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. DEVELOPMENT OF A P3E CREATIVE ECONOMY MODEL BASED ON LOCAL AND DIGITAL WISDOM IN A SOCIOLOGICAL ECONOMIC PERSPECTIVE IN THE TOURISM DESTINATION AREA OF WEST SUMATRA

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Abstract
The purpose of this research is to analyze the typology of human resources in the development of a P3E creative economy based on local-digital wisdom and to analyze a P3E creative economy model based on local and digital wisdom in dealing with market changes and economic growth in the tourist destinations of West Sumatra Province. The theory used is social action theory by Max Weber, digital social theory from Mosco and local wisdom from Stanis. This research approach uses a *mixed method approach* to the post-positivistic paradigm. Data collection techniques used counselors, in-depth interviews, observation and collection of document studies. Data analysis in this study qualitatively used the Miles and Huberman model; quantitatively using cluster analysis. The results of the study show the first result that in obtaining knowledge for creative economy actors in the development of the creative economy: Objects that already have the same relative proximity to other objects. The characteristics of objects in a group unit have a high level of similarity, while the characteristics of objects in a group with other groups have a low level of similarity. The second result , based on the R- Square value on the Local Wisdom-Based Creative Economy variable, shows a value of 0.599. This value indicates that the variable influences the development of the creative economy by 59.9%. Meanwhile, the digital-based creative economy has an R-Square value of 0.568 which indicates that this variable has an effect of 56.8%. The conclusion from this research is the visualization of the typology of human resources in each research area based on the respondents, namely Padang City, Bukittinggi City, Sawahlunto City, Pesisir Selatan Regency and Tanah Datar Regency which are measured based on the elements of Knowledge, Experience, Change, and Ethics in the development of the Creative Economy. Cluster 1, namely the district/city group included in cluster 1 as many as 29 respondents. Cluster 2, namely the Regency/City group that is included in the cluster there are only 3 Respondents, so that overall the characteristics of the grouping tend to have similarities, namely in the first cluster.
Keywords : P3E creative economy model, local wisdom, digital and tourist destinations.

Introduction. Covid 19 has an impact on activities carried out by layers of society. This encourages people to take economic action as a means of subsistence. Steps taken by developing a creative economy based on creativity and maintaining local values (Putri et al., 2021). The most important thing for development is the strengthening of innovation-oriented and creative

resources. The actions taken are not only in the national market competition but in the global market (Indrajaya et al., 2019). According to Purnomo (in lubis 2020) there are three main points in the development of the creative economy, namely creativity, innovation and invention. The Ministry of Trade of the Republic of Indonesia develops a creative economy as an effort to maintain economic growth through creativity in a climate competitive economy with reserves of renewable resources. UNDP (in Kurniawati, Sumarmi, And Aliman 2020) provides a more precise definition, stating that economic creativity is an integrative component of knowledge that is inventive, utilizes technology in creative ways, and is culturally relevant (Ni Made & I Komang, 2020). Due to the diversity of tribes and cultures in Indonesia, the culture of each region can be represented in a different way. The idea of a modern economy known as "creative economy" emphasizes creativity and information by using the ideas and knowledge of human resources as the main factor in production (Li, 2020).

The creative economy is related to people's livelihood. Livelihood of human resources capable of carrying out activities in fulfilling economic life (Narayan et al. 2022). According to Chambers R and Conway GR (in Anoegrajekti et al. 2018) explained that subsistence is related to ability, wealth (assets) and activities carried out by humans in meeting their economic needs. Ellis F (in Mayasari and Chandra, 2020) states that subsistence as a human resource involves assets, both *natural, physical, human, financial and social* (Narayan et al. 2023).Therefore, Ellies explains capital as human capital orientated in financial capital, natural capital, physical capital, and human capital. The creative economy is a new concept developed in Indonesia in facing the global economy. Creativity and innovation are very important for the development of ideas or ideas in increasing the knowledge of human resources as the main actors in the development of the creative economy (Yasa, 2020). INPRESS year 2009 number 6 there are several sectors of the creative economy, namely arts, advertising, crafts, film, architecture, fashion, design, music, publishing, performances, research and development, software, interactive toys and games, television, radio, culinary and games videos (Tobing et al., 2019). The community's ability to develop innovation is highly correlated with growth. Because of the strong individual creative capital they use to generate inventions, the creative economy, which includes the creative sector, has a strong bargaining power. One of the themes of Indonesia's developing economy is the creative economy. In order to innovate and create something, Indonesia can build a model of ideas and talents from its people. Having a creative mindset is very important to survive and grow in the future (Babu et al. 2020). Therefore, it can be concluded that having story writing, dancing, and singing skills is as important as being a creative worker. A creative economy based on local wisdom contains values that have meaning and are in a product or characteristic of a region or region. Creative economic development is not only economic growth but has an important role in culture. Products developed are related to local culture contained in creative and innovative ideas. The most important thing is that there are several elements in local wisdom, namely knowledge, understanding, belief and ethics (Setini et al., 2020), (Narayan et al. 2023).

Cultural products are oriented to potential economic values that are packaged and marketed based on uniqueness in a region. This encourages to promote cultural values and cultural

preservation in an area. Of course, the product potential becomes a selling point based on local wisdom, has creativity with a digital touch in the current era (Darmadi, 2018) (Faiz et al. 2023).. Success in developing the creative economy can be measured by integrating digital while maintaining local wisdom (McHattie et al., 2018). This resilience is based on the achievement of product excellence, job creation and innovation to develop. The most important thing is creativity human resources in taking action Digital-based creative economy contributes to economic development in the digital era (Anantrasirichai & Bull, 2022). The development of a digital-based creative economy helps people to be more creative and innovative in product packaging and marketing (Astuti, 2019). This is related to the network used as economic growth. Economy digital- based creative is constructed as an online network , infrastructure digital technology and access (Ramdiah et al., 2020). This can be seen in the following figure (Tyagi et al. 2023).

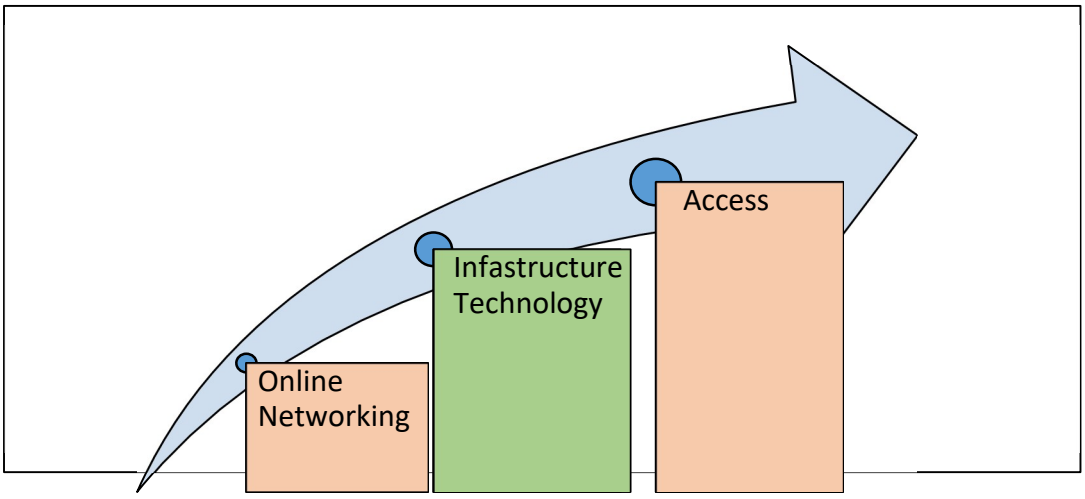


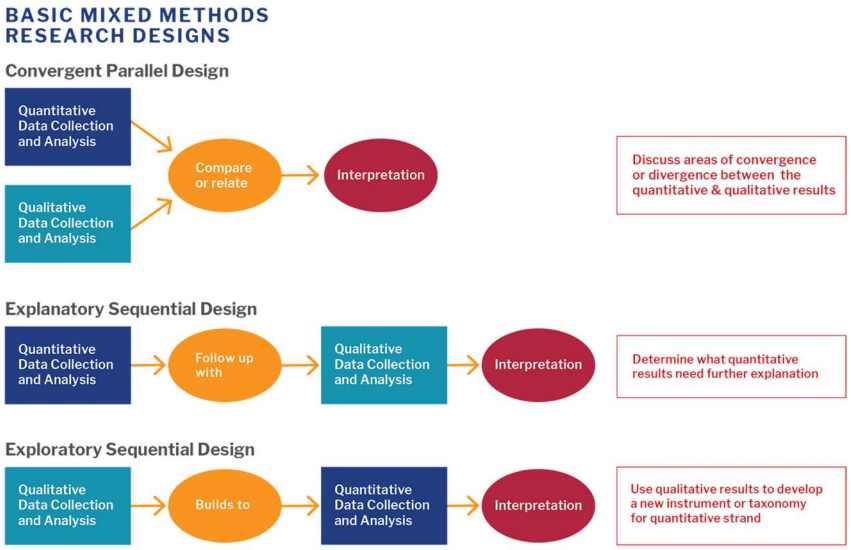
Figure 1. Digital-Based Creative Economy

Mosco (2018) in a digital study explains that digital in the economy has a structure, namely *computing , big data analytics and the internet of things* (IOT). Lupton (in Aziiza & Susanto, 2020) states that digital is not only an instrument but is embedded in human actions and behavior. Such action as decision- making in determining economic growth. Based on initial research findings, the economic growth of work creativity in Tanjung Agung Village, South Lampung Regency, has increased as anticipated to date (Arismayanti et al., 2019). The lack of strong creative economic resources in Tanjung Agung Village, South Lampung Regency, the absence of an industrial structure that supports creative economic growth, the absence of a financing program for creative industries, the limited availability of creative economy marketing, and the lack of institutional support for the creative economy (government synergy between the business world and the academic community, as well as the academic community), is the cause (Sibarani, 2018a), (Paricherla et al. 2023).

