

CART ●

State of Location Intelligence

State of Location Intelligence

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Welcome to the Report

State of Location Intelligence 2018

In 2020, there will be 20.4 billion connected “things” in use, up from 8.4 billion in 2017¹. From smartphones to sensors to appliances to stoplights, the exponential growth of connected devices (dubbed the *Internet of Things*) is creating an overwhelming amount of data about what we do, how we do it, and where it happens.

Everything happens somewhere. A huge amount of the data that companies collect has a spatial component. Collecting and analyzing this type of location data can be intimidating because it involves new methods, technology, and talent.

However, business leaders know that in order to maintain a competitive edge in today’s market, they **must** understand and leverage the location piece of their data with Location Intelligence (LI).

¹ <http://www.gartner.com/newsroom/id/3598917>

Location Intelligence (LI) is a discipline for turning location data into business outcomes through data enrichment, visualization, and iterative analysis. Distinct from Business Intelligence, Location Intelligence brings together tools and techniques from data science and spatial analysis to build interactive data visualizations that optimize business functions more than merely plotting points on a map.

About the Survey

We surveyed over 200 business executives, data analysts, and business analysts, collected their responses, analyzed the data, and are sharing with you our findings. We hope this report helps build a business case for implementing or investing in LI within your organization, whether you’re new to LI, planning to adopt new practices or software, or already have infrastructure in place that you are looking to optimize.

Our goals for *The State of Location Intelligence 2018* were to understand:

- How crucial business leaders view LI with respect to the success of their companies.
- The challenges that business executives and data practitioners see when it comes to adopting Location Intelligence.
- The most common and useful business applications of LI across a variety of industries.
- What successful businesses are doing to better prepare themselves for the rising importance of location data.

Overwhelmingly, our data shows that businesses executives and data practitioners see Location Intelligence as critical to their organization’s success, and even more critical over the next three years. To stay relevant in a rapidly changing market, they will have to overcome many challenges that are keeping their businesses from fully realizing the potential and practical applications of Location Intelligence and practical applications of Location Intelligence.

What We Found

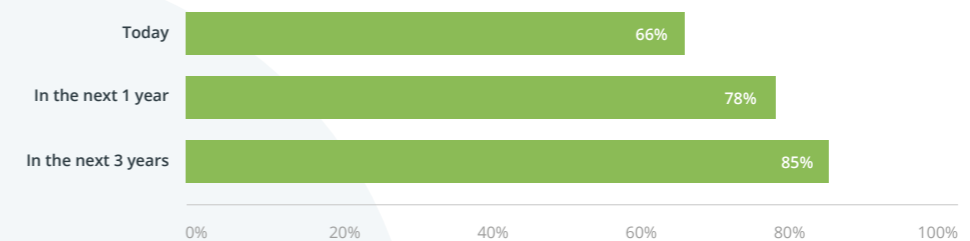
The State of Location Data

Nearly all medium and large organizations collect and store location data. Business executives know that Location Intelligence (turning that location data into business outcomes) will be crucial to their success.

A majority of C-level executives, managers, and analysts believe that Location Intelligence is important to their organization’s success, especially in the long-term.

When asked “How important do you believe Location Intelligence is / will be to your organization’s success”, 66% of respondents said it was “Very” or “Extremely” important today, 78% said it would be in the next year, and 85% said it would be in the next 3 years.

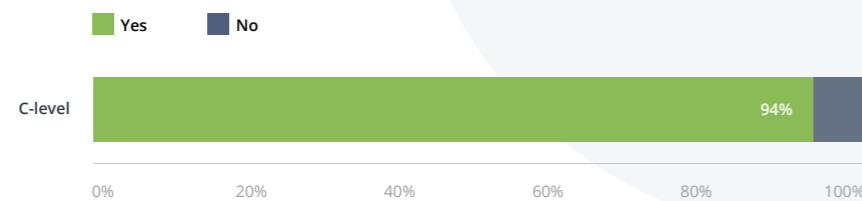
Q2: Based on your understanding of Location Intelligence now, how important do you believe Location Intelligence is / will be to your organization’s success: Percentages reflect respondents’ top 2 responses (“Very” and “Extremely Important”)



Location Data is nearly ubiquitous at companies with over 500 people.

