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Is the Impact of Human-Computer Interaction in Religious Organisations a Hype or Crossword?

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This paper is particularly aimed towards any of the following topic areas for the conference:

- Human-Computer Interaction
- IS Diversity and Diversity in IS
- IS Artefacts and IS Artefact Design

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Abstract

The application of human-computer interaction is on the rise in sectors that were in previous years lagging, such as in place of worship and other forms of churches. While there has been hype about human-computer interaction is all areas of human undertakings. However, few research studies have assessed the impact of human-computer interaction in religious organisations. It is, therefore, paramount to assess the impact and implementation of HCI on the management of religious organisations. In this current research, the Seventh-day Adventist (SDA) church was chosen as a case in point. The study employed a qualitative approach whereby data were gathered using semi-structured interviews, and various levels of church leaders (elders) were interviewed. Using Atlas-ti software tool, the results presented several themes on how human-computer interaction could meaningfully improve the operations of religious organisations with regards to spiritual health, economic, and performance impact.

Keywords: Religion, Technology, Interaction, Human-Computer Interaction, Human Performance Computing, ICT4D.

1 Introduction

The adoption of information and communication technologies (ICTs) in religious organisations such as the Seventh-day Adventist (SDA) Church is increasing. This increase is evident by the tremendous demand for information technologies (ITs) tools, e.g., business intelligence (BI) software. Gartner forecasted growth on the global revenue of BI to $18.3 billion in 2017, which is an increase of 7.3% from 2016 (Gartner, 2017). It was also predicted that 75% of professionals in the business would deploy ICT solutions by 2020 (Murugesan & Karthikeyan, 2016). This global demand of ICTs has prompted different churches to adopt and use various ICTs such as mobile phones applications, websites, satellite dishes, fibre optics and projectors in furthering the gospel. The increase in demand of ICTs has made Human-Computer Interaction (HCI) an essential study in all religious endeavours especially with the current implementation of 5g network that enabled the use of Wi-Fi calling on mobile phones would assist the church leaders to reach congregation on scheduled pastoral advice/counselling and decision making at no cost. HCI seeks to develop systems that are more user-friendly, convenient, safe, efficient and effective.

HCI studies how people design, implement and use interactive computer systems and how computers affect individuals, organisations, and societies (Myers et al., 1996). This is critical in this era where various technologies (ICTs) are being used in churches. There are, however, few studies that have assessed the impact of interactive systems on the management of religious organisations. The adoption of technologies (ICTs) in this domain has enabled church leaders to improve the operations of their ministries. For instance, the use of pastoral analytics for financial reporting, membership management, pastoral/elder care, the setting of goals (e.g., baptismal highlights, dashboards for church affairs) has helped tremendously towards the growth of the churches (Pelley, 2014). The ICTs being used in churches range from non-interactive to highly interactive systems. ICTs have provided churches with new interaction techniques when it comes to user support, improved how information is accessed and provide ways of communication (Myers et al., 1996). It is, therefore, crucial to assess the usefulness of HCI in religious organisations among church leaders.

1.1 Research Objectives

The objectives of this research were to (i) explore the potential usefulness of HCI to church leaders, (ii) assess the impact of HCI in the management of religious organisations and (iii) provide criteria for future HCI developments in religious organisations.

This paper is structured as follows: Section 2 discusses the literature reviewed, Section 3 describes research methods and participants, Section 4 discusses the findings, and finally, Section 5 concludes the paper.

2 Literature Reviewed

2.1 Human-Computer Interaction Perspective on Religion and ICT Use

HCI is defined as the discipline of designing, evaluating and implementing interactive computer systems for human use, as well as the study of significant phenomena surrounding this discipline (Preece et al., 1994). HCI seeks to improve interaction between users and computers by providing products that are "effective to use (effectiveness), efficient to use (efficiency), safe to use (safety), having good utility (utility), easy to learn (learnability), and easy to remember how to use (memorability)" (Sharp et al., 2007, p.20). HCI incorporates users throughout the development of software so that it meets the needs of the users. Besides the ease of use of the product, HCI also establishes interaction techniques for supporting tasks performed by users, providing efficient access to information, and providing some form of effective communication (Sharp et al., 2007). HCI is crucial in areas where users interact with computers such as churches where leaders use computers for the management of church operations. Church leaders use computers to prepare management tasks such as creating reports, sermon preparations and preparing financial statements. HCI helps ICT developers built systems that interact better with church leaders.

