

**Faculty of Information and Communication Technology (ICT)**

**Research Publications**

**2015 to 2020**

<b>No</b>	<b>PUBLICATION</b>	<b>YEAR</b>	<b>ABSTRACT OF PUBLICATION</b>
1.	<p>Ujakpa M. M., Osakwe J., Iyawa E. G., Mutalya N. A and Hashiyana V. (2020). Industry 4.0: University Students' Perception, Awareness and Preparedness. 2020 IST Africa Conference, Kampala, Uganda. <i>IEEE</i>, 2020</p> <p>[<a href="https://ieeexplore.ieee.org/document/9144038">https://ieeexplore.ieee.org/document/9144038</a>]</p> <p>[<a href="http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_64_11313.pdf">http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_64_11313.pdf</a>]</p> <p><b>[Published]</b></p>	2020	<p>Industry 4.0, is a new trend enabled in the manufacturing and relevant sectors that is based on the integration of a set of technologies that enable the ecosystem of intelligent, autonomous and decentralized factories and integrated products and services. Beyond its predecessor revolutions, it is one with the potential to raise global income levels and improve the quality of life for populations around the world. However, like any technology, it has its positive and negative aspect and as a result, is described by some as a “greater promise or a potential peril.” To take maximum advantage of the promise or overcome the peril, industries including the educational sector, have to prepare for it. The educational sector need to prepare for it as it is an employer and more importantly a training facilitator for other industries. To establish the awareness and preparedness students in the educational sector especially in developing countries (including Namibia) towards the fourth industrial revolution, this study undertook an investigation as such. Using a quantitative design approach, data was collected from 24 students in three universities in Namibia. The study found that students are aware of industry 4.0 but further education on its applications is needed to further prepare students to be able to work within the era of the revolution. Though not much direct education on industry 4.0 is given to students, most students have used industry 4.0 applications and are competent in using most of the industry 4.0 applications. Relevant government bodies and schools need to put strategies in place to</p>

			create further awareness of industry 4.0, specifically on smart factories and augmented reality to get students ready for the revolution.
2.	<p>Kiana L. and Ujakpa M. M. (2020). Acceptance and use of the Virtual Library. <i>Africa Journal of Library, Archives and Information Science</i>.</p> <p>[<a href="https://www.ajol.info/index.php/ajlais/article/view/196565">https://www.ajol.info/index.php/ajlais/article/view/196565</a>]</p> <p><b>[Published]</b></p>	2020	<p>The purpose of this paper is to investigate the perceptions and use of the virtual library by undergraduate students at the International University of Management, Namibia. This study used the quantitative research approach. Two hundred and eighty-six (286) copies of a selfadministered questionnaire, comprising closed and open-ended questions were used to collect data from the students. In addition, a semistructured interview schedule was used to collect data from the Reference Librarian. The findings revealed that most users were aware of the virtual library; however, the level of awareness was relatively higher than the use. Further, the study observed that the pattern of use differed in terms of frequency, preference and location of access. The study also established that most respondents perceived the virtual library as useful and easy to use. Some of the challenges hindering the effective use of the virtual libraries range from Internet interruption, inadequate computers in the library to lack of skills required for virtual library use, were established.</p>
3.	<p>Woyo, E., Rukanda, G.D. &amp; Nyamapanda. Z. (2020). ICT Policy Implementation in Higher Education Institutions in Namibia: A Survey of Students Perception. <i>Educ Inf Technol</i>.</p>	2020	<p>The purpose of this paper is to analyse the factors that affect the perception of the implementation of the ICT policy in education in the empirical context of higher education in Namibia from a students' perspective. The paper explains the current situation regarding ICT policy in higher education in Namibia. There are no studies that could be found to have measured these factors in a developing country in Africa. A quantitative approach was followed in this</p>

	<p>[<a href="https://link.springer.com/article/10.1007/s10639-020-10118-2">https://link.springer.com/article/10.1007/s10639-020-10118-2</a>]  <b>[Published]</b></p>		<p>study. Data were collected using a structured questionnaire and were analysed by means of descriptive statistics, exploratory factor analysis and multiple linear regression analysis. The perception of the implementation of the ICT policy in higher education in Namibia is affected mostly by lack of ICT literacy and limited access to learning and training content. Some of the challenges from past studies were also reconfirmed in this study, though they were investigated in a different context. This study also identified new challenges that affect the perception of the implementation of ICT policy in higher education, specifically from a developing country context. The findings in this study should be confirmed by further research to help developing economies evaluate their ICT policies in education and their outcomes.</p>
4.	<p>Obeka B. O., Osakwe J., Ujakpa M. M., Iyawa E. G. and Ikechukwu O. A. (2020). Awareness, Accessibility and Usability of E-resources: University Students Perspective. 2020 IST Africa Conference, Kampala, Uganda. <i>IEEE</i>, 2020.</p> <p>[<a href="https://ieeexplore.ieee.org/document/9144021">https://ieeexplore.ieee.org/document/9144021</a>]  <a href="http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_101_11383.pdf">http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_101_11383.pdf</a>]</p> <p><b>[Published]</b></p>	2020	<p>In this study, the awareness, accessibility and usage of University electronic resources by students were investigated. A sample of 379 users were drawn from two Universities in Nasarawa State, Nigeira. This was done through the use of simple random sampling technique. Data collected through the survey questionnaires administered, were analyzed using mean scores and standard deviation. Finding showed that students are aware of the e-resources such as E-Journals, E-Newspapers and E-Books available in their universities. There was also availability of internet services and online databases. Though there was report of poor internet connectivity and staff indifference.</p>

