
The Effect of Artificial intelligence on the future of accounting

- Case study of a big four -

Khaled MECIF*

Labo COFIFAS

University of Oum El Bouaghi- Algérie

Khaled_mecif@yahoo.fr

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Zoubeir AYACHE

Labo COFIFAS

University of Oum El Bouaghi- Algérie

Zoubeir.ayache@univ-oeb.dz

zoubeirayach@yahoo.fr

Accepted: 08/12/2024

Sirine FERCHICHI

University of Oum El Bouaghi- Algérie

Ferchichisirine76@gmail.com

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Abstract:

This study aimed to study the effect of artificial intelligence on the future of accounting profession, as we addressed the theoretical framework of both accounting and artificial intelligence while trying to combine them.

In order to reach the desired goals, in the applied aspect of the study we focused on big four well-known foreign firms known in the field of accounting for using artificial intelligence techniques in their activities.

Through this study, we reached the most important potential changes that artificial intelligence can bring to accounting functions such as: faster data analysis, enhancing efficiency and accuracy of financial statements while saving time and showing the necessary steps that the accountant must do.

Keywords: Artificial intelligence, Accounting, The future, New technologies, Big-Four.

Jel Classification Codes:M41.

*Corresponding author.

1. Introduction:

Artificial intelligence today has become widely used concept and has recently attracted widespread interest and spread in society, this is thanks to recent technological achievements that have opened a new page in the field of accounting.

The accounting industry is considered one of the most important fields affected by artificial intelligence, in the field of accounting this promising technology has the ability to shorten the time it takes auditing companies to examine and analyze financial data, as artificial intelligence programs will be able to complete all accounting stages for an entire year, match them with approved standards, discover errors and evaluate risks, auditing accounts, preparing reports that serve the organization and proposing solutions within a few minutes.

In the light of the talk about the phenomenon of artificial intelligence and its relationship to the field of accounting, we try to answer the following question:

How does artificial intelligence effect on the future of accounting?

To answer this question, a set of sub-questions can be used:

- Does artificial intelligence have benefit to accounting?
- Does artificial intelligence help in combating financial fraud cases?
- Can artificial intelligence replace humans in accounting jobs?

In order to understand the subject of our study, we put the forward the following hypotheses:

- By adopting AI accuracy can be improved, Costs reduced in accounting and many other advantages;
- Using AI contributes to discovering cases of financial corruption;

The use of AI in the field of accounting will reduce the demand for accountants services;

2. The empirical study:

After the theoretical study that we discussed in the previous chapters, which is to clarify the concept of artificial intelligence and studies related to it in the field of accounting, we will try in this chapter to test the extent to which the theoretical aspect matches practical reality.

Therefore, we will learn about the foreign firms that adopts this subject by studying each of the following:

2.1. The definition of the firms

In order to know how artificial intelligence works in analyzing huge financial data in the accounting profession by companies, we have to collect what are known as the leading companies known as the big four ' Deloitte, Price water house coopers, Ernst and young, klynveld peat Marwick geordeler KPMG.' These companies will be studied in this chapter and we will find out how they work.

2.2 The big four

The big four are all large firms in the accounting industry in the U.S, they offer auditing services, taxes, strategy, and management consulting in this requirement we will defined each one of them starting with: (tejada, 2023)

- **Deloitte:** At the top of the big four is Deloitte the world's largest accounting firm that has 415000 employees, Deloitte was founded in 1845 by 'William Welch Deloitte' as a small accountancy firm in London, it grew from an independent accountancy firm in England to the largest accounting company in the united state, it worked to create accounting firms that offer's public accounting services in the modern world by using the newest technologies.
- **Ernst and young:** It is a company that began in the early of 1990s, when two aspiring accountants started firms at a similar time it has more than 300000 employees in 150 countries around the globe, the company provides all of tax, transaction and advisory services.
- **Klynveld peat Marwick geordeler (KPMG):** Operating in more than 143 countries around the world and boasting offices in every single U.S state, it known worldwide as 'KPMG' it has more than 265000 people. This company serve the accounting industry by giving similar services like the other 4.
- **Price waterhouse coopers (PWC):** price waterhouse coopers is a multinational accounting and auditing company headquarter in London, the company's origins date back to ninth century, with both the formation of the accounting firms 'Price waterhouse and the coopers brothers' in 1998 both of these company's has emerged and the company was shortened to 'pwc' as a rebranding effort. The company today operate in 157countries and more than 284000 employes around the world.

Each of this company's provides the needs of her clients, such as audit, assurance, consulting, financial advisory, risk management and tax compliance services.

2.3 Artificial intelligence analysis tools that used in every firm

From the above, it can be said that each of the firms uses AI tools in their activities to study big data. Her purpose is to make accounting faster more efficient, smarter and less error-prone, and that is what we will seein this part of the study: (fateh, 2021, pp. 108-110)

- **Deloitte AI tools:** The company has developed many applications in 2017 based on advanced technologies it is represented by the following:
- **Insight driven organization (IDO):** It helps companies achieve strategic goals, it uses daily analysis, data and logic in the decision making process which helps expand the scope of projects across the organization so

it can achieve greater business impact, it can also help improve the speed and quality of the decision making process while minimizing the cost.

- **Behavior and emotion analytics tool (BEAT):** This system analyzes voice interactions, so that it monitors the voice interaction extracted from internal information and alerts the user of its negative results. It also analyzes more than 30 languages and 30 different behavior.
- **KPMG AI tools:** This firm provided robust data visibility and analysis within its core practices, while providing a hub of complementary resources for local teams in 2017. This firm provides for us two tools:
 - **FBT automator:** This tool is capable of analyzing ledger data including interactions with business systems such as 'SAP' and 'Oracle' to access the hard data.
 - **Pay roll tax automator:** It can automatically entered into the payroll code and assigned to pay codes for purpose of identifying tax payments, related to salaries. It is also possible to perform analysis of statements through a monthly payroll tax to ensure compliance with timely filing and facility establishment.
- **Ernst and young AI tools:** In 2016 this firm gave us a group of scientific solutions based on development and innovation, as it works on both of:
 - **Robotic process automation (RPA):** is a software technology that makes it is to build and deploy software that emulate humans actions.
 - **Neuro linguistic programming:** it can be used like a machine reader like 'QR symbols' to scan any code and make it easier for everyone.
- **Pwc AI tools:** This firm have what it called Audit AI to make her clients satisfied, it have many ai tools that was adopted in the year 2017 like: (boubaya, 2021, p. 363)
 - **GI AI:** "pwc" partnered with ai "O2H" to create the 'AI.GI' robot, which relies on knowledge, thinking, experience and training algorithms using artificial intelligence and machine learning to upload, scan also to analyze documents, transactions and billions of data points of fractions of second and do what a team of accountants can't do.
 - **Cash.AI:** It is an essential element in every accounting process, as it includes many manual activities effort and time consuming, so with that 'pwc' uses cash.ai that was created by scientist and data experts from around the world to conduct and implement a comprehensive, complete and accurate cash as the process takes minute while it used to take a day by accountants team.

