Role of Intelligent Machines learning for the Successful Implementation of Business Model

Rol del aprendizaje de máquinas inteligentes para la implementación exitosa del modelo de negocio

Melitina Tecoalu
Krida Wacana Christian University - Indonesia
melitina@ukrida.ac.id
Phong Thanh Nguyen[1]
Ho Chi Minh City Open University - Vietnam
titienagustina9@gmail.com
E. Laxmi Lydia
Vignan's Institute of Information Technology - Indonesia
elaxmi2002@yahoo.com
K. Shankar
Alagappa University, Karaikudi - Indonesia
shankarcrypto@gmail.com

ABSTRACT

In the technical industry machine learning and intelligent machine learning are becoming a hot topic for research. Intelligent machine learning is also known as artificial intelligence (AI). Intelligent machine learning is affecting the business world more than our daily routine lives. It can seem that intelligent machine learning is everywhere like maintaining the complex information, gaming station, etc. for making the machines in the form so that can respond to real-time stations and can act like a human, the scientists and computer engineering are working extremely hard. The role of intelligent machine learning in the business world is studied in this paper. The corporate world is highly getting influenced by artificial intelligence or intelligent machine learning.

Keywords: technical industry, inteligent machine learning, artificial intelligence, business world.

RESUMEN

En la industria técnica, el aprendizaje de las máquinas y el aprendizaje de las máquinas inteligentes se están convirtiendo en un tema de investigación. El aprendizaje inteligente de la máquina también se conoce como inteligencia artificial (IA). El aprendizaje inteligente de la máquina está afectando al mundo de los negocios más que a nuestra vida cotidiana. Puede parecer que el aprendizaje inteligente de la máquina está en todas partes como el mantenimiento de la información compleja, la estación de juegos, etc. para hacer las máquinas en la forma para que pueda responder a las estaciones en tiempo real y puede actuar como un humano, los científicos y la ingeniería informática están trabajando muy duro. El papel del aprendizaje de la máquina inteligente en el mundo de los negocios se estudia en este documento. El mundo corporativo está siendo altamente influenciado por la inteligencia artificial o el aprendizaje inteligente de máquinas.

Palabras clave: industria técnica, aprendizaje automático inteligente, inteligencia artificial, mundo de los negocios.

1 Corresponding author. Department of Project Management, Ho Chi Minh City Open University, Vietnam.

Recibido: 24/07/2019 Aceptado: 16/09/2019

I. INTRODUCTION

In the business landscape, business Strategy and intelligent machine learning explore the growth of artificial intelligence (Aluri et al., 2019). In organization how the execution of strategies and development are affect through intelligent machine learning is look in to the exploration (Appice et al., 2019).

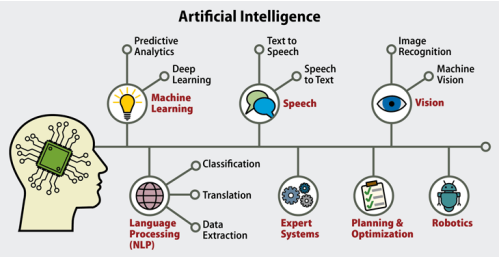

Figure 1: artificial intelligence or intelligent machine learning scenario

It studied about the role of intelligent machine learning in generating new ethical challenges, data management, cross-entity collaboration, privacy and workforce change in business during the initial research and reports (Tripathy et al., 2019). From the combination of machine intelligence and human it helps to mangers to understand and there is a greater opportunity to act (Ito et al., 2019).

II. MACHINE LEARNING

In current world for the development of the business most common type of artificial intelligent is consider as machine learning (Greene et al., 2019). For processing the huge amount of data quickly machine learning was used initially. Machine learning provides algorithms for learning and they try to produce the better result from the previous one (Ruan & Siau, 2019). The modeling of machine learning is improved when more data is feed in to it. For humans in to a digestible context with the use of internet and connected devices it is useful for giving large amount of data.

