

# Kesibumantan

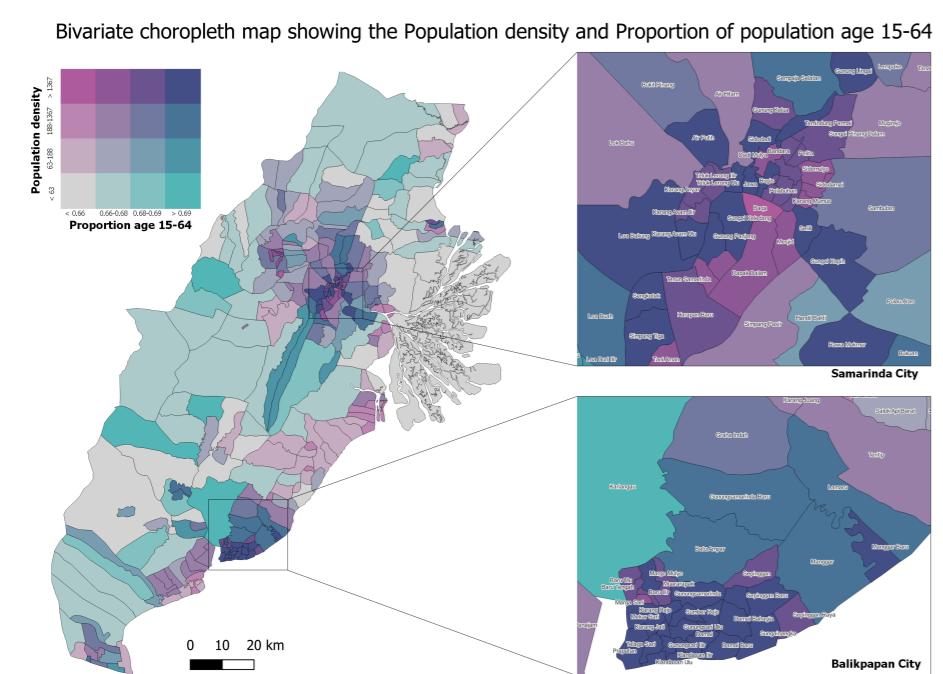
## A combination of the words Kesibukan and Kalimantan - translated to *A bustling city in Kalimantan*

### Problem Statement and Motivation

Jakarta has long been struggling with environmental problems. Moving the capital was thus deemed necessary to spread the economic activities, reduce traffic gridlock and decrease the population density in the overcrowded Java island. According to President Joko Widodo, the relocation of the capital would cost 466 trillion rupiah (\$32.7bn). It is thus important to analyse a variety of factors to select a suitable capital site so that precious resources and fundings are not wasted especially in the midst of a pandemic.

