



## The Benefits of Augmented and Virtual Reality in the Accounting Field

Egiyi, Modesta A. PhD

Department of Accounting, Godfrey Okoye University, Enugu

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*New technologies are being employed to improve operations in the accounting field. The application of virtual Reality (VR) and Augmented reality (AR) in the field of accounting has long been debated; nevertheless, one of the primary obstacles has been that the technologies have been prohibitively expensive for educational institutions and businesses. However, the technology has advanced since then, and it is now more accessible than ever. This paper is a qualitative study that investigates the benefits and applications of virtual and augmented reality technology in the accounting industry. We discovered through qualitative analysis that virtual reality (VR) and augmented reality (AR) are very helpful in accounting education and training where an interactive and engaging environment is required. Virtual reality and augmented reality technologies also provide an immersive experience, fostering participation and active learning in the accounting field. The potential benefits of using virtual reality and augmented reality systems in accounting will be investigated and discussed.*

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ABSTRACT

**Keywords:** Technologies, Qualitative Analysis, Augmented Reality, Virtual Reality

## **Introduction**

The world as we know it is in a constant state of flux. Globalization and technological advancement have increased the demand for economic innovation in order to achieve economic progress. The study considers economic uncertainties and information technology changes as changing variables. Virtual reality gives electronic data a "physical" form, allowing users to be immersed in the digital world and feel like they are in motion and becoming a part of the program. One can fly, swim, run, stroll through buildings, and create whatever their brain can imagine in a virtual environment. Thoughts can, in some ways, become a digitized reality. Virtual reality holds great promise for businesses ranging from education to government to entertainment, and nearly every other type of business imaginable. Rapid scientific advancements, and the demographic shift brought on by globalization, will all combine to create new expectations and economic values. Preconditions that might challenge the accounting profession include increasing business environment complexity, increased global competitiveness, and shorter business cycles. The constant need for worldwide accounting standards and procedures, on the other hand, is shaping accountants' future. First and foremost, the accounting profession must get insight into the factors that will transform the future of the enterprises it supports.

Furthermore, accountants should assess the effects of these changes on the overall accounting system, including standards, processes, and personnel. As a result, the impact of future change encompasses all parts of accounting, from the job of accounting staff to the substance of financial reporting requirements and the future accountant's reformation (Dimitriu & Matei, 2014). Digital disruption is used to characterize the influence of recent technological advancements on established industries. It is uncertain whether technological advancements are frequently regarded as disruptive, or how scholars explain the relationship between "technology" and "disruption" in the accounting field. The accounting sector is undergoing a major revolution as data analytics and artificial intelligence improve (Agnew, 2016). Many developing technologies have already begun to handle jobs that accountants used to do, and technological advancements are expected to continue to reduce firms' reliance on accounting professionals (Appelbaum and Nehmer, 2017). The expanding relevance of digital media technologies has brought about a growing demand for innovative solutions that leverage this technology while addressing accounting industry needs.

## **Virtual Reality**

Virtual reality technologies give the impression of being immersed in a three-dimensional computer-generated scene with virtual objects that have spatial existence. A three-dimensional computer-generated world can be examined and engaged with by a person, who can then manipulate things or conduct activities within the same virtual world (Virtual Reality Society, 2017). Virtual reality is achieved by the application of special computer technology, most commonly headsets that give the impression of reality. Virtual reality uses the VRML (Virtual Reality Modeling Language) programming language to build three-dimensional graphics and the associated user interactions. Virtual reality (VR) immerses the viewer in a virtual world, which is often displayed on a screen in a headset. Users of virtual reality typically use a head-mounted or hand-held controller to connect to the virtual reality and navigate in the virtual world.

