

# **Journal of Digital Science**



**ISSN 2686-8296**

**Volume 5 Issue 1**

**June 2023**

**© Institute of Certified Specialists**

## CONTENTS

<b>An overview of Blockchain: Definitions, architecture, versions, applications and future directions .....</b>	<b>3</b>
Mohamed Litoussi, Khalid El Makkaoui, Abdellah Ezzati	
<b>Error Correction Using Quantum Computation .....</b>	<b>12</b>
Khalik Khan, Sapna Jain	
<b>Machine Maintenance Policies in Local Sugar Manufacturing: A Case Study of Madukismo, Indonesia .....</b>	<b>23</b>
Indra Bastian, Hadyan Fadillah	
<b>Influence of Personality on Technology Readiness and Intention to Use Online Vehicle Taxes Payment in Surabaya, Indonesia .....</b>	<b>33</b>
Monica Mega Puspa, Indrawati Yuhertiana	
<b>Formation of information space of knowledge learning foreign language ..</b>	<b>47</b>
Yulia Sysoeva, Irina Zhdankina, Darya Bykova, Natalia Ignatieva	
<b>Health Digital Indicators' Juxtaposition .....</b>	<b>55</b>
Tatiana Antipova	

# Formation of information space of knowledge learning foreign language

Yulia Sysoeva<sup>1</sup> [0000-0002-3757-9648],  
Irina Zhdankina<sup>1</sup> [0000-0002-0976-5427],  
Dary Bykova<sup>1</sup> [0000-0003-1959-4677],  
Natalia Ignatieva<sup>1</sup> [0000-0001-7803-716X]

<sup>1</sup> Nizhny Novgorod State Engineering and Economic University, Russia

[https://doi.org/10.33847/2686-8296.5.1\\_5](https://doi.org/10.33847/2686-8296.5.1_5)

Received 03.05.2023/Revised 15.05.2023/Accepted 12.06.2023/Published 25.06.2023

**Abstract.** Modern trends in digitalization of education lead to the expansion of methods and means of teaching foreign language. This article is devoted to identifying the main components necessary for the formation of information space of knowledge in classes in foreign language, using advantages of training applications, as well as drawing up rules for the effective study of foreign language. It should be noted that the main way to obtain information in the modern world is Internet technology. By teaching foreign language, information technology helps to shape the skills and abilities of spoken language, as well as teach vocabulary and grammar, providing genuine interest and therefore efficiency. Moreover, learning applications develop skills that are important not only for foreign language. The task of teachers of modern digital education is to find the opportunity to use all sources and means of training in the educational process.

**Keywords:** foreign language, information space of knowledge, learning application, level of language proficiency, digitalization.

## 1. INTRODUCTION

Currently, Russian education is undergoing significant changes: the transition from traditional forms of teaching to advanced, from outdated teaching methods to innovative, from passive learning content to active. This fact is due not only to the social and economic transformation of society, but also to Russia's entry into the space of international communication. Modernization of modern Russian education is associated with the strengthening of the humanitarian component - the communicative competence of future graduates as the basis for self-realization after graduation [1].

In order to develop the information society, the state creates conditions for formation of knowledge space and providing access to it, improving the mechanisms for dissemination of knowledge, their application in practice in the interests of the individual, society and state [2].

The digital society makes its own adjustments to the implementation of educational activities of any educational organizations of both pre-university and university training. The modern image of the student is increasingly associated with the introduction of information and education to digital platforms. It is difficult to imagine a teenager or an adult who does not own modern Internet technologies, communication systems that can also be used as a source of knowledge.

Modern trends in digitalization of education lead to the expansion of methods and means of education. Many modern teachers in their practice apply innovative teaching methods in collaboration with new technical means in practical classes. Since

classes are held outside the country of the language being studied: its culture, customs, forms and ways of communication, modern technologies such as interactive textbooks and publications, smart boards, Internet resources, mobile applications help create a favorable learning environment.

The purpose of this work is to identify the main components necessary for the formation of the information space of knowledge in foreign language classes, using the advantages of training applications, as well as drawing up rules for the effective study of foreign language. The practical value is in the fact that the materials of this paper can be used by teachers of foreign language in educational process to form an information space of knowledge.

According to the Decree of the President of the Russian Federation from May 9, 2017 No. 203, the pace of technology development, creation, processing and dissemination of information significantly exceeded the capabilities of most people in the development and application of knowledge. The shift of emphasis in the perception of surrounding world, especially on the Internet, from scientific, educational and cultural to entertainment and informational has formed a new model of perception - so-called clip thinking, a characteristic feature of which is the mass superficial perception of information [2].

