



EduCTX

A decentralized system for managing micro-credentials, based on smart contracts and the Ethereum blockchain platform

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Marko Hölbl, Muhamed Turkanović, Aida Kamišalić Latifić, Marjan Heričko, Blaž Podgorelec, Patrik Rek, Luka Hrgarek



Skills and knowledge

- Formal (formal education, certificates)
- Informal (certificates of participation in courses, participation in events, membership in organizations, publications (professional articles, scientific articles, reports, technical documentation))
- Other skills and achievements (education of the elderly)

Challenges

- Simple verification of the authenticity
- International dimension
- Language barriers
- Administrative obstacles

EduCTX platform

- Based on the Blockchain technology
 - Using a consortium type of blockchain
- Enables establishing decentralized and distributed environment
 - Transactions and data are secure and trusted
- The platform offers a comprehensive and unified digital environment
 - Managing, assigning and presenting certificates for individuals and educational institutions and other potential stakeholders



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EduCTX platform

- Digital micro-credentials are
 - Transactions representing acquired certificates
 - Points acquired for completed learning units (courses, diplomas)
- Each completed transaction is recorded and kept in a publicly available ledger

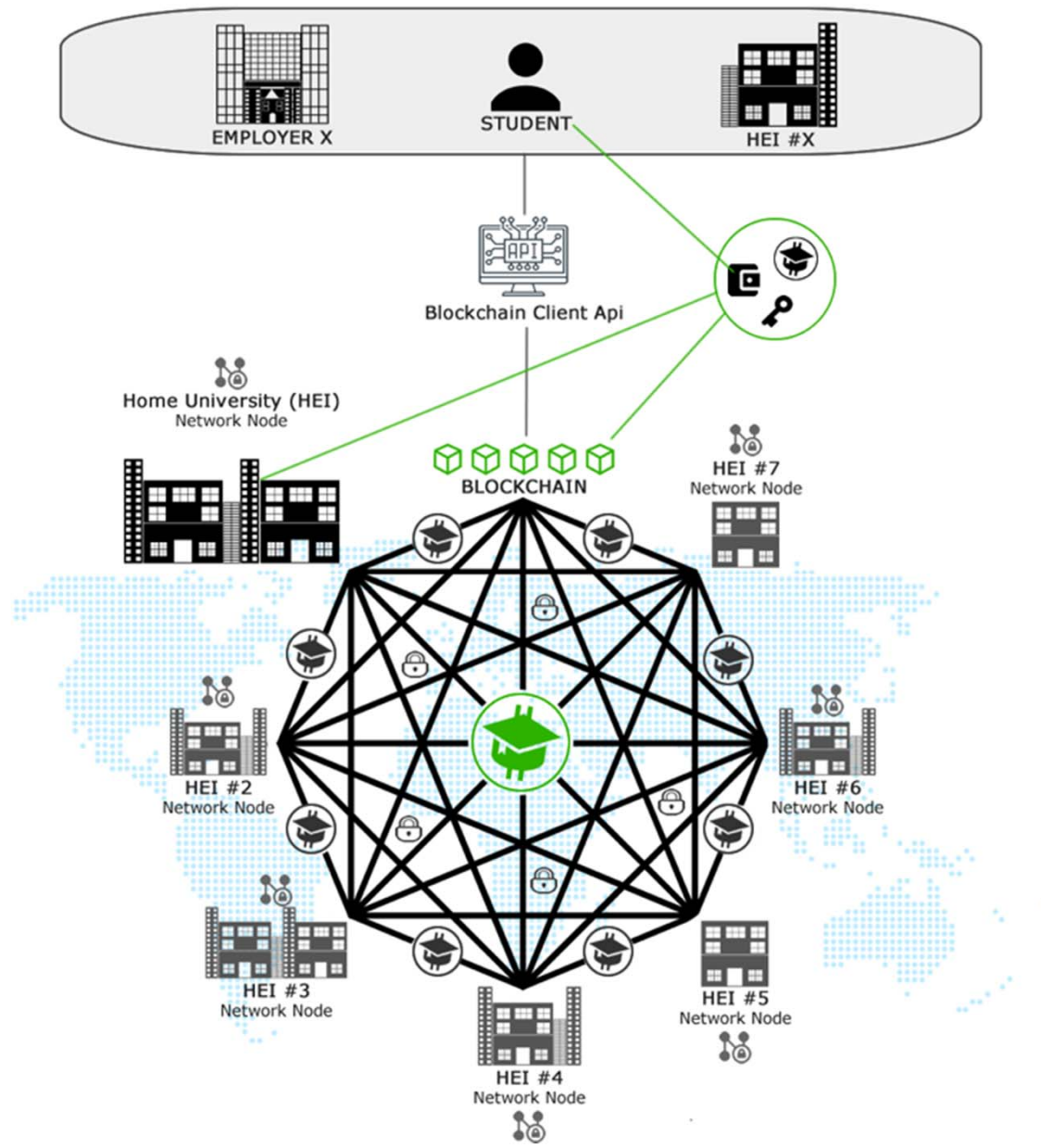


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EduCTX platform



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EduCTX platform

- Stakeholders are nodes of the EduCTX network
 - Contributing to the robustness and security of the platform
 - Due to the use of the consortium network, nodes do not have any transaction costs
- Enables the development of digital services
 - Automated evaluation of skills and knowledge of individuals
- First prototype implementation was based on the ARK platform
- The development continued on the **Ethereum** platform



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EduCTX platform

- The development continued on the **Ethereum** platform
 - Using smart contracts
 - Turing completeness
- Consortium network
 - Proof of Authority consensus mechanism
 - Transaction costs set to 0
- Adding new nodes (certified authority)
- Adding certified authorities into the business logic (smart contracts)

EduCTX platform

- Skills and knowledge are saved as ECTX tokens
 - The ECTX tokens are equivalent to points acquired by the individual in the form of digital micro-credentials for completed learning units (courses, diplomas, certificates)
- Multi-currency approach
 - ECTS points for formal education
 - Simply configurable XY points for informal education



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EduCTX platform - Alfa version (Ethereum)

Individual

- EduCTX address, where he collects tokens assigned by an institution for completed learning units
- EduCTX wallet, in the form of decentralized web application, that enables overview of received tokens

Institutions (certified authorities)

- EduCTX address, from which it transfers tokens
- EduCTX wallet, in the form of decentralized web application, that enables management of tokens

EduCTX platform - Alfa version (Ethereum)

Assigning micro-credentials

- Institution transfers an appropriate number of tokens to the address of the individual's wallet
- The data is stored on the EduCTX blockchain network
 - A known sender (an institution with an official name and address)
 - An anonymous individual receiver (a public, but anonymous address)
 - Title, value and URL address

EduCTX initiative

Addresses

- the mission and social responsibility of educational institutions
- the expectations of new generations

The flexibility and transparency of the digital platform

- Enables greater connectivity and involvement of various educational institutions and other stakeholders
 - to reduce the time-consuming and costly burdensome processes of governmental and non-governmental organizations
 - speeds up the acquisition of data for individuals, thereby enabling a more efficient e-state at EU level and indirectly relieving the public administration
- Helps modernizing business processes and introducing innovative digital services



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Thank you for your attention!

www.eductx.org
eductx@um.si

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