Unlocking the Power of Geospatial Data With Open Maps

The 451 Take

The world is in the midst of a revolutionary shift from captive, siloed data to the open and interoperable Internet of Things (IoT), where pervasive sensors, connectivity and analytics enable new business models and efficiencies. These large volumes of (old and new) data must be put into context to derive the insights required for organizations to optimize operations and identify opportunities for new products and services.
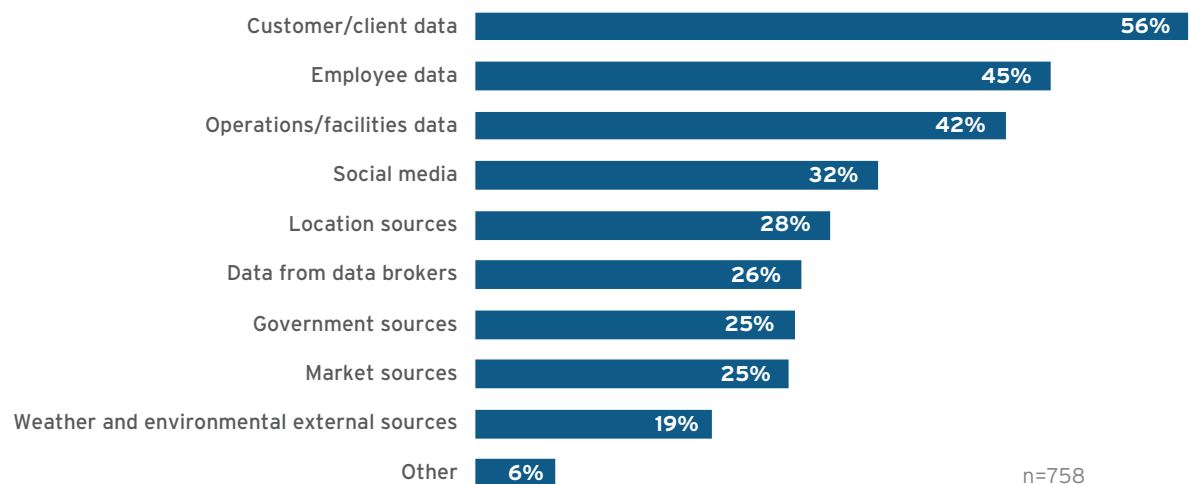
Several precursor conditions will be required to fully benefit from this new abundance of data. First will be breaking the barriers to access to critical data by the use of open and interoperable platforms and standards. Next will be the proper management and integration of these newly liberated but disparate data sources, to prepare for this unprecedented complexity. The last key condition will be the empowering of application developers and data owners to easily manipulate, utilize and visualize data. It is becoming much easier for developers to work with and derive value from geospatial data, and that goes for every possible constituency – from GIS analysts, engineers and big-data analytics developers who want to create advanced solutions based on real-time sensor data flows, through to data journalists and hobbyists who have no prior training in GIS.

Traditionally the exclusive domain of the military and cartographers, geospatial data is now a primary ingredient in data analytics and machine learning (see figure below). The overlay of operational and geospatial data onto open, easily manipulated maps enables non-data scientists to achieve insights visually that are not apparent when looking at raw data.

Which Data Inputs Are Used for Machine Learning?
Source: 451 Research, Voice of the Enterprise, Artificial Intelligence/Machine Learning 2H 2018
Q. What types of data does your organization use or will use as inputs? Please select all that apply.

Data Input	Percentage
Customer/client data	56%
Employee data	45%
Operations/facilities data	42%
Social media	32%
Location sources	28%
Data from data brokers	26%
Government sources	25%
Market sources	25%
Weather and environmental external sources	19%
Other	6%

n=758

Business Impact

UTILIZE GEOSPATIAL DATA IN BUSINESS PLANNING. In transportation and logistics, where businesses have leveraged dedicated enterprise mapping tools and applications for many years, there are greater opportunities to harness geospatial data in planning processes. For fleets, many of which operate with razor-thin margins, an awareness of real-time road conditions and use of clever route optimization algorithms can make all the difference. Moreover, the incorporation of new sensor data – such as access control activity in multi-tenant cross-dock warehouses, temperature for cold-chain applications, and real-time demand data from retail locations for direct store delivery offerings – opens up new opportunities to reduce costs and also increase sales by delivering the right products to the right locations at the right time.

FREE THE DATA. Business insights are not possible if the underlying data is locked away in data 'black boxes' within proprietary systems. Even when there is a willingness among data controllers to open up access to data, that is not enough if there is friction in the way it can be utilized by others. As most data scientists would attest, most of their time is spent cleaning and preparing data for use. And part of that can mean ensuring that different data sets can talk to each other – data needs to be interchangeable and transferrable between systems. This was a key motivation behind the creation of GeoJSON (JavaScript Object Notation), which subsequently became an Internet Engineering Task Force (IETF) specification for geospatial data interchange. It was also the driving force behind SENSORIS, an initiative led by the mapping industry to ensure car-to-cloud data is transmitted in a standardized way. Some new initiatives are seeking to exploit the demand for more collaborative use of geospatial data, including a marketplace designed to help businesses simplify the sourcing, licensing and sharing of data.

Looking Ahead

Location should no longer be understood as a domain solely for mapping companies or self-styled location-based service providers. The abundance of IoT sensors and easier access to geospatial data are driving greater interest in location-based services across multiple industries. It is now much easier for businesses to obtain new insights through the use of map visualization tools. At the same time, location-based services are growing beyond what we might think of as things that can be represented on a map. Insights and patterns derived from location context can present themselves in various forms to aid everything from sales and marketing to supply chain logistics and operations.

In seeking to address their own complex challenges, some of the world's largest businesses have sought to develop their own geospatial capabilities – including Apple and Uber. However, the shifting skill sets and technology requirements for handling and taking advantage of geospatial data mean that many businesses are also looking outside to specialist location platforms for help.

As a company of over 8,000 employees all focused on the concept of location and the potential it has to redefine and radically improve the way we do business, the way we get around and the way we live, we are shaping the future by redefining what was formerly known as a map. In 1985, we began with the simple goal to digitize mapping and pioneer in-car navigation systems. Over the next three decades, as NAVTEQ and Nokia, we've built a legacy in mapping technology. Today, we're creating living three-dimensional maps that grow upwards, breathing with layers of information and insights. And we're looking beyond. From autonomous driving to the Internet of Things, we are building the future of location technology through strategic partnerships. Together we're building open solutions for the future.