

COGNITIVE ASSESSMENT OF A WEB MAP DEPICTING ACCESS TO UTILITIES IN INFORMAL SETTLEMENTS OF KAMPALA

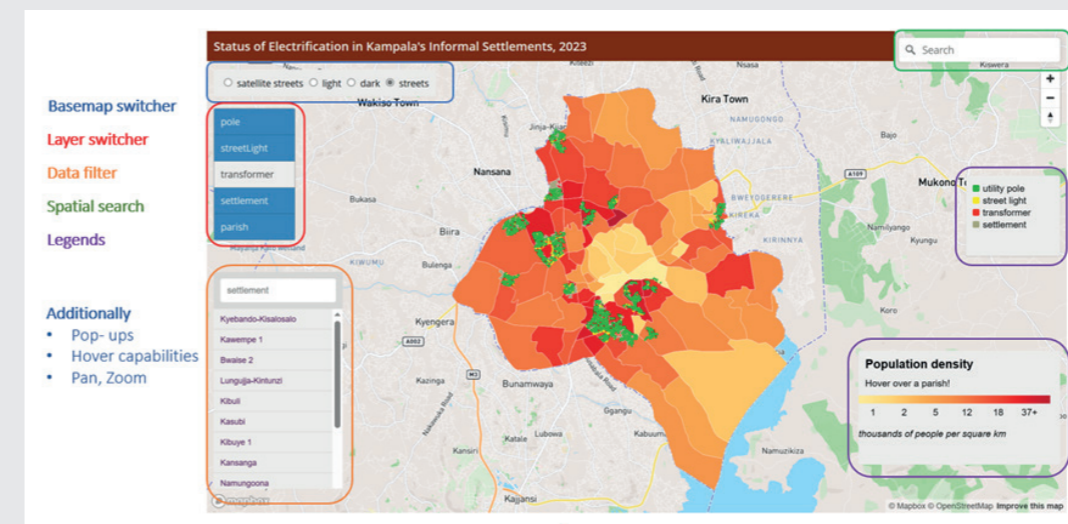
Introduction and Objective

It is necessary to map electricity infrastructure to facilitate achieving SDG7 and SDG11. In addition to mapping, the data ought to be readily available to decision makers like the electrical engineers at umeme. Interactive web maps have the advantage of providing a lot of information through interaction. However, their usability depends on their design. Therefore, this thesis sought to design an interactive web map, and perform its usability assessment.

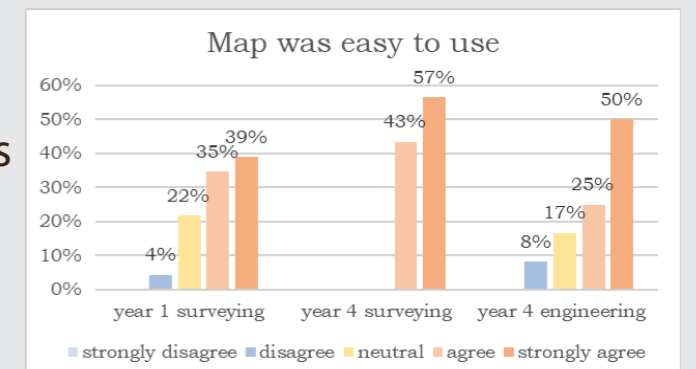
To determine the design requirements for the informal settlement electricity utilities web map

To perform a usability assessment of the designed web map.