## **Augmented Virtual reality**

Augmented reality maintains an equilibrium between the benefits of actual reality and the flexibility of virtual presentations. The capacity to have virtual and actual items coexist in the same place is augmented reality's distinguishing characteristic. Unlike VR, which aims to create a perception in a virtual world, augmented reality aims to keep a user's sense of awareness and presence in their actual physical environments. As a result, the virtual elements of augmented reality are designed to complement the physical environment or give components that would not otherwise be possible without virtualization. Virtual components are displayed in the context of a user's environment using augmented reality technologies (Milgram & Kishino, 1994)

An augmented reality system combines a physical real-world scene with a computer-generated virtual scene that adds to the scene with additional details. The augmentation can take a variety of forms, but the end goal is to improve the user's performance and worldview (Vallino, 2002). While virtual reality (VR) applications immerse the user in a three-dimensional world that strongly represents the real world, augmented reality (AR) programs blend virtual reality with representations of real-world items. Medical, entertainment, military, engineering

design, manufacturing, maintenance and repair, and consumer design (fashion and beauty) are just a few examples of augmented reality applications.

### **Virtual Reality, Augmented Reality and Accounting**

In accounting, virtual reality refers to a fully immersive experience that blocks off the physical world. Using technology, we can simply control virtual operations to get the best possible results. This will be especially true in the accounting field, as accounting is a profession that lends itself well to virtual operations when the right technology is used. Accounting procedures and experiences are enhanced in the most realistic way possible with virtual reality. Virtual reality is one piece of technology that improves the remote accounting experience, allowing for the most realistic in-person meeting simulation available today. There's also augmented reality, which is defined as the modification of a real-world environment with the addition of sound, visual features, or other sensory stimulation. The growing popularity of augmented and virtual reality demonstrates its widespread acceptance. During times of lockdown, these become increasingly popular. Since the introduction of stay-at-home mandates around the globe, virtual reality and augmented reality, have seen a surge in demand. Businesses are seeing the value of virtual reality in coaching, conferences, and customer support.

When a novice accountant is employed by a large firm, he will require some training to accomplish the work, which is required to start a new career in accounting. The creation of an experience that is as near to in-person as feasible could alleviate a lot of the anxiety and flaws that come with conducting such programs in the physical world. Due to the widespread incidences of COVID-19, virtual reality and augmented reality technologies provide a more efficient and convenient way to make decisions and reach conclusions. Virtual and Augmented reality technology will induce greater automation in the field of accounting in the next years. Inventory, invoicing, customer service, stock auditing, and other duties will be more efficient. To stay up with evolving client needs, it's only logical that the accounting field follows suit and embraces virtual and augmented reality technology.

### **Benefits of Augmented and Virtual Reality in the Accounting Field**

The increasing relevance of digital media technologies has resulted in a greater demand for innovative applications that harness this technology while matching accounting industry standards. The following are some of the advantages of virtual reality and augmented reality in the accounting field:

#### **Creation of Financial Statements**

Financial statements that are Free of errors and other reports can take a long time and be tedious to compile. Accounting using augmented reality can increase total productivity while also guaranteeing the procedure.

#### **Accounting Data Visualization**

Accountants and users of financial statements use data visualization as a tool to help them make vital investment and management decisions based on complex data. The complexity and volume of data to be analyzed have increased in tandem with the growth of the accounting industry. Virtual reality and augmented reality enhance this experience by making it quicker and easier to view and manage massive volumes of data. By instructing the computer to display information on the screen utilizing motions or voice commands, augmented reality may successfully address data visualization in both 2D and 3D formats. Accountants and investors can utilize augmented and virtual reality to build a virtual world in which they can immerse themselves completely in data. Using a simple finger flick, accountants and investors can effortlessly handle data and receive the information they require.

#### **Accounting Education, Recruitment and Training**

Accountants, investors, clients, and other consumers of financial accounting data need accounting education to comprehend how changes in financial systems affect the compilation and analysis of financial statements. In the field of virtual reality finance, augmented reality and virtual reality provide limitless opportunities for teaching new accounting concepts to people. Virtual reality aims to help accountants decipher the huge volumes of financial data generated by every business. It also provides accounting students with a unique learning opportunity.

