, the main question is if the pure energy and pure information may be a subject of law relation. As a rule, they are very rare recognized in this capacity, despite of common usage in very different contexts. For instance, EU legislation on energy strategy operate with term "energy" without defining it. Concerning to information, David Harvey notes: "But perhaps to revisit the whole issue of information as property because there is no doubt that information in and out itself has value" (Harvey, 2017). For instance, the Civil Code of Ukraine contains the article 200 (included, however, into chapter "Non-material benefits"), which since 2011 defines information as "any facts and/or data, which may be saved on the physical storage media or displayed in electronic form" (Verkhovna Rada of Ukraine, 2003).

Moreover, we should rethink the legal (or ownership) status of not information only, but also data (commonly protected by the intellectual property legislation in form of database that gets the same status like a work of literature), knowledge and understanding. As the two last phenomena are inherent to the human beings, it explain why the human capital (or human resources) becomes the major asset of the modern economics.

Thus, for a thousand years, the legislation has been preferred to recognize the "solid" EI flow fragments as the objects of law, which have a separated and constant shape. For that reason, we are almost in the starting point in recognition of energy and information as independent objects of legal relationship.

Nevertheless, property as a concept of exclusively possession even in "real" non-virtual word is limited in space, time and the certain levels of virtualization. Thus, nobody may control each subatomic particle and chemical process within oil barrel (limits in space); owner's and oil existence is limited in time; oil makes a sense only within a social system with high technological development, which let transform this oil into other form of energy or goods (limits in levels of virtualization and meaning-generation).

Moreover, the explosive development of the intangible assets (e.g. goodwill, intellectual property, data protection, reputation, cryptocurrency, virtual property in virtual worlds etc.) and rethinking of economical substance of money as the voluntarily emitted commitment (monetary IOW – "I owe you") (Wray, 2016) emphasize that even money break free of the role of the universal equivalence. This leads us to the necessity of the definition of information and energy as the universal categories and basic legal concepts.

In this context, the approach of information technologies (namely, object-oriented programming) may be fruitful, as it admits to separate almost voluntary EI flow into entities (beings) with certain attributes (which may be united into domains) and describe the relationships of this entities. Correspondingly, it may became a ground for transformation of legal frameworks in dealing with such objects, including invention of new more efficient economical and legal operating models like Uber-phenomena or a legal regime of access to streaming services.

IV. Legislative environment.

One of the central task of any regulation is keeping of the correct energy-information exchange processes and energy-information balance. It is true not for the regulation inside any alive organism only, but for the society as well, including legislation. The cumulative brake of energy-information balance may in

general causes very unpleasant or unpredictable phenomena like two world wars in XX century or the abovementioned election results in modern USA, Italy and Ukraine. Then the prime accent in the collective consciousness was made on the energy (especially in form of "brainwashing" propaganda), but the correct and safety ways of energy management by informational means with accent on the meanings and energy-information hygiene skills forming were ignored (by the word, the global obesity epidemic has the same roots).
We suppose that in process of social norms (including legislative regulation) developing, it is critically important to understand four key issues:

1) As a rule, in any social relation the energy (that manifests in form of needs, motives, emotions, etc.) is primary and very expansive. Thus, information (including in form of legal provisions as the tool of the certain level of virtualization) is a mean for management of this energy in safety way. Consequently, a law-governed state is one of the most efficient EI exchange managing state form among known by the humanity.

2) Any energy development and accumulation requires additional information to avoid chaos and keep order (for instance, rules for nuclear energy or global warming), and vice versa: any data collection means parallel energy accumulation that should be managed in safety way. In course of history, we can observe the expanding volume both of energy and of information operated by the humanity. This increase has an undulant profile. Naturally, that it leads, among other social phenomena, to the development (including complicating, detailing and diversification) of the legislation.

3) Any normative regulation should keep the correct balance in EI exchange, including incoming from non-human environment energy and information (for example, nuclear energy). It is especially important in the abovementioned situation of parallel energy and information increase that is very typically for our days.

