

Manpower Planning Based on Digital Economy Horticultural Agriculture Sector in Cianjur Regency, West Java Province

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Abstract

This study aims to analyze government policies in development planning based on the industrial revolution 4.0 (RI 4.0), analyzing labor planning for the horticultural agricultural sector based on RI 4.0 and formulating scenarios for planning for the horticultural agricultural sector based on RI 4.0. This type of research is exploratory with a qualitative approach the data were collected through interviews. The research informants are the head of farmer groups, managers of private farms, department heads and academics. Informants were selected purposively with certain criteria. Data were analyzed using TAIDA (Tracing, Analyzing, Imaging, Deciding and Acting). The results of this study found that the policy for implementing RI 4.0 has not been accommodated in district regional planning documents, as well as for labor planning for the agricultural sector, especially for horticulture based on RI 4.0, it has not been accommodated in either the RPJMD or Strategic Plan. The workforce requirement for the 2021-2024 period is 12,028 people. The largest proportion of labor absorption is at the maintenance stage 44.02% and the lowest is 0.69% in marketing. The implementation of RI 4.0 still considers social, technical and physical aspects. Mondy's theory needs to be sharpened per cultivation stage so that the reduction in labor can be suppressed. Suggestions, the policy for implementing RI 4.0 is contained in the RPJMD and the Strategic Plan of each service, it is necessary for the role of inter-regional government institutions in planning the workforce of the industrial revolution 4.0.

Keywords

mondy mondy theory; digital agricultural planning; TAIDA stages



I. Introduction

The application of the industrial revolution (RI 4.0) has the potential to create employment problems if it is not implemented properly. Indonesia is currently entering the demographic bonus phenomenon, a condition in which the proportion of the productive age population aged 15-64 years is twice that of the unproductive age population, namely the population aged 0-14 and 65 years and over. The demographic bonus (window of opportunity or demographic dividend) in Indonesia occurs in the period 2021 - 2035, and reaches its peak in 2030 where the number of productive age population reaches 68.1% of the 297 million population (Population Census, 2020). This composition in terms of development will be very profitable, because the population of productive age is very large 68.1%,

The employment aspect of the population in Indonesia who work in the agricultural sector as introduced above reaches thirty-nine million sixty-eight thousand people or 31.86 percent of the total working population, the second sector is dominated by trade, which is twenty-nine million eleven thousand or by 23.78 percent, followed by the community

service sector by twenty million ninety-five thousand people or 16.82 percent, then the industrial sector by 13.31 percent, the construction sector by 5.75 percent, finance 2.88 percent, mining 1, 1 percent and electricity, gas and water by 0.34 percent (bps.go.id, 2021)

The results of an online search for planning documents in Cianjur Regency have not yet provided a description of the national and provincial programs related to the development of the digital economy.<http://bappeda.cianjurkab.go.id/document-planning/> (February 2020). Likewise, in the planning document of the Manpower and Transmigration Office, there is no digital economy-based workforce planning in Cianjur Regency and there is no roadmap for agricultural development towards agricultural development version of the industrial revolution 4.0.[https://cianjurkab.go.id/uploads/2019/03/President Joko Widodo's government mandate in Nawacita states that the state is said to be present if it is able to provide excellent, fast, professional and fair public services to the community. Public service is a concrete face of the presence of the state in people's daily lives. \(https://national.kompas.com/read/2021/02/08\).](https://cianjurkab.go.id/uploads/2019/03/President_Joko_Widodo's_government_mandate_in_Nawacita_states_that_the_state_is_said_to_be_present_if_it_is_able_to_provide_excellent_fast_professional_and_fair_public_services_to_the_community_Public_service_is_a_concrete_face_of_the_presence_of_the_state_in_people's_daily_lives_(https://national.kompas.com/read/2021/02/08).)

Planning adjustments or even the preparation of sectoral plans, especially labor in accordance with the requirements of the industrial revolution 4.0, needs to be done in Cianjur Regency because this area has the highest contribution to exports of agricultural products in West Java. The assumption is that the use of information technology tools is also high because the processing of export documents, transactions, negotiations, and activities related to production and commerce of course uses information technology. On the other hand, the number of unemployed in Cianjur Regency is the highest in West Java, which is 10.16%, exceeding the unemployment in West Java at 8.17% and national unemployment at 5.34%. As for the Human Development Index (IPM) of Cianjur Regency, although it increased by 0.76 from 2018 which was 64,<https://jabarprov.go.id/index.php/news/36665/2020/02/24/Index-Development-Man-Di-Jabar-Semakin-Mebaik>).

II. Review of Literature

The literature review contains theoretical studies in order of basic/macro theory (grand theory), middle-range theory and applied theory. The grand theory starts from discussing the theory of government and management, the middle level uses the theory of government management, modern management theory and good governance. These theories are finally integrated when the government's focus is on public services (parochial theory). In this study, the theory of manpower planning and the digital economy is used.

2.1 Manpower Planning Theory

Manpower planning (Meldona & Siswanto, 2012) defines as the main driving force for the realization of organizational goals and existence consisting of humans in the organization who have potential both physically and psychologically. Furthermore, Tan Goang Tian in Mantra 2015 man power or labor is the number of people who are involved in the production process or economic process.

