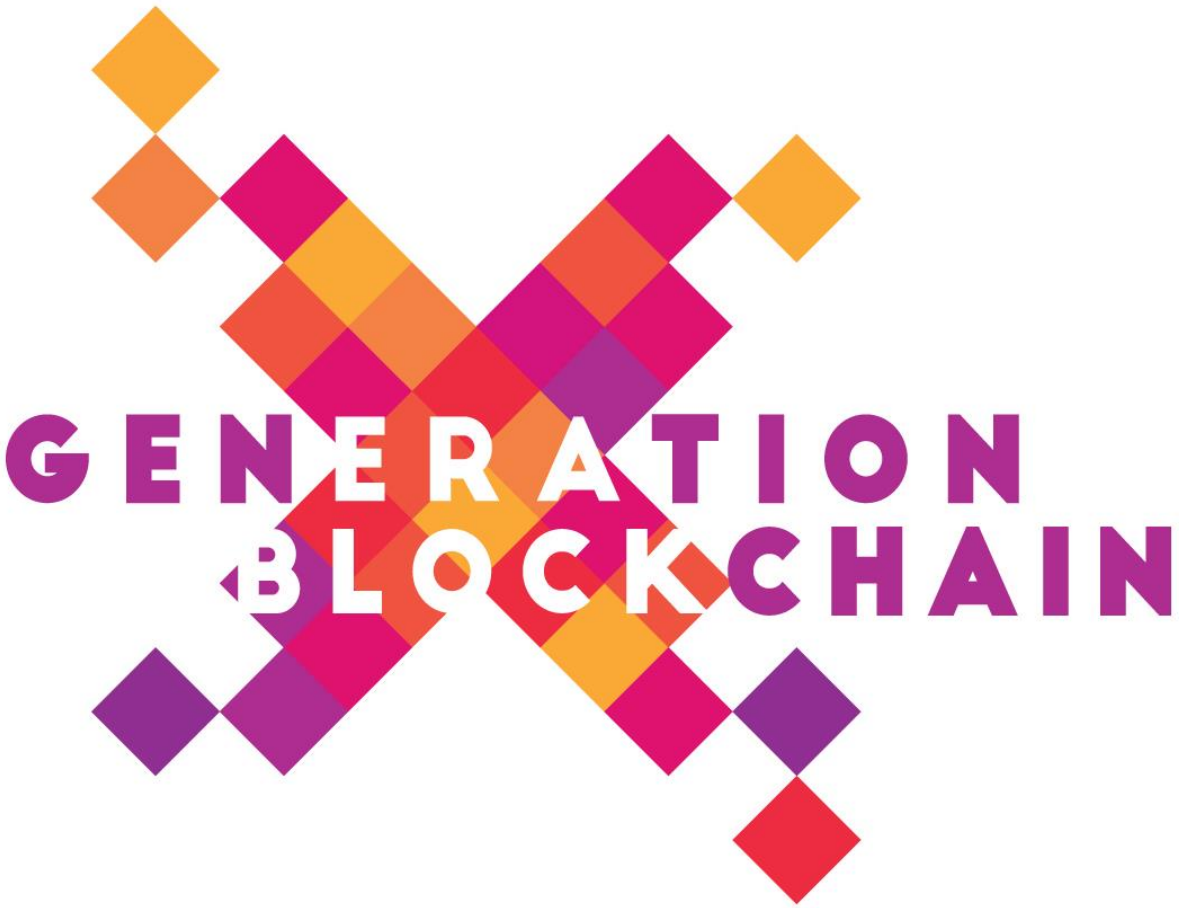

Generation Blockchain Audit & Framework

Executive summary

SZCZECIN 2022

Funded by the European Union

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Project Generation Blockchain, project number: 2021-1-PL01-KA220-HED-000031176

I. WHY BLOCKCHAIN?

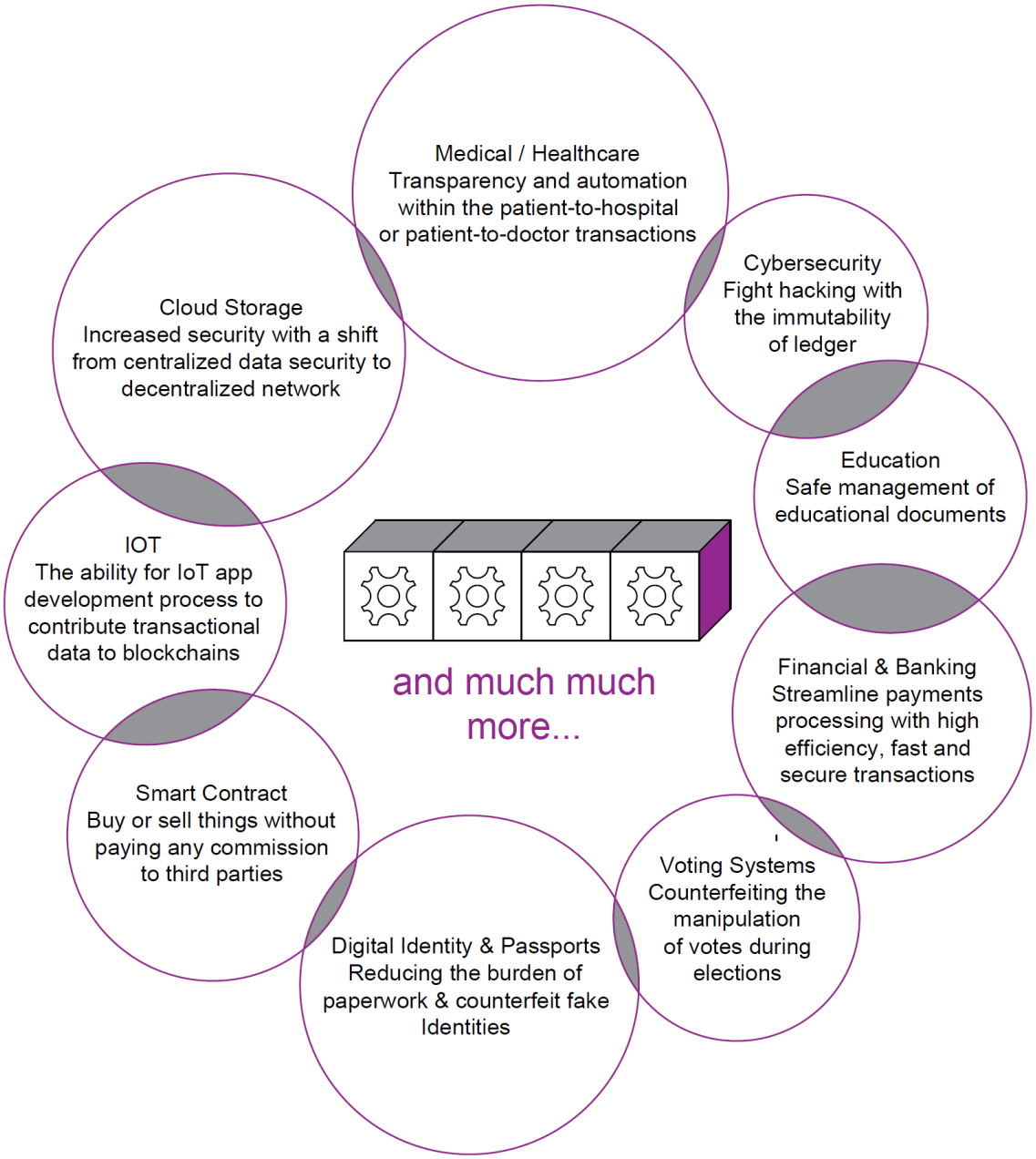
The usefulness of Blockchain technology due to its many advantages, in the form of off-the-shelf solutions, is conquering many sectors of the economy, such as finance, insurance, retail, industry, healthcare, logistics or public administration. All reports and publications on the subject agree on the possibility of significantly increasing efficiency in almost every area of human life and economic processes. From the technical point of view, Blockchain is relatively young, but its development continues to gain acceleration as favorable regulatory conditions and supportive policies have emerged in addition to economic stimulation. Every month, new applications and projects are being developed that break the barriers of scalability and performance, while surprisingly reducing the cost of deployment and operation. Blockchain is under continuous evolution and we have not yet fully explored the limits of its applications.

Figure 1. Key attributes of Blockchain technology

Source: own elaboration based on: [1].

II. MAIN AREAS OF BLOCKCHAIN TECHNOLOGY APPLICATION

Figure 2. Main areas of Blockchain technology



Source: own elaboration based on: [1].

Funded by the European Union

Project Generation Blockchain, project number: 2021-1-PL01-KA220-HED-000031176

III. WHAT IS THE AIM?

The main aim of this paper is to introduce readers to the opportunities brought by the implementation of Blockchain technology into the teaching area.

IV. MAIN PROBLEMS AND QUESTIONS

Consideration of this topic led to the identification of many scientific problems such as: how to teach students of economics and management about advanced information technology? How much should they know about the technical aspect and how much about the implications and economic effects associated with Blockchain? Should such topics be taught in courses or in universities? How long should the study last and what exactly is involved? Should there be prerequisites, and if so, what kind of prerequisites, etc.?