Recruit training is a key phase in the career of new accountants, especially for larger organizations, and it can be comprehensive and complex. Different patterns of behavior may be tested, role plays can be performed, and social, leadership, and cooperation skills can be fostered in virtual reality environments.

### **Service to Customers**

By making essential information visible, augmented reality and virtual reality assist users in keeping track of accounting data. Both AR and VR provide new opportunities to connect with those who are far away. AR and VR become better ways to connect with clients, partners, and prospects by bringing context to each user's environment and enabling realistic collaboration. To improve their customers' and stakeholders' experiences, many organizations are resorting to augmented reality and virtual reality. Apps and software that enable creditors and clients to access real information that could influence investment decisions are being developed using augmented reality. It enables accounting information users to conveniently and efficiently access the data they require. Companies have embraced virtual reality and augmented reality to deliver product, market, and operational insights, as an alternative to physical meetings.

### **Corporate Reporting**

Annual results, Annual Reports, and shareholder meetings are all examples of scheduled events that can be given creatively using virtual reality and augmented reality technology. FRC (2011) discussed how virtual reality and augmented reality can be used in cooperative reporting. Virtual reality and augmented reality can be used to build a virtual "front end" for a report using VR or 360-degree panoramas to create an interesting method to examine reports (FRC, 2011). This works especially well when focused on a certain theme. Virtual reality can also be used to create a whole virtual report environment, in which viewers interact with a combination of video, picture, and textual content to create an entertaining summary with connections to the full annual report FRC (2011). In reality, virtual reality and augmented reality could be utilized to improve the accounting data user's interpretation of the annual report.

### **Auditing**

The capacity for augmented reality to automatically retrieve data increases accuracy and decreases the number of time employees spend correcting document errors, allowing them to focus on other tasks. Financial auditing and reviews can potentially benefit from Virtual reality and augmented reality technology. It gives the observer a distinct viewpoint by presenting the accounting data in three-dimensional charts instead of two-dimensional charts. Financial simulations can be run in real-time to see how changing one variable affects the organization's forecast. Augmented reality accounting has the potential to drastically alter the auditing landscape. All of the diagnostic work can be executed with a set of commands, and the checklist can be controlled with voice commands. Auditing financial records will be simple because the reports can be accessed using a predetermined set of commands. Technology will undoubtedly play a significant part in the auditing and risk management professions. Virtual reality, in particular, has the potential to make a significant difference. Auditors and risk managers can now carry out duties that were previously impossible due to safety and health concerns. Currently, virtual reality technologies are mostly employed for auditing and risk management education and training.

### **Application of Virtual Reality**

Accountants will encounter new opportunities and problems as virtual experiences grow more realistic and participatory. Accountants are recruiting trainees, attracting clients, and developing new lines of business in the virtual world, as well as having meetings online. Adjustments in areas ranging from education to customer relations to data analysis will be required in the accounting field. Accountants can use virtual reality and augmented reality technologies to find new ways to attract personnel, conduct, and access accounting education, establish new methods for monitoring and analyzing costs and returns on investment, and evaluate new ways to do business and improve services rendered. The application of virtual and augmented reality in the accounting field is discussed below.

### **Financial Statements Preparation**

Accountants consider journal and ledger entries while compiling financial statements. The procedure entails managing a large amount of data, evaluating it, and entering it into a computer to generate statements. There are accounting systems to handle such accounting methods, which might boost efficiency to a point, but there is still the possibility of data inconsistency. Augmented reality can successfully address data visualization with the use of 2D and 3D formats and also instruct the machine to display data using motions or voice instructions.

These challenges can be successfully addressed with augmented reality. Data visualization is the most well-known solution provided by augmented reality. This is done by displaying data in both 3D and 2D on a screen and using an augmented reality headset to view the displayed data. Voice commands or gestures are applied to instruct the machine.