Another opinion regarding manpower planning is that according to (Sikula, 1997) namely: "Human resource of manpower planning has been defined as the process of determining manpower requirements and the means for meeting those requirements in order to carry out the integrated plants of the organization," Opinion Milkovich, George., Nystrom, 1981) "Man power planning is the process including forecasting, developing,

implementing and controlling) by which of firm ensures that is has the right number of people and the right places, at the economically most.”

These labor concepts are also equipped with a manpower planning model, among others, according to:(Simamora, 2004) (Sikula, 2011), Rivai (2004), (Casio, 2018) and(Mondy, R., 2008). Simamora is known as a human resource planning model, personnel, workers, employees or employees. Model(Sikula, 2011) consists of five components, namely human resource goals/targets, organizational planning, human resource budgets, human resource forecasting or forecasting and implementation of human resource programs. Furthermore, the model (Rivai, 2004: 77) is known as the Demand and Supply Dimension Model in Manpower Planning. Whereasworkforce planning model according to(Mondy, R., 2008)known as The Human Resource Planning Process. This workforce planning model uses a type of strategic planning by taking into account the influence of internal and external environmental factors of the organization.

Guided by the definition and model of manpower planning from labor planning experts in general, the concepts of labor and the model offered by the experts is manpower planning for profit companies in this case is horticultural farming relevant to the topic of this research is the concept of manpower planning. work according to(Mondy, R., 2008), see Figure 1.

Manpower planning model according to(Mondy, R., 2008)The Human Resource Planning is the most suitable workforce planning model for reference in this study, because in this model strategic planning is used by considering the influence of internal and external environmental factors, where strategic planning is able to respond to external changes quickly and not which requires business actors/organizations to make adjustments or internal changes in order to be able to maintain their functions and roles. Besides that, in this model, labor requirements are also taken into account, comparing the demands of the requirements with the availability of the existing workforce (demand for labor, excess labor and shortage of labor).

Human Resources (HR) is the most important component in a company or organization to run the business it does. Organization must have a goal to be achieved by the organizational members (Niati et al., 2021). Development is a change towards improvement. Changes towards improvement require the mobilization of all human resources and reason to realize what is aspired (Shah et al, 2020). The development of human resources is a process of changing the human resources who belong to an organization, from one situation to another, which is better to prepare a future responsibility in achieving organizational goals (Werdhiastutie et al, 2020).