V. WHAT IS THE TARGET GROUP?

The benefits can be enormous and affect teachers, academic and research institutions and facilities, students and, as a result, the entire local society.

VI. ABOUT THE RESEARCH

The general assumptions, the selection of analytical and technical tools, and the design and substantive scope of questionnaire were discussed internationally among partners coming from six European countries. Reasoned comments accepted by the majority were incorporated into the final form of questionnaire, which was eventually accepted by all interested parties.

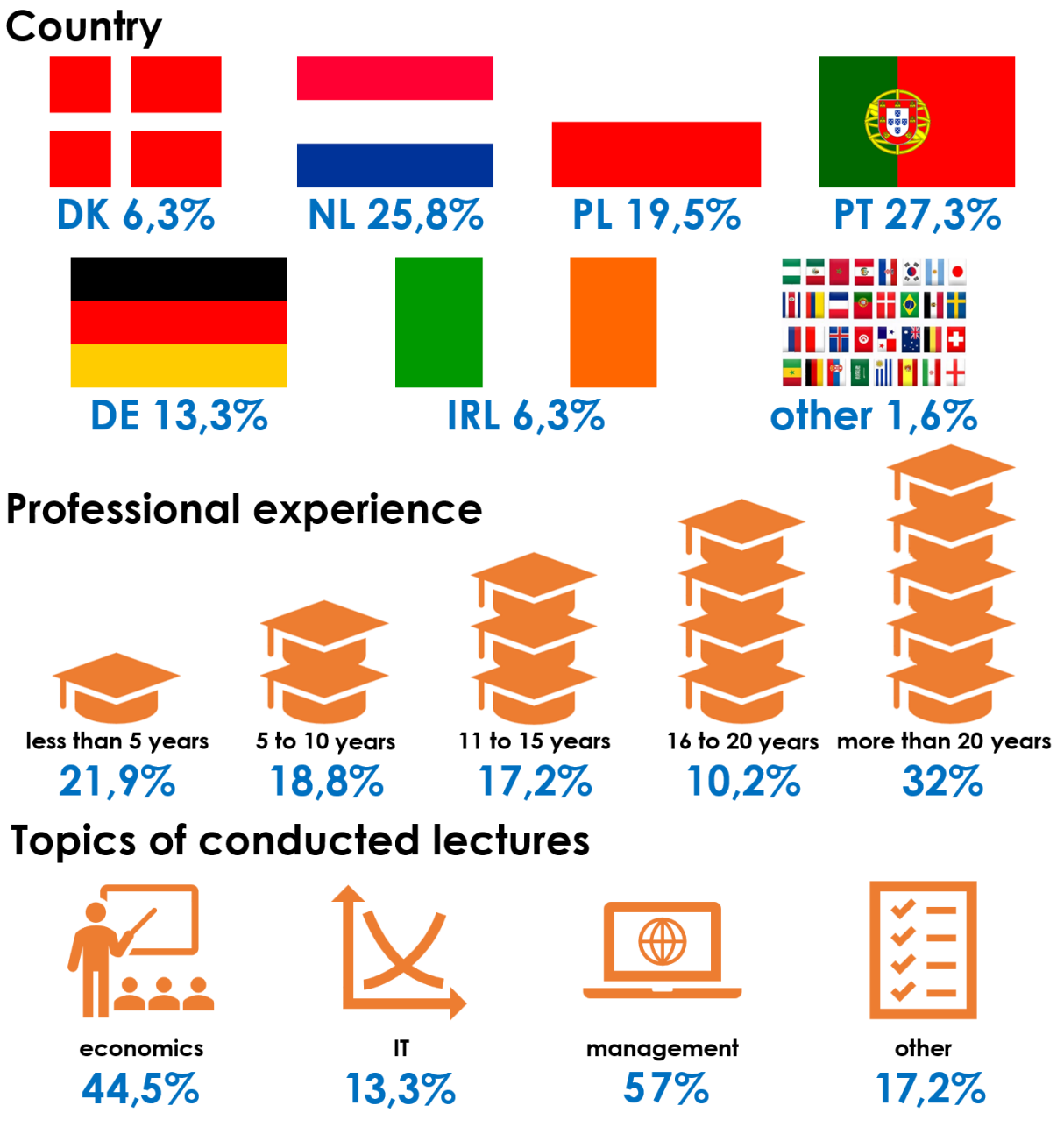
The survey was anonymous. The final version of the author's questionnaire contained a total of 22 questions, which were aimed at finding out opinions and experiences about Blockchain technology. The questions were assigned to five thematic groups: demographics, section one: knowledge about Blockchain, section two: practical Blockchain competencies and skills, section three: Blockchain experiences, and section four: attitudes and opinions.

The survey was quantitative but focused on the identification qualitative characteristics and opinions. Only closed-ended single- and multiple-choice questions were used, as well as multi-level single-choice matrices based on a five-point Likert scale

VII. CHARACTERISTICS OF RESPONDENTS

The survey was conducted among academics and lecturers coming from more than six European countries. Portuguese were the most numerous, followed by: Dutch, Polish and German. In Denmark and Ireland, fewer than ten people filled out the survey. Two respondents were of a different nationality than those indicated above. Data related to the origin, level of experience and specific teaching sector of the respondents are presented in Figure 3.

Figure 3 Figure of the respondents*

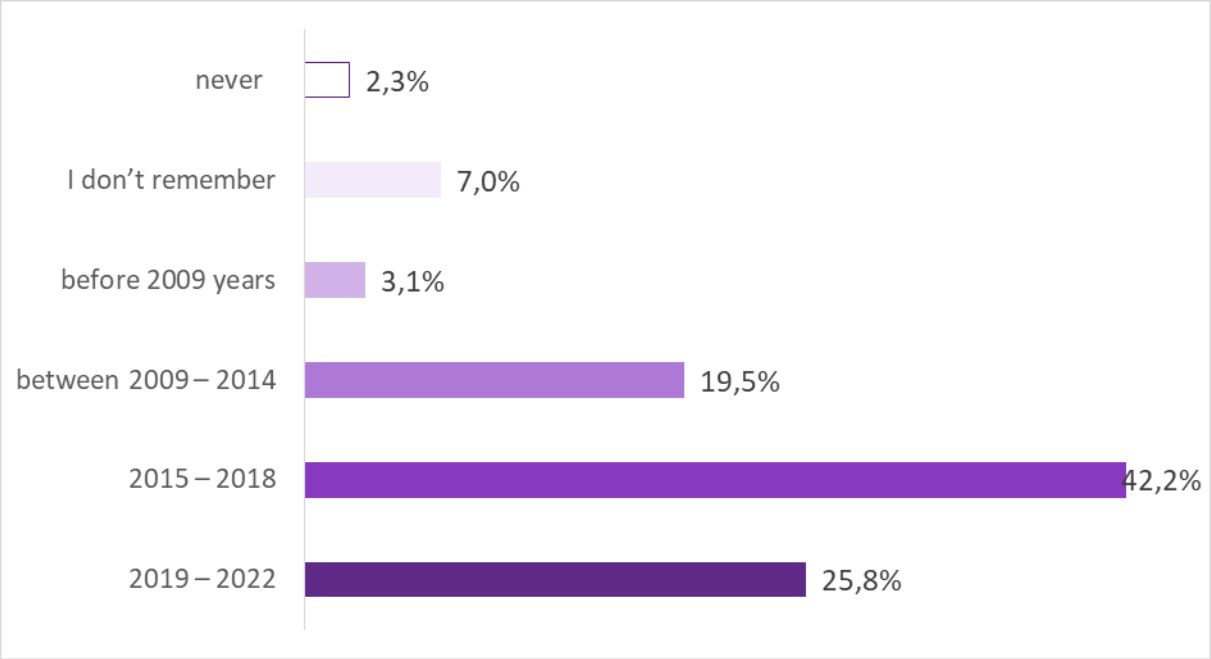


Ultimately, the questionnaire was filled out by 129 respondents. 128 of the 129 questionnaires were qualified for analytical processing, as one was found to be largely incomplete and was rejected. Some of the questions were complex and multi-faceted. Due to this fact, as well as the specialized and difficult subject matter of the survey, the average time to fill out the questionnaire was 27 minutes.

VIII. SELECTED SURVEY RESULTS

The survey results, determining the point in time when the respondents first heard about Blockchain (Figure 4), should be interpreted optimistically. 3.1% of them declared that they had heard about the technology in question even before 2009, so they can be considered IT enthusiasts actively following any technical news in the field and thus having a wide and continuously updated knowledge. 19.5% declared that it was between 2009 and 2014, which was the time of Bitcoin's development and the emergence of Ethereum that was the herald of the Blockchain 2.0 era.

Figure 4. Knowledge of Blockchain technology – point in time*.



