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# **The vocational education governance at service college in the 4.0 industrial revolution era for preparing prime human resources for land transportation**

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**Abstract**--This article provides the results of an in-depth investigation on how the vocational education institution, Service College, under the supervision of the Transportation Ministry carries out the graduates' roles optimally and to realize the well-prepared graduates for work. This research describes vocational education to answer the high demands. The researchers applied the qualitative method with descriptive statistical data analysis. The researchers expected to reveal the portrayal of vocational service college educational governance in the Transportation Ministry. This research answers two questions: the actual conditions of current vocational education and strategies to improve the vocational education quality, especially to keep up with the 4.0 industrial revolution development and technological advancement. The researchers found some improvable elements, such as vocational lecturers' competencies, collaboration, and synergy, vocational education revitalization with

teaching factories, re-branding by directly getting involved in industries, benchmarking to the better and advanced education institution, curriculum adjustment, procurement of special institution to improve the career levels and lecturer ranks, and output quality based on budget instead of *Tri Dharma* achievement. Thus, the governance to nurture educating and training at Land Transportation Polytechnic, Poltrada, Bali could achieve the government program, to create a strong Land Transportation sector by preparing professional and ethical human resources.

**Keywords**---Service College, Vocational Education, 4.0 Industrial Revolution, Prime Human Resource.

## Introduction

Based on the Law of Republic Indonesia, Number 20 the Year 2003 about the National Education system, Indonesia has some terms related to education, starting from the educational path, educational level, educational type, and educational unit. The educational path refers to the modes chosen by learners to develop their potencies within an educational process based on the educational objectives. Educational level refers to the applied steps based on the learners' developments, the targeted objectives, and the developed skills. The educational type refers to groups based on the specialty of educational objectives in an educational unit. The types are general, vocational, academic, professional, religious, and specific education. Then, the educational units refer to educational service groups that promote formal, non-formal, and in-formal education for each educational level and type.

Based on the Law of Republic Indonesia, Number 12 the Year 2012 about higher education explains that higher education is an educational level after the high school level higher education levels cover undergraduate programs, master's programs, doctoral programs, professional programs, and specialist programs promoted by higher education based on the culture of Indonesia. Higher education is based on scientific truth, reasoning, honesty, justice, benefit, goodness, responsibility, diversity, and affordability. The science and technology groups on higher educational levels are arranged systematically. They consist of religion, humanity, social, science, formal science, and applied science. Based on the law, the higher educational types consist of academic, vocational, and professional education.

The government, as the traffic and public transportation organizer, must ensure the human resource for this field can answer the needs and have both excellent quality and quantity. The efforts to prepare human resources within the Transportation field must be in line with the Government Regulation Number 51 the Year 2012 about Human Resources for the transportation field, starting from the planning stage and the education stage. Based on the Nawacita program, the eighth item, "Promoting the National Character Revolution via National Education Curriculum Rearrangement," aims to realize reliable and capable

human resources for transportation to encounter fast technological advancement. Thus, the HR Development Agency of transportation prepares competent human resources by providing curriculum, education, training, and workshop based on the sector's needs. The needs include land, oceanic, and aerial transportation, including railroad transportation. The service college under Transportation Ministry's supervision attempts to answer the challenges. The college provides an educational concept that emphasizes more practices rather than conceptual-lecturing learning. This education prioritizes applied science over the academic side, known as vocational education.

Vocational education refers to a higher education program with a diploma degree. This education prepares the students to work with the given applied skills, including for undergraduate, master, or doctorate levels of education. The vocational service college under the supervision of the Transportation Ministry has been developing quickly for the last three years. The college has received a significantly increased number of admissions from 2018 until 2020 (SIPENCATAR, 2020).

This situation occurs because the government focuses on developing competent human resources for the transportation sector. This strategy becomes the main key to developing the economy. This reality also reforms the old perception of vocational education. Many people, before a new era of education, thought that vocational education students were dominated by those who failed in public education. However, the perception changed in 2013. At that time, 1.9 million student admissions competed to enroll in vocational education institutions. This phenomenon indicated the increased preference of the community toward vocational education. They expected by enrolling in vocational service college, they would get jobs due to their skills and specific skills needed by the working worlds, both the government and private sectors. Thus, the vocational service college must keep up with the development of industrial and business words.