### Population and Demographics

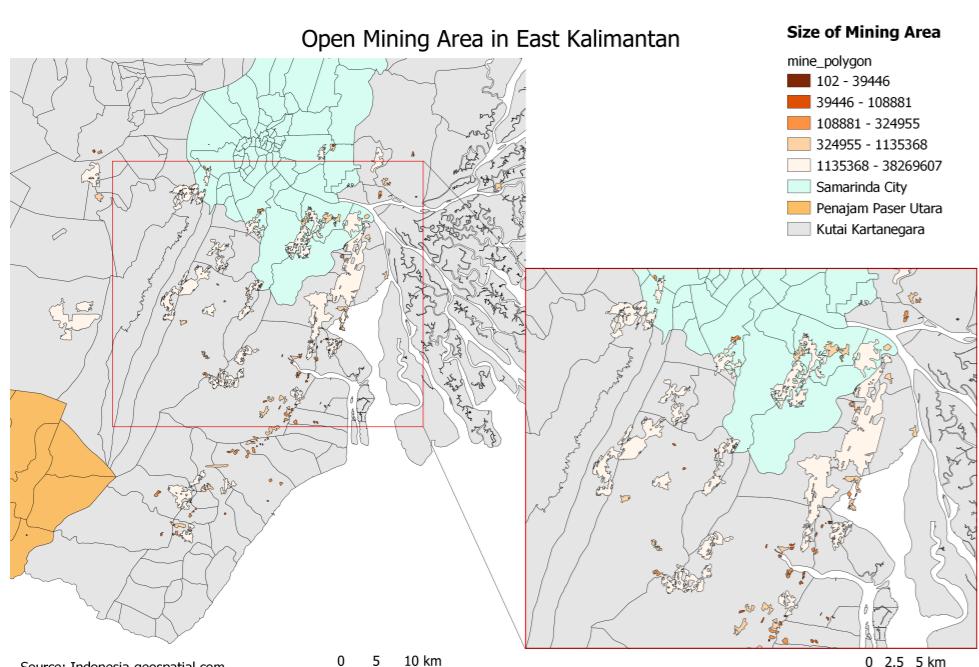
#### Bivariate Choropleth Map



Balikpapan City and Samarinda City are the most densely populated areas. The more rural areas, Penajam Paser Utara and Kutai Kartanegara, have lower population density.

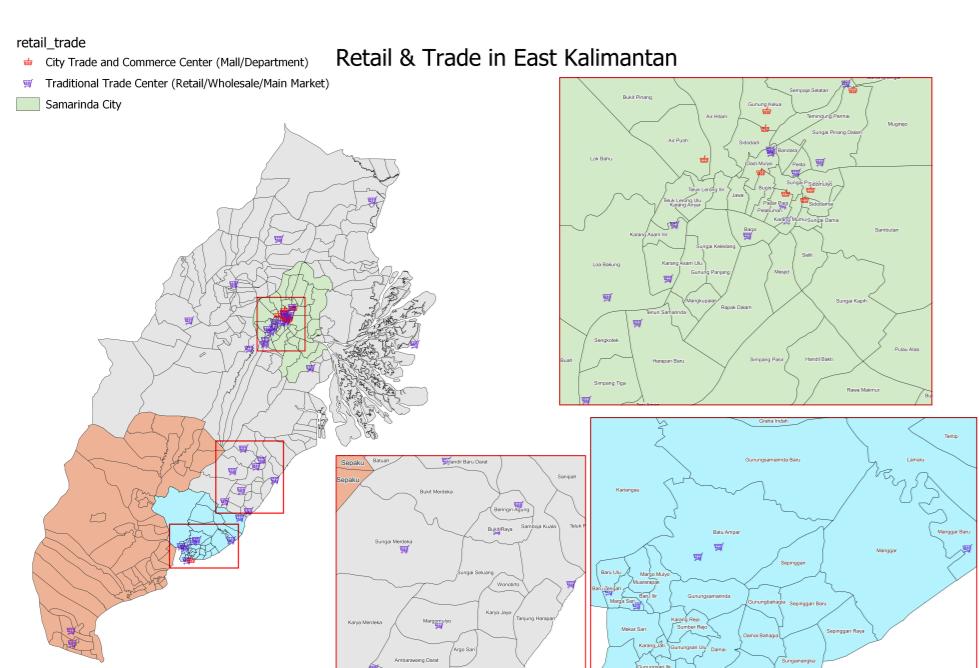
### Economic and Business

#### Distribution of Mining Areas



The total mining area is 258.27 km<sup>2</sup>, scattered mostly across Kutai Kartanegara and Samarinda. Given that there are illegal mining activities, the mining area is likely to be larger than those on the map.

