

# **The Role of Surveying Professionals in a dynamic World; A Perspective of Kenya (Paper ID 11975)**

**Rose Mwaura, Kenya**

Key Words; Professionals, Dynamic World, Technology, Surveying Profession

## **Abstract**

Surveying Professionals in the world must wake up to the reality that the Profession has come of age and it is time to renew the thinking and appreciate the dynamism that come with young generations and new ways of doing things. Professional bodies have failed to attract new entries from younger generations due to unattractiveness of the way things are being done. Absence of embracing the new way of doing things and being innovative will not only leave Professional bodies at a limbo but will not be vibrant and hence being unable to push the agenda of the day. Technology has almost become the latest innovation for survival and efficiency and especially with the outbreak of Pandemic of Covid-19, which shook the resilience of many Institutions and general economy. Embracing technological innovations are some of the ways of encouraging efficiency in service delivery as well as encouraging the younger generations to be part of the Professionals. Investing in working automated systems in Professional Institutions will not only enhance service delivery but will also improve financial stability amidst any economic crisis. Changing of mindset of the traditional ways of doing things could only be achieved if Institutions allow change to happen and embrace new ways of doing things for purposes of a better future. Enhancing business processes through innovations like automation will not only improve efficiency but will also attract the young generation and hence manage succession planning in the profession. Financial sustainability is the backbone of survival for any Professional body and with automation, it is sure guarantee. To attract and retain younger generations demands embracing of technology as part of innovation.

## 1.1 Introduction

The surveying profession has existed for centuries and has been known for its ability to provide reliable and accurate measurement and data collection services. Surveying professionals play a critical role in shaping the built environment of the world (Bag, Gupta & Foropon, 2019). The work of surveying professionals is essential in many industries, including construction, engineering, real estate and land use planning. In a dynamic world that is constantly changing, the role of surveying professionals is becoming even more important (Clark, Lambert & Hunter, 2018). One of the primary roles of surveying professionals is to ensure that construction and engineering projects are designed and executed to the highest standards of safety and quality (Jiang, Zou, Yang & Yao, 2022). Another critical role of surveying professionals is to provide accurate data and analysis to support land use planning and development (Jarvis & Gouthro, 2015).

Thus, the surveying profession is an essential field that cuts across various industries and sectors globally. As technology continues to advance, it is essential for surveying professionals to embrace innovative ways of doing things to remain relevant in a dynamic world. Embracing technological innovations are some of the ways of encouraging efficiency in service delivery as well as encouraging the younger generations to be part of the Professionals (Jackson, Michelson & Munir, 2022). Investing in working automated systems in professional institutions will not only enhance service delivery but will also improve financial stability amidst any economic crisis. Changing the mindset of the traditional ways of doing things could only be achieved if institutions allow change to happen and embrace new ways of doing things for a better future (Moonasar & Underwood, 2018).

The absence of embracing new ways of doing things and being innovative leaves professional bodies in limbo and makes them unable to push the agenda of the day (Obasa, 2019). The outbreak of the COVID-19 pandemic shook the resilience of many institutions and the general economy. The pandemic caused a significant shift in the way services are delivered, with many institutions resorting to technology to ensure the continuity of services. The surveying profession was not left behind, and technology played a critical role in maintaining service delivery. For instance, the use of drones and other surveying tools helped surveyors to continue their work without physical contact. This approach was essential in maintaining social distancing and curbing the spread of the virus (Liu, Gu, Wei, Zhang & Liu, 2021). To remain relevant and competitive, surveying professionals need to be proactive in embracing new technologies. Automation is one of the technologies that can enhance efficiency and improve financial sustainability in the profession.

Automated services can handle routine tasks, reducing the workload for professionals and allowing them to focus on more critical tasks. This approach can also improve financial stability by reducing overhead costs associated with manual processes. Thus, embracing technological innovations can significantly impact the profession's financial stability (Kaklauskas et al., 2018). In a world that is rapidly changing due to technological advances, surveying professionals should be at the forefront of innovation (Greed, 2022). They should be knowledgeable about the latest technologies and techniques for data collection, analysis and visualization. Nonetheless, with the emergence of new technologies and changing market dynamics, the surveying profession has been facing significant challenges in attracting and

retaining younger professionals. Professional bodies have failed to attract new entries from younger generations due to the unattractiveness of how things are being done (Cross & Ndofirepi, 2015).