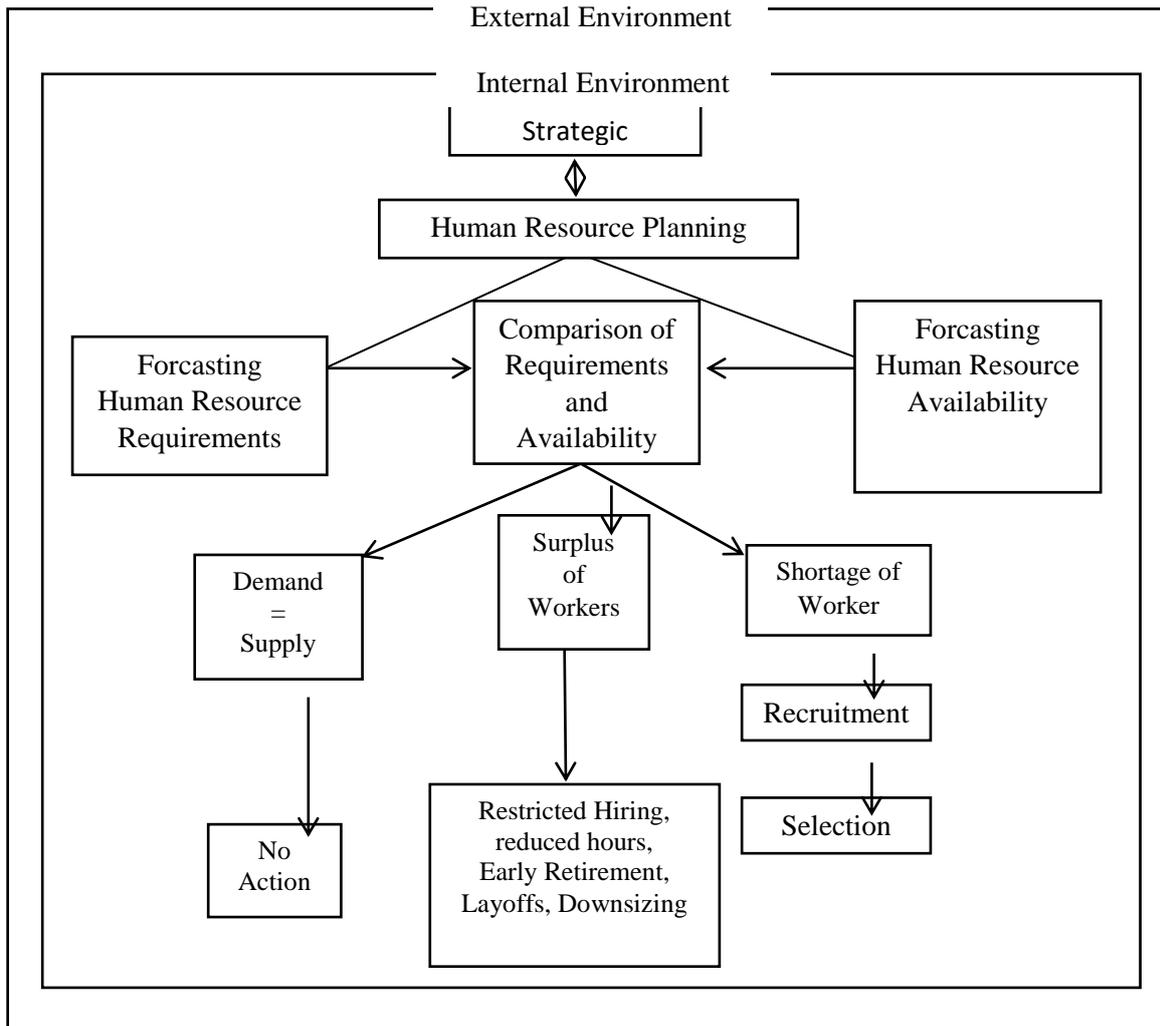


Figure 1. Manpower Planning Model from R.Wayne Mondy (2008)

2.2. Digital Economy

The definition of the digital economy was put forward by several experts, including: (Don Tapscott, 1996) who explained that the digital economy is an economic system that has the characteristics of an intelligent intelligence room because it is very rich in information, consisting of various access to information, information instruments, processes and information capacity. All economic activities starting from the process of production, distribution and sale of goods and services are carried out by utilizing the internet (IoT), so there is a term internet economy for the digital economy.

