Juxtaposing Government and Social Media Data in Twitter Atlas: A Case of Criminal Graphics of Jakarta City

Key words: Atlas Services, Infographics, Socialmedia, 3D presentations

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What is Atlas

Atlases are intentional combinations of maps or data sets, **structured** in such away to reach specific **objectives**

(Kraak & Ormeling, 2010, pp159)
Challenges

Atlas & Web Evolution

1899 - 1900
1970 - 1980
1990 - 2000

National Atlases & Atlases
Integrating Surveying Data & Statistics (Thematic) into A book

Electronic Atlas
Integrating Surveying Data & Statistics (Thematic) into A CD/DVD media

Web-based Atlas
Integrating:
- Surveying Data
- Air/Satellite Images
- Statistics/Thematic
- Non-geo content into A web page

Web 2.0 Social Media Era
(Facebook, Twitter, Instagram, Telegram, WA)

Twitter Atlas?
Atlas 4.0?

Source:
The Evolution of Web (2015)
Atlas as the Metaphor for GDI (2007)
Work objectives

Combining social media data with web atlas structure to provide a responsive atlas information system
Case Study: Crime Data

Official Crime Reports through Police/Justice Institutions

Additional Data:
- Crime Events, crime clocks etc.
- Statistics
- Other Thematic Data

Crowd Crime reports

Username: jakarta_terkini,
date and time: 17/10/2018 04:30:00,
text: Maling motor Terekam CCTV di Masjid Jami'e Daarul Hasan Jl siaga II Pejaten Barat Pasar Minggu Saat Sedang Salat Subuh,
Kategori: pencurian,
Alamat: Jl. Siaga II Pejaten Bcar, Ps. Minggu, koordinat: 106.8440018, -6.2754998

Data Visualisation
The collection for crowd data used the python program GetOldTweets-python by Jefferson-Henrique and the Windows command prompt.

Other alternatives include: the rapidminer, crimson hexagon, facilitated as the twitter API.
Data preparation

Filtering and cleaning redundant data

Semantic checking on social media content relevant to criminal events.

Verify geotag content for each record.

Geocode data based on position or address information

Check the suitability of the data using the Microsoft Excel program and CartoDB platform for geocoding.

The amount of data relevant to the incidence of crime in 2014 to 2018

<table>
<thead>
<tr>
<th>Year</th>
<th>NUMBERS</th>
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<tbody>
<tr>
<td>2014</td>
<td>288</td>
</tr>
<tr>
<td>2015</td>
<td>159</td>
</tr>
<tr>
<td>2016</td>
<td>128</td>
</tr>
<tr>
<td>2017</td>
<td>53</td>
</tr>
<tr>
<td>2018</td>
<td>147</td>
</tr>
</tbody>
</table>

Twitter Data Visualization With Tableau and Kepler GL
Twitter Data Vis. w/ Tableau

- Criminal data (xls, csv), population data (shapefile)
- A sheet that utilizes a single visual display (maps/graphs)
- Data definition: data filtering and interaction
- Public upload through a tableau server
- Combining sheets into a dashboard that presents all visual displays into a single page
Results: Data Visualization

on Tableau Desktop/Web


video
Results: 3D Visualization of Crowd Crime Data

On Kepler GL

https://geoinsight.ugm.ac.id/jakartacrime/video
Work in Progress

Contents
- Performance
- 3D Attribute Filtering + Visualization
- Linked Maps & Multiple Visual Displays
- News, MultiMedia, Reports, ...

Atlas Directory and Structure

3D Attribute Filtering + Visualization

Atlas Users
The structure of Atlas Information System should be *self-adaptive, collaborative and flexible*, adapting to user context and social media’s trending topics → AI support?

The new structure of Atlas Information System should also consider *self-automation* of story lines in the atlas navigation, adapting to user context and social media’s trending topics → AI support?

**Atlas 4.0**

*Self-Adaptive & Self-Automation in Structure & user Navigation*

AI, IoT, big data analysis and cloud computing, to enable atlas navigation and uses to be more efficient for layman and expert
Storytelling Atlas

Contents
Performance

http://s.id/m0w