Brief information about the project

Name of the project	AP19679514 «Research of the conceptual apparatus of the «Blockchain» domain using the intellectual analysis of texts and the analysis of formal concepts: focus on the teaching methodology»
Relevance	The relevance of the project is justified by the fact that blockchain technologies are actively gaining ground in the economy today, and the IT sector demands universities to produce competitive professionals with advanced knowledge and skills in blockchain development. However, the teaching of blockchain technologies in many Kazakhstani universities has not yet become established, even as an elective discipline. This is explained not only by the comparative novelty of the "Blockchain" domain but also by its certain mystification, negatively affecting the motivation of educators to explore this field of knowledge.
Purpose	Improving the effectiveness of teaching blockchain technologies by conceptualizing the concept of blockchain and determining its links with the basic concepts of computer science
Objectives	The conceptual elaboration of the concept of blockchain will be understood as the analysis of the "Blockchain" domain using such analytical tools as automatic extraction of definitions (Definition Extraction), word attachments (Word Embeddings), thematic modeling (Topic modeling), analysis of formal concepts (Formal concept analysis). The achievement of the project goal will be ensured by solving 4 mains logically interrelated, sequential tasks. 1. Performing a systematic literary review on the topic of "Blockchain" and extracting the most significant and "orthogonal" definitions of blockchain. 2. Thematic modeling of related works included in a systematic literary review, and a fuzzy comparison of selected topics with previously extracted definitions. 3. Building formal thematic contexts based on the generated thematic subsets of documents and performing an analysis of formal concepts. 4. Cases on the application of the formed system of concepts of the domain "Blockchain" for the development of: a) the training course "Blockchain development"; b) the training course "Cryptography in the blockchain"; c) the training game "Smart You".
Expected and achieved results	The form of completion of the study will be the conceptual structure of the Blockchain domain, integrated into the general conceptual structure of computer science, as well as cases on using this structure to develop syllabuses of two relevant disciplines "Blockchain Development" and "Cryptography in blockchain". A simulation game "Smart You", which teaches programming of smart contracts, will also be developed, and published in the public domain. The methodology of teaching blockchain based on the concept of gamification developed by professional teachers can be adapted for the school computer science curriculum. The practical results of the project in the form of syllabuses and an educational game will be published on the Internet and will be freely used by all interested persons – teachers, students, doctoral

	students. This project will indirectly have an impact on the development of the blockchain industry in Kazakhstan, and the planned publications on the project will contribute to the development of educational programs related to blockchain at the international level.
Research team members with their identifiers (Scopus Author ID, Researcher ID, ORCID, if available) and links to relevant profiles	1. Mansurova Madina Yesimkhanovna, candidate Fiz.M. N., professor, Hirsch index: 5. Researcher ID: O-4501-2014. ORCID: 0000-0001-6284-8283.Scopus Author ID: 56617164900. 2. Nugumanova Aliya Bagdatovna, doctor PhD, Hirsha Index: 4/2. Researcher ID: L-9616-2015, ORCID: 0000-0001-5522-4421.Scopus Author ID: 55864815200. 3. Zhaysanova Dinara Sailauovna, doctor PhD, Index Hirsha-1, ResearcherID Web of Science: R-4415-2017, Scopus Author ID: 57204395807, ORCID 0000-0002-8116-6111. 4. Sarsembayeva Talshyn, PhD candidate, Hirsha index: -2, ORCID: 0000-0001-7668-2640, Scopus Author ID: 57224454827.