Thereafter, teacher of foreign language needs to take into account this trend (clip thinking) and most correctly choose the methods and means of training in order to form an information space of knowledge.

## **2. LITERATURE REVIEW**

A review of some methods of teaching foreign languages will help the teacher to navigate more freely in the choice of teaching methods, rationally combine them in his work, consciously and creatively apply them.

Representatives of the natural method of teaching foreign languages noted that it is necessary to create the same conditions and apply the same method as with natural acquisition of native language by a child. The main goal of learning with natural method is to teach students to speak foreign language.

Supporters of direct methods of teaching foreign language sought to associate words of foreign language and its grammatical forms directly (immediately) with their meaning, bypassing the native language of students.

English Methodists, developers of direct teaching method, noted the positive results due to the rationalization of educational material, the intensive teaching process, the use of visual aids and active teaching methods. The plus of direct method is the creation of base for study of living Western European languages; development of oral speech skills based on correct sound design; creating a system of monologue oral exercises; development of various techniques and means of activating the educational process.

Representatives of the audiovisual method note that the ultimate goal of learning foreign language is its use as a means of communication in everyday life. The most rational in the audiovisual method are techniques for the development of auditory perception and auditory memory, active development of strictly selected models, training of intonation speech samples.

The suggestive method (suggestion method) is a modification of direct method. This is a method of accelerated learning of foreign language, designed for three months. Much attention is paid to the connection of educational process with personal interests and motives of students.

Nowadays in education, there is an increased interest in research and development aimed at exploiting the benefits and potential of new modern digital technologies to improve and intensify the learning process. There was a whole range

of works devoted to the analysis of the essence and features of learning using information and infocommunication technologies (Okolelov O.P. [3], Babushkina L. E and Safonov V.I.[4]). A number of publications are devoted to e-learning (Stepanek, J., Simkova, M. [5]), gamification (Kaceti, J., klímová, B. [6]), smart learning (Ignatieva, N., Zhdankina, I., Bykova, D., Sysoeva, Yu. [7]). Digital technologies have become an important part of the educational process in learning foreign languages. These issues are discussed in works of such scientist like Karsenti T., Kozarenko O., Skakunova V. [8], Belyasova J., Teleshova R. [9], Bykova D., Zhdankina I., Ignatieva N. etc. [1].

Obdalova O. A. writes that modern methodology for teaching foreign languages seeks to take into account new trends and model the educational information space, taking into account the specifics of the subject and practical learning tasks [10].

In digital time, modern teachers combine all available techniques and teaching methods in order to correctly and accurately form the information space of knowledge learning foreign language.

### **3. DATA AND METHODOLOGY**

The purposes of formation of knowledge-based information space are to ensure the rights of citizens to objective, reliable, secure information and create conditions for meeting their needs for constant development, obtaining high-quality and reliable information, new competencies, and expanding horizons [2].

To form the information space of knowledge, it is necessary:

- to use and develop various educational technologies, including distance learning, e-learning in the implementation of educational programs;
- to develop and implement partner programs of educational institutions of higher education and Russian high-tech organizations, including the improvement of educational programs [2].

The choice of digital technologies used for educational activities is expanding: adaptive learning, International open educational courses (IOEC), gamification, coloborative learning. Social networks and opportunities for teachers to work with students online form a new area of digital educational environment. Many teachers of advanced universities are working to activate the activities of students during training by creating communities in social networks such as VK, Telegram and others.

Foreign language as a discipline studied by students of higher education organizations is no exception. Language is a public phenomenon; the formation of language competence requires a language environment. We consider the use of modern information and communication technologies (ICT) in the process of teaching foreign languages to be an excellent means of creating a language environment, since their use expands the amount of information received as well as introduces a situational character into the learning process.

Currently, various kinds of applications used to work out certain skills of speaking, writing, lexical and grammatical knowledge have become quite widespread. Among the installed applications for learning foreign language are such as Uchi languages with Memrise, Duolingo, Lingualeo, Polyglot, EWA, Parla, Ling and others. Most diverse interactive training applications for learning foreign languages are aimed at self-study of phonetic and grammatical aspects and bringing them to automatism in use. Features of these programs are interactive dialogs, speech recognition and pronunciation visualization systems, video content, exercises for developing all speech skills, as well as displaying individual language learning results.