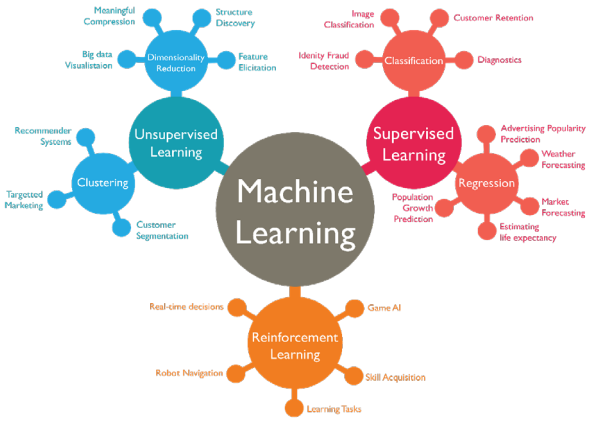

Figure 2: Machine learning

III. DEEP LEARNING

A more special version of machine learning is known as deep learning. For engaging in nonlinear reasoning deep learning is based on neural networks. Some more advanced functions like detection of fraud is a critical task for deep learning (Salminen et al., 2019). Taking the example of self driving cars, in self driving cars at one time several functions should be analyzed, responded and indentified. The contextualize information are getting from the sensors in self driving cars with the use of deep learning like speed of other moving objects, prediction of behavior of other objects and distance of the other objects. For taking the decisions of changing the lane taking all the information side by side help a self driving car.

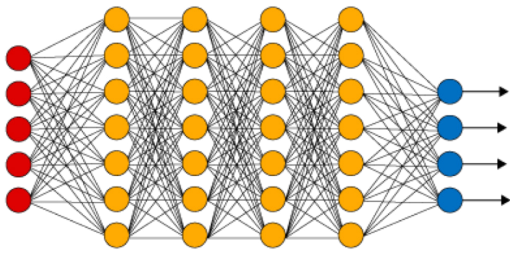

Figure 3: Deep learning

IV. DIFFERENCE BETWEEN MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE

In today's world machine learning and intelligent machine learning or artificial intelligence are hot topic. Many differences are there between them. Some differences are shown in the table below:

Artificial Intelligence	Machine Learning
AI is human intelligence demonstrated by machines to perform simple to complex tasks.	It provides machines the ability to learn and understand without being explicitly programmed.
The idea behind AI is to program machines to carry out tasks in more human ways or smart ways.	The key to teaching computers to think and understand like we do is machine learning.
It is based on characteristics of human intelligence.	It is based on the system of probability.
It is used in healthcare, finance, transportation, aviation, marketing, media, education, etc.	It is used for optical character recognition, web security, imitation learning, etc.

Table 1: Artificial Intelligence (AI) and Machine Learning (ML)

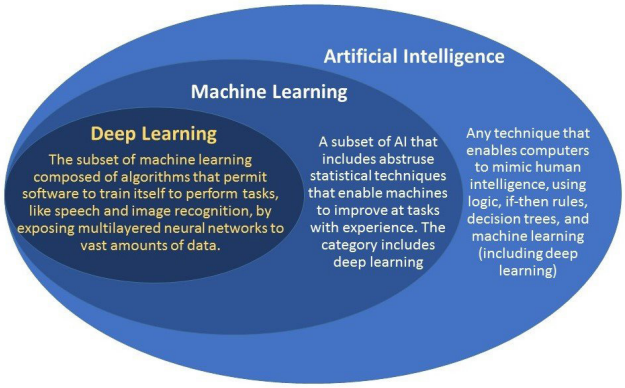

Figure 4: Deep learning. Machine learning and Artificial Intelligence

V. INTELLIGENT MACHINE LEARNING IN BUSINESS TODAY

Intelligent machine learning is act like a supporting tool rather than act like replacement for human ingenuity and intelligence (Tsoumakas, 2019). In the real world although intelligent machine learning is a time dependent commonsense work, but it showing more quickly data analyzing and processing than a human can do (Laurell et al., 2019). The software of intelligent machine learning provides synthesized action and it is available for the user. For streamline the decision-making process and for providing the maximum output human uses the intelligent machine learning software (Mortensen et al., 2019).