5.	<p>Shikongo S., Iyawa E. G., Osakwe J., Ujakpa M. M. (2020). Digital Ecosystems for Public Enterprises: Prospects and Challenges. 2020 IST Africa Conference, Kampala, Uganda. <i>IEEE, 2020</i></p> <p>[<a href="https://ieeexplore.ieee.org/document/9144042">https://ieeexplore.ieee.org/document/9144042</a>]</p> <p>[<a href="http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_89_11316.pdf">http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_89_11316.pdf</a>]</p> <p><b>[Published]</b></p>	2020	<p>A Digital Ecosystem is a digital platform that connects stakeholders and institutions with similar interests. Digital Ecosystems have been applied in different contexts, including health and business. This paper investigated the prospects and challenges of implementing a Digital Ecosystem to support public enterprises. Semi-structured interviews were conducted with 20 participants to collect data. The findings suggest that the current infrastructure for a Digital Ecosystem to be implemented is available but more resources and tools such as high-speed internet, high-end computing as well as security features are needed to facilitate the efficient functioning of a Digital Ecosystem. The benefits of implementing a Digital Ecosystem to support public enterprises include improved access to information and improved communication between public enterprises. The findings also revealed that a Digital Ecosystem would could support effective decision-making processes as the information required would be readily available. The potential challenges of implementing a Digital Ecosystem for public enterprises include lack of skills, organisational resistance to change and lack of awareness of the benefits of a Digital Ecosystem to public enterprises. In order to overcome these potential challenges, of implementing a Digital Ecosystem for enterprises it is recommended that institutions of higher learning should incorporate Digital Ecosystems in their curriculums, create awareness of the benefits of Digital Ecosystems to support public enterprises through social media platforms and government websites as well as also need carry out specialised training Digital Ecosystems workshops to current public enterprise employees. The findings of</p>

			this study will inform key stakeholders in public enterprises on the prospects of who aim to implementing Digital Ecosystems.
6.	Hashiyana V., Mbewe D., Suresh N. and Ujakpa M. M. (2020). Co-design of an Agricultural Management Application for Small-Scale Farmers. 2020 IST Africa Conference, Kampala, Uganda. IEEE, 2020.  [https://ieeexplore.ieee.org/document/9144024]  [http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_63_11360.pdf]  <b>[Published]</b>	2020	Most African farm homesteads are seeing a steady sub-division of their land that sheds light on small-scale farming. Small-scale farmers are poised to be significant economic drivers in developing countries in Africa. Hence, indicative of the potential in smart farming applications. This research aimed at providing appropriate farming practices information through co-designing an Agricultural Management Application that would maximize small-scale farmer's crop production. Reviewing relevant literature and applying an experimental design approach, the Agricultural Management Application was developed in this research. The results of the study were satisfactory, as the application developed was deemed useful and informative by local farmers. Since only a few crops were listed on the application currently in use, it is further recommended that more crops be added to this mobile application. This will allow farmers to expand their scope of participation and the use of the application.
7.	Osakwe J., Iyawa E. J., Ujakpa M. M. and Amunkete K. (2020). Barriers to the Implementation of Big Data Technology in Education: An Empirical Study. 2020 IST Africa Conference, Kampala, Uganda. IEEE, 2020.  [https://ieeexplore.ieee.org/document/9144042]	2020	Technology has opened up a variety of ways data can be used for decision-making in different fields of endeavour including education. The purpose of this study was to assess the barriers hindering the implementation of Big Data Technology in education. The study which covered three continents used the quantitative approach where survey questions were distributed the participants through the online survey monkey. Data was categorized in tables and chart and was analysed using the Statistical Package for Social Sciences (SPSS).

	<p>[<a href="http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_89_11316.pdf">http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_89_11316.pdf</a>]</p> <p><b>[Published]</b></p>		<p>Findings revealed that there is an interest in Big Data Technology in the education sector and that Big Data Technology is very important in education. However, most stakeholders are not sure of the technology requirements, and resources are not available for the full implementation.</p>
<p>8.</p>	<p>Murotua E, Iyawa E. G, Ujakpa M. M., Amunkete K., Osakwe J. and Oduor C. (2020). Open Innovation in Government Services: An Empirical View of Citizens' Participation. 2020 IST Africa Conference, Kampala, Uganda. <i>IEEE</i>, 2020.</p> <p>[<a href="https://ieeexplore.ieee.org/document/9144072">https://ieeexplore.ieee.org/document/9144072</a>]</p> <p>[<a href="http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_87_11317.pdf">http://www.ist-africa.org/Conference2020/outbox/ISTAfrica_Paper_ref_87_11317.pdf</a>]</p> <p><b>[Published]</b></p>	<p>2020</p>	<p>The purpose of this paper was to investigate the perception of citizens on their participation in open innovation in government services. This is a quantitative study that applied descriptive statistics in analysing the findings. Participants were selected from the general public and several governmental organisations. The findings suggest that the participants believed that citizens' participation in open innovation could lead to innovative solutions, simple access to government information, effective service delivery, speedy and responsive public service delivery. Participants also believed that involving citizens in governance could reduce the potential failure of government policies. However, the majority of the participants did not believe that citizens' participation in open innovation would lower costs in terms of service delivery. It was recommended that further studies should be conducted to create awareness of the benefits of citizens' participation in open innovation in government services in terms of reducing costs of public services. The findings of this study will inform government</p>

			policy makers on citizens' participation in open innovation in government services.
9.	<p>Kiana L., Ujakpa M. M. and Leonard A. (2020). Inlusiveness of Academic Libraries: the Case of Assistive and Adaptive Technologies. 2020 Standing Conference of Eastern, Central and Southern African Libraries (SCECSAL), Windhoek, Namibia.</p> <p>[Accepted for Conference, April 2020: But Conference postponed due to Covid-19]</p>	2020	<p>This study assessed the state of inclusiveness of academic libraries in two countries from two regions in Africa by examining the adoption of assistive and adaptive technologies in their spaces and services to cater for users with disabilities. Applying a quantitative design approach, data were collected through face to face interviews from a sample of 12 library staff, 7 lecturers and 9 disabled students. The study found that the state of adoption of assistive &amp; adaptive technologies is poor. Very minimum assistive and adaptive technologies are available in the libraries. Several reasons accounted for the minimum ATs in libraries but standing most prominent among them is lack of knowledge on ATs. As a result of this, library inclusion in terms of ATs ranged from very poor to fair. Lack of policy and financial constraints were cited as barriers of creating inclusive libraries. The study recommends the formulation and implementation of policies governing libraries to make them more inclusive; provision of adequate funds to academic libraries to enable them incorporate assistive and adaptive technologies in their spaces and services. This study used a few universities libraries from Namibia and Ghana and hence generalizing the result should be done with caution. Future studies should include more libraries including national and community libraries. This study has made a significant contribution in the understanding of adoption of assistive technologies by academic libraries in providing spaces and services to users with disabilities. The findings and recommendations could also benefit</p>

