ASN Unggul 2.0, a New Paradigm of Learning Management System in Civil Service Competency Development

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***Abstract*—Development of human resource as well as professionalism of the State Civil Apparatus (ASN) enhancement are parts of the government's priorities in 2019 - 2024. In order overcome this vision, National Institute of Public Administration (NIPA) in 2019 has developed the first learning management system (LMS) it known as ASN Unggul 1.0. This LMS has brought major changes in delivering courses from conventional into digital based platform. However, this first version has limitations such as limited in users and administrator Therefore, NIPA needs to development the new one that can be engaged with more stakeholders and administrators within system. This prototype is called ASN Unggul 2.0 as a new paradigm in learning management system. Currently, LMS is a backbone at any training programs. Corporate University has experienced in using the LMS on both structuralized and self-studies programs. This study uses mixed methods: (1) Descriptive qualitative to grab the experts' experiences in developing the LMS; (2) Designing prototype and micro learning This paper will be discussing: (1) The process of developing ASN Unggul 2.0; (2) Describing the micro learning within ASN Unggul 2.0; (3) How ASN Corporate University uses the LMS.**

Keywords—competency development, learning management system; micro learning, corporate university

I. INTRODUCTION

Human resource development and increasing the professionalism of the State Civil Apparatus is one of the government's work priorities in 2019 - 2024. One of them is through the development of human resource competencies whose implementation can no longer be carried out in the usual way, such as classical education and training.

The era of the industrial revolution 4.0 makes us have various choices of technology that change the mindset and also the way we do our daily work [1]. In ancient times we traditionally had to select, organize, memorize and summarize, create, store and distribute information [2]. Nowadays technology has facilitated and freed us from these tasks. The technology also transforms various analog activities into virtual or digital.

In training or competency development, technology certainly brings us into a much more developed context and classroom [1]. Technology creates new learning spaces that go far beyond traditional learning. Learning theory actually focuses on the process of learning that is carried out, not on what is learned or what value is obtained [3]. Technology and connectivity make learning activities begin to change in the digital era. Competency development can only be obtained through connectivity and individual efforts to learn.

The development of digital technology makes it possible to obtain any information needed to improve our performance as employees/state civil servants (ASN) and employees, especially in supporting learning technology. In the current era of the industrial revolution 4.0, digitalization can be an intermediary medium to get to literacy practices that can produce print-based text [4]. Digital technology in learning can further improve and change the paradigm of delivering learning processes for civil servants (ASN), which of course must be balanced with technology-based learning delivery techniques and models. The Information and Communication Technology Development Index in Indonesia conducted by BPS 2018-2019 states that there has been a significant growth in terms of access & infrastructure, use, expertise [5]. This can be seen in the following table 1.

TABLE I. IMPROVING OF INDONESIA'S INFORMATION TECHNOLOGY AND COMMUNICATION DEVELOPMENT INDEX (IP-TIK) 2018-2019

Sub-Index	IP-TIK 2018	IP-TIK 2019	Growth (%)
Access & infrastructure	5,34	5,53	3,56
Utilization	4,45	4,85	8,99

Expertise	5,76	5,84	1,31
IP-TIK	5,07	5,32	4,96

[a] IP-TIK's Scale: 0-10

The growth in the development of information and communication technology indicates that people's opportunities to access digital information sources are increasingly open. According to data in 2019, 47.69 percent of the Indonesian population uses the internet and this is supported by the availability of infrastructure that allows wider internet coverage [5]. It was further explained that the majority of Indonesia's population subscribes to mobile broadband, which is about 92 subscribers out of 100 residents in terms of the internet network used. On the other hand, fixed broadband subscribers have increased over the last four years. Where out of 100 residents there are 3 or 4 residents using fixed broadband. This opens up opportunities for residents to take advantage of digital sources to get the information they need. This also indicates the increasingly open use of Information and Communication Technology to be applied in digital learning technology in the 4.0 era [5].

