

# **Blended Learning Method to Improve Licensed Cadaster Surveyor Competency Standard in Indonesia**

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**Keywords:** human resource competency, licensed cadaster surveyors, training, blended learning

## **SUMMARY**

By December 2020, there are 14,816 Licensed Cadastral Surveyor (SKB) and 187 Licensed Cadastral Surveyor Service Offices (KJSKB) in Indonesia. However, less than 10% of SKB have competency certificates, and the majority of KJSKB (131 out of 187) are inexperienced. Therefore, they difficult to obtain contracts that required project's experience. Ministry of Land Affairs and Spatial Planning/National Land Agency (ATR/BPN) has a challenge to improve competency standards for SKB and KJSKB. It is identified that knowledge, skills, and work attitudes are competency standards required in the current Indonesian National Work Competency Standards (KKNI). Moreover, ATR/BPN also issued Framework of Indonesian National Qualifications in the Cadastral Survey Sector (SKKNI). This paper aims to investigate the role of the Center for Human Resources Development (PPSDM) of ATR/BPN to improve human resource competency standard of SKB by implementing blended learning method. The method is a combination of e-learning/distance learning and face-to-face. The paper found that the method is flexible so that trainees can attend online training sessions without leaving their jobs. Based on the analysis of its current implementation, the paper suggested that KKNI blended learning method would increase the competence standard of Licensed Cadastral Surveyors to support national strategic programs in the land sector.

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## **1. INTRODUCTION**

In the era of the industrial revolution 4.0, the use of electronic / digital based technology has become a trend to improve the quality of public and business services. The Ministry of Agrarian Affairs and Spatial Planning/National Land Agency (ATR/ BPN) is now focusing on preparing regulations and educating human resources on digital-based work governance. ATR / BPN has a strategic program to register all land parcels in Indonesia. The ATR / BPN requires assistance from Licensed Cadastral Surveyor (SKB). Since 2017 ATR / BPN has designed Licensed Cadastre Surveyor (SKB) coaching program in order to support the National Land Strategic Program. However, the types of competency improvement and its learning curriculum are still not structured (Ikatan Surveyor Indonesia, 2019).

The ATR / BPN database shows that, by December 2020, the number of Licensed Cadastre Surveyors (SKB) are 14,816 consisting of 2,614 Cadastral Surveyors and 12,202 Assistant Cadastral Surveyors. There are also 187 Cadastre Licensed Surveyor Service Offices (KJSKB) spread across Indonesia. However, less than 10% of SKB have competency certificates. This is unfortunate, because they have been granted license ATR / BPN, but their competence are not well measured. Moreover, 131 out of 187 KJSKB apparently had no working experience. There is a concern that the KJSKB operation will close if the work / project requires project experience. In addition, the competency standards of KJSKB that are working on ATR/BPN's projects also still need to be improved (Ratrianto, 2020)

The quality of the cadastral survey carried out by the SKB requires three abilities namely knowledge, skills and attitude. This is relevant to the formal competency standard, which are stipulated by the Minister of Manpower of the Republic of Indonesia Number 295 of 2019 concerning the Determination of Indonesian National Work Competency Standards (KKNI). The Covid-19 pandemic presents an obstacle as well as an opportunity for increasing the capacity of the SKB, which will be carried out by the Human Resources Development Center (PPSDM) of ATR / BPN. PPSDM has designed and developed the KKNI training curriculum using the blended learning method (a combination of e-learning and face-to-face / distance learning). The advantage of this method is that trainees can take part in the training without leaving their jobs. The training time is flexible but still scheduled and saves budget. The KKNI training using the blended learning method is expected to improve SKB competence to support the national land strategic program.

This paper aims to analyze the role of the Human Resources Development Center (PPSDM) of the Ministry of ATR / BPN in improving SKB's competency standards by applying the blended learning method.

## 2. METHODS

This paper analyzes the result of Focus Group Discussion (FGD) between the Center for Human Resources Development of the Ministry of ATR / BPN (PPSDM) and the Directorate General of Land and Spatial Survey and Mapping, Directorate General of Rights Determination and Land Registration, Data and Information Center, Indonesian Surveyor Association (ISI), and Indonesian Cadastral Expert Society (MASKI).