The tourist destination area in West Sumatra is experiencing a shift in the development of the creative economy. Even the use of locally based packaging has rarely been used. Even though

one of the creative economic goals developed by West Sumatra tourism is based on local wisdom towards nature in the tourist area. Besides that, human resources are the most important thing in the development of the creative economy (Gouvea et al., 2021), (Srivastava et al. 2023).. Today the development of the creative economy in the West Sumatra tourist destination area is experiencing a downturn in terms of product packaging including the use of digital technology (Hernanda et al., 2018). Weak product packaging and human creativity in the tourist destinations of West Sumatra have had an impact on the development of the creative economy. This is also a potential in creative economic efforts to increase the creativity of human resources (Mahesa et al., 2019). Development of creativity based on the creation of innovation, competitiveness, openness in the economic resilience of society (Pratiwi et al., 2021). It is interesting to conduct research on creative economic development models based on local and digital wisdom in dealing with market changes during the COVID-19 period in the West Sumatra destination area (Sawney et al. 2022).

Method. This study uses a *mixed method* or mixed approach (Perbawasari et al., 2019). This approach combines qualitative and quantitative approaches. This research is in the post-positivistic paradigm by considering social reality in the reality of natural law and researched by a researcher. The location of this research is in the tourist destination area, namely the City of Padang, City of Bukittinggi, City of Sawahlunto, Pesisir Selatan Regency and Tanah Datar Regency . Data collection methods range from document collection, in-depth interviews, FGDs and questionnaires. In a qualitative method, data management is done by collecting data, reducing data, presenting data and drawing conclusions. The analysis of Weber, Mosco, and Stanis' theory was carried out on the first and second results in a qualitative study (Tzanelli, 2018). Quantitative data analysis. **The first result** uses cluster analysis with the ability to cluster on the typology of human and business resources in the development of the creative economy. Checking the analysis uses the R-Squared value (R_2) with the following formula: (Pranamik et al. 2021).



Mix Method Design

SS $_b$ is the sum of the squares between groups in the typology of human resources in the study area, SS $_T$ is the total squared sum. The R-Squared values range from 0 to 1, a value of 0 indicates no difference between groups and a value of 1 indicates the maximum difference between groups in the study area. Next is the first result using Structural Equation Model (SEM) analysis (Akhtar et al., 2021), (Tyagi et al. 2021).

The second result uses Institutional Analysis and Development (IAD-Framework) analysis from (Ollivaud & Haxton, 2019), R&D analysis and data processing is carried out by means of Structural Equation Model (SEM) analysis. In the R&D analysis, there are several steps taken, starting from collecting data from results 1 and 2, planning the model, developing the model for results 2, testing the model for developing the creative economy, revising, testing the model for developing the creative economy and publishing the model.

Results And Discussion. Quantitative Analysis Validity test is a measure that shows the validity level of an instrument. The validation test was carried out to find out whether the instrument used had a good match with the research objectives being carried out. The instruments used were 3 Knowledge Gaining Questionnaires for Creative Economy Actors in Creative Economy Development, 4 Experience Questionnaires for Creative Economy Actors in Creative Economy Development, 3 Levels of Confidence/Change Questionnaires with information about creative economy, and 4 Ethics Questionnaires in Creative Economy Development that were tested to 32 Respondents. After the questionnaire was given to the Respondents, it was continued with a validity test using SPSS Version 25 with the following validity criteria:

$$\mathbf{r} = \frac{n\sum - \sum x(\sum y)}{\sqrt{\{n\sum x^2 - (\sum x)^2\}\{n\sum y^2 - (\sum y)^2\}}}$$

1. If r count > r table then the item is valid.
2. If r count < r table then the item is invalid

Table 1. Test the Validity of the Questionnaire to Gain Knowledge for Creative Economy Players in the Development of the Creative Economy

No	(R count)	R table	Significance	Information
1	0.470	0.349	0.007	Valid
2	0.571	0.349	0.001	Valid
3	0.657	0.349	0.000	Valid

Based on the table, 3 valid questionnaires were obtained and 0 were invalid. A valid questionnaire can later be used as a research instrument, while an invalid questionnaire will be discarded.

Table 2. Test the Validity of the Experience Questionnaire for Creative Economy Players in the Development of the Creative Economy

No	(R count)	R table	Significance	Information
1	0.465	0.349	0.007	Valid
2	0.579	0.349	0.001	Valid

3	0.477	0.349	0.006	Valid
4	0.438	0.349	0.012	Valid

Based on the table, 4 valid questionnaires were obtained and 0 were invalid. A valid questionnaire can later be used as a research instrument, while an invalid questionnaire will be discarded

Table 3. Test the validity of the questionnaire on the level of confidence/change with information about the creative economy

No	(R count)	R table	Significance	Information
1	0.388	0.349	0.028	Valid
2	0.524	0.349	0.002	Valid
3	0.544	0.349	0.001	Valid

Based on the table, 3 valid questionnaires were obtained and 0 were invalid. A valid questionnaire can later be used as a research instrument, while an invalid questionnaire will be discarded.

Table 4. Test the Validity of the Ethics Questionnaire in Creative Economy Development

No	(R count)	R table	Significance	Information
1	0.497	0.349	0.004	Valid
2	0.388	0.349	0.028	Valid
3	0.524	0.349	0.002	Valid
4	0.544	0.349	0.001	Valid

Based on the table, 4 valid questionnaires were obtained and 0 were invalid. A valid questionnaire can later be used as a research instrument, while an invalid questionnaire will be discarded

Table 5. Test the Validity of the Questionnaire on the Use of Online Networks for the Creative Economy

No	(R count)	R table	Significance	Information
1	0.470	0.349	0.007	Valid
2	0.571	0.349	0.001	Valid
3	0.657	0.349	0.000	Valid
4	0.677	0.349	0.000	Valid
5	0.679	0.349	0.002	Valid
6	0.543	0.349	0.004	Valid
7	0.467	0.349	0.002	Valid
8	0.444	0.349	0.002	Valid
9	0.656	0.349	0.002	Valid
10	0.399	0.349	0.001	Valid
11	0.655	0.349	0.002	Valid
12	0.545	0.349	0.005	Valid
13	0.543	0.349	0.003	Valid

Based on the table, 13 valid questionnaires were obtained and 0 were invalid. A valid questionnaire can later be used as a research instrument, while an invalid questionnaire will be discarded.

Table 6. Test the Validity of the Technology Infrastructure Questionnaire in the Development of the Creative Economy

No	(R count)	R table	Significance	Information
1	0.465	0.349	0.007	Valid
2	0.579	0.349	0.001	Valid
3	0.477	0.349	0.006	Valid

Based on the table, 4 valid questionnaires were obtained and 0 were invalid. A valid questionnaire can later be used as a research instrument, while an invalid questionnaire will be discarded

Table 7. Test the Validity of the Ability to Access Questionnaire in Creative Economy Development

No	(R count)	R table	Significance	Information
1	0.388	0.349	0.028	Valid
2	0.524	0.349	0.002	Valid
3	0.544	0.349	0.001	Valid

Based on the table, 3 valid questionnaires were obtained and 0 were invalid. A valid questionnaire can later be used as a research instrument, while an invalid questionnaire will be discarded

Reliability test

The reliability test was carried out after the validity test was completed. The reliability test is used to see the ability of the questions that have been provided to describe confidence in the test. To find out the level of confidence, this will be done using the SPSS version 25 program, with the criteria for measuring the instrument said to have acceptable reliability if the test value (*Cronbach alpha*) is 0.70 or more.

Table 8. Reliability Test of Acquiring Knowledge for Creative Economy Players in Creative Economy Development

Reliability Statistics	
Cronbach's Alpha	**N of Items**
0.822	32

Based on the reliability test results seen in the table above, a Cronbach alpha value of 0.822 was obtained. This concluded that the instrument questionnaire used had very high item reliability.

