



POTENTIALS OF BLOCKCHAIN-BASED SOLUTIONS IN GRANTS MANAGEMENT PROCESS OF NON-GOVERNMENTAL ORGANIZATIONS

Potenciais de soluções baseadas em Blockchain no processo de gerenciamento de subsídios de organizações não-governamentais

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Abstract: Grants management serves to address and to monitor the utilization of aid from international and domestic donors to beneficiaries, such as non-governmental organizations. Nowadays grants management faces many challenges, and the deployment of innovative technologies serves to prevail over them. The paper focuses on the potential effects of the implementation of blockchain technology in the grants management process. The article employs the study of literature on current problems that exist in the grants management field, and a critical assessment of the frequently exaggerated benefits and capabilities of blockchain technology. The paper also discusses the possible implications of blockchain for non-governmental organizations and processes. The paper draws a conclusion that blockchain has potentials to provide solutions to many current challenges in grants management.

Key words: Grants management; Non-government organizations; Donor organizations; Innovation management; Blockchain technology

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POTENCIAIS DE SOLUÇÕES BASEADAS EM BLOCKCHAIN NO PROCESSO DE GERENCIAMENTO DE SUBSÍDIOS DE ORGANIZAÇÕES NÃO-GOVERNAMENTAIS

Potentials of blockchain-based solutions in grants management process of non-governmental organizations

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Resumo: A gestão de subsídios serve para tratar e monitorar a utilização da ajuda de doadores nacionais e internacionais a beneficiários, como organizações não-governamentais. Atualmente, o gerenciamento de concessões enfrenta muitos desafios, e a implantação de tecnologias inovadoras serve para prevalecer sobre elas. O artigo enfoca os efeitos potenciais da implementação da tecnologia blockchain no processo de gerenciamento de concessões. O artigo emprega o estudo da literatura sobre os problemas atuais existentes no campo de gerenciamento de subsídios e uma avaliação crítica dos benefícios e recursos freqüentemente exagerados da tecnologia blockchain. O documento também discute as possíveis implicações do blockchain para organizações e processos não-governamentais. O documento conclui que o blockchain tem potencial para fornecer soluções para muitos desafios atuais no gerenciamento de doações.

Palavras chave: Gestão de recursos; Organizações não governamentais; Organizações doadoras; Gestão da inovação; Blockchain

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1 Introduction

The role of non-governmental organizations (NGOs) as agents of change in providing social services and aid to people and communities in need is extremely high. The existence of challenges in grants management process, which could have negative effects on operations, management, and financial support of NGO, makes a call for research on conquering those issues.

Many scholars addressed their studies to explore and to provide some insights on existing challenges of grants management and NGO in particular (Rahman & Sawada, 2012; Bhushan & Bond, 2013; Gent, et al., 2015; Gloria, et al., 2017; Nazuk & Shabbir, 2018). Others were trying to connect the capabilities of blockchain technology in different managerial and business fields (Gebert, 2017; Beck & Müller-Bloch, 2017; Turk & Klinc, 2017). Though, there is a research gap in discovering the potentials of blockchain technology in regard to the main challenges of NGOs' grants management.

2 Grants Management in NGOs

A non-governmental organization is a non-profit, volunteers-based group, not related to the governmental institutions. NGOs are organized on local, national and international levels to serve specific purposes according to their objectives. Grants management, as a part of fundraising expenditures management (Herzer & Nunnenkamp, 2013), plays a vital role in the existence of NGOs. Grants management is defined as a process in which one agency (donor) distributes funds to other organization (grantee), in order to achieve concrete social goals (Weiss, 1973). NGOs receive grants, which generally are not refunded fundings, to implement social projects with clearly defined objectives in a specific country or region (Rus, 2015).

Figure 1 shows NGO as a grantee and its most important stakeholder groups: the donors (the general public, governments, and charities) and the recipients (governments, communities, social entrepreneurs, households) (Linders, 2013; van den Broek, et al., 2012). NGOs can gain funding that does not need to be repaid by submitting applications for grants.

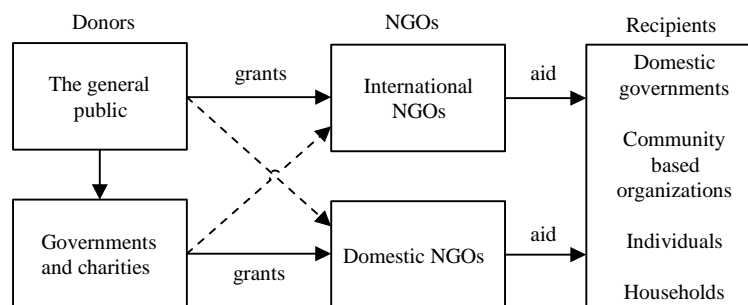


Figure 1 Overview of the Development Chain
Adapted from (van den Broek, Rijken & van Oort, 2012)

Donors initiate a call for project proposals and announce specific requirements for applicants and their projects. An applicant becomes a grantee after it has signed a grant agreement with a donor. During the grants management process, donors and grantees face various challenges.

