



## Achievement of Creative Economy Dimensions in Regional Development Indonesia in 2021

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**Abstract.** During this time, to measure the development of creative economy in Indonesia only use GDP and number of workers in creative economy sector. Whereas there are many factors that can affect the development of creative economy that have not been covered by these two measures. Therefore, this study aims to build a measure that can be a tool for assessment and analysis creative economy in 34 provinces in Indonesia and can be compared. The data used is secondary data sourced from BPS and several agencies. Creative Economy Index (CEI) refers to Global Innovation Index consists of seven dimensions, namely institution, human capital and research, infrastructure, market sophistication, business sophistication, knowledge and technology outputs, and creative outputs. The analysis method used is factor analysis to validate dimensions of CEI based on their indicators. Based on the results, Indonesia's CEI is relatively low with the highest achievement is institution dimension and the lowest achievement is market sophistication dimension. When compared by region, CEI in Western Region of Indonesia is higher than Eastern Region of Indonesia. There are also similarities with Human Development Index and Information, Communication, and Technology-Development Index.

### 1. Introduction

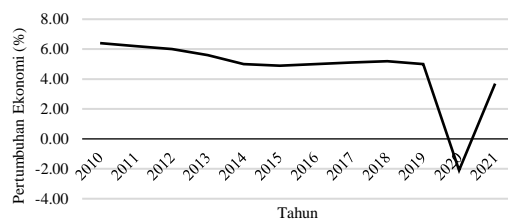
As time goes, concept economy has shifted from resource-based economy to knowledge or creativity-based economy. In last two decades, there has been a major change in policy making, optimizing the best potential talents that they have [1]. In addition, in industrial revolution 4.0 era, government needs a strategy to face increasingly dynamic global competition due to the development of IT, one of them with creative economy [2]. Creative economy has become a major component of economic growth, job creation, trade and innovation in most developed countries. Unfortunately, according to UN in [3], most developing countries have not been able to utilize their creative capacity for economic development.

The first author of term creative economy, John Howkins in his book [4], defines creative economy is value creation as a result of ideas. Year 2021 was also designated as International Year of Creative Economy for Sustainable Development at 74th session of UN General Assembly Resolution Number A/RES/74/198 of 2019 [5]. As highlighted in the assembly, creative economy contributes to SDGs in various ways, especially in goals 1, 5, 8, 9, 10, 11, 12, 16 and 17 [6]. Machsus and Setiawan in [7] found that creative economy sector have a significant effect on reducing open unemployment rate in Indonesia. Not only problem of unemployment, Insana, Yolanda, dan Susilastuti in [8] explained that creative economy can also be an alternative solution to reducing poverty. If the domestic creative economy has

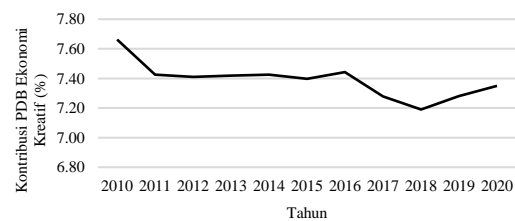


developed, exports of creative economy products have also increased so that Indonesia's economic growth increasing [9].

In early 2020, Indonesia became one of the countries affected by Covid-19. This incident caused weakening of all sectors such as economy, social, education, politics so that sustainable development targets were abandoned. Based on figure 1, Indonesia's economic growth in 2020 compared to 2019 has contraction until 2.10 percent. In fact, in previous years, Indonesia's economic growth has never drastic decreasing, moving around 5.00 percent. However, contribution creative economy sector's GDP to national GDP has actually increased in 2020 as shown in figure 2. This shows that creative economy sector is a resilient sector in supporting Indonesian economy and can be a supporting sector other than industrial sector in increasing economic growth.



Source: World Bank 2010-2021



Source: Kemenparekraf

**Figure 1.** Indonesia's economic growth, 2010-2021.

**Figure 2.** Contribution creative economy GDP to national GDP, 2010-2020.

According to BEKRAF in [10], the development of creative economy has more potential in "large" provinces due to availability of superior human resources and better ecosystems compared to "small" provinces. In fact, all provinces have the same opportunity to maximize their creative economic potential. Western Region of Indonesia (KBI) is often more developed than Eastern Region of Indonesia (KTI). This condition can be seen from the proportion of GRDP to National GDP. KBI contribute around 80.84 percent, while KTI only contribute 19.16 percent in 2021. This shows that economic activity still concentrate in KBI, especially Java. And, there is still a development gap between KBI and KTI which is characterized by poverty rate that in KTI is 14.04 percent, double than KBI, 7.65 percent; there is still an gap in human quality development which can be seen from HDI; and there is still an gap in development of ICT infrastructure in KTI.

**Table 1.** Strategic Issues of Region.

Region	GRDP Current Market Price (Billion Rp)	Distribution of GRDP to Total GRDP (%)	Rate Poverty (%)	HDI	ICT-DI
Sumatera	3,657,126.00	21.68	9.40	72.07	5.20
Java	9,807,221.00	57.86	8.82	75.13	6.45
Bali	220,467.00	1.30	4.72	75.69	6.49
<b>KBI</b>	<b>13,702,814.00</b>	<b>80.84</b>	<b>7.65</b>	<b>74.30</b>	<b>6.25</b>
Nusa Tenggara	250,997.00	1.48	17.14	66.97	5.20
Sulawesi	1,406,107.00	8.29	5.93	71.70	5.90
Kalimantan	1,169,042.00	6.90	11.18	70.39	5.65
Maluku	101,123.00	0.60	11.34	69.24	5.34
Papua	320,564.00	1.89	24.60	62.94	4.41
<b>KTI</b>	<b>3,247,833.00</b>	<b>19.16</b>	<b>14.04</b>	<b>68.25</b>	<b>5.30</b>

