



## Implementation of TVUPI'S VCDLN Super-App for Teachers

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### ABSTRACT

This research aims to evaluate a research product in the form of TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based on Artificial Intelligence (AI), which was developed using the ADDIE Method. The research results obtained need analysis data from 18 Districts in Indonesia. The Design and Development stages are carried out based on seven frameworks from AI. At the product implementation stage, educators from South Korea, Japan, and Indonesia produced: (1) Deep learning with scores of 142, 135, 142; (2) NLP with a score of 133, 145, 140; (3) Robotic with a score of 145, 148, 130, and (4) Experts system with a score of 135, 135, 140. From the results of analysis and experts from Bordeaux University, it is recommended that Deep Learning and Robotics frameworks are of great interest to educators. In conclusion, research products can be used in Indonesia and Asia.

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## 1. INTRODUCTION

The research was motivated by the research product in 2020-2021 about VCDLN-TVUPI being sustained that sustained strain. This utilization process requires a new system oriented towards the Multiplatform Super-App Ecosystem in 202a 2, focusing on the ring of Survey, Application Design, Development, and Production, whose impact is then measured with several indicators for online learning systems (Scherer et al., 2019). In the era of the Pandemic over the last two years, it has become a driving force in the birth of several innovations, including in communication and education, such as in Indonesia (Amponsah et al., 2021). As a product oriented toward mobile technology, the development of VCDLN-Learning is built by adopting an Artificial Intelligence work system (Chatterjee, 2020). This innovation from VCDLN is essential to be able to take advantage of Big Data (Chatterjee, 2020); (Charles et al., 2018), which is related to fulfilling the convenience of learning resources and teachers in the Database that has been built both by the Ministry of Education and through its Dapodik, as well as by the research team in an online database, namely on the website [vcdln-tvupi.com](http://vcdln-tvupi.com) (2021). The following are the objectives of the research that have been achieved, namely: (1) Develop a Model for TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence Framework; (2) Implementing TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence for Teachers in South Korea, Japan, and Indonesia; and (3) Evaluation of the TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence in Indonesia, Japan, and Korea.

## 2. LITERATURE REVIEW

### 2.1. Digital Television Technology

Television technology has developed rapidly, along with communication technology, primarily digital technology (Ayegeba et al., 2022). Television technology, which started from analog to digital television, was heavily influenced by the birth of streaming technology, as explained in his research (Lüders, 2022). Streaming in the context of using the internet for the television industry is an option. It is unaffordable when conditions do not allow access to analog television antenna frequencies (Gwak & Choi, 2004). The production of telecommunication technology devices such as mobile phones, complete with features and internet access, also influenced another factor in the birth of streaming. Thus, streaming TV broadcasts will be more flexible and can be accessed anytime and anywhere, providing opportunities to take advantage of the time to continue learning, especially school age, with ages 16-25 years (Brautsch et al., 2023). Of course, with the rapid development of telecommunications technology products, various mobile phone products can be used as media where television platforms are integrated, such as video on demand (VOD), to create social networks (Boztas et al., 2015) and social media (Vranken et al., 2022) for learning services.

The development of Streaming Television is also balanced by the existence of Digital TV, which integrates its presentation into social media (Vranken et al., 2022), such as YouTube, Play Store, IOS, and several other practical platforms. Through these platforms, the term Digital Television cannot be stopped from developing and will serve the audience as optimally as possible, as in research (Silva et al., 2016). This aligns with what has been developed by the