ICTs involve telecommunications, applications, devices, data and information management techniques that are used to create, produce, process, analyse, package, transmit, retrieve and store information (Taylor, 2015). ICTs include technologies such as telephone, radio, television (TV), fax, video, Internet and computers (Chhachhar et al., 2014). The information generated from these ICTs are used to aid in decision-making processes to improve the quality of decisions made in

organisations. The advent of ICTs has enabled people to have access to information, improve the flow of information and communications and provide traditionally disadvantaged groups with communication channels (Alassiri et al., 2014). This usage has enabled information sharing, knowledge generation, research, advertisement, marketing, and enlightens the people in the community (Osawaru, 2010). ICT is increasing in most sectors, as seen currently in religious organisations, agricultural sectors, banking, schools, retail enterprises and manufacturing industries. In some of these sectors, the impact of ICT has been tremendous (De Wet, et al., 2016: Tichaawa, et al., 2017).

It is not always easy to measure or quantify the benefits that are derived from the use of ICT solutions. For organisations to get maximum benefits, they need to implement these solutions correctly (Haupt et al., 2015). These ICT benefits do not come automatically but are mostly dependent upon successful implementation of appropriate and viable ICT solutions. Therefore, ICT adopters should be able to critically select the most appropriate ICT solutions that best fit their environment. ICT systems assist decision-makers with the appropriate information, competitive organisational edge, customer satisfaction, improvement of organisation processes and they help organisations to run data analytics (Wanda & Stian, 2015).

Furthermore, ICTs improve the efficiency of organisations' operations, saves time of the users and also reduce the costs of an organisation (Watson & Wixom, 2007). Organisational decision-makers use ICT tools to make strategic decisions such as identifying new market and changing company product line (Watson & Wixom, 2007). These decisions may not be easy to make by just mere reasoning without proper information but are improved through the use of ICTs such as BI analytics. These benefits derived from the use of ICTs can also be realised by other sectors such as religious organisations which are still lagging. Despite several benefits associated with ICT, it was seen in some studies such as the one conducted in Croatia that ICTs are not yet equally accepted in all sectors or companies but more prevalent in large organisations or the ones that are more competitive on the market (Dubravac & Bevanda, 2015).

3 Methods and Participants

The research study used exploratory qualitative research design. Data was collected using semi-structured interviews targeting church leaders geographically located in the four conferences of the SDA church in South Africa. Data were collected from 12 church leaders: six pastors, three elders and three treasurers. The conference websites were used to identify church officers and emails were sent requesting them to participate in the interviews. All interviews were recorded and transcribed. Each participant was allocated a unique code (P1 to P12) for participants to remain anonymous.

The research used a purposive sampling approach to identify these participants. This allowed the researchers to use their judgement to select participants who were rich in data. Researchers looked for leaders who are using ICT in the ministry. During interviews, participants were asked on the uses of ICTs by church leaders in religious organisations, to assess the impact of ICTs on religious organisations and criteria that are considered by leaders when adopting ICTs. Participants were given some follow-up questions where it was necessary to get all the required information from participants. The data was then analysed using Atlas-ti version 8 and codes were created from the data. The researcher then grouped together similar and related codes to create themes. The findings of the research are presented in form of themes.

4. Findings

4.1 HCI usefulness in Religious Organisations

This section gives a discussion on the usefulness of HCI in religious organisations focusing on the SDA church. The participants were asked to explain ways in which they use ICTs when carrying out their ministerial tasks. The following themes emerged from these interviews: computer-mediated communication, evangelism, administration of church records, platform for promoting church programs, Sabbath activities and enhancement of worship services through visuals and audios and mobile decision making.