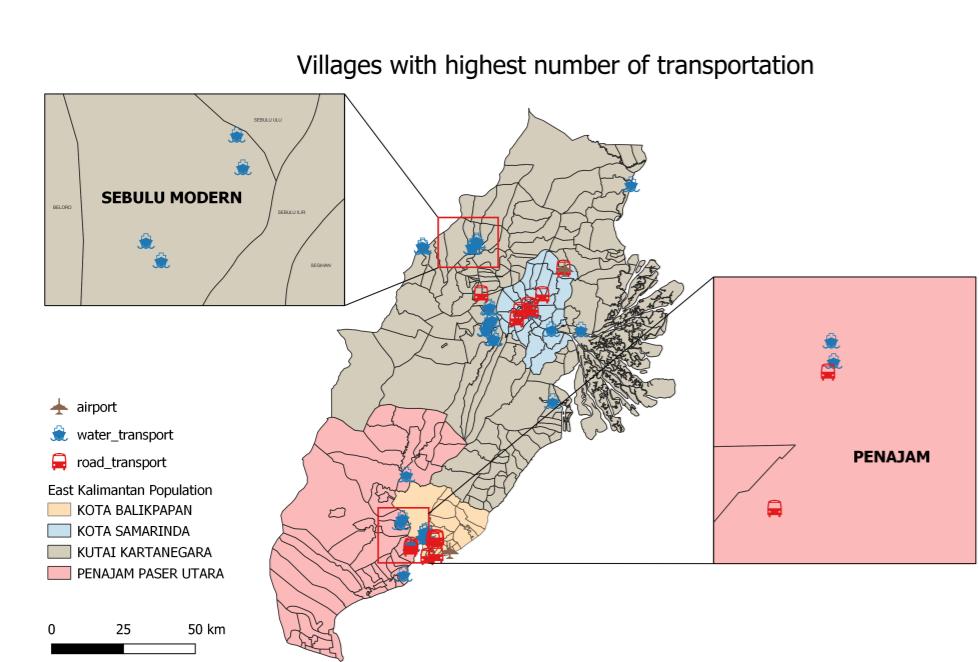
#### Retail and Trade Analysis



Only Balikpapan and Samarinda have City Trade and Commerce Centres. The less densely populated Kutai Kartanegara and Penajam Paser Utara have Traditional Trade Centres such as retail and wholesale markets.