* some results do not add up to 100% due to the rounding used.
Source: own elaboration based on surveys conducted

Financial and cryptocurrency services (currency function, e.g., cryptocurrencies, decentralized finance (DeFi) – 77% and transactions and banking, e.g., payments and micropayments or buying and selling stocks, digital securities – almost 75%) are the most widespread and well-studied, which is consistent with the respondents' profession, the popularity of such solutions and the Blockchain's history related to cryptocurrencies. This was followed by NFT [2](46%) and cyber security (safety and security of electronic information exchange – 38.1%), which are taking the market by storm and gaining popularity.

Non-economic implementations are less well known. They make up the majority in the group of Blockchain applications marked with the lightest color in Table 1 (because items with similar results were assigned color codes). This group includes items ranging from 31% to 23.8%, thus about a third of all respondents have knowledge of them. Applications in physical security, such as biometrics, remain relatively least known.

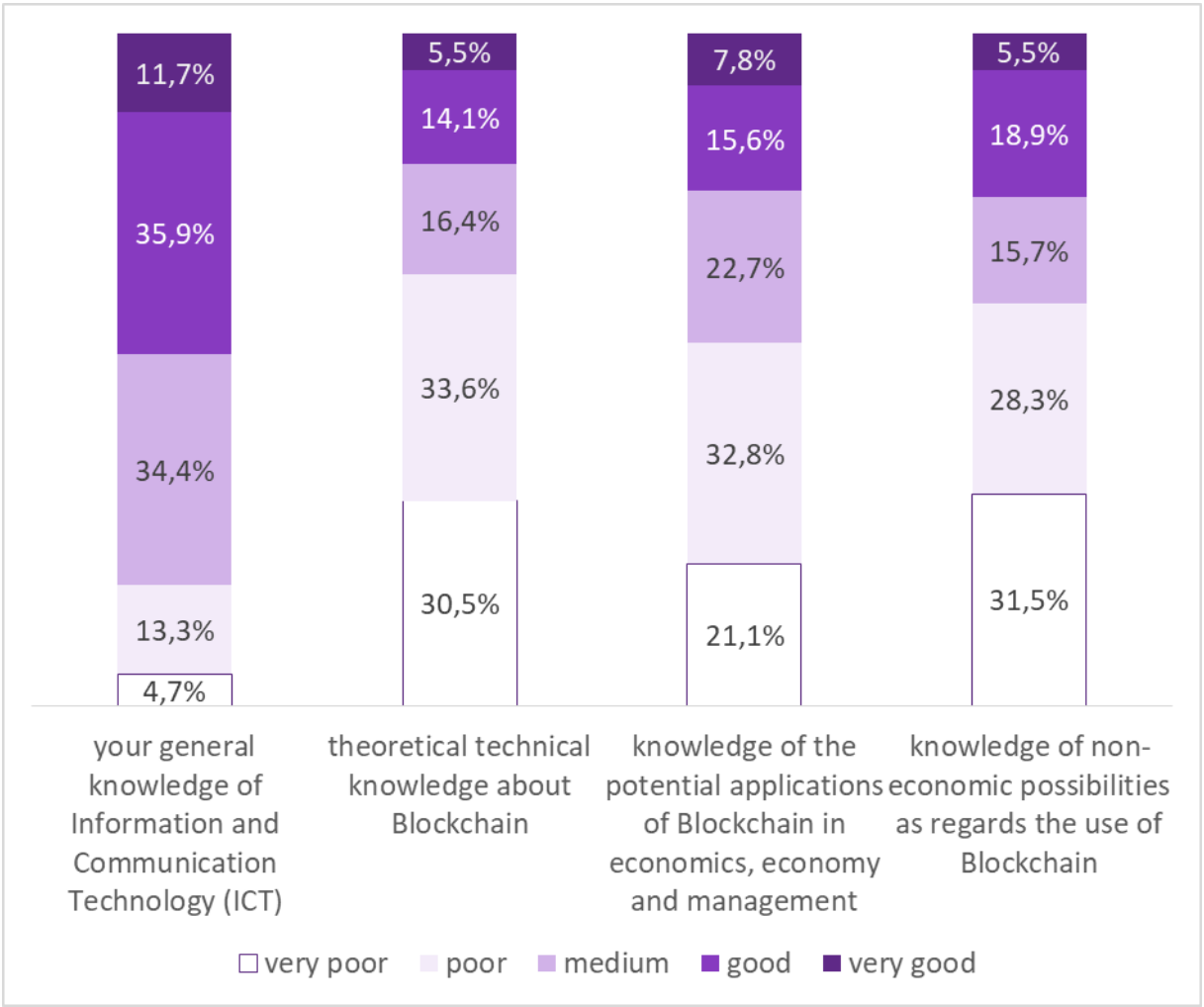
Table 1. Knowledge of Blockchain technology application area

AREAS	%
currency function, e.g., cryptocurrencies, decentralized finance (DeFi)	77,0%
transactions and banking, e.g., payments and micropayments or buying and selling stocks, digital securities	74,6%
NFT (non-fungible token)	46,0%
increase in the safety and security of electronic information exchange	38,1%
creation of secure and trustworthy documentation	31,0%
authentication and smart contracts, e.g. conclusion of a contract only after the parties meet certain requirements, elimination of the need for an intermediary authentication institution such as a notary	29,4%
new funding opportunities for startups and charity fundraising, new financial models	27,8%
public records and registries, e.g., land records, lists of prosecuted offenders, or civil registry records	27,8%
tokenization of assets	27,8%
private records and registers, e.g., medical records, electronic gradebooks, or work experience records	26,2%
protection of intellectual property, e.g., patents or trademarks	26,2%
personal and entity identification, e.g., confirmation of identity at an election, verification of a driver's license or authentication of a company against a debtor register	25,4%
authentication of goods and services, e.g., confirmation of car mileage, origin and shelf-life of foodstuffs or elimination of counterfeit medicines from circulation	23,8%
physical security, e.g., access to an apartment or hotel room	13,5%
other	7,1%

Source: own elaboration based on surveys conducted.

The global predilection for Blockchain is growing. Not only are new projects and interested economic sectors emerging, but also the level of publicly available knowledge on the subject is growing – the number of academic publications and papers increases, as well as the search index on the popular Google browser. [3]? Unfortunately, based on Figure 5., it can be presumed that there is a relatively low level of knowledge of the Blockchain-related environment, both in the technical context and in the context of economic and non-economic projects. In all of these cases, knowledge at the average level or higher can be boasted by less than half of the respondents: respectively: 36%, 46,1% i 40,1%. The exception is the knowledge base on ICT, which can be described as high.

Figure 5. Identification of the level of knowledge covering selected Blockchain issues*.



* some results do not add up to 100% due to rounding used.
Source: own elaboration based on surveys conducted.

The next table, Tab. 2., shows that lecturers and academics are mostly unfamiliar with Blockchain-related terms. Relatively the most recognized were peer-to-peer – 63.3%, crowdfunding – 62.5% and tokenization – 58.6%. More than half encountered NFT – 50.8%. However, these should not be assessed harshly, as it turns out that even among those actively investing in cryptocurrencies, as many as 33.5% either have no knowledge of them (or the markets, projects or technologies behind them), or that knowledge is residual and comes from interactions with acquaintances [4].

