

# Multimedia Presentations of Spatial Journalistic Content

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# Motivation and problem statement

- Widespread practice of multimedia presentations/stories with spatial data in online journalism
  - The Baltimore Sun  
<http://data.baltimoresun.com/freddie-gray>
  - Süddeutsche Zeitung  
<http://www.geheimerkrieg.de/en/#entry-61-7932-the-us-knows-no-limits>

# Thesis questions

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1. What are the criteria of a well-suited multimedia presentation of location based journalistic information?
2. Which platforms are most suitable for creation of the web maps along with different types of multimedia elements?
3. What strengths or weaknesses does each platform have in regard to overall presentation as well as presentation of web maps?

# Areas of investigation

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- **Multimedia in online journalism**
- **Spatial journalistic content**
  - Maps and spatial analysis in news
  - Spatial journalism
- **Digital narrative storytelling**
- **Web mapping**
  - Web mapping architecture
  - Web mapping assessment

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## Literature findings

- Multimedia capabilities (e.g. audio, video, slide-show, interactive features)
- Different narrative structures for digital storytelling
- User-friendly and intuitive GUI that could be used by non-professional users
- Compatibility with different spatial data types
- Spatial analysis tools
- Browser compatibility
- Extensive framework for developers (e.g. API)
- Mobile support
- Speed of rendering in browser and server
- License and pricing

## Criteria of a well-suited multimedia presentation of location-based journalistic content

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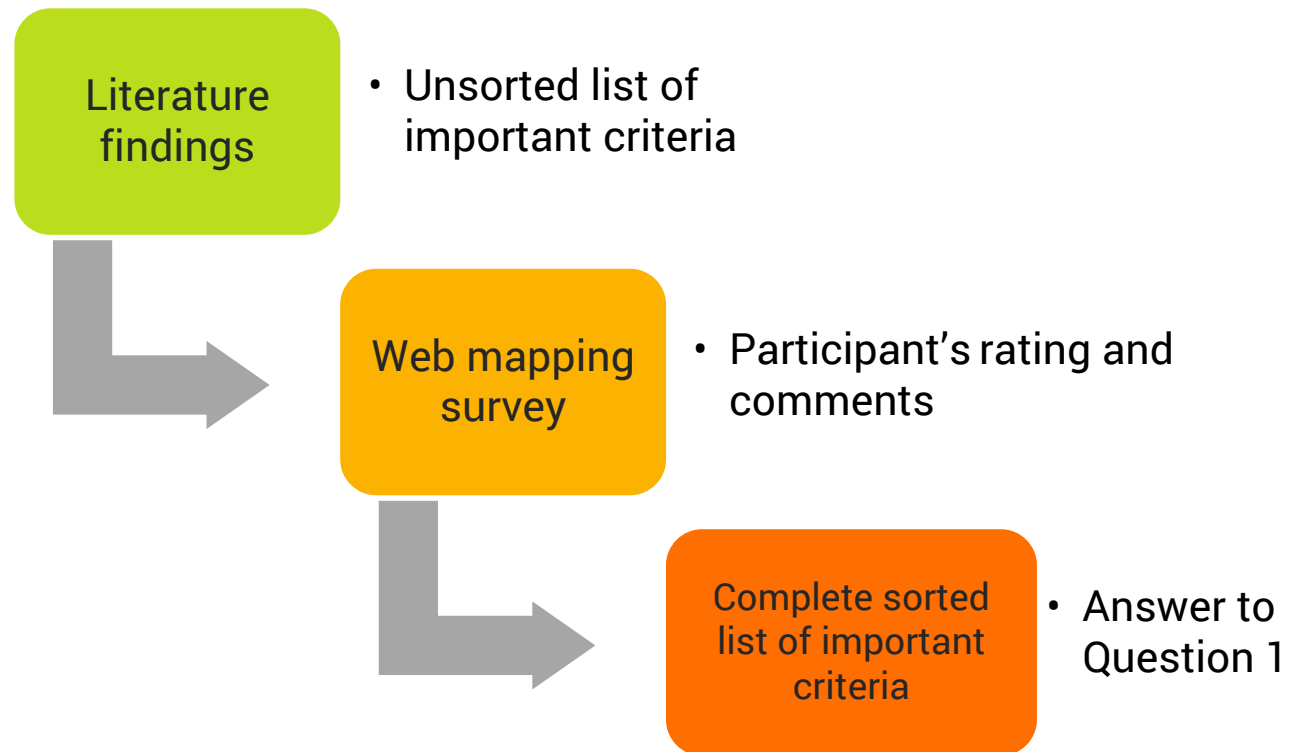
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## Suitability of platforms for creation of web maps along with different types of multimedia elements