Such diversity greatly facilitates the study of foreign language by both students of pre-university educational institutions and higher education organizations. Various sources of information, an expanded range of exercises of lexical and grammatical

nature are the main positive features of using applications for learning foreign language. However, among the positive features, negative ones are also observed. Among them a significant negative feature is the lack of feedback and the ability to evaluate such types of speech activities as monologue and dialogic speech.

Among the main advantages of learning foreign language using the above-mentioned means, we can highlight the following:

1. Flexibility in time. Learning English online allows you to arrange your time according to your personal and professional obligations and responsibilities. You can choose the amount of time you want to learn, depending on your goals.

2. Learn at your own pace. Virtual English lessons are tailored to your needs, so you can set your own pace. You have more freedom to decide whether to spend less time on a specific item you've already mastered, or need to focus more on other areas.

3. Economy. Staying at home you will save money you would otherwise spend on transport, books, photocopies and projects. These resources can help you embark on the journey you've always dreamed of, or fulfill your childhood dream.

4. More time for you. Attending face-to-face classes means you spend time on the way to work, which brings nothing into your life and is also stressful. You can spend that time on activities you like, or just relax. Remember that your physical and mental well-being is also important.

Despite this, applications and Internet platforms for learning English have a reputation for being ineffective. We've all met someone who has been using language apps every day for months but is still barely able to say a word or build a sentence when talking. There are ways to avoid this trap.

Successful students draw up a curriculum that helps them practice all necessary English skills. Apps can certainly be part of that.

The authors of this paper conducted a survey among students of Nizhny Novgorod State Engineering and Economic University on the necessity and importance of forming an information educational space using modern training applications. The following questions were proposed.

1. How do you assess your level of language proficiency?

a) Zero;

b) Initial (understand several familiar expressions; you can talk about yourself and ask basic questions, participate in simple conversation);

c) Elementary (you can communicate on basic topics (family, shops, work, etc.), participate in everyday communication);

d) Pre-Intermediate (you can communicate in most situations of everyday life and travel, compose simple texts, describe events and your interests);

e) Intermediate (understand the meaning of a complex text; you can communicate on abstract topics, including in the field of your specialty; you can safely communicate with native speakers, defend your point of view in a dispute);

f) Upper-Intermediate (you understand complex texts; you can freely express all your thoughts and emotions, use language in all areas: social, professional, academic).

2. What do you think is the most appropriate way to learn foreign language?

a) Language courses in Russia;

b) Language courses and internships abroad;

c) Individual tutoring;

d) Online programs;

e) Specialized centre;

f) Self-education.

3. Are you interested in the possibility of learning foreign language using distance education and modern learning apps?

- a) Yes;
  - b) No;
  - c) I find it difficult to answer.
4. Do you use English learning apps?

- a) Yes;
- b) No.

5. Would you like to know which mobile apps can help you to learn English?

- a) Yes;
- b) No.

6. Distribute according to the degree of importance for you, the following characteristics of learning apps on 5-point scale (1 is the most important, 5 is the least important)

Characteristics	Point
1. Availability	
2. Interactivity	
3. Constant updating of information	
4. The opportunity to study at individual pace	
5. Saving time	

Having analyzed the results of the survey, we came to the conclusion that 40% of respondents have Pre-Intermediate language proficiency, 45% - Intermediate and only 10% of respondents have Upper-Intermediate level. The most appropriate ways to learn foreign language are language courses and internships abroad, online programs and individual tutoring (Fig. 1).

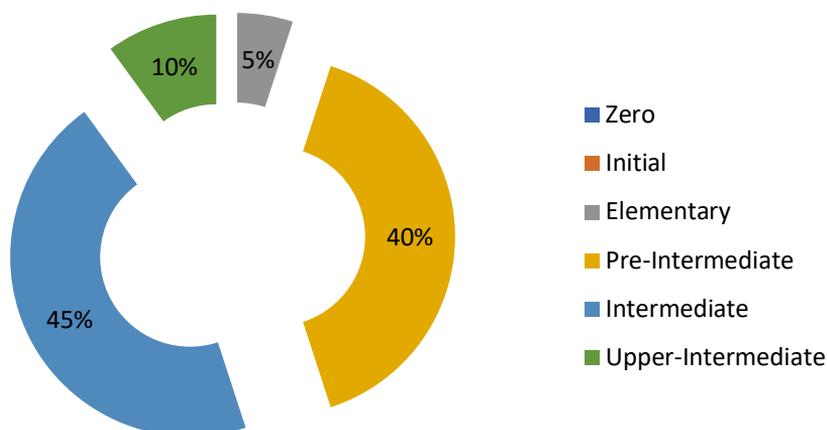


Fig. 1. Students' level of language proficiency  
 Source: compiled by the authors

However, 45 % of respondents are interested in the possibility of learning foreign language using distance education and modern learning apps and 30% uses English learning apps. 63% of respondents would like to know mobile apps which can

help them to learn English, because it gives them opportunities to study English language at individual pace and save time (Fig. 2).

