

Digitization of the Makassar City Creative Economy Sub-Sector Based on GIS

Darmayasa¹, Margaretha Wadid Rante², Nursalam³, Masri Ridwan⁴, Aris Burhanuddin⁵

^{1, 2, 3, 4} Politeknik Pariwisata Makassar, Indonesia

⁵ Universitas Negeri Makassar, Indonesia

Email: man.darmayasa@gmail.com¹, ethapoltekpar@gmail.com², achielgold@gmail.com³, masriridwan010@gmail.com⁴, arisburhanuddin@gmail.com⁵

ABSTRACT

This research was conducted to compile a mapping of the creative economy sub-sector in Makassar City. Research approach with qualitative-descriptive methods. The spatial data obtained were analyzed using the ArcGIS 10.5 application and produced spatial and non-spatial data. There are 261 business actors in 15 sub-districts in Makassar City who have spatial and non-spatial data. This study concludes that parekraf sub-sector activities are spread evenly in the Makassar City area and there are 3 (three) leading sub-sectors including culinary business as much as 31%, fashion as much as 17% and crafts as much as 10% . The results of this research are expected to facilitate the government in making policies related to the development of the creative economy in realizing Makassar as a world city. Apart from that, it is easy for the community to search for the Makassar City parekraf through and know the location of the location because it is supported by the display of the Makassar City parekraf distribution map. Future research is expected to be able to develop modeling of the Makassar City Parekraf subsector with a webgis platform that is connected to the hotel industry, restaurants and tourist villages in the Maminasata Region as the main requirement for a metropolitan city.

Keywords : Digitization; Creative Economy Sub-Sector; GIS

INTRODUCTION

Tourism is a sector that is feeling the direct impact of the Covid-19 pandemic that has hit Indonesia and the world (Cahyadi, 2018; Genç, 2018; Han et al., 2019; Obembe et al., 2021; Tang et al., 2020). The impact can be seen from tourism activities which experienced a very sharp decline (Fotiou, 2014; Fourie & Spronk, 2011). This decline can be seen from the data as well as facts that can be seen with the naked eye in places related to tourism: tourist attractions, accommodation businesses, and so on. The Ministry of Tourism and Creative Economy statistical data shows that in 2020 there will be a decrease in foreign tourist arrivals of 74.84 % (Arismayanti et al., 2017; Fahmi et al., 2017; Long & Morpeth, 2016; Rijal et al., 2022; Sung, 2015) . There was a very sharp decline compared to the previous year (2019) where the decline was still recorded at 2.03% (kemenparekraf.go.id , accessed January 25, 2022).

One of the alternatives that the government chose was to stimulate the creative economy sector (Santosa, 2020). The creative economy sector is seen as an opportunity and a solution to survive amidst conditions full of uncertainty, because in this sector the strategies of Micro,

Small and Medium Enterprises (MSMEs) in dealing with the COVID-19 pandemic situation are thought to be carried out through online product marketing. .

During this period of adaptation to new habits, significant processes have taken place in aspects of digital transformation in various sectors, including MSMEs (Korsgaard et al., 2020), this is evidenced by the ability of MSMEs to overcome various problems such as limited market access and increased competitiveness through digital marketing innovation (Leong et al., 2020). During this pandemic it turned out that the MSME sector, especially the creative economy sector, played a positive role in economic growth and contributed to GDP. From the data from the Ministry of Tourism and Creative Economy, MSME in the creative economy sector contributed 62.3 % of GDP. It was also noted that from this contribution , there were three sub-sectors that contributed the most, namely culinary, fashion and craft (kemenparekraf.go.id, accessed January 25, 2022).

The creative economy, which includes creative industries currently developing in several countries, is believed to be able to make a significant contribution to the progress of the nation's economy (Kartika & Hendarmin, 2018; Boğa & Topcu, 2020; Fitriadi et al., 2021). Thus the creative economy sector becomes important because it plays a role in creativity that comes from renewable resources. This is in line with the characteristics of the Indonesian nation which has natural potential and rich cultural heritage (Bakhshi & Windsor, 2015; Hawkins, 2011; Levickaitė, 2011; Tourism, 2014).

