A View into the Future of Academic Publishing

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Abstract - The exponential growth of academic knowledge production in present times, compared to historical evolution, has led to the Open Access movement as a means of sharing knowledge with the community. However, this development also gave rise to unexpected predatory behaviour on the side of many publishers, turning the publishing system upside-down. The present-day challenges faced by academic publishing call for modern information science-based technologies such as Distributed Ledger and Distributed Database, as well as Virtual Money, to democratise the process. This article proposes the DAP initiative and project, which aims to provide a free, democratic, and trustworthy open access publishing platform with Virtual Money, the DAP Ergions, for recompensation of work, and recognition and ranking of high-quality work and all DAP users. The DAP internal economy and the spread towards external economy using the Ergions provides a generic opportunity to all academicians, citizen scientists, and the global population to be involved in the progress of gathering new human knowledge. This initiative is critical in our times, given the significant lowering of trustworthiness of published work due to predatory publishing practices and the complete lack of transparency in the review and work ranking process. Besides, the democratisation of academic publishing will ensure that retired academicians, citizen scientists, and the global population can contribute their intellectual potential in solving the huge social and ecological problems caused by human behaviour and activities.

Keywords – Open Access movement, predatory publishing, democratisation, academic publishing, Distributed Ledger, Virtual Money.

I. INTRODUCTION: THE NEED FOR DEMOCRATISATION OF ACADEMIC PUBLISHING

Throughout the history, as well as now, the development of human civilisation, as a collective, could only be based on the transfer of knowledge from those who thought, explored, collected, invented and tried to understand, towards those who will continue their work. The extreme amount of academic knowledge production in present times, compared to historical evolution, very obviously shows the (natural) fact that the collective growth of knowledge is exponential.

However, this extreme amount of academic work in all fields of human endeavour, and the consequent necessity to transfer the gained knowledge to the community through publishing, led to unforeseen problems in distribution and access, specifically in view of the revolutionary and disruptive change of the basis of our civilisation from primarily matter based to primarily information based. Whereas in the matter based period publishing would involve a matter based medium (e.g. a book), which would be sold as a piece of worthy matter, and would necessitate the collective of readers to pay all the publishing fees, now, in the information based civilisation period, no matter is produced or transported, as the information is just copied, therefore disrupting the whole income and payment part of the publishing process. However, readers would still have to pay, which, with the mentioned exponential growth of knowledge, and need for knowledge sharing, started being an obstacle for further development.

This led to the Open Access movement, as a means of sharing knowledge with the whole human community for free. However, the rise of the Open Access movement also gave rise to unexpected predatory behaviour on the side of many publishers, turning the publishing system upside-down. The present-day model of academic publishing is characterised by high costs, with authors often required to pay significant fees to have their work published. This has made it challenging for less privileged researchers and institutions to participate fully in academic publishing. Furthermore, the traditional model of academic publishing has enabled a small group of publishers to dominate the industry, creating an oligopoly. And, even worse, an other consequence of these developments is the emergence of a large number of 'predatory publishers".

Democratising academic publishing will create a more competitive environment, driving down costs and increasing accessibility, thus leading to an egalitarian development of human knowledge.

The present-day challenges faced by academic publishing call for modern information science-based technologies such as Distributed Ledger and Distributed Database, as well as Virtual Money, to democratise the process. These relatively new technologies, popularly known as "blockchain" and "cryptocurrencies", should be leveraged to create a fair and transparent economic system that rewards all stakeholders involved in the academic publishing process.

Such democratisation of publishing, by providing a wide and equitable platform for sharing academic insights, will enable huge advancements in our society, the nascent economy and, hopefully, enable us to get in peace with our Planet Earth, in a fully homoeostatic ecosystem.

II. PREDATORY PUBLISHING: A SYSTEMIC PROBLEM

The extreme amount of academic work in all fields of human endeavour and the consequent necessity to transfer the gained knowledge to the community through publishing, properly expressed through the Open Access movement, gave rise, in our times, to unexpected predatory behaviour on the side of many publishers. The publishing system suddenly came upside-down, where authors have to pay the publishers for their work to be put on an Open Access webpage. And reviewers have to review the work to be published with no recompensation whatsoever, even regarding their reputation. So they work because of their sheer enthusiasm.

