MANAGERIAL COMPETENCIES DEVELOPMENT OF OIL PALM PLANTATION MANAGERS FOR INDUSTRY 4.0 ERA

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Abstract: This study aims to identify the level of difference between the required competency values and the current competency values for plantation managers and determine the priority criteria for the competency of oil palm plantation managers according to the needs of Industry 4.0. The research method used paired sample z test and Analytical Hierarchy Process (AHP). Paired sample z test to determine the significance of the independent variable and the dependent variable. The results using the paired sample z test, that the current average value for soft competency is lower than the required value. Hence, the current average value for soft competency needs to be increased. The results using AHP obtained the priority from the criteria elements, namely social skills, then cognitive abilities, and system skills. Each of the priority elements of the criteria for social skills, cognitive abilities, and systems skills consists of training and coaching employees, responsibilities as well as judgment and decision making. Industry 4.0's approach to social skills resulted in long-distance communication by implementing digitalization. The implementation of cognitive factors as knowledge can encourage innovation and creativity. While system skills, facilitate the process of repetitive activities become quickly done so as to save time.

Keywords: analytical hierarchy process, competency level index, competency model, hard skills, soft skills

Abstrak: Penelitian ini bertujuan mengidentifikasi tingkat perbedaan antara nilai kompetensi yang dibutuhkan dengan nilai kompetensi saat ini untuk manajer perkebunan serta menentukan kriteria prioritas kompetensi manajer perkebunan sawit sesuai kebutuhan Industri 4.0. Metode penelitian menggunakan paired sample z test dan Analytical Hierarchy Process (AHP). Paired sample z test untuk mengetahui signifikan variabel bebas dan variabel terikat. Hasil menggunakan paired sample z test, bahwa rataan nilai saat ini untuk soft competency lebih rendah dibandingkan nilai yang dibutuhkan. Maka nilai rataan saat ini untuk soft competency perlu ditingkatkan. Hasil penelitian menggunakan AHP diperoleh prioritas dari unsur kriteria yaitu keterampilan sosial, kemudian kemampuan kognitif dan keterampilan sistem. Masing-masing prioritas utama dari unsur kriteria keterampilan sosial, kemampuan kognitif dan keterampilan sistem terdiri dari pelatihan dan mengajari karyawan, tanggungjawab serta penilaian dan pengambilan keputusan. Pendekatan Industri 4.0 pada keterampilan sosial mengakibatkan terjadinya komunikasi jarak jauh dengan menerapkan digitalisasi. Implementasi faktor kognitif sebagai pengetahuan dapat mendorong inovasi dan kreativitas. Sedangkan keterampilan sistem, memudahkan proses kegiatan berulang menjadi cepat dikerjakan sehingga mengefisiensikan waktu.

Kata kunci: analytical hierarchy process, indeks tingkat kompetensi, model kompetensi, hard skills, soft skills

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INTRODUCTION

Technological improvements have changed which are marked by the emergence of Industry 4.0 (Rahargo and Jannah, 2020). Technological changes have an impact on changes in industrial work systems. According to Rahargo and Jannah (2020), industri 4.0 combines information technology with operational technology to produce the digitization of the production system. Technology includes the Internet of Things (IoT) to find out real-time data on operations and production through electronic optimization using the internet (Ulum, 2018). Moreover, smart farming is used to analyze previous crop data, weather data, and leaf conditions (Budiharto, 2019). To adjust the progress of Industry 4.0, it is necessary to affirm the importance of technological mastery and management capabilities (Suharman et al. 2018).

Improved technology has an impact on human resources increasingly advanced. Therefore, it takes innovative human resources, but not only the ability to carry out the work according to the task but also the ability to find and use new ways of completing the task (Rezky et al. 2019). Human resources in plantations are the potential contained in the actors of plantation development, both as the foundation for direct plantation development activities and intellectual resources in the bureaucracy and the development of science and technology (Direktorat Jenderal Perkebunan, 2012). To manage plantations, human resources are needed that can carry out plantation development appropriately, quickly, effectively, and optimally (Direktorat Jendral Perkebunan, 2012).