94% of C-level respondents said that their organization collects and/or stores location data.

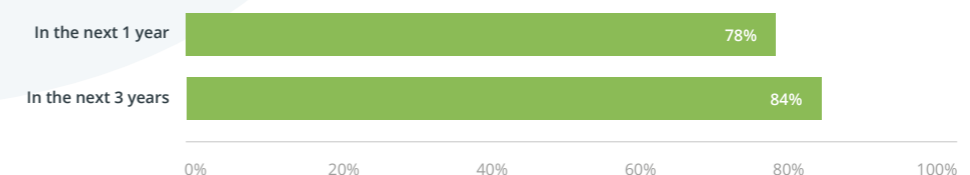
Q1: Does your organization collect and/or store location data?



Businesses are planning to invest in Location Intelligence.

Nearly all C-level and management level respondents, especially those from small to mid-sized organizations, note a strong likelihood to invest in Location Intelligence within the next one (78%) to three years (84%).

Q3: How likely are you to invest in Location Intelligence? Percentages reflect respondents’ top 2 responses (“Very” or “Extremely likely”); Question only shown to C-level or Management level respondents.



What We Found

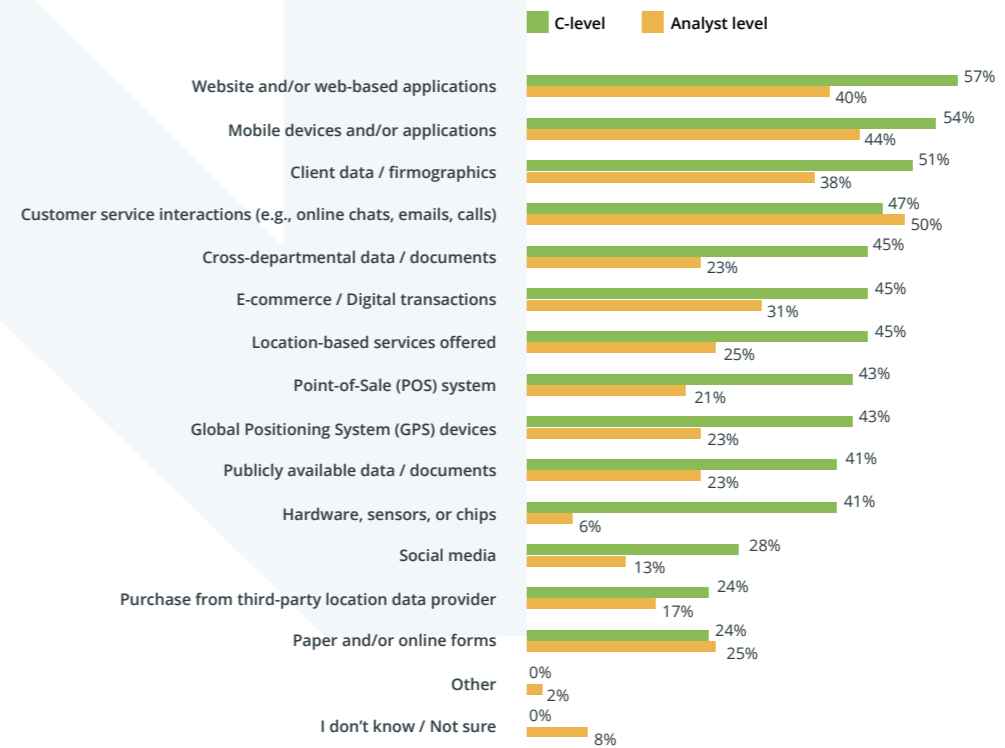
Challenges of Location Intelligence

Businesses collecting and analyzing location data need to overcome tangible challenges (data collection, executive expectations, and personnel staffing) to successfully adopt Location Intelligence.

