ABSTRACTS

in English of the scientific works of Chief Assistant Professor Dr. Radka Valerieva Nacheva, Department of Informatics, University of Economics - Varna, submitted for participation in a competition for the academic position of "Associate Professor" in the scientific program "Informatics", announced in the State Gazette (Bulgaria), issue 65/17.07.2026.

A. Scientific publications on the dissertation

General number	Group number	Title, bibliographic description, link to their content in electronic format, if available
1.	1.	Nacheva, R. (2020) Standardization Issues of Mobile Usability. International Journal of Interactive Mobile Technologies [iJIM], Wien : International Association of Online Engineering [IAOE], 14(7), pp. 149 - 157. https://online-journals.org/index.php/i-jim/article/view/12129/6983 https://drive.google.com/file/d/1qffsaPQu-Qk_OdrkyW9bUGi7wJJLcNj6/view?usp=drive_link https://www.scopus.com/pages/publications/85085921221
The benefits of maintaining standards can be summarized from different perspectives: consumers, businesses, governments, economically. They inform and shape the products we buy, ensuring quality and safety. Standardizing in dynamic activities such as the development of mobile applications and devices can be not an easy task. In this regard, the aim of the paper is to revise some international standards towards usability problems of mobile user interfaces and to analyze the possibility of standardization of mobile usability.		

B. Scientific papers for participation in the competition for the position of Associate Professor, announced in the State Gazette (Bulgaria), issue 65/17.07.2026, under art. 101, item 3, and art. 104, para. 1, item 6 of the Regulations for the Development of the Academic Staff at the University of Economics - Varna (RDAS)

I. Monograph or equivalent publications (in the professional fields in which this is permissible) - under art. 101, item 3 of the RDAS at the University of Economics - Varna

General number	Group number	Title, bibliographic description, link to their content in electronic format, if available
2.	1.	Nacheva, R. (2026). Digital Accessibility Audit at the Workplace for Persons with Disabilities. Varna: Publishing house “Science and Economics” (Monographic Library "Prof. Tsani Kalyandzhiev"; Book 113), 268 p., ISBN(print) 978-954-21-1218-1 Reviewers: Prof. Dr. Vladimir Sulov, Assoc. Prof. Dr. Desislava Serafimova / Editor: Svetlana Todorova http://booksinprint.bg/Publication/Details/64a76515-58fb-4333-a42e-d13b2d57745c https://plus.cobiss.net/cobiss/bg/bg/data/cobib/78842888 https://drive.google.com/file/d/17kSW3fDq7Wm6y5xWMw8Y5NszgR1sd53s/view?usp=drive_link
In order to achieve the Sustainable Development Goals of the United Nations Organization and provide opportunities for lifelong learning, digital accessibility is of crucial importance for the inclusion of people with special needs in the workplace. At the global, European, and national level, quite a few institutions are working towards the integration of persons with disabilities in public activities, the provision of funding, as well as training and employment programmes. In spite of that, there still exist certain challenges to digital inclusion and the provision of digital accessibility at the workplace, respectively, particularly in the context of the digital transformation of a number of sectors in the economy. In this regard, the monograph defines a terminology of the study, which is used as a basis for the creation of a knowledge graph of the concepts of the problem area. International standards and guides on ensuring digital accessibility are studied. Methods and means for assessment and testing, as well as digital accessibility maturity models in organizations, are analyzed. As a result of the studies, a methodology for auditing the digital accessibility of the digital workplace is proposed, which integrates instrumental means, methods for testing, and expert assessment of accessibility. An approach for testing the defined methodology in accordance with the specifics of selected profiles of employees with disabilities in a particular organization is formed.		