Industry 4.0 requires a workforce who has digital literacy, technology literacy, and human literacy (Harahap and Rafika, 2020). Employees need to be trained to operate new applications, and senior managers should follow new ways of doing business (Rana and Sharma, 2019). Plantation managers must be able to adapt to new situations in industry 4.0 with the form of digitization, optimization, and customization of products, the interaction between human machines, automatic data exchange, and communication (Rahargo and Jannah, 2020). Managers as leaders in plantation should be able to keep up with the development of industry 4.0 and they need to equip themselves with skills in influencing, guiding, directing and mobilize

employees to face Industry 4.0 (Sagung and Darma, 2020; Utomo and Darma, 2020).

According to Agostini and Filippini (2019); Dhanpat et al. (2020), competency development for employees is a very important factor for the successful transition in the early stages to digitization (Agostini and Filippini, 2019). The grouping of competencies required for industry has been identified into four main categories are technical competencies, methodological competencies, social competencies and personal competencies (Vrchota et al. 2019). Jesuthasan (2017); Dhanpat et al. (2020) added that another must-have industry 4.0 competency is the ability to deliver organizational change and implement the process of change.

There are challenges for companies related to Industry 4.0 is is Volatility, Uncertainty, Complexity, and Ambiguity (VUCA) (Ricardianto et al. 2020). As explained by Das (2015); Coreen (2016); Hamid (2019), the scope of VUCA consists of the overall challenges facing the company to remain competitive in the use of advanced technology, lack of time to adapt to change, and the need to correct performance management. The impact of VUCA in the plantation industry in the form of uncertainty causes it difficult to predict export and to obtain raw materials, and the complexity causes it difficult to develop argo industry technology from upstream to downstream (Industri Agro, 2020).

PT Perkebunan Nusantara VII (PTPN VII) is a state-owned plantation company located in Lampung. The segment of business consists of four fields, namely: rubber, palm oil, sugar, and tea. The palm oil segment is a business field that need to be increased productivity because it has not reached the highest productivity yet, hence palm oil has promising and superior production prospects in PTPN VII (PTPN VII, 2016). In addition to the problem of decreasing oil palm productivity of PTPN VII Lampung, there is a reduction in the area of productive oil palm plantations started in 2020. This problem caused by the company has not been able to replanting as well as the theft of fresh fruit bunches and oil palm seeds. Plantation performance results are affected by the increase and decrease in production and productivity of plantations. Table 1 shows the oil palm productivity of PTPN VII Lampung in 2020 is lower than in 2019.

Table 1. Comparison of Oil Palm Productivity 2019 and 2020

Commodity	PTPN VII		PTPN Group	
	Land area (ha)	Productivity (ton/ha)	Land area (ha)	Productivity (ton/ha)
Oil Palm 2019	34.697	15,31	560.163,18	19,95
Oil Palm 2020	30.180	14,04	462.685,00	15,78

The use of drone technology is limited to tree trunk census mapping and monitoring of area boundaries. Therefore, the company needs to new skills that overcome the decreased productivity. The use drones will impact to renewal and so the company need to improve skills of plantation managers. To deal with skill renewal, Rana and Sharma (2019) suggest training to use new apps.

PTPN VII Lampung has not intensively used technology in all fields of work. Applications of technology and programming applied at PTPN VII include E-office application or electronic mail, ExpertN7 as a monitoring tool for production control, Competency Level Index (CLI) web-based, E-procurement for web-based goods and service procurement system, digital software ERP (Enterprise Resources Planning), and drone technology. However, PTPN VII Lampung have constraints to develop technology. The constraints include the company financial instability, and the job competences. For the later constraint, the company need to identify accurate job competencies that can be used as criteria for the abilities and skills of plantation managers.

Therefore, it is necessary to identify the level of achievement of plantation managers' performance based on soft competency and hard competency assessments and competency criteria for Industry 4.0. This research is expected to be used as a preparation for PTPN VII Lampung to face Industry 4.0.