Table 9. Experience Questionnaire Reliability Test for Creative Economy Players in Creative Economy Development

Reliability Statistics	
Cronbach's Alpha	**N of Items**

0.854	32

Based on the reliability test results seen in the table above, a Cronbach alpha value of 0.854 was obtained. This concluded that the questionnaire instrument used had very high reliability.

Table 10. Questionnaire Reliability Test the level of confidence/change with information about the creative economy

Reliability Statistics	
Cronbach's Alpha	**N of Items**
0.789	32

Based on the reliability test results seen in the table above, a Cronbach alpha value of 0.789 was obtained. This concluded that the questionnaire instrument used had very high reliability.

Table 11. Ethics Questionnaire Reliability Test in Creative Economy Development

Reliability Statistics	
Cronbach's Alpha	**N of Items**
0.870	32

Based on the reliability test results seen in the table above, a Cronbach alpha value of 0.870 is obtained. This concludes that the questionnaire instrument used has very high reliability.

Table 12. Questionnaire Reliability Test for Using Online Networks for the Creative Economy

Reliability Statistics	
Cronbach's Alpha	**N of Items**
0.808	32

Based on the reliability test results seen in the table above, a Cronbach alpha value of 0.854 was obtained. This concluded that the questionnaire instrument used had very high reliability.

Table 13. Reliability Test of Technology Infrastructure Questionnaire in Creative Economy Development

Reliability Statistics	
Cronbach's Alpha	**N of Items**
0.787	32

Based on the reliability test results seen in the table above, a Cronbach alpha value of 0.789 is obtained. This concludes that the questionnaire instrument used has very high reliability.

Table 14. Reliability Test of Ability Questionnaire in Accessing Creative Economy Development

Reliability Statistics	
Cronbach's Alpha	**N of Items**
0.877	32

Based on the reliability test results seen in the table above, a Cronbach alpha value of 0.877 is obtained. This concludes that the questionnaire instrument used has very high reliability.

Cluster Analysis on the first result

A. Gaining Knowledge for Creative Economy Players in Creative Economy Development

Cluster analysis is a multivariate technique that aims to classify objects into groups that differ from one group to another. Objects that have the same relative proximity to other objects. The characteristics of objects in a group unit have a high level of similarity, while the characteristics of objects in a group with other groups have a low level of similarity. The procedure for forming a cluster is a hierarchy. In this chart, grouping of data will be carried out based on the elements of obtaining knowledge for creative creative actors.

Table 15. Gaining Knowledge Cluster Test

Case Processing Summary [a,b]					
Cases					
Valid		missing		Total	
N	percent	N	percent	N	percent
32	100.0	0	0.0	32	100.0
a. Squared Euclidean Distance used					
b. Average Linkage (Between Groups)					

Based on the SPSS output above, a valid value of 100 percent is obtained so that all data can be used in descriptive analysis to carry out data clustering.

Table 16. Knowledge Gaining Cluster Data

Agglomeration Schedule						
stages	Combined Clusters		Coefficients	Stage Cluster First Appears		NextStage
	Clusters 1	Clusters 2		Clusters 1	Clusters 2	
1	28	31	0.000	0	0	26
2	17	27	0.000	0	0	11
3	24	26	0.000	0	0	4
4	23	24	0.000	0	3	5
5	22	23	0.000	0	4	6

6	21	22	0.000	0	5	7
7	20	21	0.000	0	6	8
8	19	20	0.000	0	7	9
9	18	19	0.000	0	8	10
10	15	18	0.000	0	9	13
11	16	17	0.000	0	2	12
12	3	16	0.000	0	11	29
13	14	15	0.000	0	10	14
14	13	14	0.000	0	13	15
15	12	13	0.000	0	14	16
16	11	12	0.000	0	15	17
17	10	11	0.000	0	16	18
18	9	10	0.000	0	17	19
19	8	9	0.000	0	18	20
20	7	8	0.000	0	19	21
21	6	7	0.000	0	20	22
22	5	6	0.000	0	21	23
23	4	5	0.000	0	22	24
24	2	4	0.000	0	23	25
25	1	2	0.000	0	24	28
26	25	28	1,000	0	1	28
27	30	32	2,000	0	0	31
28	1	25	3,000	25	26	30
29	3	29	4,000	12	0	30
30	1	3	5,000	28	29	31
31	1	30	12,433	30	27	0

Based on the plot above, using the silhouette method to validate the number of clusters, the optimal number of clusters that is appropriate to use to solve this case is 2 clusters. In detail can be seen in the following figure.

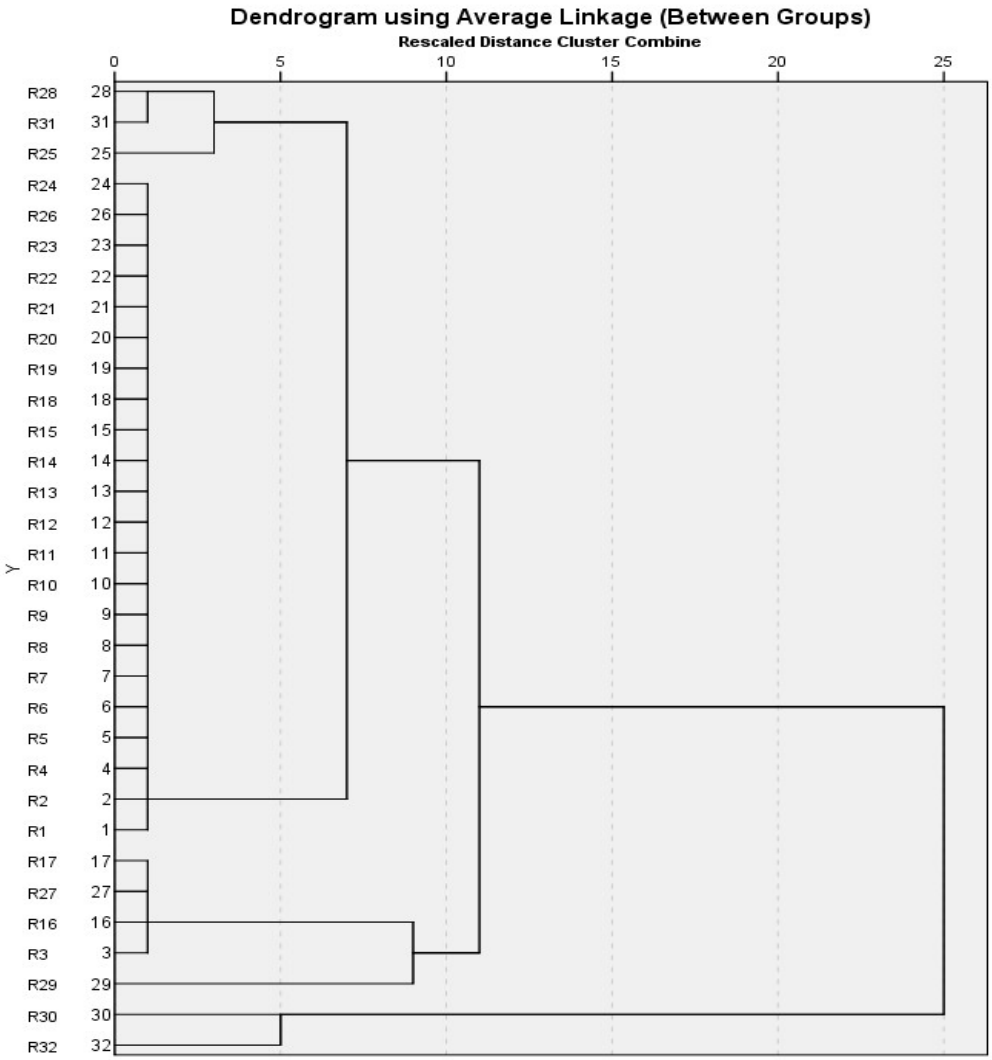


Figure 3. Cluster Separation

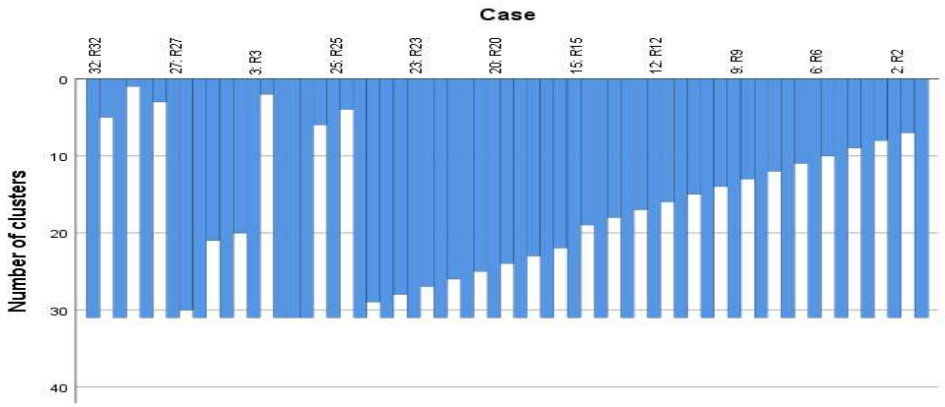


Figure 4. Number of clusters

The picture above is a visualization of the typology of human resources in each research area based on the respondents, namely Padang City, Bukittinggi City, Sawahlunto City, Pesisir Selatan Regency and Tanah Datar Regency which are measured based on the element of acquiring knowledge for creative creative practitioners. Cluster 1, namely the district/city group included in cluster 1 as many as 30 respondents. Cluster 2, namely the Regency/City group that is included in the cluster, there are only 2 respondents, so that the overall characteristics of the grouping tend to have similarities, namely in the first cluster.