The goals of the creative economy in Indonesia have been stipulated in Law Number 24 of 2019, namely to optimize human resource creativity based on aspects of cultural heritage , as well as science and technology (Ubaidillah & Riyanto, 2020). There are at least sub-sector developments in Indonesia starting from 14 sectors included in the scope of the creative economy, namely advertising, architecture, art goods market, crafts, film, design, video, then photography, interactive games, performing arts, music, publishing and printing. research and development as well as computer and software services (Choi et al., 2016; Chollisni et al., 2022; Fernandez et al., 2012; Gerston, 2014; Lita et al., 2020), radio and television (Hasan, 2018). Furthermore, culinary is one of the newest sections, which initially had 14 sub-sectors then became 15 sub-sectors (Kartika & Hendarmin, 2018). Then, most recently through the management of the creative economy which has its own organizational body after releasing it from the Ministry of Tourism. The Creative Economy Agency (Bekraf) as the body that was first formed by President Joko Widodo as a non-ministerial government institution which is under and is under the responsibility of the President and the government in the field of tourism. Bekraf has the main task of assisting the President in formulating, stipulating, coordinating and synchronizing creative economy policies relating to 18 long-term planned sub-sectors up to 2025. Eighteen sub-sectors including the (1) animation sector; (2) architecture; (3) design; (4) photography; (5) music; (6) crafts; (7) culinary; (8) Modes; (9) research and development; (10) publishing; (11) film; (12) advertising; (13) interactive games; (14) performing arts; (15) fine arts; (16) information technology; (17) television and radio; and (18) video (Suparmin, et al).

Sub-sector business activities in Indonesia are mostly dominated by the community through the Creative Economy framework (hereinafter referred to as Ekraf) and Micro, Small and Medium Enterprises (hereinafter referred to as UMKM). Although Thus, Creative Economy players and MSMEs must also keep up with the times so they are not inferior to large companies and are able to compete in a tight and competitive market (As'ad Sonief et al., 2019).

Thus, the challenges faced by creative entrepreneurs aside from the problem of knowledge regarding the establishment of MSMEs, the lack of permits, the problem of disputes over Intellectual Property Rights (IPR), and also the most basic problem is digital marketing strategy.

Digital marketing can be pursued through a spatial approach by utilizing a spatial-based information system (GIS). Information is also something meaningful that is important in the decision-making process activities. Because the information is free from misleading errors and the information itself contains full value, namely accurate, timely and relevant (Maydianto & MR Ridho, 2021). In addition, digital-based information can be part of the promotion and branding of an MSME product. Digital Marketing can be defined as marketing activities including branding using various web-based media (Sanjaya & Tarigan, 2009).

GIS has the ability to connect data information at a selected point on the earth, analyze, combine them, and the final goal is to map the projected results. Data in GIS can be processed in the form of spatial data, namely data that is geographically oriented and has a location point that has a certain coordinate system, as a reference basis. So that the use of GIS applications can answer several questions such as location and conditions, trends, patterns and modeling. It is this capability that differentiates GIS from several other information systems. Geographic Information System is a component consisting of hardware, software, human resources and data that work together effectively to enter, store, repair, update, manage, manipulate, integrate, analyze and display data in a geographic-based information (A , Anugerah, IF Astuti, & AH Kridalaksana, 2016). Thus the geographic information system in the economic approach is used to present information related to business locations and then becomes a support in analyzing market characteristics.

The main function of market analysis is to understand the market; in other words, "market analysis means using customer information to estimate the size and character of the market" (Lotfy Azaz, 2011). GIS is a powerful market analysis tool because it provides a platform for representing the spatial relationships between market components; namely, customers, suppliers, and competitors. This has become increasingly important as greater competition has forced many companies to find new ways to manage their relationships with customers.