II. Monographs and studies under Art. 104, para. 1, item 6 of the RDAS at the University of Economics - Varna

General number	Group number	Title, bibliographic description, link to their content in electronic format, if available
3.	1.	Nacheva, R., Todoranova, L., Penchev, B. (2026). Digital Inclusion in Higher Education, Provided Through E-Learning Systems with Artificial Intelligence. Varna: Publishing house "Science and Economics", 196 p. *Author's chapters:* Chapter Three. Digital Inclusion in Education Chapter Five. Integrating an Artificial Intelligence Chatbot System for Mobile Learning in Higher Education https://plus.cobiss.net/cobiss/bg/bg/data/cobib/78254088 http://booksinprint.bg/Publication/Details/0300e459-de67-4c91-bddd-766a7af6ee7c https://drive.google.com/file/d/1hrr97R27Qm6bbntu8zBQFEywsZ06SbO0/view?usp=drive_link
The dynamic development of information and communication technologies is transforming the educational landscape. The present study focuses on analyzing frameworks for digital inclusion and ensuring digital accessibility in education, including the use of artificial intelligence. In the context of providing equal access to learning content and educational services, digital inclusion has emerged as a key challenge for higher education. Therefore, this monograph aims to develop a conceptual model and a prototype of an AI-based mobile learning system designed to support digital inclusion and personalized learning for students with disabilities. To achieve this aim, several core objectives are formulated, including an analysis of the theoretical foundations of e-learning and mobile learning, an examination of the formal framework and standards for digital inclusion, and an exploration of technologies and approaches for developing AI-based mobile applications. The suggested chatbot system was tested with representatives of the target audience. The results indicate that the integration of artificial intelligence into mobile learning has significant potential to enhance both the accessibility and effectiveness of the educational process.		
4.	2.	Petrov, P., Nacheva, R. (2020). Information Systems for Real-time Social Business Analytics. Varna: Publishing house "Science and Economics" (Monographic Library "Prof. Tsani Kalyandzhiev"; Book 61), 278 p. *Author's chapters:* Chapter One. Theoretical Aspects of Social Business Analytics Chapter Two. Analytical Systems for Real-Time Social Media Data Processing Chapter Three. Approaches to Applying Social Business Analytics Tools https://plus.cobiss.net/cobiss/bg/bg/data/cobib/40319240

General number	Group number	Title, bibliographic description, link to their content in electronic format, if available
		http://booksinprint.bg/Publication/Details/f1334e00-c507-40dc-8a32-e554f469869d https://drive.google.com/file/d/1WklgP_xcW7JXqlSCKMElmt9jkFn_MKpa/view?usp=drive_link
Social media change the way of communication between business and consumers, as well as the methods of promoting products and services. Having penetrated the daily life of consumers to a great extent,they generate large volumes of data related to human behaviour. From the standpoint of business that big volume of data also provides big opportunities for the analysis of consumer behaviour. To that end it is necessary to use business analytics tools which would rapidly mine, store, process and visualize the data in various intersections and directions. In this regard there are discussed the information systems and analytics tools running in real time, which are used in order to aid the process of business analysis. There are studied different techniques for reducing the time interval from the moment of occurrence of the event on the part of the web server, until its visualization by the web client. As the basis for examining the capabilities of social media there is chosen the Twitter system, being one of the big global social networks of the microblogging platform type.		
5.	3.	Nacheva, R., Jansone, A. (2021). Multi-layered Higher Education E-Learning Framework. Baltic Journal of Modern Computing, Riga : University of Latvia, 9(3), pp. 345-362 **Total number of standard pages:** 25,55 https://www.bjmc.lu.lv/fileadmin/user_upload/lu_portal/projekti/bjmc/Contents/9_3_08_Nacheva.pdf https://drive.google.com/file/d/1xAWqurev-A1UWK-Ci4cDohLCxUvUheQc/view?usp=drive_link https://www.webofscience.com/wos/woscc/full-record/WOS:000706772800009
In a crisis such as the one in 2020 and 2021, education is undoubtedly one of the areas affected. Teachers and students faced the challenge of communicating virtually and applying different teaching methods to put them beyond their comfort limits. The learning process is conducted in a fully electronic environment, which must be organized so that the materials provided are accessible to all learners. The aim of our paper is to propose a multi-layered e-learning framework that integrates methods and tools for managing the learning process in higher education. We based the current study on the experience gained during the pandemic in the training of Latvian and Bulgarian students. As part of our study, we conducted a survey among computer science students to examine the challenges they faced during the lockdown. To process the results, we applied the methods of statistical analysis and machine learning, particularly text mining. The total number of participants is 93, of which 48% are Latvians and the rest - Bulgarians. During the pandemic, the two groups of students used different types of conferencing software - Google Meat and MS Teams, and the same e-learning		