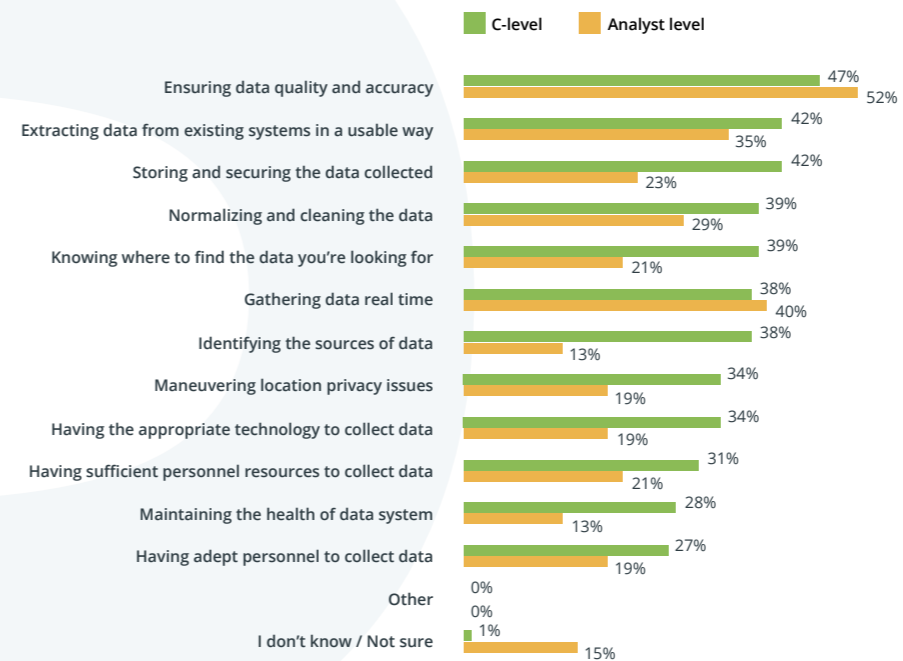
There is a gap in the understanding of location data’s value, the practical applications, and challenges to adoption between executive management and data practitioners.

Analysts found Location Intelligence less significant to the success of their organization than C-level and Management level respondents. C-level respondents were more aware of methods for collecting location data and interestingly, also more aware of the challenges than analysts.

Q4: To the best of your knowledge, how does your organization collect location data?



Q5: With respect to collecting location data, which of the following challenges does your organization face?



What We Found

Challenges of Location Intelligence

Businesses collecting and analyzing location data need to overcome challenges around data collection, executive expectations, and personnel staffing to successfully adopt Location Intelligence

Data quality and accessibility remains a major challenge in Location Intelligence adoption.

“Ensuring data quality and accuracy” (49%), “gathering data real time” (40%), and “extracting data from existing systems in a usable way” (39%) are more commonplace challenges in terms of data collection.

Q6: With respect to collecting location data, which of the following challenges does your organization face? Select all that apply.

ENSURING DATA QUALITY AND ACCURACY	49%
GATHERING DATA REAL TIME	40%
EXTRACTING DATA FROM EXISTING SYSTEMS IN A USABLE WAY	39%
STORING AND SECURING THE DATA COLLECTED	36%
NORMALIZING AND CLEANING THE DATA	35%
MANEUVERING LOCATION PRIVACY ISSUES	32%
KNOWING WHERE TO FIND THE DATA YOU'RE LOOKING FOR	32%
IDENTIFYING THE SOURCES OF DATA	31%
HAVING THE APPROPRIATE TECHNOLOGY TO COLLECT DATA	28%
HAVING SUFFICIENT PERSONNEL RESOURCES TO COLLECT DATA	26%
MAINTAINING THE HEALTH OF DATA SYSTEM	24%
HAVING ADEPT PERSONNEL TO COLLECT DATA	23%
OTHER	0%

Businesses don't have the right personnel for making sense of available location data.

Along with data quality issues, about a third of companies didn't have the right personnel or the right technology to properly conduct data analysis with their location data.

Q7: With respect to analyzing location data, which of the following challenges does your organization face? Select all that apply.