A literature review was carried out to analyze conditions that resembled the research topic. Previous research on the relationship between competence and performance of palm oil mill employees by Evianisa, Sukmawati and Slamet (2021) revealed that employees in the Talopino palm oil mill unit prioritize technical competence related to the use of machines. According to Mohd and Haleem (2019), the use of machines when associated with Industry 4.0 can connects products, smart materials and machines and generates data from many locations. Other research on Industry 4.0 competencies conducted by Agolla (2018) regarding the important role of human capital in the Smart Manufacturing and Industry 4.0

revolution. Agolla (2018) explained the competency dimensions related to Industry 4.0, namely personal competencies (a person's ability to act reflectively and autonomously); social/interpersonal competencies (like human beings and organizations also need the ability to communicate, cooperate and establish social connections); action-related competencies (ability to take individually or socially constructed ideas to action); and domain-related competencies (the ability to access and use domain knowledge for specific jobs or tasks). Moreover, Agolla (2018) stated that competencies such as skills, abilities, knowledge, attitudes, and motivation are needed by individuals to effectively tackle work-related tasks and challenges as defined by the smart manufacturing and industry 4.0 revolution. However, comparing with previous studies, this study uses new competency indicators based on the Occupational Information Network (O*NET) model consisting of cognitive abilities, physical abilities, content skills, process skills, social skills, system skills, problem-solving, resource management skills, and technical skills.

The method in previous research can be used as a reference for this research, namely the Analytical Hierarchy Process (AHP) method. As explained by Saaty (1994), it is possible to design a competency model based on the AHP method because it is based on problem-solving that integrated with organizing perceptions, and the existence of an assessment into a hierarchy to influence decision results. Similar to the opinion by Kashi and Franek (2016), the AHP method is suitable for competency modeling because it can describe the objectives/problems into several criteria, sub-criteria to more detailed sub-criteria. The advantages of the AHP method can be used without accurate statistical data and analysis using expert preferences (Himawan, 2019). This research used also z test for paired samples, and Competency Level Index (CLI) to determine competency gaps in plantation manager positions.

Another previous research regarding the selection criteria for managers based on skills using AHP, stated by Sharma and Kumar (2018). The main criteria for

manager selection are conceptual and organizational skills consisting of planning, organizing, strong goal orientation, ability to see the project as a whole, ability to visualize the relationship of the project to the industry and the community, as well as strong problem orientation. The second level criteria are human skills consisting of mobilizing communication, coping with situations, delegating authority, political sensitivity, high self-esteem, and enthusiasm. The third level criteria are technical skills consisting of special knowledge in the use of tools and techniques, project and application area knowledge, understanding methods, processes, and procedures, and finally skills in the use of computer & IT.

Based on the background of the research, the purpose of this study is to identify the level of difference between the required competency value and the current competency value for oil palm plantation managers and determine the priority criteria of the competence of oil palm plantation managers according to the needs of Industry 4.0.

METHODS

The research was conducted at PTPN VII Lampung in the Rejosari and Kedaton plantation units. The types of data used in this research were primary data and secondary data. Primary data were obtained directly from respondents through interviews using a questionnaire guide to six experts. Respondents consisted of the operational director, plantation manager of the Rejosari and Kedaton units, the head of the engineering and processing division, the head of the industrial relations division, and the head of the business assessment and development division at the PTPN VII Lampung board of directors' office. Secondary data related to internal data obtained from PTPN VII Lampung in the form of CLI results for the position of oil palm plantation manager.

Hypothesis test

Hypothesis testing was used to determine relationship between the two variables, there is a relationship that plays a role, between independent variable and dependent variable Furthermore, a different test was conducted using the. Paired sample z test on 36 managers. Paired samples z test, to determine the significant test of the independent variable on the dependent variable. The independent variable is the average value required for soft competency and hard competency, while the dependent variable is the average current value for soft competency and hard competency.

The two hypothesis formulations tested in this study are:
1. The formulation of the research hypothesis for soft competency is as follows:
   H0: There is no difference between the required value and the actual value of soft competency.
   Ha: There is a difference between the required value and the actual value in soft competency.

2. The formulation of the research hypothesis for hard competency is as follows:
   H0: There is no difference between the required value and the actual value of the hard competency.
   Ha: There is a difference between the required value and the actual value on the hard competency.