List of publications with links to them	1. Dinara Zhaisanova, Madina Mansurova A Bibliometric Study on Blockchain Concept: A Theme Analysis and Future Directions For Computer Science Training // Scientific Journal of Astana IT University, Volume 15, pp. 41-54, DOI: 10.37943/15OWJC3702. https://sj.astanait.edu.kz/wp-content/uploads/2023/11/Journal_AITU_15vol_sept23-версия-4-41-54.pdf 2. Dinara Zhaisanova, Madina Mansurova, Blockchain concept for the educational purposes: bibliometric analysis and conceptual structure The 14th International Conference on Emerging Ubiquitous Systems and Pervasive Networks (EUSPN 2023) workshop Soft Computing and Intelligent Systems: Theory and Applications, November 7-9, 2023, Almaty, Kazakhstan. https://www.sciencedirect.com/science/article/pii/S1877050923021543
Patents	-


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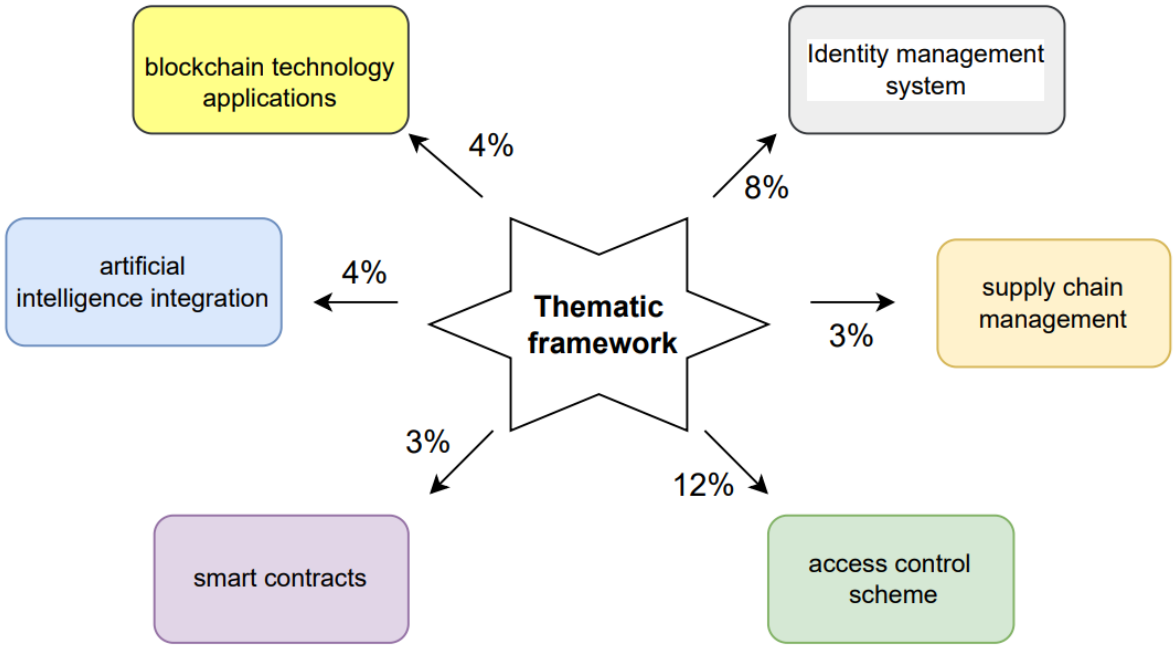
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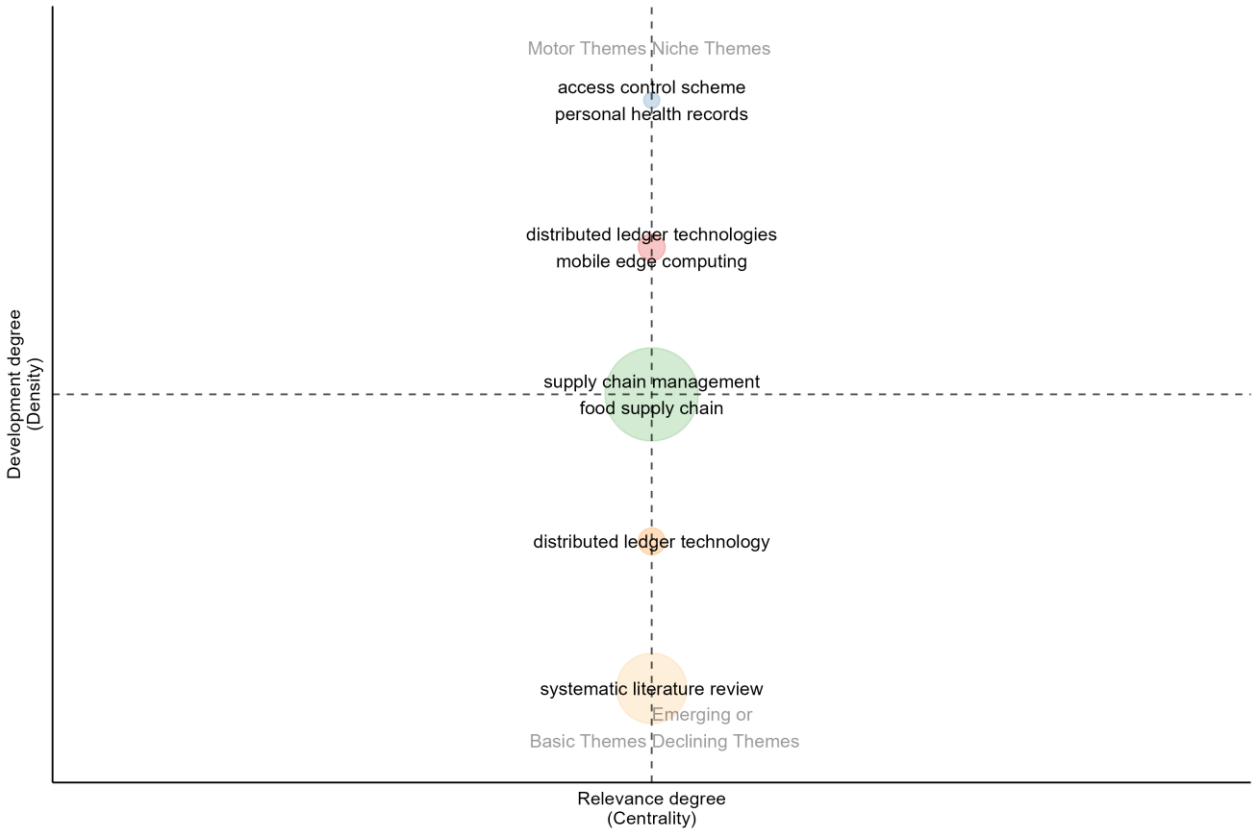