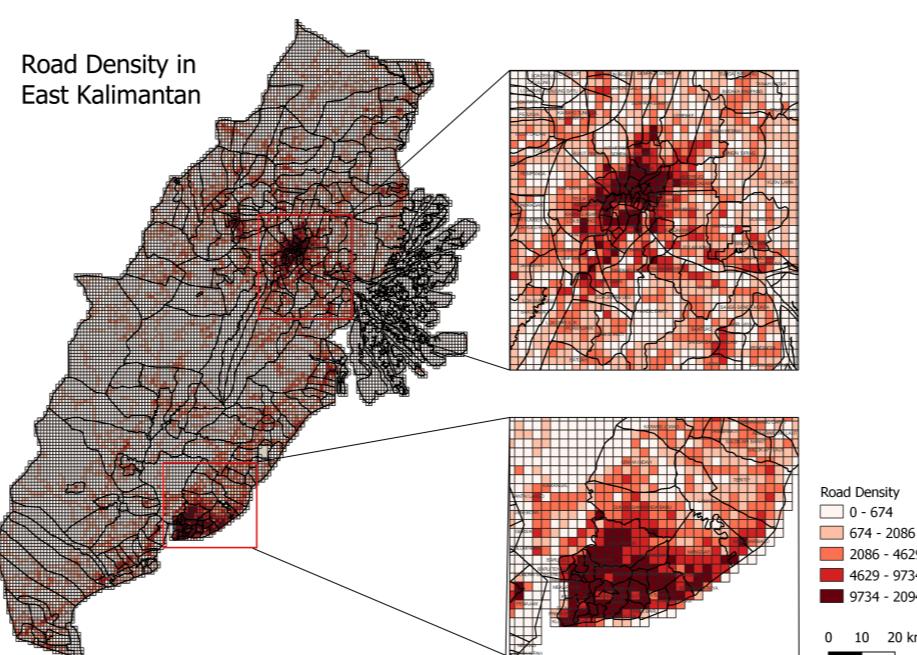
### Transport and Communication

#### Distribution of Transportation Facilities



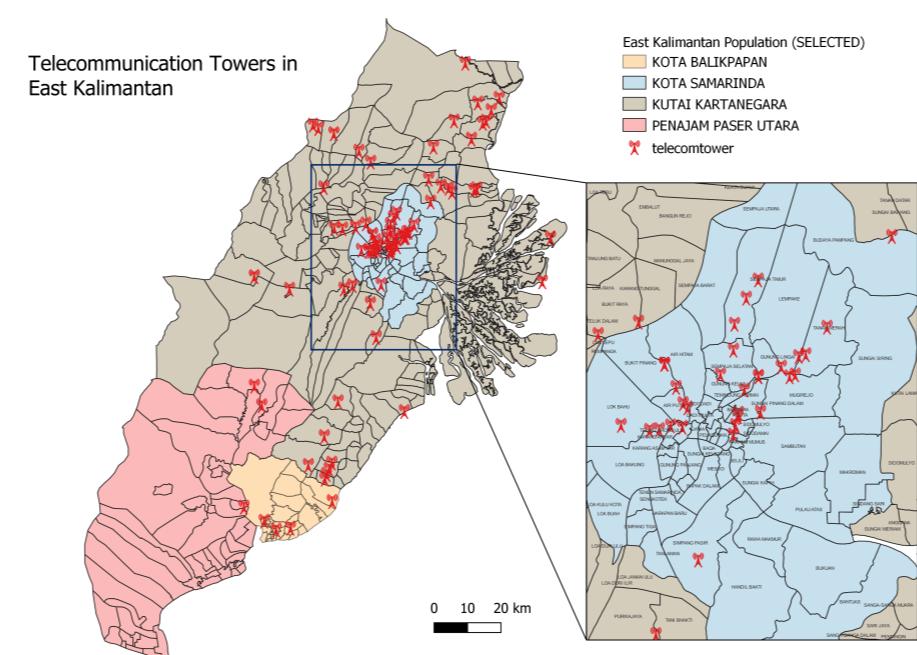
Penajam and Sebulu Modern have the highest transportation counts. For Penajam Paser Utara, most of the transportation is concentrated in Penajam with 2 road transport and 2 water transport. It is also good to note that Penajam has a decent proximity to the domestic airport in Sungai Nangka.

### Road Density Analysis



There is an uneven distribution of roads in Kalimantan. Villages in Kota Balikpapan and Kota Samarinda have a higher road density and better developed road networks.

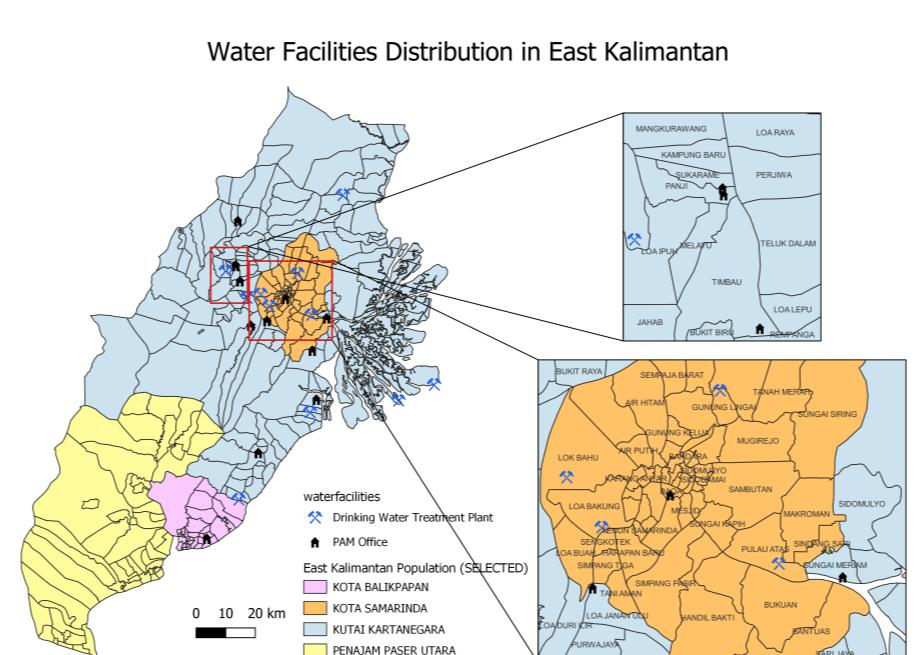
### Distribution of Telecommunication Towers



There are not many telecommunication towers in Penajam Paser Utara, indicating that connectivity in the area may be poor. Telecommunication towers are fairly spread out in Kutai Kartanegara, and there is a high concentration of telecommunication towers in Kota Samarinda.

