

IMPACT OF ARTIFICIAL INTELLIGENCE ON OPERATIONAL MANAGEMENT AND ACCOUNTING

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Abstract:

The golden era of Artificial Intelligence has arrived. Its application for businesses is an essential element which can provide enormous progress and evolution. Artificial intelligence is shifting to manufacturing application and has become a lever for global economic evolution.

Despite the fact that among some accountants, some of them have been losing their functions, the majority will introduce artificial intelligence to sustain their decision-making. In the future, accountants have to update their concepts, use quickly artificial intelligence and other related aspects in order to be far from being penalized by the market. In this stage, China approaches an era of no-code accounting, truly zero data entry.

Keywords : (Artificial Intelligence, Accounting Information Systems, Business Intelligence, Strategic Alertness)

JEL Classification Codes: M19, M49, M15, L19

ملخص:

نعيش اليوم في العصر الذهبي للذكاء الاصطناعي، ويعد تطبيقه في المؤسسات عنصرا أساسيا، وهذا لما يلعبه من دور فعال لتحقيق تطور ونمو، وقد تحول الذكاء الاصطناعي إلى تطبيقات التصنيع وأصبح رافعة للتطور الاقتصادي العالمي.

على الرغم من حقيقة أن بعض المحاسبين سيفقدوا وظائفهم بسبب الذكاء الاصطناعي، غير أن الغالبية ستدخل الذكاء الاصطناعي في أعمالهم لدعم اتخاذ قراراتهم، في المستقبل، يتعين على المحاسبين تحديث

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مفاهيمهم، واستخدام الذكاء الاصطناعي والعناصر الملحقة الأخرى ذات الصلة، وهذا يسمح من الاستفادة من المزايا التي يوفرها السوق، في هذا الإطار، تقترب الصين من عصر المحاسبة بدون تعليمات برمجية، مما يمكن من تطبيق محاسبة من دون إدخال البيانات يدويا.

الكلمات المفتاحية: (الذكاء الاصطناعي، نظام المعلومات المحاسبية، ذكاء الأعمال، اليقظة الاستراتيجية)

تصنيفات JEL: L19M19, M49, M15,:

1- Introduction:

Artificial Intelligent (AI) is one of the most technological trends that know an increasingly unprecedented growth these days.

The emerging technology of artificial intelligence crosses several techniques simulating human cognitive processes. Existing since the 60s, this type of research has recently developed to the point of multiplying applications: autonomous cars, medical diagnostics, personal assistants, algorithmic finance, industrial robots, video games, etc.

The explosion of computing power machines shifted the AI from a classical science fiction to a closer reality in the 2010s, and became a major scientific issue. AI is a major lever of competitiveness which would flounder all the trades. In fact, companies understood that the passage to AI is made after 15 years. Decision makers need to understand how to do with AI typically as the arrival of programming in the business during the past decades. As a result, AI will automate trades.

Artificial intelligence is the name given to the scientific discipline that seeks to create and simulate intelligence. This discipline has always been a subject of controversy, since it seeks to develop computer programs capable of performing more satisfactorily tasks that are currently performed by humans, ie. It seeks to create machines capable of imitating different human aspects such as reasoning, understanding of natural languages, visual or auditory perception, etc.

Experts note that AI has tremendous potential for growth and wealth due to increased productivity, however, they warn us of the threats of employment and worsening wage inequality between skilled and less qualified employees.

Artificial Intelligence requires human intelligence to function. For instance, the tasks are visual perception, translation between languages, and speech recognition.

The best cases for using AI are usually when humans cannot remember, or are too bored, lazy or slow, to make repetitive decisions or suggestions based on large datasets.

The diffusion of an innovation in economy causes the disappearance of certain trades and emerges new ones. Even if Schumpeter had not made it an economic concept, through his well-known theory of creative destruction, today we could see it increasingly around us.

Throughout the current study, we try to answer the following question: **What is the reality of artificial intelligence application in accounting field ?**

Obviously. It should be noted, that there are few historical examples where technology destroyed a profession. There is a lot of it however, where it transforms and makes it more productive. The arrival of calculators in the early twentieth century is telling. Some thought that accountants would disappear, except that their work evolved: it was less about doing mathematical operations than analysing the financial health of businesses.

The remaining of the paper is subdivided into three parts: we start by some definition; then we move to talk about general achievements. The last part is designed to discuss artificial intelligence inside business mainly in the accounting field by taking the example of China.