4) Any efficient legal norm should appeal both to energy (motivation and feelings, which are the highest form of energy and information proceeding with energy domination) and to information (thinking process with information domination) aspects of any subjects of rights. However, the nutshell of any legal norm is meanings (distilled from ethics, religions and philosophy), which help to keep the ideal proportion between energy and information in space and time despite of changeable outer and inner environments. The evolution of law enforcement practice despite of legislation stability confirms this and is especially obvious in civil relationships where the civil codes are rarely changed. By other words, any regulation is a priory dead without meaning that are resonating to the collective consciousness.
The classical ethics system (applying to offline human relations) has developed evolutionary and, consequently, in general meets the specified conditions. However, the expansive or even crucial flow of incoming energy and information (including data generated by technical means) requires changing the speed of ethics norm development to prevent the chaos and disintegration of the humankind as the whole and each personality, who is under the threat of erosion by the mentioned increasing EI flow.

V. Tools and sources of the legal regulation

The made analysis demonstrates that the traditional regulation by highly centralized and sanctioned by the only state legislator means are impossible in the circumstances of the stormy energy-information flow as it touches everyone on any level of virtualization.
However, as we have seen above, any disordered systems exceeding some scale might not stand against the ordering system of the bigger scale. Moreover, the big systems are

predisposed to self-organization. For instance, the modern economics discovered the corresponding mechanics named crowdsourcing (or crowdfunding).
Notwithstanding this mechanics is not something new for the jurisprudence, which recognizes the customs (these crowdsourced social norms) as a source of law since ancient times both on the local and international levels. Of course, with development and complicating of EI flow customs also are transforming, but they adhere their crucial role for all sphere, including the Internet regulation (Polanski, 2007).
The modern customs takes in different forms and we would like to mention four most popular legal approaches that have the common main idea of multi-sources synchronization and accelerated customs forming:

- Soft law (Marchant, 2019);
- Multi-stakeholder consensus-based model, especially for supranational regulation (Harvey, 2017);
- Wiki-approach (Noveck, 2010), mainly based on the wisdom of polarized crowds (Shi, Teplitskiy, Duede, & Evans, 2019);
- Algorithms created with usage of big data analysis and artificial intelligence, for instance, to avoid IP rights infringement or harmful content dissemination. As David Harvey (Harvey, 2017) emphasizes many times, we create tools, they create us.

We would like to pay attention to three reasons why the crowdsourcing approach is very perspective for the ethics Web regulation.

1) Customs take all advantages of potential of liquid brain and flexible social structure (Sole´, Moses, & Forrest, 2018), basing on modular structures (Hsu, 2017) that are forming ad hoc easily and rapidly in response to the specific challenge in concrete point of EI flow. All participators play role of different layers of neurons in this process, as it happens in our brain with data processing in primary, secondary and so on cortex. The modern technologies admit to assimilate the most efficient solutions and spread them up to global scale.

2) From informational point of view, the correct decrease of information pressure (or filtration of EI flow on the actual level of virtualization) embodied into regulatory norms very often leads to more accuracy decisions (Hsu, 2017). Thus, both ethics and legal norms fulfill this important function of collective memory aimed to future efficiency similar to the individual memory, which is the art to forget or exclude odd EI flow from the current level of virtualization (Kao & Couzin, 2019).

3) The energy-dominated side, representing by feelings, emotions and motives, appear in crowdsourcing regulation through feel of control under the EI flow, belonging to the process of regulation together with others that helps to decrease anxiety caused by the situations of uncertainty. Moreover, the norms developed as the result of conscious collective consensus are mostly self-enforced and, consequently, require fewer resources to keep order. Thus, ethics (together with science and religion) as the sources of meanings of the next level of virtualization will serve as the compass (used instead of the map (Ito & Howe, 2016) in our troublesome but inspiring travel together with EI flow between different levels of virtualization, taking on the shape of Web space in the current history moment.