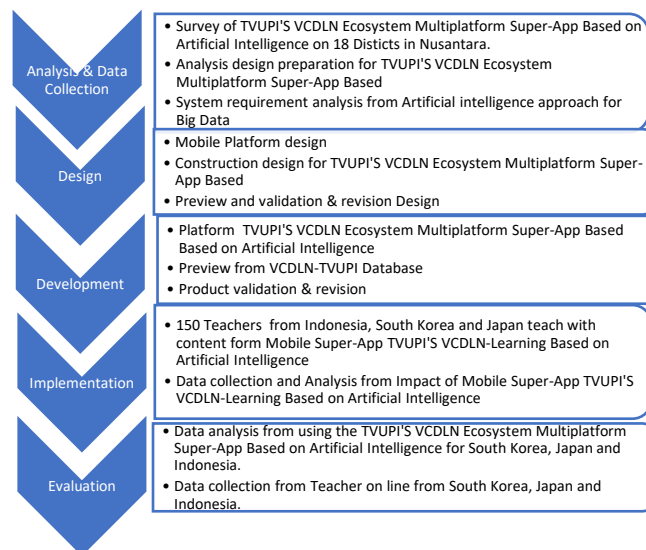
Indonesian University of Education with TVUPI, which has utilized several platforms in developing its Digital TV to serve the learning community.

## 2.2. Multiplatform in the Digital Ecosystem

Various online learning development research aimed at building community learning (Segeč et al., 2015) have used multiple platforms more than one. In many educational services, this multiplatform need is always an academic and commercial solution (Russell et al., 2017); (Ryabinin & Chuprina, 2014). Multiplatform in the digital era will become a medium for providing real experience in various fields of knowledge and creating an innovation ecosystem (Kwak et al., 2018). Several subjects have been helped so far by several kinds of research that test and develop multiplatform, where it can be integrated with a number of social media (Vaid & Harari, 2021). The development of the digital telecommunications industry so far has also become a medium to install a number of mobile multiplatform applications (Mohiuddin et al., 2022). In learning with multiplatform support, services such as laboratory needs for virtual experiments can be facilitated (Potkonjak et al., 2016). Gradually the production of online teaching materials to create a Virtual Community Digital Learning Nusantara can be facilitated through TVUPI's LCJ access for dissemination to remote areas of the country.

## 3. RESEARCH METHOD

The research method is used as a plan for how a study is carried out. To be able to answer all the research problems, formulations have been used from Development (R&D) research (Borg, W. R., & Gall, 1971) and utilized ADDIE Model (Carr, 2022).

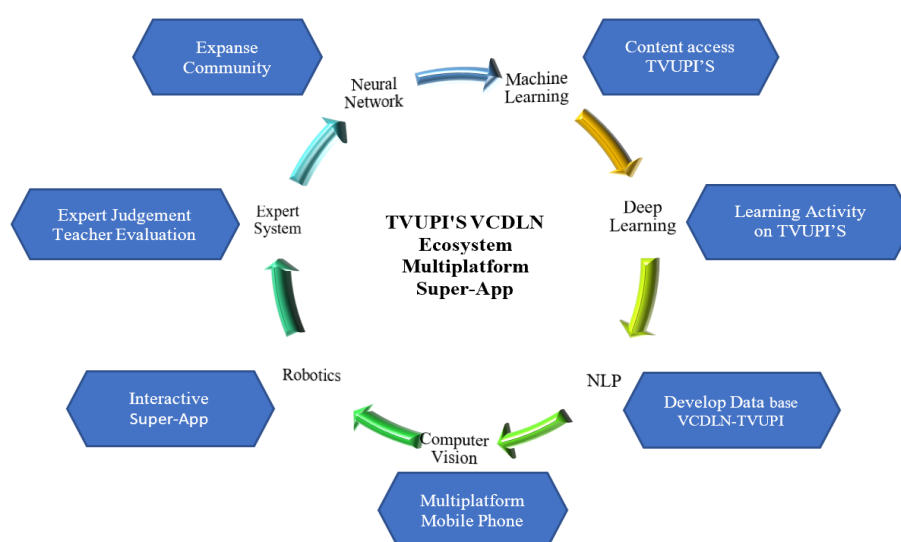


**Figure 1.** Research Design of Implementation TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence.

## 4. RESULT AND DISCUSSION

### 4.1. Develop of Model for TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence Framework

Some essential elements in implementing TVUPI'S VCDLN can be analyzed in a flashback regarding several terms and objects or target subjects we often call and use in educational practice. For example, software, hardware, brain ware, and environmental ware are used. Likewise, in the analysis, a newly develop Artificial Intelligence framework. The model may soon be put into practice in the paradigm of system service implementation digital learning strategy, which the author named TVUPI'S VCDLN Ecosystem Super App Multiplatform. Where the results of the Developing Model can be seen in the following chart.