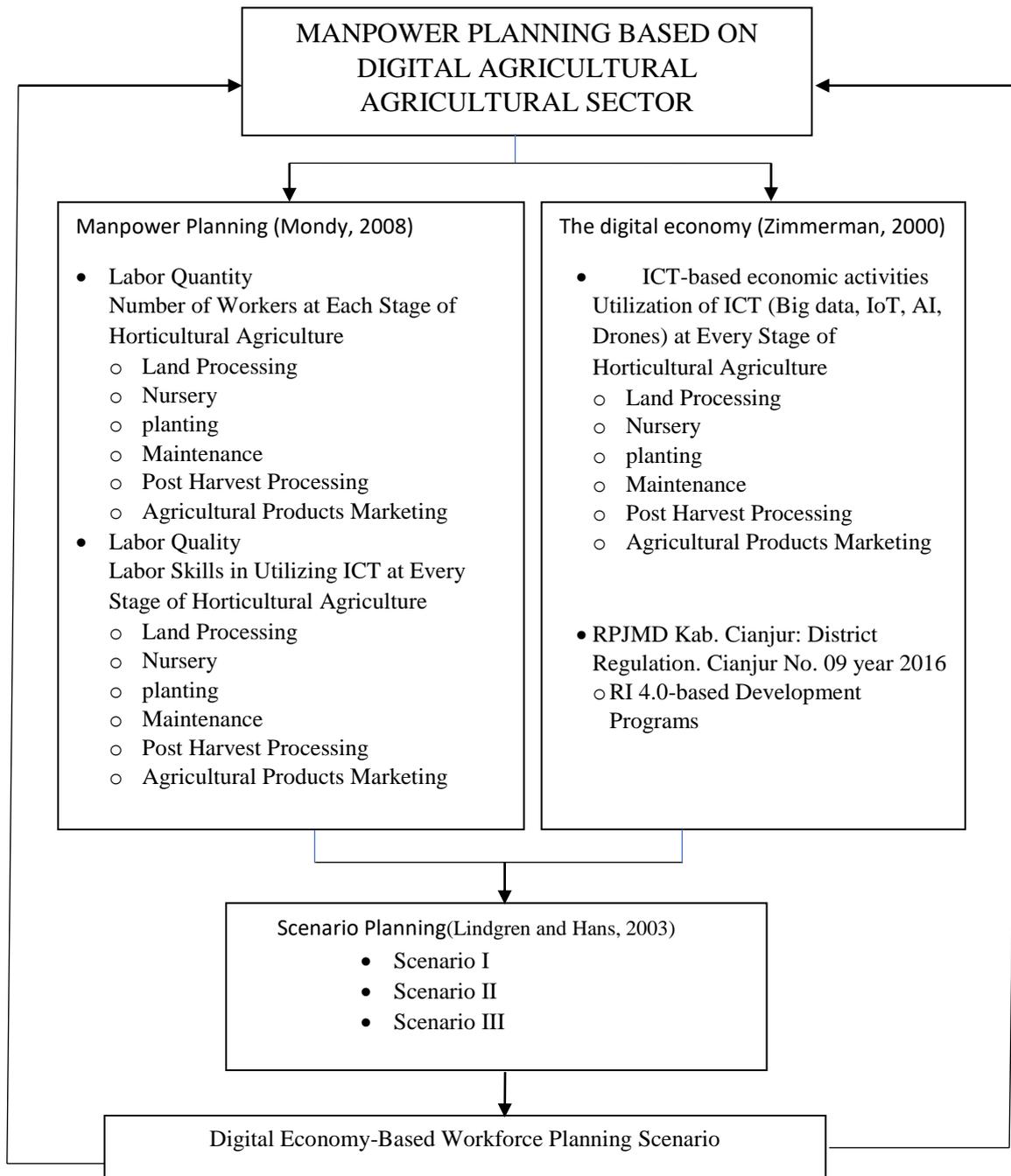


Figure 2. Research Thinking Framework

Even to the delivery or distribution. Only different is the mention of the term ICT, some refer to it as information technology, some use the terms hardware, software, applications and telecommunications, digitizing information using computers, digital technology, especially Dalle (2016) complementing the explanation that digital economy actors are mostly controlled by the younger generation or the millennial generation, while the previous economic actors were only dominated by capitalists, conglomerates of which there were only a few.

In the context of manpower planning in an economic business based on a digital economy, it is necessary to formulate scenarios of conditions such as what might happen if RI 4.0 is applied to agriculture, how changes in labor needs will occur at each stage of

cultivation, and what steps are taken. must be carried out by the government, both the central, provincial and district governments through various development programs.

The literature review becomes a reference in the preparation of the framework as listed in Figure 2.

III. Research Method

The methodology used according to its type is exploratory with a qualitative approach combined with TAIDA (Tracing, Analyzing, Imaging, Deciding and Acting). Sources of information explored include department heads, managers of private farms, heads of farmer groups and academics supported by or secondary data and field data through interviews, observation and documentation.

IV. Result and Discussion

4.1. Cianjur Regency Government Policy Studies in Development Planning Based on the Industrial Revolution 4.0

In order to trace the sustainability of the implementation of RI 4.0 Agricultural Policy at the national to local level, the "cascading" method is used. The main reference used consists of three documents, namely the first RPJMN for the period 2020 to 2024, the second RPJMD West Java Province for the period 2018 to 2023 and the third is the RPJMD of Cianjur Regency for the 2016 to 2021 period.

The study of the RPJM on the Implementation of RI 4.0 from the Vision and Mission Aspect, based on the National RPJM, Provincial RPJM and Cianjur district RPJM related to the implementation of RI 4.0 from the vision and mission aspect illustrates that both the National vision, West Java Province and Cianjur Regency indicate the same desire, namely to create society advanced at the regional level. The application of RI 4.0 is implied in the second mission of the RPJMN, namely the realization of independence and increasing competitiveness in realizing a productive economic structure. In the Provincial RPJM, the same spirit is seen more explicitly, namely the use of digital technology and collaboration with innovation centers to encourage increased productivity and competitiveness of economic enterprises in order to realize community welfare. In the RPJM of Cianjur Regency, the policy for the implementation of RI 4.0 looks more vague, not as explicit as the policy at the provincial level. The second mission of the RPJM of Cianjur Regency does not explicitly state whether the intended "infrastructure" is public works infrastructure such as roads, bridges, irrigation, buildings, and so on, or whether it includes information technology infrastructure such as fiber optic cables and "Base Transceiver Station (BTS).)".

Study of RPJM Application of RI 4.0 in Agriculture, Plantation, Food and Horticulture The problems of implementing RI 4.0 are described in the National RPJM numbers four and six, namely (4) Education and age of farmers, (6) The impact of the disruption of the Industrial Revolution 4.0. At the level of West Java Province, the same problem is recorded in the second problem, namely (2) The low mastery and utilization of agricultural cultivation technology. At the Cianjur Regency level, the same thing is accommodated in the first and third problems, namely: (1) Lack of skilled business actors and low ability to access market information, technology, capital, and other resources and (3) Production and marketing are not supported optimally by supporting infrastructure. In general, in every aspect ranging from development problems, goals, objectives, strategy and policy direction there is a "gap" in policy clarity between the Cianjur Regency RPJM

and the Provincial RPJM and the National RPJM. Even though the National RPJM only mentions the words "added value" and "competitiveness" of agriculture, the implicit meaning actually requires the use of technology.

Study of the RPJM for the Implementation of RI 4.0 in the Field of Communication, Informatics, Encryption, and Statistics, which is abbreviated as Kominfosantik. The gap in digital community literacy policies and digital economic transformation is also seen in the RPJMN on the one hand and the RPJM of West Java Province and Cianjur Regency on the other. Both the RPJM of West Java Province and the RPJM of Cianjur Regency have not included the two scopes of policies in their development agenda.

Study of the RPJM Application of RI 4.0 in the Field of Cooperatives, Small, Medium Enterprises, Industry, and Trade. The role of this sector in agriculture in general is the provision of agricultural production facilities, marketing and post-harvest handling development, especially industry and trade. The pressure on the scope of development is slightly different in the direction of development policies. In the Provincial RPJM, it can be seen that there is a desire from the Provincial Government to improve the quality of cooperative human resources by utilizing information and communication technology (ICT) and marketing networks. Meanwhile in the Regency RPJM there is no mention of the technological aspect, although the actual problem has been mentioned.