Sumber: BPS, 2021

Many researchers and institutions from various countries have made measurements to determine the achievements of creative economy in their respective regions. First time, in 2002, Richard Florida from his book in [11] introduced the 3T model. This research was the starting point for increasing awareness of creative economy as one of the key factors in economic development. Then, Rawson, Kreidler, and Trounstine in [12] created an index to measure creativity and cultural vitality in Silicon Valley. In 2007,



Dutta, INSEAD, and Caulkin created Global Innovation Index to capture innovation as a factor affecting economic growth in [13]. Then, Bowen, Mousen, and Sleuwegen in [14] developed a measurement to measure regional creative capacities and capabilities in 2008. In 2009, KEA European Affairs from [15] also created an index to measure various factors that contribute to the growth of creativity in European Union. In 2011, Richard Florida rebuilt an index adapted from 3T model with Martin Prosperity Institute and named Global Creative Index in [16]. Another measurement was also created in 2014, namely Creative Productivity Index which was developed by Economist Intelligence Unit, collaboration with Asian Development Bank in [17]. Carlos Miguel and Jose da Silva in [18] also built a measure to assess the impact of creative economy and the effectiveness of political policies in 27 European Union countries called Creative Space Index. In 2018, Murtagh and Collins developed a benchmark to measure development of creative economy in five European peripheral regions that are part of creative momentum project in [19]. In 2019, Figueiredo, Diego Santo, Diogo Tavares, and Cristina constructing Development Potential Index of Creative Economy to measure the potential for creative economic development in 26 Brazilian state capitals and Federal District from [20].

Actually, BEKRAF in 2016 created a Creative District/City Self-Assessment Guide to map, provide references, and become the basis activities for development and facilitation creative economy in district/city [10]. However, the program is no longer running due to budget refocusing. So, a comprehensive measure is needed to assessing and analyzing in Indonesia at provincial level so that can be support material in making planning and policies to improve the development of creative economy. So far, the measure to see the development of creative economy in Indonesia is only from GDP and number of workers in creative economy sector. Whereas, there are many factors that affect the development of creative economy, such as human capital, infrastructure, ease of access to finance, ease of setting up a business, and the quality of government institution. Thus, the problem is to build a measurements that can measure creative economy between provinces in Indonesia in 2021. The measurement made in this study is a composite index. This composite index is able to simplify comparability between regions in describing complex problems so that it can be easily understood by general public and useful in making decisions/policy priorities.

This composite index is making from secondary data that is already available in various agencies because it requires a large amount of money and time if use primary data. Then, this composite index is validated with factor analysis in each dimension, which is rare in related research. In this study, also try two weighting scenarios to get the most valid result, namely equal and unequal, which in related studies just use equal weighting. Specifically, the purpose of this study are to (1) construct an index that can measure achievements of creative economy in 34 provinces in Indonesia in 2021, (2) analyze dimensions that construct Creative Economy Index in Indonesia in 2021, and (3) determine the comparability of creative economy achievement between provinces in Indonesia in 2021.

## 2. Methodology

### 2.1. Creative Economy

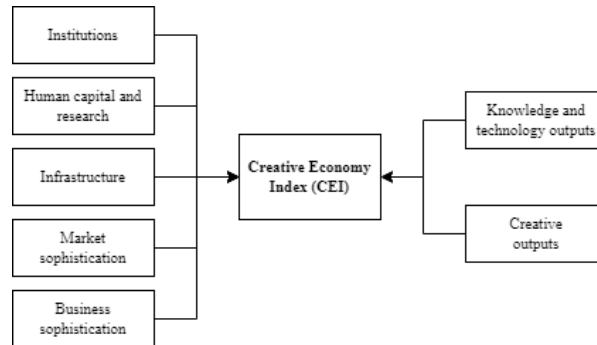
According to [21] about creative economy states that the creative economy is the realization of added value from intellectual property sourced from human creativity based on cultural heritage, science and/or technology. Based on [22], creative economic activities include 16 sub-sectors, game applications and developers; architecture; visual communication design; interior design; product design; fashion; films, animation and video; photography; crafts; culinary; music; publishing, advertising; performing arts; fine arts; television and radio.

### 2.2. Research Scope

Units observation and analysis in this study are 34 provinces in Indonesia in 2021. This study aims to construct a measurement that can be expressed in index to assess the achievements of creative economy in 34 provinces in Indonesia and can be compare between provinces. The index is built from seven dimensions, institution, human capital and research, infrastructure, market sophistication, business



sophistication, knowledge and technology outputs, and creative outputs. Institution dimension have 5 indicators, human capital and research dimension have 8 indicators, infrastructure dimension have 8 indicators, market sophistication dimension have 4 indicators, business sophistication dimension have 4 indicators, knowledge and technology outputs dimension have 4 indicators, and creative outputs dimensions have 6 indicators. Framework in this study refers to Global Innovation Index in [23] as follows:



**Figure 3.** Framework creative economy index (CEI).

### 2.3. Method of Collecting Data

The data used is secondary data in 34 provinces in Indonesia in 2021 sourced from Central Statistics Agency (BPS), National Innovation Research Agency (BRIN), Bank Indonesia, Ministry of Law and Human Rights (Kemenkumham), Ministry of Finance (Ministry of Finance), Ministry of Tourism and Creative Economy (Kemenparekraf), Ministry of Education, Culture, Research and Technology (Kemendikbud Ristek), Ministry of PUPR, and National Library.

### 2.4. Analysis Method

Analysis method for constructing Creative Economy Index (CEI) in this study is confirmatory factor analysis (CFA) because there has been research that underlies the dimensions. Factor analysis use to validate dimensions based on the constituent variables with SPSS version 25 software.