The 4.0 education, training, and learning are mostly used by theoretical experts to describe the efforts to integrate cyber technology physically and non-physically in the educational, training, and learning world. This effort is a milestone for education. Jeff Borden explains that 3.0 education, training, and learning only covers neurological, cognitive-psychological, and technological education aspects with digital technology and web-based mobile applications. The applications may include both software, hardware, and many things in the future. For example, the e-learning for 4.0 education, training, and learning goes far beyond some elements. This superiority answers the needs of the 4.0 industrial revolution in which humans and machines are harmonized to get solutions, solve problems, and invent. The fourth industrial revolution was announced by Davos (2016) as the new-world-related element. This world has been lasting for almost one decade. The term gains broader publications since the German Counselor, Angela Merkel, launched the 4.0 industrial era in 2011 at Hanover Fair. This matter made Germany more competitive.

The background of the research was the thought about the vocational education governance at service colleges under Transportation Ministry's supervision. This

education should have put and taken the roles during this 4.0 industrial revolution era. Thus, vocational education can contribute to realizing excellent human resources for the land transportation sector. This research examined the readiness of vocational education readiness at the service college under the supervision of the Transportation Ministry. Thus, the education could ensure the graduates work as Civil Apparatus with adequate competence as expected by the government and business and industrial world.

### **Problem Formulation**

From the explanation, the research formulated the problems into: (1) how is the real condition of vocational education of the service college under the supervision of the Transportation Ministry, especially for the land transportation dimension? And (2) what steps to improve the quality of vocational education in encountering the technological advancement of the 4.0 industrial revolution?

### **Objectives and Uses of the Research**

This research describes the vocational education in-service knowledge under the supervision of the Transportation Ministry, especially the land transportation dimension. Then, the researchers expect the results contribute to improving the quality of vocational education governance. Specifically, vocational education should improve to encounter the technological advancement in the 4.0 industrial revolution era. Thus, it needs relevant studies as the guidelines. The uses of this research are: to enrich the literature works about vocational education governance or to support the previous studies. Thus, the findings will apply to service colleges under the supervision of the Transportation Ministry.

### **Research Methodology**

The researchers applied the qualitative method with descriptive statistical data analysis. The researchers are the main instruments because the research emphasizes scientific matters. The statistic data analysis describes the investigated objects via sample data or population without analyzing and drawing conclusions (Sugiyono, 2009).

Thus, this research belongs to exploratory descriptive research. This research emphasizes describing a phenomenon or an event. Thus, descriptive research takes or focuses on the actual problem (Sudjana, 2004). The researchers expected to reveal the portrayal of vocational service college educational governance in the Transportation Ministry.

## Results and Discussion

### The Current Situation of Vocational Service College of Transportation Ministry

The Transportation Human Resource Development agency, originally named Education and Training agency, was the executives of the education and training division of the Transportation sector as instructed by the Ministerial Decree of Republic Indonesia's Transportation Ministry Number KM.91/OT.002/PHB-80 April 22, 1980. The vision of the THRDA is to realize prime, professional, and ethical human resources to promote reliable transportation purposes with a zero-accident orientation.

Based on the organizational structure of THRDA of transportation, there are three dimensions and three chiefs of development centers under the commands of the THRDA of transportation. Each dimension has certain tasks and functions to develop vocational education based the dimensions. Figure 1 shows the organizational structure of THRDA of transportation.