❖ Report and discussion of the results:

Through this part, we will review the profits and revenues of each company as follow:

- **The revenues of the big four firms:**In this requirement, the revenues of every firm will be displayed and discussed starting with:
- **Deloitte revenue:**

Table N°1:Revenue of Deloitte by the two years 2022-2023

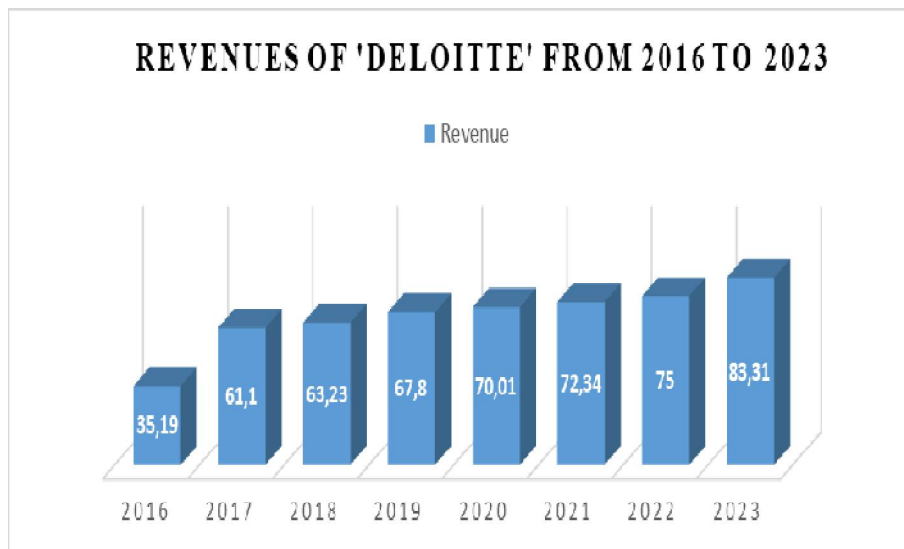
Functions	2022	2023	Change%
Consulting	1.370\$ billion	1.596\$ billion	16%
Advisory	3.98\$ billion	5.69\$ billion	12%
Tax	1.893\$ billion	5.772\$ billion	9%
Total	75\$ billion	83.31\$ billion	10%

Source: <https://www.deloitte.com/uk/deloitte-uk-reports-2023>, Steve Dutton, 2023.

From the table above, we figure that there is a difference between the two years in every services that the firm provide to her investors and costumers.We notice that by last year '2022' that the services were in a low term but by the next year of '2023' each services has increased by percent's, we have consulting 16%, advisory 12%, tax 9%, n that was the achievement that the company has achieved by using the ai tools and make the work place the safe and easiest way for any costumer.

Depending on this information's, we will draw the improvement of Deloitte revenue in every year:

Fig N° 1: Revenues of 'Deloitte' from 2016-2023



Source: <https://www.consultancy.eu/news/9310/deloitte-doubels-global>, Larry Zeenny, 02/10/2023.

On this figure, we can see the growth of the firm by years, which means that the firm follows a straightforward manner by using artificial intelligence tools that enable it to study and make good decisions to achieve high efficiency and transparency.

As were noticing that in 2016 before using AI tools the revenues of the company was 35.19\$billion and after using AI there has been a positive financial jump in the revenues it increased to 61.10\$billion in 2017 only in one year, that means that the company relied on the ai in her services, and given a value in evolutionary results such as: increase in the employment of accountants and auditors by 50%, an increase in the number of investors and the opening of new branches, a rise in stocks by 64% and give transparency in the financial reports by 94%.

By the following years we are seeing a development in the revenues from 2018 to 2023 .We have in 2018 the revenues were 63.23\$billion and after 3 years from adopting ai tools it reached 67.8\$ billion in 2019 and it kept developing until the year of 2023 the company has continually expanded its range of services where it achieved 83.31\$ billion, this reflects the company's adaptability and her strong strategy to achieve a high growth.

We also note that the firm has remained at a variable level achieving success in each of the following years: in 2018 the value of the revenues was 63.23\$ billion, in 2019 it was 67.8\$ billion, in 2020 it reached 70.01\$billion, in 2021 the total increased to 72.34\$ billion, in 2022 it increased more to 75\$ billion and in the last year of 2023 it reached to 83.31\$ billion, this means that the company reached her goals in developing her services by using artificial intelligence tools by the years.

• Price water house coopers revenue:

Table N02: Aggregated revenues of pwc.

Functions	Revenue of 2022	Revenue of 2023	Change%
Assurance	31.12\$ billion	33.25\$ billion	4%
Tax and Legal services	34.86\$ billion	46.86\$ billion	9%
Gross revenue	65.98\$ billion	70.21\$ billion	5%

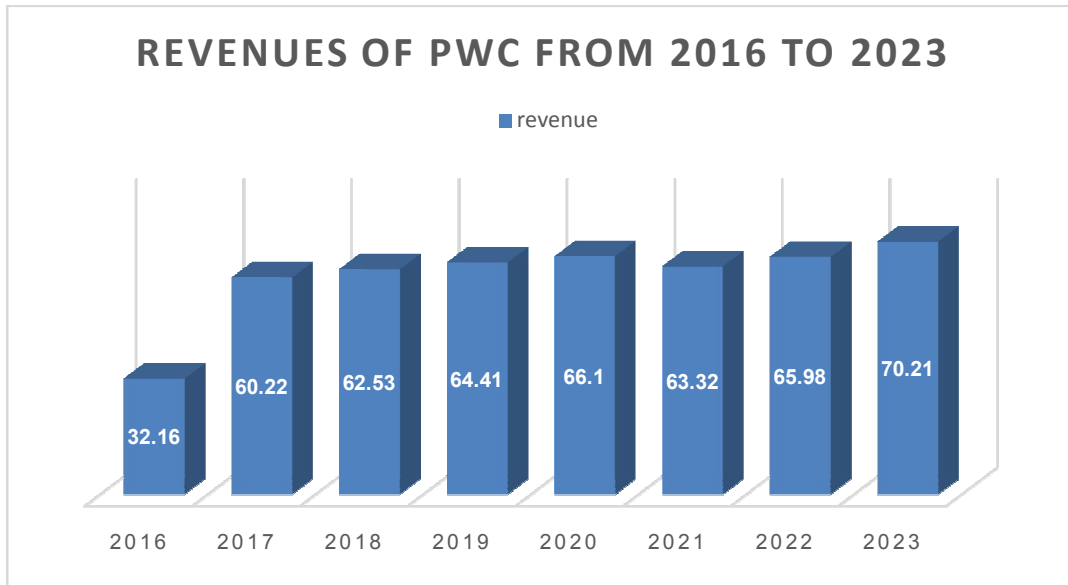
Source: Depending on the site of :<https://www.pwc.com/global-revenues/2023>, Rayan Stanton, 24 October 2023.