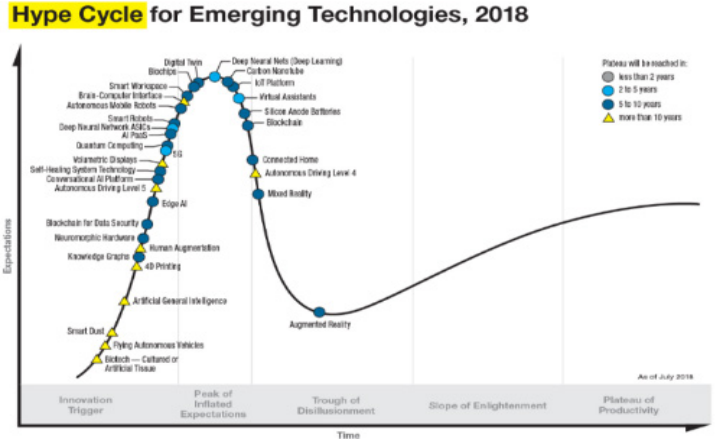

Figure 5: For emerging technology hype cycle

The founder of SparkCognition Company that is machine learning company Amir Husain said that it is type of 2nd coming software can consider as intelligent machine learning. This software can take its own decision. And it can work in that condition also that is not considered by the programmers. As differ from previous

traditional software the intelligent machine learning has a wider scope in the ability of decision making.

VI. FACTOR TO IMPROVE EFFICIENCY OF INTELLIGENT MACHINE LEARNING

For improving the efficiency of any business industry some factors are given below that affect the performance of industry.

1. Security

Human operators are not enough in cyber defense and many sophisticated tools are required as increasing the frequency of cyber attacks. For protecting the data all over the world several organization are implementing different approaches for providing cyber security. In a business mitigation, real-time threat detection, and prevention is required and the tools of intelligent machine learning provide them.

2. Finance and Banking – fraud detection

For detecting the fraud activity many banks and finance companies used several applications of intelligent machine learning. The applications of intelligent machine learning trained to determine the validation of data transaction and in provide a huge amount of sample data that have the information of fraudulent and non-fraudulent purchasing (Kou et al., 2019).

3. Retail – online customer support

Many company or website provides a chat function for the support of customer. Through this chat a user can talk to sakes representative or customer support representative. This type of chat box is the form of intelligent machine learning that is consider as automated AI. These AI chat bots can understand the human conversation or human language so the representative and customer can start the conversation and user can say whatever he want to know. This process is done by retrieving the data from the website and for futher support directs that data to the suitable person or webpage (Liu, 2019).

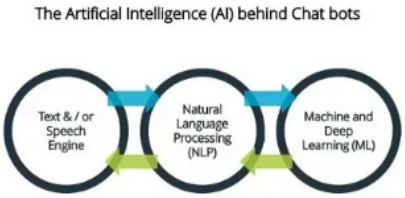

Figure 6: behind char bots intelligent machine learning

VII. TECHNOLOGY AND TOOLS OF INTELIGENT MACHINE LEARNING

The market for intelligent machine learning is prospering (Zhang et al., 2019). Intelligent machine learning includes an assortment of advancements and devices, a portion of the ongoing advances are as per the following:

1. Biometrics: Biometrics utilizes strategies for one of a kind acknowledgment of people dependent on at least one characteristic physical or social attributes. In software engineering, especially, biometrics is utilized as a type of character get to the executives and access control.

2. Generation of natural language: it's a device that produces content from the PC information. As of now utilized in client support, report age, and abridging business knowledge bits of knowledge.

3. Machine Learning: Provides calculations, APIs (Application Program interface) improvement and preparing toolboxs, information, just as registering capacity to configuration, train, and send models into applications, procedures, and different machines (Lessmann et al., 2019).

4. Virtual Agent: A Virtual Agentis a PC created, energized, man-made consciousness virtual character (more often than not with human appearance) that fills in as an online client support delegate. It drives a canny discussion with clients, reacts to their inquiries and performs sufficient non-verbal conduct. A case of a normal Virtual Agent is Louise, the Virtual Agent of eBay, made by a French/American engineer VirtuOz.

5. Recognition of speech: Transcribes and changes human discourse into an organization helpful for PC applications. By and by utilized in intuitive voice reaction frameworks and portable applications.

6. Automation process of robotics: utilizing contents and different strategies to mechanize human activity to help effective business forms. Right now utilized where it is wasteful for people to execute an assignment.

7. NLP and text analytics: Natural language preparing (NLP) uses and supports content investigation by encouraging the comprehension of sentence structure and importance, slant, and expectation through measurable and AI techniques. Right now utilized in misrepresentation recognition and security, a wide

scope of mechanized associates, and applications for mining unstructured information.

8. Platforms based on deep learning: An uncommon sort of AI comprising of counterfeit neural systems with numerous reflection layers. Presently utilized in example acknowledgment and order applications upheld by exceptionally enormous informational indexes.