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platform - Moodle. Students describe learning during lockdown as successful - with the most common grades 4 and 5. Universities have generally met their expectations. Based on our research, we offer the multi-layered higher education e-learning framework, which consists of 3 layers - human resource management, technological and policy layers.		
6.	4.	Nacheva, R., Sulov, V., Czaplewski, M. (2022). The Impact of M-Learning on Sustainable Information Society. Electronic Governance and Open Society: Challenges in Eurasia : EGOSE 2021 : 8ht International Conference, Saint Peterburg, Russia, November 24 - 25, 2021 : Proccedings, Cham : Springer, 1, pp. 244-262. - (Communication in Computer and Information Science ; 1529). **Total number of standard pages:** 22,28 https://link.springer.com/chapter/10.1007/978-3-031-04238-6_19 https://drive.google.com/file/d/1ueJHCmbhuZMGWLRuhyX_YoD9M9NzM1_e/view?usp=drive_link https://www.scopus.com/pages/publications/85128967991
The rapid development of information and communication technologies (ICT) comprises the development of the information society on many different levels. One of them is connected with sustainability. The concept of a sustainable information society has been hotly debated by researchers for the last fifteen years. In this paper we focus on the education's point of view and specifically on one of the ways to increase student motivation – m-learning. The purpose of the publication is to propose a conceptual model of a m-learning system that integrates approach to information society and the views of the stakeholders (i.e. teachers, students, university management, etc.). Such model is crucial for the best use of m-learning and its potential to reduce the digital division which subsequently leads to a more sustainable information society. To achieve this goal, we surveyed the opinion of academics at Polish and Bulgarian universities. For the processing of opinions, we have applied the tools of statistical, sentiment and emotional analysis.		
7.	5.	Nacheva, R., Sulova, S., Penchev, B. (2022). Where Security Meets Accessibility: Mobile Research Ecosystem. Electronic Governance and Open Society: Challenges in Eurasia : EGOSE 2021 : 8ht International Conference, Saint Peterburg, Russia, November 24 - 25, 2021 : Proccedings, Cham : Springer Publ., 1, pp. 216-231. - (Communication in Computer and Information Science ; 1529). **Total number of standard pages:** 20,37 https://link.springer.com/chapter/10.1007/978-3-031-04238-6_17 https://drive.google.com/file/d/1ubCayyywXbEC48macGIaXdEStpuK6mLL/view?usp=drive_link https://www.scopus.com/pages/publications/85128979658
User-oriented approaches help teams develop digital products that will not only be functional, but will also help to enhance the emotional experience. The specifics of human beings, that		

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are placed at the centre of the development, are determining the entire interaction flow with digital devices and software products. One of the topics that researchers' study in the field of human-computer interaction is accessibility. It is associated with the ability of a person to use barrier-free products or services. Accessibility, in turn, is also related to the user security such as attacks and vulnerabilities that often lead to a lack of access to digital devices. In this regard, the aim of our paper is to define a mobile research ecosystem for testing and evaluating secure and accessible mobile multi-device environments. The ecosystem should simultaneously implement the basic principles of accessibility and security of mobile applications. Thus defined aim determines the objectives of the paper, which are: to study the main problems of mobile applications' accessibility; to study mobile security frameworks; to test mobile accessibility and security. Design-thinking process flow is implemented in our approach. The accessibility and security of mobile operating systems Android and iOS are tested.		
8.	6.	Azeroual, O., Nacheva, R., Nikiforova, A., Störl, U. (2025). A CRISP-DM and Predictive Analytics Framework for Enhanced Decision-Making in Research Information Management Systems. Informatica : An International Journal of Computing and Informatics, Ljubljana : Slovenian Society Informatika, 49(18), pp. 67-86. **Total number of standard pages:** 36,48 https://www.informatica.si/index.php/informatica/article/view/5613 https://drive.google.com/file/d/1Scn1q5LsUyvp2DmLNDNbbRPCH6V4gXAj/view?usp=drive_link https://www.scopus.com/pages/publications/105002809452
The age of digitization has led to a significant increase in the amount and variety of data, particularly within the research domain, where data previously stored in paper form has now been digitized and integrated into research management processes. The rapid growth of Big Data, driven by technologies like the Internet of Things, presents challenges for conventional data processing methods. However, data alone, stored in silos, lacks value. To unlock its potential, data must be analysed and processed to generate insights and predictions that enable evidence-based decision-making. Predictive Analytics (PA) is a powerful tool for this purpose. By leveraging PA and advanced statistical methods, predictive models for research management can be developed, helping to forecast research trends and outcomes, which in turn, provides decision-makers with a reliable, forward-looking basis for strategic decisions in research management. This paper explores the application of PA in Current Research Information Systems (CRIS) to enhance decision-making. A case study using metadata from 20,000 publications indexed in Scopus demonstrates how PA can identify emerging research topics and predict future trends. Machine learning algorithms such as Support Vector Machine (SVM), k-Nearest Neighbor (kNN), Random Forest, and Tree classifiers were employed, with metrics such as Area Under ROC (AUC), classification accuracy (CA), F1-score, precision, and recall evaluated. The results indicate that the kNN algorithm provided the highest performance with an AUC of 0.451 and a classification accuracy of 87.4%. These		

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results show that predictive models can reveal significant patterns in research data, supporting data-driven decisionmaking for research management. Additionally, the study applied Latent Semantic Indexing (LSI) and clustering techniques to identify and categorize key topics within the data, showing a thematic focus on areas such as smart cities and urban intelligence before predictions, and CRIS applications after predictions. The findings illustrate how PA can optimize research management by identifying gaps in research and forecasting emerging topics, thereby aiding institutions in making more informed, evidence-based decisions.		