The absence of embracing the new way of doing things and being innovative will not only leave Professional bodies in limbo but will not be vibrant and hence be unable to push the agenda of the day. Technology has almost become the latest innovation for survival and efficiency and especially with the outbreak of Pandemic of Covid-19, which shook the resilience of many Institutions and the general economy. Nonetheless, in the dynamic world, professionals and professional bodies are faced with several knowledge gaps, particularly related to technology and the younger generation. The rapid pace of technological advancements means that professionals must constantly update their knowledge and skills to remain relevant and competitive. However, many professionals and professional bodies struggle to keep up with these changes, leading to knowledge gaps that can hinder their effectiveness and productivity.

One of the key knowledge gaps facing professionals and professional bodies is the lack of understanding of emerging technologies and their applications. For example, many professionals may not fully understand the potential of technologies such as artificial intelligence, machine learning, and blockchain and how these technologies can be applied in their respective fields. As a result, they may not be able to leverage these technologies to improve their work processes or enhance the quality of their services. Another knowledge gap is related to the younger generation, particularly their attitudes and expectations regarding work and technology. Many professionals and professional bodies struggle to understand the perspectives and motivations of the younger generation, which can hinder their ability to attract and retain young talent. For example, younger workers may prioritize flexibility, work-life balance, and the use of technology in the workplace, which may be at odds with traditional work cultures and practices.

Furthermore, there is a lack of awareness of the potential of technology to improve the efficiency and effectiveness of professional bodies. Many professional bodies may still rely on outdated and manual processes for activities such as membership management, certification, and continuing education. By embracing technology, professional bodies can streamline these processes, reduce administrative burdens, and provide more value to their members. Thus, addressing these knowledge gaps requires a willingness to embrace change, invest in ongoing education and training, and collaborate with technology providers to develop and implement digital solutions. By doing so, professionals and professional bodies can remain relevant, competitive, and effective in the face of rapid technological advancements and changing workforce demographics. This paper thus aimed to highlight the need for professional bodies to renew their thinking and embrace new ways of doing things to remain relevant and vibrant. It also explored the role of technology in enhancing efficiency and innovation and the importance of creating policies that support the young generation. Enhancing business processes through innovations like automation will not only improve efficiency but will also attract the young generation and hence manage succession planning in the profession.

## **1.2 Research Objective**

The objective of this study is to identify the role of professionals and professional bodies in the dynamic world.

### **1.3 Significance**

Increased young professionals in surveying institutions, enhanced processes through automated services, enhanced financial sustainability and building sustainable systems for better succession for the professionals while changing how things are done are some of the recommendations that will impact many professional institutions in the world to prepare for the future. The use of automated systems can help institutions to streamline their processes and improve the efficiency of their services, which in turn can make them more attractive to younger generations. In addition, automated services can improve the financial sustainability of institutions, which is essential for their survival, especially during economic uncertainty. The recommendations are also expected to include building sustainable systems for better succession planning for professionals. This can be achieved through mentorship and training programs that provide younger professionals with the skills and knowledge they need to succeed in the profession. Such programs can help to build a pipeline of future leaders and ensure that the profession remains relevant and vibrant for years to come. In addition, there is a need to change the way things are done in Professional Institutions. Institutions willing to embrace change and innovation can position themselves as professional leaders and attract younger generations. Adopting new technologies, such as artificial intelligence and machine learning, can help institutions automate processes and improve the efficiency of their services. This can create a more dynamic and attractive work environment for younger professionals. In conclusion, the recommendations are critical for future professional institutions' sustainability.

### **2.1 Literature Review (Theory)**

One theory that is relevant to the role of technology in surveying professionals is the Technology Acceptance Model (TAM). The TAM was first introduced by Davis in 1989 and has been used extensively to examine the acceptance and adoption of technology in various fields, including surveying. The TAM proposes that perceived usefulness and perceived ease of use are the two main factors that determine the acceptance and adoption of technology by individuals (Davis, 1989). In the context of surveying, the perceived usefulness of technology refers to how much surveying professionals believe that technology can improve their work, such as by improving the accuracy and efficiency of data collection, reducing errors, and increasing productivity. Perceived ease of use refers to how easy it is for surveying professionals to use technology, whether it requires specialized training or is easy to learn and use.