RPJM Study on the Implementation of RI 4.0 in the Manpower and Transmigration Sector. The National RPJM raises more detailed issues, namely incorporating the impact of the presence of information technology into employment, so that it can be said that there is a gap in the details of the problems between the National RPJM on the one hand and the provincial and district RPJM on the other. The policy direction in the field of manpower and transmigration emphasizes increasing the competence of the workforce and productivity at the three policy levels at the national, provincial and district levels. However, there is no mention of the use of information and communication technology in manpower development planning at all levels of government.

RPJM Study on the Implementation of RI 4.0 in the Investment Sector and One-Stop Integrated Services. In the scope of development issues, the three RPJMs raise one of the same issues, namely infrastructure, of course in a broad physical sense, including technological infrastructure. In general, the direction of development policy at the Office of Investment and One Stop Services in Cianjur district does not explicitly mention the use of information and communication technology.

The comparison of the Implementation Policy of RI.4.0 shows that the three strategic programs in the Agricultural Sector are in sync with the words "increasing production, productivity, quality, or added value, and others. Even though the implementation of RI 4.0 is not explicitly stated in the description of the program of activities, the sentences increasing production, increasing added value, increasing the application of agricultural technology imply the use of elements of RI 4.0 when viewed from the current atmosphere.

4.2. Digital Economy-Based Workforce Planning

Mondy's (2008) theory related to manpower planning for an economic business is actually quite simple, with the economic principle of "supply – demand". If the availability of labor is greater than the demand, the number of workers will be reduced. If the demand for manpower is higher than the availability, then a "recruitment" will be carried out with various methods, whether it is selection or summons for laid-off employees, taking from other companies, and so on. If the demand for labor equals the availability of labor, it means that there is no need for additional or subtractive actions (Mondy page 163).

On the other hand, Sarah Rotzc & Evan Gravellyb et al (2019) and Mc. Kinsey (2017) is of the view that the implementation of RI 4.0. although it will increase the efficiency of the use of natural resources and the economy, it will also have an impact on the emergence of employment problems, especially the reduction of labor. The results of a field survey related to the implementation of RI 4.0 in Cianjur indicate that there are compromises on labor issues.

Table 1. Labor Policy per Cultivation Stage

No	Cultivation Stage	Proportion				Labor Policy by Farmers
		RI 4.0 (%)	Number of Kindergartens (org)	Manual	Kindergarten Number	
1	Land Processing	0	0	100	892	Humanity and terrain
2	Nursery	25.93	25	74.07	70	Humanity and efficiency
3	planting	0	0	90	127	Humanity and efficiency
4	Maintenance	10	137	132	1064	Humanity and efficiency
5	Harvesting & Transport	4.35	24	95.65	535	Humanity and efficiency
6	Post Harvest Processing	69.70	80	30.30	35	Efficiency
7	Marketing	100	21	0	0	Efficiency
Amount			82	-	2723	

Source: Survey results, 2021

To be able to understand the compromise of labor issues above, it is necessary to look at the labor needs at each stage of plant cultivation. Furthermore, it is also necessary to look at what policies are implemented by farming businesses that cause a compromise of the quantity and quality of labor at each stage of horticultural cultivation as described in Table 1.

From this description, it can be concluded that the application of RI 4.0 to horticultural agriculture in Cianjur Regency is applied humanely, gradually, selectively and compromised for humanitarian reasons, in accordance with social conditions and conditions of the cultivated field in agricultural areas. Although it is not described linearly, it can be said that at the upstream stage, many of the workers used are still using manual equipment. Several farming businesses in certain agricultural locations stated that if applied with mechanical machines, they could actually reduce costs by 60% -80%. However, this method is not done for humanitarian reasons. Meanwhile, in the downstream cultivation stage, highly skilled workers are used. 67.70% of the workforce at the post-harvest processing stage utilizes RI 4 technology.

Table 2. Proportion of Labor Per Stage of Private Farming Cultivation

No	Nama Perusahaan	Total Tenaga Kerja (Orang)	Land Preparation		Nursery planting				Maintenance		Harvesters & Post Processing Freight		Marketing			
			RI 4.0	Mnl	RI 4.0	Mnl	RI 4.0	Mnl	RI 4.0	Mnl	RI 4.0	Mnl	RI 4.0	Mnl		
1	PT. Salsabila	50	0	18	6	0	0	3	10	4	0	4	4	0	1	0
2	PT. Ekakarya	100	0	40	14	0	0	5	15	10	0	8	0	8	0	0
3	PT. Cibadak Agree	200	0	65	28	0	0	14	30	31	0	20	0	12	0	0
Total (person)		350	0	123	48	0	0	22	55	45	0	32	4	20	1	0
Proportion of Kindergarten per Stage Cultivation (%)			0,00	36,57	13,71	0,00	0,00	0,06	0,16	12,86	0,00	9,14	1,14	5,71	0,29	0,00
Prop. Kindergarten per Stage Cultivation (%)			0	100	100	0	0	100	0,35	100	0	100	5,41	85,11	100	0