2- Artificial Intelligence

Artificial Intelligence (AI) can be compared to natural intelligence of human. It focuses on computational models of intelligent behaviours, develops computer systems, reasoning, learning, decision making, and solves complex problems (*Shi, 2011: 9-10*). AI has been quietly evolving since the development of the digital computer in the 1940s into the factual present day. It has been demonstrated that computers can be programmed to carry out very complex tasks (*Sofroniou, 2014: 12*). Put simply, AI is a computer system that can do tasks that humans need intelligence to do. AI has already transformed the way we live and work (*Healey, 2020: Summary*).

Artificial intelligence is a scientific discipline that combines computer science, mathematics, engineering and statistics. It is a field of research to which a university community has been devoted for more than 50 years. This up-to-date science has seen its performance grows tremendously thanks in large part to big data and the computing power of modern computers.

Artificial intelligence has revolutionized people's cognitive ability, whether it is analysis or decision-making. There is a lot of "data" around us that contains very useful information, especially regarding the consumer-based industry, and it is not possible for us to extract that information.

2-1. Definitions :

Artificial intelligence aims to understand by computer tools human intelligence. Among the most striking features of human's signs of their intelligence, we find their ability to use a language system to communicate, this language system is much more complex than any other communication system used among all known animal species.

Industrial automation is the art of using machines to reduce the workload in favour of workers while maintaining productivity and quality. It is a matter of using a technique that ensures the operation of a machine or group of machines without the intervention of human. Indeed, automation aims to replace a machine for man. Automation uses digital tools and programmable logic controllers to guide and give data to machines.

The first researcher who proposed this concept of artificial Intelligence is John McCarthy in 1956 in a conference (*Smith, 2006: 04*). The idea of machines operating like human beings began to emerge first by the mathematician Alan Turing. The latter was capable to test this new idea. The findings showed the possibility of machines to think like humans.

AI can mean automatic problem-solving or decision-making. It means also a human-like decision process made by a machine, at this respect, Solita Company defines AI as a high-level term for a combined set of advanced analytics solutions (*Suomaa, 2018*).

In this context, Machine learning (ML) helps learning from data observations without any program. In fact, ML is a subset of AI. Here, the machine is trained to learn from its past experience which evolves on

the basis of data collection to ensure integration between statistical models to reach the final findings.

ML is applied in domains like big data and routine tasks. Where, deep learning is a part of machine learning where for the program, we need to develop an analytical model.

Artificial intelligence began to be mentioned as a separate field since the mid-1950s, in the famous "Dartmouth Report" in 1955. It will be followed by many others and by several seminars and meetings on artificial intelligence. A vast tree of headings and sub-headings about AI has recently developed.

Database and artificial intelligence research have been linked for over thirty years, as evidenced by the research current "Logic and databases" (*Mylopoulos & Brodie, 1988: 230*) whose objective was to formalize in logic a certain number of problems encountered in the field of databases. Although this approach took some time to be accepted at a time when the concepts used in the databases were not always clearly dissociated from technological considerations, its interest was gradually recognized in the scientific community.

Limited initially to relational databases, the domain of this research has then extended to take into account more complex data, such as incomplete information, deduction rules, integrity constraints on several states, fuzzy information, regulatory information, etc.

2-2. Conceptual trends of AI :

Artificial intelligence linked to several concepts including formative concepts (Machine Learning, Deep Learning, Neural Programming and Big-Data), as well as derived concepts related to the development of artificial intelligence and its uses (Strategic Alertness, Business Intelligence, Economic Intelligence, Collaborative Intelligence).

2-2-1. Formative concepts of AI.

Starting from the past ten years, artificial intelligence has been progressing with great steps, thanks in large part to machine learning and more particularly to deep learning techniques. Deep learning is inspired by the structure of the human brain and uses multi-layered neural networks that use all the information from the previous layer, hence the notion of depth.

Machine learning algorithms learn by extracting operational knowledge from data (so it is an inductive learning). For example, such algorithms can extract customer preferences from their previous transactions. These algorithms are then used to generalize the results to new, similar situations (ie, in the previous example, to predict future preferences of the same clients).

Machine learning focuses on quality predictions, possibly to the detriment of the interpretability of the estimated parameters.

Deep learning is inspired by the structure of the human brain and, this one uses neural networks. Neurons are organized in several layers that use all the information of the previous layer, hence the notion of depth. These networks are obviously only a very simplified model of our brain, but they have the distinction of being able to use their layers to represent the knowledge acquired at different levels of abstraction.

For example, from transactional data, a network of neurons can represent with its first layers, the characteristics of the items that customers like to buy. These features are combined by the following layers to represent groups of items often purchased together. The final layers combine these groups to represent each customer's buyer profile. Advances in deep learning have helped improve the performance of learning algorithms in perception tasks considered particularly difficult for computers. By "perception" we mean what is connected to the five human senses.