Research limitations/implications

This is conceptual paper, thus hundreds of applied aspects related with legal subjectivity, objects of rights, legislative environment, tools and sources of legislation were voluntarily ignored. Limitations of the study are also caused by the variability of any energy-information system borders that creates the challenges for the regulation. Any legal norm is ethics within certain limited system only. Many of them become unethical if borders are wider. Thus, gender balance issues arose when social estimation included a wider context of women's rights and gender equality. Perhaps, in nearest decennium we will protect the plant rights as we are asserting animal rights today

The purpose was to offer a synthetic approach on the intercrossing of law, psychology and informational technology that should filtrate energy-informational exchange flow in efficient way. Thus, the advantage of research is that it was realized systematically and laconically. It may serve as a starting point to re-thinking of the basic legal construct for the efficient legal regulation development, including the conscious choice of the appropriate borders of the certain energy-information flow fragments for the ethics regulation basing on the fundamental freedoms of meaning generation by individual and collective consciousness.

Practical/social implications

This interdisciplinary approach summarizes and develops ideas in different fields, including psychology, law, physics and information theory, and may be useful for the social sciences development, including psychology and jurisprudence.

Originality/value.

The energy-information exchange approach taking into account levels of virtualization are efficient instrument for understanding of the nature and development of the ethics Web regulation for different agents and subjects: from the customs of the small charts, on-line communities or bots to national and supranational regulation including internet of things, blockchain and artificial intelligence.

References

Allen, B. Stacey, B. C. Bar-Yam, Y. (2014). An Information-Theoretic Formalism for Multiscale Structure in Complex Systems. *[cond-mat.stat-mech] 16 Sept 2014*. Retrieved from: https://arxiv.org/abs/1409.4708.

Banerjee, S. (2018). A framework for designing compassionate and ethical artificial intelligence and artificial consciousness. https://doi.org/10.7287/peerj.preprints.3502v2.

Burri, T. (2018). The EU is right to refuse legal personality for Artificial Intelligence. Retrieved December 14, 2019, from: https://www.euractiv.com/section/digital/opinion/the-eu-is-right-to-refuse-legal-personality-for-artificial-intelligence/.

Cambridge Dictionary. (2019). Retrieved from: https://dictionary.cambridge.org/dictionary/.

Damasio, A. (2010), *Self Comes to Mind. Constructing the Conscious Brain*, Pantheon Books, New York.

Ermann, G. (2019, January 4). 7 комиков, которые ушли в большую политику (7 comics who went to the big politics). *BBC News Ukraine*. Retrieved from: https://www.bbc.com/ukrainian/features-russian-46759206.

European Commission. (2018). Communication Artificial Intelligence for Europe. Retrieved from: https://ec.europa.eu/digital-single-market/en/news/communication-artificial-intelligence-europe.

European Parliament. (2017). European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)). Retrieved from: http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P8-TA-2017-0051&language=EN&ring=A8-2017-0005#BKMD-12.

Federal Ethics Committee on Non-Human Biotechnology ECNH. (2019). The dignity of living beings with regard to plants. Moral consideration of plants for their own sake. Retrieved from: https://www.ekah.admin.ch/inhalte/_migrated/content_uploads/e-Broschure-Wurde-Pflanze-2008.pdf.