Source: Survey results, 2021

The stages of post-harvest processing and marketing by implementing RI 4.0 are relatively new stages and constitute a millennial workforce, although the proportion of absorption of the total workforce is still relatively small, namely 3.83% for post-harvest processing and 0.69% for marketing (Table 3). 2). Nursery

A comparison of the use of ICT in farmer groups and private companies gives more or less the same picture, this is shown in private farming businesses that have implemented RI 4.0 agriculture. as described in Table 2, which describes the proportion of labor requirements required at each stage of cultivation in three private farms. From the table, it can be seen that at the stage of land processing, the proportion of labor needs reaches 36.57%. This percentage is higher than the proportion of workers in the farmer group (Poktan) which reached a percentage figure of 29.68%. The same thing also happened to the proportion of workforce at the nursery stage which reached 5.71% in private farming, while the same thing happened to the farmer group at 3.17%. The maintenance stage is 42.29% in private farming, while in the farmer group as high as 44.2%. Meanwhile, the proportion of workers who work at the post-harvest processing stage is 6.29% and marketing is 0.29%. In particular, the proportion of marketing workforce is small because post-harvest processing and marketing are carried out elsewhere, namely Jakarta, Cikampek and Sukabumi.

The results of observing the pattern of implementing RI 4.0 in Cianjur Regency which still considers human values, characteristics of the agricultural field, as well as efficiency and types of commodities cultivated, there is a correction in Mondy's (2008) theory which only emphasizes the law of "supply and demand". If the supply of labor is greater than its availability, the number of farming businesses will be reduced, whether the number of people, working hours or working days. If the supply of labor is less than the demand, then the farm will make additions by means of recruitment or other methods. The actual labor condition for horticultural agriculture in Cianjur is "over supply" because according to Laras Sirly Safitri's research (2019), the elasticity of carrot farming is - 1,943. It means,

Mondy's theory, if fully implemented, will result in a reduction in the horticultural agricultural workforce. The results of this study and are also supported by the research of Decy Ekaningti and Heny K. Daryanto (2011) show that RI 4.0 which is applied to

"millennial" horticultural crops such as Horens and the like still requires additional labor, even though it is small, namely 1% to be able to increase production by 0.196. .

Some notes that become the assumptions of this research include maintaining the "social rationality" of local farming, namely reducing unemployment and avoiding termination of employment (PHK) by intensifying activities at the cultivation stage, land processing, planting and maintenance, harvesting and transportation. Other cultivation stages are also prioritized for local workers, unless there is really no qualified workforce to carry out activities at certain cultivation stages, for example marketing which has to enter the digital world, just recruiting workers from outside Cianjur Regency. The egalitarian aspects of peasant life still exist and therefore are maintained.

Another assumption is that conventional marketing between farmers and middlemen still exists and can coexist with millennial-style marketing (market place, e-commerce, online shopping, and so on). At the marketing stage, millennial farmer groups and private farms apparently still maintain that some of their products are sold to middlemen/traditional markets on the grounds that the marketing chain that occurs absorbs a lot of labor. Therefore, conventional marketing is maintained, while marketing that utilizes digital platforms is also opened because they have different consumer segments, and do not interfere with each other.

From the results of the projection analysis in 2024 the number of labor needs in the horticultural agricultural sector in Cianjur district is 12,028 people.