The field of computer vision is about understanding the world around us with images and videos, much like the human visual apparatus allows. Deep learning algorithms now outpace humans in some object recognition tasks. Speech recognition is also fertile ground: the best recent recognition tools (eg, smartphones) use deep learning.

By definition, machine learning algorithms depend largely on the quality and quantity of data available for each task to be performed (for example the number of transactions per client and their granularity, or the size of an image database). The more knowledge required to complete a task, the more data is required. In return, the more data are abundant, the more it is possible to extract complex knowledge leading to more accurate and efficient algorithms.

Of all machine learning techniques, deep learning is currently the best way to extract complex knowledge from large data. Big data and the

growth of computing capabilities are therefore essential to recent breakthroughs in artificial intelligence.

2-2-2. Derived concepts of AI.

The concept of Technological Alertness became familiar to companies in the mid-1980s, when talk of economic war and invade the markets, as enterprises tried not to be surprised by the innovations of the opponent. Then the concept of strategic alertness emerged and it expanded to include observing and controlling markets (*FNARS, 2001 :93*).

The concept of Strategic Alertness has expanded and its interests have multiplied, especially with the emergence of the concept of Commercial Alertness, Competitive Alertness, and Social Alertness, and in recent years with the concept of Entrepreneurial Alertness.

In the midst of the rapid development of information technology, especially with regard to communication technology and the Internet, a new concept has emerged, represented in Economic Intelligence and its foundations based on innovation and creativity, integrated Information Systems and Strategic Competition.

In the next ten years (up to 2030), we expect that AI will develop more to reach Collaborative Intelligence as a result of the development of 5G and 6G, Quantum Computers (Qbit), Virtual Enterprises, and Central Bank Digital Currency (CBDC).

3- Achievements of artificial intelligence

The businesses are 32% in China to have adopted AI in their daily process against 22% in the United States and 20% in France and Germany. These companies excel in three dimensions: short innovation cycles, multifunctional teams that break the silos of the company, and an agile and daring management that launches projects without prior detailed study.

Researchers are always interested in the processes of human language processing using computer levels of the language system: this is the domain of automatic language processing. But the main interactions of AI to linguistics took place in the field of semantics and pragmatics, which is to say in the modelling of the content of a sentence or a dialogue.

Possessing information is having power. Here is an example: today, Uber does not have neither the drivers nor the cars, however, this

situation may change if autonomous cars in would later succeed. However, Uber possesses all information of people who intend to take a car somewhere within a specific time, through its site and its Smartphone applications. In fact, it has been a long time for taxi companies to understand that they would be overwhelmed if they did not introduce the new digital realm.

Companies in the technology, computer, media and telecommunications sectors have the largest share of "active players" - companies that have integrated AI into their daily processes or into pilot projects. The energy sector ranks second, followed by the industrial sector and financial services.

In reality, we are still very far away. Deep learning has significant potential, but it is not everything. These programs do not understand the data they manipulate, as does human. Take a child; it is enough to show him once the image of a hen so that he can recognize one in a farm. The machines, they must first "eat" hundreds of thousands of photos. Similarly in language processing: AI can answer questions, except that they do not understand what they are told as human would.

Take the example of a program (deep learning) about automatic recognition of cat images. To begin, we collect a database, in this case millions of photos labelled "cat" or "non-cat". We pass them through a network of artificial neurons - multi-layered mathematical sequences - and the software must guess whether or not it is in front of a cat photo. Once the answer is made, it compares it with the original label. With each error, the system automatically applies changes in the different layers of its neural network till it is no longer reproduced, and so on until optimal performance. This technology nevertheless has its limits: it is necessary to create a new architecture for each application, whatever the recognition of images, voices or the learning of the game go.

It is certain that there will be transformations in transport, but it is difficult to anticipate them. With autonomous cars, there will be fewer accidents, but it is more difficult to determine if they will signify the end of the individual freedom, since it will be possible to rationalize their use, or see how much they will upset the urbanization: their large-scale usage will greatly reduce the need for parking spaces and traffic jams. For the taxi trade, it is likely that it will evolve into another form of service, which we have not yet imagined.

4- Artificial intelligence and businesses

Artificial intelligence will become more prominent and important with the rapid development of technology. AI can be applied simply to operations related mainly to routine administrative, production and commercial functions, by integrating AI into operations, also by creating a collaborative framework between leaders and AI to build commercial and marketing strategies, address market challenges, analyse customer behaviour and pricing.