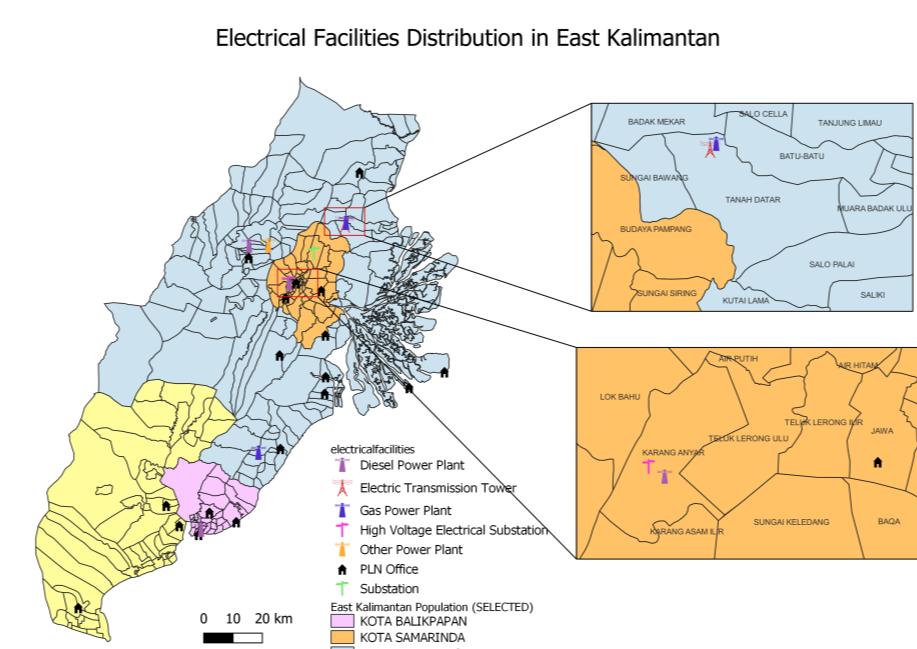
### Infrastructure

#### Distribution of Water Facilities



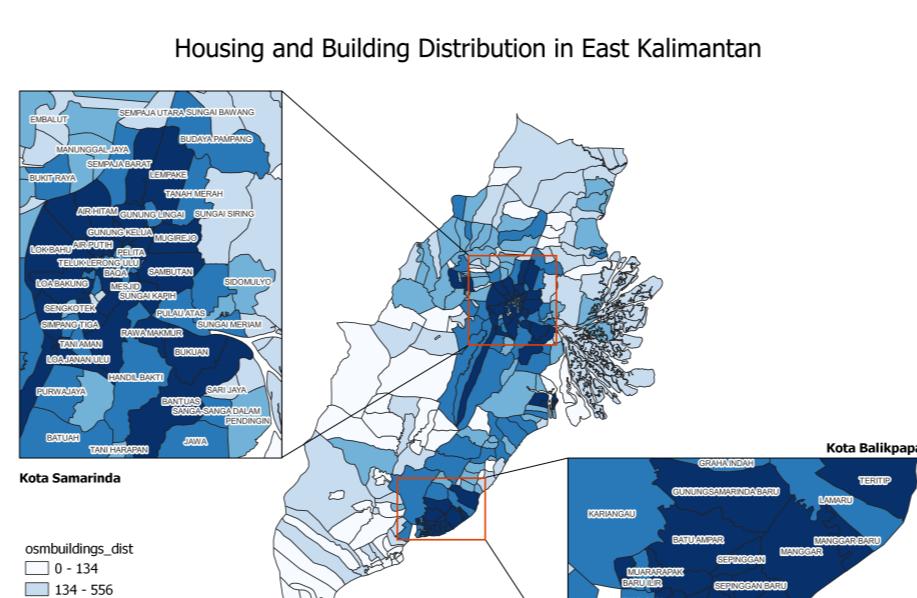
There is an unequal distribution of water facilities. Penajam Paser Utara has zero water facilities and majority of the treatment plants are situated in the northern region.

#### Distribution of Electrical Facilities



There is a severe lack of power grid facilities in Penajam Paser Utara, but the power grid infrastructure in the other districts is rather sufficient.