2.1 Challenges in grants management field

According to the Grand Bargain – A Shared Commitment report (IASC, 2016), 18 donor countries and 16 aid organizations (including UN entities, international NGOs, and the Red Cross Movement) have stated ten major priorities to address existing challenges in the non-governmental sector. Four of these priorities are related to grants management field; (1) an increase of transparency, (2) an increase of effective and efficient procedures for reporting, (3) an increase of recipients' institutional capacities, (4) a decrease of management costs.

3 Blockchain Technology

Since it was first introduced (Nakamoto, 2008), a blockchain has become one of the most trending technology in the last decade (Risius & Spohrer, 2017). Numerous projects with implementations of blockchain technology outside the financial field are still rather experimental (Kshetri, 2018). Nevertheless, due to its innovative characteristics, a blockchain technology has the potential to change existing managerial paradigms and to provide new insights into the existing issues and challenges.

Blockchain can be defined as a decentralized, encrypted, distributed database, which maintains information that cannot be reversed or corrupted (Wright & De Filippi, 2015). A Blockchain is also known as a distributed public ledger (Crosby, et al., 2016) -- a database of records of every transaction that has been happened within the network (Morabito, 2017), and shared among all participants of this network.

Some authors propose the vision that the blockchain technology introduces new ways and models of business and organizational development with virtual organizations and automatic business operations (Tapscott & Tapscott, 2017; Puschmann & Alt, 2016). Others pointed out that it is necessary to understand how organizations could benefit from the technology, and how to be sure that all stakeholders on all levels are ready to change, adapt and adopt the innovation (Beck & Müller-Bloch, 2017; Morabito, 2017). Therefore, some scholars and practitioners suggest (Beck, et al., 2017) to analyze the blockchain technology from a more critical perspective.

As a technology, blockchain is a chain of blocks which contains records and timestamps. Each block is identified by its cryptographic hash (Christidis & Devetsikiotis, 2016). Each block references the hash of the block that came before it (Fig. 2).

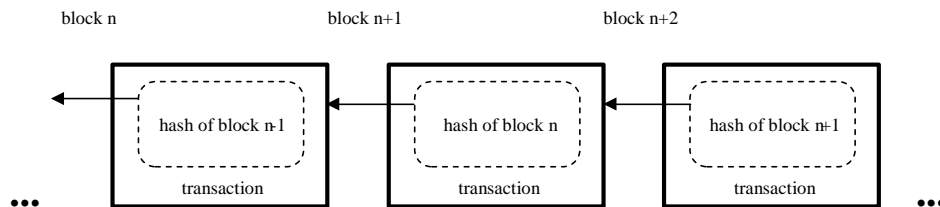


Figure 2 The Simplified Model of the Blockchain Adapted From (Christidis & Devetsikiotis, 2016)

The main technical characteristics (Christidis & Devetsikiotis, 2016; Glaser, 2017) of a blockchain technology are:

- a.the entire chain is duplicated among all participants (so-called nodes of the peer-to-peer network);
- b.after assigning into the chain data become irreversible;
- c.the use of smart contracts, automatic execution of transactions if both exchange parties meet specific pre-defined criteria (Hinings, et al., 2018), is allowed;
- d.each transaction is protected by powerful cryptographical algorithms;
- e.the network is decentralized.

Due to those technical advantages, a blockchain technology provides features which correspond to the needs of grants management:

- a.blockchain keeps the history of all transactions and related metadata, including time and author's information, which ensures the transparency of all operations and organizations itself;
- b.decentralization of the network means that it does not require the approval of transactions or its own legibility from the third party or centralized authority;
- c.information management facilitates the peer-to-peer collaboration of companies, individuals, and other stakeholders.

3.1 Blockchain technology in the grants management field

Despite the fact that blockchain technology was invented as a tool to prevent double-spending during the cryptocurrencies transactions, it has been applied in various fields of business and management: supply chain management (Kshetri, 2018; Feng, 2016), service management (Price, 2015), healthcare (Ekblaw, et al., 2016) and others.

For now, the usage of blockchain in grants management has been limited. Some scholars state that it is still hard to find empirical evidence to illustrate the appropriate use of blockchain technology (Wang, et al., 2016). Others suggest using blockchain-based projects for crowdfunding purposes (Gebert, 2017; Glaser, 2017). Crowdfunding and grants management are both related to fundraising, however, the first one operates on an individual level, and the other one – on organizational.