What is noted from table number one is that the company has three main lines of services, namely assurance services consulting and taxation, where the aim of the guarantee services is to provide and improve information to the clients so that they can better decision.

We notice a difference between the two years 2022-2023 in the rate of increase in revenues, whereas in the year of 2022 revenues were equivalent to 65.98 billion dollars, and they increased by the new year of 2023 to 70.21 billion dollars, while the percentages of insurance and tax services each reached 31.12 billion dollars and 34.86 billion dollars in 2022 and became more to 33.32\$billion and 46.86\$ billion in 2023.

This explains the increase in customers requests for the company, the following figure will explain the revenue of pwc by the years:

Figure N03: Revenues of 'pwc' from 2016 to 2023.



Source: <https://www.statista.com/statistics/189636/aggregated-revenues-of-pwc>, in 01 /11/2023 by Merdith Alda.

From the figure above, we notice that revenues were constantly increasing during the period 2016-2023 which made the demand for them high from the demand of the investors because they use the latest artificial intelligence technique when analyzing huge financial data, which helped them and enabled them to manage revenues and reduce costs in less time than usual.

According to the statistics above, we can see that in 2016 before using artificial intelligence tools the revenues were in low term but after the adoption of ai tools in 2017 we noticed increase in the revenues from 32.16\$ billion to 60.22\$ billion in just one year after using ai, as we can see also that the revenues of the following years 2018, 2019, 2020 were in great condition increasing towards a highest point that means the company is making development in her work, in 2017 the revenues increased by using both of 'GL AI' and 'Cash AI' what gave the result of curbing unintentional bias and guarding against attacks with the percent of 90% transparency in her work.

By achieving a strong financial results like in 2018 the revenues were 62.53\$billion and it reflected a significant growth in 2019 and made 64.41\$billion. As for the year 2020 the firm had a decrease in the revenues from 66.1\$billion to 63.32\$ billion, that's due to accusing the firm of tampering with financial reports, but it was acquitted because of the use of artificial intelligence which enabled it to give transparency and reliability to its financial reports.

After that the company returned to its path and achieved a significant increase in her revenues, which did in both of the last years '2022-2023' from 63.32\$billion to 65.98\$billion to 70.21\$ billion, this confirm that the firm of 'pwc' uses ai tools which enables it to go all the way.

Price water house coopers has made a perfect investments in technology, by emerging AI tools in the year of 2017, what give them a Chance to enhance there services options and opportunities.

●Ernst and young revenue:

Table N03: Revenue of 'EY' from 2022 to 2023.

Functions	2022	2023	Change%
Assurance	15.38\$ billion	15.45\$ billion	5,7%
Tax	11.29\$ billion	12.11\$ billion	7,5%
Consulting	13,87\$ billion	16.10\$ billion	16,7%
Total	40.54\$ billion	43.66\$ billion	9,3%

Source: Depending on: <https://www.ey.com/2023/9/ey-reports-record-global-revenue>, by Carmine De Sibio in 13/09/2023.

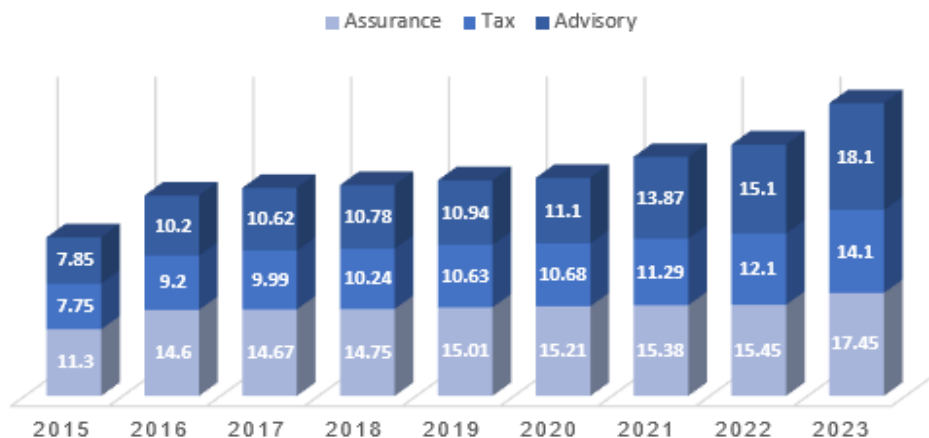
We can tell by the table above that 'EY' has transformed its business model and diversified its pool of offered services such as "Assurance, Tax, Consulting" which made it achieve development over the past years, by seeing that each of her services has increased in a big way.

By improving her skills, it means that the company have high efficiency and that is by using artificial intelligence in her services.

Although, we will capture the increasing of revenues by the years to see the achievement of this company.

Figure N07: Revenue of 'EY' from 2015 to 2023

REVENUE OF 'EY' FROM 2015 TO 2023



Source: <https://www.statista.com/statistics/189232/global-revenue-of-ey>, by Marlene Greenfield, 26/09/2023.

Over the figure above, were noticing that every financial ratios has increased by each year this indicates the firm continuity and progress in its field and also reflects the customers need for its services.

Regarding to that, after adopting the ai tools in 2016 the revenues were 26.9\$billion in 2015 an it increased in each year starting with 2016 which achieved the equivalent 34.02\$billion compered to the first year thanks to 'RPA' and 'NLP', by putting humans at the center drawing on experience across strategy, reducing risks by 50%, assurance and tax with diverse perspectives and insights, that means theirs an impact of Ai tools in her accounting services and the firm is derived by a strong performance in technology industry.

'EY' has focused more after adopting AI tools in her work, by given an increase 35.28\$billion in 2017 and it kept getting more high in 2018 they make a significant total in the revenues from 35.28\$billion to 43.77\$billion and that's by following AI tools strategy.