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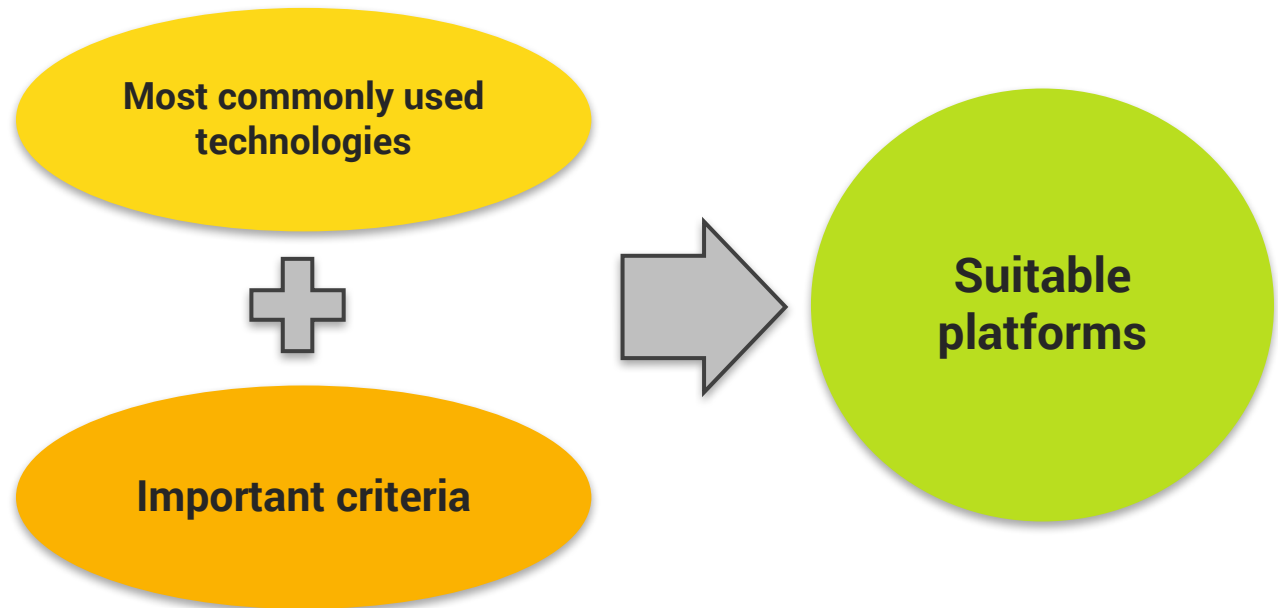
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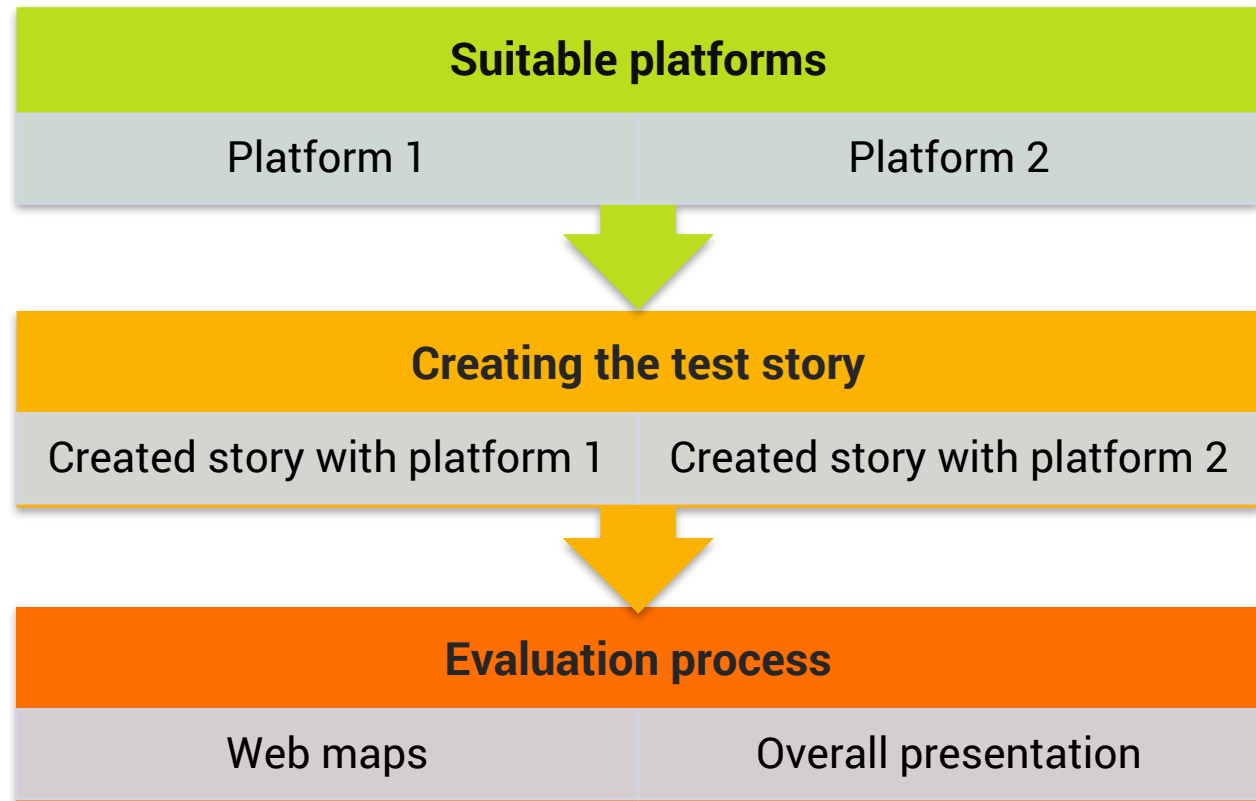
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## Strengths and weaknesses of the selected platforms



