Making Use of Traffic Analysis

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How is real-time city data brought to the people.

The city is an organism, traffic is it's blood and data is it's nervous system.

Traffic analysis has long been used in our urban societies in providing the city government, developers, architects, and engineers the information needed to create an ideal built environment. Understanding how traffic moves, grows, shrinks, and changes over time is necessary in healthy city growth.

Although the data systems have long been around, the means of providing that data to a cities people has a long way to go. New developments in technologies such as Google and Apple maps have developed real time traffic reports and their data collection has made it much easier to analyze and graphically express these patterns. When analyzing these patterns, it is important to distinguish between private vehicle traffic, public transportation traffic, as well as pedestrian traffic. When these sub categories are compared, a deeper understanding of a city's life blood can be developed and used to improve the conditions of specific localized areas as well as of the city as a whole.

The image to the right shows a pedestrian count heat map over the downtown area of Kansas City. This map is provided by opendata kc, a website containing large amounts of city data about everything from crime rates, to zoning and specific building data that can be expressed on a map. The problem with this service is that it is difficult to access and use freely.
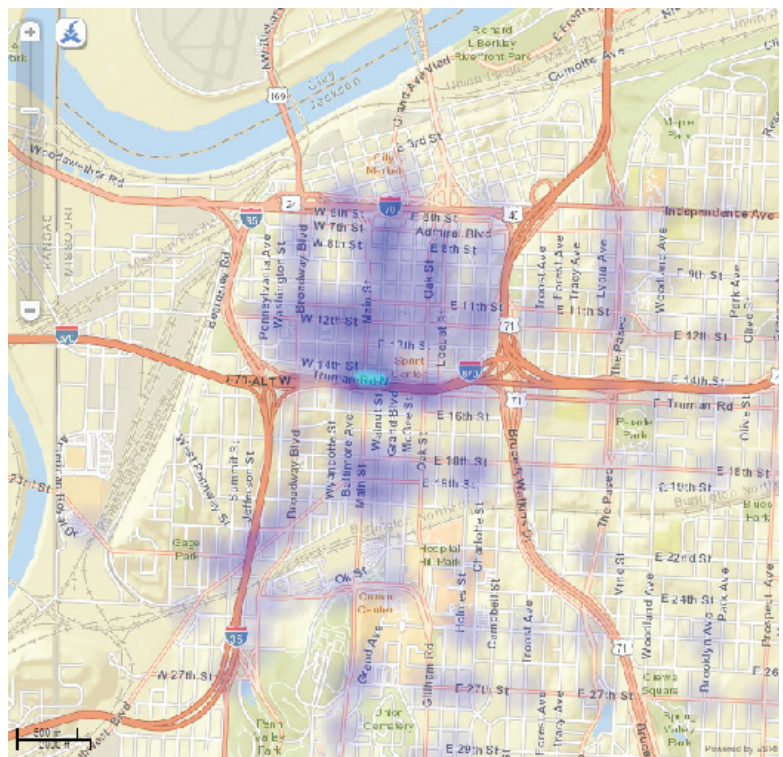
Collecting the Data