The following are steps in calculating CEI, which refers to [24]:

1. Developing a theoretical framework and selecting variables/indicators  
Development of this index is based on Global Innovation Index as the main reference. Combination indicators from related references considering the availability of data.
2. Data *pre-processing*  
Next step is to check whether the data is complete or not. If there is missing or incomplete data, it can be imputed. A complete data set is an important step in constructing index.
3. Validating dimensions based on measured variables  
After data is clean and complete, next analysis is factor analysis to reduce a large number of variables into a smaller set of uncorrelated variables and eliminate redundancies or duplications from the initial set of variables. The reduction aims to validate dimensions based on measured variables forming them.
4. Calculating factor score  
Factor scores are calculate using regression method because use principal component analysis method in factor analysis.
5. Data normalisation  
Data normalisation method is minmax for ease of interpretation. This technique changes the data from original units to be in range 0-100.

$$SF'_{jn} = \frac{SF_{jn} - \min(SF_j)}{\max(SF_j) - \min(SF_j)} \times 100 \quad (1)$$

note:



$SF'_{jn}$ : score value from j-factor in province n that has been normalise

$SF_{jn}$ : score value from j-factor in province n

$\min(SF_j)$ : minimum value of  $SF_{jn}$  across all province n

$\max(SF_j)$ : maximum value of  $SF_{jn}$  across all province n

6. Calculating weighting of factor

Factor weighting get from percentage of variance that can be explain by these factors with the following formula:

$$W_j = \frac{v_j}{\sum_{j=1}^m v_j} \quad (2)$$

note:

$W_j$ : weighting for j-factor, where  $\sum W_j = 1$

$v_j$ : percentage of variance data that can be explain by the j-factor

From the weighting of these factors, dimensions index can be calculate:

$$I_{dn} = \sum_{j=1}^m (SF'_{jn} \times W_j) \quad (3)$$

note:

$I_{dn}$ : index for d-dimensions in the n-province,

$d=1, 2, \dots, 7$  and  $n=1, 2, \dots, 34$

$SF'_{jn}$ : score value from j-factor in province n that has been normalise

$W_j$ : weighting for j-factor, where  $\sum W_j = 1$

7. Aggregation dimension

Then, aggregation dimensions to produce a creative economy index use linear aggregation method because there is limitation that existing variables do not highlight occurrence of growth. Weighting method in calculating creative economy index is unequal weighting with formula:

$$CEI_n = \sum_{d=1}^7 \left( I_{dn} \times \frac{l_d^2}{\sum_{d=1}^7 l_d^2} \right) \quad (4)$$

note:

$CEI_n$  = creative economy index in n-province,  $n=1, 2, \dots, 34$

$l_d$  = loading value in the d-dimension

8. Categorizing creative economy index (CEI)

After CEI done, further analysis is categorizing it. This categorization aims to determine condition of creative economic achievements in each province. Because there is no reference, four categories are determine using quartile values:

very low: 0.00-25.00

low: 25.00-50.00

moderate: 50.00-75.00

high: 75.00-100.00

9. Correlate the CEI with Human Development Index (HDI) and Information, Communication, and Technology-Development Index (ICT-DI)

Creative economy index is also correlated with other index, Human Development Index (HDI) and Information, Communication, and Technology-Development Index (ICT-DI) to assess the strength of this measurement in explaining creative economy of each province. The tool used to identify these correlation is scatter plot.

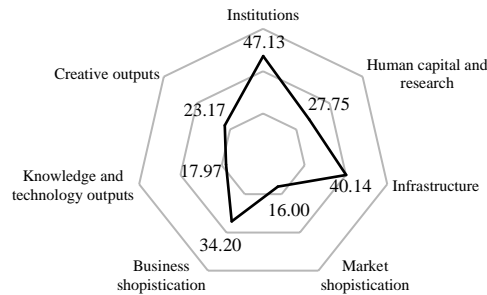




### 3. Results and Discussion

#### 3.1. Description dimensional index of Creative Economy Index

3.1.1. *Achievement dimensions of national CEI.* Based on results of factor analysis on each dimension, most appropriate weighting method in calculating dimension index is unequal. Then, dimension index at national level can be calculate with average value. Classification of achievement dimensions use quartile values as shown in methodology.



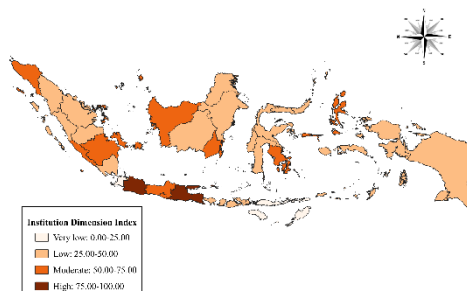
**Figure 4.** Achievement dimensions of national CEI.

Based on figure 4, it can be seen that achievement of dimensions at national level is still relatively low. Dimension with the highest achievement is institution, while dimension with the lowest achievement is market sophistication, followed by knowledge and technology outputs and creative outputs, which are classified as very low.

3.1.2. *Comparability achievements dimension of CEI between provinces.* After knowing achievements of each dimension at national level, then identify achievements of each dimension at provincial level with the identifier.

##### a) Institution dimension

This institution dimension is characterized by resources equality and performance of judicial institution. Based on figure 5, institution dimension index are dominated by provinces with low achievements, 19 provinces. However, there are two provinces whose achievements are very low, East Nusa Tenggara and Banten. Banten is outlier on performance of judicial institution factor with DKI Jakarta.