**Figure 2.** Development TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence Framework.

Figure 2 above shows that the development of TVUPI'S VCDLN Ecosystem Super App Multiplatform research applications, which have been carried out for the last two years, is supported by several relevant theoretical studies. The following critical study is the study of Artificial intelligence which includes frameworks such as (1) Machine learning, (2) Deep Learning, (3) NLP, (4) Computer Vision, (5) Robotics, (6) Expert System; (7) Neural System from Stuart Russel & Peter Norvig in 2022, wherein the field of education, this AI framework has been many made a real contribution to all solutions to problems in teaching and learning (Porayska-Pomsta, 2016). In the model development stage of TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence Framework, each framework from AI, starting from Machine learning, is linked to the power of accessing TVUPI content as an online and mobile digital learning resource. For the Deep Learning framework, the study was developed based on the learning activities of educators already members of VCDLN. Furthermore, the NLP framework in the process of developing this research model's findings is connected with the process of creating the VCDLN-TVUPI.com Database, which is dynamic. As for the framework of the Computer System from AI, it is linked to the use of multi-platform mobile phones that have been developed on as many as four mobile platforms, namely TVUPI

Android, VCDLN-Learning Android, TVUPI Streaming and TVUPI Digital YouTube. The AI framework regarding Robotics is associated with the development of efforts to build interactive aspects of all platforms used in developing the model of this research findings. The AI framework related to the Expert System is associated with an effort to evaluate the Expert judgment of an Artificial Intelligence expert from Bordeaux University.

Meanwhile, developing a model of research findings related to the latest AI Framework, namely the Neural Network, is associated with expanding the community reach and area target of the VCDLN system, which reaches the archipelago and even Asia, Europe, and America so that the findings from the expansion of the area and the number of VCDLN members will produce a large number of online digital learning resources as well and will become Big Data. Finally, what about the theory of Big Data, mainly what is being studied by Digital Ocean in LLC in 2022 in its study of Velocity and Variety. This statement is conducted by (Eissa et al., 2022).



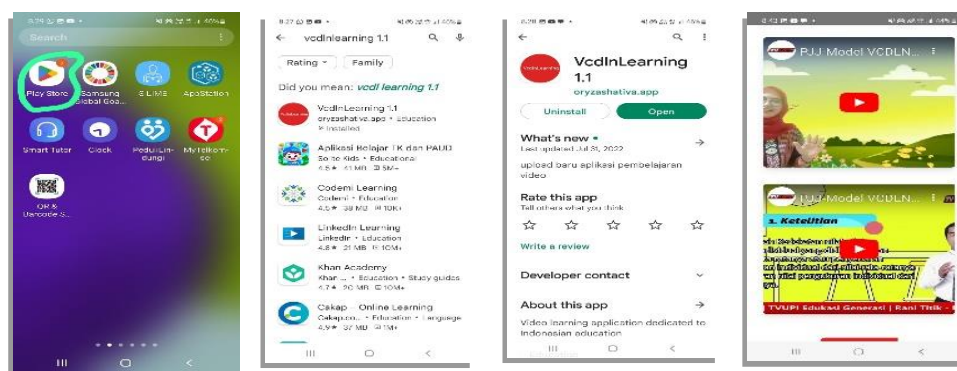
**Figure 3.** TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based on Artificial Intelligence for Teachers.

