ЭКОНОМИКА И МЕНЕДЖМЕНТ ПРЕДПРИЯТИЙ
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BLOCKCHAIN IN PUBLIC EDUCATION:
CRYPTOCOLONIALISM, SHADOW PRIVATIZATION
AND PROSPECTS FOR IMPROVING EDUCATION

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Abstract. The article is devoted to topical issues of complex solutions and implementation of modern technologies in the field of education. According to the author, blockchain, as one of the main elements of digitalization, can become a kind of impetus for the educational sphere, a breakthrough technology, which are extremely necessary in the modern world, the coronavirus pandemic. The author agrees with the researchers who believe that it is the blockchain that makes it possible to create a more secure, open and efficient educational system that is trustworthy all over the world. The article analyzes the pros and cons of blockchain, assesses modern education policy, provides examples of the practice of using blockchain in different countries.
Keywords: education, digitalization, blockchain, innovation, reform, innovative programs, education policy

БЛОКЧЕЙН В ГОСУДАРСТВЕННОМ ОБРАЗОВАНИИ:
КРИПТОКОЛОНИАЛИЗМ, ТЕНЕВАЯ ПРИВАТИЗАЦИЯ
И ПЕРСПЕКТИВЫ УЛУЧШЕНИЯ ОБРАЗОВАНИЯ

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Аннотация. Статья посвящена актуальным вопросам комплексного решения и внедрения в сферу образования современных технологий. По мнению автора, блокчейн, как один из основных элементов цифровизации, может стать своего рода толчком для образовательной сферы, прорывной технологией, которая в условиях современного мира, пандемии коронавируса, крайне необходима. Автор солидарен с исследователями, которые считают, что именно блокчейн позволяет создать более безопасную, открытую и эффективную образовательную систему, заслуживающую доверие во всем мире. В статье анализируются плюсы и минусы блокчейна, дается оценка современной политике в области образования, приводятся примеры практики использования блокчейна в разных странах.

The COVID-19 pandemic has accelerated the process of digitalisation in education [1] and today, in many countries that process goes far beyond responding to the requirements of physical distancing [3]. A new generation of ideas and idealistic solutions is emerging which call for strategic investments into the digitalization of decisions and processes in key areas of education system operation, such as student assessment, the management of academic credentials, student records and educational careers, financial resource allocations, and others. Such developments are becoming an inevitable element of education system development globally, and in many cases they also open new avenues for a system-wide change and disruption.

One such avenue is the incipient introduction of distributed ledger technologies (blockchain) in education. A recent scan of progress in OECD countries shows that early blockchain applications and experimental projects are rapidly expanding beyond the sector of financial services [4]. Although education is only at the beginning of that process [8], a wave of early adoptions is gaining momentum, especially in low-income countries which depend on development support and cooperation, and where the process is driven largely by international partnerships. In Ethiopia, for instance, the government is partnering with private, international consortia for a transition towards blockchain-based IDs for the entire school population by the beginning of 2022. Recent news suggests that other countries — in Africa and possibly beyond — may soon follow suit [5].

Assuming that blockchain developments in the financial sector are indicative of the overall disruptive potential of the technology, blockchain-based solutions in education may usher a new era of transformation in key areas of educational policy and practice. As peerless, trustless, decentralized systems of decision-making and record-keeping which offer manipulation-proof, secure, efficient, and trustworthy way of recording and handling decisions and transactions, they may offer radically new solutions to old problems, while also creating a slate of new challenges.

Despite the potential impact of the technology, there is still little in terms of reflection about the opportunities and risks which it may bring, and in terms of experiences with its implementation. The literature about its use cases is still fragmented and scarce, and most of the initiatives to use blockchain in education have not been systematically researched and documented yet [6]. At present, it is therefore difficult to anticipate the impact of reforms promoting blockchain-based innovation, and to take evidence-based decisions about their implementation. This information gap is of particular significance in more fragile policy contexts. In such contexts, national education systems may be struggling with long-standing equity, quality, integrity and/or resource challenges. At the same time, they are also most likely to be subjected to what some observers call "crypto-colonialism" [2] in the form of external pressure to adopt the new technology for profit.

Research which seeks to contribute to the emerging field of blockchain-in-education will have to deliver answers to three guiding questions. Firstly, what can we learn from current blockchain initiatives in education about the opportunities and risks of using blockchain in our sector? Secondly, what are the possible use cases of forthcoming Layer 3 protocols and third generation blockchains against the backdrop of known problems with education quality, quantity, and integrity? Finally, based on the experience of countries which are more advanced in terms of blockchain regulation like Ukraine or Australia, what are the features of a policy environment which supports the harvesting of opportunities of blockchain in education, while mitigating the risks associated with it.

We are preparing to explore these questions with the help of a combination of case-based and research-based approaches, which examine relevant initiatives and available research studies which focus on blockchain in education in view of determining their advantages and disadvantages. On that basis, we will also be evaluating the technical fundamentals of Layer 2 protocols and third generation blockchain solutions in the light of their applicability in education policy areas with known challenges, such as quality assurance and integrity. We will also look into legislative and public policy analysis of regulations pertaining to blockchain applications in a selection of countries, including the European Union.

Preliminary insights suggest that, like with other digitalization ventures, most initiatives for introducing blockchain to education have also increased the influence of the private sector, in particular the global EdTech industry, on national education systems.

For the most part, the push towards the adoption of blockchain-based solutions is driven by private companies which have an impressive track record of innovation, but little experience in education. Their disproportionate influence on curricula, methods and administrative procedures in schools and universities is the source of risk as it may undermine the mandate of public education providers [3]. In turn, this may lead to a capture of limited public resources, lack over control of data collection, harmful practices of advertising towards children and youth, long-term effects of handing over control of education to commercial actors and blurring of the public/private dichotomy in public education [7].

Our preliminary scan of information also shows that the indiscriminate introduction of blockchain technology in countries which struggle with education improvement, and in policy areas which are plagued by weaknesses may simply reinforce these weaknesses and bring additional disadvantage to certain groups of students and stakeholders.

However, it is also fair to say that blockchains projects which have reached implementation maturity may allow for the transformation of education institutions into highly efficient, decentralized autonomous organizations (DAOs) in which key decisions are driven by smart contracts and — once taken are immutable. While we see clear possibilities to use this technology in education, the most promising policy environments with respect to this technology appear to be those in which there are boundaries in the form of clear regulatory criteria, checks and balances. Processes and areas in education which are well-functioning may thereby be the best candidate for blockchain-based improvements, as they are usually also the most mature and resilient to disruption. Unfortunately, this is quite the opposite of the thinking behind the pilot projects we analyzed, where blockchain innovation is targeting areas of apparent policy weakness. Layering the technology over such weaknesses may simply exacerbate them and augmenting the existing problems instead of resolving them [3].

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