We also note that the firm has remind at a variable level achieving success in each of the following years: in 2019 the value of the revenues was 35.77\$ billion, in 2020 it reached 36.58\$billion this shows that AI training in her work place remained in the advanced line. In 2021 the total increased to 36.99\$ billion and it kept increasing until 2022 it developed more to 40.54\$ billion this growth underscores the company revenues platforms, and in the last year of 2023 it reached to 43.66\$ billion, this means that the company reached her goals in developing her services and it reflected how her performance got strong by using artificial intelligence tools by the years.

●KPMG revenue:

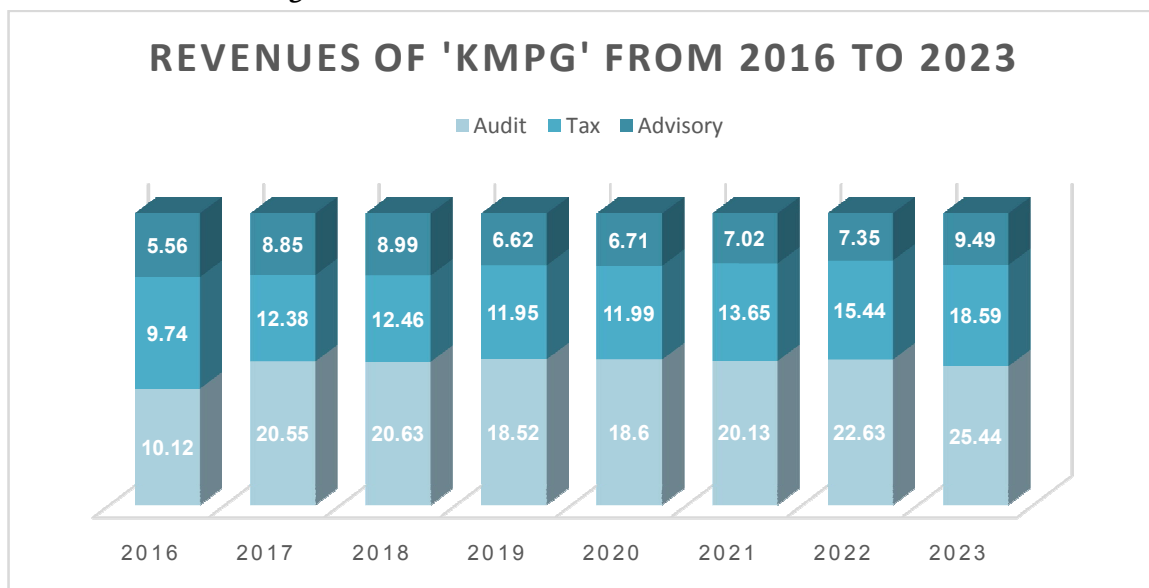
Table N04: Revenues of 'KPMG' 2022-2023.

Functions	2022	2023	Growth
Audit	22.63\$ billion	25.44\$ billion	4%
Taxes	15.44\$ billion	18.50\$ billion	8%
Advisory	7.35\$ billion	9.49\$ billion	17%
Total	45.42\$ billion	53.43\$ billion	10%

Source: Depending on the site of: <https://www.kpmg.com/2021/kpmg>, by Daniel Caines in 2022.

We notice 'KMPG' revenues global has reached in 2022 "45.42\$ billion" and achieved growth in 2023 with "53.43\$ billion" this follows an extensive period of investments and focus on priority services and solutions addressing the challenges faced by businesses across the globe. On that, we will explain the above table by a figure of revenues growth by the last years.

Figure N08: Revenues of 'KMPG' from 2016 to 2023.



Source: <https://www.statista.com/statistics/189452/global-revenues-of-KMPG>, by Briony key in 13/09/2023.

According to the statistics above, we can notice that in every year in each functions 'Audit, Tax, Advisory' that theirs increasing in the growth of the company services.

We notice that the company is growing towards a better vision, since adopting artificial intelligence tools in the year of 2017 because in 2016 the global revenue was in a low average but by 2017 it increased to 41.78\$ billion, and by 2018 it was 42.08\$billion this reflects the firm ability to manage its business.

With the first year 2017 in using AI tools the firm has showed multiple positive results in her workforce such as processing 65% of large volumes of data with no errors, preventing cheating and fraud, solving governance issues, what presented the impact of AI in this firm from all the other years.

Despites having this increase, but during the next year 2019 we witnessed a financial decline in amount 37.09\$ billion which is due to the abundance of financial data but after that the company adapted to using artificial intelligence tools and was able to return its revenues to the appropriate path.

We can see the increase of the four last years in the revenues of the company as follow: in 2020 the revenues were increased to 37.30\$ billion and in 2021 it was 40.08\$ billion, 2022 it achieved 45.42\$ billion and in the last year of 2023 the revenues reached 53.52\$ billion, this is the evidence of the firm commitment to relying on AI tools to provide her data.

●The profits of the big four

As we know already that the big four firms are the largest professional services in the world, and by the first requirement we saw that each firm accomplished a growth in her services.

In this part, we will show the profit of every company, starting with:

●Deloitte profits:

Global accounting and advisory firm Deloitte is well known in the industry, since her growth and achievement Deloitte has increased towards 100\$ billion in one year that is what made her famous towards costumers and firms.

Deloitte is using artificial intelligence tools in her activities to make it easy for her workers to achieve the goals they want, what made her accomplish the following results in her workforce: The investments went from 44% in 2016 to 56% in 2017 in only one year after using AI tools, her efficiency also increased and her reports were in perfect condition with 0 errors that it showed in 2016 the percent was 19% and went to 35% in 2017. The demand on her services also increased all over her sectors.