4.1.1 Computer-mediated Communication

This research established the importance of effective communication in religious organisations for them to achieve their set goals and objectives. HCI enables

computer-mediated communication. Computer-mediated communication is human communication conducted through a computer. This communication is conducted using various forms of interaction such as synchronous, asynchronous or real-time. Computer-mediated communication has a more significant impact on religious organisations (Tsai, 2015). This assumption was also confirmed in this research. It was shown that the church is using ICTs such as phones, computers and social media to communicate within and outside the church. Participant P1 highlighted that ICTs are being used to keep track of voice of prophecy (VOP) students, as they study their Bible lessons. Participant P1 said, "... getting feedback regarding the lessons that they are doing for VOP that happens every evening." Participants such as P1 and P9 indicated that most of the communication takes place on platforms such as WhatsApp because of the convenience that comes with it. All participants interviewed indicated that they use mainly WhatsApp and emails for communication purposes for example participant P2 said "it is generally agreed that WhatsApp is the fastest communication channel so that is the one that we use. We used to use emails but people rarely check their emails but people are always on WhatsApp with their phones so I think that is the main reason why the criteria changed to WhatsApp." This was also confirmed in the following researches (Church & de Oliveira, 2013: Wyche & Grinter, 2009).

Participants indicated that they are in one or more groups on social media platforms such as the Elders' council, church board and finance department. It was noted from data analysed that leaders give announcements, send meeting agendas and minutes, give feedback of events and share material with the members on social media platforms as also supported in (Lim, 2017). Participant P12 stated as follows, "We are able to use WhatsApp when we communicate as Elders or the church board …, so it makes things very effective". Some participants, such as P6 and P10, highlighted that some meetings are being conducted online. Participant P7 indicated that some churches are using online platforms such as ZOOM to conduct Sabbath school lesson discussion for teachers. Participant P7 said, "On Fridays, we discuss the Sabbath lesson with the teachers, so I introduced ZOOM where we are all on the video call, all the teachers and we discuss online the lesson."

This, in a way, prepares teachers when they lead in their classes, and it reduces face-to-face meetings as some members may be limited geographically (Bernela et al.,

2019). It was also highlighted that leaders communicate mostly with outside communities using technologies such as Skype, Google Hangouts and Cell phones. It was, however, pointed out that the use of cell phones is relatively high compared to voice over IP technologies such as Skype.

4.1.2 Evangelism

The mission of the SDA church is to make disciples for Christ as commissioned in Matthew 28 verses 19 and 20. From the research findings, it was seen that ICTs are very useful to church leaders when planning and conducting evangelism activities as noted in (Edmiston, 2007). All the interviewed participants were positive about the usefulness of internet in the preaching and spreading of the word of God. It was highlighted that the availability of the internet had exposed the churches to social media platforms and web sites where information can be obtained (Edmiston, 2007: Alassiri, et al., 2014). Participant P1 pointed out that church leaders are conducting evangelism activities such as creating and forwarding spiritual messages to several people on various platforms such as social media. Participant P1 said, “So in terms of evangelism I will start with my own personal life I try by all means to maximise WhatsApp as much as possible, I do this by forwarding or generate messages that are spiritually oriented.” Participants P6 added that some gospel messengers post short evangelism nuggets on various platforms in order to reach a broad audience of people. All participants agreed that churches need to change the way they evangelise. Participant P6 said, “I use social media and have some small evangelism nuggets around social media.”

Participants such as P1, P4, P5 and P12 indicated that ICTs are benefiting the church, especially when conducting evangelism crusades. Participants pointed out that ICTs are used to attract people to the church services and that they are useful during crusade meetings as they help presenters of the message to engage with the audience. It was noted that there are ICTs that are crucial when conducting a crusade such as a projector, computer, PowerPoint presentations and public address (PA) system. Participant P10 said, “Things like a projector are so wonderful when doing a crusade because people like looking at what you are talking about …” It was also pointed out that ICTs have provided various platforms that enable church ministers to share the word of God with people worldwide. Participant P12 indicated that they use

platforms such as YouTube and Facebook to upload sermons. These platforms allow the members of the public to watch or download these videos. According to participant P7, at least 60% of his Facebook followers are non-SDA members. These findings show that ICTs are improving evangelism processes (Edmiston, 2007).