Federal Ethics Committee on Non-Human Biotechnology ECNH. (2019). Dignity of living beings. Retrieved from: https://www.ekah.admin.ch/en/topics/dignity-of-living-beings/.
Hammond, R. G. (1982). Quantum Physics, Econometric Models and Property Rights to Information. *McGill Law Journal, 27*. pp 47-72.
Harvey, D. (2017). *Collisions in the Digital Paradigm: Law and Rule Making in the Internet Age.* Oxford: Hart Publishing.
Hidalgo, C. (2016). *Why Information Grows: The Evolution of Order, from Atoms to Economies.* (In Russian). Moscow: Eksmo.
Holmes, J. (2016). *Nonsense: The Power of Not Knowing.* New York: Broadway Books.
Hsu, A. (2017, June 23). Could The Best Memory System Be One That Forgets? *NPR*. Retrieved from: https://www.npr.org/sections/health-shots/2017/06/23/534001592/could-the-best-memory-system-be-one-that-forgets .
Ito, J., Howe, J. (2016). *Whiplash: how to survive our faster future.* New York: Grand Central Publishing.
Justia US Law. (2018). Matter of Nonhuman Rights Project, Inc. v Lavery. Retrieved December 14, 2019, from: https://law.justia.com/cases/new-york/court-of-appeals/2018/2018-268.html.
Kahneman, D. (2011), *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux.
Kao, A. B., Couzin, I. D. (2019). Modular structure within groups causes information loss but can improve decision accuracy. *Phil. Trans. R. Soc. B 374: 20180378*. https://doi.org/10.1098/rstb.2018.0378.
Kelly, K. (2017). *The Inevitable. Understanding the 12 Technological Forces That Will Shape Our Future*. New York: Penguin Books.
Kolchincky, A., Wolpert, D. H. (2018). Semantic information, autonomous agency, and nonequilibrium statistical physics. *[cond-mat.stat-mech] 7 Nov 2018*. Retrieved from: https://arxiv.org/pdf/1806.08053.pdf.
Lloyd, S. (2014, p. 40). *Программируя Вселенную. Квантовый компьютер и будущее науки (Programming the Universe: A Quantum Computer Scientist Takes on the Cosmos).* Moscow: Alpina-Book.
Marchant, G. (2019, January 25). “Soft Law” Governance of Artificial Intelligence. Retrieved from: https://aipulse.org/soft-law-governance-of-artificial-intelligence/.
Merriam-Webster Dictionary. (2019). Retrieved from: https://www.merriam-webster.com/.
Nicolis, G., Prigogine, I. (1977). *Self-Organization In Nonequilibrium Systems. From Dissipative Structures to Order through Fluctuations*. New York: John Wiley & Sons Inc.
Noveck, B. S. (2010). *Wiki Government: How Technology Can Make Government Better, Democracy Stronger, and Citizens More Powerful.* Washington: Brookings Institution Press.
Online Etymology Dictionary (2019). Retrieved from: https://www.etymonline.com/.
Planck, M. (1931, January 25). Interview with Great Scientists. VI. Max Planck. The Paradox of the Quantum. Space and Time. No Moral Progress of Mankind. Beliefs and “Phantasies”. *The Observer*, p.17, column 3.
Polanski, P. P. (2007). *Customary Law of the Internet – In the Search for a Supranational Cyberspace Law.* The Hague: T.M.C. ASSER PRESS.
Shi, F., Teplitskiy, M., Duede, E., Evans, J. A. (2019). The wisdom of polarized crowds. *Nature Human Behavior*, *3*. 329-336.
Shannon, C. (1948). The Mathematical Theory of Communication. *Bell System Technical Journal*, 27. 379-423.
Sloman, S., Fernbach, P. (2018). *Ілюзія знання. Чому ми ніколи не думаємо на самоті (The Knowledge Illusion: Why We Never Think Alone)*. Kyiv: Yakaboo Publishing.

Sole´, R., Moses, M., Forrest, S. (2019). Liquid brains, solid brains. *Phil. Trans. R. Soc. B* 374: 20190040. https://doi.org/10.1098/rstb.2019.0040.

Verkhovna Rada of Ukraine (2003, current edition). Civil Code of Ukraine (in Ukrainian), Retrieved December 14, 2019 from: https://zakon.rada.gov.ua/laws/show/435-15?lang=en.

Wheeler, J. A. (1989). Information, physics, quantum: The search for links. Complexity, Entropy, and the Physics of Information, *Proceedings III International Symposium on Foundations of Quantum Mechanics*. *Tokyo.* 354-358.

Wiener, N. (1985, p. 56). *Cybernetics: Or Control and Communication in the Animal and the Machine*. Cambridge: The M.I.T. Press.

Wikipedia (2019). Retrieved from: https://www.wikipedia.org/.

Wray, L. R. (2016). *Why Minsky matters. An introduction to the work of a Maverick Economist*. Princeton: Princeton university press.

Yee, A. (2014, August 19). Internet Architecture and the Layers Principle: A Conceptual Framework for Regulating Bitcoin. *Internet Policy Review, 3(3).*