

4IR modules in accounting curriculum: the university of Johannesburg in perspective

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Abstract

The main aim of this paper is to provide justification for the inclusion of Artificial Intelligence (AI) and other Fourth Industrial Revolution (4IR) technology innovations in the higher educational institutions' curriculum based on evidence from modular, short-learning courses, degree and master's programmes with particular focus on 4IR technology currently being offered by the University of Johannesburg, South Africa.

In achieving this objective, this paper reviews the University's policy document on the Fourth Industrial Revolution and various programmes and courses aligned to the 4IR, which have been designed and offered by the Department of Accountancy of the University of Johannesburg to provide both sensitization and knowledge of the 4IR technologies including AI. The content and outcomes of these courses and programmes together with target learners were reviewed.

The Department of Accountancy of the University of Johannesburg in conjunction with the South African Institute of Chartered Accountants (SAICA) developed short learning programmes (SLPs) namely: Introduction to 4IR for Accountants; Introduction to 4IR for Professionals in Business; Artificial Intelligence for Accountants; Artificial Intelligence for Professionals in Business; Blockchain Technology for Accountants; Blockchain Technology for Professionals in Business. SAICA mandated their members to enroll for these courses as part of their continuous professional education. Apart from accountants, other professionals in other fields in various organisations were also encouraged to enroll for these SLPs.

The findings show that in line with the institution's policy on the fourth industrial revolution, various courses and programmes were developed to provide opportunity for the students, academics, professionals and managers to appreciate and acquire relevant knowledge on the 4IR technologies. This ensures that students are adequately prepared for the work of the future and that the current workforce are made relevant for the work of the future more so as the future is already here.

The paper's main recommendation is that other higher institutions of learning in South Africa and other parts of the world should join the train by developing course contents and providing training for students and the workforce in various field of endeavors to create 'a better world in the future'.

Introduction

About the University of Johannesburg

"The University of Johannesburg (UJ) came officially into being on 1 January 2005 as a result of the merger between the Rand Afrikaans University (RAU) and the Technikon Witwatersrand (TWR). This was exactly one year after the incorporation of two campuses of Vista University (which was already unbundled at the time) into the RAU. It made the founding of the UJ one of the most complex mergers in the restructuring of the South African higher education landscape and, arguably, in higher education worldwide" (UJ @ a glance, 2009).

VISION: "An international University of choice, anchored in Africa, dynamically shaping the future".

MISSION: "Inspiring its community to transform and serve humanity through innovation and the collaborative pursuit of knowledge".

VALUES: “Imagination Conversation Regeneration Ethical Foundation”
(<https://www.uj.ac.za/wp-content/uploads/2024/03/uj-undergraduate-prospectus-2025.pdf>)

Message from the vice-chancellor and principal

“As you embark on this next chapter, you are faced with the difficult but important decision of where you will study and what you will choose to study. As you carefully weigh your options, I assure you that the University of Johannesburg (UJ) is one of the most vibrant and pulsating universities in South Africa. Although UJ is a relatively young institution in the South African higher education landscape, we have soared to heights untold in recent years. Our history is rich and represents a long legacy. In recent years, our deliberate positioning in the Fourth Industrial Revolution (4IR) and our emergence as a pan-African institution have charted this path. Additionally, we have placed an emphasis on research that addresses the United Nations’ Sustainable Development Goals (SDGs) and contributes to policy development. Our learning revolution, now, is one defined by our societal impact in this endeavour. We are a dynamic University, actively shaping the future around us”.

(<https://www.uj.ac.za/wp-content/uploads/2024/03/uj-undergraduate-prospectus-2025.pdf>)

About the department of accountancy

- “UJ’s Department of Accountancy is a leader in Accounting Education”.
- “Our cutting-edge programmes are distinctly focused on the development of well-rounded individuals by preparing graduates to be critical thinkers and enablers in the 4th Industrial Revolution”.
- “As we contribute to the growth of transformation of the accounting profession, our key focus areas tie in with the national imperatives of addressing skills shortage and nation building”.

(<https://www.uj.ac.za/faculties/college-of-business-and-economics/schools/school-of-accounting/department-of-accountancy>).