b. Experiences For Creative Economy Activiters In Developing A Creative Economy

Cluster analysis is a multivariate technique that aims to classify objects into groups that differ from one group to another. Objects that have the same relative proximity to other objects. The characteristics of objects in a group unit have a high level of similarity, while the characteristics of objects in a group with other groups have a low level of similarity. The procedure for forming a cluster is a hierarchy. In this chart, grouping of data will be carried out based on the elements of Experience for Creative Artists.

Table 17. Experience Cluster Test for Creative Economy Players

Case Processing Summary [a,b]					
Cases					
Valid		missing		Total	
N	percent	N	percent	N	percent
32	100.0	0	0.0	32	100.0
a. Squared Euclidean Distance used					
b. Average Linkage (Between Groups)					

Based on the SPSS output above, a valid value of 100 percent is obtained so that all data can be used in descriptive analysis to carry out data clustering.

Table 18. Experience Cluster Data for Creative Economy Players

Agglomeration Schedule						
stages	Combined Clusters		Coefficients	Stage Cluster First Appears		NextStage
	Clusters 1	Clusters 2		Clusters 1	Clusters 2	
1	31	32	0.000	0	0	2
2	30	31	0.000	0	1	13
3	23	28	0.000	0	0	4
4	22	23	0.000	0	3	5
5	21	22	0.000	0	4	6
6	13	21	0.000	0	5	15
7	19	20	0.000	0	0	8

8	17	19	0.000	0	7	9
9	10	17	0.000	0	8	17
10	8	16	0.000	0	0	17
11	11	14	0.000	0	0	14
12	1	4	0.000	0	0	26
13	26	30	1,000	0	2	20
14	11	27	1,000	11	0	21
15	13	24	1,000	6	0	22
16	5	15	1,000	0	0	23
17	8	10	1,000	10	9	23
18	6	9	1,000	0	0	26
19	2	3	1,000	0	0	24
20	25	26	1,250	0	13	27
21	11	18	1,333	14	0	22
22	11	13	1,667	21	15	27
23	5	8	2,167	16	17	25
24	2	29	2,500	19	0	25
25	2	5	3,792	24	23	28
26	1	6	4,500	12	18	29
27	11	25	4,820	22	20	28
28	2	11	5,758	25	27	30
29	1	12	12,750	26	0	31
30	2	7	12,923	28	0	31
31	1	2	16,911	29	30	0

Based on the plot above, using the silhouette method to validate the number of clusters, the optimal number of clusters that is appropriate to use to solve this case is 2 clusters. In detail can be seen in the following figure.

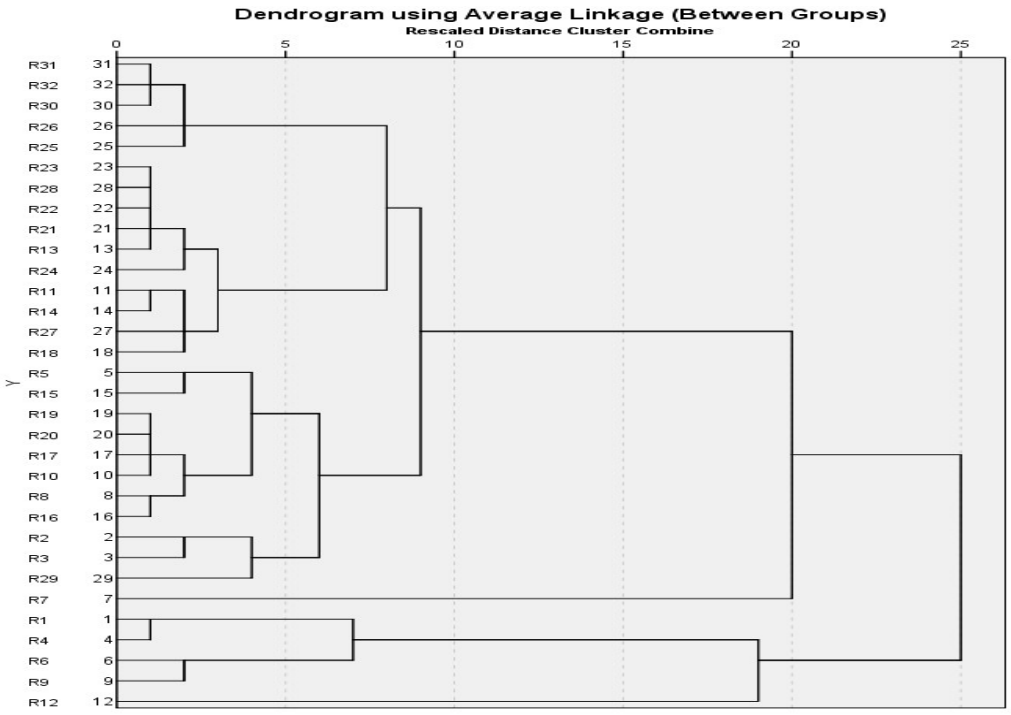


Figure 5. Separation of Experience Clusters for Creative Economy Actors

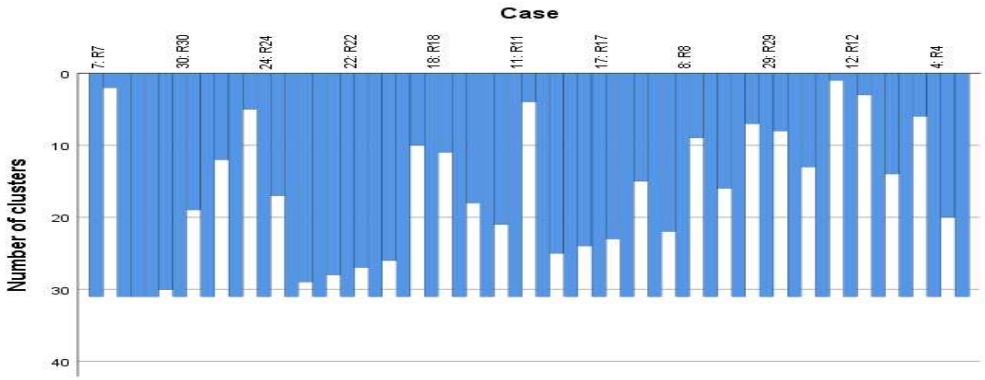


Figure 6. Number of Experience clusters for Creative Economy Actors

The picture above is a visualization of the typology of human resources in each research area based on the respondents, namely the City of Padang, the City of Bukittinggi, the City of Sawahlunto, the South Coastal District and the Tanah Datar Regency which are measured based on the Experience element for Creative Creative Actors. Cluster 1, namely the district/city group included in cluster 1 as many as 25 respondents. Cluster 2, namely the Regency/City group that is included in the cluster there are only 5 respondents, so that overall the characteristics of the grouping tend to have the same thing, namely in the first cluster.

C. Level Of Confidence / Change With Information About Creative Economy

Cluster analysis is a multivariate technique that aims to classify objects into groups that differ from one group to another. Objects that have the same relative proximity to other objects. The characteristics of objects in a group unit have a high level of similarity, while the characteristics of objects in a group with other groups have a low level of similarity. The procedure for forming a cluster is a hierarchy. In this chart, data will be grouped based on the element of Confidence Level/Change With Information About the Creative Economy

Table 19. Cluster Test of Level of Confidence/Change with Information on the Creative Economy

Case Processing Summary [a, b]					
Cases					
Valid		missing		Total	
N	percent	N	percent	N	percent
32	100.0	0	0.0	32	100.0
a. Squared Euclidean Distance used					
b. Average Linkage (Between Groups)					

Based on the SPSS output above, a valid value of 100 percent is obtained so that all data can be used in descriptive analysis to carry out data clustering.