The FGDs were conducted to compile program books, material books and assessment books for the KKNi Cadastral Surveyors and Assistant Cadastral Surveyors using the blended learning method in the 2020 and 2021 fiscal years. The FGDs were divided into 5 groups discussing training levels consisting of: KKNi qualification level 2 / First grade ASK, KKNi qualification level 3 / Young grade ASK, KKNi qualification level 4 / intermediate ASK, KKNi qualification level 6 / Young grade SK and KKNi qualification level 7 / Intermediate SK.

## 3. LISENCE CADASTRAL SURVEYOR COMPETENCY

### 3.1. Indonesian National Work Competency Standard (SKKNI) Cadaster

SKKNI (Indonesian National Work Competency Standards) is a formulation of work ability that includes aspects of knowledge, skills and attitude that are relevant to the implementation of tasks, and job requirements in accordance with applicable laws and regulations. The Cadastral Surveyor's competency is proven by a competency certification, namely the SKKNI Cadastral.

The SKKNI is used as a basis and reference in management and development of competency-based cadastral human resources, including:

#### a. Competency-Based Training Cadastral Development (PBK-BK)

Cadastral Competency Base Training (CBT) is training that has objectives, qualifications, content, processes as well as assessment and recognition that refers to the SKKNI Cadastral. In this case, SKKNI Cadastral is used to formulate training programs that include curriculum and syllabus preparation, preparation of training modules, determination of training methods, criteria and assessment materials, and other similar uses.

#### b. Cadastral Competency Certification Development

Cadastral Competency Certification refers to the SKKNI in a systematic, objective, accountable, measurable and traceable manner to ensure SKB has competency according to its level. The SKKNI Cadastral is a reference for competency assessment materials, competency assessment methods, determining passing criteria for competency assessments and determining cadastral competency certification schemes.

In general, the competency required for land registration (cadastral) consists of three interrelated and inseparable aspects namely technical aspect, juridical aspect and administration aspect as shown in Figure 1 bellow.

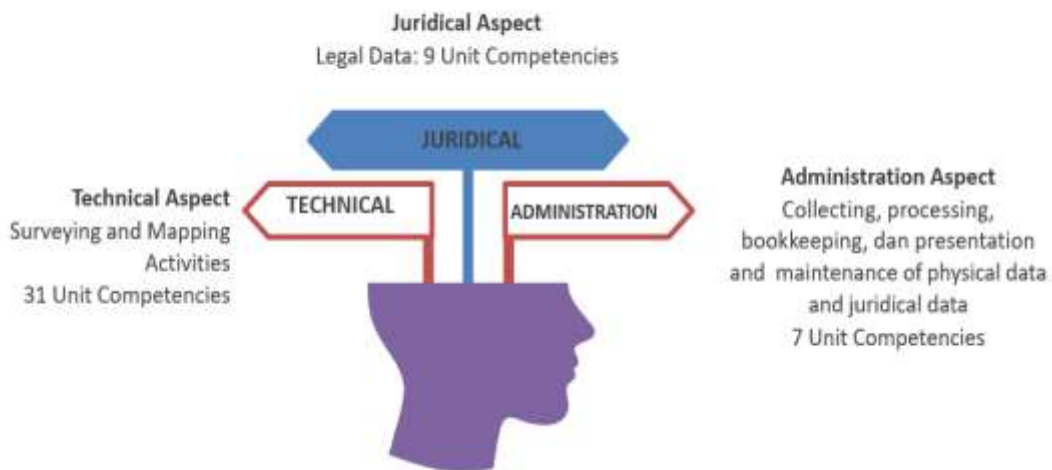


Figure 1. Unit competencies in SKKNI Cadaster (Adopted from Kementerian Tenaga Kerja, 2019)

### 3.2. Indonesian National Qualification Framework (KKNI) Cadaster

The Indonesian National Qualification Framework (KKNI) Cadastral consist of five levels as shown in Figure 2. The levels including Assistant Cadastral Surveyor First, Assistant Cadastral Surveyor Junior, Assistant Cadastral Surveyor Intermediate, Junior Surveyor Cadastral and Intermediate Cadastral Surveyor (ATR/BPN, 2020). The KKNI Cadastral Survey requires competency certification so that licensed surveyors are competent, professional and highly competitive.