Basically, the potential for the creative economy in several districts has been maximally developed, but due to a lack of promotional efforts or marketing strategies, economic disparities occur between regions. The successful development of Makassar City as a pole of economic growth in South Sulawesi Province is very much supported by the creative economy, especially the culinary sub-sector. In 2017, the culinary sub-sector contributed 53%, so that it managed to occupy the top position when compared to other sub-sectors (Eka Sulistya & Novita Budirahayu, 2019). Meanwhile, the area traversed by the western route of Sulawesi Island also showed good economic growth performance. The average gross regional domestic income (GRDP) is 7.51% per year, where the highest dominance is in Makassar City (Surur, Fadhil (2017).

Of course this is an achievement that should be appreciated and supported for its development. However, the implementation of the development of the creative economy sub-sector in Makassar City has not been distributed and evenly distributed, it is still dominated by the culinary business while other sub-sectors have not shown good performance. This is a challenge for the City of Makassar, which has a vision and mission to Accelerate Realizing Makassar as a World City that is Sombere & Smart City with Strong Immunity. Smart cities can only be realized if there is spatial integration between regions through the use of technology. It

is in this context that the configuration of territorial functions can be utilized to lead to a "tourism area" (Nunes & Cooke, 2020). Makassar City can be declared as a smart city when the region can manifest the economy for the surrounding area. A distinct aspect of this smart city component is public-private and government collaboration that focuses more on technology as a provider of infrastructure and data (Gretzel et al.2015) :

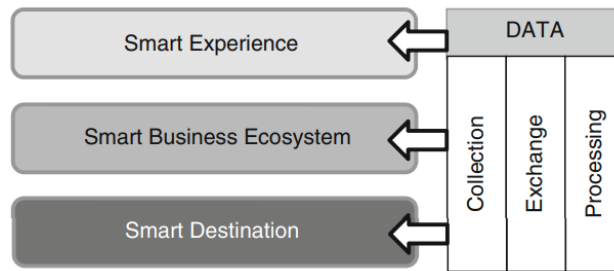


Figure 1 Pillars of Smart Tourism Destinations
 Source: Gretzel et al. (2015)

This study aims to identify the potential of the creative economy sub-sector in Makassar City and map the potential of the creative economy based on geographic information systems in several areas in Makassar City based on the Parekraf sub-sector classification.

METHOD

The research was carried out in August- November 2022 which focused on the Makassar City area, the scope of the study area was limited based on the sub-district administration area. The creative economy sub-sector survey was conducted on 261 business actors in 15 sub-districts in Makassar City.

Table 1 District of Makassar City

No	Subdistrict	Ward
1	Bring it on	Bulurokeng, Daya, Paccerakang, Pai, Sudiang, Sudiang Raya, Untia
2	Bontoala	Baraya, Bontoala, Bontoala Parang, Old Bontoala, Bunga Ejaya, Gaddong, Layang, Malimongan Baru, Parang Layang, Timungan Lompoa, Tompo Balang, Wajo Baru
3	Macassar	Bara Baraya, Bara Baraya Selatan, Bara Baraya Timur, Bara Baraya Utara, Barana, Lariang Bangi, Maccini, Maccini Gusung, Maccini Parang, Mardekaya, Mardekaya Selatan, Mardekaya Utara, Maricaya, Maricaya Baru