III. Scientific articles under Art. 104, para. 1, item 6 of the RDAS at the University of Economics - Varna

General number	Group number	Title, bibliographic description, link to their content in electronic format, if available
9.	1.	Petrov, P., Malkawi, R., Shichkin, A., Dimitrov, G., Nacheva, R. (2019). Security Certificates Used in Public Web Sites of Banks in Czech Republic, Slovakia and Hungary. TEM Journal - Technology, Education, Management, Informatics, Novi Pazar, Serbia : UIKTEN - Association for Information Communication Technology Education and Science, 8(4), pp. 1224 - 1231. **Total number of standard pages:** 12,92 https://www.temjournal.com/content/84/TEMJournalNovember2019_1224_1231.pdf https://drive.google.com/file/d/19vI0q1rxTR9ZwgbuyAq-Y1NKL3e_4MPT/view?usp=drive_link https://www.webofscience.com/wos/woscc/full-record/WOS:000500710200017
There is a tendency formed during the last years – indicating that the default protocol for accessing web pages is the HTTPS protocol. In order this to be done, a valid SSL/TSL certificate issued by authority body should be used. In the scope of this study during the month of August 2019 we examined the web sites of 22 banks licensed in Czech Republic, 15 banks licensed in Slovakia and 22 banks licensed in Hungary. The survey excludes the foreign bank branches which are not supervised by the respective national central banks. We did this survey trying to outline the "good practices" which are used by domestic system administrators of bank's websites in the respective countries.		
10.	2.	Nacheva, R., Todoranova, L., Sulova, S., Penchev, B. (2019). Concept Map Mining Approach Based on the Mental Models Retrieval. TEM Journal - Technology, Education, Management, Informatics, Novi Pazar,

General number	**Group number**	**Title, bibliographic description, link to their content in electronic format, if available**
		Serbia : UIKTEN - Association for Information Communication Technology Education and Science, 8(4), pp. 1484 - 1491. **Total number of standard pages:** 16,51 https://www.temjournal.com/content/84/TEMJournalNovember2019_1484_1491.pdf https://drive.google.com/file/d/1tCKHpHIrZROfcSgfbGShuPNSt6Xmezpt/view?usp=drive_link https://www.webofscience.com/wos/woscc/full-record/WOS:000500710200053
Studying the mental models of software users is not a new topic in the scientific literature, but we could point out that it is also not sufficiently researched. Still there is no universal method which could be used for exploration and visual presentation of mental models. Therefore, the aim of the current article is to propose an approach for concept map mining based on retrieving users' mental models. To achieve this, a combination of text mining techniques and concept map software is used in the research article.		
11.	3.	Nacheva, R., Jansone, A. (2022). Current Perspectives in Social Media Supported E-Learning. Baltic Journal of Modern Computing, Riga : University of Latvia, 10(1), pp. 71-86. **Total number of standard pages:** 17,15 https://www.bjmc.lu.lv/fileadmin/user_upload/lu_portal/projekti/bjmc/Contents/10_1_05_Nacheva.pdf https://drive.google.com/file/d/19hXmALr3r-plfhX9U54iCOnRwTXGED44/view?usp=drive_link https://www.webofscience.com/wos/woscc/full-record/WOS:000779690500005
In recent years, classrooms have rapidly become virtual environments for knowledge and experience exchanging through active usage of digital tools. When access to a learning environment is difficult or even impossible, the digital environment remains the only one possible for online classes in schools and universities. Parts of the preferred toolkits are social media. They have actively penetrated the daily lives of Internet users around the world and have become a necessary tool for communication, organizing and attending events, even training sessions. Our experience as university lecturers shows that all educators must constantly apply modern tools for knowledge exchange and teaching because of the highly changing business environment's requirements. The authors of this paper are interested in researching the accumulated international experience in e-learning, which integrates social media. In this regard, the aim of the publication is to outline perspectives in social media supported e-learning well-founded on an international research aspect. To achieve this, we developed an online study involving 138 students from 12 different countries. The study used		

