Research Article Summary

Glynou, Maria, *Application of Blockchain and Smart Contracts in Employment from the perspective of European Law* (September 18, 2021).
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Core Concept(s)

This study analyzes the impact of blockchain and smart contract technology on the labor market and employment relationships from the perspective of European Union (EU) law. In particular, authors examined how the introduction of blockchain technology, and the use of smart contracts can transform traditional employment contracts and bring new challenges and opportunities to labor law in the context of the trend toward labor market digitalization accelerated by the COVID-19 pandemic. They also considered how these innovations align with existing EU and international labor laws and how they may impact employees' rights and protections.

My interest is in applying the findings of this paper to improve labor market information systems (LMIS). Therefore, I will use the insights gained from this reserch to consider ways to increase the transparency, efficiency, and reliability of LMIS. Ultimately, I aim to present concrete use cases on how the use of blockchain and smart contracts could contribute to improving LMIS.

Scope of Research

The scope of the research in this paper focuses on exploring the impact of blockchain and smart contract technologies on labor markets and employment relationships in the EU. The research focuses on the new challenges and opportunities that these advanced technologies bring to existing labor law and employment relationships as the labor market becomes increasingly digitalized (Jaumotte et al., 2023). In particular, the research examines the legal basis and sources of existing labor law for the EU and examines how smart contracts fit into this legal framework.

It further digs into the basic concepts of blockchain technology and smart contracts and their application in the labor market, particularly in the execution and management of employment contracts. It also addresses how these technologies might affect employee rights and protections. The study aims to provide a comprehensive understanding of the legal and social implications of technological innovation in the modern labor market.

Finally, based on the findings from this research I consider how blockchain and smart contract technologies can be integrated into LMIS and how this may improve the transparency, efficiency, and reliability of these systems.

Implications of Findings

The research findings of this paper provide valuable and important insights into the impact of blockchain and smart contract technologies on labor markets and employment relationships. Specifically, the following findings were revealed.

1. ***Improved transparency and efficiency of employment contracts***: Utilising of blockchain technology will improve the transparency of employment relationships by making employment contract records transparent and tamper-proof. Smart contracts also have the ability to automatically execute the terms of employment contracts, such as recording working hours and payment of salaries. This streamlines the employment contract process by ensuring that the terms and conditions of employment are respected and executed efficiently.
2. ***Consistency with EU labor law***: Regarding to the use of smart contracts, existing EU legislative act 91/533/EEC (Council of the European Communities. 1991) stipulates the obligation to provide a written employment contract. This requires that the main terms and conditions of the employment relationships (payment method, working hours, duties, amount of wages, etc.) be provided to the employee by every employers. While some EU member states do not require written employment contracts, in certain countries employment contracts must always be in writing. Therefore, the use of smart contracts should be used as a complementary tool, not as a substitute for legally required employment contracts.
3. ***Impact on protection of employees' rights***: smart contracts can provide certainty and security for both employees and employers as they can automate important employment

terms such as payment and predefined working hours. There are various wage calculation methods in the EU, which can be incorporated into smart contracts. The smart contract can also be used as a means of automating the payment process. In addition, blockchain technology ensures proper execution of smart contracts, thus avoiding employee rights violations. However, a minimum wage is legally set, and if the wage calculation by the smart contract's coding results in less than this, the employer is responsible for paying the difference. Smart contracts ensure that the terms of the employment contract are met and provide a equal environment for both employee and employer. the EU Charter considers wage as part of dignity, and legal requirements must be observed when using smart contracts.

While blockchain and smart contract technologies have the potential to revolutionize the labor market, this paper highlights the importance of developing an understanding of the appropriate legal framework and challenges of these technologies. The findings make a valuable contribution to the debate on the advancement of digital technologies in the labor market and their legal and social application.

Limitations

Although this paper in many ways gives much important insights as to how blockchain and smart contract tech are applied for employment contracts, there still exist some limitations. First, the research is specific to the EU legal framework and its findings are limited to the specific legal context of the EU member states, so the insights cannot be extended to other regions or different legal systems. Furthermore, because these technologies evolve rapidly, the technical status and legal interpretations at the time this study was conducted should change in the future. Therefore, the results of the study are at risk of becoming obsolete over time.