No	Subdistrict	Ward
4	Mamajang	Baji Mappakasunggu, Bonto Biraeng, Bonto Lebang, Karang Anyar, Laburan Baji, Mamajang Dalam, Mamajang Luar, Mandala, Maricaya Selatan, Pa'batong, Parang, Connect Java, Tamparang Keke
5	Manggala	Antang, Bangkala, Batua, Borong, Manggala, Tamangapa
6	Mariso	Bontorannu, Buyang Village, Kunjung Mae, Lette, Mario, Mariso, Mattoangin, Panambungan, Tamarunang
7	Panakukkang	Karampuang, Karuwisi, North Karuwisi, Masale, Pampang, Panaikang, Pandang, Paropo, Sinrijala, Tamamaung, Tello Baru
8	Rappocini	Balla Parang, Banta Bantaeng, Bonto Makkio, Bua Kana, Gunung Sari, Karunrung, Kassi-Kassi, Mappala, Rappocini, Tidung
9	Tallo	Buloa, Beru Spell Flower, Kalukuang, Kaluku Bodoa, La'latang, Lakkang, Lembo, Pannampu, Rappojawa, Rappokalling, Suangga, Tallo, Tammua, Ujung Pandang Baru, Wala-Walaya
10	Tamalanrea	Bira, Kapasa, Parangloe, Tamalanrea, Tamalanrea Indah, Tamalanrea Jaya
11	Tamalate	Balang Baru, Barombong, Bongaya, Jongaya, Maccini Sombala, Mangasa, Mannuruki, Pa'baeng Baeng, Parang Tambung, Tanjung Merdeka
12	Edge of View	Baru, Bulu Gading, Lae-Lae, Lajangiru, Losari, Maluku, Mangkura, South Banana, North Banana, Sawerigading
13	End of Land	Camba Berua, Cambaya, Gusung, Pattingaloang, New Pattingaloang, , Tabaringan, Tamalabba, Totaka, Ujung Tanah
14	Wajo	Butung, Ende, Malimongan, Old Malimongan, Capable, Malay, New Malay, Pattunuang
15	Kep. Singkarrang	Barrang Caddi, Barrang Lompo, Kodingareng Island

Source: Makassar City BPS in figures, 2022

1) Data Types and Sources

The type of data consists of primary data and secondary data. Primary data obtained by using the survey method to the location of the intended creative economy sub-sector activities while secondary data was obtained from Google Maps, RTRW documents, the Central Bureau of Statistics, Makassar City Tourism Office.

2) Data collection technique

- a. Field survey ; a direct field survey was carried out to obtain an overview of the condition of the creative economy sub-sector.
- b. Library Studies ; literature study was conducted to obtain supporting literature related to the research topic.

3) Data analysis technique

- a) This research is general in nature towards something specific (*going from the general to the specific*) with various stages, namely: Inventory of data on creative economic activities spread across Makassar City with limitations: Creative economic activities refer to 17 creative economic sub-sectors according to Presidential Regulation Number 97 of 2019 concerning the Tourism and Creative Economy Agency which consists of music, culinary, craft, photography, animated films and videos , fashion, product design, visual communication design, interior design, architecture, applications, game developers, television and radio, fine arts, performing arts, advertising and publishing.
- b) Descriptive analysis is used by this researcher for fact finding which is then interpreted according to the research problem. Descriptive analysis was carried out to determine the existence of independent variables, either only on one variable or more without making comparisons and looking for the relationship between these variables and other variables (Sugiyono, 2009).
- c) Spatial analysis with geographic information system approach. GIS is an information system that is used to enter, store, retrieve, process, analyze and produce geographically referenced data or geospatial data, to support decision making in planning and managing land use, natural resources, environment, transportation, urban facilities and services. other public (Murai, 1999).

RESULTS AND DISCUSSION

Result

Makassar City is the capital of South Sulawesi Province. In the Creative Economy sector, Makassar City is one of the cities that has a high economic growth of 7.9% (Makassar City Regional Statistics , 2017). This figure has exceeded national economic growth which was only able to reach a value of 5.07% (Socioeconomic Data Monthly Report, 2018) and this achievement cannot be separated from the role of the creative economy in Makassar. As the provincial capital, Makassar is a place of accumulation of various ethnicities that have diverse customs and cultures.

The cultural diversity that is owned must be able to be packaged into a tourism product that can be sold or become an attraction for foreign and local tourists. The tourism sector is believed to be able to drive the people's economy, because it is considered the most prepared sector in terms of facilities, infrastructure and facilities compared to other business sectors. In line with the potential and role that Makassar City has to grow and develop as a Metropolitan City, this development contributes to improving the welfare of Makassar City residents on an ongoing basis.

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develop as a Metropolitan City, this development contributes to improving the welfare of Makassar City residents on an ongoing basis.