An overview of industrial revolutions

According to Klaus Schwab in his book “The Fourth Industrial Revolution”, the term Industrial Revolution refers to the appearance of “new technologies and novel ways of perceiving the world [that] trigger a profound change in economic and social structures”. He identified four distinct periods of industrial revolution namely: the first industrial revolution (the agrarian world); the second industrial revolution (the modern world) and the third industrial revolution (the digital world). Presently, we are at the dawn of the fourth industrial revolution.

Source: Encyclopedia Britannica

According to the World Economic Forum “*The speed, breadth, and depth of the 4IR is forcing us to rethink how countries should develop, how organizations create value, and even what it means to be human; it is an opportunity to help everyone harness technologies to create an inclusive, human-centred future*”. (<https://www.weforum.org › strategic-intelligence>).

The First Industrial Revolution (The Agrarian world)

The First Industrial Revolution started from 1760 and has been referred to as the age of mechanisation or the age of mechanical production. During this period, steam power was used in almost all things beginning from agriculture to textile manufacturing. This age was particularly dominated by agrarian society where life was generally centred around agriculture. However, agricultural activities during this age provided a basis for the establishment of factories (particularly textile factories) because it provided the needed raw materials as inputs for the newly established factories during this period.

Steam power and machine tools characterised the First Industrial Revolution; this consequently led to the development of railroads and steamships as means of transportation for people and products from farms and factories. This was followed by the development of urban centres in areas where factories are located. People who initially live in farm settlements now could migrate to urban centres in search of factory work. The effect was the existence of many unskilled labour in these urban centres. They are sometimes required to work more than normal working hours to keep their jobs.

Therefore, it could be deduced that the first industrial revolution ushers in a period of mechanisation, industrialisation and urbanisation.

The Second Industrial Revolution (The modern world)

The emergence of the second industrial revolution coincided with the dawn of the 20th century. This period has been widely referred to as the age of science and mass production because it was a period where processes were done faster, and more output were achieved.

The second industrial revolution was largely characterised by key inventions such as chemical fertilizers, gasoline engines and airplanes. In effect, chemical fertilizers enabled farmers to be more productive while gasoline engines enabled machines to work faster thus facilitating mass production. The development of airplanes facilitated faster movement of people and products. It was observed that this age witnessed the mass production of Ford model T cars from Henry Ford's factory. Another characteristic of the age was the establishment and expansion of factories in urban centres thus facilitating greater urbanisation. A major discovery during the second industrial revolution is electricity. Indeed, the second industrial revolution ushers in the modern world.

The Third Industrial Revolution (The Digital world)

You are welcome to the third industrial revolution; you are welcome to the digital world or a world of digital revolution. Those who have ever worked via the internet or the cloud have enjoyed the benefits of the third industrial revolution. Presently, we can do a lot of activities on our phones, from communication to business and research. Business transactions could be initiated and concluded in real time and a considerable amount of research activities can now be done online.

The third industrial revolution ushered in key technologies in the form of the internet; personal computing; mainframe computing as well as semi-conductors. This period witnessed a shift from analog technologies to digital technologies thus industries in the communication and power sectors were disrupted because of this movement from analog electronics and mechanical technologies to digital technologies. Some processes in industries were also disrupted through the automation of production and supply chains.

The Fourth Industrial Revolution (The remade world)

It could be observed that the previous three industrial revolutions ushered in major transformations. The human life was marked with transformation from farm life to factory life and with the advent of the age of mass production comes with it the development of urban centres. Thus, in all these industrial revolutions, the way people live, work and communicate were transformed on an incremental basis from the first to the second and to the third revolutions.

What then can we say is happening now in the 4IR? The answer is greater digitalisation, greater transformation and greater revolution. With the advent of the 4IR, we now have driverless cars made possible through the artificial intelligence technology; intelligent machines can now perform some activities which were hitherto being performed by humans with greater efficiency and accuracy; robots are now trained to do majority of tasks which were previously being performed by humans. We also have genetic sequencing and editing, miniaturised sensors, 3D printing and many other key inventions which can turn our world to a 'remade world'.