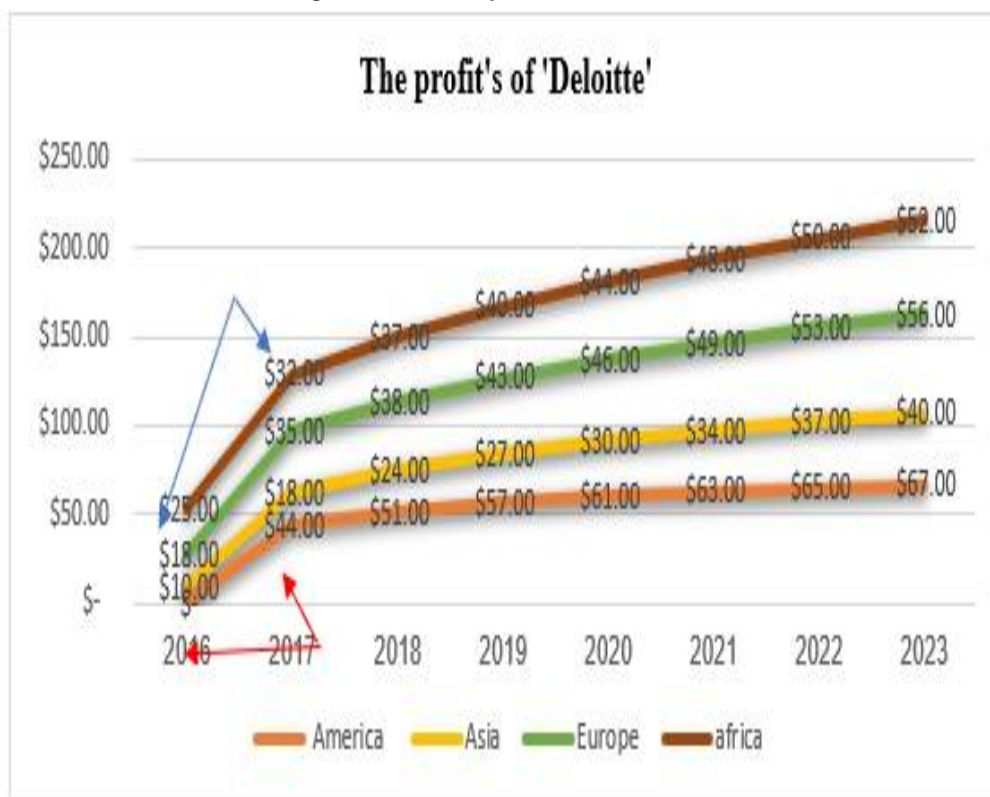
As we already know that 'Deloitte' adopted AI tools in the beginning of 2017, and from that her profits increased by the next years. we will see the develop that this firm has achieved by the following:

Table N05: profit increase in Deloitte.

Countries	2016	2017	2018	2019	2020	2021	2022	2023
America	30,7\$ billion	44\$ billion	51\$ billion	57\$ billion	61\$ billion	63\$ billion	65\$ billion	67\$ billion
Asia	10\$ billion	18\$ billion	24\$ billion	27\$ billion	30\$ billion	34\$ billion	37\$ billion	40\$ billion
Europe	18\$ billion	35\$ billion	38\$ billion	43\$ billion	46\$ billion	49\$ billion	53\$ billion	56\$ billion
Africa	25\$ billion	32\$ billion	37\$ billion	40\$ billion	44\$ billion	48\$ billion	50\$ billion	52\$ billion

Source: Made by the student by using the numbers on the site of Statista, in 26/09/2023 by Kathrin Kohl.

By following this table, we can see through it how deloitte profit being increased by the past years until now. On that, we are using these misusers to draw the increase on this firm n how the profit is developing.

Figure N09: The profit's of Deloitte.

Source: Made by the student based on the table above and the site of Statista, by Kathrin Khol, 2023.

According to the statistics, we can see that deloitte improved by the years, and accomplished her purpose in each continent.

We have in the year before adopting AI the profits were in America, Asia, Europe and Africa in low because each country made at least 30.7\$ billion, 10\$billion, 18\$billion and 25\$ billion, but after adopting AI tools in next the year which is the year of 2017 the firm has witnessed an explosion in her profits in her sectors in different countries "America, Asia, Europe and Africa", it went from low term to high one it increased to 44\$billion in America, 18\$billion in Asia, 35\$billion in Europe and 32\$billion in Africa, from what we see 'Deloitte' has invested in AI what made her accomplishes a significant develop in the accounting industry.

After that the year of 2018 increased more by giving the following results: in America 51\$billion, in Asia 24\$billion, in Europe 38\$bilion and in Africa it went to 37\$billion what make her ability to create another strategic in her services to develop more. from the firm accomplished a growth from 30.07\$billion to 57\$billion this period witnessed a steady profit growth and a strong strategy.

In Asia the company has developed in her services from the year 2019 to 2023 the profit was 10\$billion and grew to 27\$billion due to the high demand for the company services.We also have the growth profits of the company in Europe that was reported from 2020 to 2023 the profit increased from 18\$billion to 43\$ billion in only four years, this is often due to the result of using the company to her AI tools.

Last but not least, according to the recent data and the figure above the profit of the company in Africa has developed from 2020 to 2023 around 25\$billion to 40\$billion, this incredible growth was because using a strong performance in her services to the client and investors by showing technology in her services.

●**Price waterhouse coopers:**

The new equation strategy of pwc in using artificial intelligence has build a strong performance over the world, by developing the skills of her employees and detecting fraud in accounting reports.

By adopting AI tools in 2017 the firm had a massive developments in her services and activities behalf than her investments and efficiency, their investments have enhanced new strategies and new ways to gain more clients.

Before using AI tools her investments in 2016 were 3.16% and it went the year after using it to 7.94%, also her number of clients went from 129,829 to 464,2322 employee, not to mention the increase in her efficiency in 2016 it was 2% and developed to 8% in one year after using AI tools.

Also the firm has multiple branches in every country, we will present the profit in every region by the following:

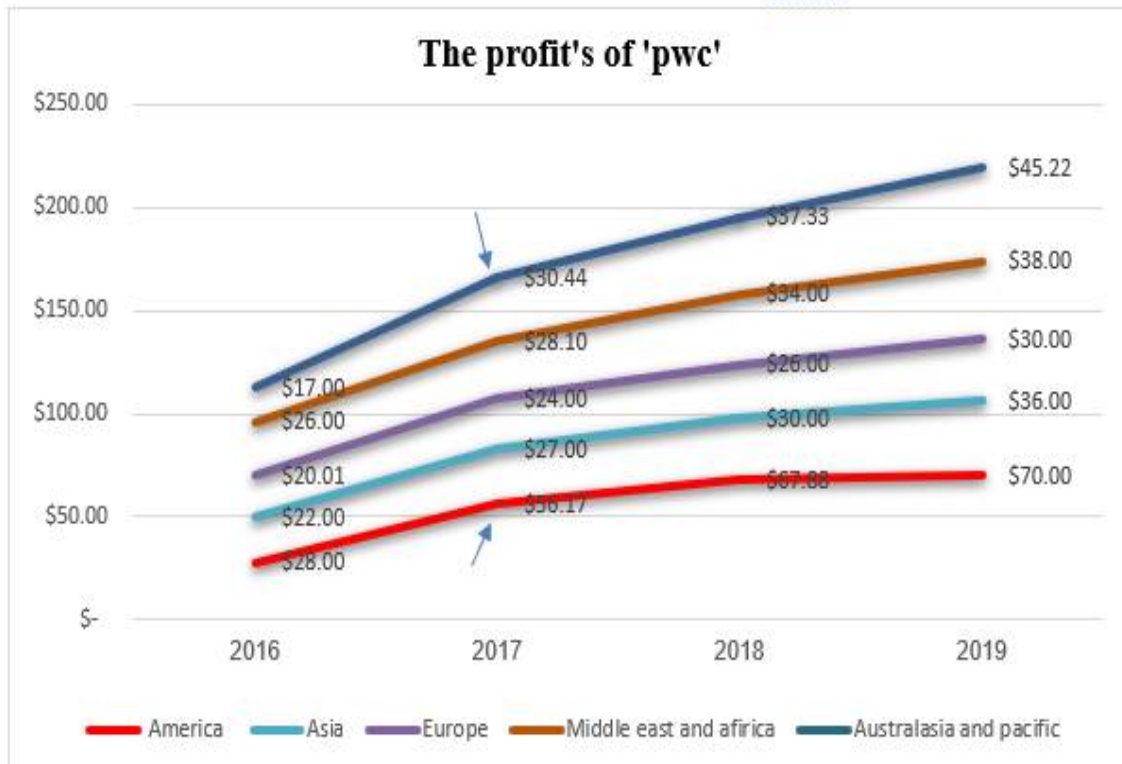
Table N06: The profit's of Pwc.