EXTRACTING, CLEANING, AND TRANSFORMING THE DATA INTO WORKABLE FORMAT	41%
ENSURING SUFFICIENT DATA IS AVAILABLE FOR ACTIONABLE ANALYTICS	38%
MAKING SENSE OF THE DATA	37%
HAVING STAFF WHO ARE PROFICIENT TO RUN THE ANALYSIS	36%
ENSURING THE LOCATION DATA IS UP-TO-DATE	33%
DETERMINING THE ACCURACY OF GEOCODING	32%
HAVING THE APPROPRIATE ANALYTICAL TOOLS	32%
DRAWING INSIGHTFUL FINDINGS FROM THE DATA	31%
ACCESSING DATA COLLECTED BY OTHER DEPARTMENTS	30%
HAVING ADEQUATE TIME AND/OR PERSONNEL RESOURCES TO PERFORM ANALYSIS	29%
OVERCOMING TECHNICAL DIFFICULTIES WHEN USING THE ANALYTICAL TOOLS	26%
OTHER	0%
I DON'T KNOW / NOT SURE	5%

What We Found

The Future of Location Intelligence

Even though executives said they were familiar with LI, they need to figure out how to implement it.

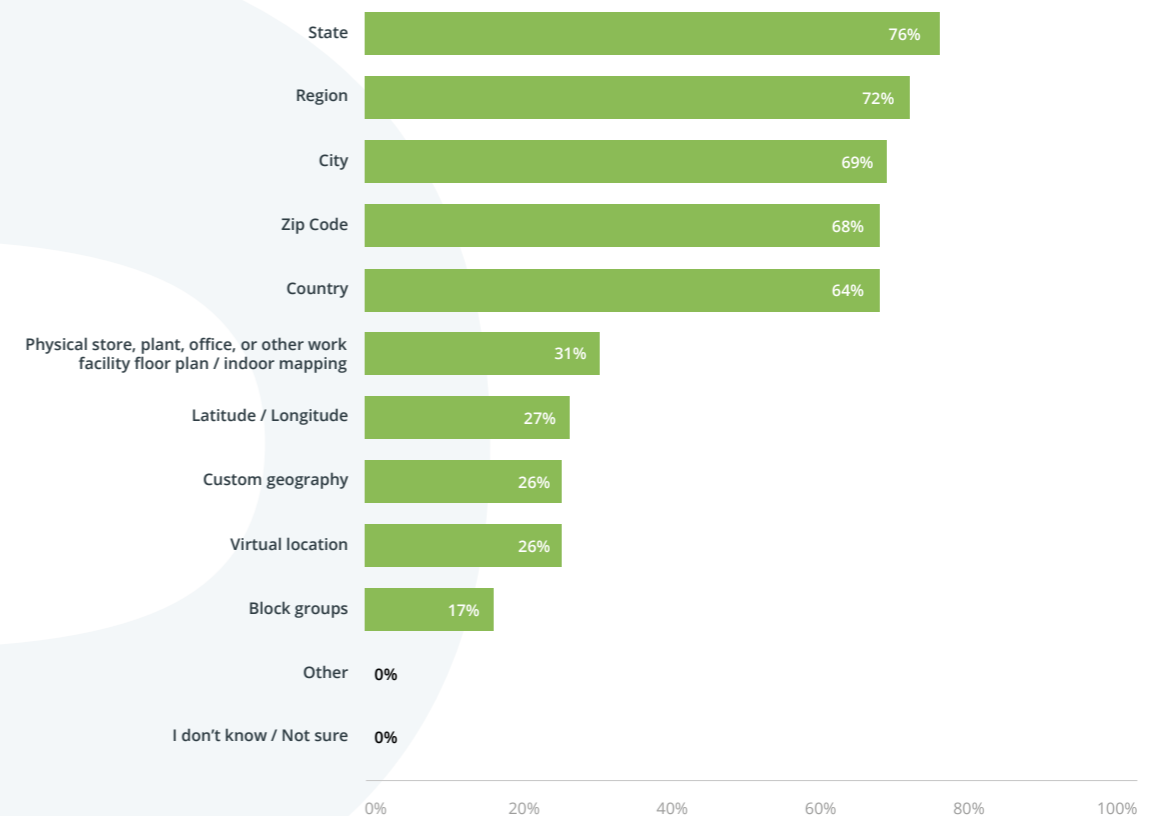
The data suggests that survey respondents who said they were familiar with LI may, in fact, may have a limited understanding or at least a limited implementation of LI within their organizations.

Most businesses use geographic boundaries at a state or zip-code level, but few visualize or analyze their spatial data with more granular boundaries.