4-1. Artificial intelligence: A gold mine for businesses :

We allow IA conditions our behaviour and choices, from the GPS recommending to leave the highway, while no cap is looming on the horizon, to the follow-up of a medical treatment. AI applications have already been applied to many businesses, providing innovative tools, and creating new opportunities could enhance value added with an increasing level of prosperity all over the world in the future.

The signs of the future will be digital, connected but also "experiential". Businesses will have to anticipate the demands and expectations of their customers. It will revolutionize the labour market, disrupting the nature of existed conventions.

Whether you chat with SNCF via a Chabot, select your photos on Facebook, translate a English author into French or you take a seat in an autonomous car, you start to get used to live alongside machines animated by artificial intelligence (IA). For five years, this old fantasy has become "the" unavoidable subject.

The innovations made possible by recent advances in artificial intelligence have major social and industrial repercussions. Regarding environment, AI supports the trend seeking to protect from the effect of climate change based on smart technology and sensors reducing emissions

Since the beginning of 2016, advances in artificial intelligence (AI) have been described and analysed in publications as varied as The Economist, Rolling Stone, Time and Fortune under eye-catching titles.

Artificial intelligence is advancing at a fast pace and makes it possible to design and build more and more impressive systems. Some people, including Elon Musk, founder of Tesla and SpaceX, say many times, for example, that self-driving cars will be ready within a couple of months(Kessler, 2015).

AI is expected to raise growth and revenues. AI improves productivity and substitute human force which bears high costs.

« For example, construction firm Macepredicts 600,000 of the current 2.2 million jobs in the industry could be automated by 2040. Such scenarios will require new ways of determining liabilities and mitigating risks of social security. Universal basic income or robot taxation could be introduced by governments to enable everyone to benefit from the automation. Ethical considerations on the meaning of work and the collaboration between human and artificial intelligence in the workplace will also be relevant to shape policymaking and corporate strategies»(AGCS, 2018: 12).

4-2.The impact of AI on businesses :

Many large companies in the technology sector are already benefiting from recent advances in AI. Google's CEO, SundarPichai, promises to use machine learning systematically in the entire product line. Through start-up acquisitions and targeted recruitment, these large companies, including Google, Facebook, Amazon, Microsoft, Twitter and Nuance, are developing their search capabilities and designing algorithms and artificial intelligence systems.

Anyone who interacts with the technologies of these companies therefore already benefits from some of the advances attributable to artificial intelligence. In addition, the transfer of innovation to industrial production can be fast: it took only two years for the latest phones to be equipped with speech recognition algorithms. Artificial intelligence algorithms are not reserved for large companies. Many small businesses offer a flagship product based on artificial intelligence. This was not the case a few years ago, when AI was often a secondary tool used to improve an existing product.

In general, data collection and storage are tasks for businesses of all sizes working in a variety of areas. A number of recent advances in artificial intelligence offer the possibility of applying the existing algorithms to these large data to extract relevant information. It is also possible that recent methods improve the performance of predictive algorithms from a previous generation.

Artificial intelligence techniques allow us to automate the extraction of knowledge for predictive purposes. In a second step, these predictions can be used to make better decisions. For example, based on

predicted customer preferences, you can determine the order size for each available item and the custom offer for each customer. There are also algorithms that automate predictions and decisions. Self-driving cars are a good example of this kind of system. This type of automation is increasingly studied in the academic world. In short, if the past is the guarantor of the future, multiple industrial applications should emerge soon.

Today more than before, the big corporations such as Amazon, Google, and Microsoft invest more resources to develop the artificial intelligence market. The local Internet leader “BAT” deploys artificial intelligence and applies it every life aspect. For example, Alibaba’s face recognition technology in payment and financial services, and intelligent robot customer service on the shopping platform, these specific applications of artificial intelligence technology have stimulated the innovation and upgrading of business and services (*Luo et al., 2018: 854*).

If there is a technological alternative to a human job, it will be systematically chosen in order to increase productivity. The movement of machine replacement is favoured by the following cyclical fact: automation generates growth through increased productivity gains, and growth in turn generates automation by increasing wages that generate incentives to automate within the business.

However, by providing sizable data, AI may contribute significantly to impact society. Artificial intelligence has become a new focus for enterprises to improve their core competitiveness. Apply it at the accounting level will enable companies to have more sustainable development capabilities and make them more competitive.