Table 20. Confidence/Change Level Cluster Data With Information About Creative Economy

Agglomeration Schedule						
stages	Combined Clusters		Coefficients	Stage Cluster First Appears		NextStage
	Clusters 1	Clusters 2		Clusters 1	Clusters 2	
1	15	30	0.000	0	0	12
2	22	25	0.000	0	0	3
3	17	22	0.000	0	2	15
4	9	21	0.000	0	0	10
5	3	20	0.000	0	0	19
6	8	18	0.000	0	0	18
7	12	16	0.000	0	0	9
8	2	13	0.000	0	0	11
9	11	12	0.000	0	7	17
10	6	9	0.000	0	4	20
11	1	2	0.000	0	8	18
12	15	32	1,000	1	0	22
13	28	31	1,000	0	0	22
14	27	29	1,000	0	0	23

15	17	23	1,000	3	0	24
16	5	19	1,000	0	0	25
17	11	14	1,000	9	0	21
18	1	8	1,000	11	6	24
19	3	7	1,000	5	0	27
20	4	6	1,000	0	10	21
21	4	11	1.375	20	17	26
22	15	28	1,500	12	13	30
23	24	27	1,500	0	14	26
24	1	17	1,550	18	15	27
25	5	26	2,500	16	0	28
26	4	24	2,750	21	23	29
27	1	3	3,148	24	19	29
28	5	10	3,333	25	0	30
29	1	4	4,917	27	26	31
30	5	15	5,300	28	22	31
31	1	5	6,464	29	30	0

Based on the plot above, using the silhouette method to validate the number of clusters, the optimal number of clusters that is appropriate to use to solve this case is 2 clusters. In detail can be seen in the following figure.

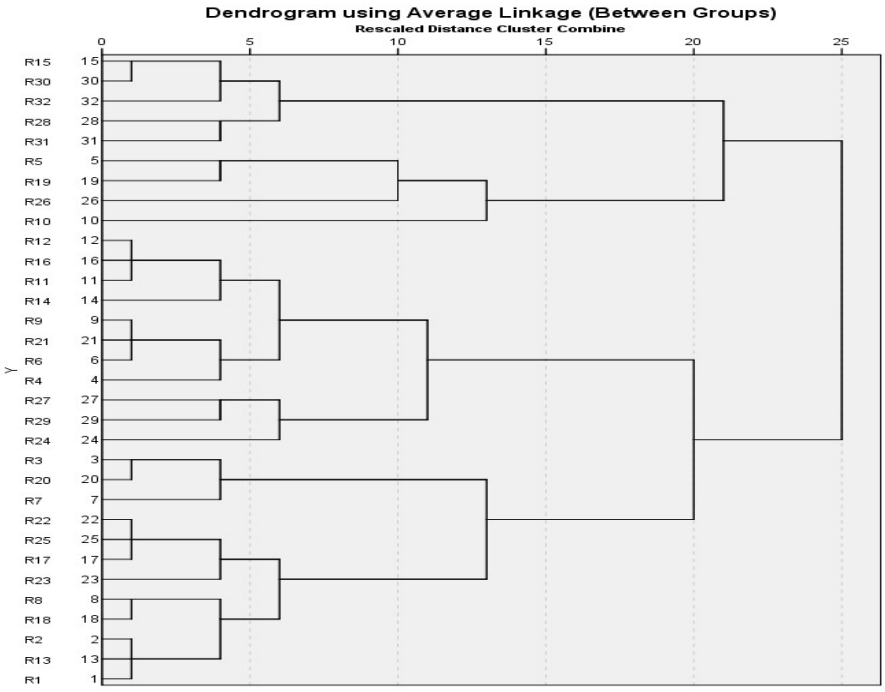


Figure 7. Separation of Confidence/Change Level Clusters from Information on the Creative Economy

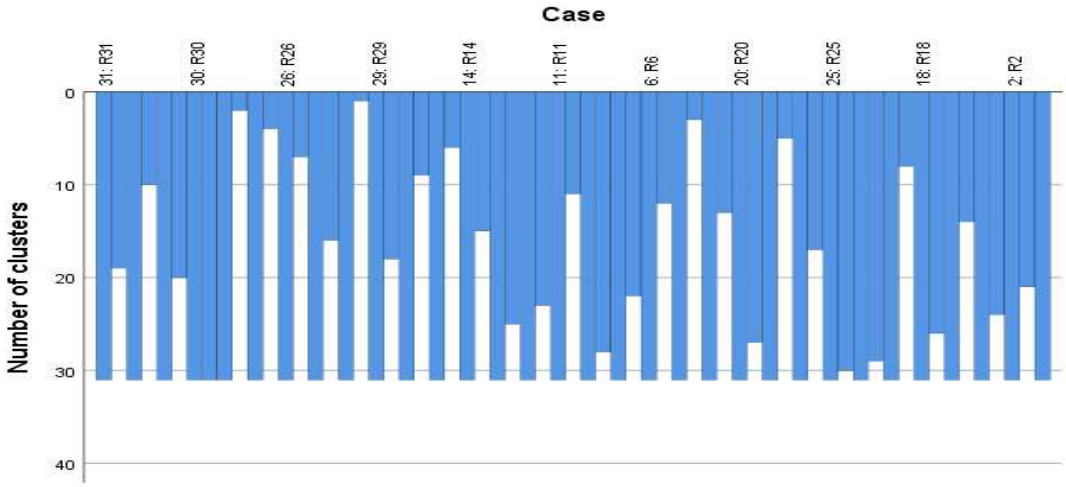


Figure 8. Number of clusters of Confidence Level/Change with Information Regarding the Creative Economy

The picture above is a visualization of the typology of human resources in each research area based on the respondents, namely Padang City, Bukittinggi City, Sawahlunto City, Pesisir Selatan Regency and Tanah Datar Regency which are measured based on the Level of Confidence/Change element. With Information About Creative Economy. Cluster 1, namely the district/city group included in cluster 1 as many as 9 respondents. Cluster 2, namely the Regency/City group that is included in the cluster, there are 23 respondents, so that the overall characteristics of the grouping tend to have similarities, namely in the second cluster (De Beukelaer & Spence, 2018).

D. Ethics In Creative Economy Development

Cluster analysis is a multivariate technique that aims to classify objects into groups that differ from one group to another. Objects that have the same relative proximity to other objects. The characteristics of objects in a group unit have a high level of similarity, while the characteristics of objects in a group with other groups have a low level of similarity. The procedure for forming a cluster is a hierarchy (Kotsopoulos et al., 2019). In this chart, data will be grouped based on the elements of Ethics in Creative Economy Development

Table 21. Ethics Cluster Test in Creative Economy Development

Case Processing Summary [a,b]					
Cases					
Valid		missing		Total	
N	percent	N	percent	N	percent
32	100.0	0	0.0	32	100.0
a. Squared Euclidean Distance used					
b. Average Linkage (Between Groups)					

Based on the SPSS output above, a valid value of 100 percent is obtained so that all data can be used in descriptive analysis to carry out data clustering.

Table 22. Ethics Cluster Data in Creative Economy Development

Agglomeration Schedule						
stages	Combined Clusters		Coefficients	Stage Cluster First Appears		NextStage
	Clusters 1	Clusters 2		Clusters 1	Clusters 2	
1	22	29	0.000	0	0	19
2	27	28	0.000	0	0	19
3	8	26	0.000	0	0	22
4	23	25	0.000	0	0	6
5	6	24	0.000	0	0	16
6	18	23	0.000	0	4	9
7	19	20	0.000	0	0	8
8	15	19	0.000	0	7	11
9	17	18	0.000	0	6	10
10	9	17	0.000	0	9	21
11	14	15	0.000	0	8	12
12	10	14	0.000	0	11	15
13	11	12	0.000	0	0	14
14	7	11	0.000	0	13	23
15	3	10	0.000	0	12	17
16	4	6	0.000	0	5	22
17	2	3	0.000	0	15	18
18	1	2	0.000	0	17	21
19	22	27	1,000	1	2	25
20	13	21	1,000	0	0	28
21	1	9	1,000	18	10	24
22	4	8	1,000	16	3	24
23	5	7	1,000	0	14	26
24	1	4	1,477	21	22	26
25	16	22	1,500	0	19	28
26	1	5	1,778	24	23	29
27	30	31	3,000	0	0	30
28	13	16	4,300	20	25	29
29	1	13	5,786	26	28	31
30	30	32	7,500	27	0	31
31	1	30	12,069	29	30	0

Based on the plot above, using the silhouette method to validate the number of clusters, the optimal number of clusters that is appropriate to use to solve this case is 2 clusters. In detail can be seen in the following figure.