The term "Predatory Publishing" refers to the recently developed practice of publishers or journals that exploit the Open Access model by charging authors exorbitant fees for publishing their work, while providing little or no editorial or peer-review support. The term "predatory" is used to describe these publishers because they often prey on inexperienced or uninformed authors who are seeking to publish their research, resulting in low-quality or even fraudulent scientific publications. Predatory publishers often engage in unethical practices such as accepting articles without proper peer review, falsely claiming to have reputable editorial boards, and spamming scientists with invitations to publish in their journals.

One of the most significant issues with predatory publishing is that it undermines the integrity of scientific research. By publishing low-quality or even fraudulent work, it can have a negative impact on the credibility and reliability of the scientific literature. Additionally, it can be challenging for researchers to distinguish between legitimate and predatory publishers, as predatory publishers often use misleading or deceptive marketing tactics to promote their services.

The consequence of such predatory publishing practices and the complete lack of transparency in the review and work ranking process is the significant lowering of trustworthiness of published work, both from the aspect of the quality of work itself (if you pay for your work to be published, why would the publisher be interested in rejecting it?), as also from the aspect of improper categorisation in human fields (e.g. a symbolic description of a theory in the field of Religion Studies can not be accepted in a Mathematical journal!).

Another issue with predatory publishing is the financial burden it places on authors. Predatory publishers often charge authors thousands of dollars to publish their work, which can be a significant barrier for researchers from developing countries or those with limited funding. This can result in a lack of diversity in scientific research and can limit the progress of science as a whole.

Though some prospective authors get the money, needed to pay the publisher's web-page, from their institutions and projects (which is actually paid from common taxes!), there is a huge intellectual potential in citizen scientists and, specifically, in retired academicians, who can not financially afford to transfer their knowledge, and continue their academic work, by publishing. (Only in the European Union there is approximately 2 million academicians who do not have the opportunity to do independent scientific work because they do not have a project-based or institutional basis for their work.)

So, to avoid falling victim to predatory publishers, it is essential for researchers to thoroughly investigate any journal or publisher before submitting their work. Some warning signs of a predatory publisher include a lack of clear editorial policies or peer-review processes, an excessively fast turnaround time for reviews, and questionable or unrealistic publication fees. Researchers can also consult resources such as the Directory of Open Access Journals (DOAJ) or the Committee on Publication Ethics (COPE) for guidance on reputable publishers.

However, even the most reputable publishers, in this era of expanding Open Access movement, either charge the readers extremely high prices for article reading (closed access), giving nothing to the authors and reviewers, or, in the same way as the described "predatory publishers", charge the author(s) an Open Access publication fee. The only difference is actually the trustworthiness.

Obviously predatory publishing, in any form, poses a significant threat to the integrity of scientific research and can have long-term implications for the credibility and reliability of the scientific literature, by significantly lowering general trustworthiness and both publishing and reading accessibility of academic work in general. It is essential for researchers to be aware of the warning signs of predatory publishers and to take steps to protect themselves from falling victim to these unethical practices.

By promoting transparency and ethical publishing practices, through the democratisation of academic publishing using modern information processing technology, we can ensure that scientific research continues to progress in an open and trustworthy manner.

III. DEMOCRATISATION OF ACADEMIC PUBLISHING: THE APPROACH

The democratisation of academic publishing is necessary as to introduce transparency and fairness in the review and work ranking processes. Besides, it provides retired academicians, citizen scientists, and the global population an opportunity to contribute their intellectual potential in solving social, economic, and, actually primarily, ecological problems caused by human activities. It is quite obvious that the present approach to production and consumption, to geographical spread of transport needs, to garbage generation and (non-)repair-ability and long term usage issues, is not any more sustainable even a relatively short term.