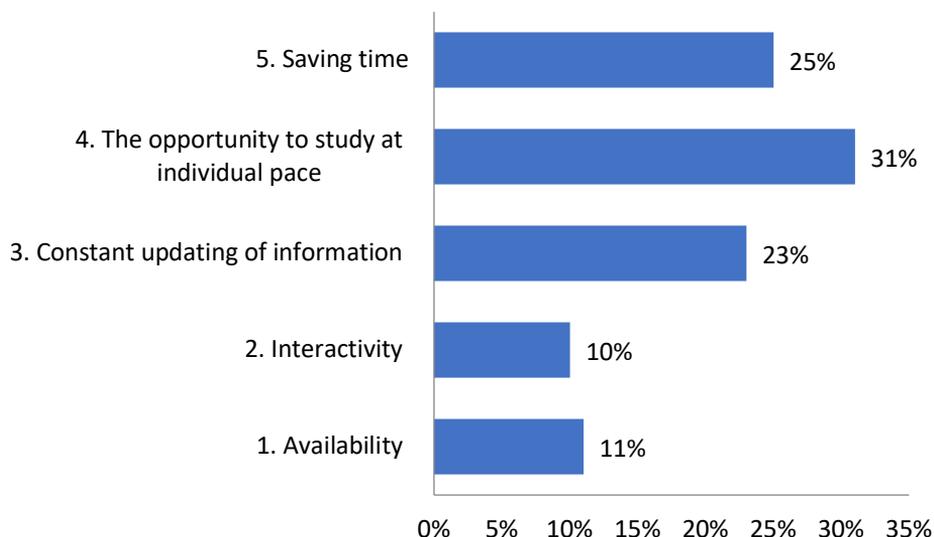


Fig. 2. The degree of importance of characteristics of learning apps according to respondents' opinions

Source: compiled by the authors

#### 4. RESULTS

We highlight several rules for effectively learning foreign language using training applications:

1. Combine applications (and other methods, if possible).

There is (not yet) a single application that perfectly teaches all language skills. Everyone has strengths and weaknesses, and you can combine them while trying to learn a new language. Try balancing your time between apps that develop different skills. Memrise [11], for example, helps you quickly learn a new vocabulary, but does not help you link these words into sentences. To do this, you may need an application focused on developing your grammar skills, such as The British Council Learn English Grammar [12], or an application that shows words in their context, such as FluentU [13]. Many apps send reminders to students to use them every day "to see progress."

Applications are most effective when combined with other training methods. If you can afford it, combine app-based learning with language classes, whether online with a service like Preply [14] or in traditional classroom.

2. Focus on the areas where you are experiencing the most difficulties.

There is a wide range of apps to choose from, each with its own benefits. Don't overload yourself by splitting your study time between them all. Select one or two English skills you are struggling with and download apps designed to develop them. For example, if you really need a conversational practice, try Busuu [15] or Monthly [16]; if you need help writing texts in English, try Tandem [17] and Grammarly [18].

3. Give preference to conversational practice.

As a rule, many English language learning apps can quite easily elevate your vocabulary, reading and spelling skills to new heights. Some of them are even useful for developing your understanding of grammar. But without a decent practice in talking to native English speaker, you risk never learning how to combine new skills.

The modern picture of the world dictates more and more new trends towards the digitalization of almost all spheres of human life. Learning languages is one of the most striking examples of the use of modern Internet technologies, communication tools in learning. The task of teachers of modern digital education is to find the opportunity to use all sources and means of training in the educational process.

## 5. CONCLUSION

Achieving a positive effect in the educational process using modern educational technologies is one of the conditions for increasing the level of professional competence of the teacher at the current stage of educational development. Knowledge of foreign language in the modern world is an integral criterion for assessing the competence of future specialist [19].