Analytical Hierarchy Process (AHP)

According to Chin et al. (2008); Chen and Wang (2010), AHP is a way that can turn complex problems into simple hierarchical structures. AHP has the power to systematically account for tangible and intangible variables/factors (Sharma and Kumar, 2018). The working principle of AHP is the simplification of a complex problem that is not structured, strategic, and dynamic into a part and organized in a hierarchy (Marimin and Maghfiroh, 2010).

AHP is implemented through three basic steps are hierarchical construction, priority procedures, and calculation of results (Hafeez et al. 2002). Hierarchy classification according to Saaty (1993), there are two kinds of structural and functional. In the structural hierarchy, complex systems are organized into their core components in descending order according to structural zeros. Structural hierarchies are closely related to the way the brain analyzes complex things. While functional hierarchies describe complex systems into key elements according to essential relationships. Each part of the functional hierarchy element occupies one level of hierarchy. Between levels of a hierarchy are interconnected to form an organic whole.

Determination of respondents/experts for analytical hierarchy process (AHP) method using purposive sampling. Respondents/experts are selected through various considerations such as (1) having power in policy-making, (2) having leadership experience, (3) having knowledge of competency criteria needs for Industry 4.0.

Competency Level Index (CLI)

The performance level of plantation managers at PTPN VII can be identified through the results of the CLI. According to Rusandy (2015), CLI is an index of the company's competency level that prioritizes Key Performance Indicators (KPI) in the implementation of the Integrated Competency-Based Human Resources Management System (CBHRM) in managing HR. The CLI system measures soft competency and hard competency using the 360° measurement principle for competency assessment by superiors, co-workers, and subordinates and the self-assessment rating method for self-assessment. PTPN VII Lampung conducted CLI measurements for all employees which were carried out online by using the intranet network. CLI serves to determine the extent to which Position Competency or Required Competency Level (RCL) is the same as Individual Competency or Current Competency Level (CCL). The implementation process had several problems, such as some senior managers having difficulty accessing and filling out the CLI. The new CLI filling process can be effective for large foreman positions.

The framework starts with technological developments and the need for digital transformation in plantations which can simplify the harvesting process. Even the rapid advancement of advanced technology, resulting in each individual being expected to be able to check all of his human resources that affect the implementation of daily tasks. However, some unsupervised work such as picking oil palm seeds, and lack of maintenance of oil palm trees can impact on decreasing production and productivity.

Competency development for plantation managers is needed to deal with technological renewal by formulating the required competencies. Plantation managers can adapt to new technologies and come up with new ideas to compete. Furthermore, identification of the required value and current value of the plantation manager is carried out in the CLI. Then a different test is performed with the paired samples z test, to find out the difference between the two related sample groups, namely the required value and the current value. Determine the development of the competency model for oil palm plantation managers using AHP. The results of the AHP will get the priority of the best competency model to face Industry 4.0. Then the results of the two analyzes are combined in the form of managerial implications (Figure 1). CLI data consists of soft competency and hard competency obtained are presented in Tables 2 and 3.
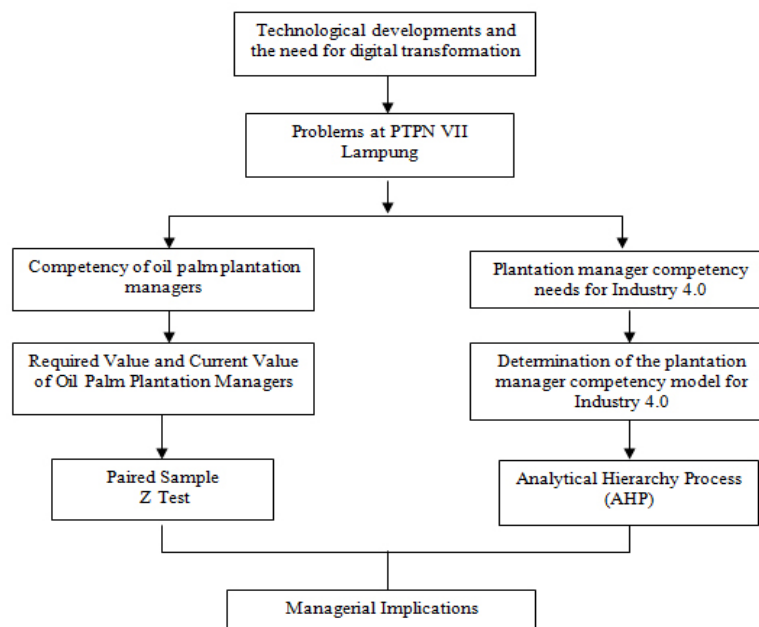