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# Objectives of the web mapping survey

- What are the **most important characteristics** of a web mapping platform?
- What are the **most common web mapping platforms** and technologies?
- How often do journalists work with spatial data and implement web maps?
- To what kind of news article do journalists usually add web maps?

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## Survey description

- **Questions:**
  - Personal Background
  - Usage of web maps and spatial data in journalism
  - Most commonly used web mapping technologies
  - Most important considerations for such platforms
- **53** participants
- More than **80 percent** of participants had journalism background



# Most commonly used web mapping technologies

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Most commonly used platforms	Most commonly used frameworks
Google Maps	Leaflet
CARTO	Google Maps API
Mapbox	D3
ArcGIS Online	Bing Maps API

# Sorted list of important characteristics

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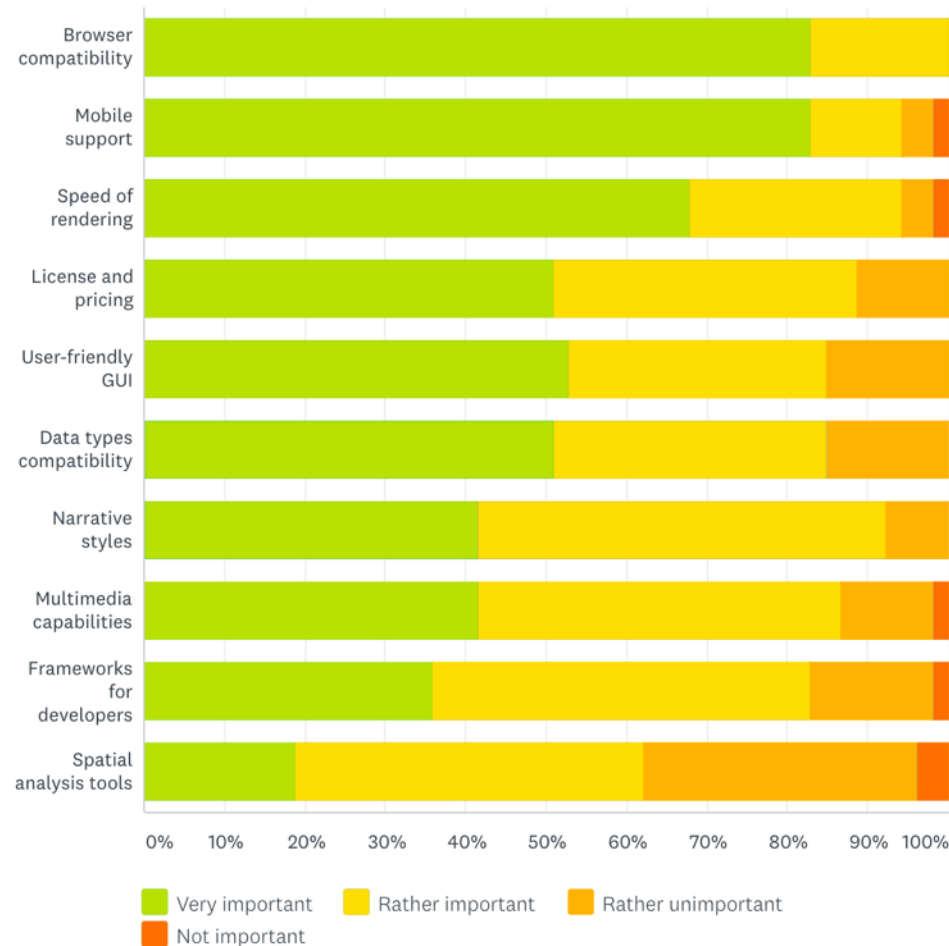
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# Details of the average ratings

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	Very important (4)	Rather important (3)	Rather unimportant (2)	Not important (1)	Total	Average rating
Browser compatibility	44	9	0	0	53	3.83
Mobile support	44	6	2	1	53	3.75
Speed of rendering data	36	14	2	1	53	3.60
License and pricing	27	20	6	0	53	3.40
User-friendly GUI	28	17	8	0	53	3.38
Data types compatibility	27	18	8	0	53	3.36
Narrative styles	22	27	4	0	53	3.34
Multimedia compatibility	22	24	6	1	53	3.26
Framework for developers	19	25	8	1	53	3.17
Spatial analysis tools	10	23	18	2	53	2.77

## The two selected online web mapping platforms

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VS



# Test story (essential elements)

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Element	Description
Text	Texts in different size and styles
Graphics	Graphics in proper size and quality
Video	Embedding a video
Choropleth map	An Interactive choropleth map
Timeline map	Visualization of date type data
Infographics	An interactive chart
Animation	An Interactive transition within story sections



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## Test story (description)