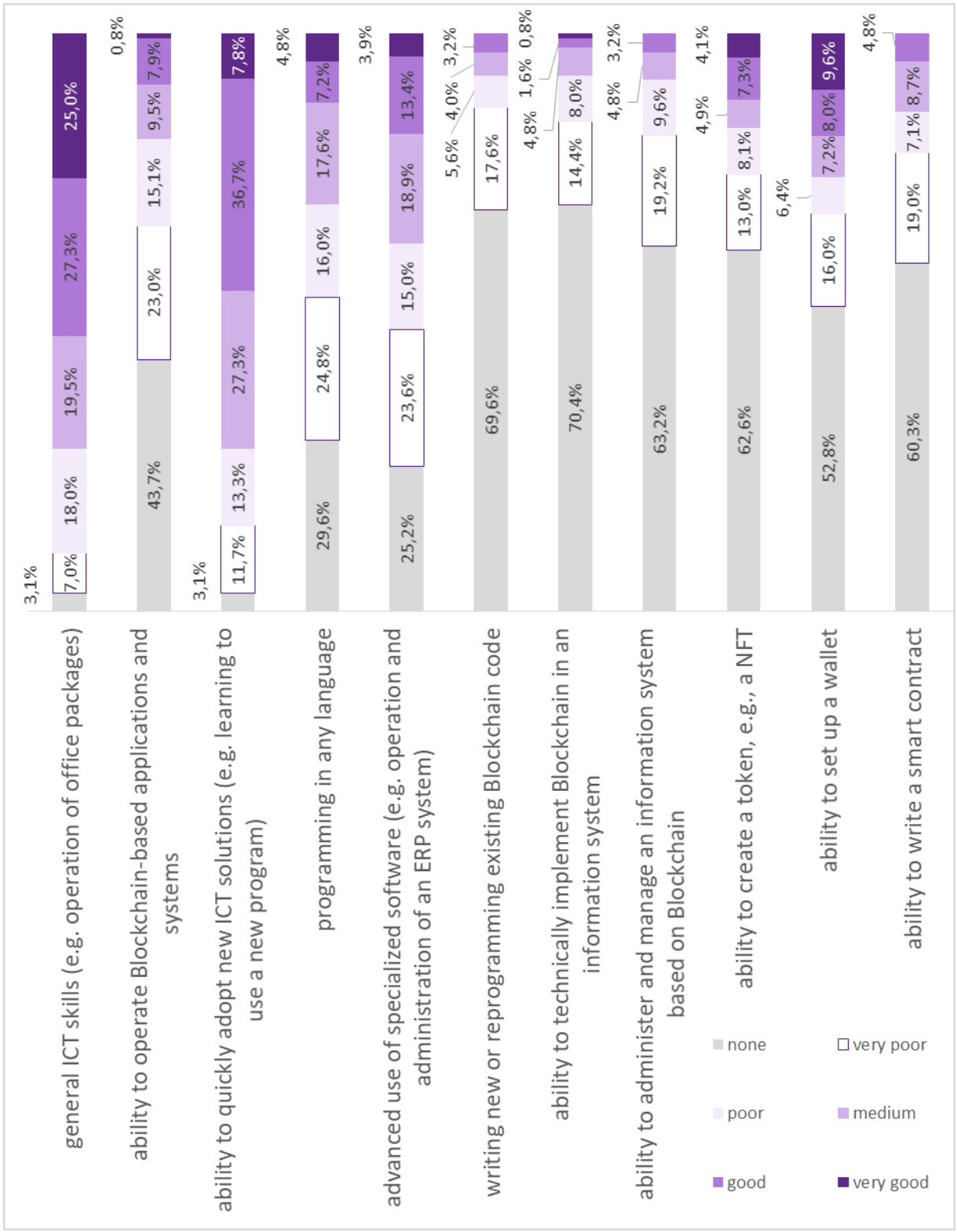
Table 2. Knowledge of selected terms related to Blockchain

TERMS	%
peer-to-peer (P2P)	63,3%
crowdfunding	62,5%
tokenization	58,6%
NFT	50,8%
distributed networks	44,5%
Satoshi Nakamoto	38,3%
DAO	18,8%
hashing	17,2%
hyperledger	14,8%
GPU	11,7%
halving	10,9%
EEA	3,1%

Source: own elaboration based on surveys conducted.

The vast majority of the respondents rated their competence in operating Blockchain-based applications (81.8%), programming in any language (70.4%) and advanced operation of specialized software (63.8%) as poor, very poor or even none. Other aspects received even weaker results. The lack of any skills in more than 50% of cases was declared in: the ability to create or edit Blockchain source code (69.6%), implementation of Blockchain technology (70.4%), management and administration of a Blockchain-based IT system (63.2%), creation of a token, e.g. NFT (62.6%), configuration of a wallet (52.8%) and creation of a smart contract (60.3%)- see Fig. 6.

Figure 6. Identification of skill level of selected areas regarding Blockchain*.

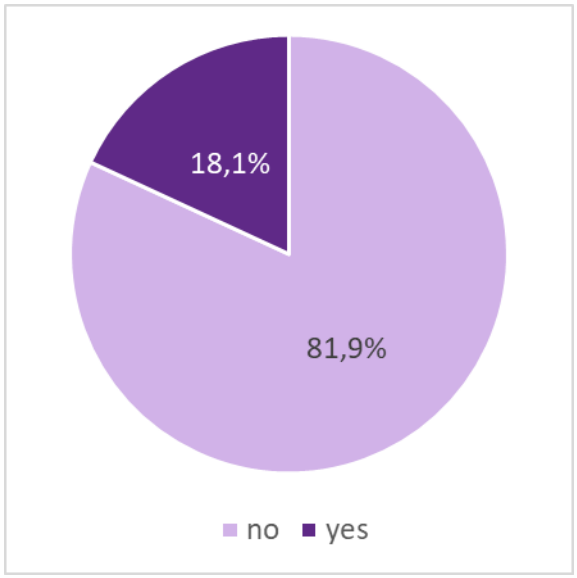


* some results do not add up to 100% due to rounding used.
Source: own elaboration based on surveys conducted.

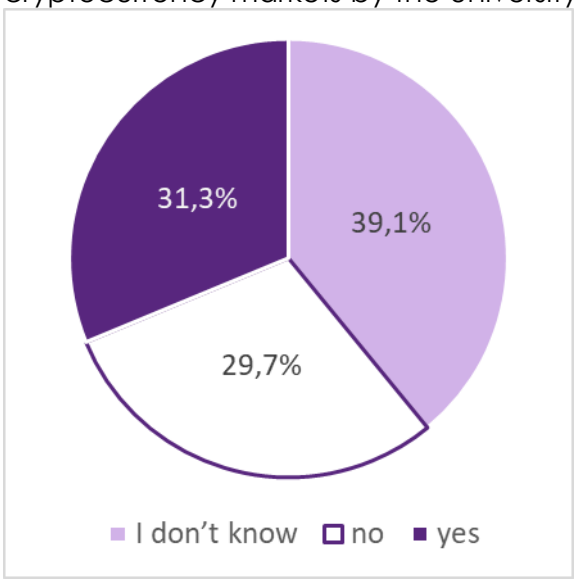
The next figure presents four charts collectively on the experience of teaching classes on Blockchain, implementing classes on cryptocurrency markets in the workplace (at the university), using examples related to, e.g., Blockchain implementation when teaching other classes, and using Blockchain-based services/apps (Figure 7).

Figure 7. Selected aspects of education, Blockchain and cryptocurrencies

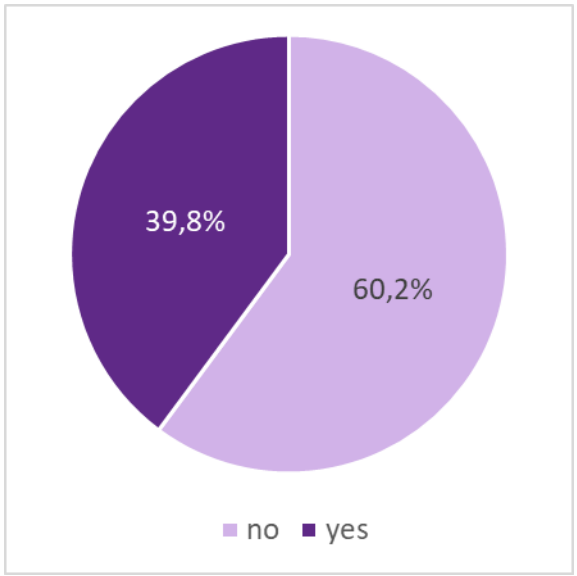
a. Providing classes covering Blockchain



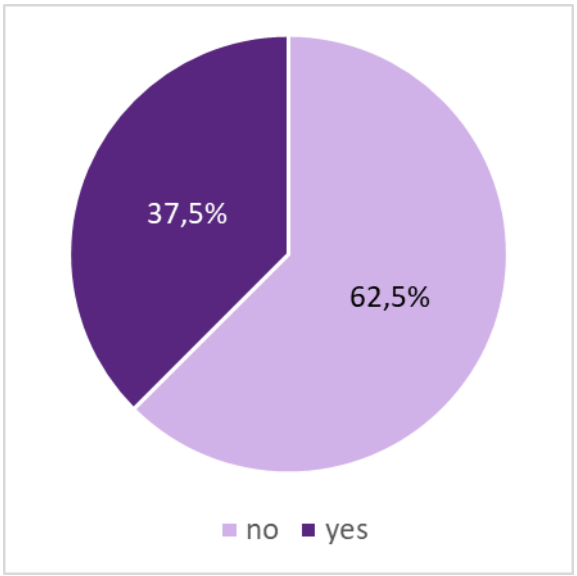
b. Implementation of classes covering cryptocurrency markets by the university



c. References to examples of Blockchain applications when teaching classes



d. Use of Blockchain-based service/application



* some results do not add up to 100% due to rounding used.
Source: own elaboration based on surveys conducted.

Funded by the European Union

Project Generation Blockchain, project number: 2021-1-PL01-KA220-HED-000031176

The clear leader in education about Blockchain, and related topics, remains teachers and educational entities located in Germany (Table 3). The results prove that they are eager to embrace technological innovations and use them in teaching. Against this background, the Dutch also stand out positively.