Modern students are interested in figuratively emotional education, when only emotionally significant information is absorbed. The modern student uses a fragmentary-clip consciousness formed under the influence of a large flow of information, which leads a person to the need to use unified, simplified thinking schemes that are largely based on the sphere of the unconscious [20]. The main way to obtain information in modern world is Internet technology. Visualization becomes an integral part of the learning process.

In any educational process, individual characteristics of students should be taken into account, and in accordance with this principle, when including training applications in the learning process, it is necessary to conduct a test to determine the level of language proficiency at the initial stage [21].

By teaching foreign language, information technology helps to shape the abilities and skills of spoken language, as well as teach vocabulary and grammar, providing genuine interest and therefore efficiency. Moreover, learning applications develop skills that are important not only for foreign language. This is primarily related to mental operations: analysis, synthesis, abstraction, identification, comparison, juxtaposition, verbal and semantic forecasting and deflection, etc.

## REFERENCES

1. Bykova D., et al. (2022). Use of digital technologies to improve the classical methodology of foreign language teaching in professional educational organizations. In *Advances in Digital Science*, pp.35-49. [https://doi.org/10.33847/978-5-6048575-0-2\\_3](https://doi.org/10.33847/978-5-6048575-0-2_3)
2. Decree of the President of the Russian Federation from May 9, 2017 No. 203 "On the Strategy for the Development of the Information Society in the Russian Federation for 2017-2030" [Electronic Resource] URL: <http://www.garant.ru/products/ipo/prime/doc/71570570/>, last accessed 2023/02/20.
3. Okolelov O.P.: The process of learning in the virtual educational space / Informatics and education. No.10, pp. 66-70 (2001).
4. Babushkina L.E., Safonov V.I. (2015) ICT as a means of forming the social and cultural competence of students of pedagogical institutes in teaching foreign language. OTO, No.1. URL: <https://cyberleninka.ru/article/n/ikt-kak-sredstvo-formirovaniya-sotsiokulturnoy-kompetentsii-studentov-pedvuza-pri-obuchenii-inostrannomu-yazyku>, last accessed 2022/02/20.
5. Stepanek, J., Simkova, M.: Design and implementation of simple interactive e-learning system. *Procedia Soc. Behav. Sci.* 83, 413-416 (2013) <https://doi.org/10.1016/j.sbspro.2013.06.081>
6. Kacetl, J., Klímová, B.: Use of smartphone applications in English language learning – a challenge for foreign language education. *Education Science*. 9(3), 179 (2019). DOI: 10.3390/educsci9030179
7. Ignatieva, N., Zhdankina, I., Bykova, D., Sysoeva, Yu.: Using smart technologies at the classes of foreign languages at a non-linguistic university. In: Antipova T. (eds.) *Integrated*

- Science in Digital Age 2020. Lecture Notes in Networks and Systems, vol 136, Springer, Switzerland, (2020). [https://doi.org/10.1007/978-3-030-49264-9\\_21](https://doi.org/10.1007/978-3-030-49264-9_21)
8. Karsenti, T., Kozarenko, O., Skakunova, V. (2020). Digital Technologies in Teaching and Learning Foreign Languages: Pedagogical Strategies and Teachers' Professional Competence. Education and Self-Development. 15. 76-88. 10.26907/esd15.3.07.
9. Belyasova, J., Teleshova R. Particularities of language classes in a multi-cultural context (2019) In: DSIC 2018, AISC 850, pp. 174-187. DOI: [https://doi.org/10.1007/978-3-030-02351-5\\_22](https://doi.org/10.1007/978-3-030-02351-5_22).
10. Obdalova O.A. (2009) Computer-mediated learning environment as a means and indispensable condition of teaching foreign languages in modern system of education. Language and culture, No.1(5). URL: <https://cyberleninka.ru/article/n/informatsionno-obrazovatel'naya-sreda-kak-sredstvo-i-uslovie-obucheniya-inostrannomu-yazyku-v-sovremennyh-usloviyah>, last accessed 2023/02/20.
11. Study language. Study world. | Memrise [Electronic resource] URL: <https://www.memrise.com/ru/>, last accessed 2023/02/20.
12. Grammar | LearnEnglish - British Council Learn English [Electronic resource] URL: <https://learnenglish.britishcouncil.org/grammar>, last accessed 2023/02/20.
13. FluentU: Language Immersion Online | Learn a Language [Electronic resource] URL: <https://www.fluentu.com/>, last accessed 2023/02/20.
14. Online tutors on Preply [Electronic resource] URL: <https://preply.com/ru/>, last accessed 2023/02/20.
15. Busuu - Learn languages online: Start learning for free [Electronic resource] URL: <https://www.busuu.com/ru>, last accessed 2023/02/20.
16. Learn languages online for free with Mondly [Electronic resource] URL: <https://ru.mondly.com/>, last accessed 2023/02/20.
17. Tandem | Mobile application and web [Electronic resource] URL: <https://www.tandem.net/ru>, last accessed 2023/02/20.
18. Grammarly [Electronic resource] URL: <http://grammarly.com>, last accessed 2023/02/20.
19. Zhbankina, I.Yu., Ignatieva, N.N.: Assessment of competences formation on classes of foreign language at non-linguistic universities. KANT 2(27), 41-47 (2018).
20. Chekun O.A., Lushnikova I.I. Modern technologies in teaching foreign languages of the digital generation of students. Bulletin of Moscow State University of the Humanities named after M.A. Sholokhov. Pedagogy and psychology, No.1. (2015).
21. Traynev V.A., Traynev I.V.: Information communication pedagogical technologies (generalizations and recommendations) / Publishing and trading corporation "Dashkov and Co.," (2009), URL: [https://www.studmed.ru/traynev-va-informacionnye-kommunikacionnye-pedagogicheskie-tehnologii-obobscheniya-i-rekomendacii\\_Od5ceb50fde.html](https://www.studmed.ru/traynev-va-informacionnye-kommunikacionnye-pedagogicheskie-tehnologii-obobscheniya-i-rekomendacii_Od5ceb50fde.html), last accessed 2023/02/20.