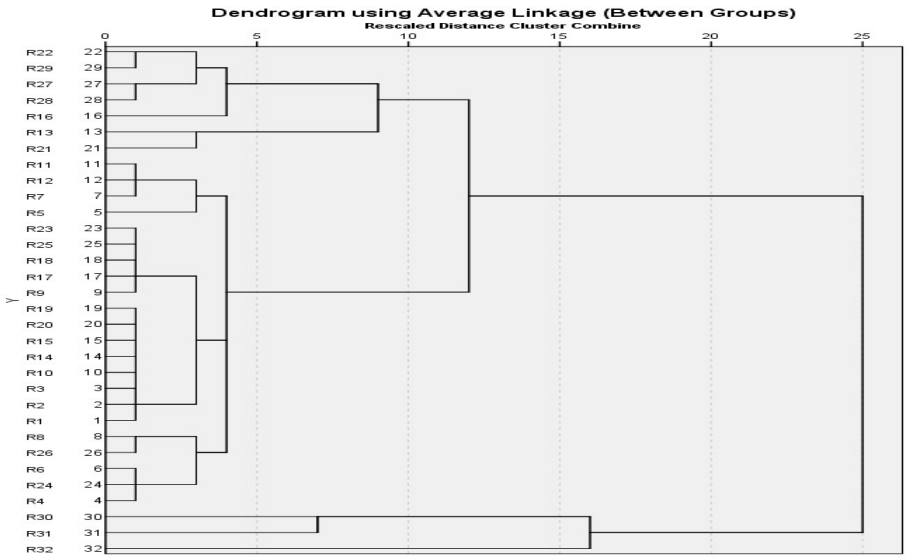


Figure 9. Ethics in Creative Economy Development

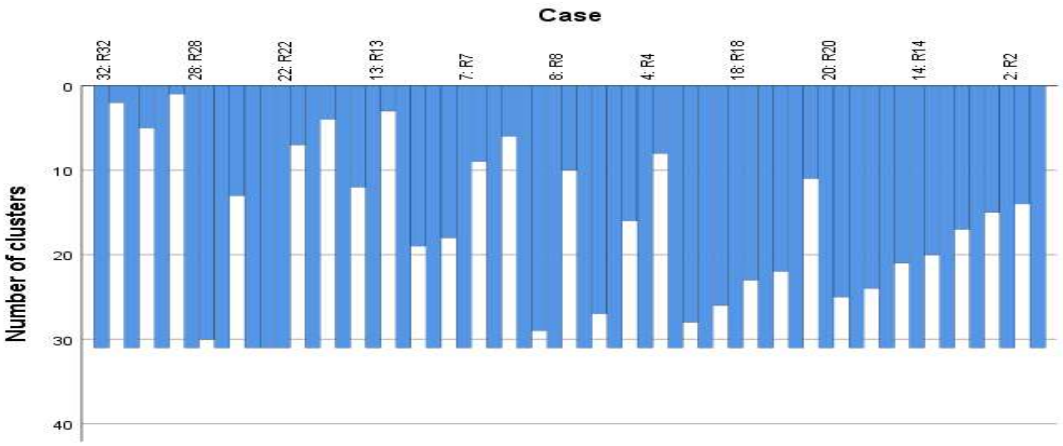


Figure 10. Ethics in Creative Economy Development

The picture above is a visualization of the typology of human resources in each research area based on the respondents, namely Padang City, Bukittinggi City, Sawahlunto City, Pesisir Selatan Regency and Tanah Datar Regency which are measured based on the elements of Ethics in Creative Economy Development. Cluster 1, namely the district/city group included in cluster 1 as many as 29 respondents. Cluster 2 , namely the Regency/City group that is included in the cluster there are only 3 Respondents, so that overall the characteristics of the grouping tend to have similarities, namely in the first cluster.

Results of Cluster Analysis Second result

Table 23. Results of Local Wisdom-based Creative Economy Development Analysis

Variable	Indicator	Factor	Percentage
Gaining Knowledge	Forms of activity	Textile Craft Creative Economy Product Manufacturing Training	35 %
		Online Marketing Strategy Training in Culinary Businesses	30 %
		Training to market products online through Social Media	20 %
		Other	15 %
	Actors in increasing knowledge	All creative actors	45 %
		Provincial/City/District tourism office	30 %
		Other	25 %
	Time in participating in activities	>30 hours	46 %
		22-29 hours	34 %
		Other	20 %
Experience for Creative Actors	Activeness in participating in activities	Always present	45 %
		6-10 times	40 %
		Other	5 %
	Professional activity coach	Head of Provincial/City/Regency creative economy actors	55 %
		Provincial/City/District tourism office	35 %
		Other	10 %
	Forms of activity	Discussion with the actors involved in the Creative Economy	40 %
		Searching on google to increase knowledge	40 %
		Other	20 %
	Form of activeness in reading about creative economics	News/Issues about marketing products online through Social Media	50 %
		News/Issues about Brand & Digital Marketing	45 %

		Other	5 %
Level of Confidence/Change With Information About Creative Economy	The impact of creative economic activity	Creative creative practitioners continue to learn to innovate and create products that are produced so that they are able to package environmentally friendly (safe; attractive) products, expand networks in marketing both digitally and use social media and make products that are sought after by consumers. Other	60 %
	The impact of the change on the trust of EKRAF actors, network expansion and local cultural resilience	Strongly agree	55 %
		agree	40 %
		other	5 %
	Activities that lead to changes in products and marketing	Often	40 %
		Very often	35 %
		Other	25 %
Ethics in Creative Economy Development	Repeating creative economy material (EKRAF)	Often	45 %
		Seldom	30 %
		Other	25 %
	Members create discussions to understand EKRAF	Often	45 %
		Very often	45 %
		other	10 %
	Assessment of the creative economy	Things that are necessary for increasing the household economy as well as regional/central income in reducing unemployment and poverty in each region	65 %
	Language in marketing products resulting from product innovation	Considering politeness aspects in digital marketing to consumers	60 %

		Continue to do digital marketing and slightly ignore consumer responses from product quality	35 %
		other	5 %

Table 24. Results of Analysis of Digital-Based Creative Economy Development

Variable	Indicator	Factor	Percentage
Use of Online Networks for the Creative Economy	Types of online networks	Instagram	45 %
		ticktock	35 %
		other	20 %
	Time in use	6-11 Hours	40 %
		1-5 Hours	40 %
		other	20 %
	intensity of online network usage	The products sold very well and experienced an increase in sales revenue and higher consumers	70 %
		other	30 %
	A form of product innovation marketing using content	Photo	55 %
		videos	40 %
		other	5 %
	Join the creative economy development group	WhatsApp	50 %
		Facebook	40 %
	Area in the development of the creative economy	North Sumatra West Sumatra Riau	60%
	Regional Collaboration in the development of the creative economy	No	45 %
		yes	30 %
	Age in the development of the creative economy	27 - 32 Ages	55 %
		21 - 26 Ages	40 %
		other	5 %
	Collaboration with digital applications	Yes	70 %
		No	30 %
	Types of collaboration with digital applications	Online GoJek	60 %
		JNE	35 %
		other	5 %
	Instruments used	Smartphones	70 %

Technology Infrastructure in Creative Economy Development		Laptops	25 %
		Other	5 %
	Connection used	Internet quota package	60 %
		Public wifi/from village or kelurahan	30 %
		other	10 %
	Connection speed in product marketing	Fast	40 %
		Very fast	40 %
		other	20 %
Ability to Access Creative Economy Development	Information channels in accessing information regarding product innovations for economic development	Searching on google to increase knowledge	55 %
		Discussion with the actors involved in the Creative Economy	40 %
		other	5 %
	Information channels in accessing information regarding the marketing of economic development products	Searching on google to increase knowledge	45 %
		Read and learn through social media	40 %
		other	15 %
	Ease of accessing information for the development of the creative economy	Very easy	45 %
		easy	45 %
		other	10 %

Evaluation of the Structural Model (Inner Model)

Evaluation of the structural model in SEM with PLS was carried out by carrying out the R-squared (R2) test, Goodness of Fit (Gof) and significance test through path coefficient estimation.

1. R-square test (R2)

The predictive power of a structural model can be measured using RSquare (R2). The use of R-Square (R2) to explain the effect of certain exogenous latent variables on endogenous latent variables does it have a certain effect (Rusli et al., 2018). The R-Square value (R2) with scores of 0.67, 0.33 and 0.19 shows that the model is strong, moderate and weak. The R-Square value (R2) in this study is presented in the following table:

Table 2 5 . R-Square test for local wisdom-based creative economy and digital-based creative economy

Construct	*R-Square*	*R-Square adjusted*
Local Wisdom-Based Creative Economy (Y)	0.599	0.567
Digital Based Creative Economy (Z)	0.568	0.541

Based on the table it can be seen that the R-Square value on the Local Wisdom-Based Creative Economy variable shows a value of 0.599. This value indicates that the variable influences the development of the creative economy by 59.9%. Meanwhile, the digital-based creative economy has an R-Square value of 0.568 which indicates that this variable has an effect of 56.8%. This value indicates that the model in this study is included in the moderate criteria because the values 0.599 and 0.568 range from 0.33.