4-3. The threat of employees cut :

According to a survey carried out by the Accenture Institute for High Performance in August and September 2015, managers of different levels spend more than half of their time on administrative coordination and control tasks. These activities are seen as responsibilities that the managers expect that AI will affect them the most. (*Kolbjørnsrud et al., 2016 : 04*)

Researchers also predict job losses in other tourism-related industries, such as public transit or taxis. Restaurants could also be

negatively impacted; as car drivers would be able to eat quietly while driving.

Another study by the Sapiens Institute (*Tison, 2018*); There are 5 fields whose employees will be most affected by AI, which are bank and insurance employees, accounting staff, office and management secretaries, cashiers and self-service employees, and material handling workers. The study showed that during the period between 1986 and 2016, the accounting sector employees decreased by 10%, since 2004, the workforce have decreased by nearly 23%, which is explained by the development of accounting software. However, the lower the cost of labour, the lower the interest in replacing the worker with a machine.

The bank and insurance companies may no longer have any employee between the year 2038 and 2051, a real near and rapid extinction. The same thing may be said about accountancy. The trend has been in recent years to outsourcing this profession, which provides for extinction between 2041 and 2056, when dedicated intelligent software can perform accounting tasks without human intervention.

However, it is not the first time that one prophesies the disappearance of this profession; already in the 1980s, the arrival of computers seemed to condemn it.

In the same context, cashiers which allow drastically reduce the payroll flourish for several years in supermarkets, note the authors of the study, which project an extinction of the job between 2050 and 2066. The disappearance of this trade is estimated at the earliest in 2071 and at the latest in 2091. The margin is important because the cost of labor is low. This business saw a 17% decrease in its workforce between 1986 and 2016. And it is clear that the goal of distribution giants like Amazon is to automate their warehouses as much as possible.

While some trades may disappear, others may appear, if we said, ten years ago, that one of the most important trades in marketing today would be that of community manager, we would have laughed in our face.

The digital wave that will engulf many jobs may be socially harmful if it is not anticipated. Do not predict the jobs that will disappear, it is risking a worsening of the unemployment rate and therefore a critical imbalance of our social accounts.

The AI will not be able to do everything, and it will need to be supervised by human beings, what is known as managers of man-machine teams.

During the last decades, automation has conquered many jobs such as switchboard operators, travel agents and workers in the assembly line. Today, the AI is threatening to replace taxi and Uber drivers and will probably pick on truck drivers in the next decade. Finally, some chains of fast food restaurants have already begun to install kiosks and automatic control systems.

Researchers from the Organization for Economic Co-operation and Development (OECD) have found optimistic results stating that many current professions will not disappear for good, they will have to change since some of their tasks will be automated. They estimated that only 9% of jobs are at risk of extinction in the next two decades (*GouvernementFrançais, 2017: 83*). However, another study by Frey and Osbourne(*Frey &Osborne. 2013: 38*) found different results. They asked a group of AI experts to classify all occupations that could be automated; the results have been much less optimistic with 47% of jobs in the United States likely to disappear. "If these estimates of jobs at risk prove correct, the livelihood of millions of Americans will be significantly altered and employees will potentially face significant economic challenges in the short and medium term".

Both studies agreed that the lowest paid jobs are the most at risk. The study by Frey and Osbourne, for example, found that AI will put under pressure 83% of positions whose pay is less than \$ 20 an hour, much more compared to the 4% of jobs that pay \$ 40 an hour or more. The study concluded that if increased productivity does not translate into higher wages, then the huge economic gains from AI will be concentrated in the hands of a minority. In other words, instead of allowing the shared prosperity of employees and consumers, this phenomenon will cause a reduction in competition and an increase in wealth inequality.

4-4.The impact of AI on Accounting Information Systems (AIS) :

Artificial intelligence affects the AIS in general;manual system will become automatic, especially with regard to the process of conducting business operations, the specificities of computerized programs, and the flow of information. Good design of an AIS adds value

to the organization by improving the quality and reducing the costs of products or services, improving efficiency, exchanging and sharing knowledge, improving the effectiveness and efficiency of the supply chain, improving the structure of internal control and improving the decisions made (*Romney &Steinbart, 2018*). However, there are three factors that can be considered as the main basic elements of accounting information system changes: technology, management practices and methods, and accounting rules (*Mancini et al., 2013: 02*).

4-4-1.Impact on the model

Usually, the performance of software depends on databases. AI interferes to describe the models related to accounting information systems as follows:

a. Debit-Credit Accounting (DCA)

The double-entry method is the result of the duplication of any economic event that has a financial impact on the enterprise, each event having a resource (Credit) and an application (Debit) on the same date and for the same amount of money. AI affects the recording of accounting operations. In the manual method, registration is carried out in the journal, then the operations are carried over to the ledger, then to the trial balance, then to the financial statements and extracted the result of the year, AI allows registration once, and the system automatically display information in all accounting documents.