In Government of Republic [6] explains competency development is an effort to fulfill the competency needs of civil servants with job competency standards and career development plan. The implementation of the development of the competence of ASN employees is based on NIPA of Republic [7], which describes the Competence Development of State Civil Apparatus Employees carried out by using information technology to expand the opportunity to fulfill the rights of developing the competence of ASN employees. The information technology-based competency development program is an innovation that is in line with the development of the Industrial Era 4.0 which of course is a form of non-classical competency development process by utilizing digital-based learning with integrated information systems such as Learning Governance Systems, Learning Management Systems, Knowledge Management Systems, Community Base Learning. The information system has developed a lot and has become a source of digital literacy for the younger generation, especially by the resources of our apparatus.

Since the pandemic period, educational institutions and training institutions have competed to utilize technology such as virtual classes and learning management systems. Interaction during using technology is also carried out, but depends on the time that has been set and tends to be one-way or from one source.

To support this, Lembaga Administrasi Negara/ National Institute of Public Administration (LAN/ NIPA) has developed a learning management system (LMS) known as ASN Unggul. ASN Unggul 1.0, which was built in 2019, is prepared to be a sharing application by all government training institutions as service providers and is targeted to be utilized by all Indonesian ASN as service users.

ASN Unggul 1.0 was built in the midst of the proliferation of using LMS in various government agencies. In some cases, a government agency may have several LMS installations, even in certain cases one training has its own LMS. On the one hand, this is a sign of the growing new awareness about the usefulness of technology in competency development. However, such proliferation of LMS can be counterproductive. First, this can lead to inefficiency in resource use because many LMSs are built and maintained even though LMS can be shared. From the perspective of ASN employees who are users, this can cause difficulties to access and use the LMS due to the diversity of interfaces and learning delivery structures in each LMS. In short, the proliferation of LMS creates complexity for users and costly for competency development providers.

With this LMS, e-Learning-based training organized by NIPA alone or in collaboration with other government agencies can be held through this platform. In 2020, ASN Unggul has facilitated more than 4000 participants in 111 training forces. The nature of the learning system that is mandatory or assignment, makes ASN able to use it only as an assignment, with a combined learning method of synchronous and asynchronous.

Currently there is LMS technology that allows users to self-register for a training and choose which learning to follow. Training managers can also build their own training quickly and easily with a provider/service provider that provides LMS creation services, where they provide the ability to create sub LMS from the LMS provider's server. Take Moodlenesia, for example. This LMS creation service provider makes it easy for users to create their own LMS and act as admin. So that it can determine the appearance of the LMS, delivery model and management. Therefore, if this can be applied by government agencies, it will provide efficiency and savings in the state budget in terms of developing ASN competencies.

In addition, NIPA has also developed the concept of ASN Corporate University (ASN Corpu) which uses an integrated strategic learning approach to improve organizational performance and create talent according to the needs of the organization. However, its implementation must prioritize aspects of accessibility, learning effectiveness and learning preferences. The LMS technology used by 'moodlenesia' will certainly be suitable for use for an integrated strategic learning approach that comes from various LMSs of various training institutions.

Based on that, the prototype of ASN Unggul 2.0 developed in 2021 is expected to provide the same novelty by imitating the technical workings of the LMS system and in the future will serve a wider user base for Indonesian ASN. The approach model used is a learning marketplace that makes it easier to create an LMS from the side of existing training institutions. The term marketplace here does not have a commercial connotation, but is limited to adopting the diversity, flexibility and convenience and popularity of commercial marketplaces into ASN Unggul in order to provide quality learning services to Indonesian ASN employees. This means that the prototype

of ASN Unggul 2.0 will be prioritize LMS management with many managers/multitenants. That way it can also be used. In addition, the delivery method will add a micro learning model. This micro learning helps ASN as a user to focus more on choosing the learning needed to complete their daily work.