2. Goodness of Fit (GoF)

The PLS Path Modeling analysis can identify global optimization criteria to determine the Goodness of Fit index. The Goodness of Fit or GoF index was developed by Tenehause et al (2004) and is used to evaluate measurement models and structural models and in addition provides a simple measure of the overall predictions of the model (Cavalheiro et al., 2020). The GoF score criteria are 0.10, 0.25 and 0.36 which show that GoF is small, GoF Medium and GoF Large. The Gof value in this research model can be seen in table 5.7. as follows:

Table 2 6 . Goodness of Fit (GoF) Test Results for Local Wisdom-Based Economy

Construct	*R-Square*	*Communality*
KNOWLEDGE (X1)	-	0.516
EXPERIENCE (X2)	-	0.596
CHANGE (X3)	-	0.710
ETHICS (X4)	-	0.683

Table 2 7 . Results of Goodness of Fit (GoF) Test for Digital-Based Economy

Construct	*R-Square*	*Communality*
NETWORK (Y1)	-	0.516
TECHNOLOGY INFRASTRUCTURE (Y2)	-	0.596
ACCESS (Y3)	-	0.710

Based on the calculation above, it can be obtained that the GoF value ranges from > 0.36 so that it can be concluded that the model in this study is included in the GoF Large criteria.

3. Significance Test (Bootstraping)

To see whether a hypothesis can be accepted or rejected, it can be done by paying attention to the significance value between construct-statistics and p-values. With this technique, measurement estimates and standard errors are no longer calculated using statistical assumptions, but are based on empirical observations. In the bootstrap resampling method in this study, the significance value used (two-tailed) t-value is 1.985 (significance level = 5%) provided that the t-statistic value must be greater than 1.985. Hypothesis testing with the PLS SEM method is carried out by carrying out the bootstrapping process with the help of SmartPLS 3.3 software so that the influence of exogenous variables on endogenous variables is obtained as follows:

Table 28 . Research Data Bootstrapping Calculation Results

hypothesis	Construct	*Estimates*	*sample Means*	*t Statistics*	*P-Values*	Ket
H1	X1 □ Z	0.257	0.070	1,993	0.044	Significant
H2	X1 □ Y	0.209	0.109	1,998	0.045	Significant
H3	X2 □ Z	0.224	0.033	2,099	0.023	Significant
H4	X2 □ Y	0.205	0.201	1,994	0.049	Significant
H5	X3 □ Z	0.328	0.046	2,265	0.031	significant
H6	X3 □ Y	0.283	0.280	2,002	0.046	Significant
H7	X4 □ Z	0.287	0.098	2,613	0.040	Significant

Based on the table, the hypothesis test can be carried out as follows:

Direct Effect Between Variables (Direct Effect)

a. H1a: Gaining Knowledge for Creative Economy Players in Creative Economy Development

Based on the results of the PLS SEM estimation, the statistical t value of the influence of Knowledge Gaining (X1) on locally-based creative economy is 1.993 > 1.985 (t count) and the p value is 0.044 <0.05 (alpha 5%) so it can be concluded that H1a is accepted means to have a significant influence (Saddhono & Erwinsyah, 2018). The original sample estimate value shows a number of 0.257 which indicates that the variable relationship has a positive direction.

b. H2: Experience for Creative Economy Players in Creative Economy Development

Based on the results of the PLS SEM estimation, the t value of the influence statistic (X2) on (Y) is 1.998 > 1.985 (t count) and the p value is 0.045 <0.05 (alpha 5%) so it can be concluded that H1b is accepted which has a significant influence . The original sample estimate value shows a number of 0.209 which indicates that the relationship has a positive direction.

c. H3: Rate of Change With Information About Creative Economy

Based on the results of the PLS SEM estimation, a statistical t value of 2.099 > 1.985 (t count) and a p value of 0.023 <0.05 (alpha 5%) is obtained, so it can be concluded that H2a is accepted. The original sample estimate value shows a number of 0.224 which indicates that the variable relationship has a positive direction.

d. H4 : Ethics in Creative Economy Development

Based on the results of the PLS SEM estimation, the t statistic value was 1.994 > 1.985 (t count) and the p value was 0.049 <0.05 (alpha 5%) so it can be concluded that it has a significant influence. The original sample estimate value shows a number of 0.205 which indicates that the variable relationship has a positive direction (Wang et al., 2020).

e. H5 : Use of Online Networks for the Creative Economy

Based on the results of the PLS SEM estimation, it was obtained at 2.265 > 1.985 (t count) and a p value of 0.791 > 0.05 (alpha 5%) so that it can have a significant effect. The original sample estimate value shows a number of 0.038 which indicates that the relationship has a positive direction.

f. H6: Technology Infrastructure in Creative Economy Development

Based on the results of the PLS SEM estimation, a value of 2.002 > 1.985 (t count) was obtained and a p value of 0.046 <0.05 (alpha 5%) so that it can be concluded that H6 is accepted which means it has a significant influence. The original sample estimate value shows a number of 0.283 which indicates that the relationship has a positive direction.

g. H7: Ability to Access Creative Economy Development

Based on the results of the PLS SEM estimation, the t statistic value was 2,613 <1.985 (t count) and the p value was 0.791 > 0.05 (alpha 5%) so it can be concluded that it has a significant influence. The original sample estimate value shows a number of 0.087 which indicates that the variable relationship has a positive direction (Morrison, 2018).

Reference

Akhtar, N., Khan, N., Mahroof Khan, M., Ashraf, S., Hashmi, M. S., Khan, M. M., & Hishan, S. S. (2021). Post-COVID 19 Tourism: Will Digital Tourism Replace Mass Tourism? Sustainability, 13(10), 5352. https://doi.org/10.3390/su13105352

Anantrasirichai, N., & Bull, D. (2022). Artificial intelligence in the creative industries: a review. Artificial Intelligence Review, 55(1), 589–656. https://doi.org/10.1007/s10462-021-10039-7

Anoegrajekti, N., Sariono, A., Macaryus, S., & Kusumah, M. S. (2018). Banyuwangi Ethno Carnival as visualization of tradition: The policy of culture and tradition revitalization through enhancement of innovation and locality-based creative industry. Cogent Arts & Humanities, 5(1), 1502913. https://doi.org/10.1080/23311983.2018.1502913

Arismayanti, N. K., Sendra, I. M., Suwena, I. K., Budiarsa, M., Bakta, I. M., & Pitana, I. G. (2019). Tourism Villages' Development in Bali, Mass or Alternative Tourism? JOURNAL OF TOURISM AND HOSPITALITY MANAGEMENT, 7(2), 117–139. https://doi.org/10.15640/jthm.v7n2a11

Astuti, K. A. (2019). Community-based tourism: measuring readiness of artificial intelligence on traditional village. International Journal of Social Sciences and Humanities, 3(3), 81–89. https://doi.org/10.29332/ijssh.v3n3.352

Aziiza, A. A., & Susanto, T. D. (2020). The Smart Village Model for Rural Area (Case Study: Banyuwangi Regency). IOP Conference Series: Materials Science and Engineering, 722(1), 012011. https://doi.org/10.1088/1757-899X/722/1/012011

Cavalheiro, M. B., Joia, L. A., & Cavalheiro, G. M. do C. (2020). Towards a Smart Tourism Destination Development Model: Promoting Environmental, Economic, Socio-cultural and Political Values. Tourism Planning & Development, 17(3), 237–259. https://doi.org/10.1080/21568316.2019.1597763

Darmadi, H. (2018). Educational management based on local wisdom (descriptive analytical studies of culture of local wisdom in west kalimantan). Journal of Education, Teaching and Learning, 3(1), 135–145. https://www.learntechlib.org/p/209101/

De Beukelaer, C., & Spence, K.-M. (2018). Global cultural economy. Routledge.

Gouvea, R., Kapelianis, D., Montoya, M.-J. R., & Vora, G. (2021). The creative economy, innovation and entrepreneurship: an empirical examination. Creative Industries Journal, 14(1), 23–62. https://doi.org/10.1080/17510694.2020.1744215

Harahap, A.,Budianto Bangun, et all 2022. Analysis Of Water Quality From Bio-Physical-Chemical Factors Of The Asahan River North Sumatra. Annals of Forest Researchthis link is disabled, 2022, 65(1), pp. 1513–1528.

Hernanda, D. W., Mindarti, L. I., & Riyanto, R. (2018). Community empowerment based on good tourism governance in the development of tourism destination (Case study of Kawah Ijen tourism buffer zone" Kampung Kopi" Gombengsari Village, Kalipuro District, Banyuwangi Regency). Journal of Indonesian Tourism and Development Studies, 6(2), 126–135.

Indrajaya, T., Cahyandito, M. F., Wiweka, K., & Adnyana, P. P. (2019). The development of creative industry strategies as a tourist attraction in Banten Province, Indonesia. Journal of Economics, Management and Trade, 22(5), 1–10.

A. Harahap, P. Hrp, N.K.A.R. Dewi, Macrozoobenthos diversity as anbioindicator of the water

quality in the River Kualuh Labuhanbatu Utara, International Journal of Scientific & Technology Research, 9(4), 2020, pp. 179-183.