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within-subject design. There are observed two dependent variables: the ratings of social media and their benefits in e-learning context reported by the survey participants. As a result of the study, we can share some insights. The most frequently used social media are Facebook, Instagram, YouTube, WhatsApp, and Viber. 68.8% of respondents said they check their social media accounts daily, and 17.4% - hourly. Students suggest e-learning integration of the social media: YouTube (37.2%), Facebook (17.1%), Discord (13.2%), WhatsApp and Viber (4.5% each), LinkedIn and GitHub (3.7% each). According to the younger generation uses them mainly to communicate with family and friends, to follow celebrities and to read news.		
12.	4.	Kuyumdzhiev, I., Nacheva, R. (2019). Correlation Between Storage Device and Backup and Restore Efficiency in MS SQL Server. Serdica Journal of Computing, Institute of Mathematics and Informatics. BAS, 13(3 – 4), pp. 139 - 154. **Total number of standard pages:** 12,6 https://serdica-comp.math.bas.bg/index.php/serdicajcomputing/article/view/sjc.2019.13.139-154/pdf https://drive.google.com/file/d/1nRRW0QsAPzaUDDLhp8W0WqJlsw9W6ePp/view?usp=drive_link https://mathscinet.ams.org/dmr/JournalList.html
The importance of the process of restoring a database requires precise examination of all factors that affect it. Considering the price of SSD and its better read and write speeds, it seems that this is the logical choice when reducing downtime is a primary concern for the organisation. This paper categorizes storage devices in use as well as main backup types in MS SQL Server. Tests are conducted to evaluate the impact of the storage device on backup and restore efficiency. In this regard, the purpose of the research is to examine problems associated with selection of a storage device for efficient backup and restore in MS SQL Server. The conducted tests showed some surprising results regarding SSD's efficiency. The reason these findings are important is that they could be used as a guideline for choosing proper storage device for an organisation's needs.		
13.	5.	Todoranova, L., Nacheva, R., Sulov, V., Penchev, B. (2020). A Model for Mobile Learning Integration in Higher Education Based on Students' Expectations. International Journal of Interactive Mobile Technologies (iJIM), Wien : International Association of Online Engineering (IAOE), 14(11), pp. 171 - 182. **Total number of standard pages:** 11,67 https://online-journals.org/index.php/i-jim/article/view/13711/7397 https://drive.google.com/file/d/11KaaWIRZJBiocy2KOw2Bjh0i9ItIIMtU/view?usp=drive_link

General number	Group number	Title, bibliographic description, link to their content in electronic format, if available
		https://www.scopus.com/pages/publications/85087988581?origin=resultslist
Mobile learning can be identified as the next stage in the development of e-learning. In this regard, the purpose of this paper is to propose a model for mobile learning integration in higher education which is based on analysis of students' expectations. To achieve this goal, a survey has been conducted among students enrolled in programs in the field of information and communication technologies. The analysis of the collected data shows that students have mobile devices, which they use not only for communication on social networks, but also for education. In addition, their expectations regarding mobile learning have been identified taking into account their study program and their previous experience with an e-learning platform.		
14.	6.	Nacheva, R., Vorobyeva, K., Bakaev, M. (2020). Evaluation and Promotion of M-Learning Accessibility for Smart Education Development. Electronic Governance and Open Society: Challenges in Eurasia : 7th International Conference, EGOSE 2020, St. Petersburg, Russia, November 18 - 19, 2020 : Proceedings, Cham : Springer Nature Switzerland, 1, pp. 109 - 123. - (Communications in Computer and Information Science Book Ser. ; 1349) **Total number of standard pages:** 15,98 https://link.springer.com/chapter/10.1007/978-3-030-67238-6_8 https://drive.google.com/file/d/14a5IKkTE8LOiqeCtZc1oUMGRCB9CoT9Q/view?usp=drive_link https://www.scopus.com/pages/publications/85101538655?origin=resultslist
Young people's involvement with their mobile devices is often considered a problem nowadays. However, with the new "learning on the go approach" it can be used for good: for learning purposes, in particular in higher education. The m-learning tools have the potential to turn learning into a more attractive, interesting and motivating process of acquiring new knowledge and developing competencies. At the same time, m-learning can be inclusive of people with special needs, who used to be detached from traditional educational services. In our paper we purpose an evaluation approach to mobile learning software accessibility based on accessibility guidelines and standards. We suggest a formalization of the approach and reducing it to a controlled process. The dedicated usage of mobile devices and m-learning software can assist in improving mental operations speed, executive control of information selection and decision-making, as well as optimize the memorization system. Such enhancements are particularly important for facilitating effective learning in the elderly and the people with disabilities.		
15.	7.	Nacheva, R., Jansone, A. (2020). Usability Evaluation of Business Process Modelling Tools through Software Quality Metrics. Baltic Journal of Modern Computing, Riga : University of Latvia, 8(4), pp. 534 - 542.