			similar academic libraries and further research in developing countries.
10.	Ujakpa, M., M., Osakwe, O., J., Iyawa, E., G., Hashiyana, V. and Kiana, L. (2020). Perception of Social Media Use and Effect on Academic Life. 18th Johannesburg International Conference on Education, Economics, Humanities and Social Sciences, Johannesburg, South Africa, November, 2020. [Accepted for Conference Presentation]	2020	Social media has impacted several areas of life and among them is communication and education. Through social media, people reach out to loved ones in nearby and faraway places. As a communication tool, students and lecturers could leverage on it to interact among themselves. Such communications could affect student academic life and performance effect, hence, social media having an effect on student academic life. To investigate the perceived effect of social media on student academic life, this study applied the quantitative research design approach to collect data from 96 students in three universities in Namibia. The study found that social media can be used for academic purposes and thus far used to support student academic life to a very high extent. As a result of this, students rated social media as a good platform. This is a wakeup call to stakeholders of education to understand that mobile devices and social media have come to stay and are widely used by students even for academic purposes.
11.	Ujakpa M., M. and Heukelman D. (2020). Expanded Technological Acceptance Model for the Sub-Saharan African Environment. 18th Johannesburg International Conference on Education, Economics, Humanities and Social Sciences, Johannesburg,	2020	This research aimed at investigating the relationships between the Technological Adoption constructs (Perceived Usefulness, Perceived Ease of Use, Perceived Performance and Perceived Benefit) and variables in the Sub-Saharan African context and consequently develop an expanded TAM for the Sub-Saharan African environment, this study examined technology acceptance models, theories and framework to establish the concepts in them that apply in the environment. Applying a quantitative approach, the study collected data



South Africa, November, 2020.

[Accepted for Conference Presentation]

from 308 students (chosen at random) in five public universities (that were using e-learning systems) in five countries in the five regions of Sub-Saharan Africa. Performing multiple regression analysis, the probability (P) values (significance level) and standardized coefficients (prediction values,  $\beta$ ) were computed. Based on the multiple regression correlation analysis, this study tested the technological adoption concepts in the Sub-Saharan African context and developed an expanded TAM for the Sub-Saharan African environment. Out of the four constructs of the developed expanded TAM, three (perceived ease of use, perceived usefulness and perceived performance) directly affect behaviour intention which in turn directly affects technology adoption. Caution needs to be taken when applying this study's findings beyond the technology and population it considered as the technology and population it considered is not entire technologies used in Sub-Saharan Africa and entire population that use technologies in Sub-Saharan Africa. Further research on Technological Adoption may compare the developed TAM for the Sub-Saharan African environment to existing TAM by examining the variance of their constructs across defined periods and across cultures to determine their performance and hence explain different Technology Adoption behaviours in the Information Technology field. Applying the developed expanded TAM for technology adoption in the Sub-Saharan Africa environment is more likely to give accurate results than applying the existing TAM versions. The research developed an expanded TAM for technology adoption in the Sub-Saharan African environment. The developed model is useful as it came up with two new constructs (perceived performance and perceived benefit that is missing

			the original TAM).
12.	<p>Ujakpa, M., M. and Heukelman, D. (2020). Performance of the Extended Technological Acceptance Model in the Sub-Saharan African Context. 18th Johannesburg International Conference on Education, Economics, Humanities and Social Sciences, Johannesburg, South Africa, November, 2020.</p> <p>[Accepted for Conference Presentation]</p>	2020	<p>The Technological Acceptance Model (TAM) and its extensions propounded by Fred Davis and other authors respectively, has broadly been applied on various technological novelties worldwide and has been very fruitful in predicting various technological acceptance behaviors in so many settings. On the basis that TAM may not hold true for some cultures including Sub-Sahara Africa, the expanded TAM for the Sub-Saharan African environment was developed. To ascertain expert opinion on it and assess its performance, this study examined the expert opinion and performance of the developed expanded TAM in the Sub-Saharan African context. Conducting telephone interview with six information systems and human computer interaction experts and administering questionnaire to 308 students in five public universities (using e-learning systems) in five Sub-Sahara Africa countries in the five Sub-Saharan Africa regions, data was collected and multiple regression analysis applied to compute variance (R<sup>2</sup>) of the independent and dependent constructs (PU, PEOU, PP, PB and BI respectively) in the developed expanded TAM model in the Sub-Saharan African context. Based on the validation of the model by the six experts, its constructs resulting variance were compared to the existing TAMs constructs variance. Results of the comparison showed that, the developed expanded TAM in the African context, outperformed the existing TAMs. Though this research was able to reach some stimulating findings, it had a limitation of not being able to collect primary data on existing TAM models to compute their variance: future</p>

			research in this area should work at overcoming this.
13.	<p>Ujakpa M. M., Lupandu A., Kiana L. &amp; Nyalugwe S. (2019). Use of Competitive Intelligence Tools in Corporate Companies. 17<sup>th</sup> Johannesburg International Conference on Education, Economics, Humanities &amp; Social Sciences (EEHSS), November, 2019. Retrieved from:</p> <p><a href="https://www.eares.org/siteadmin/upload/1138EAP1119408.pdf">https://www.eares.org/siteadmin/upload/1138EAP1119408.pdf</a>  <a href="https://www.earet.org/proceedingspdf.php?id=61">https://www.earet.org/proceedingspdf.php?id=61</a>  (Award Winning Paper: Best Oral Research Presentation Paper)  <b>[Published]</b></p>	2019	<p>This study investigated the use of Competitive Intelligence tools by corporate companies in Namibia. Applying a mixed methodology and stratified random Sampling, data was collected from 98 respondents from five Namibian corporate companies. Linear regression analysis of the data show that there is low correlation between formulation of strategy, decision making and competitive intelligence while customer satisfaction, return on investment and competitive advantage have moderate correlation. The study found that Namibian companies are aware of and use competitive intelligence tools. Competitive intelligence tools used include SWOT Analysis, Market Research, Competitor Analysis, Competitor profile, Benchmarking, Value Chain, Boston Consulting Group Indicator &amp; warning analysis, and Michael Porter's five forces. The most used is Market Research and the least used is Michael Porter's five forces.</p>
14.	<p>Tariq Abdullah T. and Nyalugwe S. (2019). A Data Mining Approach for Analysing Road Traffic Accidents. IEEE Xplore. Retrieved from:</p> <p><a href="https://ieeexplore.ieee.org/document/8769587">https://ieeexplore.ieee.org/document/8769587</a>  <b>[Published]</b></p>	2019	<p>With increasing use of technologies, the amount of accident data has been growing at an ever-increasing rate in the last few years. Government entities and private sectors have been busy and involved in collecting accident data on daily bases. Data for accidents is often among the most valuable assets since it helps in budgeting and implementation of policies and also helps policymakers to make decisions pertaining to infrastructure planning and development. But, as the mount of this data is growing, there is high demand and a need of finding methods, technique and tools to analyse such large volumes of data and find a solution to understand the cause of increasing accidents in different</p>