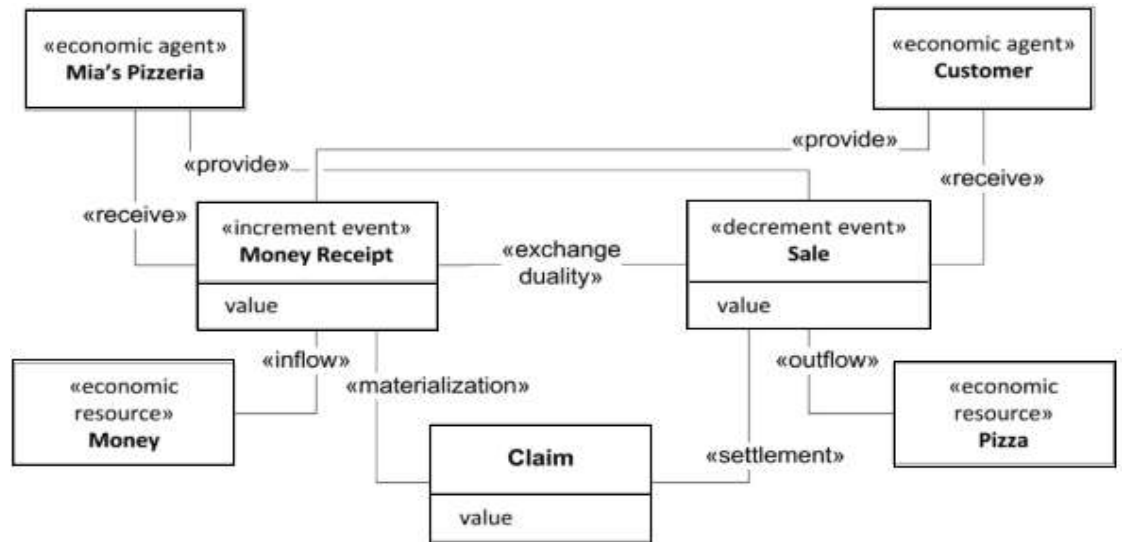
Although AI having a significant impact on AIS, that it was not at the expense of the basics of accounting theory. AI has positive effect on record-keeping and providing relevant and reliable information to facilitate decision-making. There is no doubt that accountants should increase the emphasis on mastery of information technology.

b. Resource Event Agent

Resource Event Agent (REA) is the dominant design science model in accounting. REA was originally developed to put in place a generalized framework for an accounting information system (AIS) in a database environment (*McCarthy 1982*). REA business reporting system could supply semantic, efficiency, and interoperability gains that would provide early adopters a competitive advantage in their industry and continue to meet its dynamic reporting needs.(*Amrhein, 2009: 143*), AI

affects the modelling of AIS, where it depends on context-modelling methodology¹.

Fig.1. The REA core Pattern Example.



Source, (Ziemba, 2017: 24).

4-4-2. Impact on the form

Currently, Accounting Information Systems can be found isolated or incorporated into ERP systems, in Dedicated Systems, as well as Integrated Systems, it can also be used through Cloud Computing.

a. Best of Breed (BoB)

BoB refers to the individual and specialized software related to assigning software with a specialized mission, and this enables the benefit of very advanced functions.

In BoB Software, the functionality has been designed explicitly for the particular purpose, so no trade-offs have been made regarding features and quality in the name of integration, for instance. Best software in certain functional area, like product costing or budgeting(Chapman, 2007: 636).

b. Application Services Providers (ASP)

¹ - Modelling Methodology: Merise, UML, OWL, REA.

Internet technology has helped to reduce costs by enabling organizations to obtain applications or software services to conduct their affairs from the internet, such as the management of human resources or accounting, institutions no longer need to purchase applications and install them on their computers, it can be accessed through a web browser after obtaining a usage license. This process is known as Software as a Service (SaaS).

The service provider owns and maintains the applications and servers. The user pays a low cost, which can be estimated on the basis of use, monthly or annually, these applications generally serve all customers in the same field, but sometimes be an obstacle when it integrates with systems that are not affiliated with the same supplier, in addition, the organization does not completely control its data.

c. Enterprise Resource Planning (ERP)

In light of the rapid development of information technology, the impact of AI on business cannot be ignored, especially with regard to ERP. It will have a significant impact on procedures and commercial transactions, especially with more exciting technological developments that companies expect in the coming years, which will raise the degree of the impact of AI on ERP.