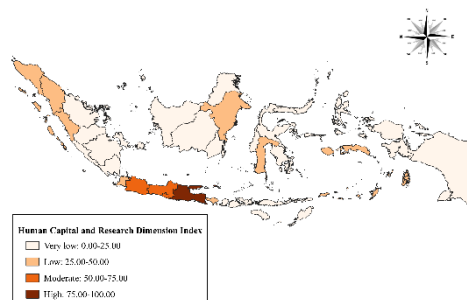
**Figure 5.** Achievement of institution dimensions between provinces.

There are also two provinces in high category, West Java and East Java. This is supported by West Java which is outlier on resource equality factor. Therefore, it can be said that in general equality of resources and performance of judicial institution 34 provinces in Indonesia in 2021 is still low.



#### b) Human capital and research dimension

Based on figure 6, human capital and research dimension is characterized by human capital and educational participation factors. It can be seen that majority of provinces are in very low category, 21 provinces.

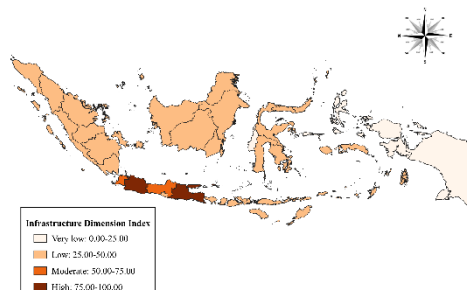


**Figure 6.** Achievement of human capital and research dimensions between provinces.

There are four provinces in moderate category, DKI Jakarta, DI Yogyakarta, Central Java, West Java and East Java is only province that achieves in high category. Supported by results that DI Yogyakarta is outlier on education participation factor and remaining four provinces are outlier on human capital factor. Therefore, it can be said that in general achievement of human capital and educational participation in Indonesia is still low and it is necessary to develop and equalization education, especially for provinces outside Java Island.

#### c) Infrastructure dimension

Infrastructure dimension is characterized by general infrastructure and regional roads factor with technological infrastructure and national roads factor. Based figure 7, it can be seen that most of provinces in Indonesia are in low category, 25 provinces.

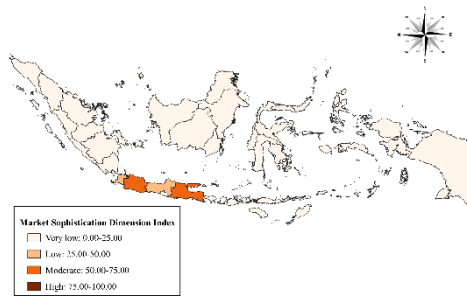


**Figure 7.** Achievement of infrastructure dimensions between provinces.

Only three provinces are in high category, East Java, West Java and DKI Jakarta because the province becomes outlier in public infrastructure and regional roads factor. Also, there are two provinces that are classified as moderate, Banten and Central Java. Therefore, it can be said that in general, infrastructure achievements in Indonesia are still low and it is necessary to do equitable distribution of infrastructure development, especially in Eastern Indonesia.

#### d) Market sophistication dimension

Market sophistication dimension characterized by only one factor or unidimensional. Based on figure 8, it can be seen that achievements of most provinces in this dimension are very low category, 29 provinces.

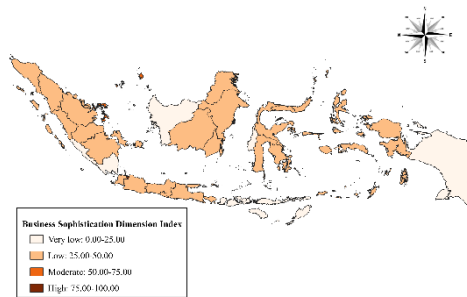


**Figure 8.** Achievement of market modernity dimensions between provinces.

Only DKI Jakarta is in high category and there are two provinces in moderate category, West Java and East Java because that provinces being outliers on market sophistication factor. Therefore, it can be said that in general achievement of market sophistication in Indonesia is still very low, so it is necessary to equalize credit and investment facilities to provinces, especially outside Java Island.

e) Business sophistication dimension

Business sophistication dimension is characterized by absorption of knowledge and knowledge of worker factor. Based on figure 9, achievements of most provinces are in low category, 25 provinces.

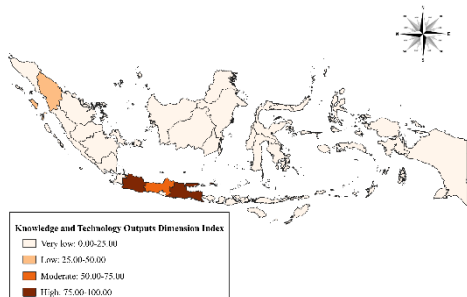


**Figure 9.** Achievement of business sophistication dimensions between provinces.

Only DKI Jakarta is in high achievements because DKI Jakarta outlier in knowledge absorption factor. Therefore, it can be said that in general achievement of business sophistication in Indonesia is still low and it needs to be maximized by training and collaboration with various parties to increase knowledge and abilities of workers.

f) Knowledge and technology outputs dimension

Similar to market sophistication dimension, knowledge and technology output dimension also be characterized by only one factor or unidimensional. Based on figure 10, results of knowledge and technology output dimension in most provinces are in very low category.



**Figure 10.** Achievement of knowledge and technology outputs dimensions between provinces.

East Java and West Java are provinces with high category achievements. Meanwhile, Central Java and DKI Jakarta in moderate achievements. These results are supported by four provinces that are outliers. And only North Sumatra in low category. Therefore, it can be said that in general knowledge and technology outputs in Indonesia is still very low and need creative entrepreneurs who can innovate and produce various products in goods and services market.





g) Creative outputs dimension

Creative outputs dimension are characterized by intangible asset with entertainment and culture factors. Achievement of creative output in most provinces in Indonesia is very low, 25 provinces.