Countries	2016	2017	2018	2019
America	28\$billion	56.17\$billion	67.88\$billion	70\$billion
Assia	22\$billion	27\$billion	30 \$billion	36\$billion
Europe	20.01\$billion	24\$billion	26\$billion	30\$billion
Middle East and Arica	26\$billion	28.10\$billion	34.11\$billion	38.45\$billion
Australasia and Pacific	17\$bilion	30.44\$billion	37.33\$billion	45.22\$billion

Source: Made by the student by using the site of Statista, by Petar Sapun, 01/09/2023.

By this table, we will see the profit of pwc in each continent, and the improvement that has been done. Given to this table, we will conduct a graphical study showing the company's profits for every country.

Figure N10: The increase of 'pwc' profit's.



Source: Made by the student, depending on the table above and to the source of Statista site.

This figure show us that the company in every continent by each year has developed and made a lot of profit's, by using artificial intelligence tools in her workforce and employing many workers to create the increase of her revenue's and achieve the goal of the year.

Moreover, we can notice that pwc has seen considerable profit growth after using AI we can glean in 2017 the profit reached in America 56.17\$billion, Asia 27\$billion, Europe 24\$ billion, Middle east and Africa 28.10\$billion and in Australia 30.44\$billion means that profits are considered good.

As the following year in 2018 the profits had an increase considered in each continent starting from America the profits was down high to 67.88\$billion, Asia 30,11\$billion, Europe 26.55\$ billion, middle east 34.11\$ billion and Australia 37.33\$ billion, profits saw a high gain cause the firm was increasing too fast.

After that the firm managed to sustain profitability through her services in 2019 and made an improvement in America the profit reached 70\$billion, Asia 36\$ billion, Europe 30\$billion, middle east 38\$billion and in Australia it surged to approximately 45.22\$billion.

In 2020 the profits continued to grow driven by a good strategics, so the profits were estimated in each of the countries of America it reached 73,51\$ billion, Asia 38.01\$billion, Europe 32,16\$ billion, middle east 43.73\$billion, Australia 48.13\$ billion, an indication that the firm relies more on artificial intelligence.

As the last three years, the growth kept increasing to the point that reached over 80\$billion in 2023, what reflected that 'PWC' is focused on developing and providing AI in her services.

•Ernst and young profit:

The profit in this firm has increased by 9.2% year on year to 49.4\$ billion, for the financial year 2023. The increase also marked to one of the most successful years in the firm in both of the two countries “ Asia, Europe”. After using AI tools the firm had a determent in increasing her investments and it showed that she make at least 2.5% by the year of 2015 before using AI, but after using it the firm had gained more than 5.17% in 2016 and it kept going high until the last year 2023 she made 33% from investments.

And the results showed that even her efficiency had developed it a fast way it were before using AI in her accounting services equivalent 4% and the year after 2017 it went to 10% and kept increasing till 2023.

By this, we will attach the data that we have and transform her into an explanatory curve.

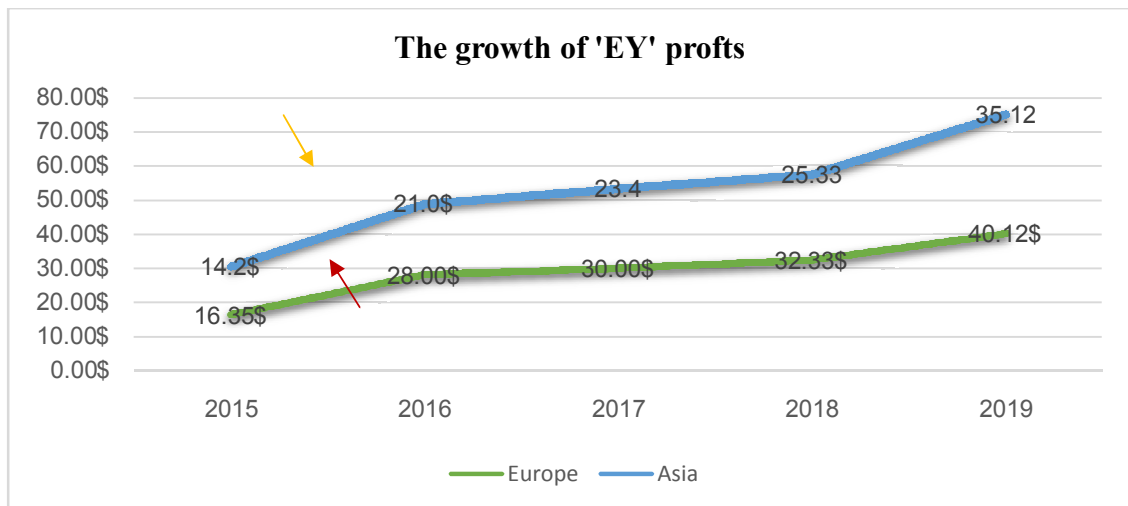
Table N07: The profit of ‘EY’.

Countries	2015	2016	2017	2018	2019
Europe	16.35\$ billion	28\$ billion	30\$billion	32.33\$billion	40.12\$billion
Asia	14.2\$ billion	21\$ billion	23.04\$billion	25.33\$billion	35.12\$biilion

Source: Made by the student by depending on tribal bonds, by Ben Warren, 16/06/2023.

By adjusting this table, we will create an explanatory curve to show how the develop of ‘EY’ profits in the right way.

Figure N11: The growth of ‘EY’ profits.



Source: Made by the student by using the table above.