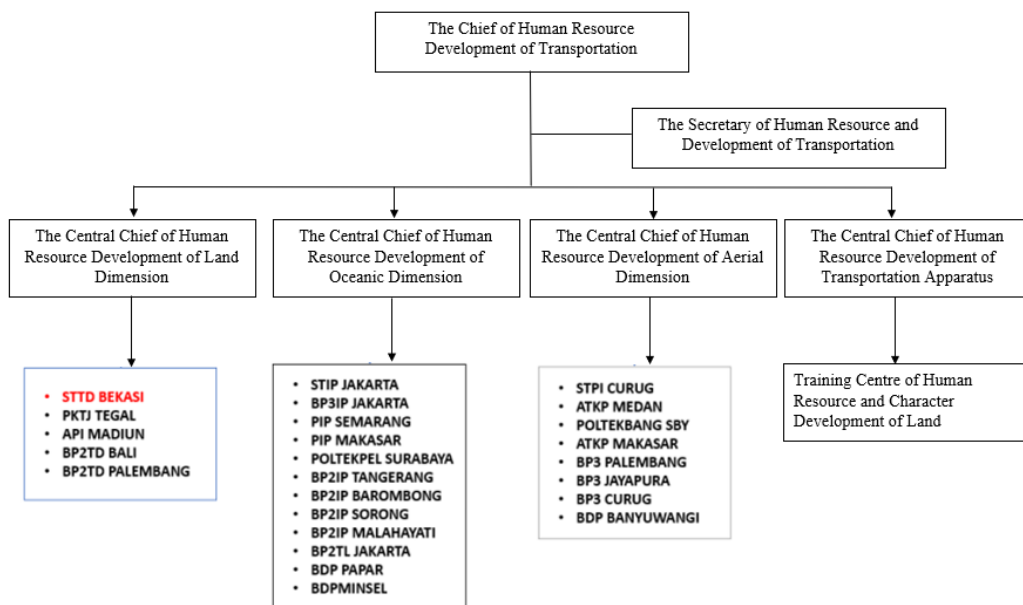


Figure 1: The Organizational Structure of Transportation THRDA  
Source: Transportation Ministry

The training division's jobs include preparing the coordinating program and training budget, devising a plan of human resource requirements for the training, composing cooperation, formulating curriculum, formulating syllabus, creating training manual, empowering the development program, promoting training for the educators, certifying, checking the standard, promoting the accreditation, and recommending the establishment of training, monitoring, analyzing, evaluating, and reporting institutions to promote training. The Technical Executive Unit carries out the education and training within the scope of the Human Resource

Development Center of Land Transportation. Figure 2 explains the Technical Executive Unit.



Figure 2: The Distribution of Technical Executive Units of Land Dimension  
Source: The Human Resource Development of Land Transportation Data, 2019

The Technical Executive Unit carries out the education and training within the scope of the Human Resource Development Center of Land Transportation. Table 1 explains the Technical Executive Unit.

Table 1  
Name of TEU, THRDA, and Accreditation

Number	Names of Higher Education	Accreditation and Study Program
1	PTDI-STTD Bekasi	
	a. The Bachelor of Applied Land Transportation	A
	b. Diploma III of Traffic and Road Transport	A
	c. Diploma III of Railroad Transportation	A
	d. Diploma III of Lake, River, and Ferriage Traffics	A
	e. Diploma III of Motorized Vehicle Test	A
2	Polytechnic Of Road Transportation Safety, Tegal	B
	a. Diploma IV of Road Transportation Safety Management	B
	b. Diploma IV of Automotive Safety Engineering	B
	c. Diploma III of Motorized Vehicle Test	B
3	Polytechnic of Lake, River, and Ferriage Transportations, Palembang	
	a. Diploma III of Nautical Technology	B

Number	Names of Higher Education	Accreditation and Study Program
	b. Diploma III of Nautical Study	B
	c. Diploma III of Port Management	B
4	Indonesian Railway Polytechnic	
	a. Diploma III of Railway Electro Engineering	B
	b. Diploma III of Railroad Transportation Management	B
	c. Diploma III of Building Engineering and Railway Tracks	B
	d. Diploma III of Railway Mechanics Engineering	B
5	Poltrada Bali, Land Transportation Polytechnic, Bali	
	a. Diploma III of Logistic Management	Minimum
	b. Diploma III of Road Transportation Management	Minimum
	c. <i>Diploma III of Automotive Technology</i>	<i>Minimum</i>

Source: Final Report of Grand Design THRDA, 2020

### **The Facilities and infrastructures of the vocational education of transportation ministry**

The education, training, practice, and laboratory facilities and infrastructures of the Technical Executive Unit refer to supporting modes in a process of improving the academic quality. The availability of facilities and infrastructure does not only deal with quantity but also quality. The quantity includes each unit's needs, starting from the Technical Executive Unit and all study programs. The quality includes the feasibility of the infrastructures and facilities continuously and sustainably.