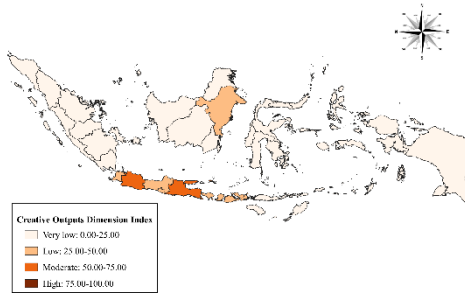


Figure 11. Achievement of creative outputs dimensions between provinces.

Achievement of this dimension in East Java, West Java and DKI Jakarta is moderate category because these provinces are outliers on intangible asset factor. Therefore, it can be said that in general achievement of creative outputs in 34 provinces in Indonesia is still very low and it is necessary to develop the creative sector, especially in areas outside Java Island.

3.2. Description of creative economy index (CEI)

3.2.1. Achievement CEI between province and national. Based on figure 12, creative economy index in 34 provinces very diverse. DKI Jakarta is province with highest CEI score, that is 76.83. Meanwhile, province with lowest CEI score with 8.44 is Papua. Nationally, achievements of Indonesia's creative economy are in low category with 26.60 based on categories using quartile values in methodology.

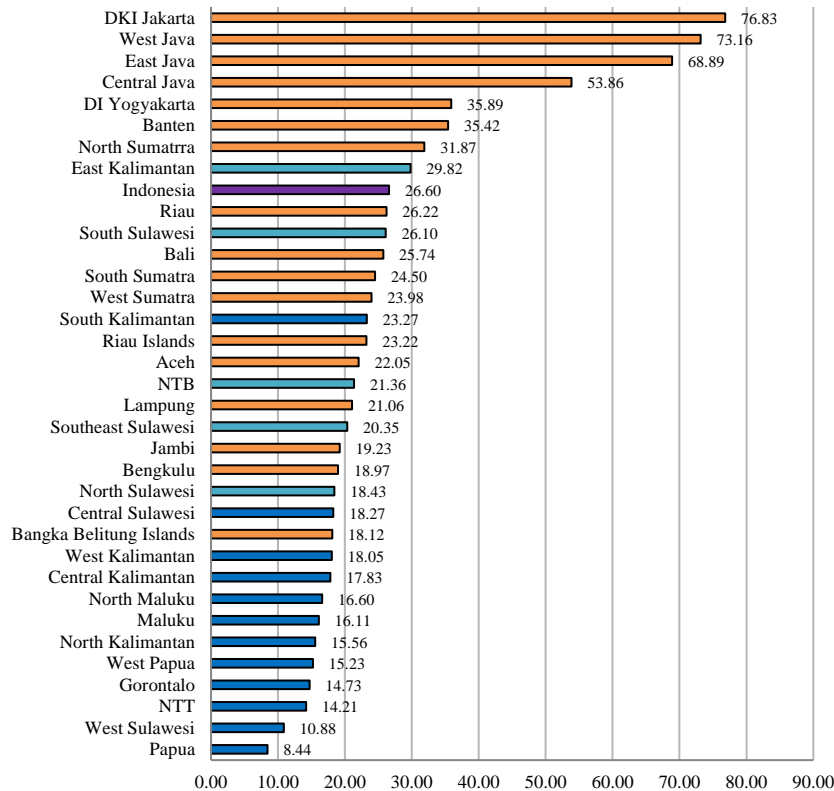
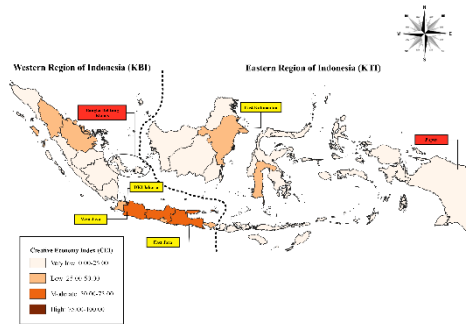


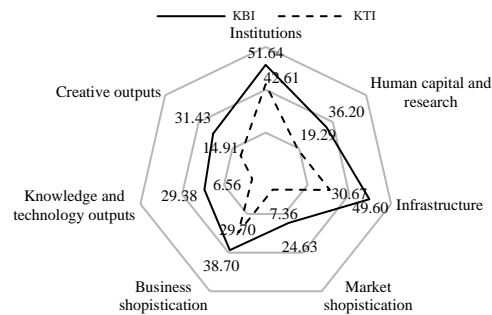
Figure 12. CEI in 34 provinces and Indonesia.



3.2.2. *Achievement of CEI between Western Indonesian Regions (KBI) and Eastern Indonesian Regions (KTI).* Furthermore, make comparison between Western Regions of Indonesia (KBI) and Eastern Region of Indonesia (KTI). Based on Presidential Decree No. 2 of 2015 concerning 2015-2019 National Medium-Term Development Plan (RPJMN), the areas included in Western Region of Indonesia (KBI) are Sumatra, Java and Bali. Meanwhile, Eastern Region of Indonesia (KTI) are Kalimantan, Sulawesi, Maluku, Nusa Tenggara, and Papua.



**Figure 13.** Achievements of CEI between KBI and KTI.



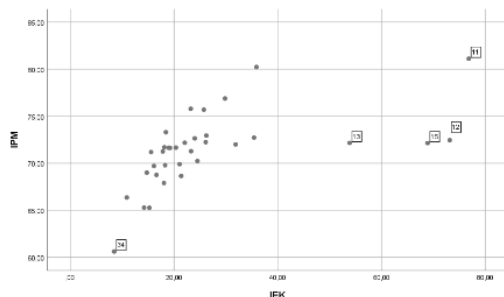
**Figure 14.** Achievement every dimensions of CEI between KBI and KTI.

