4. Ab Hamid, M.R.B. (2015). Value-based performance excellence model for higher education institutions. Qual. Quant. 2015, 49, 1919-1944.http://dx.doi.org/10.1007/s11135- 014 0082-z

5. Abomaleha, A. &Zahari, I. (2014). The impact of management commitment to service quality and customer satisfaction: A review of Saudi Arabia Public service sector. *Journal Of Modern Marketing Research vol. 3 NO 1. June 2014. PP15-24.*

6. Ades, C., Figlioli, A., Sbragia, R., Porto. G., Plonski, G., Celadon,K., (2013). Implementing open innovation: The case of Natura. *IBM and Siemens Journal of Technology Management and Innovation. 8. 12-25.*

7. Adinkew, H. M. (2015). Effects of marketing competency of frontline employees on customer satisfaction: A study on commercial bank of Ethiopia. *AshEse Journal of Business Management Vol.1 (4), pp.039-050, ISSN:2059-7835,*

8. Afiah, M., Basri, M., Baharuddin, L., &Hamzah, H. (2018). The influence of competence, organizational culture and work stress on job satisfaction and performance of Sharia BankEmployees in Makassar. *Journal of Research in Humanities and social science vol. 6 issue 5 pp 58-64 ISSN (online): 2321-9467. www.questjournals.org*

9. Afshan, A. (2018). Service quality dimensions and students satisfaction: A study of Saudi Arabian private higher education institutions. http://www.european-science.com

10. Ahmed, S. R. &Ghada, A. (2017). The impact of customers engagement on repurchase intention: A mediating role of customer satisfaction. The case of Takaful Insurance Industry. *Science Journal for Economic & Commerce.*

11. Angela, L. (2018). KIU cultural gala. The most competitive cultural gala ever seen. https://giraffe.kiu.ac.ug/

12. Alexander, A. & Jeff, O. (2016). The impact of culture on customer expectations. *Journal of Mangement Policy and Practice.Vol 17 (2).*

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TRENDS IN STANDARDIZATION AND CERTIFICATION IN THE INFORMATION TECHNOLOGY SECTOR IN KAZAKHSTAN

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In the modern digital world, Kazakhstan is rapidly advancing in the field of Information Technology (IT), and standardization and certification play a crucial role in ensuring the quality, security, and competitiveness of IT products and services. In this article, we will explore the current trends in the development of standardization and certification in the IT sector in Kazakhstan.

One of the important aspects is the adoption of international standards. Kazakhstan actively implements international standards in the field of information technology, such as ISO/IEC 27001 for information security management, which contributes to the enhancement of information protection and trust in IT systems in the country.

Additionally, Kazakhstan is developing its own national standards and regulations, taking intoaccount the country's specific features and the needs of domestic companies. Such standards contribute to the development of the industry, ensuring compliance with security, quality, and efficiency requirements.

Information technology security remains a priority for Kazakhstan. Information Security Management Systems (ISMS) are certified according to the international standard ISO/IEC 27001, providing companies and organizations with the necessary level of protection against cyber threats.

One of the key trends is also the digitization of government services. The Government of Kazakhstan actively implements electronic services to facilitate interaction with citizens and businesses. Standards and certification play an important role in ensuring the reliability and securityof these services.

Finally, it is important to note the role of the private sector in the development of standardization and certification in the field of information technology. Many Kazakhstani companies actively participate in the development of standards and certification programs, contributing to the growth of the industry and enhancing its competitiveness in the global market.

Thus, the development of standardization and certification in the field of information technology plays a crucial role in strengthening Kazakhstan's position in the global digital economy and contributes to the improvement of the quality and security of IT products and services in the country.

In recent years, Kazakhstan has made significant progress in the field of standardization and certification of information technology (IT), contributing to the development of the digital economy in the country. One successful example is the adoption of the international standard ISO/IEC 27001 for information security management.