Source: Accountancy SA

We now summarise the major characteristics of these major revolutions:

The First Industrial Revolution

- This first revolution spans the period from the end of the 18th century to the beginning of the 19th century
- The period witnessed mass extraction of coal in addition to the invention of steam engine
- The energy from the steam engine were used in all the mechanical processes as agriculture was gradually replaced with factories thus making industrialisation the foundation of the economic life of the people
- The development of railroads leading to increase in economic, human and material transfers
- Development of urban centres, first factories and first cities.

The Second Industrial Revolution

- The second industrial revolution evolved at the end of the 19th century
- It was marked by invention of electricity, gas and oil as the new sources of energy
- The development of combustion engine
- The development of steel industry
- The development of chemical synthesis fabric and dyes
- The invention of telephone and telegraph
- The emergence of cars and airplanes.

The Third Industrial Revolution

- The third industrial revolution evolved since 1969
- The emergence of nuclear energy
- The increase in electronics with transistors and microprocessors

- The increase in computers and telecommunication
- The emergence of space research and biotechnology
- High level automation
- Industrial revolution.

The Fourth Industrial Revolution

- The fourth industrial revolution is evolving
- Built on the foundations of the digital and the industrial revolutions of the third industrial revolution
- Characterised by exponential technological advancement breaking all the physical, biological and digital barriers
- Capable of transforming the production, management and governance systems.

It has been stated that the first industrial revolution was characterised by mechanisation of production through the agencies of water and steam. The second industrial revolution was characterised by mass production through the agency of electricity. The third industrial revolution was characterised by automation of production through the agencies of electronics and information. The fourth industrial revolution (4IR) is now remaking our world through the exponential digital and industrial revolutions.

The 4th Industrial Revolution: The University of Johannesburg's Perspective

"The way we live and work is changing at a pace never before seen in human history. While there have been three great industrial revolutions that have changed our way of life before, this Fourth Industrial Revolution – 4IR – is unprecedented in its speed, its all-embracing nature, and its global spread.

We can already see it on our factory floors, in our offices, in our homes, entertainment and sport, and perhaps most importantly, in our classrooms – from nursery schooling for toddlers to the exalted halls of learning in our universities. And we see it, and interact with it through our cell phones, our laptops, and even our cars and appliances.

That's why, as an academic and research leader in Africa, UJ is taking the lead on our continent in facing the reality and existence of 4IR. And we do this not only in responding to its challenges, but in wholeheartedly embracing its tools, potential and capacity to enhance learning and teaching. We are committed to the preparing both of our students and teachers for this task, and in the enablement of our world-class researchers in and for the new world that is taking shape.

More than that, though, we understand that this new world is going to make new demands on us – individually as much as collectively as societies. Indeed, in the flood of data and information on which we all now depend, many of these demands are already apparent – from requiring us to adapt to whole new industries, to the disappearance of familiar jobs, to the need for new skills and approaches, and to ensuring equitable, fair and just access, privacy and dignity. And we do this through the diligent investigation and interrogation of the ethics of a digitalised world.

That's because we believe that we all have a hand in building the just, fair and exciting world we would like to see for ourselves and for our children.

And it is this key belief that shapes what we teach, how we teach and even why we teach. It means continually appraising our curricula and course offerings. It means providing our students with the conceptual and practical tools that will enable their imaginations to flower. It means placing in the hands of each person with whom we engage the ability not just to understand, but to act on their own imagination – their own reimagination – of the future". (<https://universityofjohannesburg.us/4ir/what-is-4ir/>)

Although, the infusion of 4IR technologies module cuts across all disciplines within the University of Johannesburg, the paper addresses specifically the modules relating to Accounting qualifications in Bachelor of Commerce in Accounting Programme, Master of Commerce in International Accounting Programme as well as Short Learning Programmes on 4IR technologies for Accountants and Professionals in Business. The Department of Accountancy is a major Department within the College of Business and Economics, University of Johannesburg

About the college of business and economics

“The College of Business and Economics, in short, the CBE, is the largest faculty in the University of Johannesburg. The CBE houses six schools, twelve departments, six research centers, one institute, one research lab and three SARCHI Chairs. The CBE qualifications range from diplomas to postgraduate diplomas as well as undergraduate degrees to postgraduate degrees. Our continuous education programmes include short learning programmes, bridging programmes and whole programme. We develop critical thinkers and problem solvers that address business, economic and societal challenges. The CBE has evolved into a preferred commerce education provider who, within three years, has achieved global recognition for:

- *Tourism & Hospitality: Second ranked in South Africa (2023), Ninth globally (2023)*
- *Marketing Management: First in Africa (2019)*
- *Organisational Psychology: First in South Africa (2019)*
- *Business & Management Studies: Third in Africa (2019)*
- *Economics & Econometrics: Fourth in South Africa (2023)*
- *Accounting & Finance: Fourth in Africa (2019)*
- *2021 results Times Higher education QS rankings”*

(<https://www.uj.ac.za/wp-content/uploads/2023/10/cbe-undergraduate-brochure-2024-intake.pdf>)

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- the national imperatives of addressing skills shortage and nation building.*

Accountancy SAICA ITC Results

- *The Department of Accountancy consists of experienced Lecturers boasting an infectious passion for their role as educators”*

(<https://www.uj.ac.za/faculties/college-of-business-and-economics/schools/school-of-accounting/departments/departments-of-accountancy>)

4IR ACCOUNTING IN ACCOUNTING CURRICULUM

4IR accounting module for the Bachelor of Accounting degree programme

The purpose of this module is to create awareness and enhance the knowledge of students in the 4IR technologies at the undergraduate level. Consequently, the module was designed to prepare the students for the new world of work occasioned by the Fourth Industrial Revolution. The content of the module includes:

The identification and explanation of the main technologies of the 4th Industrial Revolution including Artificial Intelligence, Machine Learning, Blockchain Technologies, Internet of Things and Big data. Emphasis is laid on the purpose and the nature of Artificial Intelligence in business operations. The module also lays emphasis on the concepts of machine learning and deep learning and how these could be applied to business operations.

The nature and purpose of natural language processing was also considered with respect to its effects on business operations. Again, the nature and purpose of Robotic Process Automation was also considered with respect to its effects on business operations. Finally, the module considered the current and potential effects of the technologies of the 4IR on Accounting, Finance, Auditing and Taxation.

4IR Accounting Module for the Mcom Accounting programme

Disruptive technologies play an ever-increasing role in all areas of modern business. The digital transformation is seen as one of the key factors changing the way companies create value and gain competitive advantages (Kotarba, 2018). The impact of technological development on the finance and accounting functions is one of the most visible. Technologies seen as already or potentially disrupting the sector include artificial intelligence, machine learning, cloud computing, blockchain, and robotic process automation (RPA). (Reinventing *business*, 2019). To date, much attention has been paid to other automation technologies, including enterprise resource systems (ERP), artificial intelligence (AI), cloud computing, and big data.

The purpose of this module is to equip the graduate students who enrolled for the Master of Commerce in International Accounting with necessary knowledge in 4IR technologies and how these may impact on their work as Accountants and Business Managers. The content of this module includes emerging technologies that are having impacts on Accounting, Auditing, Finance and Tax functions. Such technologies include Robotic Process Automation (RPA); Cloud Computing; Blockchain Technology (BT); Enterprise Resource Planning (ERP) Systems; Supply Chain Management Systems.

Robotic process automation (RPA)

According to PwC South Africa, Robotic Process Automation (RPA) is the use of smart software to efficiently carry out manual, repeatable and time-consuming tasks that are normally performed by people. RPA is transforming the way we work by enabling employees to concentrate on activities that will require human cognitive abilities while it executes processes that consume considerable time at a lower cost and very minimal errors. PwC South Africa.

([https://](https://www.irpaai.com/wp-content/uploads/2015/05/Robotic-Process-Automation-June2015.pdf)

[/www.irpaai.com/wp-content/uploads/2015/05/Robotic-Process-Automation-June2015.pdf](https://www.irpaai.com/wp-content/uploads/2015/05/Robotic-Process-Automation-June2015.pdf))

Benefits of Robotic Process Automation

RPA has been identified as part of the 'Fourth Industrial Revolution' because of the comprehensive benefits it has delivered in multiple industries and business functions.

According to the Institute for Robotic Process Automation, the following are some of the benefits:

"Cost reduction: The application of RPA may decrease operational cost through reduction in the number of human employees and decrease in processing times.