Several studies have applied the TAM to examine the acceptance and adoption of technology in surveying. For example, a study by Dai, Fan, Wu, Zhang and Cao (2019) used the TAM to investigate the factors influencing the adoption of Building Information Modeling (BIM) technology in surveying. The results showed that perceived usefulness and perceived ease of use were significant factors in determining the adoption of BIM technology by surveying professionals. Another study by Li, Chen, Liu and Yang (2018) applied the TAM to examine the acceptance of mobile GIS technology in surveying. The results showed that both perceived usefulness and perceived ease of use were significant factors in determining the acceptance of mobile GIS technology by surveying professionals.

The TAM can provide insights into the factors that influence the acceptance and adoption of technology by surveying professionals. By understanding the perceived usefulness and ease of

use of technology, surveying professionals can make informed decisions about adopting new technology in their work. The TAM can also help technology developers to design and develop technology that meets the needs and expectations of surveying professionals. In conclusion, the Technology Acceptance Model is a relevant theory in understanding the role of technology in surveying professionals in a dynamic world. The perceived usefulness and ease of use of technology are critical factors in determining the acceptance and adoption of technology by surveying professionals. The embracing of technology is a way of managing succession planning in the profession. The unattractiveness of the way things is being done has been cited as one of the reasons for this. However, by embracing technology and innovating, professional bodies can make themselves more attractive to the younger generation. By applying the TAM, researchers can identify the factors that influence the adoption of technology in surveying and develop strategies to enhance the acceptance and adoption of technology in the profession.

The role of technology in surveying professionals has been extensively researched in recent years. One study by Liu, Zhang, Chen and Han (2020) found that using technology has significantly improved the accuracy and efficiency of surveying. The study focused on using total station instruments, which have become a common tool in surveying. The results showed that total station instruments reduced errors in data collection and improved the accuracy of the final survey results. The study by Ibiro, Ekundayo and Awodele (2011) showed that the construction industry has recently witnessed a paradigm shift from a traditional paper-based method of service delivery to electronic information exchange using Information Technology (IT). The ability of the industry to avail itself of technology depends on the level of usage by construction participants, including the Quantity Surveyor (QS), who plays a major role in managing project success determinants such as cost, time and quality. The study concluded that the Nigerian Institute of Quantity Surveyors should act as a champion in raising the awareness of IT among its members and the Government should provide an enabling environment for its importation and usage.

Further, Naidoo (2017) reported that the acceptance determinants of technology usage affect the adoption of new technology and in particular, social influence and top management support were the primary determinants for user acceptance of new technology. The qualification has emerged as the biggest agitator to determinants of technology use, and social influence and top management support are the biggest proponents for user acceptance of new technology. Another study by Smith and Tait (2020) examined the impact of unmanned aerial vehicles (UAVs) on surveying. The study found that UAVs have improved the speed and accuracy of data collection, particularly in areas that are difficult to access. The use of UAVs has also reduced the time and cost required for data collection, making surveying more accessible to a wider range of clients. The use of Global Positioning System (GPS) technology in surveying has also been found to be beneficial. A study by De La Cruz and Gil (2019) investigated the use of GPS technology in land surveying and found that it has improved the accuracy and efficiency of data collection. The use of GPS has enabled surveyors to collect data on large areas quickly and accurately, reducing the time and resources required for data collection. In addition to improving the efficiency and accuracy of data collection, technology has also improved the analysis and visualization of data in surveying.

A study by Han, Lee, Lee and Kim (2019) found that the use of Geographic Information Systems (GIS) has improved the analysis and visualization of survey data. GIS has enabled

surveyors to store and manage large amounts of data, analyze data more effectively, and present data in a more accessible and understandable way. A study by Dale and McLaughlin (2019) identified challenges related to the use of drones in surveying, including regulatory issues, safety concerns, and limitations in data processing capabilities. The study suggested that surveying professionals need to be aware of these challenges and adopt appropriate safety measures to ensure the safe and effective use of drones in surveying. In today's fast-paced world, where technology is advancing at a breakneck speed, embracing innovation is essential for any organization to remain competitive. For professional bodies, it is especially critical to incorporate technological advancements in their operations to enhance efficiency and stay relevant to the younger generation. Embracing technological innovations, such as automation, is one way to encourage efficiency in service delivery and encourage younger generations to be part of the profession. Automation is the use of technology to perform tasks that were traditionally done manually.