The Makassar City government's support for the development of the creative economy is contained in regional policies, including:

1. Makassar Mayor Regulation Number 103 of 2016 Regarding Position, Organizational Structure, Duties and Functions and Work Procedures of the Tourism Office
2. Makassar City Tourism Office Strategic Plan (Renstra) for 2021 to 2026” as a planning document for the implementation of Tourism Development in the 2022 to 2026 implementation year, with reference to Makassar City RPJMD Period 2021 to 2026, RPJMN Period 2020 to 2026 d 2024 and the Strategic Plan of the Ministry of Tourism of the Republic of Indonesia from 2020 to 2024.

Based on the survey results of the creative economy sub-sector profile in Makassar City as follows:

Table 2 Survey of the Makassar City Creative Economy Subsector

No	Subsector	Number of Actors	Presentation (%)
1	Advertising	8	3
2	Architecture	11	4
3	Product Design	12	5
4	Crafts	26	10
5	Fashion	44	17
6	Film, Animation & Video	8	3
7	Publishing	5	2
8	Game Development	5	2
9	Culinary	82	31
10	Music	9	3
11	Design interior	12	5
12	Visual communication design	5	2
13	Television and Radio	4	2
14	Photography	12	5
15	Performing Arts	6	2
16	Art	8	3
17	Application	4	2
	Total	261	100

Source: Researchers, 2022

Survey Period : August-November 2022

Based on table 1.2, the conditions of the creative economy in Makassar City have 3 (three) leading sub-sectors including culinary business as much as 31%, fashion as much as 17% and crafts as much as 10%. The following are a number of activities that support an increase in the number of creative economy actors in Makassar, including; F8, Creative Product

Week, Performing Arts Festival, Makassar Film Week and Fine Arts & Fine Art Exhibition (results of interview with head of Makassar city destination, 28 September 2022).

Discussion

Theoretically, this mapping is carried out by researchers based on creative industry data and is carried out internally and independently and is carried out based on the strategic steps for mapping parekraf sub-sectors, namely

1. Make area boundaries, classification or stratification to understand the overall situation and relative position in a wider context. In this case, the researcher makes boundaries with mapping which is done only in Makassar City.
2. Create a profile of each sub-sector of the creative economy business which includes; Business name, sub-sector classification, business address and coordinates. From this stage, the researcher created a profile of the creative economy business sub-sector in Makassar.
3. The digitization results display the sub-district layer, where in the geographical information system layer in the city of Makassar there are 15 sub-district layers which can be seen in Figure 1.2 below:

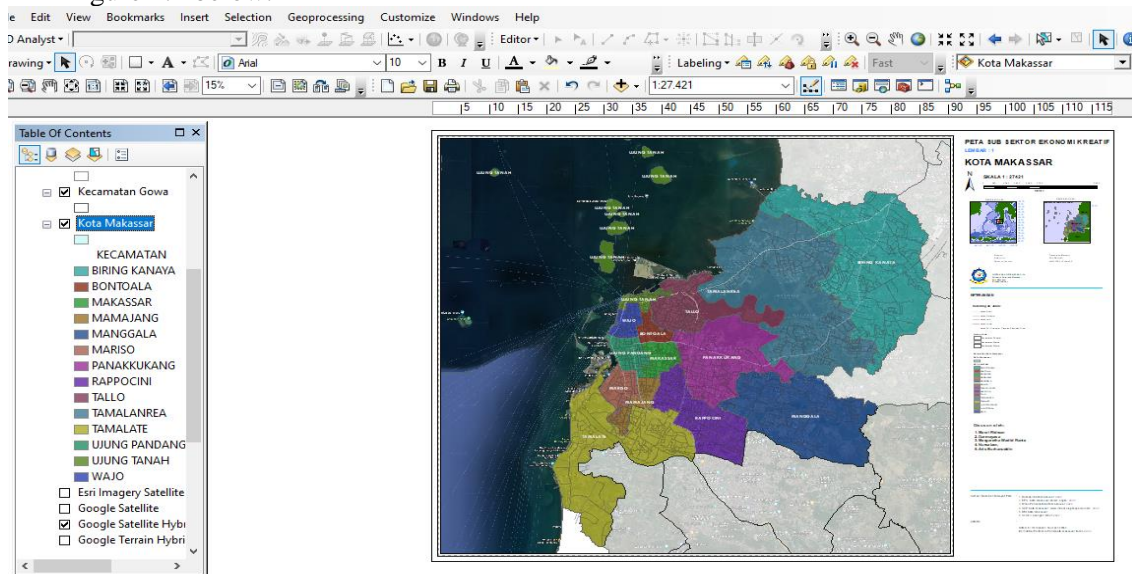


Figure 2 Digitization of Makassar City Districts

Source: Research data processing, 2022

4. Manage and manipulate parekraf sub-sector attribute data in Makassar City. The results in the Me-manage & Data Manipulation stage are data entry for 17 creative economy sub-sectors in Makassar City starting from business name, business address, sub-sector classification, business description, business documentation, legalization (if any) and testimonials from business actors using the open attribute table on argis.

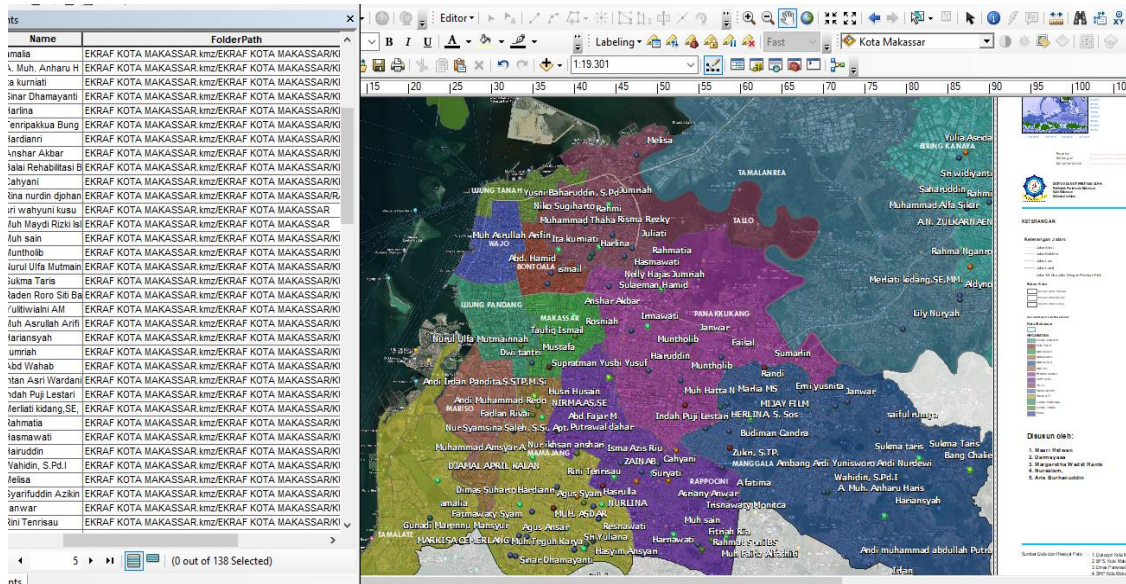


Figure 3 Open Attribute Table
Source: Research data processing, 2022

1. Analysis

At this stage an analysis of information needs was carried out in the Parekraf sub-sector of Makassar City. Analysis is carried out by studying the needs of the user or users and studying existing information then formulating new system requirements. The steps for developing the digitalization of the information system for the parekraf sub-sector in Makassar City are as follows:

a. Design

At this stage, an information system design is carried out to solve the problems that have been formulated from the Software Requirements Analysis stage. The design carried out includes: System design (*Input and Output System*) design, database design (*Entity Relationship Diagram*), and interface design.

b. coding

At this stage using a particular programming language. The result of this stage is a computer program according to the design that was made at the system design stage.