VIII. APPLICATIONS OF INTELLIGENT MACHINE LEARNING

1. Intelligent machine learning business: Robotic procedure robotization is being connected to profoundly monotonous assignments regularly performed by people. AI calculations are being coordinated into examination and CRM (Customer relationship the board) stages to reveal data on the most proficient method to all the more likely serve clients. Chatbots have just been joined into sites and e organizations to give quick administration to clients. Computerization of employment positions has additionally turned into an idea among scholastics and IT consultancies.

2. Intelligent machine learning in Healthcare: Companies are applying AI to improve and quicker analyze than people. The framework mines persistent information and other accessible information sources to shape a theory, which it at that point presents with a certainty scoring mapping. Simulated intelligence is an investigation acknowledged to imitate human insight into PC innovation that could help both, the specialist and the patients in the accompanying ways:

   By giving a research facility to the assessment, portrayal and inventorying therapeutic data

   By concocting novel instrument to help basic leadership and research

   By incorporating exercises in medicinal, programming and intellectual sciences

   By offering a substance rich order for the future logical medicinal networks.

3. Intelligent machine learning in education (Maseleno et al., 2016; Maseleno et al., 2017; Maseleno et al., 2019): It robotizes reviewing, giving instructors additional time. It can likewise survey understudies and adjust to their needs, helping them work at their own pace.

4. Intelligent machine learning in Autonomous vehicles: Just like people, self-driving autos need sensors to comprehend their general surroundings and a mind to gather, forms and pick explicit activities dependent on data accumulated. Man-made intelligence has a few applications for these vehicles and among them the more quick ones are as per the following:

   Guiding the vehicle to corner store or energize station when it is running low on fuel.

   Change the excursions bearings dependent on realized traffic conditions to locate the speediest course.

   Fuse discourse acknowledgment for cutting edge correspondence with travelers.

   Characteristic language interfaces and virtual help advances.

5. Cyborg Technology: One of the principle confinements of being human is essentially our very own bodies and cerebrums. Analyst Shimon Whiteson imagines that later on, we will have the option to expand ourselves with PCs and upgrade our very own large number common capacities. Despite the fact that a large number of these conceivable cyborg improvements would be included for comfort, others may fill a progressively down to earth need.

6. Intelligent machine learning for robotics: it will enable us to address the difficulties in dealing with a maturing populace and permit any longer autonomy. It will definitely lessen, might be notwithstanding cut down auto collisions and passing, just as empower catastrophe reaction for risky circumstances for instance the atomic emergency at the power plant (Elsner et al., 2019).

IX. THE FUTURE OF INTELLIGENT MACHINE LEARNING

So, how might intelligent machine learning be used in the future? It's hard to say how the technology will develop, but most experts see those "commonsense" tasks becoming even easier for computers to process. That means robots will become extremely useful in day-to-day life (Li et al., 2019).

"Intelligent machine learning is starting to make what was once considered impossible possible, like driverless cars," said Russell Glenister, CEO and founder of Curation Zone. "Driverless cars are only a reality because of access to training data and fast GPUs, which are both key enablers. To train driverless cars, an enormous amount of accurate data is required, and speed is key to undertake the training. Five years ago, the processors were too slow, but the introduction of GPUs made it all possible."

X. CONCLUSION

In the business landscape, business Strategy and intelligent machine learning explore the growth of artificial intelligence. In organization how the execution of strategies and development are affect through intelligent machine learning is look in to the exploration. In technical industry machine learning and intelligent machine learning are becoming the hot topic for research. Intelligent machine learning is also known as artificial intelligence (AI). Intelligent machine learning is affecting the business world more than our daily routine lives. The role of intelligent machine learning in the business world is studied in this paper. The corporate world is highly getting influenced with artificial intelligence or intelligent machine learning.

BIBLIOGRAPHIC REFERENCES

Akhtar, P., Frynas, J. G., Mellahi, K., & Ullah, S. (2019). Big DataSavvy Teams' Skills, Big Data-Driven Actions and Business Performance. *British Journal of Management*, *30*(2), 252-271.

Aluri, A., Price, B. S., & McIntyre, N. H. (2019). Using machine learning to cocreate value through dynamic customer engagement in a brand loyalty program. *Journal of Hospitality & Tourism Research*, *43*(1), 78-100.