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Niche Themes
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personal health records
distributed ledger technologies
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Emerging or
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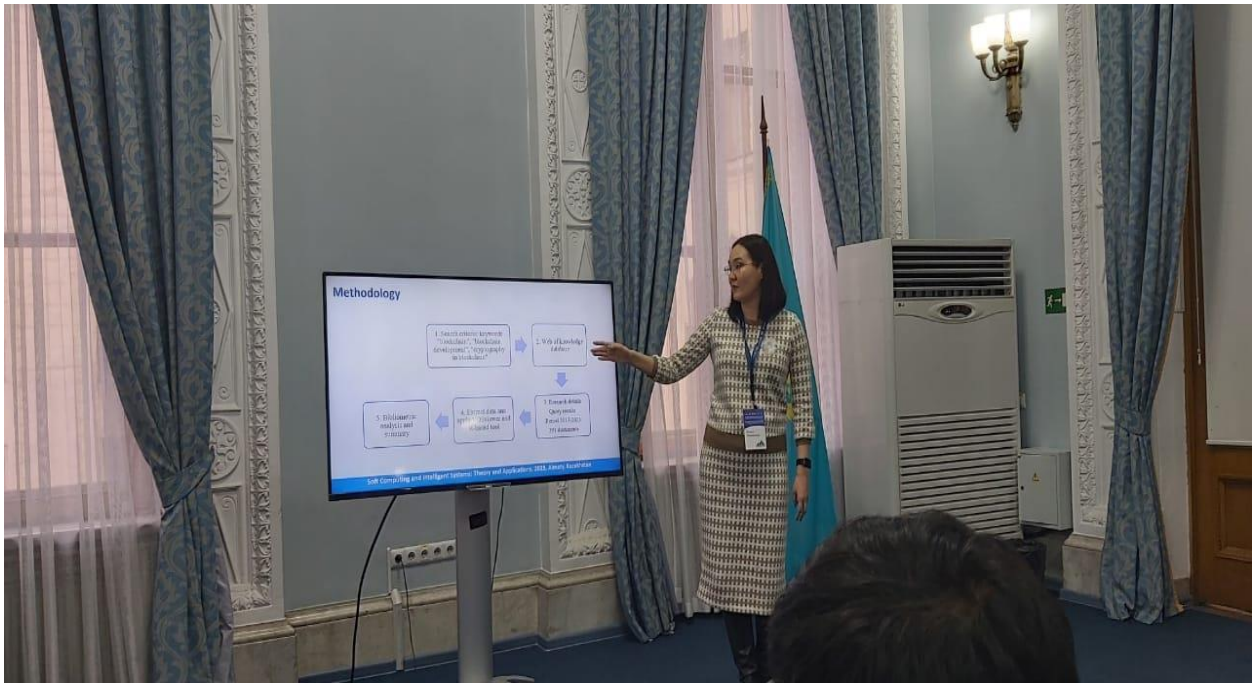
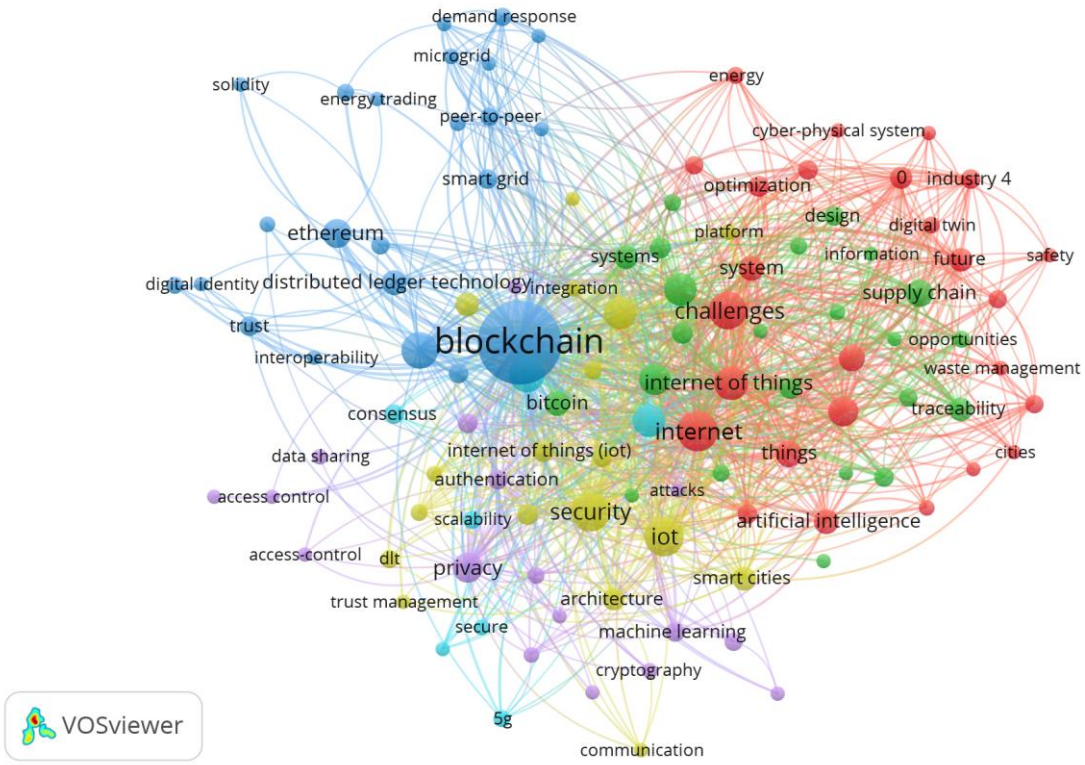

Methodology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