			<p>regions of the world. In this research, we propose and implement a data mining framework to identify, analyse and determine attributes contributing to road accidents. The main aim of this research project is to implement a data mining framework for analysing the relationship between accident attributes and make recommendations for preventing the high occurrence of these accidents. This framework is evaluated with road accidents data from Khomas region, Namibia. The results demonstrate that the use of such an analytical tool can help in creating a knowledge base. The results find out that male drivers have massively contributed to the higher risk of accidents, especially, at intersections and during daylight. It also observed that young drivers are often involved in road traffic accidents happening in clear areas. Proportionally, old aged drivers are most likely to be involved in fatal accidents than in non-fatal accidents.</p>
15.	<p>Ujakpa M. M., Heukelman D., Kleinveldt L., Nyalugwe S., &amp; Kiana L. (2019). Use and Acceptance of E-Books among Undergraduate Students. IEEE Xplore. Retrieved from:</p> <p>[<a href="https://ieeexplore.ieee.org/document/8764835">https://ieeexplore.ieee.org/document/8764835</a>]</p> <p>[<a href="http://www.ist-africa.org/home/outbox/ISTAfrica_Paper_ref_73_10910.pdf">http://www.ist-africa.org/home/outbox/ISTAfrica_Paper_ref_73_10910.pdf</a>]</p>	2019	<p>The study aimed at establishing the use and acceptance of e-books by book readers in a Namibian university. Applying a mixed methods approach, a survey questionnaire was administered to 35 undergraduate students initially and in a second phase telephonic interviews were conducted with 12 purposively selected surveyed students based on their questionnaire responses to get a deeper understanding of student experience utilising e-books. Findings revealed that the use and acceptance of e-books in Namibia is still in its infancy. Although there is an awareness of e-books among students, most of them prefer print books. One of the reasons for low e-book usage was due to insufficient training on how to access them. It was recommended that faculty officers at this university collaborate with librarians to ensure prescribed e-books are purchased or subscribed to and adequate Information Literacy training is</p>

	<b>[Published]</b>		provided to students. Future research that focuses on expanding the sample size to include all faculties, benchmarked against different universities nationally and internationally will give further insight into e-book uptake in the digital age in Africa and globally.
16.	Vibi D., Gabriel P. S., Mbangu A. and Kamati E. (2019). Mathematical Mind Boosting Software. National Students' Research Symposium, Windhoek, Namibia. <b>[Published]</b>	2019	In this paper, the developer will be exposing a software that will be able to challenge the human brain in terms of mathematical abilities which will result in quick thinking for most people's daily life. The development will be elaborating on the reason behind the development of such a program and with consideration to its features and unreached areas of the mathematic domain. This research seeks to develop a mind boosting software. The developer has the awareness that with the way technology has been advancing, devices are being built and one of the most harmful ones to the human brain would be the calculator. Though it is solving lots of problems, it also brought its own and that which should be considered is its ability of creating dependency on the user, and that also include that people are now having a low and slow level of response skills. This project intends to develop a software that will attract the attention of the users, it can challenge/train the user's brain, it will centralize the mind's focus, it would be able to separate from calculators and it is basically made for all ages and it does not contain complex algebras, which means that the earlier the person or user is capable of operating calculations and acquire the basic computer skills such as typing and button control knowledge, the developer says that such is the lowest range of users that are eligible to use this software. This has been developed especially for Namibia although the developer has foreseen the usefulness of such a program to help almost every areas and populations even outside of Africa. This development might be able to determine whether the targeted population and considered other

			areas would be able to discover ease of use and usefulness in the making of such an application. Therefore, this extract will tend to propose a solution into the dependency to a machine in order to perform operations that can practically be done using the brain.
17.	<p>Osakwe J. &amp; Ujakpa M. M., G. Iyawa and K. Florich (2019). Enabling Quality Education in Namibia Through Mobile Learning Technologies: The High School Teacher’s Perspective. IEEE Xplore. Retrieved from:  <a href="https://ieeexplore.ieee.org/document/8764843">[https://ieeexplore.ieee.org/document/8764843]</a></p> <p><a href="http://www.istafrica.org/home/outbox/ISTAfrica_Paper_ref_169_10782.pdf">[http://www.istafrica.org/home/outbox/ISTAfrica_Paper_ref_169_10782.pdf]</a></p> <p><b>[Published]</b></p>	2019	Mobile devices have undergone transformation from being used as a channel of communication to tools for teaching and learning. This study ascertained how mobile learning technology can enable quality education in Namibia. It assessed teachers’ perception and the usage pattern of mobile technology in three regions of Namibia (Erongo, Khomas and Otjozondjupa regions). 72 teachers were carefully selected from nine (9) high schools in the 3 regions. Data collected through a questionnaire was analysed using the statistical package for social sciences (SPSS). The findings revealed that teachers are already using mobile devices for academic purposes. It also revealed that majority of the teachers use mobile devices for educational purposes and teachers are of the belief that mobile devices can enhance quality education.