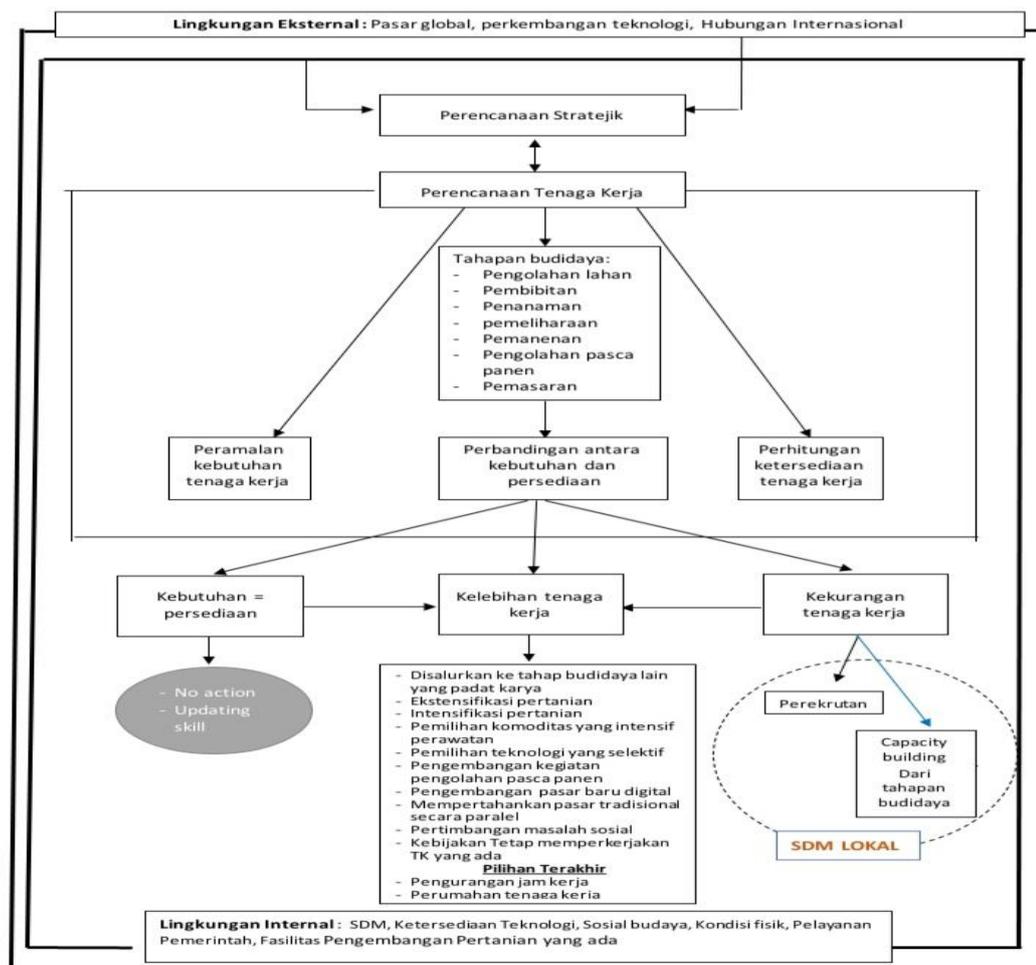


Figure 3. Manpower Planning (Modified Theory of Mondy, 2004)

The findings in this study are based on the results of the study, there are several aspects of Mondy's workforce planning theory that need to be corrected (see Figure 3).

4.3. Digital Economy-Based Manpower Planning Scenario in Cianjur Regency

The “diciding” stage is a fairly strategic stage where decision makers must be made to determine between the policy options that have been formulated, which in this context the policy choices that have been prepared in the “imaging” chapter. The choice of policy is certainly seen as a policy that will have an impact on the needs of a broad workforce, and the need for support from other related sectors.

As an “overview”, the policy options formulated in the previous sub-chapter are:

- a) Scenario I Implementation of RI 4.0 in Farmer Groups (Poktan).
- b) Scenario II Implementation of RI 4.0 in the Millennial Farmer Program from the West Java Provincial Government.
- c) Scenario III Implementation of RI 4.0 in Private Farming.

Referring to the strategic value of the three policy scenarios for implementing RI 4.0 above, the first scenario has an impact on a broad workforce in the future and the potential to get policy and political support is very strong, because the policies of the Central Government, West Java Province have led governments districts in West Java in general and Kab4.upaten Cianjur in particular to implement RI 4.0. However, it must be noted that the current RPJMD and Strategic Plan have not explicitly mentioned any policies for implementing ICT or RI 4.0

Sectorally, the Central Government has also prepared for the implementation of RI 4.0 in rural areas, including increasing the capacity of BUMDES to become BUMDESMA (Bumdes Bersama) namely Bumdes which is ready to become an "Internet Service Provider" (ISP) launched by the Ministry of Villages and Disadvantaged Regions; SIMPUL (Advanced MSME Product Marketing Information System) and SIMADU (Integrated MSME Data Management Information System) launched by the Ministry of Cooperatives and MSMEs; Warehouse Receipt System, SIINAS (National Industrial Information System) launched by the Ministry of Trade and Industry. At the local level, the Cianjur Regency Government has also developed information systems: Big Data (Cianjur Satu Data), Community Information Groups (KIM), (SPBE) Electronic-Based Government Systems, and electronic-based Mass Media.

Thus, the implementation of RI 4.0 in Cianjur Regency through the scenario of increasing the Capacity of Farmer Groups (Poktan) has broad strategic value. This first scenario will be discussed further. Scenario II Implementation of RI 4.0 in the Millennial Farmer Program from the West Java Provincial Government, until now still encountering several problems so that a Governor Regulation has not been issued which is the basis for implementing the program in the field. This Millennial Farmer Program will have the potential to be developed by the Cianjur Regency Government as a pioneer in the application of RI 4.0 in the field of food crops. Scenario III Implementation of RI 4.0 in Private Farming, has been implemented by the farming business itself because it is conditioned by global competition. However, the local government does not intervene much in its implementation.

From the selected scenarios, a Government Institutions Role in the Digital Economy-Based Manpower Planning in Cianjur Regency is prepared which focuses on an action plan on how to avoid or reduce the impact of excess labor as stated by Mondy (2008): lowering wages/salaries of workers, reducing the number of workers working hours, laying off workers and retiring workers early, by promoting social human values, including maintaining the existing workforce by using conventional technology for certain

cultivation stages, selecting commodities that require a lot of maintenance, expanding digital markets, and so on as described in the previous subsection.

Although the scope of this discussion is the scope of economic business (companies), but if this condition occurs in the jurisdiction of the regional government in large numbers and affects the livelihood of many people, then the state represented by local government institutions must be present to help solve labor problems. This substance is also an elaboration of the modern management theory of Etzion (2007) and Manjula A. Saudatti (2020) which is included in the category of "parochial theory" that modern management requires openness, democracy, participation, supported by various technological advances and rational thinking.