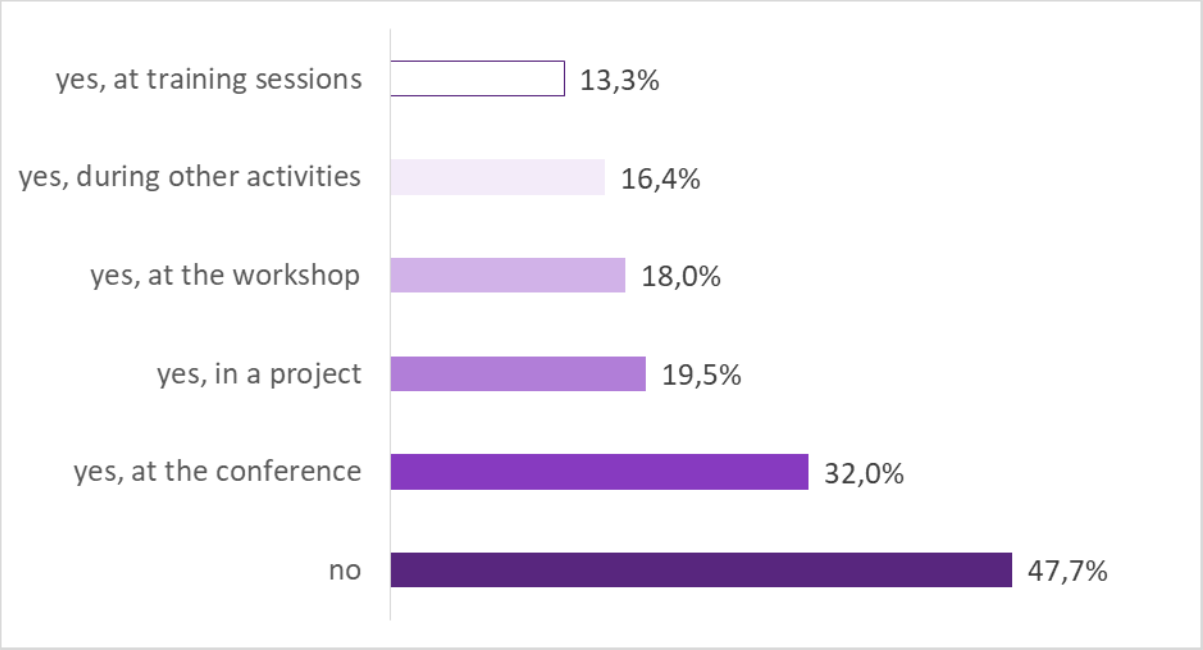
Table 3. Selected aspects of education, Blockchain and cryptocurrency markets in relation to the nationality criterion of respondents

ISSUE	RESPONSE	COUNTRY						
		Denmark	Germany	Ireland	Netherlands	other	Poland	Portugal
DEDICATED SUBJECT/COURSE RELATED TO BLOCKCHAIN	no	6	5	7	29	1	22	34
	yes	2	**12**	1	3	1	3	1
LECTURES ON CRYPTOCURRENCY MARKETS AT UNIVERSITY	I don't know	1		2	14		12	21
	no	4	4	4	7		9	10
	yes	3	**13**	2	**12**	2	4	4
BLOCKCHAIN-RELATED TOPICS OR CITED EXAMPLES OF ITS IMPLEMENTATIONS, BUSINESS MODELS, PROJECTS, ETC. WHILE CONDUCTING LECTURES	no	5	3	4	17	1	20	27
	yes	3	**14**	4	**16**	1	5	8
BLOCKCHAIN-BASED TECHNOLOGY OR SERVICE IN PRACTICE	no	6	3	2	24		15	30
	yes	2	**14**	6	9	2	10	5

Source: own elaboration based on surveys conducted.

The survey shows that almost half of the respondents had no exposure to Blockchain topics. Of those who were in the opposite situation, the largest group encountered Blockchain at academic conferences (32%). Slightly fewer, 19.5%, participated in projects directly or indirectly relating to the technology. Still others encountered it at workshops: 18%, trainings: 13.3% or in other activities: 16,4% - see Figure 8.

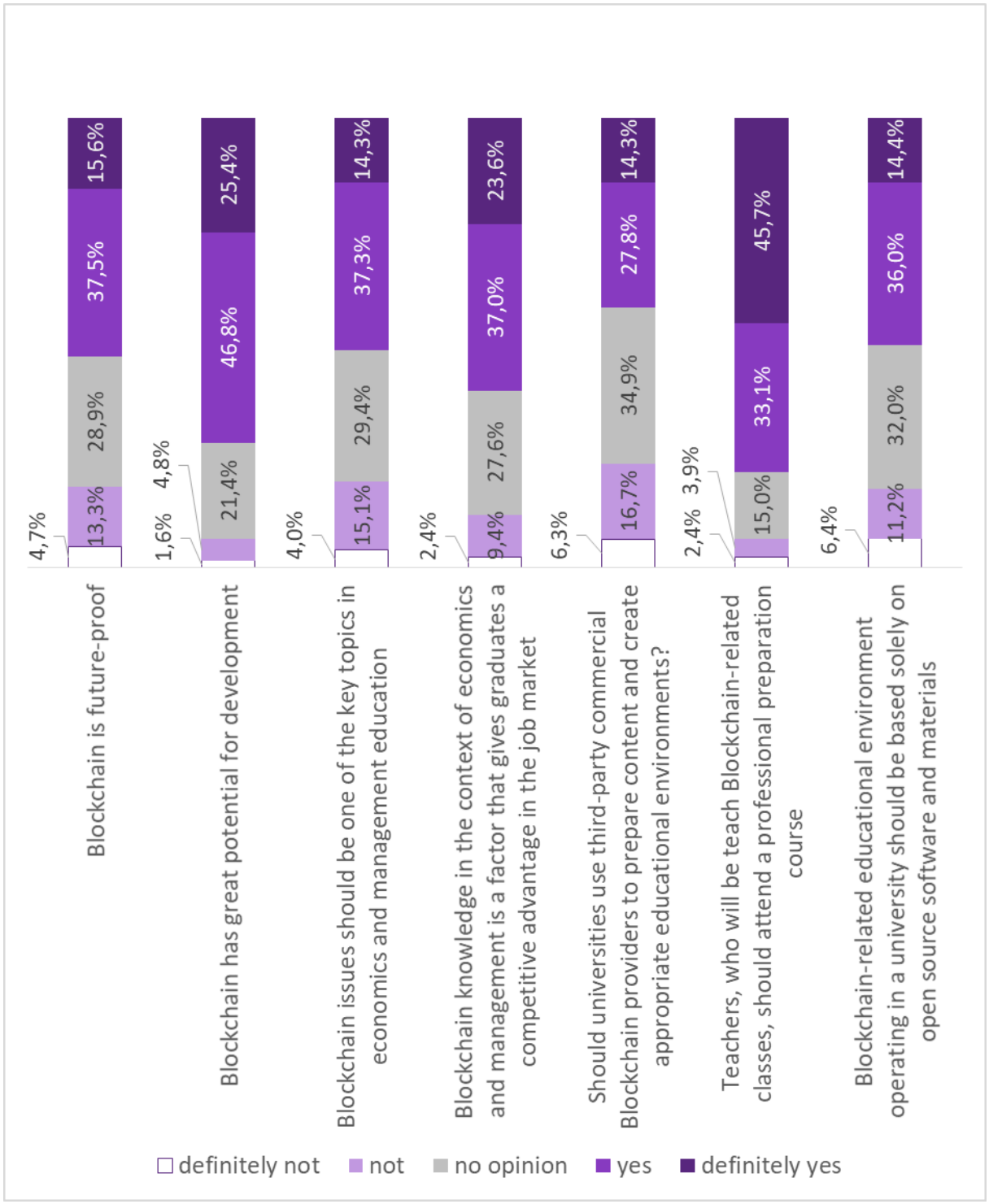
Figure 8. Contact with Blockchain during various teaching and research activities*



* possibility to provide more than one answer
Source: own elaboration based on surveys conducted.

Respondents appreciate the role that Blockchain technology plays and will play in the near future for the economy and social services, and that it will give graduates a competitive advantage in the job market (Figure 9). They are also convinced of its development trend. Slightly more than half (51.6%) took the position that it should be a subject of education in fields related to economics and management. When designing the survey, the author expected a higher result, but it should be noted in the almost 30% proportion of people who had no opinion on this issue, which significantly affects the quick visual interpretation (that's why "no opinion" responses were marked in gray). Eliminating the data that do not change the situation (neutral answers), the result obtained should be directly juxtaposed with the opposite opinion, so that it takes on a whole new tone. Support for Blockchain education was given by 51.6% and the opposite opinion was only 19.1%. This proves that more than two and a half times as many teachers who filled out the questionnaire agree with the need to introduce this subject into the curriculum of economics and management studies.