Appice, A., Di Mauro, N., & Malerba, D. (2019, July). Leveraging Shallow Machine Learning to Predict Business Process Behavior. In *2019 IEEE International Conference on Services Computing (SCC)* (pp. 184-188). IEEE.

Elsner, D., Aleatrati Khosroshahi, P., MacCormack, A. D., & Lagerström, R. (2019, January). Multivariate Unsupervised Machine Learning for Anomaly Detection in Enterprise Applications. In *Proceedings of the 52nd Hawaii International Conference on System Sciences*.

Greene, D., Hoffmann, A. L., & Stark, L. (2019, January). Better, nicer, clearer, fairer: A critical assessment of the movement for ethical artificial intelligence and machine learning. In *Proceedings of the 52nd Hawaii International Conference on System Sciences*.

Ito, T., Sakaji, H., & Izumi, K. (2019). Extraction of Business Contents from Financial Reports Using Recurrent Neural Network Model. In 人工知能学会全国大会論文集 一般社団法人 人工知能学会 (pp. 4Rin125-4Rin125). 一般社団法人 人工知能学会.

Kou, G., Chao, X., Peng, Y., Alsaadi, F. E., & Herrera-Viedma, E. (2019). Machine learning methods for systemic risk analysis in financial sectors. *Technological and Economic Development of Economy*, 1-27.

Laurell, C., Sandström, C., Berthold, A., & Larsson, D. (2019). Exploring barriers to adoption of Virtual Reality through Social Media Analytics and Machine Learning–An assessment of technology, network, price and trialability. *Journal of Business Research*, *100*, 469-474.

Lessmann, S., Haupt, J., Coussement, K., & De Bock, K. W. (2019). Targeting customers for profit: An ensemble learning framework to support marketing decision-making. *Information Sciences*.

Li, Y., Yang, L., Yang, B., Wang, N., & Wu, T. (2019). Application of interpretable machine learning models for the intelligent decision. *Neurocomputing*, *333*, 273-283.

Liu, X. (2019). Analyzing the impact of user-generated content on B2B Firms' stock performance: Big data analysis with machine learning methods. *Industrial marketing management*.

Maseleno, A., Hardaker, G., Sabani, N., & Suhaili, N. (2016). Data on multicultural education and diagnostic information profiling: Culture, learning styles and creativity. *Data in brief*, *9*, 1048.

Maseleno, A., Huda, M., Siregar, M., Ahmad, R., Hehsan, A., Haron, Z., ... & Jasmi, K. A. (2017). Combining the previous measure of evidence to educational entrance examination. *Journal of Artificial Intelligence*, *10*(3), 85-90.

Maseleno, A., Huda, M., Jasmi, K. A., Basiron, B., Mustari, I., Don, A. G., & bin Ahmad, R. (2019). Hau-Kashyap approach for student's level of expertise. *Egyptian Informatics Journal*, *20*(1), 27-32.

Mortensen, S., Christison, M., Li, B., Zhu, A., & Venkatesan, R. (2019, April). Predicting and Defining B2B Sales Success with Machine Learning. In *2019 Systems and Information Engineering Design Symposium (SIEDS)* (pp. 1-5). IEEE.

Ruan, Z., & Siau, K. (2019). Digital Marketing in the Artificial Intelligence and Machine Learning Age.

Salminen, J., Yoganathan, V., Corporan, J., Jansen, B. J., & Jung, S. G. (2019). Machine learning approach to auto-tagging online content for content marketing efficiency: A comparative analysis between methods and content type. *Journal of Business Research*, *101*, 203-217.

Tripathy, H. K., Acharya, B. R., Kumar, R., & Chatterjee, J. M. (2019). Machine learning on big data: A developmental approach on societal applications. In *Big Data Processing Using Spark in Cloud* (pp. 143-165). Springer, Singapore.

Tsoumakas, G. (2019). A survey of machine learning techniques for food sales prediction. *Artificial Intelligence Review*, *52*(1), 441-447.

Zhang, S., Tan, X., Wang, J., Chen, J., & Lai, X. (2019, July). Modeling Customers' Loyalty Using Ten Years' Automobile Repair and Maintenance Data: Machine Learning Approaches. In *Proceedings of the 2019 2nd International Conference on Data Science and Information Technology* (pp. 242-248). ACM.