Based on figure 13, it can be seen that achievements of CEI in western region are better than eastern region. This has indicated in previous analysis that highest achievements from each dimension were dominated by provinces on the Java Islands, which are in western region of Indonesia. East Java, West Java and DKI Jakarta are outliers in Western Region of Indonesia. Bangka Belitung Islands is the lowest province in KBI. Meanwhile, in Eastern Indonesia, East Kalimantan is the highest province and Papua is the lowest province of achievement CEI.

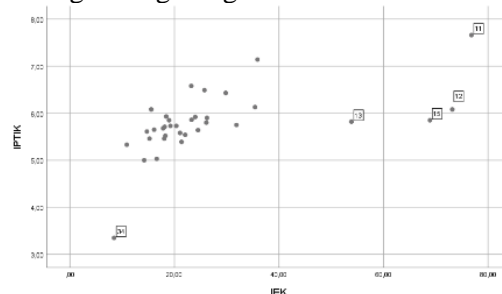
Based on figure 14, in general, it can be seen that values of all dimensions in Western Region are higher than Eastern Region of Indonesia. Achievement dimensions in KBI are very low, low, and moderate categories. Meanwhile, achievement dimensions in KTI were only very low and low categories. Institution is dimension with highest achievement in both regions. Lowest achievement in western region is market sophistication and in eastern region is knowledge and technology output.

3.3. *Similarities between CEI with HDI and ICT-DI*

Human Development Index is a index that used to measure success to build quality of human life. Higher HDI shows that human development in a region is getting better. Meanwhile, ICT Development Index is index that use to measure growth, gaps, and development potential ICT with a value range of 0-10. ICT-DI getting higher shows that development of ICT in a region is getting faster.



(a) CEI and HDI



(b) CEI and ICT-DI

**Figure 15.** Correlation between the CEI and HDI and ICT-DI.



Based on figure 15, it is known that CEI with HDI and ICT-DI have a positive or unidirectional relationship pattern. Thus, if a province has a high CEI score, then that province tends to have a high HDI and ICT-DI score as well. So, CEI can measure achievements of creative economy well.

### 3.4. Analysis CEI with manufacturing industry

Manufacturing is a supporting sector in building national GDP. This sector is most contribute, reaching 20.06 percent in 2021. Followed by agriculture, forestry and fishing sectors with 13.84 percent with wholesale and retail trade; repair of motor vehicles and motorcycles sectors with a contribution 13.51 percent. Similar to tourism, creative economy is a sector that has output in many sectors, in KBLI categories C, G, I, J, M, N, P, and R. The following is a breakdown of number activities from each sectors according to KBLI category:

**Table 2.** Total coverage of creative economic activities in KBLI 2015.

Category KBLI	Note	Number of activities
C	Manufacturing	77
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	47
I	Accommodation and food service activities	11
J	Information and communication	32
M	Professional, scientific and technical activities	18
N	Administrative and support service activities	5
P	Education	10
R	Arts, entertainment and recreation	14

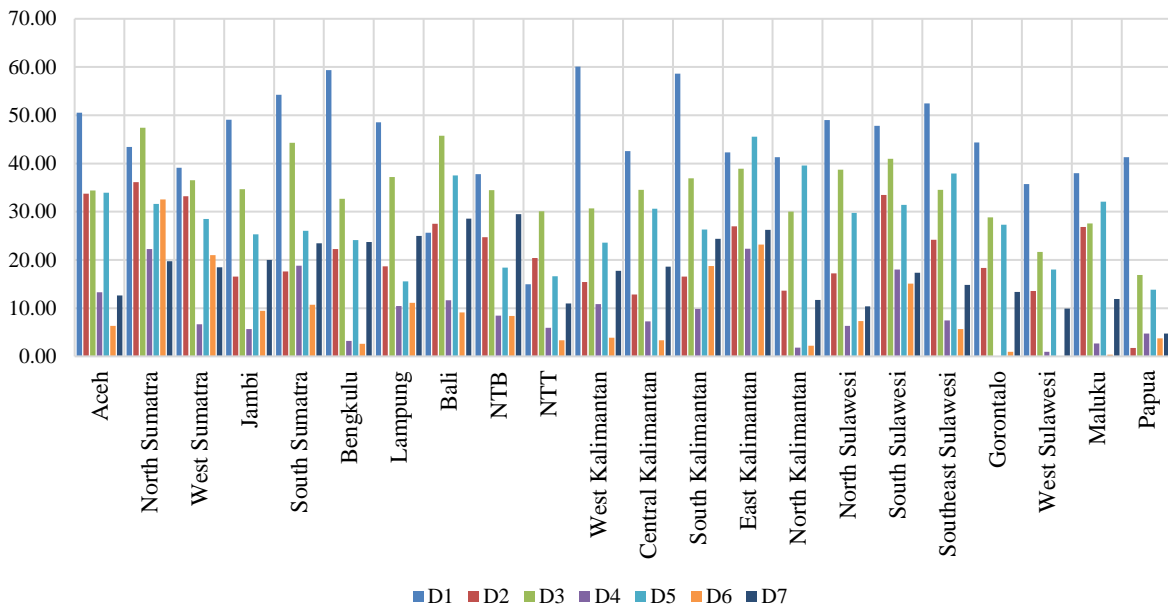
Based on table 2, creative economy also has most activity in manufacturing sector according to KBLI 2015. Therefore, it is important to review more deeply how manufacturing sector dominates contribution to GRDP with achievement of CEI in each province.