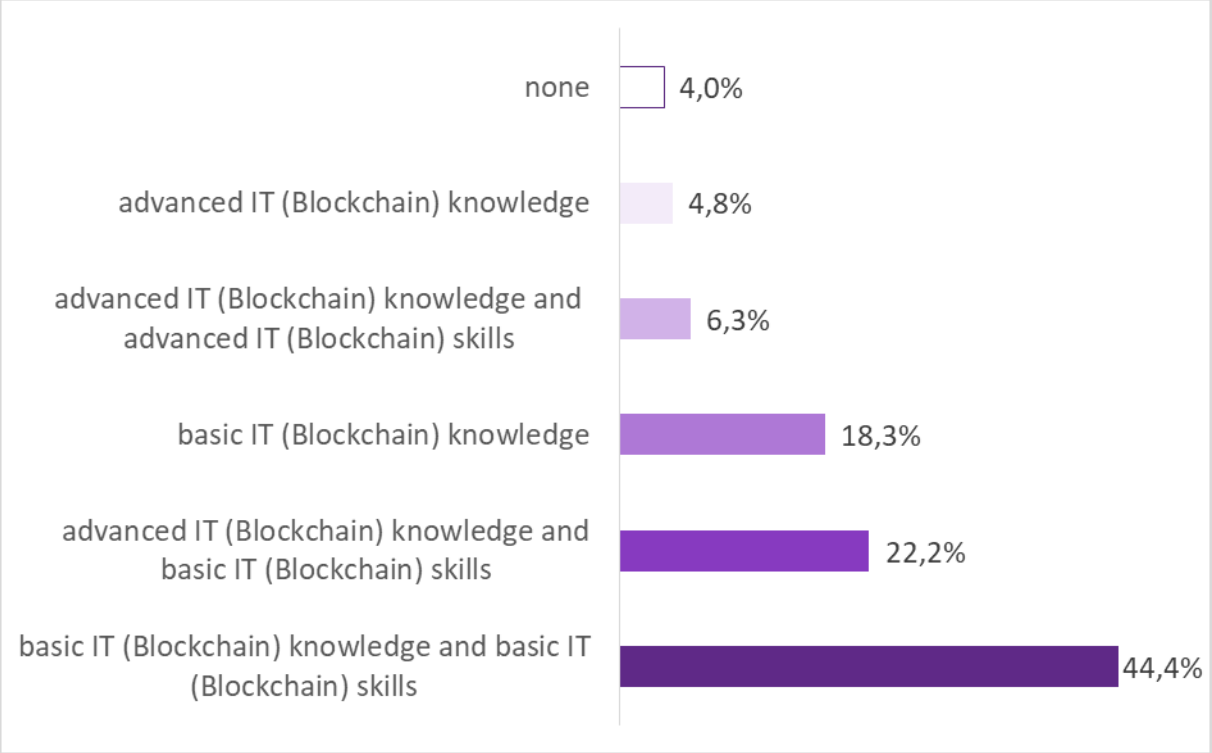
Figure 9. Opinion on selected aspects of Blockchain and Blockchain-related education*



* some results do not add up to 100% due to rounding used.
Source: own elaboration based on surveys conducted.

Leading the consideration of an effective model that can facilitate the planning and strategy of teaching Blockchain, it is necessary to ask about the balance between practical IT skills and knowledge of the technology and the ways and effects of its use. There appears to be no logical justification for educating economists and executives in the direction of advanced programming and cryptography. Respondents expressed a similar opinion, as evidenced in Figure 10.

Figure 10. Level of IT knowledge and skills in the Blockchain teaching model for economics and management majors.



Source: own elaboration based on surveys conducted.

The conclusions of Figure 10 are confirmed by Table 4. It shows that the most preferred technique for teaching Blockchain-related topics are exercises (68.8%), case studies (68%) and lectures (60.9%). Less popular were techniques with a higher technical index like projects and experiments (43%) and laboratories (40.6%).

Table 4. Preferred Blockchain teaching techniques

TEACHING METHOD	%
exercises	68,8%

case studies	68,0%
lectures	60,9%
design experiments	43,0%
laboratories	40,6%
other	4,7%

Source: own elaboration based on surveys conducted.

Respondents expressed the opinion that teaching Blockchain should take place in bachelor's (68.8%) or master's (65.6%) studies. 35.9% reserve this field of knowledge for doctoral studies.

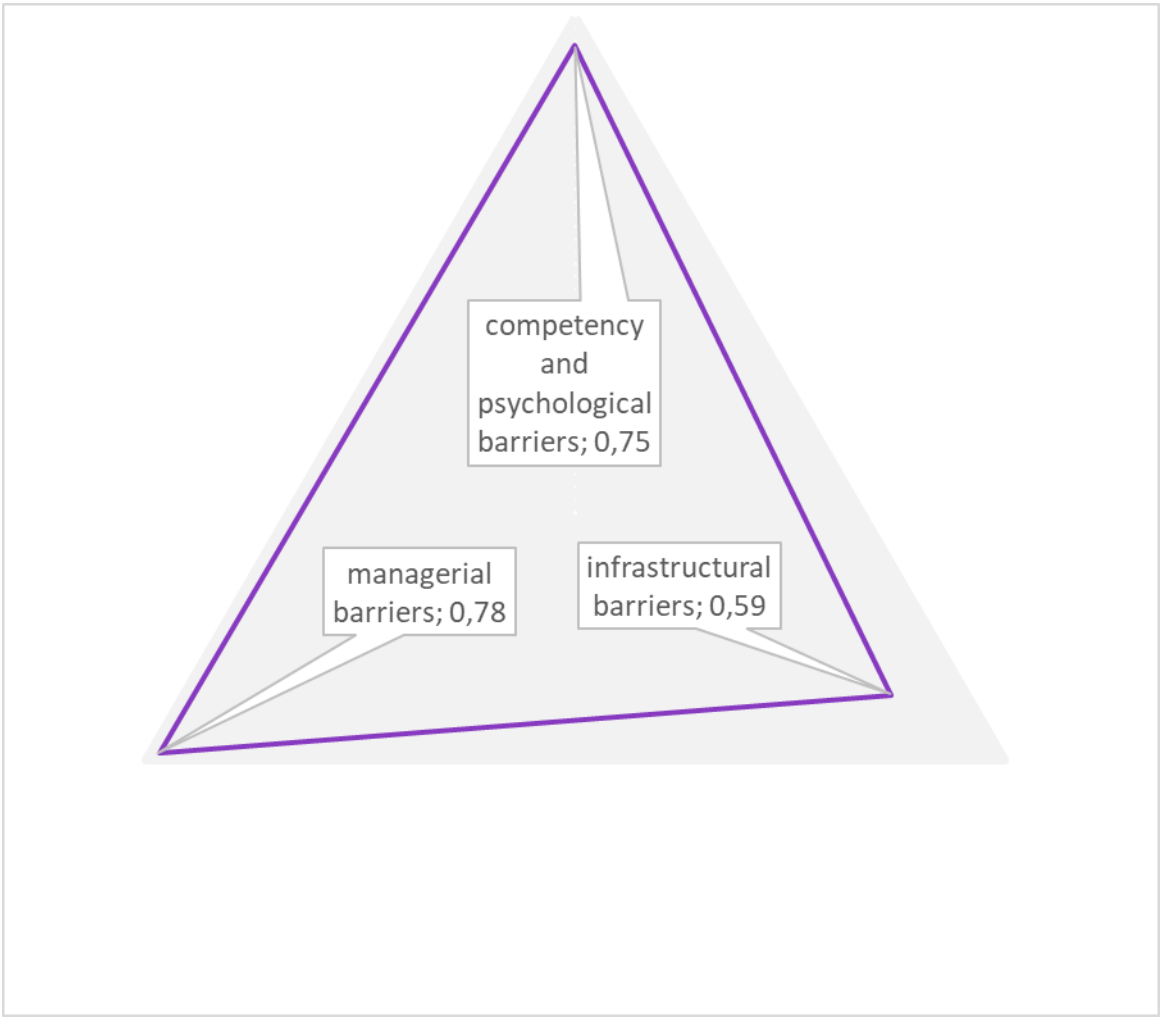
All aspects of knowledge related to Blockchain were considered important, but the following were identified as the most important and of greatest value to economics and management students: cryptocurrency markets, Blockchain-based economic projects, Blockchain-based business models, and case studies of innovative Blockchain-related projects and startups.

There are three main types of barriers in teaching Blockchain-related topics. These barriers include:

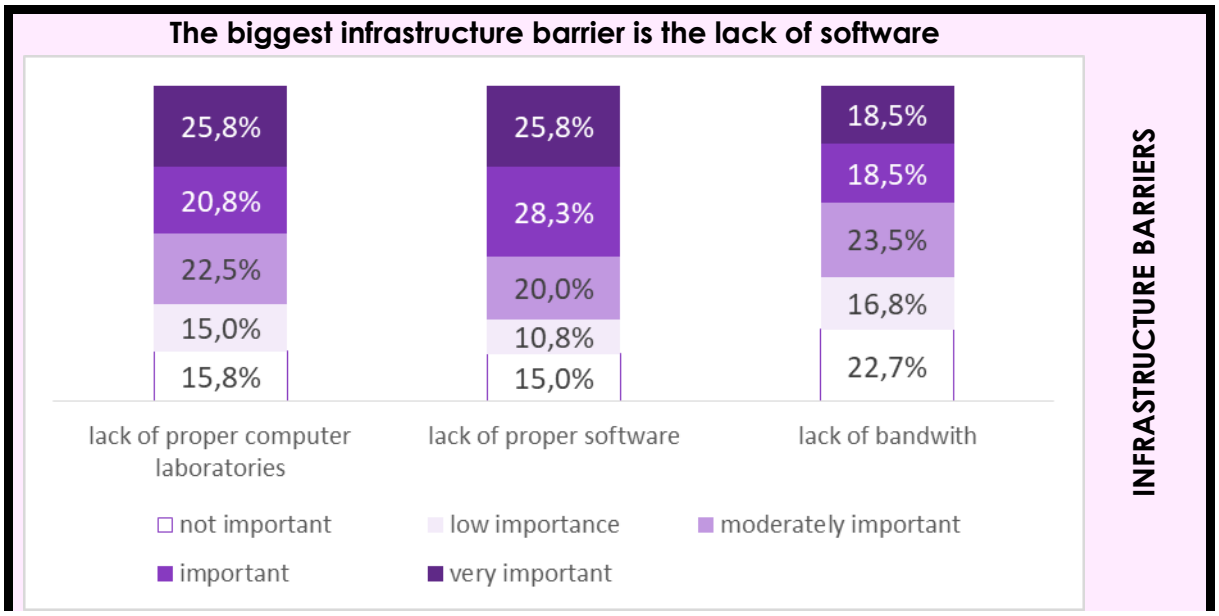
- psychological and related to under-competence,
- organizational/management,
- infrastructure.