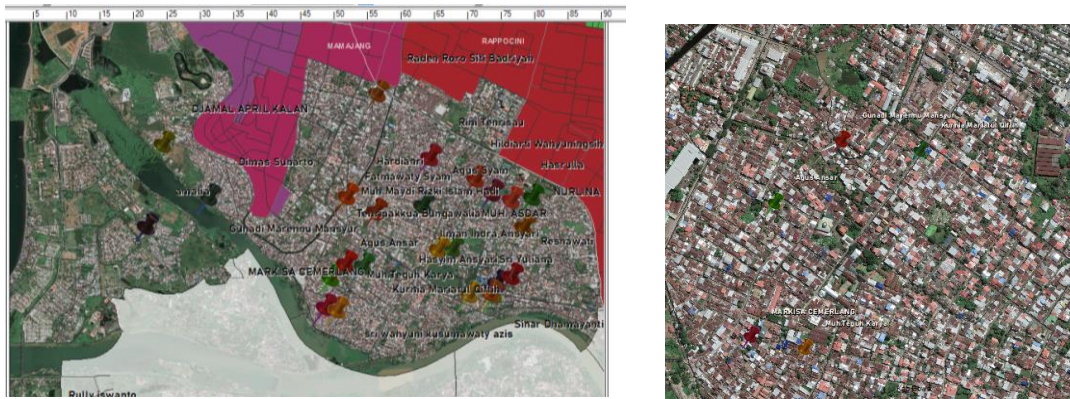


Figure 4 The search was carried out at the sub-district level up to the output area.
 Source: Research data processing, 2022

Figure 4 above is a page that displays a map of the distribution of all creative sub-sectors of the City of Makassar which displays the Tamalate sub-district in detail. The display above provides location information as well as detailed creative economy data at the sub-district and sub-district levels.

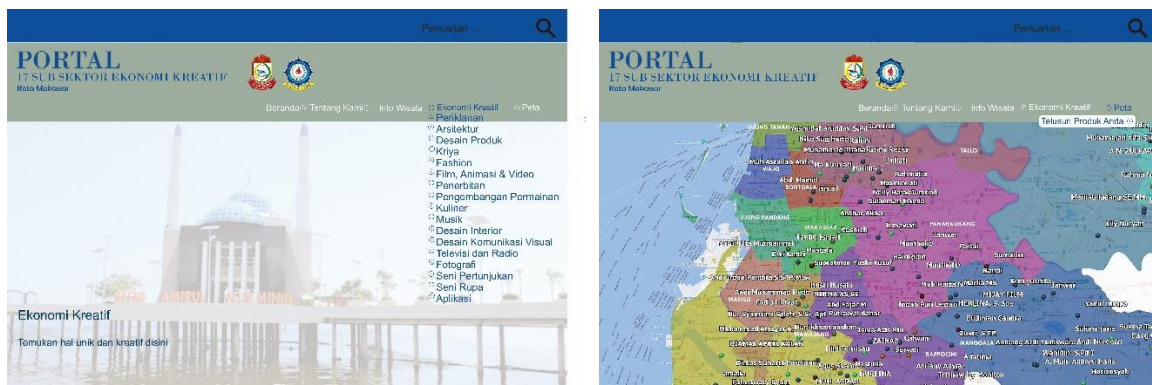


Figure 5 Portal Design of Creative Economy Subsector Information System for Makassar City
 Source: Research data processing, 2022

Figure 5 is the design and layout for managing data for the creative economy sub-sector category for Makassar City, in this design it is provided for entering, changing and deleting creative economy category data. This template was designed using the Corel-Draw 8 application which will then be developed into the webgis program in future research.

CONCLUSIONS

The geographic information system for the Parekras sub-sector in Makassar City consists of spatial and non-spatial data. There are 261 business actors in 15 sub-districts in Makassar

City who have spatial and non-spatial data. This study concludes that parekraf sub-sector activities are spread evenly in the Makassar City area and there are 3 (three) leading sub-sectors including culinary business as much as 31%, fashion as much as 17% and crafts as much as 10%. The results of this research are expected to facilitate the government in making policies related to the development of the creative economy in realizing Makassar as a world city . Apart from that, it is easy for the community to search for the Makassar City parekraf through and know the location of the location because it is supported by the display of the Makassar City parekraf distribution map. Future research is expected to be able to develop modeling of the Makassar City Parekraf subsector with a webGIS platform that is connected to the hotel industry, restaurants and tourist villages in the Maminasata Region as the main requirement for a metropolitan city .

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