**Table 3.** Evaluation CEI in 34 province.

Manufacturing	CEI	
	Very low and low	Moderate and high
Not dominated	Aceh (7), North Sumatra (2), West Sumatra (5), Jambi (4), South Sumatra (3), Bengkulu (6), Lampung (2), Bali (6), NTB (9), NTT (12), West Kalimantan (2), Central Kalimantan (2), South Kalimantan (3), East Kalimantan (2), North Kalimantan (5), North Sulawesi (4), South Sulawesi (4), Southeast Sulawesi (5), Gorontalo (8), West Sulawesi (2), Maluku (6), Papua (9)	DKI Jakarta (2)
Dominated	Riau (1), Kep. Bangka Belitung (1), Kep. Riau (1), DI Yogyakarta (1), Banten (1), Central Sulawesi (1), North Maluku (1), West Papua (1)	West Java (1), Central Java (1), East Java (1)

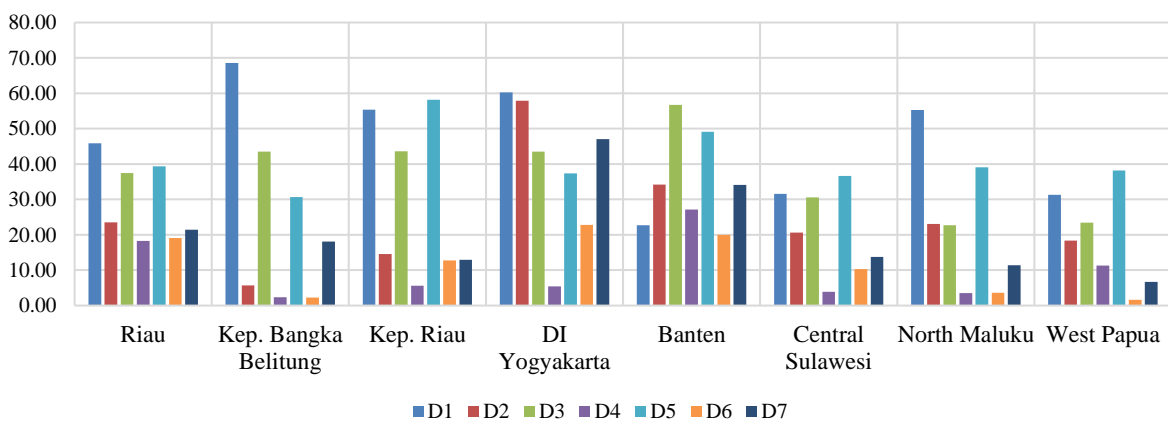
Note: number in brackets is ranking of manufacturing sector's contribution to GRDP

Based on table 3, manufacturing sector still not dominate in majority of provinces in Indonesia. Likewise, CEI are dominate in very low and low categories. For province that are not dominated by manufacturing sector, CEI will be very useful as a measure that provides an overview of what needs to be improved so that in future manufacturing sector can become a support to increasing GRDP. Conversely, for provinces that have been dominated by manufacturing sector but have very low and low CEI, this can be use as evaluation material for local governments to increasing creative economy sector. For this reason, it is necessary to further analyze what dimensions cause low CEI in province.



**Figure 16.** Evaluation CEI in provinces that are not dominated by manufacturing sector and have very low and low CEI

Based on figure 16, dimension with smallest contribution in 22 provinces that are not dominated by manufacturing and have very low and low CEI is dimension four, market sophistication. Then, there is dimension six, knowledge and technology outputs. Therefore, 22 provinces which are not dominated by manufacturing sector can increase their achievements in market sophistication with knowledge and technology output dimensions so that manufacturing sector can become a support to improve regional economy. However, each province needs to do more in-depth analysis independently so that more specific dimensions need to be considered. For example, Papua has very low achievements in almost all dimensions, except for institution which is in low category, so that attention of Papua’s government is more prioritize in other six dimensions.



**Figure 17.** Evaluation CEI in provinces that are dominated by manufacturing sector and have very low and low CEI

Based on figure 17, dimension with smallest contribution in 8 provinces that have been dominated by manufacturing sector and has very low and low CEI is dimension four, market sophistication. Then, there is dimension six, knowledge and technology outputs. These two dimensions can be use as



evaluation material for governments of eight provinces so that in future they can increase contribution of manufacturing sector to GRDP. Just like before, each province needs to evaluate independently so that CEI achievements increase. For example, for West Papua and North Maluku, where almost all of achievement dimensions are in very low category, except for institution and business sophistication.

## 4. Conclusions and Suggestion

### 4.1. Conclusions

Based on section results and discussion, here are some things that can be summarized:

1. Nationally, Indonesia's CEI achievements are still in low category. Dimension with highest achievement in Indonesia's CEI is institution, while dimension with lowest achievement is market sophistication. By province, CEI in 34 provinces were dominated by provinces with very low category. Highest province is DKI Jakarta and lowest province is Papua. For achievement dimensions in 34 provinces, dimensions institution, infrastructure and business sophistication were dominated by provinces with low achievements. Meanwhile, remaining dimensions are dominated by provinces with very low achievements. In addition, it can be concluded that development of achievements in each dimension of CEI is still concentrated in Java.
2. When compared by region, CEI in Western Region of Indonesia (KBI) are better than Eastern Region of Indonesia (KTI). For KBI, dimension with highest achievement is institution, the lowest achievement is market sophistication. Meanwhile in KTI, the dimension with highest achievement is also institution and the dimension with lowest achievement is knowledge and technology output.
3. CEI is also correlated with existing index, Human Development Index and Information, Communication, and Technology-Development Index and the results show a positive relationship. So, higher CEI indicates increasing development of human capital and technology information.
4. Also, evaluate CEI with contribution manufacturing sector in GDRP and there are provinces that are dominated by manufacturing sector but still have CEI in very low and low categories, Riau, Kep. Bangka Belitung, Kep. Riau, DI Yogyakarta, Banten, Central Sulawesi, North Maluku and West Papua. Apart from that, there are also several provinces that are not dominated by manufacturing sector and have CEI in very low and low categories, Aceh, North Sumatra, West Sumatra, Jambi, South Sumatra, Bengkulu, Lampung, Bali, NTB, NTT, West Kalimantan, Central Kalimantan, South Kalimantan, East Kalimantan, North Kalimantan, North Sulawesi, South Sulawesi, Southeast Sulawesi, Gorontalo, West Sulawesi, Maluku and Papua.