4.1.3 Administration of Church Records

Like any other organisation, the SDA church is not immune to administration work. It was seen from the participants that the church has a lot of documentation such as departmental reports, church membership, agendas and minutes, correspondences from various stakeholders, budgets and plans. Some pastors oversee several churches and this complicates the administration work. ICT improves significantly on the administration side of an organisation (Ghavifekr et al., 2013). Participant P6 said,

"I would usually use for my own sort of personal admin outside of the church, just to be able to capture, right now I am pastoring eight churches and all of that information cannot be written with a pen and paper, I will end up using ICT tools." Some participants indicated that church administration tasks might be tedious if done manually. Participants such as P5 and P11 indicated that the use of ICT has improved the way leaders perform their administration activities. It was established that most of the leaders make use of Microsoft Office products such as Word and Excel. It was pointed out by participants that ICTs are used to capture, process and store information. Some participants, such as P7 indicated that they make use of cloud storage such as Dropbox and OneDrive. Most of the participants pointed out that ICTs help them retrieve information quickly and provides secure storage of data.

4.1.4 Platform for Promoting Church Programs

It is crucial for a church to advertise and promote its programs to members and communities so that they are aware of the programs in advance. Advertising and marketing of products are crucial regardless of the type of organisation (Terkan, 2014). All participants pointed out that promotion of church programs is an activity which is crucial for the success of all programs. Participant P1 said, "Most of the programs will fail because people are supposed to be waiting for the programs to come, but because the church is failing to maximise or to use ICT gargets it becomes a big problem." It was highlighted that the promotion of programs helps the leaders to get support from all stakeholders involved. Most of the participants indicated that they

mostly use social media platforms to market and promote church programs. Participant P1 and P9 pointed out that most of the people use social media, so it will be easy to reach many people to inform them of the upcoming church events (Lim, 2017). Participants P6 and P9 indicated that they use social media platforms to capture church events such as the week of prayers, closing functions, music day, crusade and any other events. Participants indicated that they create posters and post on various groups on Facebook and WhatsApp. Participant P9 said, “Like I have highlighted already that there are some people who became part of our structure just by joining our closing function social net-works and then from there we became close of friends.”

4.1.5 Enhancements of Worship Services through Visual and Audios

HCI provides ICTs with interactive graphics. Participants indicated that they enhance worship services mainly in two aspects, namely visually and amplification of voices. Most of the participants showed that they use ICTs such as projectors, computers, PowerPoints and PA systems during their worship services (Omotayo, 2012). Most of the participants indicated that they use projectors to beam song lyrics, Bible verses, play video clips, display reports and quotations from various Christian books. Participant P5 pointed out that ICTs help when presenting difficult Bible concepts such as time prophecy. Participant P12 said, “it also helps with attention, you cannot lose them because people enjoy looking at the screen and see what you are talking about. Like when you are teaching the state of the dead, you can even show the coffin there and all that so it keeps the attention.” Another important use of ICT during worship services is the amplification of voices, especially when there is a broad audience. Most of the participants pointed out that the PA system has dramatically improved on how the message is delivered to the audience.

4.2 Impact of HCI on Religious Organisations

This section discusses the impact of HCI on religious organisations under the following sections: economic impact, spiritual impact and impact on performance.

4.2.1 Economic impact

Participants highlighted that ICT has enabled church leaders to access and share some church material such as books, Bibles, sermons and Bible commentaries electronically

free of charge. It was pointed out that the cost of purchasing church materials in the form of hard copies or on discs is relatively high. Participants pointed out that ICTs enable them to download some material free of charge online compared to when using hard copies that are purchased from bookshops. This, in a way, reduces the costs incurred by the church or an individual. All participants indicated that they have access to some platforms where they can upload or download material at no cost such as WhatsApp and YouTube, for example, participant P4 said, "… whatever material that I want, whether its pdf, PowerPoint presentations or word documents there is a website where I can download all those things free of charge." ICTs enable the church to access all various forms of Bible versions online for free. It will not be financially viable to purchase all hard copies of church material for all members in the church, but with ICTs, all members will have the material in various versions free of charge.

