Curious Cases of Corporations in OpenStreetMap

Jennings Anderson[1,*] and Dipto Sarkar[2]

[1] Department of Computer Science, University of Colorado Boulder, Boulder, USA; jennings.anderson@colorado.edu
[2] Department of Geography, University College Cork, Cork, Ireland; dipto.sarkar@mail.mcgill.ca

* Author to whom correspondence should be addressed.
This abstract was accepted to the Academic Track of the State of the Map 2020 Online Conference after peer-review.

OpenStreetMap (OSM), the largest crowdsourced geographic database has garnered interest from corporations over the last four years. Today, major corporations including Apple, Facebook, and Microsoft have dedicated teams contributing to OSM. More than 2,300 OSM editors are associated with corporate data teams, up from approximately 1,000 in 2019 [1]. As of March 2020, nearly 17% of the global road network (measured per kilometer) was most recently edited by a corporate data-team member. Each corporation edits according to their own agenda; displaying unique patterns of edits with respect to types of features edited, mode (manual, import, or machine assisted), locations, and volume of edits.

We investigate the unique editing patterns associated with three corporations: Grab, Digital Egypt, and Tesla, the latter two's editing activity has never previously been quantified. Differing from corporations with high volumes of global editing [1], these corporations operate in specific geographies and exhibit uniquely specific patterns. We use a combination of OSM data processing pipelines including tile-reduce, osm-qa-tiles, and osm-interaction tilesets [2] to extract and quantify the edits associated with the corporations.

Grab is a Singapore-based company active in South-East Asia offering ride-hailing transport, food delivery, and payment services. Grab is actively editing OSM data since 2018 and has thus far edited 1.6M features. Grab's focus on transport related services implies that a navigable road network is a priority. However, topology and navigation restrictions are difficult to encode. Grab dedicates efforts to improve road navigability. In Singapore, Grab has edited over 100,000 turn restrictions, comprising 95% of all turn restrictions in Singapore (and 7% of all turn restrictions globally). This represents a highly focused effort put in by a corporation in a specific place to build infrastructure needed to support their business. Overall, Grab's efforts of improving data and building a community of editors in South-East Asia is beneficial for the OSM ecosystem.

Digital Egypt (DE) aims to produce detailed GIS and Mapping data in Egypt, Middle East and Africa. Active in a part of the world with sparse geographic data coverage, Digital Egypt's team of 24 mappers is working to improve the accuracy of OSM for geocoding. As of March 2020, DE has edited more than 2M features in Egypt, more than 1.7M of these edits involve objects with address tags (e.g. *addr:housenumber*). These edits comprise 94% of the objects in Egypt that have an address tag. Similar to Grab, DE's contributions improve the

Anderson, J., & Sarkar, D. (2020). Curious Cases of Corporations in OpenStreetMap
In: Minghini, M., Coetzee, S., Juhász, L., Yeboah, G., Mooney, P., & Grinberger, A. Y. (Eds.). Proceedings of the Academic Track at the State of the Map 2020 Online Conference, July 4-5 2020. Available at https://zenodo.org/communities/sotm-2020
DOI: 10.5281/zenodo.3923050

usability of OSM data for everyone. Unlike Grab, DE does not operate their own services (such as routing) on top of this data infrastructure. Their hyperlocal focus and dedication to improving data for a country with a dearth of spatial data distinguishes them from other corporations who are using the map data within a product by instead making the local data the product itself.

Tesla—an American manufacturer of electric cars—was revealed to be using OSM parking aisle information for their vehicle's self-driving "summon" feature in a blog post in November 2019 [3]. For proper functionality, the summon feature requires detailed maps of parking aisles within larger parking lots. These data were relatively sparse, as their utility to the overall map is minimal compared to the actual road network. However, the number of parking aisles added to OSM in North America has increased by approximately 71% in 2018-2020 from an average of 322 ways per day in 2016-2018. Subsequently, the number of daily editors adding parking aisles within their first week of joining OSM spiked in the days following the blog. While there is no official, disclosed Tesla data team that is mapping these features, in the days following the blog post, the number of new OSM editors adding parking aisles within their first week of editing jumped from an average of 1.5 to 10.

This single blog post inspired scores of Tesla fans to join OSM and add new parking aisles to the map, thereby mapping a specific feature type for a narrow purpose. These Tesla owners represent a new generation of hobby and "craft mappers" in OSM. Unlike traditional 'craft-mappers' considered to altruistically contribute map data about specific features, the Tesla mappers create data intended to be consumed by a corporation to enhance the experience for a select group of motorists. If looking to categorize these new mappers into prior community labels, their mapping practices have more in common with a "traditional craft-mapper" than a paid, corporate mapper.

Grab, Digital Egypt, and Tesla represent three distinct cases of corporations consuming, contributing, and driving further interest in OSM.

References

[1] Anderson, J., Sarkar, D., & Palen, L. (2019). Corporate editors in the evolving landscape of OpenStreetMap. *ISPRS International Journal of Geo-Information*, 8(5), 232.

[2] Anderson, J. (2020). osm-interactions. Retrieved from https://github.com/jenningsanderson/osm-interactions.

[3] Tesla Motors Club (2019). Tesla owners can edit maps to improve summon routes. Retrieved from https://teslamotorsclub.com/blog/2019/11/04/tesla-owners-can-edit-maps-to-improve-summon-routes.