The story is about how women's social roles have changed within the years and introducing some influential women in history .

### Story sections:

1. Introduction
2. Changing women's role
3. Women's suffrage
4. Gender equality index
5. Influential women

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# Test story with ArcGIS Online

## Esri Story Maps

Web applications that integrate interactive maps with multimedia content such as:

- Image
- Video
- Other content (interactive charts, etc. )

Free and open-source applications

Offer different story templates

# Story Maps templates

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## Created story with ArcGIS Online

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<http://arcg.is/2zCV238>

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# Test story with CARTO

Storytelling framework Odyssey.js was not functioning because the new version of CARTO.js (3.15.8) do not support publishing map as Viz.JSON which is the used format in this application.

## CARTO Builder

- A drag- and- drop web mapping application
- Allows users to:
  - Manipulate data with SQL statements
  - Apply custom styling via CartoCSS.
- Widgets: dynamic features that are designed to enhance the instant analysis of one or more entries within the dataset

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## Custom web design

- Bootstrap was used as the basic framework
  - Open-source toolkit
  - Mobile first approach
- Design pattern was based on the Google material design and provided by “Creative Tim”
- Other technologies such as JavaScript libraries:
  - JQuery
  - Scroll Reveal

# Created story with CARTO and custom web design

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<http://www.womencan.byethost18.com/Index.html>

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# Evaluation discussion

## Literature-based evaluation

Evaluation and comparison of ten concluded important characteristics from literature findings within the two platforms

## Expert-based evaluation

Interview with an expert journalist based on the two created stories



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## Literature-based evaluation

Each feature is graded within the scale of **one** to **four**.