18.	<p>Ujakpa M. M, Heukelman D., Rodriguez-puente R and Mutasa L. (2019). Use of Mobile Devices at Workplace. 2019 Global trends in Management, IT and Governance in an e-World Conference (e-MIG 2019), May, 2019, Balaclava, Mauritius. Retrieved from:  <a href="https://e-mig.ukzn.ac.za/wp-content/uploads/2020/03/eMIG-2019-CP.pdf">https://e-mig.ukzn.ac.za/wp-content/uploads/2020/03/eMIG-2019-CP.pdf</a></p> <p><b>[Published]</b></p>	2019	<p>Apart from becoming a necessity in many people’s lives, mobile devices have become an employment opportunity and an economic growth tool in many developing countries. Some people may view the use of mobile devices at the workplace as a disruption, while others may view it as a tool that improves communication and impacts positively on productivity and performance. To ascertain whether mobile devices are disruptive or not, this study examined the perceived use of mobile devices at the workplace and its perceived effect on performance. Applying a quantitative study design, data were collected from 400 employees from various industries. The results indicate that mobile devices are often used inappropriately at workplace; however, when used appropriately, it could benefit organizations. Work related phone calls improve work performance. Although restriction can curb inappropriate usage of mobile devices, it negatively affects employees’ morale if implemented. The study was conducted using a small sample from ten selected industries in Namibia; it is therefore recommended that future studies draw a larger sample from more industries that are diverse across Southern Africa to extend the</p>
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19.	<p>Haitula-Waiganjo I. (2019). Mobile Device Security Issues in a Mobile Device World. United Nations - International University of Management, 2019 Annual Conference. Windhoek, Namibia.</p> <p><b>[Published]</b></p>	2019	<p>In recent years, mobile devices are booming in use due to magnificent forms of connectivity provided by them, connectives like GSM, GPRS, Bluetooth and internet. However, the use of mobile devices also opens up new areas of vulnerability to drowning cyber-criminal eyes and targets on mobile devices (Aljudiabi, 2016). This article shares the mobile devices vulnerability that arises within mobile ecosystem and reviewed some currents mobile cyberattacks which have been reported. The article further discusses some possible security measure which users can apply.</p>
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20.	<p>Kamati E. and Akinsola, O. S. (2019). Healthcare ICT Solution Implementing and the need of Informatics Workforce Development for Namibian Health Sector. United Nations - International University of Management, 2019 Annual Conference. Windhoek, Namibia.</p> <p><b>[Published]</b></p>	2019	<p>Information and communication technologies (ICTs) play a major role in many spheres of life today. Many people across the world rely on ICT in their everyday lives in order to Access a wide range of services. The cost of ICT has fallen drastically and many people can afford them. Many organisations in both developed and developing countries across different sectors have fully embraced ICTs in order to transform business processes and provide efficient services to their clients. The banking sector is one outstanding example. It is however observed that the health sector in developing countries is still lagging behind in the successful implementation of ICTs in order to transform many areas affecting health care delivery. The benefits that ICT can offer to the health care industry cannot be overemphasised. In order to improve and maintain health care service delivery as well as biomedical research, part of the solution is to successfully implement and use ICT. Nevertheless, the successful implementation and use of ICT in health care depends on having an adequate workforce with the appropriate knowledge and skills. They however unfortunately allege that there is an inadequate size and shortage of appropriate skills needed to drive the implementation and use of ICT in the health sector. Lack of skilled workforce that understands healthcare, information and communication technology, the people and organisational challenges is one of the major problems that hinder successful implementation of health information communication technologies.</p> <p>The objectives of this research are as follows:</p> <ul style="list-style-type: none"> <li>• To determine the roles and responsibilities of health information workers.</li> <li>• The types of information systems used in the health sector.</li> <li>• To determine the type and level of skills as well as educational training needed by</li> <li>• Health information workers.</li> <li>• To find out the methods that needs to be utilised to measure health informatics workforce needs in developing countries.</li> <li>• To propose a framework for identifying workforce needs in specific developing countries.</li> </ul> <p>Quantitative method will be used to collect the data required for this research.</p>
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21.	<p>Iyambo Z. F, Nuuyoma E., Makua D., Ujakpa M.M. and Timoteus Sheepo (2019). <i>Enhancing the Quality of Learning Programme through Accreditation by Namibia Qualifications Authority: The Case of Subject Matter Experts</i>. 1<sup>st</sup> Namibia Quality Assurance in Higher Education Conference, Windhoek, Namibia.</p> <p><b>[Published]</b></p>	2019	<p>Accreditation is a status and process of external quality review used by higher education institutions (HEIs) to scrutinize higher education programmes for quality assurance and quality improvement. Quality assurance bodies use accreditation model founded on the principles of subject matter experts (SMEs). However, SMEs have been criticised due to lack of knowledge about SMEs' role; weak preparation; disciplinary and personal experience biases (academic, one sided experience of public HEIs, and schools of knowledge), and lack of information about programmes to be evaluated. This study aimed at investigating the NQA process of programmes accreditation regarding SMEs. System Theory was used as the lens that assisted us in analysing data for this study.</p> <p>The study applied a mixed research approach through document analysis by review of programme accreditation regulations and procedures from different quality assurance systems looking at the number of SMEs and where they are drawn from. Documents analysis and literature review revealed that Zimbabwe's ZIMCHE, Lesotho's CHE, Mauritius' TEC, and IChemE, all use 3 SMEs per programme; whereas Botswana's TEC, Netherlands, US, India, Turkey, and other international accreditation bodies for professional programmes such as AITSL, and EFMD use more than three SMEs per programme. The study found that most systems use an average of three SMEs per programme drawn from academia, industry, research and development organizations, professional bodies, and students. The study also found that NQA regulations did not specify how many SMEs and where they would be drawn from for each learning programme seeking for accreditation in comparison to the practice of NCHE which uses four SMEs in accreditation of learning programmes in public HEIs in Namibia. It was further found that there is a silence on involvement of students in the programmes accreditation by NQA. The study recommended a minimum of three to five SMEs from industry; academia; professional bodies; R&amp;D organizations; and students in evaluation of each learning programme. It further recommended that NQA review the current programme accreditation regulations and develop accreditation manuals for each learning programme seeking for accreditation in approved fields of studies.</p>
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22.	<p>Vibi D., Ujakpa M.M, Fundisi J. and Muringi J. (2019). Audio-Visual Learning Game Prototype (AVGP). International University of Management / UNDP, 2019 Annual Conference. Windhoek, Namibia.</p> <p><b>[Published]</b></p>	2019	<p>The importance of audio-visual technologies (AVTs) in learning cannot be overemphasize as learning via AVTs generates exciting and interactive environment for learning. The use of AVTs in the fourth industrial revolution era is obvious and will even become more pervasive as learning technologies are built to meet the needs of different learners (auditory, visual and tactile). To meet the needs of different learners in the 4th industrial revolution and beyond, it's necessary for learning materials to be designed such that it is usable and useful to all categories of learners. In view of this, this research project applied the design science research methodology to design and develop an Audio-Visual Learning Game (AVLG) Prototype that allows for colour, fruits &amp; vegetables identification &amp; pronunciation, word pronunciation, spelling &amp; comparison and performance of arithmetic operations. Currently the prototype does not allow verbal spelling of words and consist of only basic features. It has also not been tested extensively with users to confirm acceptance and usability. It is therefore recommended that the prototype be tested and additional features increasingly added to it. Future development of similar prototype should include an online and app version.</p>
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23.	<p>Lupandu J., Ujakpa M.M and Sheepo T. (2019). Effect of Job Satisfaction on Employee Retention: The Case of International University of Management / UNDP, 2019 Annual Conference. Windhoek, Namibia.</p> <p><b>[Published]</b></p>	2019	<p>This study assessed the effect of job satisfaction on employee retention using the Ministry of Labour, Industrial Relation and Employment Creation at Khomasdal, Windhoek, Namibia as a case study. Using self-administered questionnaire, exit interviews and document review, data was collected from two hundred and forty-four participants. Results of the study indicate that age and gender significantly influenced employee's job satisfaction. Additionally intrinsic job factors (working environment, professional training and workshop availability, organizational culture, promotion and interpersonal relations) have significant influence on employees' job satisfaction. Other job factors that were found to also have significant influence on employees' job satisfaction include salary, caseload and supervisor type. Finally the study found that a high risk of employees' exiting (turnover) an organization than staying in the organization (retention). The study therefore recommends the need to motivate employees, change general organizational culture, improve reward systems and support employees' professional development in order to motivate employee's to stay. Since this study employed only one ministry as a</p>