Therefore all of our civilisation knowledge shall be used to openly, argumentatively and scientifically, through all to us known sciences, abstract ones (philosophy, ethics, cybernetics, logic, ecology, mathematics, ontology...), those oriented towards nature [agriculture, forestry, biology, geography, geology, (paleo-)meteorology...], those oriented towards understanding the physical nature of our world (chemistry, physics, mechanics, electronics...), those which are human-oriented (anthropology, psychology, history, ergonomy, archaeology), art, naturally, and a myriad of others, which can not be included in such a short overview, solve the problems we caused and are causing.

The DAP initiative provides a feasible approach to achieve democratisation of academic publishing by leveraging modern information science based technologies, such as Distributed Ledger and Distributed Database, as well as Virtual Money.

The DAP initiative and project aim to solve these present-day problems by providing a free, democratic, trustworthy open access publishing platform with Virtual Money, the DAP Ergions, for recompensation of work, and recognition and ranking of high-quality work and all DAP users. The development of DAP internal economy and the spread towards external economy using the Ergions will provide a generic opportunity to all academicians, citizen scientists, and the global population to be involved in the progress of gathering new human knowledge.

An essential part of the DAP initiative is a specially designed "dissemination" framework, as it is necessary to leverage DAP to the level of primary publication and reading choice. This will be obtained partly also through lobbying efforts, as well as by direct cooperation with different institutional stakeholders, specifically as DAP enables to keep the financial input into academic work inside the academia, i.e. not transferred to external publishing companies.

IV. THE ECONOMY OF DAP

One of the key features of the DAP platform is the use of Ergions as fully fungible tokens for remuneration within the ecosystem. Ergions are generated by various stakeholders within the DAP community, such as authors, reviewers, and translators, and are used to facilitate the exchange of value within the system. There is no inflation of Ergions, as there is no possibility of (historically) regarding any scientific work as less worthy.

The Ergion-based economy of DAP is designed to facilitate the exchange of value within the ecosystem while maintaining stability and sustainability. The use of Ergions as a fixed value token, the generation of Ergions by stakeholders within the system, and the peg to an external monetary value with inflation compensation, or to a physical/material reference, ensures that the value of Ergions remains stable and non-inflationary. The internal and external economy of Ergions contributes to the growth and sustainability of DAP, making it a promising initiative for the future of academic publishing.

Internal Economy

The Ergions are based on a fixed value towards an external reference, such as kWh or gold, or a reasonably stable monetary value like EUR with inflation

compensation. There is no limit on the amount of Ergions that can be generated, and they are generated only if other stakeholder Ergions are not used to balance the generation and internal exchange of Ergions. Stakeholders within the system can generate Ergions by publishing a work, submitting a review, translation, etc.

For instance, an author writes an article, reviewers review it and get new Ergions, the work is published, and the author gets new Ergions. The author pays a conference fee, and the conference uses the gained Ergions to compensate boards, session chairs, and others. If a stakeholder requests a work from an author and pays for it in Ergions, no new Ergions are generated. Similarly, if a translator translates a work, and the translation was ordered by an author, paying in Ergions, no new Ergions are generated.

External Economy

Ergions maintain their internal economy worth, and their value is non-inflationary. Therefore, a peg to an external monetary value like EUR shall be inflation-compensated. External financial input in the system is weighted to the total amount of Ergions, and that percentage of any Ergion wallet may be used for exchange with an external monetary value. Two summary accounts are used: the amount of Ergions and the amount of external monetary stake. The amount of Ergions is updated by generation, and the amount of external monetary stake is updated by the exchange between the internal and external economies.

The exchange course in both directions is equal and permanently updated regarding external inflation. However, Ergions may never be exchanged for any external value on a stock market or for a freeforming price. This ensures that the value of Ergions remains stable and tied to the internal economy of DAP.

V. THE SOCIAL, ECONOMIC, AND ENVIRONMENTAL BENEFITS OF DEMOCRATISING ACADEMIC PUBLISHING

Democratizing the publishing process by making scientific research articles free to access and rewarding all stakeholders involved in the publishing process will have significant social, economic, and ecological benefits.