The prototype of ASN Unggul 2.0 of course still needs further improvement. This is because prototype is a term for a system design scheme that forms a model and standard size or scalability that will be worked on later. Every developer and user can interact directly with the model without having to create a real product [8]. In the unofficial sense it can be used. This prototype aims for the product to be released in accordance with user or market demand and becomes a liaison between producers and consumers to be able to realize products in the form of appropriate and appropriate software.

ASN Unggul 2.0 is itself an electronic-based learning management system or we can say e-learning. E-learning can be interpreted as all forms of web-based learning and using computers and networks to create, store, deliver, manage and support online learning to anyone, anytime and anywhere [9]. And the learning management system (LMS) is software that provides a means of organizing learning by providing access to students and tracking (monitoring) the stages of student learning [10].

It has been previously stated that in this ASN Unggul prototype, learning elements will be included using the micro/microlearning learning method. Microlearning itself is the provision of learning materials in small and well-planned units. Microlearning requires relatively little effort and also very little time to learn. Microlearning is usually used for material with topics and information that are not too broad [11].

In addition, this LMS ASN Unggul can be a learning system where its management can support the management of educational training institutions in Indonesia that carries the concept of corporate university. This is because nowadays companies or organizations are developing virtual or physical universities to align their training and learning with their business strategy. The goals are usually to maintain or build a competitive advantage through learning, to achieve performance goals, and to drive the transformation of organizational culture. Corporate university (Corpu) integrates training units and creates an integrated governance system to ensure the company's goals and objectives are met [10].

Indirectly, the leadership of the organization can determine the direction of the implementation of competency development. A manager/leader must be able to provide equal opportunities and give clear assignments [12] and influence other people individually and in groups [13] in order to achieve the goals of the organization/institution which in this case is the implementation of competency development.

Competency development is closely related to human resource management. Human Resource Management is a science of managing human resources in terms of their relationships and roles, which is carried out through the process of obtaining, training, appraising, and compensating employees [12], as well as finding, using, maintaining, and developing people [14] through a system. which affect the behavior, attitudes, and performance of employees [15]. Technological developments open up opportunities for employees/employees/apparatus to be more active in self-development by utilizing information technology. This is where the role of the leader/manager must be able to read the situation as an opportunity to implement competency development for resources in the work environment.

In practice, partial government-built applications are not effective because they are built with a rigid architecture without considering the need for maintenance and sustainable development in the future. To ensure long-term benefits from the investment in the development of ASN Unggul, this learning platform was built with the concept of agile system development. For this reason, the vision of transforming ASN Unggul into a learning marketplace has implications for the need for continuous development to ensure this learning platform remains relevant in terms of user needs, ASN competency development policies, developments in the field of thought and practice.

This study will answer research questions about what the prototype of ASN Unggul 2.0 will develop so that it can be said to be a new paradigm in the development of ASN competencies in Indonesia. In addition, about how the benefits and roles of ASN Unggul 2.0 will be in the implementation of ASN Corporate University (ASN Corpu) which can ultimately improve the quality and change the paradigm of learning management, the process of delivering learning in particular.

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The novelty given from this research is that there will be a comparison that distinguishes the old system and the new system, which in this case is the LMS ASN Unggul. In addition, the explanation of the benefits of the prototype of ASN Unggul 2.0 that can be used by the government can make efficiency in developing competence. The development of the prototype of ASN Unggul 2.0 with the concept of multitenancy LMS and microlearning can be a new paradigm in the implementation of ASN competency development. In addition, it can explain and strengthen the role of NIPA in the implementation of ASN competency development in the future.