Table 2

The condition of facilities and infrastructures of the TEU under the supervision of THRDA

The conditions of existing facilities and infrastructures				
The Polytechnic of Indonesia Land Transport (PTDI-STDD)	Polytechnic of Road Transportation Safety, Tegal	Poltrada Bali, Land Transportation Polytechnic, Bali	Indonesian Railway Polytechnic, Madiun	Polytechnic of Lake, River, and Ferriage Transportations, Palembang
<ul style="list-style-type: none"> <li>The polytechnic of Indonesia Land Transportation, Bekasi, has dormitories for the students.</li> </ul>	<ul style="list-style-type: none"> <li>The facilities and infrastructures of Polytechnic of Road Transportation</li> </ul>	<ul style="list-style-type: none"> <li>Poltrada, Bali, is located in Bali. The service college has two campuses in Gianyar and</li> </ul>	<ul style="list-style-type: none"> <li>The dormitories and classrooms were adequate for the students. However, the dormitories and classrooms were</li> </ul>	<ul style="list-style-type: none"> <li>The facilities and infrastructures of Railway Polytechnic, SDP, included an office,</li> </ul>

<p>However, the availability of the rooms is not equal to the number of students. Thus, some students are moved to Poltrada, Bali, and Mempawah Land Transport Training Center.</p> <ul style="list-style-type: none"> <li>• PTDI-STTD currently has a laboratory that needs to be improved based on the railway, transportation, and mass transportation technologies.</li> <li>• PTDI-STTD was planned to be the center of technology and information in 2014.</li> </ul>	<p>Safety, Tegal included campus one and campus two.</p> <ul style="list-style-type: none"> <li>• The numbers of the dormitories met the capacity of 840 cadets.</li> <li>• The service college had three laboratories: road transportation safety management, automotive engineering, and motorized vehicle test laboratories.</li> <li>• Unfortunately, the laboratories of this service college are still far behind the objective of 2023. The service college expects to have excellent laboratory facilities.</li> <li>• Road safety includes the use of software and camera to detect buses, trucks, and pedestrians. In this case, the college could use GPU that works with Google.</li> </ul>	<p>Tabanan.</p> <ul style="list-style-type: none"> <li>• Initially, the Gianyar campus was for engineering training while the Tabanan campus was for nursing purposes.</li> <li>• The campus in Tababan was built and ready to use in 2021.</li> <li>• Each campus has the same facilities and infrastructures for the cadets, such as office, classroom, laboratory, workshop, dormitory (360 people), barrack, and health unit buildings.</li> <li>• Currently, Poltrada Bali, Land Transportation Polytechnic, Bali, is developing Digitalized Academic Information System, <i>SIKAD</i>, by cooperating with a software developer in Surabaya. All data related to Poltrada Bali, Land Transportation</li> </ul>	<p>still under construction. The college also needs a high budget to prepare the practical facilities and infrastructures.</p> <ul style="list-style-type: none"> <li>• The Indonesian Railway Polytechnic, Madiun had two newly constructed dormitories. The classrooms were still adequate for the students. However, the college would need more classrooms if the college planned to develop undergraduate and postgraduate programs.</li> <li>• The college expected new technology facilities and infrastructures, for example, the fast trains. Technology is useful to make learning easier. The college had a simulator of conventional and inspection trains, and two simulators, Loco CC303 and KRD.</li> <li>• The college is expected to have facilities and infrastructures</li> </ul>	<p>classroom, laboratory, sports center, health, dormitory, barrack, and simulation buildings.</p> <ul style="list-style-type: none"> <li>• The availability of the facilities adequately supported the teaching-learning process of the cadets.</li> <li>• The laboratories included nautical, ship engine, ship electricity, language, ship simulator, physics laboratory, and chemical laboratory buildings.</li> <li>• The tools for simulations were relevant to the real tools.</li> <li>• The college had one training boat and port simulation.</li> <li>• The most observable facility was the landmark that could be developed into buildings. The landmark area is 200.000m<sup>2</sup>. Thus, it could add more facilities and infrastructures.</li> </ul>
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		Polytechnic, and Bali, are combined in the software.	to facilitate the cadets. The college promoted a field study once a month by visiting MRT> The college also used up-to-date railway simulators. • The developed e-learning system could not smoothly realize the e-learning.	
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Source: Final Report of Grand Design THRDA, 2020

### **The Current Human Resource of Vocational Service College of Transportation Ministry**

Human resources at the service colleges are mostly categorized into 2: educators and academic staff. The existing condition of July 31, 2021, showed that the lecturers at Land Transportation Ministry were 199 lecturers from five service colleges. They were at Polytechnic Of Road Transportation Safety, Tegal (31 lecturers); Poltrada Bali, Land Transportation Polytechnic, Bali (34 lecturers); Polytechnic of the river, lake, and ferriage (22 lecturers); Indonesian Railway Polytechnic, Madiun (47 lecturers); and The Bachelor of Applied Land Transportation, Bekasi (65 lecturers).