Social benefits

Academic publishing is a fundamental aspect of knowledge creation, dissemination, and consumption. It plays a significant role in shaping society's understanding of the world, and it impacts various stakeholders, including authors, publishers, reviewers, and readers. The current model of academic publishing is characterised by a significant power imbalance, which creates a social divide in the academic community. The democratisation of academic publishing will bridge this divide, enabling more people to participate in knowledge creation and dissemination. A new approach that values collaboration, inclusivity, and transparency is necessary to improve the social dimension of academic publishing.

One of the primary benefits of democratising the publishing process is increased access to knowledge. Open access to scientific research helps break down barriers to knowledge that exist based on geographic, socioeconomic, and educational factors. By making research accessible to everyone, regardless of their location or financial status, the democratisation of publishing can lead to a more informed and knowledgeable society. Such approach will make research and scientific knowledge more accessible to the general public, which will contribute to more informed decision-making on issues that affect society, such as environment, health, technology, social affairs, and ecologicalv conscious politics and development decisions.

An important social aspect of democratisation of academic publishing is significantly increasing the diversity of voices and perspectives in research, by allowing more citizen scientists and retired academics to participate in the process of knowledge creation and dissemination. This will lead to more innovative and collaborative research.

Assuming that a significant proportion of those currently working in research and scientific positions in the EU will eventually retire, it is possible to estimate the potential size of the retired academic population. It could be expected that over some time the proportion of active and retired individuals within the academic community is reasonably constant, so the ratio of academics to the general population could also be expected to remain relatively constant over time, as long as the size of the academic community does not drastically change.

According to Eurostat, in 2019, there were approximately 1.7 million full-time equivalent researchers in the European Union. This figure includes researchers in academia, government, and industry. At the start of 2019, around 90.5 million in EU were older than 65. Assuming this, and assuming a total EU population of around 446 million in 2019, we can estimate the ratio of active academics to the active general population to be around 0.5 %. Using this ratio, we can estimate the number of retired academics in the EU aged over 65. This would give a number of around four hundred and fifty thousand, slightly less then half a million. However, this would be a calculation based only on retired persons after working in recognised academic, research and scientific positions. If we take into account that in 2019 there were around 22.5 million students enrolled in tertiary education in the European Union, which includes other post-secondary education universities and institutions, representing approximately 6.4 % of the active (younger then 65) population of the EU, it could be concluded that approximately 6.9 % of the population retires with an academic background, and that would be over 6 million people at the present time! And furthermore, according to some trend predictions, it is estimated that the number of people over 65 in European Union could reach up to 129.8 million by 2050!

It is difficult to provide an exact prediction of the scientific gain that will be enabled by providing a publishing platform that rewards retired academics for their authorship efforts. However, it is clear that there is a vast pool of knowledge and expertise among retired academics that could be tapped into and leveraged for the benefit of the wider scientific community.

Retired academics have spent many years working in their respective fields and have accumulated a wealth of knowledge and experience. They may have retired from their full-time positions, but they are still passionate about their fields and have a lot to contribute. By providing a publishing platform that rewards their efforts, a wealth of new knowledge and insights will be unlocked.

Additionally, many retired academics have more free time than their younger colleagues, which means they could dedicate more time to writing, reviewing, and editing scientific content. This will lead to a greater volume of high-quality scientific output from the retired academic community. Furthermore, by incentivising retired academics to contribute their expertise to the publishing process, we will create a more diverse and inclusive scientific community. Retired academics may come from a wide range of backgrounds and have unique perspectives and experiences that will certainly enrich the scientific discourse.

And, naturally, it is essential also to mention citizen scientists, people who do science, but are not in any relationship with any academic institution, and who will enormously benefit from the possibility to publish, review and read the most up-to-date scientific work.

Therefore, by providing a publishing platform that rewards retired academics and citizen scientists, as well as all others, for their authorship efforts, we will unlock a vast pool of knowledge and expertise that will lead to a greater volume of high-quality scientific output, a more diverse and inclusive scientific community, and new insights and discoveries that will benefit our civilisation as a whole.

Democratising the publishing process facilitates collaboration among researchers. Open access to scientific research and publishing, with high quality review processes on such a platform, will help to build communities of researchers who can work together to tackle some of the world's most pressing challenges. It is obvious, but must be said explicitly: Collaboration among researchers speeds up the research process, improves the quality of research, and increases the likelihood of discoveries and breakthroughs.