4.2.2 Spiritual impact

The mission of the SDA church is to spread the gospel to all the nations and languages so that people can have a strong relationship with God. The participants highlighted that they hold evangelistic campaigns in order to reach non-members. Most of the participants indicated that they use ICTs such as projectors and PowerPoint presentations to make the messages appealing to the audience. Participant P6 added that ICTs enable presenters to interact with the audience and provide visual aids that help in more natural absorption of messages. Participant P7 highlighted that ICTs are enabling kids to absorb messages easily as they are graphical beings. Participant P7 further highlighted that ICTs have assisted greatly during worship services. It was noted that churches with ICTs broadcast song lyrics during worship services and this has improved the quality of the music. Participant P7 said, "Generally, I have visited churches that do not broadcast songs during worship etc., the quality of music is lower than those who project all the words and everything so it would help."

4.2.3 Impact on performance

It was seen that HCI has improved the way church leaders perform their operations such as church membership, preparation of reports, delivery of sermons and presentations. The data analysed showed that ICTs are significantly improving the operations of the churches that have adopted it. Participant P1 indicated that ICTs

enable church ministers to search for material online such as Bibles, Bible commentary and books. This makes material accessibility much easier compared to the time before the introduction of technology in the church environment. Participant P4 highlighted that ICTs enable people in the ministry to share the gospel through material such as pictures and PowerPoint presentations with the rest of the world. It was highlighted by most of the participants that sharing and accessing of material is now much faster with the use of ICTs. It was noted that ICTs have the capacity of enabling sharing of large and bulk material such as videos and books as indicated by participant P4 who said as follows; "I can share large volumes of books, for example, like three volumes of the encyclopaedia can be shared as pdf and people can just have those things right in their pockets, they do not have to carry bags and bags and loads and loads."

Furthermore, all participants indicated that record keeping is crucial as they carry out their different roles in the church environment. All the participants indicated that they use ICTs for record-keeping tasks. Participant P8 highlighted that the church introduced a system which is used to manage church membership, and this helps the church to give accurate records. Participant P8 said, "… in the past, it was difficult to do it, but with the system it is easier because if you say for in-stance TOC, where I am currently employed, has 50 thousand members, that won't be an estimate but an accurate record because data is available to support those figures."

4.3 Criteria for Future HCI Developments in Religious Organisations

This section discusses some criteria that were highlighted from the research that should be included in future HCI developments. The data showed that leaders consider ICTs that are less detrimental to the church, cost-effective ICTs, the speedy and effectiveness of the ICTs, durability of the ICTs, security of the ICTs and quality of the output of the ICTs.

4.3.1 Less detrimental Technologies

Most of the participants indicated that they consider ICTs that are less detrimental to the church for example participant P4 said, "… holistic package with no disturbances." It was established that ICTs are not bad on their own but depend on how they are used as they come with extra baggage that has nothing to do with church

such as secular advertisements that comes with online material and on social media. This extra baggage can divert people from focusing on the spiritual things and end up being carried away into the secular world. Participant P4 highlighted that ICTs adopted should align with the Bible and the doctrine of the church. It is therefore crucial for future ICT developers to include religious people during the development process in order to meet the expectations of the users. Participant P4 said, "… it has to be predominantly Biblical and also all the fundamental things that we believe like the SOP, the Bible and the scriptures". In order to design a worth HCI, developers must employ the most appropriate interaction style and appropriate interface for the intended users. The users must be involved in the whole process of development rather than developers create what they deem best for the users.

4.3.2 Cost Effectiveness

The cost of buying ICTs was also considered as a factor when considering ICTs to purchase. It was noted from all participants that the SDA church relies on tithes and offerings from members and therefore funding is limited. Most of the participants pointed out that the availability of the funds depends on the affordability of the members of the local churches. Participants P2, P5 and P7 added that maintenance of the ICTs should also be considered when adopting it. It is therefore essential for future developments to have religious organisations in mind when developing ICTs for use. Religious organisations are non-profit, making organisations and some struggle financially. HCI practitioners need to find better ways of developing ICT solutions for religious organisations that are cost-effective at the same time, meeting the needs of the users.

4.3.3 Speed and effectiveness of the technology

The speed and effectiveness of the ICTs were indicated as another factor to consider when adopting ICTs in religious organisations. Most of the participants pointed out that leaders need to consider ICTs that are fast and effective in performing the required tasks. For instance, emails are used to send bulk messages to several recipients instantly for example, participant P1 said, "It is the fastest mode of communication lately and you can rich many people at the same time for instance if people are in a group". Participant P2 added, "it is generally agreed that WhatsApp is the fastest communication channel so that is the one that we use. We used to use

emails but people rarely check their emails but people are always on WhatsApp with their phones so I think that is the main reason why the criteria changed to WhatsApp." Participants P10 added that ICTs should eliminate tedious and strenuous processes encountered by leaders when performing their duties.