### 4.2. Suggestion

Based on the results of discussion, there are some suggestions that provide by researchers:

1. Indonesian government, especially Ministry of Tourism and Creative Economy, needs to give special attention to developing creative economy sector so that it can maximize its potential to support national economy. This can be done by prioritizing development in market sophistication dimension such as ease of obtaining credit, injecting investment into UMKM, developing microfinance institution so that community businesses can run well because these dimensions have lowest achievements.
2. Needs an attention for national and provincial governments to prioritize on developing Eastern Region of Indonesia (KTI) because there is a gap in various aspects compared to Western Region of Indonesia (KBI). This development can be prioritize in market sophistication dimension, knowledge and technology output dimension, and creative output dimension.
3. The suggestion for further research is add indicators and choose proxy indicators that better to describe the achievements of creative economy. Even better if use indicators that can be identified for each sub-sector, primary data if possible.

## References

- [1] Salma M and Ahmad M 2017 *Creative City Indicators: A Framework* [Thesis] (Giza: Cairo



- University) p 1
- [2] Sugiarto EC 2018 *Ekonomi Kreatif Masa Depan Indonesia* [Internet] (Jakarta: Sekretariat Negara Republik Indonesia) [cited 2021 Dec 12]
  - [3] United Nations 2010 *Creative Economy Report 2010* (Geneva; United Nations)
  - [4] Howkins J 2001 *The Creative Economy: How People Make Money From Ideas* (London: Allen Lane The Penguin Books)
  - [5] Kemenparekraf 2021 *Tahun Internasional Ekonomi Kreatif untuk Pembangunan Berkelanjutan 2021* [Internet] (Jakarta: Kemenparekraf/Baparekraf RI) [cited 2021 Dec 12]
  - [6] UNCTAD 2022 *Creative Economy Outlook 2022* (Geneva; United Nations)
  - [7] Machsus S and Setiawan E 2021 *Pengaruh Tenaga Kerja Ekonomi Kreatif Terhadap Pengangguran Terbuka di Indonesia Tahun 2015-2019* [Thesis] (Jakarta: Politeknik Statistika STIS)
  - [8] Insana DRM, Yolanda and Susilastuti D 2022 Pengaruh Ekonomi Kreatif Terhadap Kemiskinan di Pulau Jawa *J. of Appl. Bus. and Eco.* **8** pp 352–65
  - [9] Rahman DN 2021 *Pengaruh Tenaga Kerja Ekonomi Kreatif dan Ekspor Produk Ekonomi Kreatif Terhadap Pertumbuhan Ekonomi Indonesia* [Thesis] (Medan: Universitas Islam Negeri Sumatera Utara)
  - [10] BEKRAF 2016 *Sistem Ekonomi Kreatif Nasional: Panduan Penilaian Mandiri Kabupaten/Kota Kreatif* (Jakarta: Badan Ekonomi Kreatif) pp 1–120
  - [11] Florida R 2002 *The Rise of The Creative Class: Revisited (10th ed.)* (New York: Basic Books) p
  - [12] Rawson B, Kreidler J and Trounstine PJ 2002 *Creative Community Index: Measuring Progress Toward A Vibrant Silicon Valley* (Michigan: Inter-university Consortium for Political and Social Research)
  - [13] Dutta S, INSEAD and Caulkin S 2007 *The World's Top Innovators* (France: World Business) pp 26-37
  - [14] Bowen HP, Moesen W and Sleuwaegen L 2008 A Composite Index of The Creative Economy *Rev. of Bus. and Eco. Lit.* **4** pp 375–97
  - [15] KEA 2009 *Towards A Culture-Based Creativity Index* Con. Proc. on Measuring Creativity (Brussels: European Affairs KEA)
  - [16] Florida R, Mellander C and Stolarick K 2011 *Creativity and Prosperity: The Global Creativity Index* (Canada: Martin Prosperity Institute)
  - [17] Economist Intelligence Unit 2014 *Creative Productivity Index: Analysing Creativity and Innovation in Asia* (Hongkong: Asian Development Bank)
  - [18] Correia CM and Da Silva Costa J 2014 Measuring Creativity in The EU Member States *Ix. Reg.* **30** pp 7-26.
  - [19] Murtagh A and Collins P 2018 *Creative Economy Index* (Galway: Whitaker Institute, National University of Ireland)
  - [20] de Figueiredo JL, Santos Vieira de Jesus D, Tavares Robaina D and Lohmann Couri C 2019 The Development Potential Index of Creative Economy for Brazilian Federal State Capitals *Creat. Ind. J.* **12** pp 185–203
  - [21] RI 2019 *Undang-Undang Republik Indonesia Nomor 24 Tahun 2019 tentang Ekonomi Kreatif* (Jakarta: Sekretariat Negara)
  - [22] RI 2015 *Peraturan Presiden Republik Indonesia Nomor 72 Tahun 2015 tentang Badan Ekonomi Kreatif* (Jakarta: Sekretariat Negara)
  - [23] WIPO 2002 *Global Innovation Index 2022: What is The Future of Innovation-Driven Growth?* (Geneva: WIPO)
  - [24] OECD 2008 *Handbook on Constructing Composite Indicators: Methodology and User Guide* (Paris: OECD)