General number	Group number	Title, bibliographic description, link to their content in electronic format, if available
		Total number of standard pages: 11,47 https://www.bjmc.lu.lv/fileadmin/user_upload/lu_portal/projekti/bjmc/Contents/8_4_04_Nacheva1.pdf https://drive.google.com/file/d/1CMjAz-W5B50l2a1_3eziziwlu-31QhsZ/view?usp=drive_link https://www.webofscience.com/wos/woscc/full-record/WOS:000601605000005
Due to the widening range of functionality, the software is becoming more complex, and there are a number of problems related to its ease of use, and specifically, its usability. The concept of "usability" is associated with the ease, efficiency and satisfaction of using any item, including computer technology. Specialists in the development of user interfaces face the challenge of creating products based on user experience and combining aesthetics, functionality, ergonomics, the ability to quickly accomplish the tasks, while also having to comply with the constraints imposed by the specificity of the activity for which the software applications are intended. It can be said that business process modelling software is characterized by medium and even high complexity due to the many functionalities they offer. In this regard, the purpose of this paper is to propose and implement a method for evaluation the usability of this type of product based on software quality metrics. As a supporting method for conducting the evaluation procedure we used Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) method. We evaluated some business process modelling tools for approbating the suggested method.		
16.	8.	Nacheva, R. (2022). Digital Inclusion through Sustainable Web Accessibility. Digital Transformation & Global Society (DTGS 2021) : 6th International Conference, St. Pereburg, Russia, 23-25 June 2021 : Revised Selected Papers, Cham : Springer Nature Switzerland, pp. 83-96. - (Communications in Computer and Information Science ; 1503). **Total number of standard pages:** 14,54 https://link.springer.com/chapter/10.1007/978-3-030-93715-7_6 https://drive.google.com/file/d/1dRH-0W3zoNh7_sUviS1KN1lB6HArt82Q/view?usp=drive_link https://www.webofscience.com/wos/woscc/full-record/WOS:000771923700006
In the age of digitalization, the business environment is changing dynamically due to the growing consumers' demands of the products and services provided. In an effort to respond to rapidly changing market requirements, companies restrict access to their products of certain user groups with special needs due to neglecting of imposed international accessibility standards. This can even lead to disruption of the communication equipment of people with disabilities in the digital environment, which is often the only possible one. The Web remains		

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the largest source of information used by people around the world today. Communication on the Internet is the most common. That is why achieving web accessibility is not an end in itself, but a necessity for digital inclusion of people with special needs. In this regard, the aim of the article is to propose a web accessibility audit approach that follows a well-defined sequence of stages and applies automated tools to study the accessibility issues. The approach has been tested by auditing the accessibility of educational institutions' websites.		

IV. Scientific conference papers under Art. 104, para. 1, item 6 of the RDAS at the University of Economics - Varna

General number	Group number	Title, bibliographic description, link to their content in electronic format, if available
17.	1.	Nacheva, R., Stecyk, A., Petrov, P. (2024). An Accessibility Heuristic Evaluation of Bulgarian and Polish Academic Web Sites: Visually Impaired Users' Perspective. Digital Transformation, Cyber Security and Resilience : Second International Conference : DIGILIENCE 2020, Varna, Bulgaria, September 30-October 2, 2020 : Revised Selected Papers, Cham : Springer Nature, pp. 202-215. - (Communications in Computer and Information Science Book Ser. ; Vol. 1790). **Total number of standard pages:** 18,21 https://link.springer.com/chapter/10.1007/978-3-031-44440-1_29 https://drive.google.com/file/d/1rcGw09w1F1D-mKKu0S6DSZnnKv1a82yv/view?usp=drive_link https://www.scopus.com/pages/publications/85177175702
Accessibility issues are actively involved in the field of information and communication technologies. To improve human-machine interfaces, it is necessary to study the specifics of the interactions of people with special needs, including to improve their security of access to various digital resources. Thanks to the state of the art, people with disabilities have wide access to the Internet, including educational resources. The aim of this paper is to propose an approach for the heuristics evaluation of web accessibility based on the analytic hierarchy process (AHP) method. As there are many groups of people with disabilities, to narrow the scope of this study, we turn our attention to the perspective of the visually impaired users. To approve the approach, the authoring team applies it using Bulgarian and Polish academic websites.		
18.	2.	Nacheva, R., Azeroual, O. (2024). Security of AI-Powered Systems: Threat Intelligence on the Edge. 8th International Symposium on Multidisciplinary Studies and Innovative Technologies : ISMSIT 2024, Ankara, Turkiye, 7-9 November 2024 : Proceedings, New York : Institute of Electrical and Electronics Engineers, [6]. **Total number of standard pages:** 14,78