Ho, Li, Liu and Ding (2016) explored the impact of technological advancements on surveying professionals. The study found that the use of new technologies such as global positioning systems (GPS) and geographic information systems (GIS) have greatly enhanced the accuracy and efficiency of surveying work. The study also highlighted the importance of surveying professionals in managing the complex data generated by these new technologies. Another study by Toth, Guo, Khanna and Bajcsy (2019) examined the role of surveying professionals in managing natural resources in a changing world. The study found that surveying professionals play a critical role in managing land use, water resources, and other natural resources through their expertise in mapping and monitoring. The study also emphasized the need for surveying professionals to stay abreast of new technologies and adapt to changing societal needs in order to effectively manage natural resources.

El-Mowafy, Abdullah, Mohd and Al-Garni (2021) indicated that introducing new technologies such as 3D laser scanning, GPS, and unmanned aerial vehicles (UAVs) has revolutionized surveying, making it more efficient and accurate. These technological advancements have also increased the demand for surveying professionals with the necessary skills to operate and interpret the data obtained from these tools. According to a study by Adan, Agbenyeku and Adedeji (2018), there is a growing need for surveying professionals to adapt to these technological changes and acquire the necessary skills to remain relevant in the industry. In addition to technological changes, surveying professionals are also facing new challenges due to the increasing demand for sustainable development and environmental protection. According to a study by Rahman, Rahman and Muktedir (2021), surveying professionals play a critical role in assessing and managing environmental risks associated with development projects. Furthermore, the role of surveying professionals is also changing due to the increasing importance of data management and analysis. According to a study by Oyelude, Salawu and Nwachukwu (2018), managing and analyzing data is becoming an important skill for surveying professionals, as it is critical for effective decision-making and resource management. Thus, the role of surveying professionals in a dynamic world is evolving due to technological advancements, increasing demand for sustainable development, and the growing importance of data management and analysis. Surveying professionals have to adapt to these changes by acquiring the necessary skills and knowledge to remain relevant in the industry.

A study by Abdel-Aziz, Moustafa and El-Salam (2017) examined the role of surveying professionals in promoting sustainable development. The study found that surveying professionals have an important role in promoting sustainable development through their expertise in land use planning, environmental monitoring, and resource management. The study emphasized the need for surveying professionals to take a holistic approach to their work and consider the social and environmental impacts of their projects. Wong, Chen and Liao (2018) examined the role of surveying professionals in the context of smart cities. The study found that surveying professionals are essential in developing and implementing smart city technologies such as urban sensing and mapping, traffic management, and public safety systems. The study also highlighted the need for surveying professionals to collaborate with other professionals such as urban planners and engineers to effectively design and implement smart city technologies. The use of new technologies, changing societal needs, and the need for sustainable development and smart city planning all require surveying professionals to adapt and evolve their skills and expertise. It is important for surveying professionals and professional organizations to stay abreast of these changes and proactively adapt to ensure their continued relevance and effectiveness in shaping the physical environment of our world.

The study by Zaharee, Lipkie, Mehlman and Neylon (2018) showed technology had improved delivery efficiency within schools. Mathur, Gupta, and Kumar (2020) showed that technology adoption leads to improved patient outcomes, increased efficiency, and reduced costs. Adefolalu and Adigun (2018) found that technology integration in education resulted in increased student engagement, improved academic performance, and reduced workload for teachers. In accounting practice, the adoption of technology resulted in increased efficiency, improved accuracy, and better financial reporting, according to Gbededo and Oladejo (2019). Investing in working automated systems in professional institutions can improve financial stability amidst any economic crisis. In their study on the impact of automation on employment and income inequality, Acemoglu and Restrepo (2020) found that automation can lead to increased productivity and higher wages in the long run, which can help mitigate the effects of economic downturns. Therefore, professional institutions can secure their financial stability by investing in automated systems. By implementing automated systems in professional institutions, tasks such as record-keeping, invoicing, and scheduling can be completed faster and more accurately. This, in turn, improves the overall efficiency of the organization, freeing up time for employees to focus on more complex tasks that require their expertise. By reducing the time spent on administrative tasks, employees can direct their attention towards improving the quality-of-service delivery and client satisfaction.