The characteristics of the lecturers from land transportation colleges were mostly graduated from master programs. They were dominated by educators, experts, and assistant professors. The performance of *PPM* and R&D had not been optimum since most people in the divisions graduated from the applied approach and were certified, lecturers. These lecturers, from the land dimension, also encountered problems, starting from:

1. the assessment process to level up their functionals - although this matter does not exist in the regulation of the Ministry of Education and Culture;
2. the absence of a screening process for lecturers' jobs and administrations;
3. the absence of divisions to promote Tri Dharma, especially for researchers;
4. the absence of a clear lecturer career dealing with the development and specialization of the lecturers;
5. the absence of foreign language mastery and information technology mastery;
6. and low research and community service budgets.

Thus, the THRDA had some solutions:

1. arranging regulation to enhance the lecturers' positions so they can promote their Tri Dharma without being interrupted by other activities;
2. determining the lecturers' numbers based on the disciplines to reach equal workloads;
3. determining the educational staff and administrative staff to distribute the workloads equally instead of being carried out by lecturers;
4. and Increasing the research budget to realize excellent research quality.
5. The service colleges need to have excellent coordination with the Directorate-General of Higher Vocational Education related to the academic position level up based on the vocational education principles.

The immediate changes in technology are observable from the 4.0 industrial revolution. This revolution provides new challenges for Higher Education in the Land Dimension of the Transportation Ministry (Benry Kurnianto: the Higher Education Dynamics of Aviation to Respond 4.0 Industry). Besides that, the THRA designed a new strategy called educational transformation due to the COVID-19 pandemic, high expectations; industrial demands especially transportation and logistics; and national transportation problems. The transformation is observable in three phases: Phase I (Taxi Area), Phase II (Runway); and Phase III (Take Off).

Phase I refers to solving problems by empowering the human resource, institution, academic, and information system. The applied programs to realize these efforts are training programs cooperated with the business and industrial world, English language empowerment, higher education accreditation, curriculum and syllabus revision based on the industrial needs, competence-based facility and infrastructure support, information system establishment, campus academic system activation, e-learning, online journal provision, and official site and social media provision.

Then, the land dimension moves to Phase II, improving the vocational field. This phase includes institutional building, digital culture, and research culture. The programs to realize phase II are: developing an advanced study program, integrating the academic information system, blending the course with E-learning and face-to-face learning systems, developing the facility and infrastructure, and promoting research with applicable results for the community.

Phase III refers to a phase to compete at national and international levels. This phase is indicated by the focus of land service colleges on International networks, national recognition, and student exchange. In this step, the programs included: developing international cooperation, promoting active participation in international seminars and workshops; participating actively in the transportation environment; publishing the educational activities; exchanging students domestically and internationally, and having joint research with other higher educations.

### The vocational education system within transportation ministry

The educational system of vocational education, especially for the land dimension, is under the monitoring of THRDA via the Human Resource Development Center with the vocational education system. The vocational education tradition aims to prepare graduates with ready skills to work. Thus vocational education must include special training with reproductive skills based on the instructors' commands. The education must also focus on the industrial needs with relevant specific skills. The main motivation for education is future economic profit. Competence-based training is important for the vocational education model because this education prepares an expert workforce with higher skills and obeys the employers (Rojewksi, 2009). 21.

Vocational education has some characteristics to combine educational functions and training. Vocational education has opportunities to develop "a complete human" with adequate academic and theoretical principles, and competence to work based on the applied standard.

Vocational education must adopt the model and become the mode to develop human resources. Thus, the human will have competitive skills and masteries. This condition demands vocational education to continuously develop. Thus, it needs systematic efforts and policy supports at a national level. This support should be continued institutionally to develop vocational education in Indonesia.