The Government of Kazakhstan actively supports the implementation of ISO/IEC 27001 standards in various sectors of the economy, including the financial sector, government institutions, and private companies. For example, the National Bank of the Republic of Kazakhstan has implemented an Information Security Management System in accordance with the requirements of ISO/IEC 27001, ensuring a high level of protection of confidential customer information and resilience to cyber attacks.

Another successful example is the development of national standards in the field of IT. For instance, the Committee for Industrialization of the Republic of Kazakhstan has developed a national standard at the state level for cybersecurity, which includes recommendations and requirements for information protection in information and communication systems (ICT). This standard was developed taking into account the specificity of Kazakhstani legislation and cybersecurity requirements.

The private sector also actively participates in the development of IT standards and certification in Kazakhstan. For example, leading Kazakhstani IT companies, such as Kaspi.kz, have developed their own Information Security Management Systems that comply with international standards ISO/IEC 27001. This helps companies ensure the protection of confidential customer information and increase trust in their services among users.

Thus, Kazakhstan demonstrates significant achievements in the development of standardization and certification of information technology, contributing to the enhancement of the security and quality of IT products and services in the country, as well as strengthening its position in the global digital economy.

Future Outlook

Looking ahead, several emerging trends, technological advancements, and regulatory changesare likely to shape the landscape of standardization and certification in the IT sector in Kazakhstan.

Emerging Technologies: The rapid evolution of emerging technologies such as artificial intelligence (AI), blockchain, and Internet of Things (IoT) is expected to significantly impact the

IT industry in Kazakhstan. As these technologies become more integrated into various sectors, there will be a growing need for standardized practices and certification processes to ensure interoperability, security, and compliance.

Cybersecurity Challenges: With the increasing digitization of businesses and government services, cybersecurity threats are becoming more sophisticated and prevalent. As a result, there will be a heightened emphasis on strengthening cybersecurity standards and certification frameworks in Kazakhstan. This may involve the development of new standards tailored to emerging cyber threats and vulnerabilities, as well as the adoption of more stringent certification requirements.

Regulatory Changes: Changes in regulatory frameworks, both domestically and internationally, will continue to influence the standardization and certification landscape in Kazakhstan. Government agencies may introduce new regulations or update existing ones to addressevolving technological trends and security concerns. Companies operating in Kazakhstan will need to stay abreast of these regulatory changes and ensure compliance with relevant standards and certification requirements.

Focus on Data Protection and Privacy: With growing concerns about data privacy and protection , there will be an increased focus on incorporating data protection principles into IT standards and certification processes. Standards such as ISO/IEC 27701 for privacy information management systems (PIMS) may gain prominence as organizations seek to enhance their data handling practices and demonstrate compliance with privacy regulations.

International Collaboration: Collaboration with international standardization bodies and industry associations will remain crucial for Kazakhstan to stay aligned with global best practices andstandards. Participation in international forums, working groups, and collaborative research initiatives will enable Kazakhstan to contribute to the development of new standards while also benefiting from the expertise and experiences of other countries.

Skills Development and Capacity Building: As the demand for IT professionals with expertise in standardization and certification grows, there will be an increased focus on skills development and capacity building initiatives in Kazakhstan. Educational institutions, industry associations, and government agencies may collaborate to offer training programs, workshops, and certification courses to equip professionals with the knowledge and skills required to navigate the evolving standardization landscape.

Green IT and Sustainability Standards

Green IT and sustainability standards are becoming increasingly important in Kazakhstan as organizations recognize the environmental impact of their IT operations and seek to reduce their carbon footprint. Here's a discussion on how organizations in Kazakhstan are prioritizing green IT practices and seeking relevant certifications:

1. Environmental Awareness and Concerns:

Organizations in Kazakhstan are becoming more aware of the environmental impact of their IT infrastructure, including energy consumption, electronic waste generation, and greenhouse gas emissions. With growing concerns about climate change and environmental sustainability, there is aconcerted effort to adopt greener practices in IT operations.