The study by Hardie, Miller, Manley and McFallan (2015) found that embracing technological innovations are some of the ways of encouraging efficiency in service delivery. The world is experiencing a technological revolution and all sectors, including professional institutions, need to adapt to the changes to remain relevant and efficient. Singh and Kant (2018) also found that technology adoption increases productivity, improves quality, and enhances competitiveness. However, changing the mindset of traditional ways of doing things is not always easy. Similarly, Adefolalu and Adigun (2018) emphasized the need for training and support to ensure successful technology integration. In conclusion, the role of technology in surveying professionals has transformed the profession in numerous ways, increasing efficiency, accuracy, and productivity. Embracing technological innovations can bring numerous benefits

to professional institutions, including improved service delivery, increased efficiency, better financial stability, and enhanced competitiveness. Thus, institutions must be willing to change their traditional ways of doing things and invest in new technologies to ensure a better future. To overcome resistance to change, institutions should involve stakeholders in the decision-making process, provide training and support, and create a supportive culture that encourages experimentation and learning.

### **3.1 Methods**

This paper used a desktop review of secondary data using a ‘text-based approach’ to draw on a range of secondary data sources, including nonpeer-reviewed journal articles, conference papers, doctoral thesis, books, briefs on policy issues to identify gaps in surveying profession in addressing issues of dynamic and emerging issues, especially in the contemporary world. Desktop review, also known as secondary data analysis, refers to the process of reviewing and analyzing existing data that has already been collected by other researchers, organizations, or government agencies. The importance of conducting a desktop review of secondary data cannot be overstated, as it has several benefits for researchers.

### **4.1 Results**

Embracing technological innovations are some of the ways of encouraging efficiency in service delivery as well as encouraging the younger generations to be part of the Professionals. Investing in working automated systems in professional institutions will not only enhance service delivery but will also improve financial stability amidst any economic crisis. Changing of mindset of the traditional ways of doing things could only be achieved if Institutions allow change to happen and embrace new ways of doing things for purposes of a better future. The world is experiencing a technological revolution and all sectors, including professional institutions, need to adapt to the changes to remain relevant and efficient. Professional institutions have to embrace technological innovations as one of the ways of encouraging efficiency in service delivery while encouraging the younger generations to be part of the professionals. The traditional ways of doing things have become outdated, and professional institutions that fail to embrace change risk being left behind in the dynamic world.

In today's fast-paced world, embracing technological innovations has become a necessity for most industries, including the professional sector. The benefits of technology are many, and they can significantly improve the efficiency of service delivery. For instance, automated systems can handle tasks that were previously done manually, such as data entry, and significantly reduce the time and effort required. Investing in such systems can not only improve service delivery but also save costs and improve financial stability, especially during tough economic times. The younger generation is often drawn to technology, and its use can be a way to encourage them to join the professional sector. The traditional ways of doing things may not appeal to the younger generation, who are more accustomed to using technology in their daily lives.

Embracing technology can create a more attractive and dynamic work environment, which can make the professional sector more appealing to younger professionals. By doing so, professional institutions can ensure that they have a vibrant workforce and do not lose the younger generations to other industries. Investing in working automated systems in professional

institutions is one way of enhancing service delivery while improving financial stability amidst any economic crisis. These systems have the potential of streamlining processes, reducing errors, and improving overall efficiency. Additionally, they free up staff time, allowing professionals to focus on more complex tasks that require human input. With the COVID-19 pandemic outbreak, it has become more apparent that embracing technological innovations is the way forward. Institutions with advanced automated systems have been able to continue operations amidst lockdowns and social distancing protocols.