II. RESEARCH METHODS

The research methodology in explaining the prototype of ASN Unggul 2.0 as a new paradigm of competency

development is carried out through qualitative descriptive by explaining the difference with the previous version. Then what benefits can be felt by ASN to meet their competency development needs. In developing the prototype of ASN Unggul 2.0, NIPA has identified problems and needs for developing an e-Learning platform on a national scale in early 2021. Then, it is continued by analyzing the design and development of the ASN Unggul e-Learning platform prototype. Furthermore, NIPA has also started the process of developing an LMS and training content strategy. After passing these three stages, the next stage of activity is the user acceptance test of the prototype of ASN Unggul 2.0 learning platform. In this stage we will solicit input from users represented by several government agencies. This input will be very useful to be used later in the finalization stage of the development of the prototype of ASN Unggul 2.0.

III. Analysis and Discussion

In this research, we try to develop and offer a model in distance learning management. The model we offer is based on the geographical characteristics of ASN and also on the pedagogical approach used, targeted teaching, technology support, and practical application framework. This will be related to the process of developing ASN Unggul into a learning platform that can be managed jointly by various government organizations, infrastructure readiness and features that can be used by ASN to interact into ASN Unggul 2.0. In addition, the readiness of a more interactive learning delivery model through micro learning.

In this study, it is necessary to explain that development of the prototype of ASN Unggul 2.0 which is planned in early 2022 to be utilized by all government agencies. At a glance, ASN Unggul 1.0, this LMS can be said to be the same as LMS in general. ASN Unggul 1.0 is single tenancy, which can only be managed centrally by the operating system. Even if there are agency managers, they will only be able to manage the learning system and that is still limited. If likened to, the management is like an online shop where there is only one control holder. The resources also need to be collected first before users can take part in the learning in it. Therefore, the system manager will only serve participants and services to the organizer can only be done outside the LMS system. Then the training there is formal in nature and there needs to be a systematic registration process beforehand and requires an assignment (mandatory).

The development of ASN Unggul is directed at providing learning opportunities to all Indonesian ASNs with a marketplace service model. Like a marketplace, ASN Unggul 2.0 needs to ensure the availability of learning materials that are plentiful, diverse, and can be chosen by ASN independently. Only the commercial aspect of the marketspace is not embraced in this regard. And the current ASN Unggul 2.0 is of course leading to the realization process. The purpose of this marketplace is to make ASN Unggul 2.0 a government learning management system that can focus on learning not on training. This means that the development of competence will further the needs of ASN in improving their competence in carrying out their duties in the agency. The architecture used is multitenant where other managers can manage their own learning management system starting from the interface, learning content to learning management. In addition, the content that will be received by users, in this case ASN, is micro learning, so of course it will be very easy to understand and according to needs. The delivery method is the Massive Open Online Course (MOOC) so that ASN can register themselves through the Single Sign ON (SSO) system, enter self-enrolment, and manage their own study time (Self-Paced).

The training institutions in the ministries/ institutions/ regions will act as training/learning providers (training/learning providers) which of course will form a certain management process so that it can be harmonious. Meanwhile, ASN employees throughout Indonesia will become users of ASN Unggul 2.0. The existing training institutions in the ministries/ institutions/regions will be able to build and manage their training in this ASN Unggul as an independent entity.

To realize this, the prototype of ASN Unggul 2.0 is not only limited to building a Learning management system (LMS) platform. In order to be strong, sustainable and can become a long-term government investment, its development needs to be carried out at various levels as illustrated in Figure 1.

Fig. 1. Integrated model of ASN Unggul towards learning marketplace.

A. *Supra Structure of ASN Unggul 2.0*

Superstructure is the most basic precondition and determines the effectiveness of the learning ecosystem. Because of its fundamental position, this layer is often overlooked. Superstructure elements that need attention include leadership; organizational culture in particular and bureaucratic culture in general; policy support; availability and management of human resources. Because of their very basic nature, some of these superstructure elements need to get high-level political support. However, the prototype of ASN Unggul 2.0 will depend on the final readiness of the current prototype. Therefore, in its development, it must be carefully planned and determine the value of the learning management system that currently exists.