## Aims and Objectives

Published online by ICS two times a year, Journal of Digital Science (JDS) is an international peer-reviewed journal which aims at the latest ideas, innovations, trends, experiences and concerns in the field of digital science covering all areas of the scholarly literature of the sciences, social sciences and arts & humanities. The main topics currently covered include: Artificial Intelligence Research; Digital Economics, Education, Engineering, Finance, Health Care.

The main goal of the journal is the effective dissemination of original incites/results generated by the human brain and presented/reflected in articles using modern information/digital technology.

## Editorial Board

**Editor-in-Chief** Tatiana Antipova, ICS,  
<https://orcid.org/0000-0002-0872-4965>

**Associate Editor** Julia Belyasova, Catholic University of Louvain, Louvain-la-Neuve, Belgium;  
<https://orcid.org/0000-0001-6983-2129>

## Editors

- Abdulsatar Sultan, Catholic University in Erbil, Erbil, Iraq;  
<https://orcid.org/0000-0001-5090-5332>
- Achmad Nurmandi, Universitas Muhammadiyah Yogyakarta, Indonesia  
<https://orcid.org/0000-0002-6730-0273>
- Jelena Jovanovic, University of Nis, Nis, Serbia;  
<https://orcid.org/0000-0001-7238-6393>
- Indra Bastian, Universitas Gadjah Mada, Yogyakarta, Indonesia;  
<https://orcid.org/0000-0003-4658-8690>
- Indrawati Yuhertiana, Universitas Pembangunan Nasional Veteran Jatim, Surabaya, Indonesia;  
<https://orcid.org/0000-0002-1613-1692>
- Lucas Tomczyk, Uniwersytet Jagielloński, Krakow, Poland  
<https://orcid.org/0000-0002-5652-1433>
- Narcisa Roxana Moşteanu, American University of Malta, Bormla, Malta  
<https://orcid.org/0000-0001-5905-8600>
- Olga Khlynova, Russian Academy of Science, Moscow, Russia  
<https://orcid.org/0000-0003-4860-0112>
- Omar Leonel Loaiza Jara, Universidad Peruana Unión, Lima, Peru  
<https://orcid.org/0000-0002-3262-709X>
- Roland Moraru, University of Petrosani, Romania  
<https://orcid.org/0000-0001-8629-8394>
- Tjerk Budding, Vrije Universiteit Amsterdam, Netherland  
<https://orcid.org/0000-0002-5343-7535>
- Zhanna Mingaleva, National Research Polytechnic University, Perm, Russia  
<https://orcid.org/0000-0001-7674-7846>
- Quang Vinh Dang, Industrial University, Ho Chi Minh City, Viet Nam  
<https://orcid.org/0000-0002-3877-8024>

## Contact information

**Website:** <https://ics.events>

**Email:** [conf@ics.events](mailto:conf@ics.events)