Data analysis: RPA facilitates improved data analysis for better decision making.

Efficiency: RPA also facilitates efficiency because a software robot can work for 24 hours in a day without a break. More volume of work can be accomplished in the same amount of time and the same volume of work can be done in less time. A single robot can replace two or more employees.

Employee productivity: The application of RPA allows the employees to give more attention to more valuable tasks of problem solving and decision making when software robots are allowed to do some tedious and repetitive jobs.

Accuracy: The application of RPA leads to improved accuracy because some unavoidable human errors are avoided during various stages of business operations. Software robots when programmed with correctly mapped out processes will eliminate a good number of human errors.

Customer satisfaction: RPA facilitates increased customer satisfaction because automation will lead to more efficient processes and therefore enables employees to perform more customer- friendly roles.

RPA and Business Processes: Some of the tasks which can be enhanced by process automation includes back-office tasks in customer service, supply chain management, finance, human resources, accounting and insurance. Tasks such as the creation of online access credentials, placement of purchase orders and data entry could also be enhanced through RPA".

RPA and accounting processes

The accounting processes and tasks that can benefit from automation in terms of performance and accuracy include: General ledger accounting, Inventory Accounting; Fixed Asset Accounting, Tax Accounting, General Cash Management; Payroll, Cash Management intercompany transactions, inventory accounting, expenses reimbursement and document audit.

Accounts receivable and accounts payable including maintenance of suppliers/customers data invoice creation, processing and delivery; automation of approvals; validation and posting of payments, billing customers and matching of invoices with sales/purchase orders. Period-end closing of sub-ledger and the general ledger, journal entries validation, accounts reconciliations. Reporting on monthly, quarterly and/or yearly basis; Management reports for internal performance evaluation as well as statutory and regulatory reporting.

In 2018, Capgemini conducted a survey which showed that the most popular technology to automate middle and back-office functions is the RPA. The survey also revealed that the ROI ranged from 13% to 18% while the payback period ranged from 7 to 12 months. Of the total number of companies analysed, those that implemented RPA in the finance and accounting functions were 31% with average ROI at 12% and payback period was 11 months. It was observed that the highest cost savings (averaged 13%) was recorded in the finance and accounting process automation when compared with those of other back-office departments. (*Reshaping the future*, 2018).

4IR Short Learning Programmes for Accountants

This short learning course was designed to enable Accountants in practice cope with the disruptions occasioned by the Fourth Industrial Revolution (4IR). The scope of this short learning course extends to the various applications of the blockchain technology in the industry. The students are provided with both the theoretical, practical and technical explanations of the Blockchain Technology concepts by a combined team of academics and professionals in the field. In addition, the short learning course was designed to provide practical insights to how Blockchain Technology will impact the Accounting, Auditing and Finance fields.

As part of the introductory part of the course, the students are introduced to concepts of tokens, hash functions, cryptography, smart contracts, DApps, Distributed Ledger Technologies (DLT) and Private and Public Blockchains. The students are also provided with a description of how BT works with blocks. Explanations on the interconnectivity of blocks to form a chain are made. The students also learn about the relationship between the blockchain and computer network architecture. The concept of Peer-to-Peer network architecture and how it applies to the Blockchain is explained.

A description of the frameworks for the architectures with their advantages and disadvantages is made. The relationship between Blockchain and Game Theory is explored. The concepts of cryptography, hash functions and the different categories of hashing that are used by practitioners. Furthermore, the students are introduced to Distributed Ledger Technology (DLT), learn how it works with an understanding of its key characteristics and role in Blockchain technology in some DLT applications. The difference between permissioned and permissionless distributed ledger technologies as well as the challenges and advantages of the DLT is highlighted.

An important point of discussion is the relationship between blockchain and accounting/auditing with special emphasis on the concept of triple entry accounting and continuous auditing. Exploration of examples and use-cases of private and public blockchains. The concept and origin of tokens and its relationship to Blockchain technology are also explored. The roles and relationship of Smart Contracts and Distributed Applications (DApps) to Blockchain Technology are explored with some examples of use cases of smart contracts. In addition, legal concerns relating to smart contracts are highlighted.