Kotsopoulos, K. I., Chourdaki, P., Tsolis, D., Antoniadis, R., Pavlidis, G., & Assimakopoulos, N. (2019). An authoring platform for developing smart apps which elevate cultural heritage experiences: A system dynamics approach in gamification. Journal of Ambient Intelligence and Humanized Computing, 1–17. https://doi.org/10.1007/s12652-019-01505-w

Harahap, A, et, all, Macrozoobenthos diversity as anbioindicator of the water quality in the Sungai Kualuh Labuhanbatu Utara, AACL Bioflux, 2022, Vol 15, Issue 6.

Kurniawati, E., Sumarmi, S., & Aliman, M. (2020). Participation Of Green Environmental Group And Ulur-Ulur Local Wisdom On Buret Lake Ecotourism Management In Karst Area Of Tulungagung, Indonesia. Geojournal Of Tourism And Geosites, 30(2 Supplement), 889–895. Https://Doi.org/10.30892/gtg.302spl15-519

Harahap A, Mahadewi EP, Ahmadi D, Tj HW, Ganiem LM, Rafika M, Hartanto A. 2021. Monitoring of macroinvertebrates along streams of Bilah River, North Sumatra, Indonesia. Intl J Conserv Sci 12 (1): 247- 258.

K.Khairul, R Machrizal, A Harahap,2019. Biological aspects of fish indo pacific tarpon (Megalops cyrinoides Broussonet, 1782) at Belawan River IOP Conference Series: Earth and Environmental Science 348 (1), 012028 vol: | issue : 2019

Li, F. (2020). The digital transformation of business models in the creative industries: A holistic framework and emerging trends. Technovation, 92–93, 102012. https://doi.org/10.1016/j.technovation.2017.12.004

lubis, hisnuddin. (2020). Strategy Of Tourism Village Development Based On Local Wisdom. SSRN Electronic Journal, 9(2), 320–329. https://doi.org/10.2139/ssrn.3948752

Mahesa, R., Yudoko, G., & Anggoro, Y. (2019). Dataset on the sustainable smart city development in Indonesia. Data in Brief, 25, 104098. https://doi.org/10.1016/j.dib.2019.104098

Mayasari, Y., & Chandra, T. (2020). Social capital for knowledge management system of the creative industry. Journal of Enterprising Communities: People and Places in the Global Economy, 14(4), 481–494. https://doi.org/10.1108/JEC-01-2020-0008

McHattie, L.-S., Champion, K., & Broadley, C. (2018). Craft, textiles, and cultural assets in the Northern Isles: innovation from tradition in the Shetland Islands. Island Studies Journal, 13(2), 39–54. https://doi.org/10.24043/isj.47

Morrison, A. M. (2018). Marketing and managing tourism destinations. Routledge.

Ni Made, R., & I Komang, S. (2020). Model of innovative Wayang Wong for millenial generation to meet 4.0 industrial revolution era in Bali. Journal of Environmental Treatment Techniques, 8(03), 999–1004. http://repo.isi-dps.ac.id/id/eprint/3724

Ollivaud, P., & Haxton, P. (2019). Making the most of tourism in Indonesia to promote sustainable regional development. https://doi.org/https://doi.org/10.1787/18151973

Perbawasari, S., Sjuchro, D. W., Setianti, Y., & Nugraha, A. R. (2019). Halal tourism communication formation model in west Java, Indonesia.

Pratiwi, R., Rama, R., & Sulistiyanti, N. (2021). Building the trust for the tourism destination resiliency in new normal society (the role of wellness tourism system). IKRA-ITH HUMANIORA: Jurnal Sosial Dan Humaniora, 5(1), 1–9.

Putri, M. A., Abbas, E. W., & Jumriani, J. (2021). Strategies in Developing Creative Economic Activities Based on Local Wisdom. The Innovation of Social Studies Journal, 3(1), 42. https://doi.org/10.20527/iis.v3i1.3517

Ramdiah, S., Abidinsyah, A., Royani, M., Husamah, H., & Fauzi, A. (2020). South Kalimantan Local Wisdom-Based Biology Learning Model. European Journal of Educational Research, 9(2), 639–653. http://www.eu-jer.com

Rusli, M., Firmansyah, R., & Mbulu, Y. P. (2018). Halal tourism destination development model. Journal of Environmental Management & Tourism, 9(6 (30)), 1296–1302. https://doi.org/10.14505/jemt.9.6(30).19

Saddhono, K., & Erwinsyah, H. (2018). Folklore as local wisdom for teaching materialsin Bipa program (Indonesian for foreign speakers). KnE Social Sciences, 444–454.

Setini, M., Yasa, N. N. K., Gede Supartha, I. W., Ketut Giantari, I. G. A., & Rajiani, I. (2020). The Passway of Women Entrepreneurship: Starting from Social Capital with Open Innovation, through to Knowledge Sharing and Innovative Performance. Journal of Open Innovation: Technology, Market, and Complexity, 6(2), 25. https://doi.org/10.3390/joitmc6020025

Sibarani, R. (2018a). Batak Toba society's local wisdom of mutual cooperation in Toba Lake area: a linguistic anthropology study. International Journal of Human Rights in Healthcare. https://doi.org/https://doi.org/10.1108/IJHRH-08-2017-0035

Sibarani, R. (2018b). Batak Toba society's local wisdom of mutual cooperation in Toba Lake area: a linguistic anthropology study. International Journal of Human Rights in Healthcare, 11(1), 40–55. https://doi.org/10.1108/IJHRH-08-2017-0035

Tobing, M., Afifuddin, S., Rahmanta, S. R. H., Pandiangan, S. M. T., & Muda, I. (2019). An Analysis on the Factors Which Influence the Earnings of Micro and Small Business: Case at Blacksmith Metal Industry. Academic Journal of Economic Studies, 5(1), 17–23.

Tzanelli, R. (2018). Cinematic tourist mobilities and the plight of development: On atmospheres, affects, and environments. Routledge.

Wang, C., Liu, J., Wei, L., & Zhang, T. (Christina). (2020). Impact of tourist experience on memorability and authenticity: a study of creative tourism. Journal of Travel & Tourism Marketing, 37(1), 48–63. https://doi.org/10.1080/10548408.2020.1711846

Yasa, I. (2020). Community Empowerment in Tourism DevelopmentDuring the Digital Era in North Badung. South East Asia Journal of Contemporary Business, Economics and Law, 21(5).

Narayan, Vipul, et al. "Enhance-Net: An Approach to Boost the Performance of Deep Learning Model Based on Real-Time Medical Images." Journal of Sensors 2023 (2023).

NARAYAN, VIPUL, A. K. Daniel, and Pooja Chaturvedi. "FGWOA: An Efficient Heuristic for Cluster Head Selection in WSN using Fuzzy based Grey Wolf Optimization Algorithm." (2022).

Babu, S. Z., et al. "Abridgement of Business Data Drilling with the Natural Selection and Recasting Breakthrough: Drill Data With GA." Authors Profile Tarun Danti Dey is doing Bachelor in LAW from Chittagong Independent University, Bangladesh. Her research discipline is business intelligence, LAW, and Computational thinking. She has done 3 (2020).

Narayan, Vipul, A. K. Daniel, and Pooja Chaturvedi. "E-FEERP: Enhanced Fuzzy based Energy Efficient Routing Protocol for Wireless Sensor Network." Wireless Personal Communications (2023): 1-28.

Faiz, Mohammad, et al. "Improved Homomorphic Encryption for Security in Cloud using Particle Swarm Optimization." Journal of Pharmaceutical Negative Results (2022): 4761-4771.

Tyagi, Lalit Kumar, et al. "Energy Efficient Routing Protocol Using Next Cluster Head Selection Process In Two-Level Hierarchy For Wireless Sensor Network." Journal of Pharmaceutical Negative Results (2023): 665-676.

Paricherla, Mutyalaiah, et al. "Towards Development of Machine Learning Framework for Enhancing Security in Internet of Things." Security and Communication Networks 2022 (2022).

Srivastava, Swapnita, et al. "An Ensemble Learning Approach For Chronic Kidney Disease Classification." Journal of Pharmaceutical Negative Results (2022): 2401-2409.

Sawhney, Rahul, et al. "A comparative assessment of artificial intelligence models used for early prediction and evaluation of chronic kidney disease." Decision Analytics Journal 6 (2023): 100169.

Pramanik, Sabyasachi, et al. "A novel approach using steganography and cryptography in business intelligence." Integration Challenges for Analytics, Business Intelligence, and Data Mining. IGI Global, 2021. 192-217.

Tyagi, Lalit Kumar, Rama Kant, and Anish Gupta. "A comparative analysis of various local feature descriptors in content-based image retrieval system." Journal of Physics: Conference Series. Vol. 1854. No. 1. IOP Publishing, 2021.