### **Auditing**

Auditing is a complex and time-consuming process. Internal audits are simple to conduct, but external audits take a long time to complete. Data must be scrutinized for conformity with government rules and regulations by an accounting team using systemized methods and a checklist. The auditing scenario could be dramatically changed by augmented reality accounting. All of the inspection work will be done by a specified set of commands.,

### **Virtual Communication, Networking and Customer Service**

Accountants can communicate information via chats and video conferences, monitor performance, do computations, and interact with clients using software solutions. Augmented reality integration ensures a smooth workflow and high levels of engagement. The way you connect with clients can be completely transformed by augmented reality. During client presentations, data and graphs can be displayed on the projector screen using voice commands and an augmented reality headset. The contents on the screen can also be modified with a finger swipe.

This is possible both online and offline during a presentation. important and useful content can be displayed while communicating with a client on a video chat by just using voice instructions. Augmented and virtual reality-enabled solutions can improve client communication and relationship. This strengthens the customer's relationships. Employees may discuss work in real-time, from different places, and arrange, project 3D simulations, and evaluate data in 3D formats with the help of augmented and virtual reality projections.

### **Accounting Education, Training and Recruitment**

Considering both personnel and clients in the field of accounting, education and learning are crucial. As every organization seeks top talent and seasoned personnel, virtual and augmented reality technologies can play an important part in training a new breed of accountants for the future. As a result, students can enhance their communication skills and get experience with virtual customers before dealing with a real client. New accountants gain confidence by using such a platform. Furthermore, with such implementation, trainees are able to focus not only on the academic aspects of a topic but also on the practical and technical aspects. Students and employees who practice regularly avoid making blunders. Employees can test their new company tactics and their impact with interactive virtual and augmented systems.

AR and VR are exciting technologies that could have a wide range of applications. Understanding virtual reality and augmented reality (VR/AR) activities is becoming increasingly important as they become more incorporated into society and industry. The distinction between physical and digital interaction is becoming increasingly blurred as interactions become more natural. Virtual reality (VR) and augmented reality (AR) both offer intriguing possibilities for new interactive applications. Nonetheless, technology is likely to augment rather than entirely automate business disciplines such as accounting in the next decades (Davenport and Kirby, 2016), and top accountants in large organizations universally concur that the demand for accountants will not go away rapidly (Agnew, 2016). The essential abilities, on the other hand, are likely to be altered, and there may be a future demand for fewer entry-level accountants (Kokina and Davenport, 2017). To guarantee that graduates have workplace-relevant knowledge and can stay up with worldwide certification requirements and professional qualifications, such developments in accounting education must be addressed through content and delivery (Al-Htaybat et al., 2018). Despite the tremendous growth of both virtual reality and augmented reality in recent years, significant obstacles must be solved in the future years. If virtual reality is to be utilized for lengthy periods, secondary problems such as motion sickness must be addressed (Guttentag, 2010). Other problems may be examined further soon as a result of customer activity in such virtual reality and augmented reality settings. They include:

#### **1. Cost**

The technology is relatively inexpensive. Users may purchase low-cost virtual reality systems and headsets. However, in terms of the content problem, it will still need a significant amount of resources to develop material for corporate use. Assessing the financial case for and against research and development and adoption is

also a major problem. Because virtual and augmented reality is still in its early stages, significant investment is required to create viable virtual and augmented reality technologies that can improve productivity and benefit users.

## **2. User Experience**

When utilizing virtual reality technologies, some users people experience dizziness, nausea, and even seizures. Digital Motion Sickness is a condition in which you can see movement but cannot feel it. It will take some time for the technology to truly take off. The developers must streamline the involved processes while also imparting user-friendliness and improving user experience.

## **3. Cybersecurity**

Virtual reality, like any other computer-based system, is vulnerable to cyber-attacks. The data on which virtual reality's visualization is built can be modified and destroyed.

## **Conclusion**

The potential of virtual reality and augmented reality technologies in supporting the dynamics of global accounting systems and tackling the big problems provided by unforeseen events and crises in the accounting profession were explored in this research. However, additional research is needed to fully understand and utilize the benefits of Virtual Reality and Augmented Reality technology in the accounting field.

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