













This work is to classify and analyze the Security issues and challenges in Mobile banking in Uzbekistan. The majority of the customers in Uzbekistan are using online banking or ATM. However, around 40 % of customers are using mobile banking where the remaining people 60% are not using this technology.

ACKNOWLEDGMENT

This work was supported by the Institute for Information and Communications Technology Promotion (IITP) grant funded by the Korea government (MSIT) (No.2018-0-00245), And it was also supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science, and Technology (grant number: NRF2016R1D1A1B01011908).

REFERENCES

[1] Customer adoption of banking technology: the case of uzbekistan . *International Journal of Bank Marketing* vol.pp.15-25

[2] A. D. Bank, "Technical assistance to the Republic of Uzbekistan for Development of the capital market Uzbekistan, Manila: ADB, 2017.

[3] A.V. Akimov, and B. Dollery. "Uzbekistan's Financial System. An Evaluation of Twelve Years of Transition." *Problems of Economic Transition* 48, no. 12, pp. 6–31, 2017

[4] K.D. Ghosh, S.C Ruziev. "Analysis of Mobile banking Economic Performance in Uzbekistan" vol 26.no.1, pp. 7-30

[5] <https://m.hamkorbank.uz/en>.The History of the Banks in Uzbekistan

[6] I.A.BOQIYEV, "Research on Security Payment Technology Based on Mobile Phones" , pp. 1-4, 2017

[7] Click system in Uzbekistan in 2011-2018. Annual report of central bank in Uzbekistan . <https://click.uz/>, [http://www.gov.uz/government/cbu/cbu\\_0.htm](http://www.gov.uz/government/cbu/cbu_0.htm)

[8] A.V.Vahobov "Public key infrastructure for mobile banking security" vol 66.no.2, pp 12-20, 2015

[9]. J. Nie and X. Hu. "Mobile Banking Information Security and Protection Methods", *International Conference of Computer Science and Software Engineering*, , pp. 587-590, 2008.

[10] C. Narendiran, S. Albert Rabara, and N. Rajendran. Public key infrastructure for mobile banking security, *Global Mobile Congress*, pp. 1-6,2009.

[11] I. Brown, Z. Cajee, D. Davies, and S. Stroebel, "Cell phone banking: predictors of adoption in South Africa--an exploratory study, *International Journal of Information Management*,Vol.23, pp. 381-394, Oct.2003.

[12] D. Y. Liou, "Four - scenario analysis for mobile banking development contextualized to Taiwan", *Management of Engineering & Technology, PICMET*, pp. 2634-2642, 2008.

[13]. H. Wu, A. Burt, and R. Thurimella. Making secure TCP connections resistant to server failures, *Computer Security Applications Conference, Proceedings. 19th Annual*, pp. 197-206,2003.

[14]. H. Harb, H. Farahat, and M. Ezz. SecureSMSPay "Secure SMS Mobile Payment model", *Anti - counterfeiting, Security and Identification ASID*, pp. 11- 17,2008.

[15] T. Wilson, — Malicious mobile ode, *I Internet Business*, pp. 52-3, Feb.1999.

[16] T. Holz, M.Engelberth, F. Freiling," Learning More about the Underground Economy", *ESORICS, LNCS* 5789, pp. 1–18, 2009

[17] Tashkent, Uzbekistan, April, 2013 "Over 149,000 users use distance banking services " <https://www.uzdaily.com/articles-id-22798.htm>

[18] I. Kušt., "Securing mobile banking on Android with SSL certificate pinning" March 12<sup>th</sup>, 2014 <https://infinum.co/the-capsized-eight/securing-mobile-banking-on-an-droid-with-ssl-certificate-pinning>

[19] M.Ahunov.,"Uzbek banking system: some history and current state" July 26,2015, [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2636002](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2636002)

[20] A. Abdullaev, M. A. Al-Absi, A. A. Al-absi, M. Sain, H. J. Lee" Security Challenge and Issue of Mobile Banking in Republic of

Uzbekistan: A State of Art Survey" *International Conference on Advanced Communications Technology (ICACT)* February 17 ~ 20, 2019

[21] Uzbekistan-bankingsystems <https://www.export.gov/article?id=Uzbekistan-Banking-Systems/> 2019



**AZamjon Abdullaev** was born in Uzbekistan 1992, received his BS degree in finance from Tashkent financial Institute in Uzbekistan 2011-2015. Currently, he is a Master candidate student in the Department of Computer Engineering at Dongseo University, Korea. His research interests include Mobile Banking, Wireless Sensor Networks, Cryptography, and Network Security.



**Mohammed Abdulhakim Alabsi** was born in Yemen 1987, received his BS in Computer Application from Bangalore University in India. He earned his (MS) degree at Dongseo University, South Korea in 2018. Currently, he is a PhD. student in the Department of Information and Communication Engineering at Dongseo University, South Korea. His research interests include IoT, VANET, UAV, artificial intelligence, cryptology, network security, computer networks and digital communications.



**Ahmed Abdulhakim Al-Absi** was born in Yemen 1984, he is an Assistant Professor and Head of Smart Computing Department at Kyungdong University – Global Campus in South Korea. He earned his PhD in Ubiquitous Computing at Dongseo University, South Korea in 2016. His research interests include database systems, big data, hadoop, cloud computing, distributed systems, parallel computing, high-performance computing, VANET, and bioinformatics. He received a Master of Science (MS) degree in Information Technology at University Utara Malaysia, Malaysia in 2011 and a Bachelor of Science (BS) degree in Computer Applications at Bangalore University, India in 2008.



**Mangal Sain** was born in India 1979, received the M.Sc. degree in computer application from India in 2003 and the Ph.D. degree in computer science in 2011. Since 2012, he has been an Assistant Professor with the Department of Computer Engineering, Dongseo University, South Korea. His research interest includes wireless sensor network, cloud computing, Internet of Things, embedded systems, and middleware. He has authored over 50 international publications including journals and international conferences. He is a member of TIIS and a TPC member of more than ten international conferences.



**HoonJae Lee** was born in Korea 1962, received his BS, MS, and Ph.D. degrees in electronic engineering from Kyungpook National University, Daegu, Rep. of Korea, in 1985, 1987, and 1998, respectively. He is currently a professor in the Department of Information Communication Engineering at Dongseo University. His current research interests include Password Theory, Network Security, Side-Channel Attack, and Information Communication/Information Network.