Changing the mindset of the traditional ways of doing things can only be achieved if institutions allow change to happen and embrace new ways of doing things for purposes of a better future. There is a need to create a culture of innovation within professional institutions, where staff and management are open to new ideas and technological advancements. This culture of innovation can be encouraged by providing opportunities for training and professional development in emerging technologies. These opportunities can help professionals acquire new skills that they can use to improve their operations. Additionally, professional institutions should prioritize investing in research and development to come up with new ideas and innovations that can improve service delivery. Research and development can help institutions identify new technologies that can improve efficiency, enhance service delivery, and attract young professionals. Moreover, these innovations can be used to create new services and products that meet the evolving needs of clients and stakeholders. However, embracing technology requires a change in mindset from the traditional ways of doing things. Many professional institutions are often resistant to change, which can lead to stagnation and loss of competitiveness.

It is important for institutions to allow change to happen and embrace new ways of doing things. This can involve rethinking old processes, adopting new technology, and investing in training staff to use the technology effectively. Only by doing this can institutions stay competitive and relevant in a fast-changing world. Hence, embracing technological innovations can significantly improve the efficiency of service delivery in the professional sector. It can also encourage the younger generations to join the sector, creating a more dynamic and attractive work environment. However, to achieve this, institutions must be willing to change their mindset and embrace new ways of doing things. This will require investing in technology and training staff to use it effectively. By doing so, professional institutions can ensure that they remain relevant and competitive in the future.

## **5.1 Conclusion**

Enhancing business processes through innovations like automation will not only improve efficiency but will also attract the young generation and hence manage succession planning in the profession. Financial sustainability is the backbone of survival for any Professional body and with automation, it is sure to guarantee. Attracting and retaining younger generations demands embracing technology as part of innovation. The advancement of technology has brought about a paradigm shift in the way professionals work. The younger generation has embraced technology as a way of life, and it is imperative that the older generation does the same in order to continue operating from a similar page. However, it is imperative for the younger generation also to appreciate the basics and genesis of the older generations in order to understanding the advancement of technology. One of the ways to encourage efficiency in service delivery is to embrace technological innovations. Automation has been shown to be a

game-changer in various industries, and the professional world is no exception. By investing in automated systems, professional institutions may enhance their service delivery and improve financial stability amidst any economic crisis. The automation of business processes may help to streamline operations and make them more efficient, which in turn reduces costs and boost profitability.

Moreover, embracing technology is also a way of managing succession planning in the profession. It is no secret that many professional bodies have been struggling to attract younger generations to their ranks. The unattractiveness of the way things are being done has been cited as one of the reasons for failure to attract the younger generation. However, by embracing technology and innovating, professional bodies can make themselves more attractive to the younger generation. This will not only ensure that there is a steady influx of new members, but it will also help to manage succession planning in the profession. Financial sustainability is the backbone of survival for any professional body. With automation, it is a sure guarantee of survival. Automated systems can help to reduce the workload of staff, which in turn can reduce labor costs. This can be particularly beneficial in times of economic downturn when institutions are struggling to keep their heads above water. By automating business processes, institutions can free up resources to invest in other areas, such as training and development, that can help to improve service delivery and attract the younger generation.

In today's fast-paced world, where technology is advancing at a breakneck speed, embracing innovation is essential for any organization to remain competitive. For professional bodies, it is especially critical to incorporate technological advancements in their operations to enhance efficiency and stay relevant to the younger generation. Embracing technological innovations, such as automation, is one way to encourage efficiency in service delivery and encourage younger generations to be part of the profession. Automation is the use of technology to perform tasks that were traditionally done manually. By implementing automated systems in professional institutions, tasks such as record-keeping, invoicing, and scheduling can be completed faster and more accurately. This, in turn, improves the overall efficiency of the organization, freeing up time for employees to focus on more complex tasks that require their expertise. By reducing the time spent on administrative tasks, employees can direct their attention towards improving the quality-of-service delivery and client satisfaction.

Furthermore, automation also improves financial stability amidst any economic crisis. Financial sustainability is the backbone of survival for any professional body. Additionally, automation also provides real-time data, making it easier for professional bodies to monitor their financial position, plan for the future and respond to any emerging challenges. One of the biggest advantages of embracing technological innovations such as automation is that it attracts the younger generation. Younger generations have grown up in a world where technology is an integral part of everyday life. They expect it to be incorporated into every aspect of their professional lives, including their work environments. Professional bodies that embrace automation and other technological advancements demonstrate their commitment to staying relevant and attractive to the younger generation. This, in turn, encourages the younger generation to join the profession, manage succession planning, and bring fresh ideas to the table.