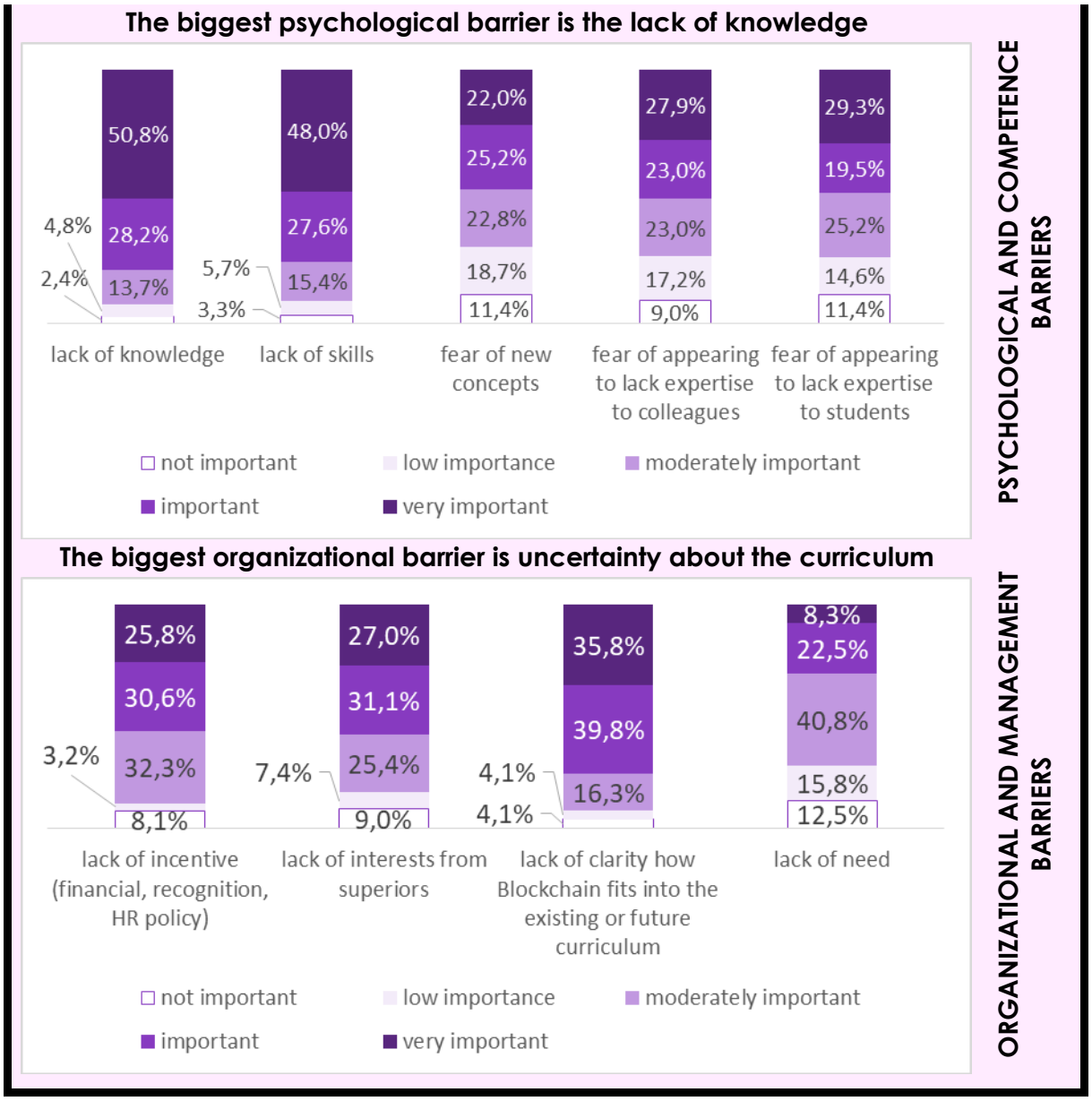
According to the respondents' opinions, all of them are real and significant obstacles (Figure 11). The easiest to overcome are those arising from the level of infrastructure in place. Their relevance was rated at 59 points on a 100-point scale. Barriers in skills and concerns about conducting such difficult classes ranked second (75 points out of 100). However, organizational and management issues were considered the most critical, which were assigned 78 points out of 100. Teachers aptly hierarchized these barriers rightly believing that top-down regulatory, managerial or systemic factors may be insurmountable adversaries – presented in Fig. 11.

Figure 11. Barriers to teaching topics involving Blockchain



Source: own elaboration based on surveys conducted.

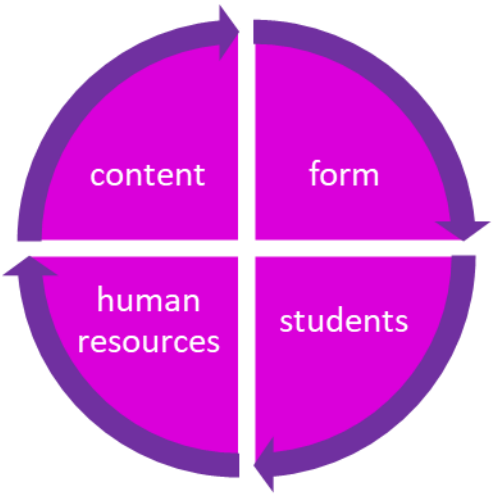




IX. EDUCATIONAL MODEL ON BLOCKCHAIN FOR ECONOMICS AND MANAGEMENT STUDENTS

The model was based on a survey and literature study with the inclusion of an analysis of Blockchain-related educational curriculums implemented by universities. A review of dedicated courses offered by commercial digital platforms, for example, completed the full picture. Given the limitations (e.g., the relatively narrow scope of research conducted), the model should be treated as an auxiliary material, indicating general directions. The general idea of the model's architecture is included in Figure 12.

Figure 12. Main elements of the model



Source: own elaboration.

Human resources. These resources are, of course, the academics or lecturers who will implement the teaching plan on Blockchain. Unfortunately, their level of knowledge in this area can be assessed as moderately low. Some issues remaining in the field of economic effects related to the technology under discussion (e.g. economic models or the functioning of cryptocurrency markets) are moderately familiar to them. Unfortunately, pushing the boundary of knowledge towards technical issues (mainly IT and cryptography), the level drastically decreases (although there are thematic exceptions (such as general knowledge of ICT) and personal ones).

The level of skills is even lower. Overall, it can be assessed as very poor. As with knowledge, it decreases even further, or even disappears, with more advanced IT issues.

Despite this state of affairs, the teaching staff realizes the necessity and potential of educating students on Blockchain. However, being aware of their limitations, they face very serious psychological barriers that may completely prevent them from carrying out such an educational endeavor.

Taking the above into account, and based on the clear message from the respondents, the conduct of classes covering Blockchain topics by teachers of economics and management majors **absolutely requires preparing them for this task, in the form of a specialized and dedicated training course.** Left to their own, only a few of them will be able to accomplish such a teaching task.

Students. Students are to be the final beneficiaries of the teaching strategy being prepared. They are showing an eagerness and willingness to learn more about Blockchain [5]. However, it is unclear at what exact point this eagerness is focused and what specific subject is involved. Without this knowledge, it is necessary to rely only on the one-sided opinion of teachers,

which can be misleading. However, there are some clues. When students choose a particular field of study, they do so in accordance with their interests and competencies. Economics, management and quality sciences belong to the group of humanities. But these two fields are characterized by great absorption, flexibility and susceptibility to interdisciplinary projects and research, especially those at the interface of technology and business. Combining this with the open-mindedness of students and their pro-technology approach, it is possible to assume that economic aspects related to Blockchain technology and cryptocurrency markets are likely to be of great interest and popularity. On the other hand, when dealing with more technical issues, great care must be taken to properly adapt the curriculum to the resources, infrastructure, potential and capabilities of the students. It is then necessary to plan in advance and prepare accordingly for such a challenge.