And last, but not least, by creating a more transparent and trustworthy publishing system, democratising academic publishing will help restore the credibility of scientific research and combat the spread of misinformation and pseudoscience, enabling the development of a more inclusive, informed, and scientifically literate society. The principles and (social) implementation efforts of such a system will also lead to much higher possibility, and degree, of general population involvement, towards the development of a fully democratic society, where every person has the rights and means to directly propose, comment, discuss and vote on all socially, economically and ecologically relevant decisions, or, as it is common to call it, political decisions.

Economic benefits

The democratisation of academic publishing will also have significant economic benefits. By making research accessible to everyone, regardless of their financial status, democratising publishing can help to level the playing field for researchers from different countries and backgrounds. This will lead to a more diverse pool of researchers, which will consequently lead to more diverse perspectives and ideas.

Democratising academic publishing will create a more competitive environment, driving down costs and increasing accessibility. The use of information processing technologies, such as the "blockchain" and "cryptocurrencies", i.e. Virtual Money, will leverage the creation of a fair and transparent economic system that rewards all stakeholders involved in the academic publishing process.

Furthermore, democratising the publishing process will lead to cost savings for institutions and individuals, providing more effective use of tax payers' money. By eliminating subscription and publication fees for scientific journals, congress fees etc., institutions can allocate their resources more effectively, and individuals can not only save money that would otherwise be spent on purchasing access to research articles, or paying for being able to publish, but even more, gain means for furthering their academic work.

It is hard to predict concrete economic trends which such a platform will start, however, it is very obvious that by democratising science, and consequently largely democratising the development of our civilisation, a new and more equitable economy will be born. An essential element of the nascent new economy is the difference between matter and energy, on one side, which are unique in the existence of any part of them, and therefore can only be transferred (matter based economy), and information, which is only defined by the uniqueness of meaning (structured context and content), and therefore can only be copied (information based economy). This mathematically relevant element of the nascent information society economical principles will drastically change the way our civilisation approaches its life, and the democratisation of academic publishing is certainly an important factor in realising this change, and finding proper solutions to govern it, as well as being an avant-garde approach.

Ecological benefits

There is a whole spectrum of ecological benefits the described democratisation of academic publishing principles will bring.

From the immediately obvious: for example, that by facilitating collaboration among researchers, it can help to streamline the research process and reduce duplication of efforts. This can help to reduce the amount of resources needed for research and lead to more efficient use of resources.

To the extremely important: solving the problems present day economic philosophy causes, and directing further development of our civilisation towards full cooperation between the Nature, us humans, as a tiny, but over-powerful, element of the nature, and the machines of our making. Only collective thinking and knowledge gathering and processing can lead us towards a homoeostatic balance of our only ecosystem as inhabitants of Mother Earth.

VI. CONCLUSION: A CALL TO ACTION FOR DEMOCRATISING ACADEMIC PUBLISHING AND ADVANCING CIVILISATION

The need for democratising academic publishing has become more pressing than ever, given the systemic problems of predatory publishing, the economic, social, and environmental benefits of open access publishing, and the urgent need for civilisation advancement. By leveraging the power of decentralised technologies and tokenomics, we can create a sustainable and equitable publishing platform that rewards all stakeholders and provides readers with access to high-quality research and scholarship at no cost.

In order to achieve this vision, we must overcome the challenges and obstacles that stand in our way, including the resistance of entrenched publishing interests, the need to ensure the real-world value of internal fungible tokens, and the need to gain widespread adoption of the platform. We must also recognise and leverage the valuable contributions of retired academicians, who can bring their wealth of knowledge and experience to bear on this critical endeavour.

By embracing the social and cultural impacts of open access publishing, academia can play a vital role in shaping the future of publishing and advancing civilisation. We call upon researchers, scholars, and all stakeholders in academic publishing to join us in this endeavour, to create a more equitable, sustainable, and collaborative future for all. Together, we can transform the publishing industry and create a more vibrant and inclusive academic community, where knowledge and ideas flow freely and everyone has an equal opportunity to contribute and thrive.

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