The final product of the TVUPI'S VCDLN-learning that can be used for open-distance learning services. During the research, several educators from other districts and provinces in Indonesia felt more comfortable accessing this VCDLN-Learning product material from Database VCDLN as Big Data Learning Resources. This finding aligns with the convenience aspect of online learning, as explained in two supporting studies (Cukurova et al., 2020). However, due to online education lacking the face-to-face communication used by traditional educational methods, teachers and learners use the network as the transmission path for knowledge transfer and learning. As a result, the learning process presents a one-way characteristic, and the teaching staff has difficulty controlling the teaching process. They cannot communicate with the learners promptly and effectively in the teaching process. As a result, the teachers cannot teach the following students simultaneously and cannot accurately assess the student's learning state and teaching effect. In this condition, there is a lack of communication between teachers and students. The result hinders the further development of online learning (Fan et al., 2021). To maximize the advantages of online learning, it has become more and more critical to explore the factors that affect the results of online learning. The visual and complete design of the TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence is a reference in the program of service activities and subsequent system development (Rodríguez-López, 2021) where all stages of

development are adjusted to the ease of respect from the survey results to teachers in South Korea, Japan, and Indonesia.

#### 4.2. Implementing TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence for Teachers in South Korea, Japan, and Indonesia

From the products produced in the previous stages, the implementation of learning through the TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence can be seen in the image below in Figure 5. During the performance of the products resulting from this development stage, 150 educators carried out the learning process online, mobile (Politi-Georgousi & Drigas, 2020), and blended where the subject matter is available on TVUPI access with four platforms that can be developed and utilized.



**Figure 4.** TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based on Artificial Intelligence for Teachers as Mobile Learning Application vcdlnlearning version 1.1.



**Figure 5.** VCDLN-TVUPI Database for Review Content of Ecosystem Multiplatform Super-App Based on Artificial Intelligence for Community Members.

Of the four platforms developed, 2 Android Super-App Mobile platforms are to be used in the learning process, namely the TVUPI Android Platform and the VCDLN-Learning-based Android Platform 1.1. These two applications are supported by the Cloud Database Platform vcdln-tvupi.com and the Web-Based Learning System (WELS) Virtual Community Digital Learning System. From these findings, education and online digital learning can be accessed mobile anywhere (Sánchez-Morales et al., 2020). Several shows are produced and are learning content that students can access and watch anytime, anywhere. The principles of

Machine learning (José-García et al., 2022) and deep understanding (Wang, 2023) on these four platforms are utilized by teachers from South Korea, Japan, and Indonesia. For example, this product can be accessed by teachers in Japan, South Korea, and Indonesia in remote corners of the archipelago. Thus, we present a brief description of the copyright; hopefully, it can support government programs in realizing equitable access and governance and the quality of education from the center to remote areas of the country.

TVUPI'S VCDLN-learning Android-based application (Rimale et al., 2016) was developed through an Artificial Intelligence Framework, including Machine Learning, Deep Learning, NLP, Computer Vision, Expert Systems, and Neural Networks principles. The current learning resources database cloud (Rimale et al., 2016) with address has been provided on the <https://vcdlnlearning.com> page. Teachers and students can use their mobile phones to view and study the required teaching materials from that page. Every feature-designed result of the measurement process can be seen in the graph below.



**Figure 6.** Web based Electronic Learning System (WELS) Ecosystem Multiplatform Super-App Based on Artificial Intelligence for Access Learning.

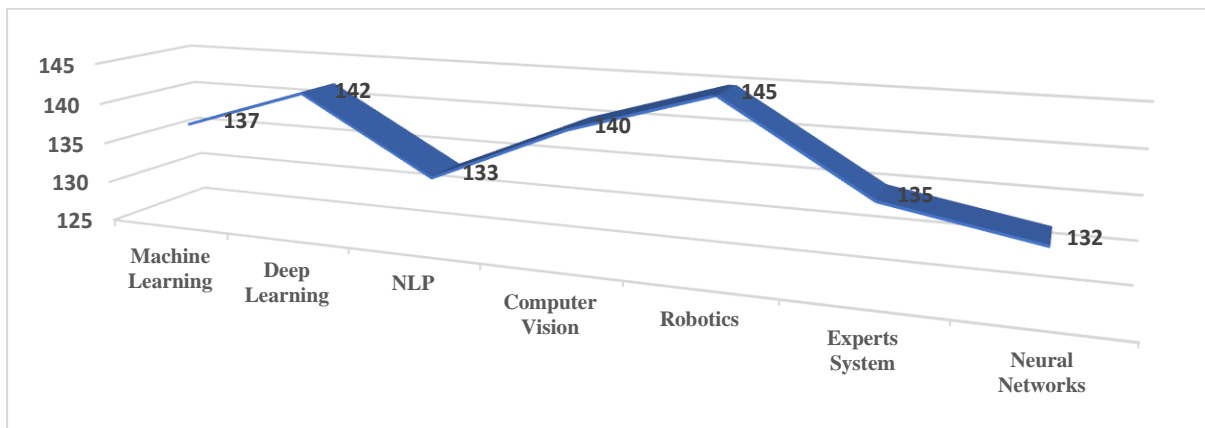
And the developed with access instructions can automatically call up the display of video content desired by the user to conduct or support by database [vcdln-tvupi.com](https://vcdln-tvupi.com) as Big Data Learning Resources (Cabezuelo, 2021). This innovation in the design of the Super-App mobile system (Hallberg et al., 2020) application is expected to be a program that is easier and faster to use by teachers in Indonesia (Šimleša et al., 2017).