Based on:

- The sample user-experience
- Test of the results of the two created stories
- Existing documentation

# Literature-based evaluation results

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Characteristics	Esri ArcGIS Online	CARTO
Browser compatibility	3	4
Mobile support	4	4
Speed of rendering data	3	4
License and pricing	1	1
User-friendly GUI	2	4
Data types compatibility	4	4
Narrative styles	4	1
Multimedia compatibility	4	1
Frameworks for developers	3	4
Spatial analysis tools	4	3
Overall average	3.2	3

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## Expert-based evaluation

Skype interview with a journalist from BR Data (data journalist team of “Bayerischer Rundfunk” ) who is specialized in preparation and visualization of data-driven stories

- Overall presentation :

### ArcGIS Online

- Web maps

### CARTO

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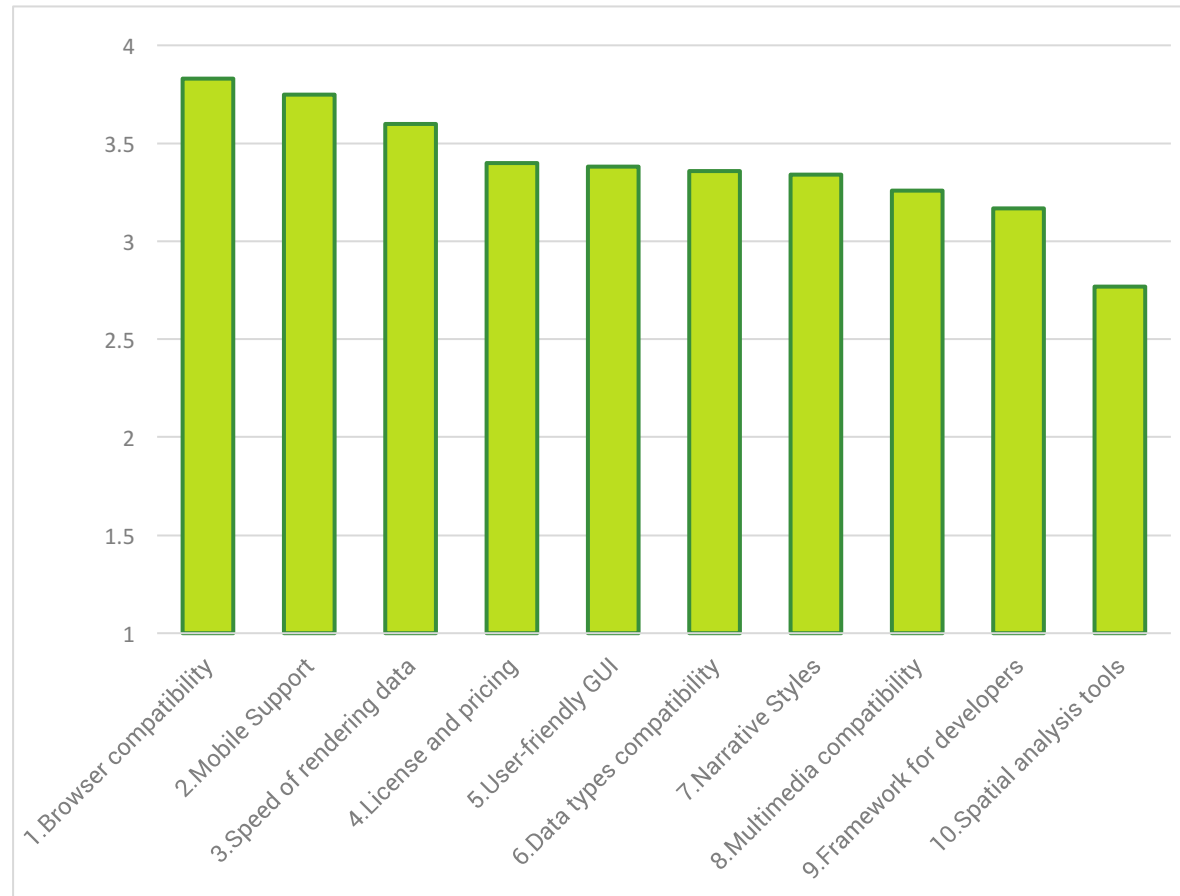
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## Conclusion

While **browser compatibility** and **mobile supports** are at the highest level of importance, **spatial tools** are considered rather unimportant features from journalist's point of view

**License and pricing** is very closely rated to **user friendly GUI** and the **framework for developers** is close to the bottom of the list. This implies that journalists would prefer to use a **builder** rather than applying **codes** in creation of the web maps.