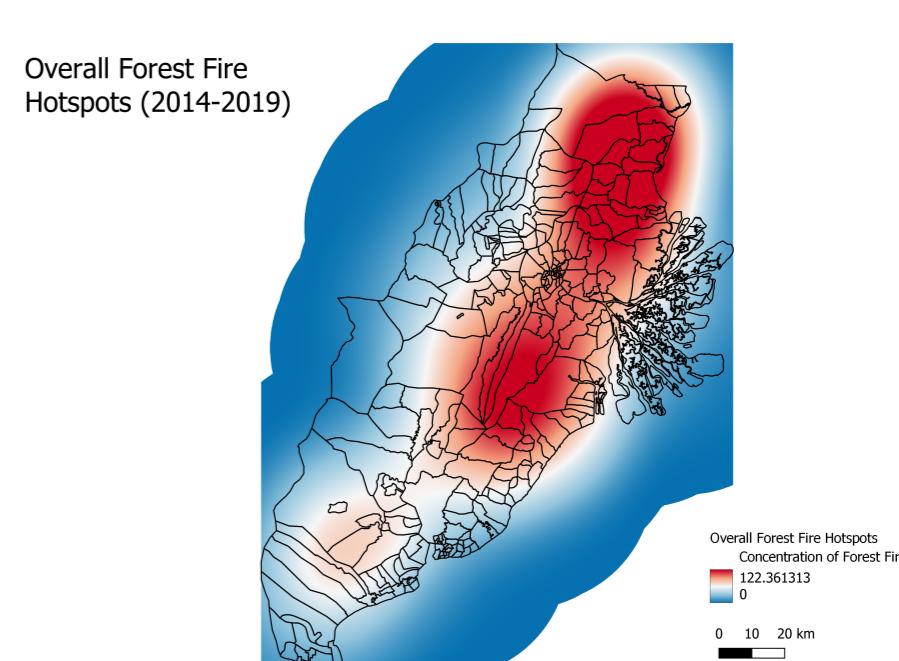
### Building Density Analysis



The building distribution is highly skewed - 20% of villages house majority of the buildings, so the building density in these villages is very concentrated. These villages mostly lie in Kota Balikpapan and Kota Samarinda.

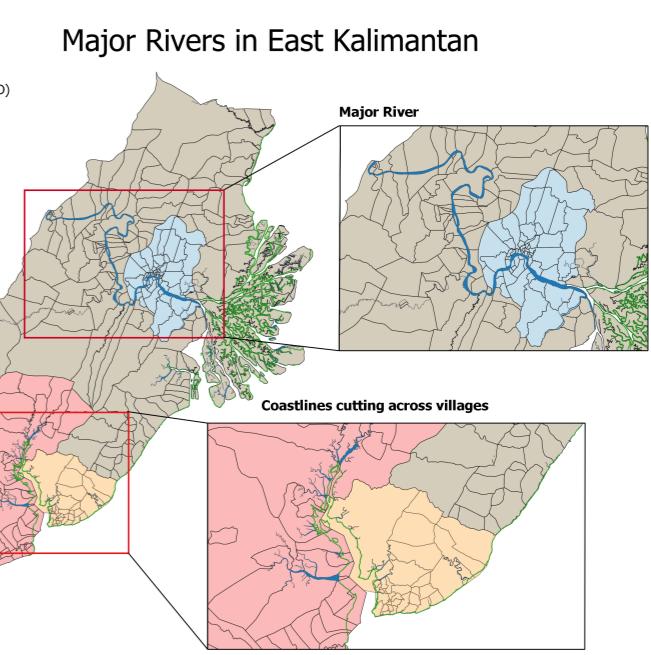
### Environment and Hazard

#### Forest Fire Hotspots



Villages in the north-east and southern part of Kutai Kartanegara have the highest concentrations of forest fires.

#### Flood Risk Analysis



There is a major river which cuts across various villages in Kota Samarinda and Kutai Kartanegara.

### Site Suitability Analysis

Our team considered 8 factors (*Accessibility, Economic, Water Transportation, Air Transportation, Safety Hazard, Environmental Sustainability, Flood Risk and Building Density*) and ranked them using the GIS-MCDA method.



With that, the potential site chosen is as seen on the map. The site is in Kota Balikpapan, within several villages including Manggar, Sepinggan, Gunung Samarinda Baru, and Batu Ampar.

#### Advantages

- High number of transportation options, well developed road networks, increases accessibility to the potential capital
- Reduced safety hazard due to lower risk of forest fires
- Less costly to build the capital in the area due to gentler slopes
- Not densely populated

#### Disadvantages

- Increased flood risk, but can be combated with the building of dams and sewage systems
- Lack of telecommunication and transmission towers, but can be addressed by building more infrastructure near the site
- High building density, but the government can always look to convert existing buildings into useful developments

### Future Work

- Perform network accessibility analysis to pinpoint areas that lack access to essential services
- Optimisation of transportation networks to shorten travel time

### Meet the Team

#### The Team



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