On this data, we can tell that the company has developed year by year and made a progress in her profits since adopting AI technologies in 2016.

Moreover, we can notice that in both Europe and Asia the profit increased in a good term we have in 2016 before using AI the terms of the profits were in low condition it reached 16.35\$billion in America and 14.22\$billion in Asia and went to 28\$billion in 2016 in America and 21\$billion in Asia during this time the firm being developing in her services to provide the best digital tools to her clients.

In 2017 we can see that the profit dropped in high growth and it reached 30\$billion in Europe and 23.4\$billion in Asia.

In 2018 it went bigger then the last year from 30\$billion to 32.33\$billion in America and 23.4\$billion to 25.33\$billion in Asia due to unforeseen events, but in 2019 the profit increased again to achieve 40.12\$billion and 35.12\$billion in both America and Asia in one year as a result that the firm is using ai in her services made ability strong to fix the low term of her profits.

Left us with the last years, they kept increasing with providing a significant effort by more than 43% since 2017.

Then again, the firm in 2023 made her way towards a new increase that included in America and Asia by 45\$billion and 41.09\$billion due to the fact that using ai tools in her workplace strengthen her presence and improved operational efficiency and made her one of the big four firms.

●KPMG profit's:

The firm reported a 73\$ billion profit by the last year, by adopting artificial intelligence tools in her services and activities with her own employees.KPMG showed us the latest financial quarter by using AI strategies in investment, resilient client demand across its diversified service portfolio, it has also noted that after using AI tools the firm had a lot of improvements in her results such as the investments it went from 0.5\$billion in 2015 to more than 22\$billion in 2023 and her high efficiency increased from 2% in 2015 to 40% in 2023.

However, this firm continues to solidify its position in the industry as a leading in the global services by providing growth and value to stakeholders. We will show the improvement of this firm by:

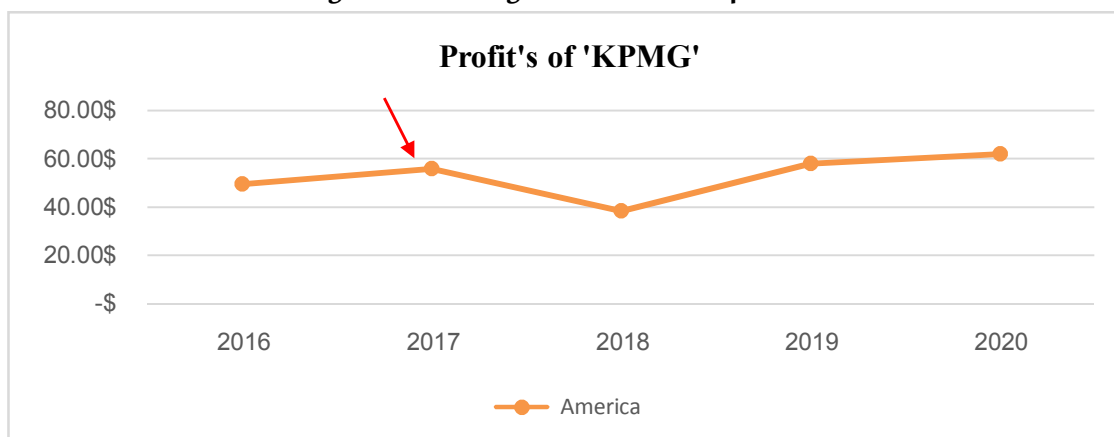
Table N08: profits of 'KPMG'.

Country	2016	2017	2018	2019	2020
America	49.66\$billion	56.00\$bilion	38.50\$billion	58.17\$billion	62.13\$billion

Source: Made by the student based on the CPA Practice Advisor.

By flowing this table, we can create the next figure that shows the growth of 'KPMG' profits.

Figure N12: The growth of 'KPMG' profit's.



Source: Made by the student by using the information of the table above.

In this form, we noticed that the company's profits are increasing significantly because it is working according to the required standards.

We notice that, in 2016 the profit were 49.66\$billion before using AI and it grew to 56\$ billion in 2017 in America during this period the demand on the firm services was high by the clients.

In 2018 the profit reached a low point 38.50\$billion, slightly than the previous year due to the competition market with the other firms, however it managed to return to her way with expansion of new digital services and rapid services.

After this financial crisis the profit increased again to 58.17\$billion in 2019, back to the adaption of the firm to new client needs with her digital services.

Furthermore, in 2020 'KPMG' profits has shown a positive trend over the past years and it achieved 62.13\$billion, and it kept increasing like that until the year of 2023 thankfully to AI tools.

Through our analysis and diagnosis of the financial data of each firm, we can say that the 'Big four' institutions have been able to achieve financial balance by studying the difference between the past years and new ones.

We also concluded that artificial intelligence is the primary means of achieving this progress in these firms, as it allows us to save time, improve the quality of work and financial reports and know the organizations capabilities to build future goals

4. Results and discussion

Accordingly, to this study many results were reached including the following:

- The study showed that artificial intelligence in the field of accounting is one of the important topics of our time as it aims to achieve transparency in financial firms by enhancing transparency through improved data analysis and fraud detection, it include that ai is developing in the financial sector and making its path towards the future;
- The accounting profession undertakes the work of an accountant to prepare the organizations financial statements and review them to avoid errors and make appropriate decisions they may preform multiple duties often depending on the type of the firm such as ensuring the accuracy of bookkeeping and that the bookkeeping is compliant with state and federal laws, examining financial documents and financial transactions to ensure compliance and rectify any discrepancies since that accounting known as the main base of any company;
- Artificial intelligence application tools helps accountants in analyzing financial huge and intractable data, The main objective of using it devices in financial data analysis is to maximize the potential of cutting edge

computing methods to find undiscovered information, also it helps in reducing the risk of regulatory violations;

- The big four firms are considered among the world in the field of accounting as a result of the use of artificial intelligence in their activities, which enabled them to attract more clients and investors with following three steps for instance ‘product’ ai technologies embedded into the service itself to provide all the customer benefits, ‘process’ AI technologies to streamline daily workflow by augmenting a worker's ability to perform a task better and faster, ‘insight’ AI is used to make informed and strategic decisions to provide a better way to each company;
- The use of artificial intelligence contributes to develop the accounting systems to protect financial data from manipulation and fraud, accounting fraud is insidious because it is mostly invisible it involves non cash transactions embedded deep in a company's financial accounts with the use of AI systems this fraud and manipulation will be detected and fixed in a fast time;
- There is a significant effect of using artificial intelligence on increasing the ability of accountants performance in their jobs, it can help them to automate tasks that are routine, repetitive, or low value such as data entry, reconciliation or reporting, this can save time and cost and reduce human errors and biases;
- The use of artificial intelligence in accounting will lead to success, by the means of that the adaptation of AI started decades ago and became present when the firms started to use computers, accounting domain started to use new technologies to assure a better relationship with clients but without losing the focus on delivering more accurate results and better decisions for the future;
- By adopting artificial intelligence in accounting, there will be no concern about financial embezzlement and errors overlooked by accountants, due to the fact that accounting has been transformed by artificial intelligence the development of computer systems that can carry out the financial operations and detect any type of embezzlement by using AI algorithms, which also it can examine a company's financial accounts and offer suggestions on how to improve cash flow;

There is no worry or fear for the future of accountants being replaced by their work with artificial intelligence or dispensing with their jobs in the near future, because firms will always need accountants' abilities who can analyze artificial intelligence data, we mean by this that nothing can replace the intelligence of the human because even the artificial intelligence needs a human intelligence.