Formula. The learning formula should be variable with respect to expectations and expected outcomes. Moreover, the message should, in most cases, be strictly dedicated to specific audiences. The area of knowledge related to Blockchain is vast and constantly developing. In addition, it is convergent and multi-threaded. It is suggested to consider four teaching formulas:

F1. Online course available to all university students for free:

- form: course posted on any e-learning platform; redirect to the course posted on the university's official website; materials available in mixed form: electronic documents, lectures, podcasts, videos, webinars, etc.
- course duration: 30 lesson hours.
- completion of the course should be confirmed by receiving a certificate.

F2. Basic subject the same for all students of economics and management of the first degree (bachelor's degree):

- form: classes in the form of lectures that can be held in-class and/or online.
- course duration: 30 hours.

F3. Profiled subject tailored to a specific field of study – second degree (master's degree) studies.

- form: classes in the form of lectures and exercises. Full-time classes.
- course duration: lectures: 15 hours, exercises: 30 hours.
- subject directed to students who have a certificate for completing an online course or at the bachelor's level credit the subject described in F2.

F4. Course related to Blockchain and cryptocurrencies – second degree (master's degree) studies.

- form: classes in the form of lectures, exercises and laboratories. Should be extended by study visits and student internships. Full-time classes.

These formulas can and rather should be combined with each other, as they are not substitutive but complementary. The assumption is that the best results can be obtained by combining F1 and F2, F1 and F3, or F1, F2 and F4.

Content. Respondents indicated that educational content should be developed according to the principle: medium-low technical knowledge of Blockchain and only basic IT skills. They confirmed this attitude by declaring that they prefer lectures, case studies and exercises to learn the issue, which clearly defines the advocacy of a theoretical approach. At the same time, economic issues should be presented extensively and analyzed in depth.

The fact that Blockchain is inseparably related to cryptocurrencies should not be forgotten. These issues cannot be taught completely separately. In the case where there are classes on cryptocurrencies at a given university, a subject related to Blockchain can be held simultaneously or in the next semester. In the case where there are no such classes (and, according to the survey, this may be the case in 68.7%), then part of the hours in the Blockchain-related topic should be devoted to exploring the essence of digital currencies. Such a state of affairs will be the subject of the following discussion.

Table 5. lists the ranges of content that curricula corresponding to F1, F2 and F3 should include. Due to the optionality, subjectivity and ambivalence resulting from the current needs of the audience and the experience and resources of teaching entity, F4 has been omitted.

Table 5. Blockchain content in learning formulas F1, F2, and F3.

FORMULA	CONTENT
F1	The history of origin, definitions and basic knowledge of the principles of Blockchain technology and the services and platforms that use this technology. Basic knowledge of cryptocurrencies and cryptocurrency markets and exchanges. Threats and opportunities associated with cryptocurrencies. Blockchain and cryptocurrency regulations. Overview of the most well-known Blockchain-based projects and ventures.
F2	The history of origin, definitions and basic knowledge of the principles of Blockchain technology and the services and platforms that use this technology. Basic knowledge of cryptocurrencies and cryptocurrency markets and exchanges. Threats and opportunities associated with cryptocurrencies. Blockchain and cryptocurrency regulations. Overview of the most well-known Blockchain-based projects and ventures.

F3	Lectures: the essence of crowdfunding. An overview of the opportunities and risks as well as regulations associated with the use of Blockchain in the profiled area. Examples of non-economic initiatives based on Blockchain and with universal applications (e.g., personalization and authentication). Exercises: analysis of projects, ventures and startups based on Blockchain and implemented in the profiled area (e.g., in the case of logistics – monitoring supply chains using Blockchain). Analysis and evaluation of business models and the history of creation of these initiatives. Credit exercise project: concept of implementation of Blockchain technology in a selected institution or business entity.

Source: own elaboration.

X. SAMPLE COURSE CHARTER (ECTS)*

Subject name: **Introduction to Blockchain and Cryptocurrency**			Subject code: US26AIIJ2470_39S
Major field of study: management			
Form of study: first degree, bachelor's degree, full-time studies		Education profile: general academic	
Year: II	Semester: 3	Status: compulsory subject	Language: English
Course form: lecture			

Course contents	Number of hours
1. Basic definitions in the Blockchain technology environment and cryptocurrencies	2
2. Technical aspects of Blockchain technology functioning	4
3. Applications, platforms, apps and services operating on the basis of Blockchain	4
4. Blockchain technology interactions with IoT, artificial intelligence, Big Data	2
5. The essence, history and types of cryptocurrencies. The Bitcoin phenomenon. Characteristics of basic cryptocurrencies and related projects	6
6. The principle of cryptocurrency markets and exchanges	2
7. Cryptocurrencies in the global financial system	2
8. Blockchain and cryptocurrency regulations	2
9. Case studies of flagship projects, startups and other Blockchain-based ventures	6
TOTAL	30

Teaching techniques	• Multimedia presentations • Additional materials posted on the e-learning platform • Webinar • Lecture combined with discussion, group work • Case study
Methods of educational effects verification	Exam
Credit form and conditions	Oral exam or single-choice test
Literature	1. Internet 2. D.Tapscott, A.Tapscott, (2018) Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies Is Changing the World, Penguin Lcc Us.

XI. SHORT INFORMATION ABOUT THE PROJECT

The Generation Blockchain project will meet the needs of students by providing high quality, accessible and engaging materials through, Inverted Learning Resources & our Generation Blockchain Online Course which we can ensure that graduates are better placed to enter into the ever changing, blockchain enabled working world!

Three new training materials will be delivered by the project:

1. Firstly, the Generatiom Blockchain Audit & Framework will showcase the application of Blockchain education in practice across Europe within HEIs, highlighting areas where BC could easily be utilized and outlining a framework on how lecturers can best engage BC education in a meaningful way.

2. Secondly, the Inverted Learning Open Education Resources (OERs) is designed for use by HEI business educators in small groups or seminar style classes, these resources will empower educators in their application of blockchain education.

3. Finally, the Generation Blockchain Online Course will be a multilingual, interactive learning course in which business, economics, management and other interested students can access blockchain training directly in a flexible, autonomous manner.

XII. GLOSSARY OF TERMS AND ACRONYMS

Ant Blockchain – an aggregating technology platform for Blockchain-based solutions.
Big Data – extensive and complex data sets.
Bitcoin – the first cryptocurrency introduced in 2009.
Blockcerts – digital certificate issued by an organization and owned by an individual, expressed in this format and notarized in the blockchain.
Corda – an open source platform that allows building interoperable Blockchain networks.
Crowdfunding – social funding.
DAC (Decentralized Autonomous Corporations) – a type of DAO – a community operating under rules coded as smart contracts.
DAO (Decentralized Autonomous Organizations) – decentralized and independent entity, run by the community according to an accepted set of rules, based on Blockchain.
DeFi (Decentralized Finance) – collective term for Blockchain-based decentralized financial services.
Distributed networks – distributed computing network system in which program components and data are located in multiple locations.
DLT (Distributed Ledger Technology) – decentralized database technology supporting distributed recording of encrypted information.
edX – a digital training platform.
EEA (Enterprise Ethereum Alliance) – distributed community in the form of an organization promoting open source Enterprise Ethereum and Mainnet Ethereum technology.
Ethereum – digital currency that is also a multi-functional and multi-service Blockchain-based platform.
GPU (Graphics Processing Unit) – responsible for the digital rendering in a computer system.
Halving – an economic model for managing multiple cryptocurrencies.
Hashing – an implementation technique for hash tables, guaranteeing a constant search.
Hyperledger – an open source project supporting and improving Blockchain initiatives.
Hyperledger Fabric – a modular Blockchain structure that is the de facto standard for corporate platforms based on the technology.
ICO (Initial Coin Offering) – a form of crowdfunding to raise startup capital for startups and projects, using cryptocurrencies.
ICT (Information and Communication Technologies) – a family of technologies that process, collect and transmit information in electronic form.

IoT (Internet of Things) – a network of devices that can autonomously communicate with each other and exchange data.
NFT (Non-Fungible Token) – a unique digital value.
peer-to-peer (P2P) – a computer network in which all devices are equal in hierarchy.
Satoshi Nakamoto – a nickname used by the person/group of people/institution that created the Bitcoin cryptocurrency.
Smart contract – a digital contract secured and authenticated by Blockchain.
Space10 – an innovation and new technology laboratory created by Ikea.
Token – a set of rules encoded in a smart contract.
Tokenization – a type of project/business/company digitization based on Blockchain and involving giving a specific value to a token or cryptocurrency dimension.
TracrTM – a dedicated aggregation platform based on distributed system.
Quorum – an open source platform for business solutions running on Blockchain.
Udemy – a digital training platform.

Elaborated based on: [6].

XIII. SOURCES

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4. Forsstrom S., Sweden M., (2018) Blockchain Research Report, p. 3-4, https://www.diva-portal.org/smash/get/diva2:1365314/FULLTEXT01.pdf, [online, accessed: 05.2022].
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XIV. LIST OF TABLES AND FIGURES