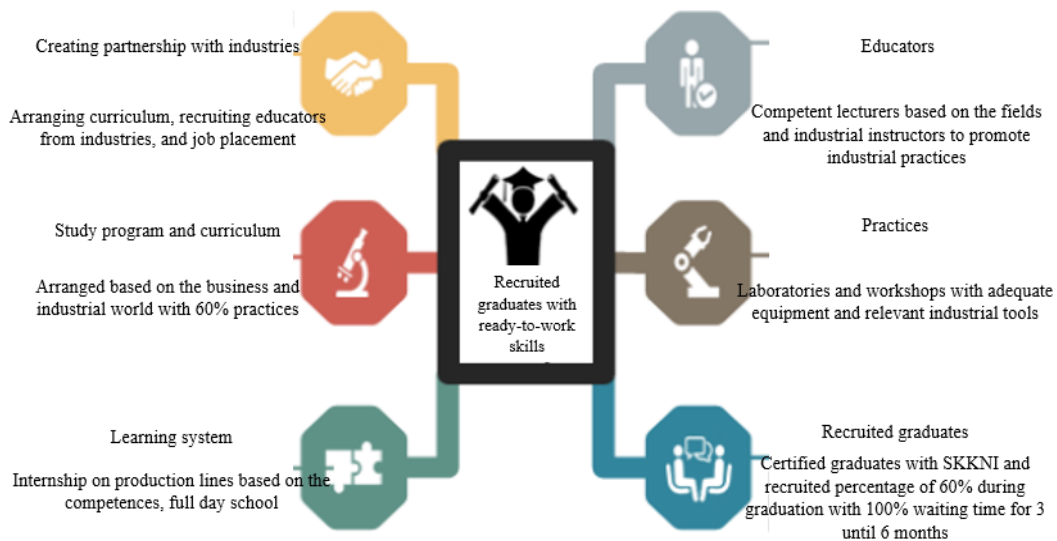


Figure 3. Link & Match of Vocational Education  
Source: Final Report of Grand Design THRDA, 2020

### The graduate employment from service college of transportation ministry

Based on the vision of The Human Resource Development Center, the added values to realize the national connectivity include competent and competitive

human resources. The mission of the Human Resource Development Center is to develop human resources within the land transportation and railway field.

The vision and main jobs require cooperation with other institutions and stakeholders that will use the graduates. The needs of the human resources for regulator and operator purposes, the recruitment of the service college graduates must continuously cooperate to meet the domestic human resource needs and to use International job opportunities. With the current technological development and the establishment of transportation, the government needs qualified and competent human resources to operate the facilities and infrastructures of transportation, especially land transportation. The high needs for human resources in this sector include regulators, educators, and operators in State-Owned Enterprises and private enterprises. These enterprises become the job market for the graduates.

The service college cooperated its education, research, and community service in the forms of practices, internship, education, and research on land transportation with various parties. The stakeholders of land transportation consisted of three categories: regulator, operator, and industry. The human resource for regulator category includes planner, constructor, facility examiner, infrastructure examiner, auditor, and safety inspector. The human resource for operator category includes management and facility and infrastructure inspectors. Table 3 shows the human resource needs in the land dimension.

Table 3  
Graduate recruitment based on the stakeholders

Central Regulator	Regional Regulator	Operator
Directorate-General of Land Transportation, THRDA, Directorate-General of Railway, Research & Development Agency of Transportation; Secretariat-General of Transportation, Inspectorate-General of Transportation, National Transportation Safety Committee, Agency for the Assessment and Application of Technology, Ministry of Public Works and Public Housing, Bina Marga, Army, Police, National Search and Rescue Agency, and BIG. Ministry of Agrarian and Spatial Planning, National Development Planning Agency,	Land Transportation Agency, Regional Development Planning Agency, and Ministry of Public Works and Public housing in Level-I Region, city government, and regency from all areas of Indonesia. The same thing also goes for Regional Authority,	Indonesia Railway, RAILINK , KCI , LRT JAKARTA , MRT JAKARTA , LRT, INKA , LEN , LRS , BRT, AKAP, AKDP, PERTAMINA , PPLI , PT. ASDP Indonesia Ferry , JEMLA, PELNI, POS Indonesia , DHL , FEDEX , JNE , TIKI , J&T , Cargo enterprises, Sinar Jaya Samudra , Kietrans Maiana Shipping, BKI , JASAMARGA + Subsidiary.
Industries		Association
WIKA, WASKITA, ADHI KARYA, BUKAKA, PP, Vehicle Manufacturing Company, Brand Holder, Vehicle Chasing, Consultant Cooperation, Survey Developer, INKA, LEN, LRS		APTRINDO, ALFI, and ALI