Another important area of discussion is the guidelines for accounting, auditing, taxation and regulation of transactions made through blockchain technology. Closely linked to blockchain technology is crypto assets (cryptocurrencies and crypto tokens) with a special focus on accounting for crypto assets.

Lastly, the course concludes with the identification of various applications of Blockchain Technology in some key industries and BT solutions in government, financial services, voting platforms, identity platforms, media, entertainment and credential verification to mention a few. The challenges of blockchain applications are also highlighted.

Conclusion

In view of the emergence of disruptive technologies of the Fourth Industrial Revolution and their effects particularly on the accounting functions, it becomes very important that students are exposed to these technologies right from their undergraduate days to adequately prepare them for the new world of work. While it is certain that many jobs will be lost, it is equally certain that more new jobs will be created. It is only those who have been equipped with new and technical knowledge of these emerging technologies that will survive in the new world of work.

It is equally important that beyond the undergraduate level, students who enrolled for post-graduate courses should also be equipped with adequate knowledge on these new technologies to cope with the new world of work. Lastly, those who are currently employed and may not have the opportunity to enrol for postgraduate programmes may seize the opportunity of the short-learning programmes to equip themselves with relevant knowledge of these new technologies thus enabling them to cope with the new world of work.

Therefore, it is important that other institutions of higher learning follow the footsteps of the University of Johannesburg by inculcating into their academic curricular, modules relating to the emerging technologies of the Fourth Industrial revolution not only in the Accounting discipline but also in other fields such as Science, Engineering, Medicine, Law, Education, Arts and Humanities.

References

- CBE 2024 Undergraduate Brochure: <https://www.uj.ac.za/wp-content/uploads/2023/10/cbe-undergraduate-brochure-2024-intake.pdf>.
- Message from the Vice-Chancellor: <https://www.uj.ac.za/wp-content/uploads/2024/03/uj-undergraduate-prospectus-2025.pdf>.
- Government Gazette 25737 (14/11/2003): Government Notice 1694 (incorporation) and Government Notice 1702 (merger).
- UJ @ a glance: https://www.uj.ac.za/wp-content/uploads/2021/10/uj_a_glance-13-may-2009.pdf.
- Department of Accountancy: <https://www.uj.ac.za/faculties/college-of-business-and-economics/schools/school-of-accounting/departments-of-accountancy>.
- World Economic Forum: <https://www.weforum.org> › strategic intelligence.
- What is 4IR? <https://universityofjohannesburg.us/4ir/what-is-4ir/>.
- Kotarba M. (2018). *Impact of Digitalisation on M&A transactions in Banking*. Zeszyty Naukowe Politechniki Poznańskiej. *Organizacja i Zarządzanie* (DOI: 10.21008/j.0239-9415.2018.077.09).
- International Finance Corporation 2019. *Reinventing business through disruptive technologies*. <https://www.ifc.org/en/insights-reports/2019/reinventing-business>.
- PWC South Africa. (2020). *Robotic process automation*. Available from <https://www.pwc.co.za/en/services/advisor/robotic-process-automation.html>
- Institute for Robotic Process Automation (2015). *Introduction to Robotic Process Automation- A Primer*. (<https://www.irpaai.com/wp-content/uploads/2015/05/Robotic-Process-Automation-June2015.pdf>).
- Reshaping the future: unlocking automation's untapped value (2018), Capgemini, https://www.capgemini.com/wp-content/uploads/2018/10/Automation-Use-Cases_Digital1.pdf.
- Introduction to Blockchain Technology for Accountants (2019) <https://lms.uj.ac.za/course/view.php?id=1294#section-1>.
- Accountancy SA (2020). *The stages of industrial revolution and its impact on jobs*. <https://www.accountancysa.org.za/the-stages-of-industrial-revolution-and-its-impact-on-jobs/> Accessed 19 August 2024.
- Schwab, Klaus. "The Fourth Industrial Revolution". *Encyclopedia Britannica*, 31 May. 2023. <https://www.britannica.com/topic/The-Fourth-Industrial-Revolution-2119734>. Accessed 19 August 2024.
- The Department of Accountancy. <https://www.uj.ac.za/faculties/college-of-business-and-economics/schools/school-of-accounting/departments-of-accountancy>.