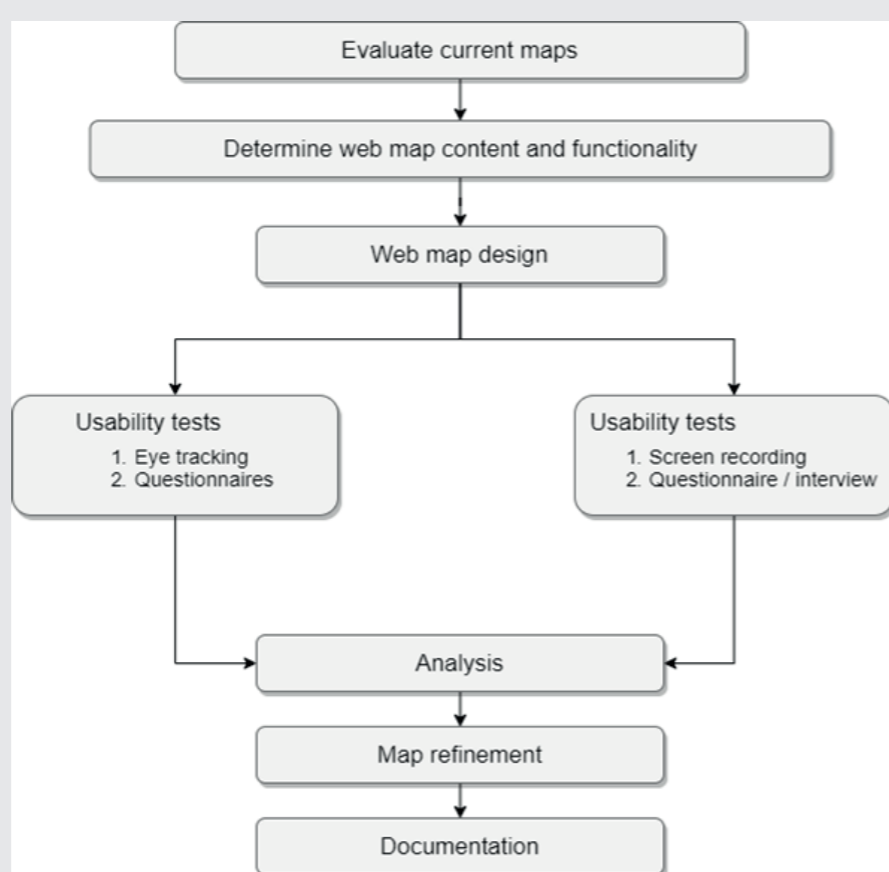
Results



More than 50% of the respondents found it easy to use the web map regardless of their background



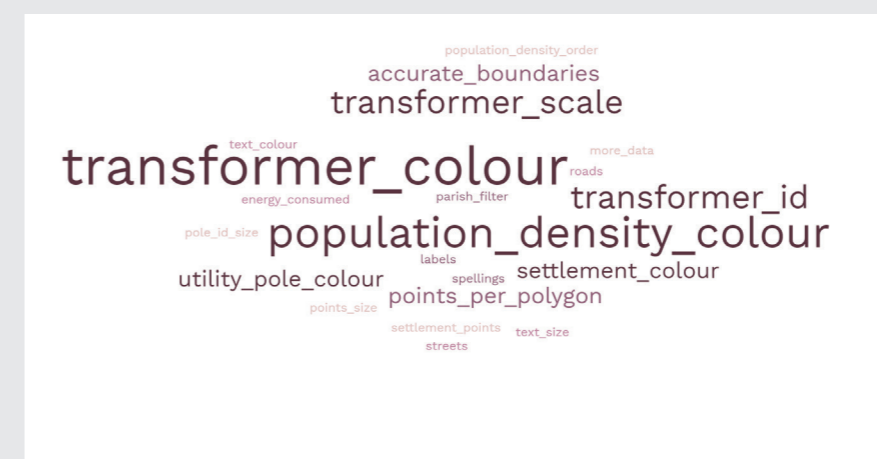
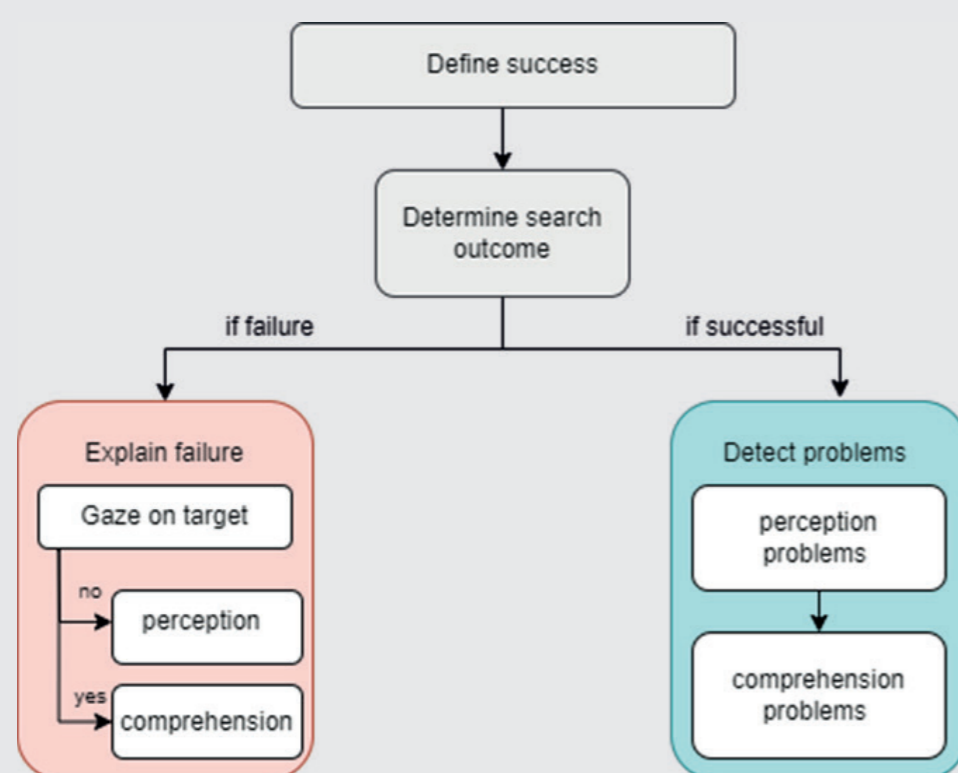
Methodology