Furthermore, the results of this design are further developed for the needs of multiplatform services connected to the content database website at <https://vcdlnlearning.com>. This need is intended to realize the initial concept of a multiplatform program, according to (Models et al., 2010). This effort is carried out in the next step for conducting open distance learning (Villa-Martinez, 2019).

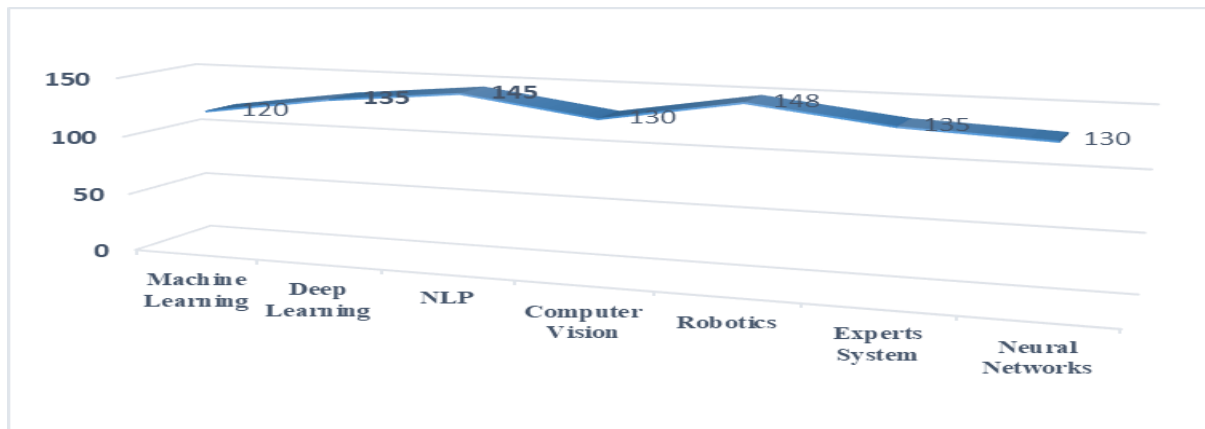
#### **4.3. Evaluation of Implementing the TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based Artificial Intelligence in Indonesia, Japan, and Korea**

The application product produced in this research is the TVUPI'S VCDLN-learning Ecosystem Multiplatform Super-App Mobile Communication based on the work system of Artificial Intelligence, which is intended to utilize Big Data digital learning resources (Chang et

al., 2022) and then tested by teachers from South Korea, Japan, and Indonesia. The measurement was used as respondents for each with 150 respondents. Out of 150 people, they were given a choice of which of the framework of Artificial from the TVUPI'S VCDLN-learning. Research products that can facilitate education include distance learning, mobile communication for learning services, and similar online digital learning that use understanding video content as developed (Sottolare, Shawn Burke et al., 2018); (Alshehri et al., 2021).