Indeed, the development of information technology has affected the development of ERP, which has come to be called ERP II(*Bond et al., 2000: 02*). The ERP system has focused on automating jobs that do not directly affect customers (back office, or management), while the ERP II system has integrated functions that deal directly with customers (front office), it is more flexible as it exceeds the ERP within the organization to interact with other information systems outside the organization.

Since most ERP suppliers are moving towards web-based applications to complete e-commerce transactions, AI must take their technical responsibility to address security issues.

5- Example: the introduction of AI in accounting in China

The developments in environmental management and environmental accounting in China rooted in a life-centred morality based on Chinese philosophy, invention using new technologies, removal of some of the barriers caused by specialisation, and an

awareness of issues linked to anthropocosmic notions. (*Margerison, 2014: 10*)

AI provides high positive influence through the reduction of costs and time, increasing productivity, and improving accuracy. In order to introduce AI into the accounting field, it is necessary to design a unique AI system that conforms to the characteristics of the enterprise according to the actual situation of the enterprise. First of all, capital investment is the most important guarantee; secondly, after the introduction of technology, it is necessary to adjust the management of human resources and the daily operation mode of the enterprise. Finally, when the intelligent transformation of the accounting information system is completed, a series of training should be carried out, including the training for the use of new system features and the training of information security (*Luo et al., 2018: 852*).

Due to the personalized features of intelligent systems, businesses need several resources in the initial application and later operation, which poses great challenges to the cost control of enterprises. Given the high investment and slow return, many businesses tend to focus on short-term profits instead of following structural adjustments and therefore this may be supported by the integration of AI.

At present, Chinese authorities have introduced the artificial intelligence industry in all daily people life. Regarding accounting, this industry can play a suitable area for the application of artificial intelligence in professional life, given the tendency of reform and innovation.

In China, “computerized accounting” was first brought out in 1981. With increasing demand for accounting information, traditional computerized accounting products are broadening their fields by providing analytic information, and adding management and decision supportive functions, etc. Accounting software becomes the core of business management software and ERP system. In 1999, accounting experts from theoretical circle believe “accounting information system (AIS)” fits better than “computerized accounting” in the information era. (*Liyan, 2013: 748*)

The quality of professional talents needs to be improved. The application of AI technology in the accounting field requires the corresponding professional talents to manage, and the current senior accounting talents in China are scarce. It is estimated that in 2015,

China's accountants reached 20.5 million, accounting graduates with a bachelor degree or above accounted for 23.11%, and there are 100,000 certified public accountants (*Luo et al., 2018: 853*).

As for academic teaching staff, most of them, especially the young, become accounting teachers just after graduation with master degree or PHD, without any business experiences, thus know little about the accounting practice in real businesses, not to speak of the operation of accounting information system in practice. While some old teachers have practical experiences, they are not very familiar with modern information system except that writing on Microsoft Word or surfing on the internet. (*Liyan, 2013: 752*)

One very crucial problem in accounting is the divergence between the internal accounts of a business and its bank accounts. With AI, it has been decided to rethink the way accounting reports are read and bank statements are disclosed. AI will sustain accounting a lot. It is able to organize accounting records and detect mistakes. On the one hand, the reconciliation process can be done promptly every month, on the other hand, it can also find out rapidly fraudulent operations.

In the same manner, the question of accounting talents is fundamental. The general basic accounting personnel are overwhelmingly numerous whereas the high accounting talents are less numerous. The mixture of AI and accounting transactions increase higher pressure on professional accountants. In addition to professional knowledge in accounting field, accounting workers need also to control information technology, acquire the skilful use of accounting software and data management, so as to adapt to the accounting changes and new job situations.

Another frequent accounting problem comes when one payment is made to cover several bills or when one bill has several partial payments. For big corporations which issue hundreds of bills every day, and thousands every month, the gathering of funds owed and paid is likely to reach millions every year. To do this, Artificial Intelligence has the capability to come up with a mixture of figures that equal one another, and can quickly match payments to bills, keeping track of all outstanding. This side is sure to take a huge load off accountants.

A survey in 2012 showed, in China, more than 80% large and medium-sized enterprises has employed information technology; about 30% key enterprises has built information system in main production

steps; in business administration, rate of application of OA (office automation) system, finance and personnel management system and inventory management system is above 90% (*Liyan, 2013: 750*).