In addition, the examination is based primarily on a theoretical framework and existing literature and is not based on real data on implementation of blockchain and smart contracts. Further research through real-world use cases and case studies is required. In addition, this research does not explore in detail the impact of blockchain and smart contracts in specific sectors and occupations. Further research on specific impacts and potential applications in different sectors and occupations is also needed.

Given these limitations, when applying blockchain and smart contracts to the employment contracts in the labour market, it is essential to update research as these technologies evolution and conduct specific case studies in different regions, sectors, and occupations to identify challenges and solutions.

Summary

This paper examined the impact of blockchain and smart contract technologies on the EU employment relationships. In particular, it focuses on how these technologies improve the transparency and efficiency of employment contracts and explore their consistency with EU labor law. The research highlights the contribution of these technologies to the protection of employees' rights and compliance with labor standards. However, the applicability of the findings is limited by the rapid evolution of the technologies and lack of the empirical data. This research facilitates understanding of the changes in employment relationships resulting from the application of smart contracts and provides implications for future technology adoption.

Possible use cases in Qatar's LMIS

1. ***Improved transparency of job information***: Job seekers can access smart contracts on the blockchain to review the job description, salary, working conditions, and other information provided. This information is stored on the blockchain and is provided in an unalterable form. Job seekers have access to accurate information and can base their job search on detailed information, increasing the transparency and credibility of job postings.
2. ***Contract automation and monitoring***: The use of smart contracts within the LMIS automates employment contracts. The terms and conditions of the contract are incorporated into the software protocol, and the detection of contract violations and uncertainty is automated. For example, wage payments are automatically made according to the contract, and employee work hours are recorded by the smart contract. This increases the reliability of the contract and reduces the risk of employment disputes.
3. ***Smart Tracking of Salary***:

Using a LMIS, employee salary payments are smart tracked. Smart contracts automatically calculate salaries and ensure that employees receive accurate payments. Salary information is permanently recorded on the blockchain, ensuring transparency.

4. ***Enhanced Legal Compliance***:
   The system is designed to compatible Qatar's labor laws and regulations and uses smart contracts and blockchain technology to enhance legal compliance. It automatically verifies employment contracts and terms of employment for legal compliance and alerts if there are any problems. This makes it easier for both employers and employees to comply with legal regulations.
5. ***Employee Training and Skills Certification***:
   Employee training and skills certification is managed through a LMIS. Employees upload their skills and qualifications onto the blockchain, making it easier for employers to find candidates with the right skills. Since skills certifications are stored on the blockchain, reliability and transparency are ensured, improving skills matching in the labor market.

These use cases can be expected to provide effective benefits in the Qatari labor market, including information transparency, contract automation, salary accuracy, enhanced legal compliance, and proof of skills.

There are issues to consider when implementing into LMIS: LMIS handles huge amounts of data, including personal information, so data security measures and privacy protection are critical. Measures to prevent unauthorized access to smart contracts and platforms and data leakage are essential.

The next issue is the certainty of smart contracts. Smart contracts execute contracts based on a program, which requires accurate coding. Because program bugs or incorrect design can cause contractual issues, proper testing, and monitoring to ensure its accuracy is essential.

Technical dissemination and education are also critical. Education and training for all stakeholders, including employees, employers, and government agencies, is necessary to ensure that they understand and can effectively use the new technology.

In addition, it is essential to develop a legal framework and regulations. Legal regulations related to the use of smart contracts must be consistent with labour laws in particular. Legal expert advice is essential, as new legal challenges may arise.

Reference List

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Related Readings

Unsworth, R. (2019). Smart contract this! An assessment of the contractual landscape and the Herculean challenges it currently presents for “self-executing” contracts. In M. Corrales, M. Fenwick, & H. Haapio (Eds.), *Legal tech, smart contracts and blockchain: Perspectives in law*, business and innovation (pp. 15-30). *Springer*. https://doi.org/10.1007/978-981-13-6086-2_2