Source: The Human Resource Development of Land Transportation, 2019

The Human Resource Development Center of Land Transportation cooperates with some stakeholders of land transportation. The evidence is the *Memorandum of Understanding* between the Chiefs of the THRD and some stakeholders. From the survey of HRDC, the alumnae tracer program found most graduates work as in figure 4.

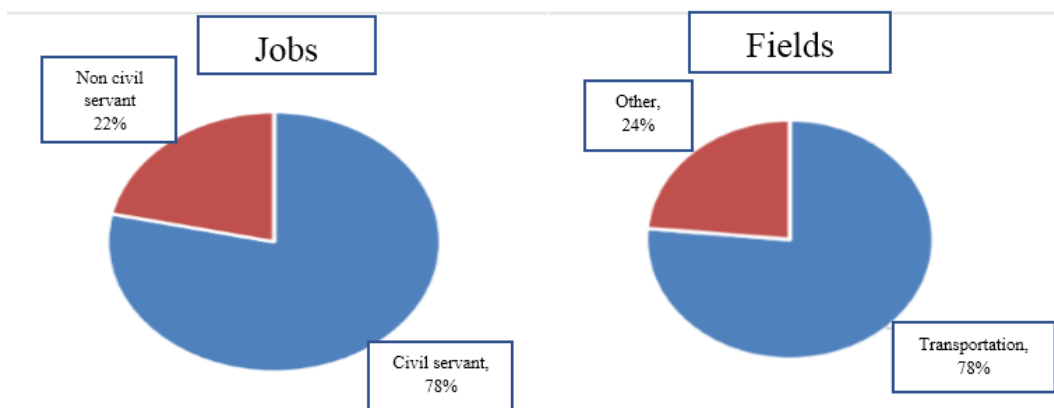


Figure 4: The job types and fields of the vocational service college graduates  
Source: The THRD

The figure shows the percentage of the graduates' jobs is 78% of the total alumnae that responded to the tracer form worked as a civil servant, both in central and regional government. A percentage of 22% of alumnae worked in private corporations, State-Owned Enterprises, Regional-Owned Enterprises, and education. From the figure, the alumnae distribution is mostly found working as a civil servants.

According to the vocational college graduate division of the Transportation Ministry, a percentage of 76% of graduates join jobs with a direct relationship to transportation operations. A percentage of 24% join the jobs with an indirect relationship to transportation operation, such as lecturers, researchers, consultants, and managers.

The indicators, graduate quality, and graduate recruitment are important to check the graduate quality that works at Technical Executive Units. They are dominated by nurturing programs to be civil servants at central and regional levels. This finding shows that the operator human resource recruitments require more human resources since most cadets are prepared to be civil servants. The Technical Executive Unit is concerned with a higher frequency of non-partnership recruitment will interrupt the recruited graduate rate. Moreover, the needs of private and multinational operators have higher opportunities for transportation graduates. Thus, it needs further studies about human resource needs by stakeholders, especially for private operators at national and international levels.

### **The strategies to improve human resources of vocational service college of transportation ministry**

The SWOT analysis is effective to determine the accurate strategy for improving education performance, both for vocational and non-vocational education. Table 4 contains the SWOT analysis results.