B. *Infrastructure of ASN Unggul 2.0*

ASN Unggul 2.0 infrastructure is developed in the form of a Cloud Service Provider. This is to facilitate the openness of

contributions and benefits that are mutualism between elements of the learning system. Cloud Service Providers enable storage and management of very large data. Therefore, ASN Unggul 2.0 infrastructure needs to get support from government agencies (ministry) that are authorized in providing storage space and also large system access capabilities.

ASN Unggul infrastructure is related to the server and operating system used, data communication network and security side to ensure the integrity of the system as a whole. Of course this depends on how the future LMS ASN Unggul 2.0. Currently the ASN Unggul Prototype is heading towards multi-tenant where there will be a main manager (main LMS) and tenant manager (tenant LMS). Tenant LMS will regulate the authority of each tenant and tenants can carry out independent management of their LMS. The learning system will also be directed to micro learning which will encourage competition among tenants to develop more open learning techniques. Users will be able to be more flexible in participating in learning because of the diverse content that is interesting to follow.

C. Management Process

Because ASN Unggul is prepared to be a sharing application by all government training institutions as service providers and by all Indonesian ASN, a governance scheme or management process is needed for better utilization and development of this system. An agreement is needed between all parties regarding the division of tasks and functions related to the development, maintenance and use of the ASN Unggul application as well as the learning content in it. The concept developed at ASN Corporate University is in line with how it can function as a management process.

D. Training Service Provider

The implementation of ASN Unggul 2.0 services adheres to a multi-tenancy model. With this model, ASN Unggul acts as an intermediary for the supply and demand side of learning. The analogy is the same as a mall that provides a place to sell for tenants and provides access for visitors to shop. Tenants are free to arrange their own shops and goods and buyers are free to search for goods and services according to their needs.

With this multi-tenancy architecture, on the supply side, ASN Unggul provides space for government training institutions to open training and learning that can be managed and adapted to their own needs. On the demand side, ASN employees throughout Indonesia can seek and participate in learning according to their needs provided by government training institutions as tenants. The topology of the multi-tenancy architecture can be seen in Figure 2.

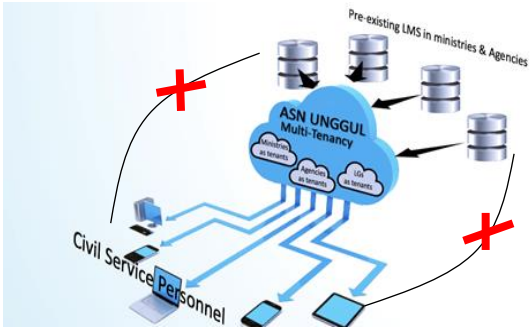

Fig. 2. Topology of ASN Unggul multi-tenancy.

This multi-tenancy architecture allows ASN Unggul to provide learning services with a marketplace model, delivery method using Massive Open Online Course (MOOC) and learning objects in the form of microlearning as shown in table 2.

TABLE II. MAIN FEATURES OF ASN UNGGUL

Architecture	**Service Model**	**Delivery Methods**	**Learning Objects**
Multi-Tenancy	Multi-Tenancy	MOOC	Microlearning
Single installation on platform LMS master	Serving the training centers as well as civil servants ASN	Self-System Enrollment (SSO)	Curative
Creating numerous LMS tenant	Rich in subjects and variety	Self-learning registration	Developed by cross organizations
Self-managing	Access for 24 hours /7 days a week	Self-learning paced	Shared utilization across respective organization
Customized/ self-branding		Digital Certificates/ Badges	Accessibility for all civil servant

With this multi-tenancy architecture, ASN Unggul can provide a flexible learning model and ASN employees can independently register for a training and start learning according to their pace and opportunity. Thus, ASN Unggul is at the same time transformed into a learning market place for ASN.