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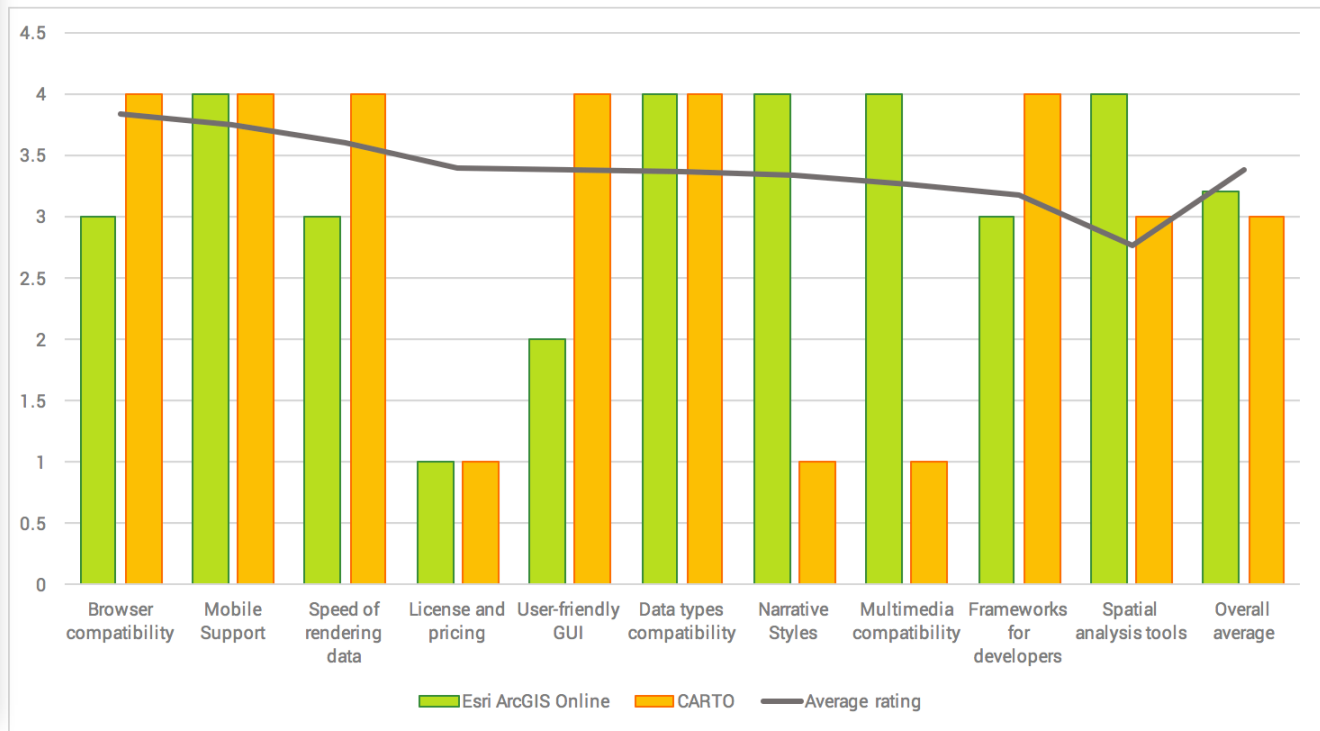
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## Conclusion

Literature-based evaluation and the average ratings of the survey participants



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# Conclusion

## Expert point of view:

- **Customization** : Journalists want to make the content look different from other news broadcasters
- **Mobile** : The functionality of web-maps within smaller screens is of great importance
- **Price** : limited functionalities and lower price
- **Suggestion** : GIF export of web maps

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## Future work

- Evaluation and comparison of web mapping technologies and frameworks with the focus on only creation of **web maps**
- Investigation of different **narrative styles** with web maps
- Creation of a **more challenging test story**. For instance by involving more spatial data types such as raster or real-time data
- Extending the number of **participants** of the evaluation process, especially for expert-based evaluation and adding more sample users for creation of the test stories.



Thank you for your  
attention