Tools

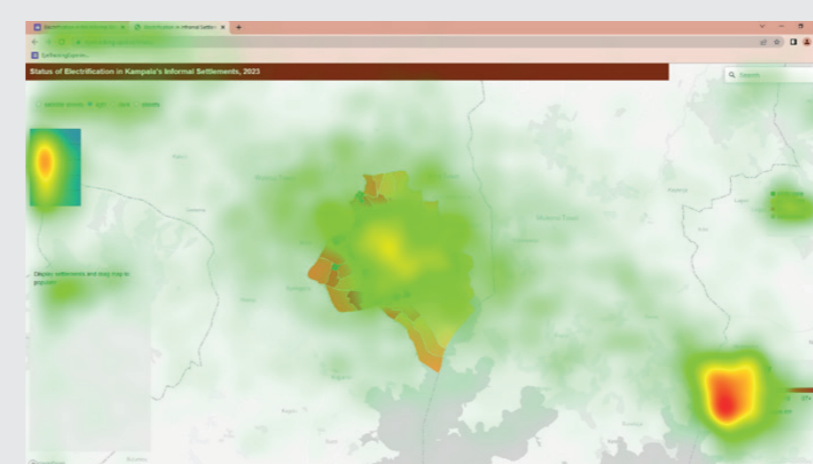
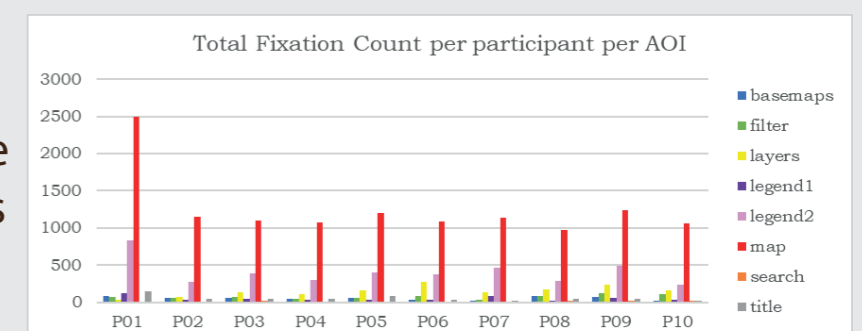
- KoboToolBox and Fieldpapers- data collection
- Qgis- data processing.
- PostGIS and PostgreSQL- data management
- MapBox studio and MapBox GL JS - publishing and scripting.
- WinSCP- hosting web map.
- Google Forms- questionnaire
- Bewisse- screen recording
- Tobii Pro Lab- eye-tracking
- Gazeplotter- plotting sequence charts

Target search analysis framework



Changes to the transformers colour and population density were suggested.

P01 did not associate the population density with the graduating colours. P01 has a much higher number of fixations on the map and legend2.



Heatmap generated from fixation count.

Conclusion

- The Esri suite of software is the preferred GIS tool for Uganda's energy sector.
- The utility web map was designed in MapBox GL JS
- Remote usability assessment identified all the problems with the web map.
- Recordings explained why some mistakes were made.
- Eye-tracking explained why participants could not change the basemap and why the reading the legend was problematic.
- A mixed usability assessment can identify all usability problems.