4.3.4 Durability of the technology

Durability refers to ICTs that have a long life in the organisation. Participants indicated that it is essential for leaders to consider ICTs that are durable when adopting ICTs in religious organisations. All participants indicated that they consider the durability of the ICTs when adopting ICTs for use in churches. Some of the participants also added that the ICTs should be maintainable so that it can last long; for example, participant P2 said, "… ICT which is genuine and last long in the organisation."

4.3.5 Security of data

Participants highlighted data security as another criterion to consider when implementing ICTs to use in religious organisations. Most of the participants indicated that they work with confidential data such as discussions in minutes and that they use cloud storage services to store their data. Religious organisations consider the information when making decisions and then follow the leadership of the Holy Spirit (Earls, 2018). Participants had concerns regarding the storage of data so that sensitive data can be accessed by authorised people only. Data security proved to be a crucial criterion for leaders when adopting ICTs. It is, therefore, crucial for HCI practitioners to consider data security in all future ICTs development. Users need assurance that their data is secured.

4.3.6 Quality of the output of the technology

Participants indicated that they consider ICTs that produce quality output such as printers, projectors, applications and communication devices. These considerations pose a challenge to future HCI designers and developers to develop products that are meet all the characteristics or aspects expected from display devices. Such characteristics include excellent quality resolution, readable output, number of users supported, the layout of the output and graphics involved in the display device. HCI

practitioners need to consider users during the development of ICTs in order for religious organisations to benefit more from these technologies.

5 Conclusion

The findings of the research study showed that HCI plays a crucial role in the development and implementation of various ICTs in religious organisations. The research presented uses of HCI in a religious organisation such as communication, study and research, evangelism, promotion of church programs, enhancements of worship services and administration. The use of HCI in religious organisations relieves leaders from using strenuous processes in their day to day operations. All participants interviewed were very positive on the impact of ICTs in religious organisations.

The research also assessed the impact of HCI on religious organisations. It was seen that HCI had significantly impacted on the four aspects: social, economic, spiritual and the performance of church leaders. The research also presented some criteria that can be used for future HCI developments in religious organisations. This includes the creation of technologies that are less detrimental to the church and people's lives, cost-effective products, speed and effective products, durability, the security of data and quality output, the development of a data-informed and spirit-led system for a religious organisation. Creating such artefacts would enhance HCI development in any religious environment.

References

Alassiri, A. A., Muda, M. B. & Ghazali, R. B., 2014. Usage of Social Networking Sites and Technological Impact on the Interaction- Enabling Features. International Journal of Humanities and Social Science, 4(4), pp. 46-61.

Bernela, B., Ferru, M. & Rallet, A., 2019. The impact of digital technologies on perceptions of proximity. [Online] Available at: https://hal.archives-ouvertes.fr/hal-02051751/document [Accessed 17th January 2020].

Chhachhar, A. R., Qureshi, B., Khushk, G. M. & Ahmed, S., 2014. Impact of Information and Communication Technologies in Agriculture Development. Journal of Basic and Applied Scientific Research, 4(1), p. 281–288.

Church, K. & de Oliveira, R., 2013. What's up with WhatsApp? Comparing Mobile Instant Messaging Behaviors with Traditional SMS. Messaging Behaviors with Traditional SMS, pp. 352-361.

De Wet, W., Koekemoer, E. & Nel, J. A., 2016. Exploring the impact of information and communication technology on employees' work and personal lives. South African Journal of Industrial Psychology, 42(1), p. 1–11.

Dubravac, I. & Bevanda, V., 2015. Mobile Business Intelligence Adoption (Case of Croatian SMEs). New York, Association for Computing Machinery, pp. 136-43.

Earls, A., 2018. Hot Hands & Cold Churches: Christianity in the Age of Analytics. [Online]
Available at: https://factsandtrends.net/2018/07/24/hot-hands-cold-churches/ [Accessed 18th February 2020].