Figure 1. Research framework

RESULTS

For the current average value does not exceed the required average value (Table 2). This describes that it is necessary to manage strong cooperation and coordination between managers and other employees is required, as well as career development training to be motivated to work hard beyond the targets set.

The overall average of the current value exceeds the required value (Table 3). It shows that every manager mastered technical skills in the form of mastery of knowledge about his work, implementation of every training followed and technology applied. Furthermore, the CLI results were analyzed again to ensure the magnitude of the significance value between the two samples paired with the z test.

Results from Paired Sample Test Z

The level of performance of plantation managers in PTPN VII Lampung can be known through CLI results. The CLI has two categories of required values and the current value in the form of a ratio scale, which will be compared to using the Z test using a significance level of $\alpha=0.05$ (Table 4). Table 4 show that the value of sig. (2-tailed) for soft competency of $0,000 < 0,05$ then H0 is rejected and Ha accepted, it can be concluded that there is a difference between the value needed and the current value in soft competency.

For hard competency of $0,001 < 0,05$ then H0 is rejected and Ha accepted, it can be concluded that there is a difference between the required value and the current value in the hard competency. The achievement of the current standard value results for soft competency must be improved, because the average assessment results of the current value are lower than the average value required, it can be interpreted that overall the manager has not been skilled and trained in soft competency. It is necessary to determine the competency criteria of Industry 4.0 and determine the priority scale of criteria and competency sub criteria for Industry 4.0.

AHP Structure

The hierarchy represents complex problems in the form of multilevel structures, for the first level that is the goal then followed by the level of factors, followed by the level of criteria and sub-criteria (Kashi and Friedrich, 2013). The hierarchy structure can be seen in Figure 2. The structure of AHP serves to know the competency model of industrial plantation manager 4.0, which consists of three levels.

The first level is the focus of determining the competency model of plantation managers for industry 4.0. The second level is a criterion consisting of nine criteria (Table 5). The third level is a sub criteria consisting of each of the criteria contained in the second level. In this study, criteria and sub criteria data came from the World Economic Forum in 2018, based on occupational information network (O*NET).

Table 2. Results CLI soft competency plantation manager

Soft Competency	Average required values	Average current value
Achievement orientation	4.39	4.16
Integrity	5.00	4.26
Organizational commitment	4.61	4.21
Teamwork and cooperation	4.39	4.14
Controlling	5.00	4.21

Table 3. Results CLI hard competency plantation manager

Hard Competency	Average required values	Average current value
Risk Management	4.00	4.61
Business Planning	4.00	4.39
Financial Management (Non-Financial Manager)	4.00	4.32
Strategic Planning	5.00	4.57
Controlling	5.00	4.21