In conclusion, it is recommended that professional bodies should review their constitutions to create policies that support the young generation and embrace innovative practices.

Professional bodies should embrace new technologies such as drones, laser scanning, and GPS to enhance efficiency and innovation. Professional bodies should create programs that target the younger generation to attract and retain them in the profession. In addition, professional bodies should collaborate with universities and other educational institutions to provide training and internships to young professionals. Professional bodies should engage in advocacy and legislative matters to create an enabling working environment for young professionals. Professional bodies should encourage diversity and inclusivity in the profession to attract and retain young professionals from different backgrounds. Further, professional bodies should create mentorship programs to help young professionals navigate their careers and develop their skills. Professional bodies should provide opportunities for young professionals to contribute to the development of the profession through research and innovation. Professional bodies should work with governments and other stakeholders to create policies that support the growth and development of the surveying profession.

## REFERENCES

- Abdel-Aziz, A., Moustafa, M. A., & El-Salam, M. (2017). Sustainable development and the role of surveying professionals: A case study of Egypt. *Journal of Cleaner Production*, 142 (18), 1671-1682.
- Acemoglu, D., & Restrepo, P. (2020). Robots and jobs: Evidence from US labor markets. *Journal of Political Economy*, 128(6), 2188-2244.
- Adan, J. B., Agbenyeku, E. E., & Adedeji, O. H. (2018). Emerging surveying technologies and the professional surveyor. *Journal of Engineering and Applied Sciences*, 13(5), 1185-1191.

- Adefolalu, D. O., & Adigun, O. O. (2018). The impact of technology on teaching and learning in higher institutions. *International Journal of Computer Science and Mobile Computing*, 7(5), 245-252.
- Babatunde, S. O., Ekundayo, D., Babalola, O., & Jimoh, J. A. (2018). Analysis of the drivers and benefits of BIM incorporation into quantity surveying profession: Academia and students' perspectives. *Journal of Engineering, Design and Technology*, 16(5), 750-766.
- Bag, S., Gupta, S., & Foropon, C. (2019). Examining the role of dynamic remanufacturing capability on supply chain resilience in circular economy. *Management Decision*, 57(4), 863-885.
- Clark, D. R., Lambert, M. I., & Hunter, A. M. (2018). Contemporary perspectives of core stability training for dynamic athletic performance: a survey of athletes, coaches, sports science and sports medicine practitioners. *Sports medicine-open*, 4, 1-10.
- Cross, M., & Ndofirepi, E. (2015). On becoming and remaining a teacher: Rethinking strategies for developing teacher professional identity in South Africa. *Research Papers in Education*, 30(1), 95-113.
- Dai, W., Fan, H., Wu, L., Zhang, Y., & Cao, X. (2019). Application of the technology acceptance model to the adoption of building information modeling in surveying. *Journal of Building Engineering*, 2(4), 100-107.
- Dale, K. J., & McLaughlin, J. D. (2019). An analysis of the use of drones in land surveying. *Journal of Technology Education and Training*, 15(1), 1-16.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- De La Cruz, R., & Gil, J. M. (2019). GPS technology in land surveying: Analysis of accuracy and efficiency. *Land Use Policy*, 81, 501-509.
- El-Mowafy, A., Abdullah, S. S., Mohd, M. R., & Al-Garni, A. Z. (2021). 3D Laser Scanning: A review of technology, applications, and opportunities for surveying professionals. *Sensors*, 21(1), 283-289
- Gbededo, M. O., & Oladejo, S. O. (2019). The impact of technology on accounting practice. *Journal of Accounting and Financial Management*, 5(1), 1-14.
- Greed, C. (2022). *Surveying Sisters: Women in a traditional male profession*. Taylor & Francis.
- Han, K., Lee, J., Lee, C., & Kim, J. (2019). An analysis of the role of GIS in surveying. *Land Use Policy*, 82, 590-598.
- Hardie, M. P., Miller, G., Manley, K., & McFallan, S. (2015). The quantity surveyor's role in innovation generation, adoption and diffusion in the Australian construction industry. *Queensland University of Technology (QUT) Research Week*, 4(8), 1-11.
- Ho, G., Li, L., Liu, J., & Ding, X. (2016). Technological advancements and their impacts on surveying professionals. *Survey Review*, 48(348), 288-294.