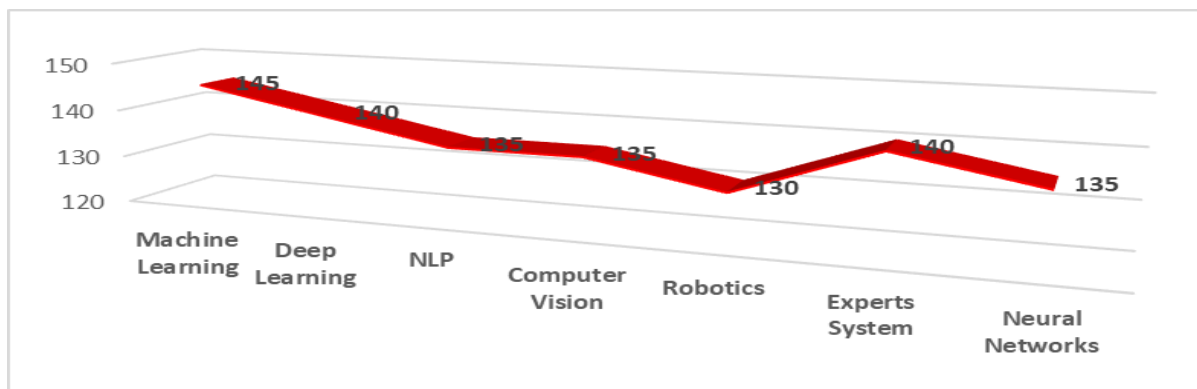


**Figure 7.** Result of Measuring the advantages of implementing TVUPI'S VCDLN Ecosystem Multiplatform Super-App Through Artificial Intelligence from Teachers Indonesia.



**Figure 8.** Result of Measuring the advantages of implementing TVUPI'S VCDLN Ecosystem Multiplatform Super-App Through Artificial Intelligence from Teachers South Korea.





**Figure 9.** Result of Measuring the Advantages of Implementing TVUPI'S VCDLN Ecosystem Multiplatform Super-App Mobile Communication Through Artificial Intelligence from Japan Teacher.

From the results of measuring the application of research products to teachers who are representatives of the three countries, it shows that the research product in the form of Controlling the quality of service and access speed of the TVUPI'S VCDLN-learning through an Artificial Intelligence Framework has been completely assessed. As for the assessment indicators for the seven frameworks that to this research product. Furthermore, the expert recommends that there is two frameworks will become recommendations for the success of educators in using research products TVUPI'S VCDLN Ecosystem Multiplatform Super-App Mobile Communication Through Artificial Intelligence.

## 5. CONCLUSION

From the findings and discussion in this study, several results can be concluded, which include a survey of 18 TVUPI Studios in the Nusantara regarding the need for TVUPI'S VCDLN Ecosystem Multiplatform Super-App Based on Artificial Intelligence Framework for educational services. This product has been designed using the seventh framework of Artificial Intelligence approaches. The seven frameworks produce research product performance characteristics for content access, learning activities, database development, multiplatform, interactive, expert judgment, and ecosystem community expansion. The products that are produced and can be used in the learning implementation stage by educators from South Korea, Japan and Indonesia are carried out through four platforms, namely TVUPI Android; VCDLN Learning 1.1; vcdln-tvupi.com database; and WELS Virtual Community Digital Learning Nusantara From the results of measuring the implementation and evaluation of research products in South Korea, Japan and Indonesia show that: (1) Deep learning with score 142, 135, 142 ; (2) NLP with a score of 133, 145, 140; (3) Robotic with a score of 145,148, 130, and (4) Experts system with a score of 135,135,140, get the highest score than other frameworks. There are two frameworks, namely Deep Learning and Robotics from this research product is recommended to be used by educators throughout the archipelago and even Asia. Thus, these two aspects must be a concern in the development of an education service system using TVUPI'S VCDLN research products, especially for the Learning Activity and Interactive aspects developed in the four VCDLN platforms frameworks produce research product performance characteristics for content access, learning activities, database development, multiplatform, interactive, expert judgment, and ecosystem

community expansion. The products that are produced and can be used in the learning implementation stage by educators from South Korea, Japan and Indonesia are carried out through four platforms.

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