Table 4. Results of the Paired Sample Z Test

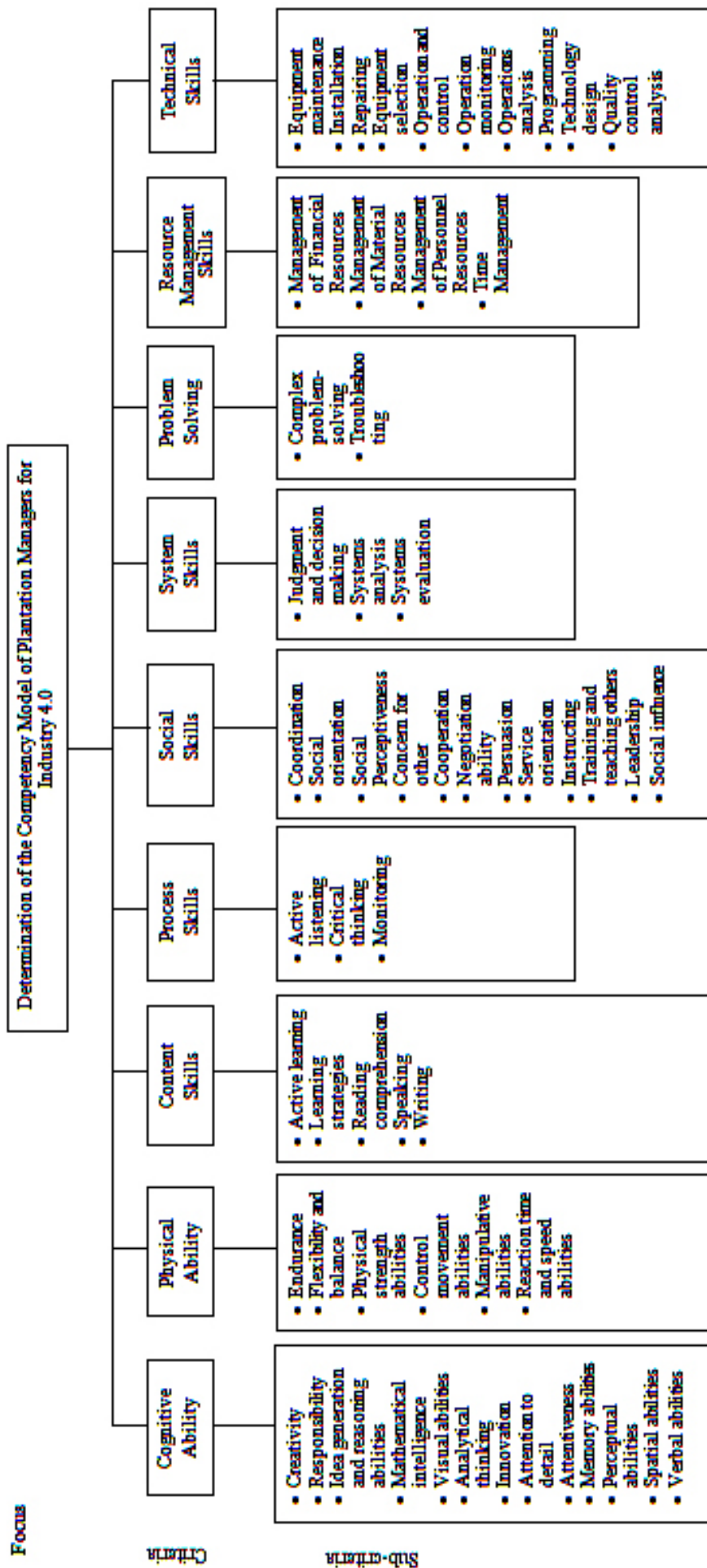| Paired Sample Test Z	Average Required Value	Average Current Value	Sig. (2-tailed)
Soft Competency	168.40	151.02	0.000
Hard Competency	153.00	161.00	0.001

Figure 2. AHP Hierarchy Structure

Priority Determination of Criteria Elements

Followed by the determination of the priority of the criteria element consisting of nine elements of the priority order criteria of each criterion can be seen from the results of the weight (Table 6). The top three of the criteria elements are the first occupied social skills criteria, the second is cognitive ability and the third is system skills. Social skills are a priority for determining the competency model of Industrial 4.0 plantation managers. Social skills are the ability to interact with people. In line with Łupicka and Grzybowska (2018); Dhanpat et al. (2020) that social skills are the maintenance of interpersonal relationships in the organization, which requires communication skills.

Previous research by Agolla (2018) regarding the competency dimensions in smart manufacturing and industry 4.0 shows that social/interpersonal competencies are needed for managers must build or act as mediators that permit social processes such as mutual decision processes, which is not only within customary organizational borders but also for the whole network. This research shows that social skills are a top priority for determining the competency model of Industry 4.0 plantation managers. In addition, at PTPN VII Lampung for the criteria of social skills as a special requirement for qualification for the position of the plantation manager.