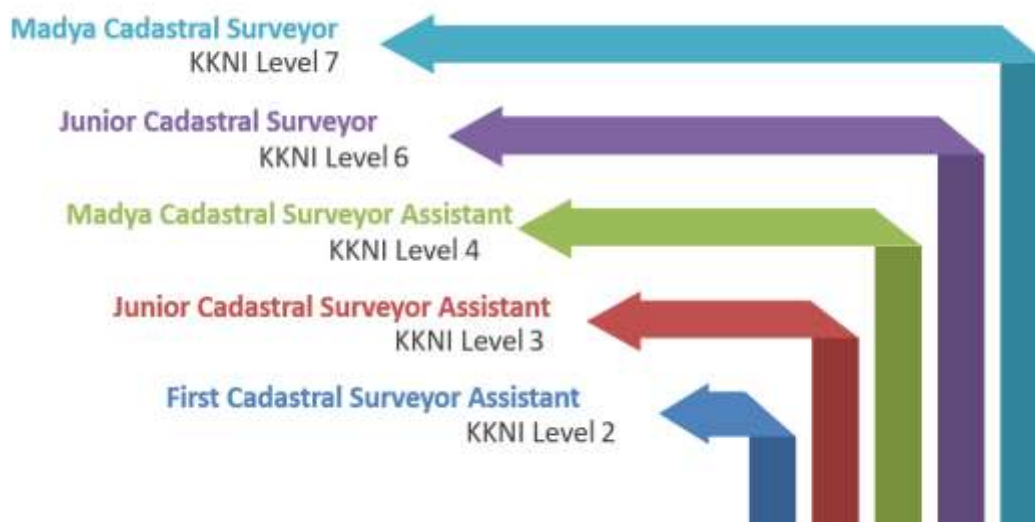


Figure 2. KKNI Cadaster (Adopted from ATR/BPN, 2020)



Figure 3. Training Program for First Assistant Cadastral Surveyor (Adopted from PPSDM, 2020)

The preparation of the blended learning training curriculum are divided into e-learning and on class / distance learning. An example of the curriculum can be seen in table 2 bellow.

Table 2. Training curriculum for first Cadastre Surveyor Assistant/ KKNi Level 2.

No	Training materials	Unit code	E-Learning duration (hour)	On Class/ Disaance Learning (hour)
<b>I. Competency units group</b>				
1.1	Identify parcel boundary	M.71KDT00.003.1	4	5
1.2	Make a stub path for the survey, and ensure the viewpoint can be seen in all directions	M.71IGN00.034.2	3	3
1.3	Arranging terrestrial survey target equipment	M.71IGN00.036.1	2	3
1.4	Implementing occupational safety, health and environment (K3L) at work sites	M.711000.001.01	2	3
1.5	Conduct survey location orientation	M.71IGN00.130.1	4	5
1.6	Make benchmark / hydro Pilar	M.71IGN00.051.2	4	3
	<b>Total I</b>		<b>21</b>	<b>22</b>
<b>II. Supporting group</b>				
2.1	Training policy overview	-		2
2.2	Building Learning Commitment		2	
2.3	MTSL speech			3

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No	Training materials	Unit code	E-Learning duration (hour)	On Class/ Disaance Learning (hour)
	2.4 Competency test			3
	<b>Total II</b>	-	<b>2</b>	<b>8</b>
	<b>Total I s.d. II</b>	-	<b>22</b>	<b>30</b>

#### 4.2. Training Materials and Assessments of KKNI

As shown in Figure 4, PPSDM's training materials consist of information / theory, theoretical and practical questions as well as an assessment of the participants' work attitudes. It is compiled per competency unit (Kemnaker, 2020). The content of competency-based training material book can be seen on table 3 bellow.

Table 3. Competency-based training material book.

No	Training materials	Description
1.	Preface	The introduction contains the background for the preparation of competency-based training materials
2.	List of icons	The list of icons contains collection of images that represent the form of an assignment in the context of implementing the competency unit
3.	Reference Reading	It contains sources of information that need to be known and read
4.	Introduction to Theory	It contains information and knowledge related to training material
5.	Work Step	It contains the sequence of activities in carrying out the competency unit
6.	Implementation of Competency Units	It contains activities that will be carried out in each competency element and is tailored to the needs of training materials.