Likewise, the theory of good governance from UNDP (2011) is also in line with modern management theory, that the government must develop the characteristics of good governance, including: responsiveness or responsiveness where every institution, both central and regional, must be directed to provide services to all parties. stakeholders, including workers in the horticultural agricultural sector.

In the context of the application of RI 4.0 on horticultural agriculture in Cianjur Regency, the impact of the influence of the external environment, namely the development of Information Technology and a series of other technologies that accompany it, changes in market behavior and methods of interaction and transactions, of course have a direct effect on the life of farming businesses, both farms that are incorporated in farmer groups and in private farming, especially in individual farms. As it is known that improving welfare and improving the status of Poktan and Gapoktan in Cianjur Regency is one of the programs launched in the RPJMD and the Cianjur Regency Government Strategic Plan, so that the presence of the Regional Government in participating in dealing with labor problems, especially in the agricultural sector is very relevant.

Continuing the discussion on the involvement of government institutions in the application of RI 4.0 for horticultural commodities with social and humanitarian characteristics, the role of relevant government institutions in Cianjur Regency can be described in the form of a metric model as presented in Figure 4.

One of the goals of the model is that farming businesses, especially Farmer Groups and Local Governments, are trying to jointly avoid the impact of excess labor due to the implementation of RI 4.0 which Mondy (2008) states: reduction of working days/hours, reduction of work wages, temporary dismissal (lay off workers), termination of employment.

In general, these efforts include: channeling labor to other stages of labor-intensive cultivation: agricultural extensification, agricultural intensification, selection of care-intensive commodities, selective technology selection, development of post-harvest processing activities, development of digital new markets, maintaining traditional markets in a sustainable manner. parallel, consideration of social problems, the policy of still employing the existing workforce.

If efforts to avoid reducing manpower and efforts to realize the projected workforce needs in 2024 are translated into horticultural crop cultivation activities, then a description of the involvement of relevant Cianjur Regency Government institutions can be seen in Figures for the Role of Government Institutions in Manpower Planning (Figure 4).

		PELIBATAN LEMBAGA PEMERINTAH DAERAH								
		Dinas Pertanian	Dinas Kominfo	Din. KUKM-PP	Dis Nakertran	Dinas Penanaman Modal				
TAHAPAN BUDIDAYA	1. Pengolahan Lahan	a, e	-	-	a	Diperlukan pada tahap awal kerjasama dengan pihak lain	3.570 org Props 29,68%	Tetap menggunakan alat konvensional. Ektensifikasi pertanian	PERENCANAAN TENAGA KERJA	
	2. Pembibitan	a, b, d,e	-	-	a		382 org Props 3,17%	Teknologi konvensional dominan, RI 4.0. rendah,		
	3. Penanaman	a, b, d,e	-	-	a		571 org Props 4,70%	Teknologi konvensional dominan, RI 4.0. rendah,		
	4. Pemeliharaan	a, b, d,e	-	-	a		4252 org Props 39,30%	Teknologi konvensional dominan, RI 4.0. rendah,		
	5. Pemanenan	a, b, d,e	-	-	a		2.237 org Props 18,60%	Teknologi konvensional dominan, RI 4.0. rendah,		
	6. Pengolahan Pasca Panen	b, c, d. e	-	a, b, c	a, c		461 org Props 3,82%	RI 4.0 dominan, rekrutmen TK dari daerah setempat,		
	7. Pemasaran	b, d, e	a, b, c	b, c	b		83 org Props 0,69%	RI 4.0 dominan, rekrutmen TK dari daerah setempat,		
		a. Penyuluhan Pembinaan	a. Bantuan Prasarana Teknologi	a. Bantuan Modal	a. Kebijakan Hubungan Kerja	a. Kebijakan Invest Pdt				
		b. Diklat	b. Diklat	b. Bantuan Pengolahan hasil	b. Diklat Manajemen	b. Kebijakan Perizinan				
		c. Bantuan Alat	c. Bantuan Subsidi	c. Bantuan Pemasaran	c. Diklat Pengolahan hasil					
		d. Kerjasama								
		e. Intervensi Kebijakan								
		PERANAN LEMBAGA PEMERINTAH								

Figure 4. For the Role of Government Institutions in Digital Economy-based Manpower Planning

V. Conclusion

The conclusions of this study are as follows: 1. The policy of the Cianjur Regency Government in digital economy-based development planning, has not been explicitly stated in the development planning document, therefore it needs to be included in the RPJM and Strategic Plans for each service. 2. Manpower planning based on the digital economy of the horticultural agricultural sector does not yet exist, although legally it is in the Manpower and Transmigration Office. The need for manpower in the period 2021-2024 is 12,028. The highest proportion of labor absorption per cultivation stage is at the maintenance stage (39.39%) and the lowest is marketing (0.69%). 3. Implementation of scenario I, namely the application of RI 4.0 to Horticultural Farmers' Groups, as a follow-up, the role of Cianjur Regency Local Government Institutions was arranged.

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