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24.	<p>Jafet Amukoto, Martin Mabeifam Ujakpa, Shapua Lazarus., Laiza Mutasa &amp; Aussie Nkrumah Mutalya Asset Lease Management System (ALMS). International University of Management / UNDP, 2019 Annual Conference. Windhoek, Namibia.</p> <p><b>[Published]</b></p>	2019	<p>Moving forward into the fourth Industrial revolution, it will be very challenging for organisations without automated systems to follow through the industrial era. Such organisations may miss on the many opportunities offered by the industrial era. Among organisations that could miss the said opportunities are those in the asset management sector. Using the sub section: letting, at the Ministry of works and transport in Namibia as a case study, this project worked at automating the manual asset management process in the ministry. The said subsection above is responsible for leasing and contract management and as result, receive clients' application and process them manually. Due to the manual process, information classification, storage, distribution and security seem not to be very efficient or reliable. Inconsistency in rental charges and collection of state revenue may arise from time to time based on the manual practice. To overcome this and position asset management in organisations, this project developed an Asset Lease Management System (ALMS). The system was developed using the design science approach to gather user requirements, specifying the system specification and designed the system prototype. Because the sub section: letting, at the Ministry of works and transport in Namibia was used as case study to design the system, the system may look more like the Ministry of works and transport system. However if customized, can be used by any asset inventory unit of any organisations. It could also be used by an organization that is fully into Asset Lease Management. At the moment, the ALMS is unable to give automated notifications of expiring leases to clients and only using virtual banking system. It is recommended that the prototype be tested and further work be carried out on the prototype to include the short messaging service (SMS) and banking</p>
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<p>25.</p>	<p>Ujakpa M. M. and Heukelman D. (2018). Extended Technological Acceptance Model for Evaluating E-Learning: The African Context (ETAM-4EEA). <i>10th International Conference on Education, Business, Humanities and Social Sciences Studies (EBHSSS-18)</i>, Nov. 19-20, 2018, Cape Town, South Africa.</p> <p>Retrieved from:  <a href="https://www.eares.org/siteadmin/upload/3350EAP1118444.pdf">https://www.eares.org/siteadmin/upload/3350EAP1118444.pdf</a>  <a href="https://www.earbm.org/conf-proceedingspdf.php?id=58&amp;slug=PAC-BES-19&amp;sid=2&amp;catDid=160">https://www.earbm.org/conf-proceedingspdf.php?id=58&amp;slug=PAC-BES-19&amp;sid=2&amp;catDid=160</a></p> <p><b>[Published]</b></p>	<p>2018</p>	<p>The Technological Acceptance Model (TAM) was developed in USA, which is culturally different from Africa. Due to the cultural differences and the Africa cultural diversity, applying the existing TAM to evaluate applications intended for use in Africa, might not produce good results. To accommodate cultural diversity, and in particular the African culture, relevant literature was reviewed and a mixed approach applied to collect and analyze data. The data were collected from 50 learners in five universities across five African regions (North, South, East, West and Central). The data were analyzed using Cronbach's <math>\alpha</math> measure, Kaiser-Meyer-Olkin (KMO) measure, Bartlett's test of sphericity, confirmatory factor analysis (for each construct) and descriptive statistics (average mean and standard deviation). Based on results, an Extended Technological Acceptance Model was developed. The proposed model has four main constructs: Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Perceived Performance (PP) and Benefits (B). Each of the constructs influence Behaviour Intention. Contrary to Davis, PEOU rated higher than PU: among the four constructs, PU rated the lowest. The study found that PEOU influence PU: this confirms Davis findings. Considering that this study only developed a model, it is recommended that the model is tested using a different information systems in Africa.</p>
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26.	<p>Ujakpa M. M., Heukelman D., Lazarus V. K., Neiss P. &amp; Rukanda G. D. (2018). Using WhatsApp to Support Communication in Teaching and Learning. <i>IEEE Xplore</i></p> <p>Retrieved from:  <a href="http://www.ist-africa.org/home/outbox/ISTAfrica_Paper_ref_68_10139.pdf">[http://www.ist-africa.org/home/outbox/ISTAfrica_Paper_ref_68_10139.pdf]</a></p> <p><b>[Published]</b></p>	2018	<p>Digital children are surrounded by various digital media such as Facebook (social media) and WhatsApp (instant messaging tools). Communication dynamics have been affected by these media. As a result, teaching and learning has been impacted by the emergence of these technological media. This study investigated the use of WhatsApp to support communication in teaching and learning in a small university, using questionnaires and interviews to gather data from 166 students and the 2 lecturers. The study found that when used to support communication in teaching and learning, WhatsApp enhances student-to-lecturer interaction, students-to-student interaction, student-to-lecturer intimacy and student-to-student intimacy. It also increased student's interest in a course on condition that lecturers and other students create some sense of humour during teaching and learning on the WhatsApp platform. Due to unnecessary post by some students, it's recommended that WhatsApp platform be improved such that group Administrators can restrict postings to groups (but viewing not block). Also it should be improved to include optional structured or unstructured conversation (especially for a group). Lecturers and students should add course related humour during interaction to sustain interest of slow paced students till they catch up.</p>
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27.	<p>Ujakpa M. M., Heukelman D., Lazarus V. K., Neiss P. &amp; Rukanda G. D. (2018). Using WhatsApp to Support Communication in Teaching and Learning. <i>IST-Africa 2018 Conference</i>, Botswana, Garobone.</p> <p><b>[Published]</b></p>	2018	<p>Digital children are surrounded by various digital media such as Facebook (social media) and WhatsApp (instant messaging tools). Communication dynamics have been affected by these media. As a result, teaching and learning has been impacted by the emergence of these technological media. This study investigated the use of WhatsApp to support communication in teaching and learning in a small university, using questionnaires and interviews to gather data from 166 students and the 2 lecturers. The study found that when used to support communication in teaching and learning, WhatsApp enhances student-to-lecturer interaction, students-to-student interaction, student-to-lecturer intimacy and student-to-student intimacy. It also increased student's interest in a course on condition that lecturers and other students create some sense of humour during teaching and learning on the WhatsApp platform. Due to unnecessary post by some students, it's recommended that WhatsApp platform be improved such that group Administrators can restrict postings to groups (but viewing not block). Also it should be improved to include optional structured or unstructured conversation (especially for a group). Lecturers and students should add course related humour during interaction to sustain interest of slow paced students till they catch up.</p>
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28.	<p>Aludhilu N. H &amp; Bidwell J. N (2018). Home is not Egumbo: Language, Identity and Web Design. The 2nd African Conference for Human Computer Interaction, 2018. Windhoek, Namibia.</p> <p><b>[Published]</b></p>	2018	<p>We analyse some of the ways that English shapes technology production in Namibia by critically reflecting on translations in designing the first fully bilingual Oshindonga website. We show that English, and symbols linked to English, perform in technologists' lifeworlds, felt-experiences and identities. Our reflections add to literature on mismatches between 'universal' paradigms and local ways of knowing. More significantly they inspire deeper exploration of how language constrains design possibilities. Design research rarely remarks on linguistics in constructing technology or technologists. Yet, relationships between English and technology production exclude and inhibit the involvement of social, intellectual and emotional capitals in innovation.</p>
29.	<p>Aludhilu N. H &amp; Bidwell J. N (2018). Home is not Egumbo: Language, Identity and Web Design. Association for Computing Machinery (ACM) Digital Library, 2018</p> <p><b>[Published]</b></p>	2018	<p>We analyse some of the ways that English shapes technology production in Namibia by critically reflecting on translations in designing the first fully bilingual Oshindonga website. We show that English, and symbols linked to English, perform in technologists' lifeworlds, felt-experiences and identities. Our reflections add to literature on mismatches between 'universal' paradigms and local ways of knowing. More significantly they inspire deeper exploration of how language constrains design possibilities. Design research rarely remarks on linguistics in constructing technology or technologists. Yet, relationships between English and technology production exclude and inhibit the involvement of social, intellectual and emotional capitals in innovation</p>