2. Energy Efficiency Measures:

One of the primary focuses of green IT practices in Kazakhstan is improving energy efficiency in data centers, office buildings, and IT equipment. Organizations are investing in energy-efficient hardware, optimizing cooling systems, and implementing virtualization and consolidation techniquesto reduce power consumption and operating costs.

3. Recycling and E-Waste Management:

Another key aspect of green IT practices in Kazakhstan is the proper management of electronic waste (e-waste). Organizations are implementing recycling programs to responsibly dispose of old IT equipment and minimize the environmental impact of electronic waste. By recycling and refurbishing outdated hardware, organizations can reduce landfill waste and conserve valuable resources.

4. Carbon Footprint Reduction:

Kazakhstan's organizations are also taking steps to reduce their carbon footprint by minimizing unnecessary travel, optimizing supply chains, and adopting remote work policies. By leveraging technology to facilitate virtual meetings, telecommuting, and digital collaboration, organizations can reduce the need for physical infrastructure and transportation, thereby lowering carbon emissions.

5. Certification and Compliance:

To demonstrate their commitment to environmental sustainability, organizations in Kazakhstan are seeking certifications such as ISO 14001 (Environmental Management Systems) and EPEAT (Electronic Product Environmental Assessment Tool). ISO 14001 certification provides a framework for implementing an environmental management system that helps organizations identify, manage, monitor, and improve their environmental performance. EPEAT certification, on the other hand, evaluates the environmental impact of electronic products based on criteria such as energy efficiency, recyclability, and toxic materials.

6. Government Support and Incentives:

The Kazakhstani government is also playing a role in promoting green IT practices by offering incentives, subsidies, and tax breaks to organizations that adopt environmentally friendly technologies and practices. Government initiatives such as the Green Economy Transition Program and the National Green Technology Policy provide support and guidance to businesses seeking to reduce their environmental footprint.

In conclusion, the rapid advancement of Kazakhstan in the field of Information Technology (IT) is closely intertwined with the adoption of standardization and certification practices. As the country embraces international standards, develops its own national standards, and prioritizes cybersecurity and digitization initiatives, it reinforces its position as a key player in the global digital economy. Furthermore, the active participation of the private sector in standardization and certification processes underscores the collaborative efforts driving progress in the IT sector.

Looking ahead, emerging trends such as the integration of emerging technologies, heightened cybersecurity challenges, evolving regulatory frameworks, and a focus on data protection and privacy will shape the landscape of standardization and certification in Kazakhstan. International collaboration and efforts towards skills development and capacity building will be essential to navigate these changes effectively.

Moreover, the increasing emphasis on green IT and sustainability standards reflects Kazakhstan's commitment to environmental responsibility. By adopting energy-efficient practices, implementing recycling programs, and seeking relevant certifications, organizations in Kazakhstan contribute to environmental conservation while enhancing their competitiveness in the global market. Overall, the trajectory of standardization and certification in the IT sector in Kazakhstan points towards continued growth, innovation, and sustainability, positioning the country as a leader in the digital age.

References

1. International Organization for Standardization. (2022). ISO/IEC 27001: Information Security Management Systems. Available: https://www.iso.org/standard/iso-iec-27001-2022-v2

2. Committee for Industrialization of the Republic of Kazakhstan. National Standards for Cybersecurity. Available: https://egov.kz/cms/en/cyberspace

3. Electronic Product Environmental Assessment Tool. (2023). EPEAT Certification. [Online]. Available: https://www.epeat.net/

4. ESG strategy and management: Complete guide for businesses. Available: https://www.techtarget.com/searchcio/definition/green-IT-green-information-technology

5. Kaspi.kz. (2022). Kaspi.kz Information Security Management Systems. Available: https://ir.kaspi.kz/media/2022_ESG_Report.pdf