The level of mastery of the training participants can be seen in the assessment book which consists of:

1. Assessment Guide: a brief description of the achievements in the competency unit
2. Theory assessment: Essay, multiple choice or matchmaking
3. Practice Assessment
  - a. Demonstration Instructions  
It is a mechanism of delivering material by demonstrating work / practical process
  - b. Interview Guide  
It is a selection of questions from the training material to ensure mastery of competency units
4. Work behavior monitoring form: It is a check list of indicators of participant's attitudes during training



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Figure 4. Modul and Asesmen First Cadastral Surveyor Assistant (Adopted from PPSDM, 2021)

### 4.3. Blended Learning Method

The e-learning method is an online learning model using electronic-based learning media. Learning media are provided in interactive visuals that can be accessed by trainees anytime and anywhere (Kusmana, 2011). Conventional / face-to-face training methods cannot be completely replaced by e-learning methods because scientific applications are indicators of learning outcomes. The training requires activities in the classroom to achieve competence, especially the skills aspect. To achieve the expected competency standards, it is necessary to combine conventional methods (where training participants can interact directly with the teacher) and e-learning methods to deliver learning materials, which is called the blended learning method (iNACOL 2015). Blended learning, in general, is a learning method that combines classical (face-to-face) methods with learning methods that use online media (e-learning). Blended learning practices will facilitate both 'same-time different-place' and 'different-time different-place' types of interactions (Aditya, 2020).

The definition of blended learning, in general, is a learning method that combines classical (face-to-face) methods with learning methods that use online media (e-learning). University of Western Sydney (2013) defines blended learning as follows: “Blended learning refers to a strategic and systematic approach to combining times and modes of learning, integrating the best aspects of face-to-face and online interactions for each discipline, using appropriate ICTs”. While blended learning according to iNACOL, “blended learning also referred to as hybrid learning, combines the best features of traditional schooling with the advantages of online learning to deliver personalized, differentiated instruction across a group of learners”.

Thorne (2003) highlighted that blended learning is a combination of multimedia technology, CD-ROM, video streaming, virtual classes, voice mail, email and teleconferencing. Oliver and Trigwell (2005) defines blended learning as a combination of web-based technologies to achieve learning goals; a combination of various pedagogical approaches, outputs with or without technology teaching; a combination of technological learning and face-to-face learning; a combination of teaching technology with assignments. Vernadakis, et al. (2012) argue that blended learning learning model is a method capable of creating a participant-centered learning process.



Whitelock and Jelfs (2003) provides three definitions of blended learning, namely an integrated combination of traditional learning with web-based online learning; a combination of media and tools in an e-learning lesson; and a combination of several pedagogical approaches. Kerres and De Witt (2003) defines blended learning as a combination of several different learning methods. Singh (2003) concluded that the definition expressed by Whitelock and Jelfs above is the most commonly used interpretation.

The implementation of learning with the blended learning method depend on five keys to success, namely live event, self-paced learning, collaboration, assessment and performance support materials Carman (2005).

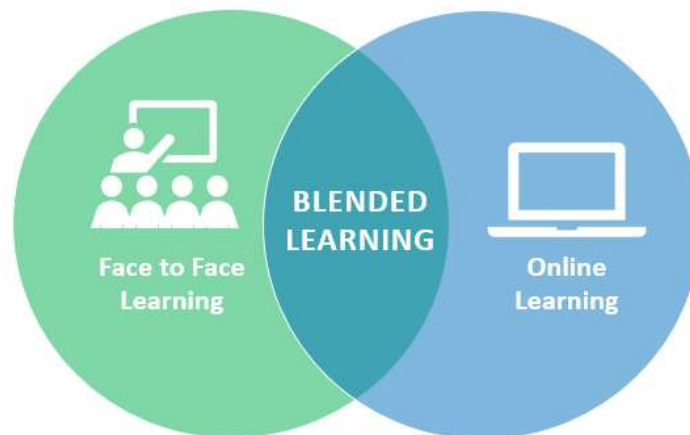
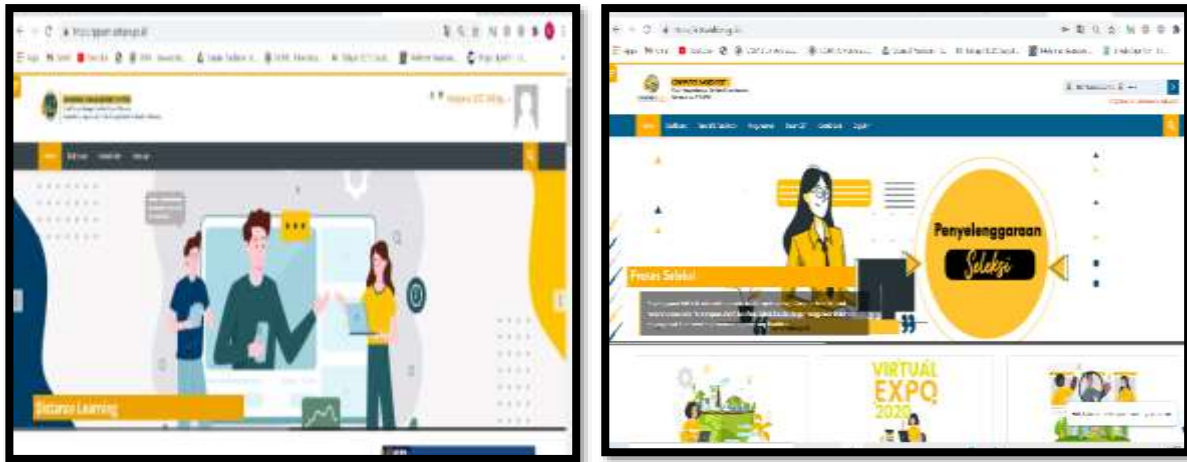