For accounting, however, the impact of AI is more powerful. AI is rapidly advancing and can now process data at lightning speed that humans can't even compete. because it relies on code and programming to ensure everything goes according to plan, AI can greatly reduce or even eliminate errors that their human counterparts would have failed to notice. For a branch of finance that deals with an enormous amount of data, often housed in disparate formats of paper, pdf, spreadsheets and emails, AI could be the engine that digests, analyses and acts beyond what any team of people could manage in a timely fashion.

Artificial Intelligence is permeating all facets of the manufacturing industry. One of the recent advances is Accounts Payable (AP). Some common tasks accomplished by accountants are processing of accounts payables and receivables, which are totally processed by Artificial Intelligence, thereby leading to enhanced cost management by businesses. By the incorporation of artificial intelligence into accounts payable, computers are able to make data-based decisions in microseconds.

In the framework of economic globalization, Chinese government is sustaining the usage of artificial intelligence within business in different field, namely accounting. To be competitive in the international arena, China's accounting industry must constantly improve the level of the accounting industry. Artificial intelligence will uplift a company's analytical capacity and raise productivity.

Therefore, the benefits of AI-AP (artificial intelligence / account payable) integration for China are:

- Compatible with Enterprise Resource Planning (ERP) Systems
- Hyper Accelerated Invoice Automation
- Reduced IT Manpower
- Fraud Reduction

At present, China has promoted the application of artificial intelligence to the national strategic level. The government must moreover set up appropriate plans and measures in distinct industries and actively create suitable environmental conditions for the development of AI in the accounting field. Relevant laws and regulations are needed to enhance and direct the use of AI in the accounting industry. For instance,

businesses that actively use AI technology must be given rewards such as subsidies, tax exemption or reduction.

Before the emergence of AI in China, accounting teams manually created and processed bills, purchase orders, or delivery orders on paper documents. Those documents were then manually entered in computer systems, coded, and finally transmitted to the managers for approval and payment. Today, the accounting activity has changed, thanks to Artificial Intelligence, there are no more manual processes! The AP workflow process is automated by software that analyzes, recognizes, directs, and exports data into a company's ERP/financial system. Before automating the AP workflow, suppliers had little to no insight into payment timing details; now, they have full access to this information in real time.

Accounting tasks including tax, payroll, audits and banking will be fully automated using AI-based technologies, which will revolutionize the accounting domain. In 2016, Deloitte Touche Tohmatsu, one of the world's four big accounting firms, stated out the introduction of AI into accounting, taxation, and auditing (*Luoet al., 2017: 851*). With AI, accounting has experienced a complete move for prosperity. More and more units have introduced the application of artificial intelligence in the field of accounting in China, such as accounting robots, these robots are just a kind of operation of process automation technology with clear algorithm, which is suitable for a large number of repeated operation scenarios without the ability of deep learning, which is essentially "weak AI"(*Luoet al., 2018: 852*).

6-Conclusion:

Artificial intelligence would certainly destroy jobs, but it will create others. According to a study unveiled in recent days by the American firm Cognizant Technology Solutions Corp relayed by the Wall Street Journal, artificial intelligence could create 21 million jobs. Consequently, for enterprises, making good use of the new information technology will be the key to capturing opportunities and upgrading in the new era.

Undoubtedly, intelligent finance and accounting is the future development trend. In the framework of the process of enhancing the application of AI in the field of accounting, it is necessary for the government to work through its financial and tax interests in coordination with institutions, universities and specialist centers in

computing programs to enable AI from accounting tasks and solve problems arising from the use of applications and accounting software, or integrated information systems (ERP).

Although automated accounting systems have been developed, they still do not consider the needs of users in the way accounting works. It can be seen that the DCA model, which is still the standard model in the way it works, where most systems repeat double entry in the general ledger. When the REA model emerged, computing began to improve accounting operations. However, it remained somewhat limited due to the ignorance of computing technology by accountants and the ignorance of programmers of the accounting needs of accountants, as the need for multidisciplinary knowledge in distinct areas became urgent. Therefore, new applications must be developed in order to analyse cost, financial analysis, estimated budgets, management control and other processes that ensure the achievement of common goals between accounting and AI.

At the present time, the application of AI in accounting is still in its infancy, and therefore, there is still a long way to go to develop AI in accounting, due to lack of experience, enterprises focus on short-term profits rather than making strategic adjustments, because investing in AI technology is high and its return is low, it also requires professional talents with multiple competencies, so accounting staff need professional knowledge in the field of accounting and mastery of information technology, in order to adapt the changes in the new work situation, in addition to the training programs for accounting students in universities that need to be modified, there are major problems in the contents lessons and heterogeneity between theoretical knowledge and practical application.

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