Based on the Great Bargain report (IASC, 2016), donors search for innovative technologic projects that can significantly improve the operation of non-governmental organizations. Although, specific solutions on this matter are still under development.

4 Major Potentials of Leveraging Blockchain-Based Solutions to Improve Grants Management Field in NGOs

The following analysis illustrates the possible capabilities of solutions based on the blockchain technology aimed to improve grants management process of NGOs in the following aspects:

4.1 Increase of transparency

The lack of transparency, openness, and accountability of NGOs are ones of the permanent challenges of the field (Burger & Owens, 2010; Keating & Thrandardottir, 2017). Some initiatives were implemented to improve the status quo of the open data leveraging. The International Aid Transparency Initiative (IATI) was introduced to increase transparency during the grants management process. Still, the stakeholders of the IATI have some concerns in regard to its technical, financial, privacy and legal issues. (Bhushan & Bond, 2013). In the Grand Bargain report (IASC, 2016) it was proposed to deploy a joint digital platform with an implementation of open data technologies, which —provides an opportunity to publish funding moves from donors to recipients in a timely, harmonized, and transparent manner.

As it was mentioned before, due to its technical characteristics, blockchain technology provides a high level of transactional transparency (Birch & Parulava, 2018). The grantee has a possibility to publish on its organization's blockchain system transparent, harmonized and high-quality project data, which corresponds to the International Aid Transparency Initiative (IATI) standards.

As a result, donors that receive an access to the blockchain system of a grantee organization, are able to assess the cost-effectiveness of previous projects. Moreover, the system demonstrates how funding moves from donors down the transaction chain until it reaches the final responders.

4.2 Costs reduction and simplification of the reporting process

The next important issue is an effectiveness and an efficiency of the reporting procedure. Due to various reasons, donors' reporting requirements have grown significantly over the past years (IASC, 2016). However, costs of the required reporting are able to cover only organizations with strong institutional capacity. The innovative technology is able to reduce these costs through total or partial elimination of middleman services, such as annual audits.

Based on its decentralized architecture, the blockchain technology eliminates the need for the improvement of its transactions legibility by the third party or centralized authority (Morabito, 2017; Freund, 2018). It has a capability to provide an opportunity to a grant-giver to approve reliability and quality of grant-receiver project reports published on the blockchain system through personalized donor signature. In other words, after grantee has published its financial and activity reports in the system, the donor signs these reports.

Thus, if all projects' reports are verified by grant-givers, there is no need to use middleman services to prove grant-receivers' reliability.

4.3 Reduction of duplication and management costs of a donor

The international aid community and the aid recipients are diverse, and very often the presence of a large number of donors and projects overwhelms the recipient's capacity to manage and administer aid inflows efficiently (Rahman & Sawada, 2012). Thus, one of the biggest challenges in a grants management process is a reduction of duplication and management costs by donor coordination. Shared assessment of information, financial monitoring, and performance reviews among donors help to avoid duplication and to reduce management costs (IASC, 2016).

From an information management prospective, the peer-to-peer collaboration of all stakeholders brings a potential for the blockchain technology to eliminate a duplication of information (Morabito, 2017; Beck, Avital, Rossi & Thatcher, 2017), and to save operational and management costs.

Hence, donors are able to use assessment information, provided by the previous grant-giver to an applicant, directly from a blockchain-based solution, without additional usage of time or finance.

4.4 The increase of the institutional capacity of a grantee

The Grand Bargain states —donors should support local and national grantees through the increase of investment in their preparedness, response and coordination capacities (IASC, 2016).

Due to its transparency and trustworthy characteristics (Crosby, Nachiappan, Pattanayak, Verma & Kalyanaraman, 2016) blockchain technology has potential to increase the institutional capacity of grantees by decreasing operational costs of each submission process. Blockchain provides an opportunity for an applicant to publish its portfolio of projects on the blockchain-based system.

In nutshell, an organization can increase its capabilities by a decrease of its administrative costs during submission of a project proposal by minimizing expenses connected with a preparation of administrative documents, among which are references from previous donors, audit reports, public registration forms.

5 Conclusion

The study of the literature review shows that world-known donor organizations are ready to invest in innovative technological solutions for the grant management process. We conclude that the blockchain technology has potential to become an appropriate solution for addressing such challenges of grants management as (1) an increase of projects and organizations transparency, (2) a decrease or elimination of the role of audit companies as middleman services, (3) a reduction of operational and management costs, and (4) an increase of organizational capacity.

Further research should sophisticatedly consider how blockchain technology innovation is applicable in regard to each of the grant management challenges, and how all stakeholders are ready to accept it.

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