30.	<p>Ntinda N. M. &amp; Bidwell J. N (2018). Solo or Peers: Technology Mediated Learning of Programming. The 2nd African Conference for Human Computer Interaction, 2018. Windhoek, Namibia.</p> <p><b>[Published]</b></p>	2018	<p>We explored how teaching and learning programming can be made at home in Namibian university students' existing practices with their phones. We analysed practices that emerged in using WhatsApp group chat amongst 219 students registered for a first-year programming course. We also analysed responses by a small sample of 22 students to a questionnaire about social media and SoloLearn Learn C#, an online learning application that some students began to use during the module. We found that students supported each other by sharing learning resources and helped each other with theoretical and practical problems through WhatsApp. We suggest that developing functionality on a focused mobile social media resources, with different settings for supporting each other might provide valuable pedagogical tools to engage different students.</p>
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31.	<p>Ntinda N. M. &amp; Bidwell J. N (2018). Solo or Peers: Technology Mediated Learning of Programming. Association for Computing Machinery (ACM) Digital Library, 2018</p> <p><b>[Published]</b></p>	2018	<p>We explored how teaching and learning programming can be made at home in Namibian university students' existing practices with their phones. We analysed practices that emerged in using WhatsApp group chat amongst 219 students registered for a first-year programming course. We also analysed responses by a small sample of 22 students to a questionnaire about social media and SoloLearn Learn C#, an online learning application that some students began to use during the module. We found that students supported each other by sharing learning resources and helped each other with theoretical and practical problems through WhatsApp. We suggest that developing functionality on a focused mobile social media resources, with different settings for supporting each other might provide valuable pedagogical tools to engage different students.</p>
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32.	<p>Ujakpa M. M., Arora R., Mutalya A. K. N. &amp; Namulo L. (2017). Employee Adoption of E-Procurement and its Implication on Supply Chain in Developing Countries. <i>International Journal of Computer Applications</i>, 171(9).</p> <p><b>[Published]</b></p>	2017	<p>The main objective of this study is to examine the adoption of e-procurement and its implication on supply chain of multinational Oil Companies using Ghana as a case study. The research employed the mixed research approach. Using a sample size of 37, data was collected and analysed. The research revealed that procurement activities in ENI oil Exploration Company involves effective planning, sourcing, and contract management. It also found that e-procurement has been adopted by employees in ENI oil Exploration Company to a large extent. Factors influencing the implementation of e-procurement in the supply chain of ENI are primarily user acceptance of new information system, as well as Information quality, trust, and risk perception. Mean ranking revealed that the major implication of e-procurement on the supply chain include centralized purchasing function, decrease in size of buying centre, altered vendors and suppliers relationship, ability to measure and monitor orders, sales personnel ability to check all sales related information on his/her computer and employees empowerment to manage purchasing and cost saving.</p>
33.	<p>Ujakpa M. M., Fundisi J., Mutasah L., Lazarus V. K., Naemi M. U., Sheepo T. &amp; Eshun J. (2017). Customer Satisfaction Assessment Using the SERVQUAL Model. <i>Science Journal of Business and Management</i>, 5(5), Pp.194-198.</p> <p><b>[Published]</b></p>	2017	<p>The main objective of this study is to examine customer satisfaction in the banking sector using the SERVQUAL model and Ecobank Ghana Limited in Ghana as a case study. The research employed the quantitative research approach. Using a sample size of 150, data was collected and analysed. The research revealed that expectations of customers exceeded their perceptions. The interpretation of this result using the disconfirmation theory is that customers are generally not satisfied with the quality of service they receive from the bank. The conclusion drawn in this regard is that, Ecobank Ghana Limited is not fully meeting the expectations of their customers and hence need to do more to improve its service quality as a means of satisfying their customers so as to remain competitive. The research population was restricted to three Ecobank branches: all in one township and hence the results of the study cannot be generalized. Future studies should therefore look at conducting a countrywide study.</p>