As mentioned, tech giants such as Google and Apple have used the gps trackers in our smartphones to collect data on our location, speed, and travel routes, and have displayed this information on their map apps showing areas of congestion on the roads and even locations of accidents. But this is only one form of data collection and visualization. Data can also be collected through a series of sensors, Wi-Fi access points, and other technologies in the form of what is referred to as a smart city infrastructure. Kansas City has become a part of the pioneering investigation and implementation of a smart city infrastructure with their open data portal called KCMO Smart City Open Access (as shown below).
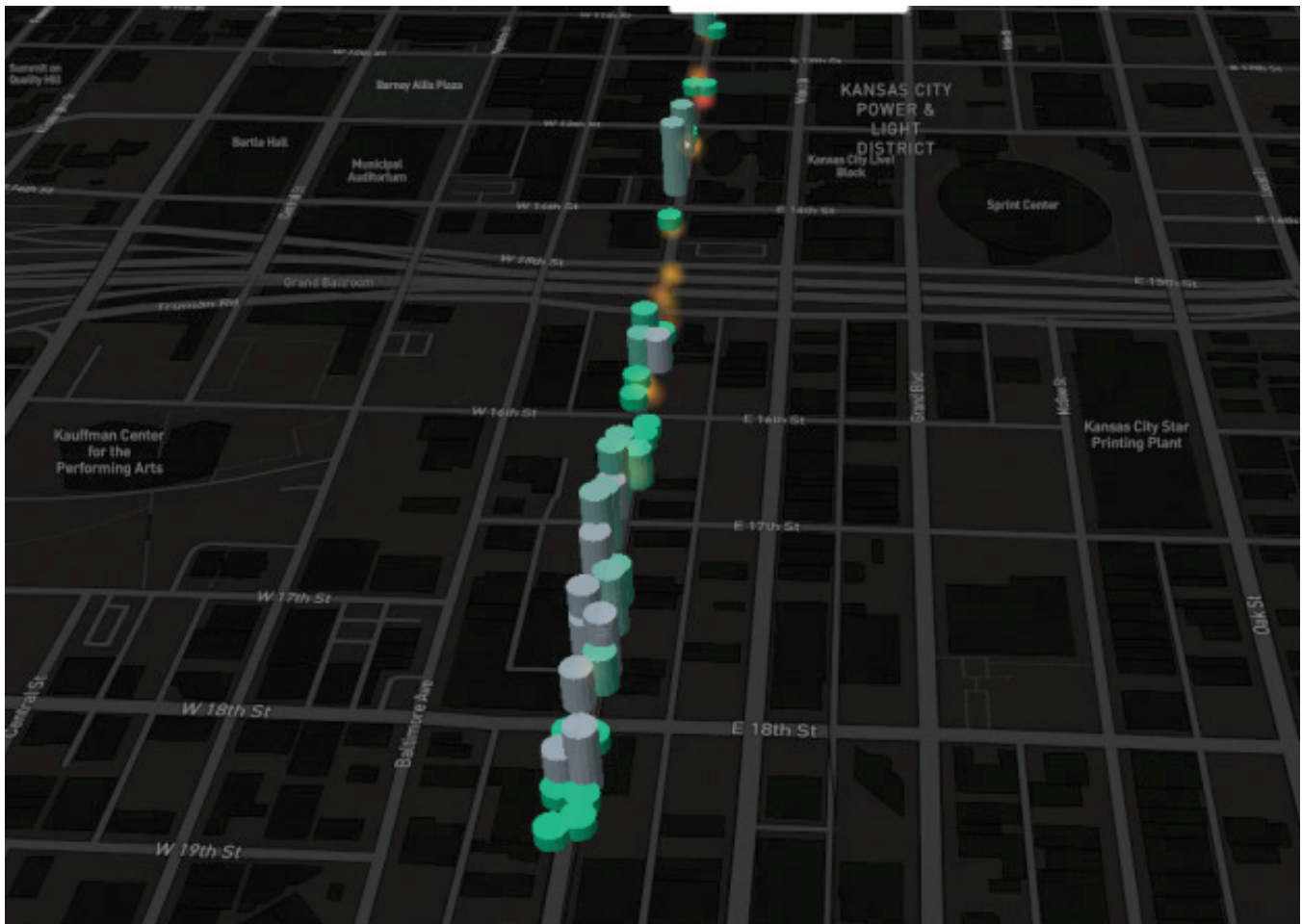
This portal delivers real time information about the city's parking availability and traffic flow. Kansas City has teamed up with Cisco in 2014 to help develop the city's first smart city district. Currently the district stretches two miles along Main street and coincides with the street car project of 2013. Covering 51 square blocks, the system includes 25 information kiosks, 328 access points for city Wi-Fi, and over 170 sensors to detect vehicle movement. In addition, connected low-energy consumption street lights are able to count pedestrian traffic. One of the most important concepts to take from this project is the use of interdepartmental collaboration.

"The one thing that we're learning is that our citizens expect us to be efficient and there's no need tear up the road and then come back three years later and tear it up again just because one department or another decided to 'do something,'" Bennett said. "We're much better off when we collaborate."

Visualizing the Data

Although these multiple data collection portals have their own form of visualization, we will never have a true understanding of the workings of a city if the information is not combined into a single platform that successfully represents the data graphically, and is easy to use. There are a few platforms out there that have a decent display of data that is easily understandable such as the website evolytics.com and the smartphone app Go Downtown. Evolytics breaks down traffic flow numerically at each intersection then provides a series of graphics displaying that information. It is well organized, easy to read, and easy to navigate however, it's still only a piece of the puzzle. The Go Downtown app expresses pedestrian traffic through a heat map as well as pinpoints locations and events in real-time. This app also expresses the information well and is easy to use on the go.

Bringing city data to our personal devices is the key to a successful smart city grid. When users have this information at their fingertips they are much more likely to take advantage of it in their daily decisions as well as in their long term decisions. The information could be used beyond navigation, users can assess the information and make long term decisions such as where to place their new business, or where to host a new event. The data has traditionally been used by city government to plan out growth and development, but if it were to be used by each and every individual person, the people understand the city better, therefore making educated decisions, therefore allowing the government to make better decisions for a more predictable and well informed society.
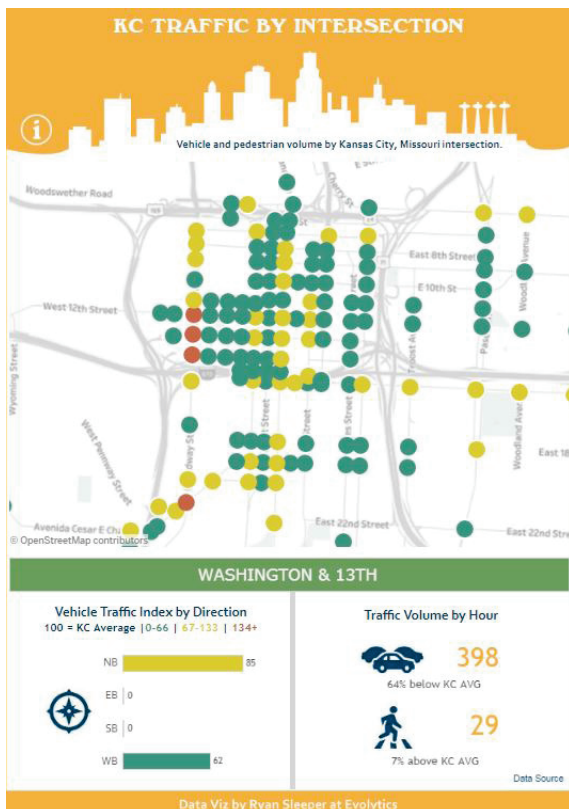

Image depicting Evolytics graphic analysis

Image depicting the Go Downtown app