5. Conclusion:

Through my study of the topic of the effect of artificial intelligence on the future of accounting, I found that artificial intelligence is the main driver for studying the points of our institutions in our research.

I discussed the effect of artificial intelligence and its methods in developing firms by combining the theoretical aspect and the applied part, so that the theoretical part was addressed all the literature on artificial intelligence and accounting, while the applied part was allocated to a case study of a group of foreign firms by presenting their achieved revenues during recent years and its profits in the advanced countries.

It was also concluded, that artificial intelligence in the field of accounting is used seriously because of its great importance it is also considered a means of development and control. It helped the studied firms in our research to know their financial statement, detect existing imbalances, and improve them.

In conclusion, to adjust our study the hypotheses will be tested including the reached results and recommendation on this study will be presented, starting with:

Hypothesis testing:

Despite this study, with its theoretical part and applied part the hypotheses that were developed at the beginning of the research can be judged as follows:

- **Confirming the first hypotheses of the study:** Which means “By adopting artificial intelligence accuracy can be improved, Costs reduced in accounting and many other advantages”, it was stated during the first chapter in the thesis that artificial intelligence is an essential factor in the firm activities, and it uses tools to assist in analyzing important data and detecting errors and documents while saving time and helping accountants in making future decisions.
- **Confirming the second hypotheses of the study:** Which was “Using artificial intelligence contributes to discovering cases of financial fraud”, it was shown during the second chapter that using artificial intelligence inside of any firm will help it to detect any type of error or fraud and fix it right away.
- **Confirming the third hypotheses of the study:** Which says that “The use of artificial intelligence in the filed of accounting will reduce the demand for accountants services”, it was demonstrated through the study the third chapter that artificial intelligence effects the field of accounting at present and future time due to its miraculous capabilities in studying and analyzing huge data without effort and saving time according to the AI tools in each firm and the statistics about workers before and after using AI, because before using AI in each firm for example deloitte in 2016 the number of workers were 244,400 employees and it grew to 263,900 employees in 2017 after adopting AI tools. This is what distinguished it over the human labor force and caused the emergence of fears in the field.

6. List of references:

1. Abdelbaki, Z. (2023). The promise and peril of artificial intelligence. *Journal of law and interscience*, 02, 154-155.
2. Alixander, J. r. (2002). *History of accounting*. University of Bostwana. Bostwana. pp03-05.
3. Bostrom, N. (2011). *The ethics of artificial intelligence*. Cambridge: Cambridgw university. pp20.
4. Boubaya, N. (2021, septembre). *Big data analysis using artificial intelligence techniques in the audit proffesion* . university of constantine, p363.
5. Brown, H. (2023, december 15). *Exploring the role of Ai in accounting*. Retrieved from upwork: <https://www.upwork.com>.
6. Brown, R. (1905). *A history of accounting and accountants*. united state of america: beard books. pp03-18.
7. Devi, k. a. (2022). *Artificial intelligence theory, models and applications*. abingdon: LLc. pp12-17.
8. Fateh, m. a. (2021, janvier). *Auditor responsibility in light of artificial intelligence and its imaoct on the ease of reading financial reports*. university of dameitta-eygbt, pp108-110.
9. Ferando, J. (2023, 12 28). *Investopedia*. Retrieved from <https://investopedia.com>.
10. Fourtane, S. (2015). *The three types of artificial intelligence*. Texas: Universtiy of A&M. pp13-15.
11. Frank, w. (1967). *Business accounting (Vol. 13)*. Uk: London. pp05-06.
12. Grag, M. c. (2013). *Financial accounting. india, accounting for managers*. pp09-10.
13. Heller, I. (2023, june). *Ai in accounting: the benefits and challenges*. Retrieved from Trullion: <https://www.trullion.com>
14. Hyderabad, J. (2020). *Machine learning. india: telangana state*. pp01.
15. Igor shnurenko, T. m. (2020). *Artificial intelligence: media and information literary*. moscow: Russian federation. pp17-18
16. *Introduction to accounting*. (2015). pp01-02.
17. Jin, H. (2023). *The role of artificial intelligence on accounting industry*. china: wenfu road, hangzhou. pp250.
18. Kenneth chu, C. p. (2015). *Machine learning documentation initiative*. united nashions economic commision for europe, pp01-02.
19. Khaled, M. (2017). *Le role des technologies de l'information et de la communications (TTC) dans l'applications des normes internationaux d'audit ISA en Algerie- cas pratique d'une mission de commissariat aux comptes-*. (Revue des sciences humaines de l'universite Larbi ben M'Hidi, Oum El bouaghi, Algerie) Retrieved from <https://www.researchgate.net/publication/334854156> *Le role des technologies de l'information et de la communications (TTC) dans l'applications des normes internationaux d'audit ISA en Algerie- cas pratique d'une mission de commissariat aux comptes*.
20. Mohamed, h. e. (2023). *Artificial intelligence backgroud*. sadat academy for management sciences, pp31.
21. Point, j. (2021). *Advantages of accounting*. Retrieved from <https://javaTpoint.com>.

22. Sesinyi, L. (n.d.). Accounting and accounting information. south africa: Pretoria university.pp43-44.
23. Shalev, S. (2014). Understanding machines learning. canada: cambridge university.pp21-22
24. Sharma, A. (2024). Will accounting be automated with artificial intelligence. Retrieved from Future connect training institute: <https://www.fctraining.com>
25. Tejada, J. (2023, october 30). Big 4 accounting firms: who they are? Retrieved from Keiser university: <http://www.keiseruniversity.com>
26. Verdergem, P. (2021). is AI for everyone. London: University of westminster press.pp01-02
27. Vermo, V. (2023). anujjindal.in. Retrieved from <https://anujjindal/wp-content>.