The second priority element of criteria is cognitive ability. Cognitive competence is an individual ability related to the acceptance and application of knowledge in problem-solving (Spencer and Spencer, 1993). In line with Sanghi (2007) that competence-based on aspects of knowledge tends to be more visible as one of the human characteristics. According to Nonaka and Takeuchi (1995), implicit knowledge contains cognitive dimensions, consisting of mental models, beliefs, and perceptions. The third priority criterion element is system skills. As Supriyono (2000) explained that the system is a way to carry out activities in the form of a series of coordinated and repetitive measures.

Priority Determination of Sub-Criteria Elements

After obtaining the priority level of the criteria element, the next stage is to determine the top three priorities of the social skills sub criteria element, cognitive ability sub criteria, and system skills sub criteria. Analyze the three priority levels for each sub-criteria element as follows:

1. Priority elements of social skills sub-criteria

The sub criteria element of social skills that is a priority is training and teaching employees (Table 7). The types of training that have been conducted are managerial training and competency improvement training, in the form of training programs and human resources development used to meet the demands of competence.

Table 5. Plantation manager competency criteria for industry 4.0

No	Criteria
1	Cognitive Ability
2	Physical Ability
3	Content Skills
4	Process Skills
5	Social Skills

No	Criteria
6	System Skills
7	Problem Solving
8	Resource Management Skills
9	Technical Skills

Table 6. Weights and priorities of criteria elements

Criteria	Weight	Priority
Social skills	0.418	1
Cognitive ability	0.126	2
System skills	0.100	3
Process skills	0.090	4
Problem solving	0.070	5
Resource management skills	0.067	6
Content skills	0.065	7
Technical skills	0.035	8
Physical ability	0.029	9

Table 7. Weights and priorities of social skills subcriteria

Sub-criteria	Weights	Priorities
Training and coaching	0.279	1
Negotiation ability	0.195	2
Cooperation	0.076	3
Leadership	0.073	4
Service orientation	0.060	5
Social orientation	0.058	6
Concern for other	0.057	7
Persuasion	0.052	8
Social influence	0.049	9
Social Perceptiveness	0.041	10
Instructing	0.034	11
Coordination	0.028	12

The second priority of social skills sub criteria is negotiating ability. According to Silalahi (2019), negotiations are the process of agreeing something to solve the conflict. Meanwhile, according to Bazarah (2020) with negotiations, the common interest can be fulfilled and determined the most profitable settlement. Negotiating skills can work when managers are negotiating with unions as well as industrial relations-related issues. In line with the opinion of Ishak and Wardhana (2019) that the settlement of industrial disputes can be done through negotiations.

The third priority social skills sub criteria is cooperation. The cooperation that has been done by Rejosari Unit is a business partnership cooperation in several regions, continued to promote oil palm through information facilities and government assistance, and cooperation with partners to maintain the quality of oil palm.

The fourth priority social skills sub criteria is leadership (Table 7). Plantation managers at PTPN VII can protect their employees and discuss solutions. In line with Hidayat, Hubeis, and Sukmawati (2020) that the competency-based 4.0 human resource management model provides a strategic way to manage human resources in organizations by building leadership and management that can be accepted by all generations in the industrial era 4.0. Further results of the sub criteria element of social skills can be seen in Table 7.

2. Priority element of cognitive ability sub-criteria

Continued for the results of the subcriteria element of cognitive ability with the main priority is responsibility (Table 8). The responsibilities of oil palm plantation managers are listed in the Attachment to the Decree of the Board of Directors No. SDM/KPTS/224/2018 concerning distinct job profile.

The second priority of cognitive ability sub-criteria is to pay attention to every detail, which is the intention of paying attention to every detail, namely the attitude of prudence and thoroughness to complete the task (World Economic Forum, 2018).

The third priority of cognitive ability subcriteria is to have an important concern for the important work done by the plantation manager of the Kedaton Unit because the plantation manager is responsible for his work and all activities in his plantation unit. The overall results for the subcriteria element of cognitive ability can be seen in Table 8.