		https://ieeexplore.ieee.org/document/10757185 https://drive.google.com/file/d/1G557D0UNAgImEM3h6jOBjXaMEQF7oGBm/view?usp=drive_link https://www.scopus.com/pages/publications/85213310419
As the systems driven by artificial intelligence (AI) become increasingly integrated across various applications, ensuring their security is paramount to mitigate potential risks and vulnerabilities. Threat intelligence plays a pivotal role in identifying, analysing, and mitigating cybersecurity threats, particularly those targeting AI systems. Securing these systems entails safeguarding data integrity and confidentiality while ensuring the reliability and trustworthiness of AI algorithms and models. Challenges in AI-powered systems encompass adversarial attacks, model poisoning, data privacy concerns, as well as issues of bias and fairness. Threat intelligence offers valuable insights into emerging cyber threats, empowering organizations to proactively identify and address potential risks. Leveraging AI and machine learning techniques, threat intelligence platforms analyse extensive datasets to detect patterns indicative of cyber threats against AI systems. Sharing threat intelligence among organizations enhances collective defence capabilities and facilitates proactive threat mitigation strategies. This paper aims to propose an AI-powered systems cyber risk analysis approach, encompassing machine learning techniques. To achieve that, an intrusion detection simulation was done by generating a Python script with synthetic data. Two datasets were generated - a training dataset with 10,000 records and a test dataset with 400 records. Machine learning techniques are applied to predict what the most common security issues are.		
19.	3.	Nacheva, R. (2024). Conversational AI for Students with Hearing Disabilities: Approach to the Text Quality Evaluation. International Conference Automatics and Informatics (ICAI), 10-12 October 2024, Varna, Bulgaria, New York : Institute of Electrical and Electronics Engineers, pp. 130-135. **Total number of standard pages:** 14,97 https://ieeexplore.ieee.org/document/10851526 https://drive.google.com/file/d/1kkrDfsp6zYSgWjPGn7n36SPNJCT_AYNJ/view?usp=drive_link https://www.scopus.com/pages/publications/85218201487
To achieve the UN's Sustainable Development Goals and provide opportunities for lifelong learning, digital accessibility is critical to the digital inclusion of individuals with special needs. At the global, European, and national levels, quite different institutions are working towards the integration of people with disabilities in public activities, providing funding, training, and employment programs. However, still, the challenges to policies for the inclusion of this target group need development, especially in the context of digital transformation. In this regard, the current paper aims to explore some of the tools used by hearing-impaired students to provide digital accessibility to the learning environment. In a practical aspect, the quality of generated text was analyzed with an artificial intelligence (AI) tool for reproducing text from speech. A limitation of this paper is related to the		

evaluation tools applied in the qualitative analysis. The metrics on which these evaluation tools are based are considered.		
20.	4.	Nacheva, R. (2025). Enhancing Accessibility with AI Algorithms: Simulating and Evaluating Human Typing Behaviour. International Conference Automatics and Informatics (ICAI), 09-11 October 2025, Varna, Bulgaria, New York : Institute of Electrical and Electronics Engineers, pp. 170 - 175. **Total number of standard pages:** 14,2 https://ieeexplore.ieee.org/document/11324733 https://drive.google.com/file/d/1vsouVHAcwdWV96svlrBTmhzJxirBSQYV/view?usp=drive_link https://www.scopus.com/pages/publications/105033007432?origin=resultslist
Artificial intelligence (AI)-powered systems can be tailored to support users with different profiles better to improve digital communication and inclusion. Studies have shown that simulated data on various types of disabilities can be utilized early in the design of AI systems to measure key indicators that enhance the customization of these algorithms to users with diverse needs. This is particularly valuable in educational systems to address potential accessibility issues early in their design. In this regard, this study aims to investigate the simulation of human typing errors, providing a controlled framework for evaluating the simulated text through AI algorithms. The research scope is narrowed only to simulate typing errors made by people with motor disabilities. This is achieved by generating realistic typing errors using a Python script. Through the proposed framework, it is evaluated how human typing errors can be assessed by AI algorithms to improve the accessibility of educational systems.		