Figure 5. Blended Learning Method

(Adopted from <https://stikeshamzar.ac.id/blended-learning-as-a-learning-method-in-pandemic-covid-era/>)

KKNI training for licensed surveyors using blended learning is a combination of e-learning and face-to-face / on-class / distance learning. The e-learning method uses the Learning Management System (LMS) platform at the address <https://ppsdm.atrbpn.go.id>. PPSDM uses the platform to present training programs according to the implementation guidelines, containing program designs and training curricula. In the implementation of e-learning, online meeting sessions are carried out using zoom application. Face-to-face learning / on class / distance learning is carried out by meeting sessions using the zoom application or participants can come directly at the training location. PPSDM carries out a competency test using the Computer Based Test platform at the address <https://cbt.atrbpn.go.id/> as shown in Figure 5 below.



a

b

Figure 6. Platform (a) Learning Management System ( b ) platform Computer Based Test (Adopted from PPSDM, 2021)

PPSDM argue that the learning strategy using blended learning is able to answer the challenges caused by the Covid-19 Pandemic. Restrictions on face-to-face meetings are replaced by e-learning with a focus on increasing human resource capacity. Blended learning for SK and ASK were not hampered by the Covid-19 pandemic (there are rules for large-scale social restrictions) because it can be implemented through work from home mechanism. Participants can focus more on their learning given the time available is more flexible. Even the implementation of exams can be carried out at the homes of each training participant.

## 5. DISCUSSION AND CONCLUSION

The Ministry of Agrarian Affairs and Spatial Planning / National Land Agency is implementing national land strategic programs, one of which is Complete Systematic Land Registration (PTSL). PTSL aims to provide legal certainty for land parcels throughout Indonesia, with a target of 125 million registered land parcels by 2025. To achieve this target,  $\pm 18,500$  cadastral surveyors are needed, both ASN (State Civil Service) and non-ASN (Licensed Surveyor). However, it is realized by all parties that there are still many things to be done, mainly the competency standards of licensed surveyors who must be competent and certified.

In order to develop the competence and professionalism of licensed surveyors, it is necessary to have the Indonesian Cadastral National Work Competency Standards. This competency standard is the basis for competency-based human resource management and development system. The work competency standard is a formulation / description of three main things related to the work ability of a licensed surveyor as follows:

1. What a licensed surveyor should do in the workplace in accordance with the job duties and working conditions and environment;

2. The extent to which the expected performance of the licensed surveyor is in accordance with the job duties and working conditions and environment as referred to in point 1;
3. How do you know / measure that in carrying out the work as referred to in point 1, the licensed surveyor has or has not been able to carry out the expected performance as referred to in point 2.

Training using the blended learning method is part of the digital transformation of Center for Human Resources Development (PPSDM) of the Ministry of ATR / BPN in the industrial era 4.0. The Blended Learning method combines classical (face-to-face) methods with learning methods that use online media (e learning). The blended learning method does not replace conventional learning models in the classroom, but strengthens the learning model through the development of educational technology. The Blended Learning method is one of the PPSDM's strategies to increase the competency of Licensed Surveyors' human resources to support national land strategic programs.

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