3. Priority element of system skills sub-criteria

Subcriteria of system skills that are a priority are judgement and decision making (Table 9). An assessment conducted by plantation managers of Rejosari Unit in the form of work evaluation of employees/workers is conducted every 6 months. While the decision-making role of the manager of the Rejosari Unit in several fields, namely in the field of education, production in and the field of human resources and finance.

Subcriteria of skills system with the second priority is the evaluation of the system. Evaluation of the harvest work system that must be known by the plantation manager such as the fulfillment of the adequacy of the number of harvest equipment and production transportation, conducting QC checks related to the implementation of harvest and production quality.

Subcriteria of system skills with the third priority is system analysis. In the plantation unit of the office, the manager monitors the stability of network devices and monitors e-proc application services connected to PTPN Holding. The overall results for the subcriteria element of system skills can be seen in Table 9.

4. Weighting of the entire subcriteria element

The last stage is to analyze the entire element of subcriteria resulting in absolute weight used for rating the competence of plantation managers. Competency subcriteria that can meet the criteria of plantation manager competency model for industry 4.0 with the three highest rankings namely training and teaching employees, negotiating skills, and monitoring themselves and others. The ranking results are described as the top ten listed in Table 10.

Managerial Implications

The use of Industrial 4.0 digitization needs to be balanced with the readiness of human resources in updating technology. The form of competency model categorization for Industry 4.0 is based on the Occupational Information Network (O*NET) model. The form of competency model categorization for Industry 4.0 is based on the Occupational Information Network (O*NET) model. The O*NET model consists of various skills and abilities related to soft competency and hard competency elements.

The low value of soft competency indicates that plantation managers are less competent in developing soft competencies. However, companies can take advantage of these problems from the many experiences of working by sharing knowledge possessed by senior managers. Plantation managers must have the social skills, cognitive abilities, and systems skills to meet Industry 4.0, as the embodiment of communication skills, knowledge applications, and creativity.

Table 8. Weights and priorities of cognitive ability subcriteria

Sub-criteria	Weights	Priorities
Responsibility	0.160	1
Attention to detail	0.135	2
Attentiveness	0.117	3
Idea generation and reasoning abilities	0.109	4
Creativity	0.099	5
Innovation	0.093	6
Perceptual abilities	0.063	7
Verbal abilities	0.056	8
Analytical thinking	0.056	9
Memory abilities	0.053	10
Visual abilities	0.026	11
Spatial abilities	0.036	12
Mathematical intelligence	0.022	13

Table 9. Weights and priorities of skills system subcriteria

Sub-criteria	Weights	Priorities
Judgment and Decision Making	0.509	1
Systems evaluation	0.264	2
Systems analysis	0.227	3

Tabel 10. The absolute weight value of the entire subcriteria

Criteria	Absolute Weight	Rating
Training and coaching	0.117	1
Negotiation ability	0.082	2
Monitoring	0.056	3
Problem-solving	0.054	4
Judgment and decision making	0.051	5
Cooperation	0.032	6
Leadership	0.031	7
System evaluation	0.026	8
Service orientation	0.025	9
Social orientation	0.024	10

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The results of the z test using a paired sample that there is a difference between the required value and the current value in soft competency. Similar to the results of hard competency, there is a difference between the required value and the current value in hard competency. It is necessary to determine the competency criteria of industry 4.0 and determine the competency scale for industry 4.0.

Based on the results of analysis using the AHP method, at the second level the elements of criteria that fit the order of priorities are as follows: 1) social skills, 2) cognitive abilities, 3) system skills, 4) process skills, 5) problem solving, 6) resource management skills, 7) content skills, 8) technical skills, and 9) physical abilities.

The competency model of Industrial 4.0 plantation managers produces skill levels from important to those that need to be improved again for PTPN VII Lampung to face Industry 4.0. Industry 4.0's approach to social skills enables the effectiveness of remote communication with digitization, cognitive factors apply knowledge to encourage innovation and creativity, while system factors for system skills, facilitate the process of repetitive activities to be quickly done to streamline time.

Recommendations

Further research, in order to expand the object of research to private companies and state-owned (BUMN). In-depth research needs to be done by reviewing soft competency that is associated with knowledge sharing and learning strategies.

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