V. Textbooks and Practical Textbooks under Art. 104, para. 1, item 6 of the RDAS at the University of Economics - Varna

General number	**Group number**	**Title, bibliographic description, link to their content in electronic format, if available**
21.	1.	Filipova, N., Nacheva, R., Penchev, B. (2019). Operating Systems. Varna: Publishing house “Science and Economics”, 264 p. *Author’s chapters*: Chapter 7. File System - 26.68 total standard pages Chapter 9. Operating System Administration - 23.97 total standard pages http://booksinprint.bg/Publication/Details/6b38c4d7-687f-4f6b-a87e-6502eb1d9961 https://plus-legacy.cobiss.net/cobiss/bg/bg/bib/1292998372

		https://drive.google.com/file/d/14McOKORnj72fEyTxfNvJw39VHlyWr6B-/view?usp=drive_link
Operating systems are among the most complex software systems, containing millions of lines of program code. Their development is a challenge even for the best IT specialists. They incorporate many highly complex and interesting software design solutions. Studying the architecture and fundamental mechanisms of operating systems provides an opportunity to become familiar with best practices in software development and to improve programming skills. By understanding operating systems "from the inside," software engineers can make better decisions when designing and developing software and create better applications. The textbook presents the organization and mechanisms of the main architectural components of operating systems for managing processes, memory, input/output devices, data, and security. Particular emphasis is placed on selected architectural solutions implemented in the Windows NT operating system, which is the primary focus of instruction at the University of Economics – Varna. The textbook is intended for students enrolled in the degree programs offered by the Department of Informatics at the University of Economics – Varna.		
22.	2.	Nacheva, R. (2021). Operating Systems : Guide. Varna: Publishing house "Science and Economics", 191 p. http://booksinprint.bg/Publication/Details/2c8a429d-cd93-46c0-9bd4-47bc9e73884e https://plus-legacy.cobiss.net/cobiss/bg/bg/bib/47759112 https://drive.google.com/file/d/1oidH0pPVG5ePGKnnlrU5thLKjk6Sbjhf/view?usp=drive_link
Studying the specific characteristics of operating systems and how they function is an essential part of the professional training of every specialist in the field of information technology. Knowledge of the structure of an operating system and the methods for administering it supports IT professionals in performing their daily tasks. The three most commonly used operating systems for personal computers are Microsoft Windows, macOS, and Linux. Windows is the most widely used operating system among desktop users, while Linux distributions are the most preferred choice for server operating systems. The practical textbook is intended for students enrolled in the degree programs offered by the Department of Informatics at the University of Economics – Varna.		
23.	3.	Antonova, K., Peycheva, M., Ivanova, P., Koleva, V., Velcheva, B., Nacheva, R., Drab-Kurowska, A., Budziewicz-Guźlecka, A., Velikova, T., Samarova, K., Dimitrova, E., Yordanov, A., Rodrígues, M. (2025). Innovative Approaches to People Management Practical Guide to Good Practices. Varna : Slavena, 92 p., ISBN(print) 978-619-190-279-8, ISBN(online) 978-619-190-279-8 Author's Chapter: Good Practices in Recruitment and Selection Process through Artificial Intelligence Software – Total number of standard pages: 13.3

		Co-authored Chapter: Nacheva, R., Rodrígues, M. Biometric Technologies in Human Resources Management: Good Practices and Ethical Considerations - Total number of standard pages: 16.11 http://booksinprint.bg/Publication/Details/ca2cfe14-fe13-484a-ba2f-bdd2e9819050 https://plus-legacy.cobiss.net/cobiss/bg/bg/bib/76400392 https://hrm.ue-varna.bg/wp-content/uploads/2025/06/HRM-Guidelines.pdf https://drive.google.com/file/d/12oRsxq-QoVbhcIaWHZ5V1XtQ3DdtQW1g/view?usp=drive_link

The practical guide is developed as a summary of some specific case studies related to people management in organizations. It aims to assist human resources professionals, team managers and organizational leaders in the effective implementation of biometric technologies, artificial intelligence, green competencies and digital tools in human capital management by providing practical guidelines, good practices and strategic approaches for building a sustainable and innovative workplace.

The main objectives of this guide are to:

- Present the key biometric technologies and software solutions that can be implemented in human resource management processes in organizations, with a focus on security, efficiency and ethics.
- Analyse the role of artificial intelligence in the recruitment and selection of candidates, highlighting good practices and risks associated with automated decision-making.
- Introduce the concept of green competencies and their importance for sustainable organizational development, as well as methods for their assessment and integration into management policies.
- Outline a structure and steps for creating an individual career development roadmap tailored to business needs.
- Highlight the changes imposed by the digital transformation of the work environment, offering tools, strategies and examples for integrating technologies into human capital management in a transparent, ethical and sustainable manner.

Varna,
9.09.2026 г.

Signature:
/Chief Assist. Prof. Dr. Radka Nacheva/