Edmiston, J., 2007. Internet Evangelism & Cyber missions and Their Impact upon How We will Do Missions in the21st Century. [Online] Available at: http://www.cybermissions.org/articles/21stC_missions.pdf [Accessed 17th January 2020].

Gartner, 2017. Gartner Says Worldwide Business Intelligence and Analytics Market to Reach $18.3 Billion in 2017. [Online] Available at: https://www.gartner.com/en/newsroom/press-releases/2017-02-17-gartner-says-worldwide-business-intelligence-and-analytics-market-to-reach-18-billion-in-2017 [Accessed 12th January 2020].

Ghavifekr, S., Afshari, M., Siraj, S. & Seger, K., 2013. ICT Application for Administration and Management: A Conceptual Review. Procedia - Social and Behavioral Sciences, Volume 103, pp. 1344-1351.

Haupt, R., Scholtz, B. & Calitz, A., 2015. Using Business Intelligence to Support Strategic Sustainability Information Management. Stellenbosch, Proceedings of the 2015 Annual Research Conference on South African Institute of Computer Scientists and Information Technologists - SAICSIT ’15, pp. 1-11.

Lim, A., 2017. Effective Ways of Using Social Media: An Investigation of Christian Churches in South Australia. Christian Education Journal: Research on Educational Ministry, 14(1), pp. 23-41.

Mohsenzadeh, F. & Isfandyari-Moghaddam, A., 2009. Application of Information Technologies in Academic Libraries. The Electronic Library, 27(6), p. 986–998.

Murugesan, M. & Karthikeyan, K., 2016. Business Intelligence Market Trends and Growth in Enterprise Business. International Journal on Recent and Innovation Trends in Computing and Communication, 4(3), p. 188–192.

Myers, B. et al., 1996. Strategic directions in human-computer interaction. ACM Computing Surveys (CSUR), 28(4), p. 794–809.

Omotayo, F. O., 2012. The church in the contemporary world: Information and communication technology in church communication for growth: A case study. Journal of Media and Communication Studies, 4(4), pp. 80-94.

Osawaru, K., 2010. The Impact of Information and Communication Technology (ICT) in Nigerian University Libraries. Multidisciplinary Journal of Research Development, 15(4), pp. 1-6.

Pelley, B., 2014. Emerging ChMS Trends for Reporting Data. [Online] Available at: https://www.churchteams.com/ct/emerging-chms-trends-for-reporting-data [Accessed 16th October 2017].

Preece, J. et al., 1994. Human-computer interaction. 1st ed. United Kingdom: Addison-Wesley Longman Ltd.

Sharp, H., Preece, J. & Rogers, Y., 2007. Interaction Design – Beyond Human-Computer. 2nd Ed. New York: John Wiley & Sons.

Taylor, P., 2015. The Importance of Information and Communication Technologies (ICTs): An Integration of the Extant Literature on ICT Adoption in Small and Medium Enterprises. International Journal of Economics, Commerce and Management, 111(5), p. 274–295.

Terkan, R., 2014. Importance of Creative Advertising and Marketing According to University Students' Perspective. International Review of Management and Marketing, 4(3), pp. 239-246.

Tichaawa, T., Mhlanga, O. & Sicwebu, S., 2017. The Impact of Information Communication Technologies (ICTs) on Tourism Businesses in East London, South Africa, Acta Universitatis Danubius. Œconomica, Acta Universitatis Danubius, 13(3), pp. 18-29.

Tsai, S.-C., 2015. Computer Mediated Communications and Religion: An Evolutionary Primer. Open Journal of Social Sciences, Volume 3, pp. 117-126.

Wanda, P. & Stian, S., 2015. The Secret of my Success: An Exploratory Study of Business Intelligence Management in the Norwegian Industry. Procedia Computer Science, Volume 64, p. 240–247.

Watson, H. J. & Wixom, B. H., 2007. The Current State of Business Intelligence. IEEE Computer Society, 40(9), p. 96–99.

Wyche, S. & Grinter, R., 2009. Extraordinary computing: religion as a lens for reconsidering the home. Boston, Association for Computing Machinery, p. 749–758.