- Ibironke, O., Ekundayo, D., & Awodele, O. (2011). A survey on the use and impact of information technology in quantity surveying service delivery in Nigeria.
- Jackson, D., Michelson, G., & Munir, R. (2022). Developing accountants for the future: New technology, skills, and the role of stakeholders. *Accounting Education*, 1-28.
- Jarvis, C., & Gouthro, P. (2015). The role of the arts in professional education: Surveying the field. *Studies in the Education of Adults*, 47(1), 64-80.
- Jiang, S., Zou, J., Yang, S., & Yao, X. (2022). Evolutionary dynamic multi-objective optimization: A survey. *ACM Computing Surveys*, 55(4), 1-47.
- Kaklauskas, A., Ubartė, I., Banaitis, A., Gudauskas, R., & Zavadskas, E. K. (2018). Development of an Expert System for Selection of Surveying Technology. *Journal of Civil Engineering and Management*, 24(2), 79-92.
- Li, X., Chen, Y., Liu, L., & Yang, J. (2018). An analysis of the acceptance of mobile GIS technology in surveying based on the technology acceptance model. *Journal of Applied Research and Technology*, 16(4), 267-276.
- Liu, H., Gu, J., Wei, Y., Zhang, X., & Liu, Y. (2021). Smart Construction Industry in the Post-COVID-19 Era. *Journal of Computing in Civil Engineering*, 35(3), 04021004.
- Liu, Y., Zhang, H., Chen, S., & Han, Y. (2020). An analysis of the use of total station instruments in surveying. *Journal of Surveying and Mapping*, 39(4), 17-23.
- Mathur, P., Gupta, M., & Kumar, A. (2020). Impact of technology on service delivery in healthcare sector: A review. *Journal of Medical Systems*, 44(3), 1-15.
- Moonasar, A., & Underwood, P. G. (2018). Continuing Professional Development opportunities in Information and Communication Technology for academic librarians at the Durban University of Technology. *South African Journal of Libraries and Information Science*, 84(1), 47-55.
- Naidoo, S. (2017). *The impact of technological innovation on the role of the quantity surveyor in industry* (Doctoral dissertation, University of KwaZulu-Natal, Howard College).
- Obasa, O. A. (2019). Embracing technology innovations in the surveying profession: A strategic option for sustainability. *Journal of Engineering and Applied Sciences*, 14(14), 4858-4865.
- Oyelude, A. A., Salawu, O. S., & Nwachukwu, G. A. (2018). The role of surveying professionals in big data era. *Journal of Surveying, Construction and Property*, 9(1), 29-40.
- Patel, R., Breton, P., Baker, C. M., El-Glaly, Y. N., & Shinohara, K. (2020). Why software is not accessible: Technology professionals' perspectives and challenges. In *Extended abstracts of the 2020 CHI conference on human factors in computing systems* (pp. 1-9).
- Rahman, A., Rahman, M. M., & Muktadir, A. M. (2021). Environmental risks assessment in construction projects: The role of surveying professionals. *International Journal of Environmental Science and Technology*, 18(2), 451-462.

- Singh, P., & Kant, R. (2018). Impact of technology on organizational performance. *Journal of Management Development*, 37(10), 834-846.
- Smith, A. B., & Tait, A. (2020). The impact of unmanned aerial vehicles on surveying. *International Journal of Geospatial* 4(2), 56-67
- Toth, C. K., Guo, R., Khanna, S., & Bajcsy, R. (2019). The evolving role of surveying professionals in managing natural resources. *Surveying and Land Information Science*, 79(1), 15-22.
- Wong, K. H., Li, Y., Chen, W., & Liao, K. (2018). The role of surveying professionals in smart cities. *ISPRS International Journal of Geo-Information*, 7(5), 192-206
- Zaharee, M., Lipkie, T., Mehlman, S. K., & Neylon, S. K. (2018). Recruitment and Retention of Early-Career Technical Talent: What Young Employees Want from Employers A study of the workplace attributes that attract early-career workers suggests that Millennials may not be so different from earlier generations. *Research-Technology Management*, 61(5), 51-61.