34.	<p>Sylvester Hatsu, Ujakpa Martin Mabeifam &amp; Philip Carlis Paitoo (2016). Infrastructure Sharing Among Ghana's Mobile: Telecommunication Networks: Benefits and Challenges. <i>American Journal of Networks and Communications</i>. 5(2), Pp 35-45.</p> <p><b>[Published]</b></p>	2016	<p>In Ghana network companies such as Vodafone, Mobile Telecommunication Network, Airtel, Tigo, Espresso and Globacom (GLO) are experiencing increasing subscribers for voice calls, internet and video services. Competition in the industry has been intensified making service providers searching for innovative strategies to survive the competition. Strategies adopted to survive the stiff competition include rebranding, infrastructure sharing and mergers and acquisitions. This study focuses on infrastructure sharing as a strategy to reducing cost for these telecommunication service providers in Ghana. Mobile telecommunication industry in developing countries has players a remarkable role in providing services to large portion of the population.</p> <p>Despite the achievement in reaching large numbers, extra efforts are needed to increase the mobile service penetration. In increasing the penetration, attention needs to be focused on the rural areas. High network infrastructure cost has been the major problem. As operators strive to recoup investment cost associated with building the expensive infrastructure, customers tends to suffer from high network charges/ prices. Infrastructure sharing presents itself as a means of lowering network deployment cost, especially in rural and marginalized areas. Sharing has an advantage to stimulate migration to new technologies and mobile broadband deployment. Arguably, another advantage is the stirring up of competition between mobile operators and service providers, when safeguards are used to prevent anti-competitive behavior.</p>
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35.	<p>Rajesh Arora, Martin Mabeifam Ujakpa, Fundisi Jonathan, Kwasi Appiah-Annin and Peter Tackson Mwanza (2016). Challenges Inhibiting E-Zwich Electronic Payment System. <i>Journal of Information Engineering and Applications</i>. 6 (10). Pp18-31.</p> <p><b>[Published]</b></p>	2016	<p>The objective of the study is to establish the challenges of e-zwich electronic payment system in Ghana. To achieve this, studies examined the ownership and usage of e-zwich smart cards, established challenges of e-zwich payment system in Ghana and determine factors that are responsible for the challenges of the e-zwich payment system in Ghana. The research study employed the qualitative research design. The population for the research comprised of 368,217 Representatives and Senior Officers 25 selected Banking and Financial Institutions from the Tarkwa Nsuaem Municipality. The sample size of 100 for the study was determined using the International Fund for Agricultural Development (IFAD) formula. Respondents for the study were then chosen using the purposive sampling technique. Data collection instruments employed for the study is questionnaires and interview.</p> <p>The study found that there is a high preference for Electronic Payment Systems (EPS) by the youthful population. Most people that use electronic payment models were educated and have basic knowledge of the benefits and use of Electronic payment instruments. ATM dominated as the most used medium for electronic transactions by customers. It was followed by the e-zwich payment system and the least patronized electronic payment system was cheques. Though some people had one or more electronic payment instruments, they were reluctant to use it for electronic transactions as a result of challenges of electronic payment systems. With specific references to e-zwich payment system, the study established the following challenges; customers lack of Information Technology knowledge/skills and e-zwich complex operating procedures. Factors that cause these challenges include customers' preference for cash payments, inadequate education on the e-zwich payment system, preference for human tellers, inadequate e-zwich Point Of Service devices and negative attitudes towards new products.</p>
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36.	<p>Sylvester Hatsu, Martin M. Ujakpa, Enoch D. Mpimwood. (2015) An Examination Of The Extent Of Implementation Of Information Security System and IT Audit System In Ghanaian Banks. <i>Journal of Information Engineering and Applications</i>. 15 (11). Pp33 – 34.</p> <p><b>[Published]</b></p>	2015	<p>The study examined the impact of information security and information technology (IT) audit in selected banks in Ghana. The study specifically, ascertained the degree of exposure to threats, it examined the extent of implementation of information security and IT audit system in the bank to protect information from threats, determined the impact, the performance and finally identified the challenges of the banks in managing information security system. A structured questionnaire was used as the main research instrument. Four banks were selected for the study, including two local and two foreign banks. A total of 20 employees (5 from each) were sampled from the Headquarters of each bank in Accra. Only managers, IT managers, and Risk managers were sampled. The study found that the sampled level exposure of banks to threats to information systems is low. Local banks were however more exposed to threats than foreign banks. Largely the banks managed threats to information system by implementing strategies, including having an information security policy, information security organization, asset and human resource security system, information access control IT Audit system. The performance of banks in information system was moderate. Information security and IT audit system had correlated positively to the overall performance of the banks. Availability of information security policy has significant positive impact on bank performance. The study encouraged the banks to improve upon their information security and IT audit practices to</p>
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