Table 4  
The SWOT Analysis of Higher Education Performance Improvement

<p><b><u>Strength</u></b></p> <ol style="list-style-type: none"> <li>1. Having human resources to support the educational promotion and training</li> <li>2. Having 5 polytechnics and 1 training center around Indonesia</li> <li>3. Having accredited study programs at the polytechnics</li> <li>4. Nurturing programs at polytechnics</li> <li>5. Having Technical Executive Units with BLU status and ISO standard service, and having 5 LPS1</li> <li>6. Having financial resources and budget from the state budget</li> <li>7. Being the working unit of human resource development of land transportation and railway</li> </ol>	<p><b><u>Weakness</u></b></p> <ol style="list-style-type: none"> <li>1. Lack of qualified human resources in educational, training, and managerial fields</li> <li>2. Lack of authorities to supervise the training promotions at the Technical Executive Unit due to no-commanding chain in SOTK or structure of organizational work</li> <li>3. Poorly integrated information system in all Technical Executive Units</li> <li>4. Limited training and education budget</li> <li>5. Traditional educational management and training</li> <li>6. Budget-based output</li> <li>7. Lack of lecturers with a doctorate</li> <li>8. Not all higher education, training centers, and competence test places are accredited</li> <li>9. No specific unit handling the training at the polytechnics</li> <li>10. Lack of technical lecturers while teaching technical training</li> <li>11. Lack of Curriculum Link &amp; Match</li> <li>12. Lack of national and international cooperation networks</li> </ol>
<p><b><u>Opportunity</u></b></p> <ol style="list-style-type: none"> <li>1. Vision, mission, and the President's mandate related to human resource development, especially vocational education</li> <li>2. The developments of land transportation and railway</li> <li>3. The human resource needs for land transportation and railway</li> <li>4. Presidential policy program related to human resource development via vocational education</li> <li>5. Demography bonus with higher increased population, 1.31%, causing higher annual land</li> </ol>	<p><b><u>Threats</u></b></p> <ol style="list-style-type: none"> <li>1. The 4.0 industrial revolution with technological disruption and automation</li> <li>2. High competence standards demands</li> <li>3. Non-government stakeholders with an autonomous human resource development unit</li> <li>4. A free market of commodities and human resources from overseas</li> <li>5. Not all job titles, such as operators and regulators, recommend a competence certificate</li> </ol>

<p>transportation</p> <ol style="list-style-type: none"> <li>6. Collaboration with government and non-government organizations</li> <li>7. Competence regulation for job titles for land transportation and railway</li> <li>8. Competence gaps in the job titles, related to competence certificate mandatory</li> <li>9. Not all people have opportunities to improve their competencies based on their field of expertise</li> <li>10. The human resource needs for transportation in IKN, New Capital, and other national projects</li> <li>11. Infrastructure development in transportation is attached to a moderate-term development plan, strategic plan, and RITN.</li> <li>12. Omnibuslaw of Employment Creations</li> </ol>	
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Based on the analysis, the researchers arranged some strategies to improve the service college of land transportation by keeping the strength, minimizing the weaknesses, being careful to use the opportunities, and being brave to encounter the challenges - to realize better vocational service college of land dimension.

### **Conclusion**

From the explanation, the condition of the vocational service college of land transportation is excellent. However, there are some potential elements to develop. These elements are:

- a. the needs of qualified educators,
- b. the industrial based facility and infrastructure,
- c. the era-based curriculum development,
- d. the administrative problems found in lecturers' carers,
- e. and budget-based output instead of Tri Dharma based output

The service colleges must improve the educational governance at the higher vocational education level to encounter the 4.0 industrial revolution. Thus, the researchers recommend:

- a. Provide qualified educators by improving the competence of vocational lecturers continuously. The certificate of competence is important for the graduated cadets. The vocational service colleges must provide accurate and adequate competence for the cadets to work.



- b. The need for practice facilities and infrastructures to empower the synergy, collaboration, and educational revitalization of vocational education with teaching factories or applied procedures in Industry. Vocational service colleges must re-brand by promoting benchmarking with industries, collaborating, and signing the MoU with them or government institutions to support the cadets' competencies. The partnership or MoU must be in the practical field, on-the-job training, or graduate recruitment.
- c. The service colleges must review, update, and synchronize the curriculum and syllabus annually with the industrial world. The curriculum requires re-branding via direct studies on the human resource needs in the industries or the more advanced educational institutions both domestically and internationally.
- d. Higher vocational service colleges must have specific divisions to regulate the administration of lecturers' titles. Thus, the lecturers could concentrate to carry out the Tri Dharma.
- e. The budget allotment for education, practice, research, etc must be the priority to realize a conducive and productive academic atmosphere. Sehingga kreativitas semakin meningkat.

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