ASN Unggul topology has the advantage of being able to accommodate various LMS integration scenarios. First, ASN Unggul can produce ready-to-use LMS quickly. The LMS that was born was immediately fully integrated with ASN Unggul. This facility is intended for government agencies that do not yet have an existing LMS or wish to build a new one. Second, ASN Unggul can accommodate legacy LMS, namely LMS that already exist in various government agencies. For legacy LMS based on open source Moodle, it can be directly integrated like the LMS that was born by ASN Unggul. However, for non-

Moodle legacy LMS, special data integration and exchange efforts are required.

The governance of ASN Unggul 2.0 of course can no longer only be left to one agency. This is because the learning marketplace model puts forward each training institution being able to manage its own sub-LMS. Not only related to the content, but also managing the display of sub-LMS. Related to this governance can be done through an ASN Corporate University (ASN Corpu) which was initiated by NIPA. The main management system (ASN Unggul 2.0) and other special training can be carried out by the main management of the ASN Corpu. Meanwhile, the management of each sub-LMS can be carried out by training institutions which in the management of ASN Corpu are called Institutional ASN Corpu (ASN Corpi).

Corporate University is an integrated strategic learning approach that aims to improve organizational performance and create talent in accordance with the goals of organizational needs [16]. In its operation, learning at Corpu uses a lot of learning management systems or LMS. Why do learning at Corpu use LMS a lot? Because: 1) Accessibility; 2) Learning Effectiveness; 3) Learning Preferences.

LMS guarantees wider learning accessibility without having to do face-to-face meetings. The learning model at Corpu is not only structured learning but also has menus according to the needs of its users. The effectiveness of learning with LMS is also carried out to support learning that does not require face-to-face.

In this pandemic period, where face-to-face learning is greatly reduced, LMS is able to answer this need. The effectiveness of learning with LMS must be adjusted to the needs and learning objectives. Learning that is knowledge sharing is more appropriate if done using LMS, but practical learning that requires precision and complicated tools is better done with face-to-face learning and in a special place according to learning needs. Regarding learning preferences, in the LMS at Corpu there are menus that can be accessed not only by training participants but also the general public who want to learn certain substances in Corpu that can be studied by the general public according to the organization's core competencies. For example, in the LMS of the Ministry of Finance there is a menu on how to manage state finances? This is a general learning substance that can be accessed by anyone. Or for example how to calculate income tax and others.

LMS is currently the backbone in the implementation of Corpu that connects users, LMS managers and providers of online learning materials through video or info or interactive media. Specifically for the use of LMS in the National Corpu ASN, the ASN Unggul NGOs will be used in the ASN competency development program consisting of Leadership Education I, Leadership Education II, National Executive Program and Cross-Agency Strategic Bangkok (BSLI) [16]. In the development of the Bangkok method developed by the National Corpus ASN, LMS will also become an instrument for adaptive learning learning, namely, to answer competency needs that are not only for current needs but also for future competency needs.

IV. Conclusion

The prototype of ASN Unggul 2.0 is expected to provide advantages because it can accommodate various LMS integration scenarios. First, ASN Unggul can produce ready-to-use LMS quickly. The LMS that was born was immediately fully integrated with ASN Unggul. This facility is intended for government agencies that do not yet have an existing LMS or wish to build a new one. Second, ASN Unggul can accommodate legacy LMS, namely LMS that already exist in various government agencies. For legacy LMS based on open-source Moodle, it can be directly integrated like the LMS that was born by ASN Unggul. However, for non-Moodle legacy LMS, special data integration and exchange efforts are required. The learning marketplace model puts forward each training institution being able to manage its own sub-LMS. Not only related to the content, but also managing the display of sub-LMS.

Microlearning is the provision of learning materials in small and well-planned units. Microlearning requires relatively little effort and very little time to learn. Microlearning is usually used for material with topics and information that are not too broad.

In its operation, learning at Corpu uses a lot of learning management systems or LMS. Why do learning at Corpu use LMS a lot? Because: 1) Accessibility; 2) Learning Effectiveness; 3) Learning Preferences.

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