Only 27% said they use any kind of custom geography and 17% use block groups. To understand location data, businesses must begin visualizing and analyzing at a deeper geographic level.

A Census Block Group is a geographical unit used by the United States Census Bureau which is between the Census Tract and the Census Block. It is the smallest geographical unit for which the bureau publishes sample data, i.e. data which is only collected from a fraction of all households.

Q8: Which of the following geographic level does your organization typically use? Select all that apply.



What We Found

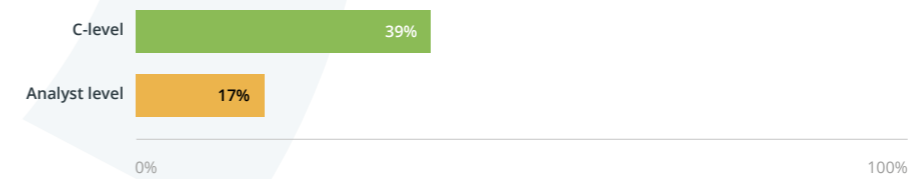
The Future of Location Intelligence

While familiarity with Location Intelligence is high, businesses must focus on implementing LI best practices and methods across their organizations.

Only 17% of data analysts said they perform spatial analysis on their location data.

Spatial analysis is crucial to the Location Intelligence process. 39% of C-level executives thought that their organizations were conducting spatial analysis, but the data practitioners, likely more familiar with spatial analysis processes, said otherwise.

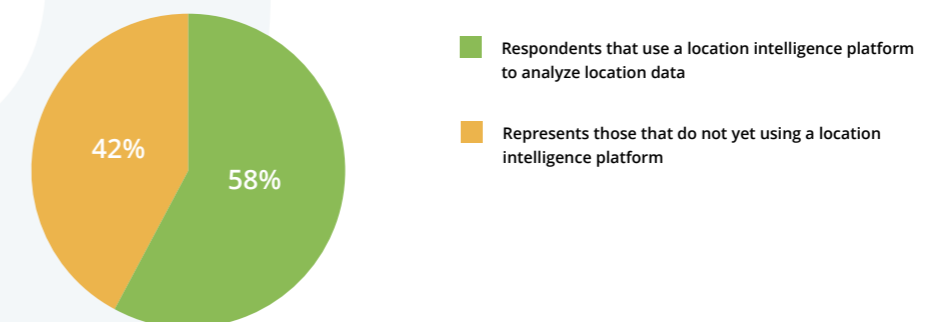
Q9: How does your organization use location data obtained?
Showing results for: Conducting Spatial Analysis.



When asked how they analyze their location data, many businesses still do not use a location intelligence platform, relying more on traditional business intelligence tools.

42% did not use a location intelligence platform when analyzing their location data.

Q10: Which of the following tools does your organization use to analyze location data?



What You Can Do Now?

As defined for this survey, LI is a discipline that helps organizations turn location data into business outcomes through enrichment of data, visualization, and iterative analysis. While we already discussed how most businesses collect location data, we found that few organizations followed best practices when it comes to adopting Location Intelligence as a core part of business strategy.

Companies Should Document and Formalize Their Location Intelligence Process.

While most companies and professionals were familiar with Location Intelligence, we found that many were missing important steps, like applying spatial analysis, or were using outdated practices, like examining location data only from administrative boundary levels (city, state, nation, etc.). To avoid these missteps, producing formal step-by-step Location Intelligence guides is essential. This documentation should be shared widely with team members to ensure a clear understanding of how to ask a data-driven question, an understanding of how to enrich data with internal and external sources, the know how to build interactive maps and other types of data visualizations, and a familiarity with applying iterative spatial analyses allowing your company to ask further questions.

For more information:

[A Really Good Guide to Location Intelligence Implementation](#)

Business Executive Need To Better Communicate Challenges and Opportunities to Their Teams Working with Location Data

While C-level and management seemed aware of the challenges and opportunities surrounding Location Intelligence, data analysts were either more skeptical or less informed. Executives need to set a clear vision in their organizations around how Location Intelligence plays into their overall business strategy and what expectations they have from their analysts. Likewise, they'll need to address core challenges around data quality and technology.

For more information:

[Location Intelligence for Dummies](#)

Analysts Should Study and Apply Spatial Data Science Methods

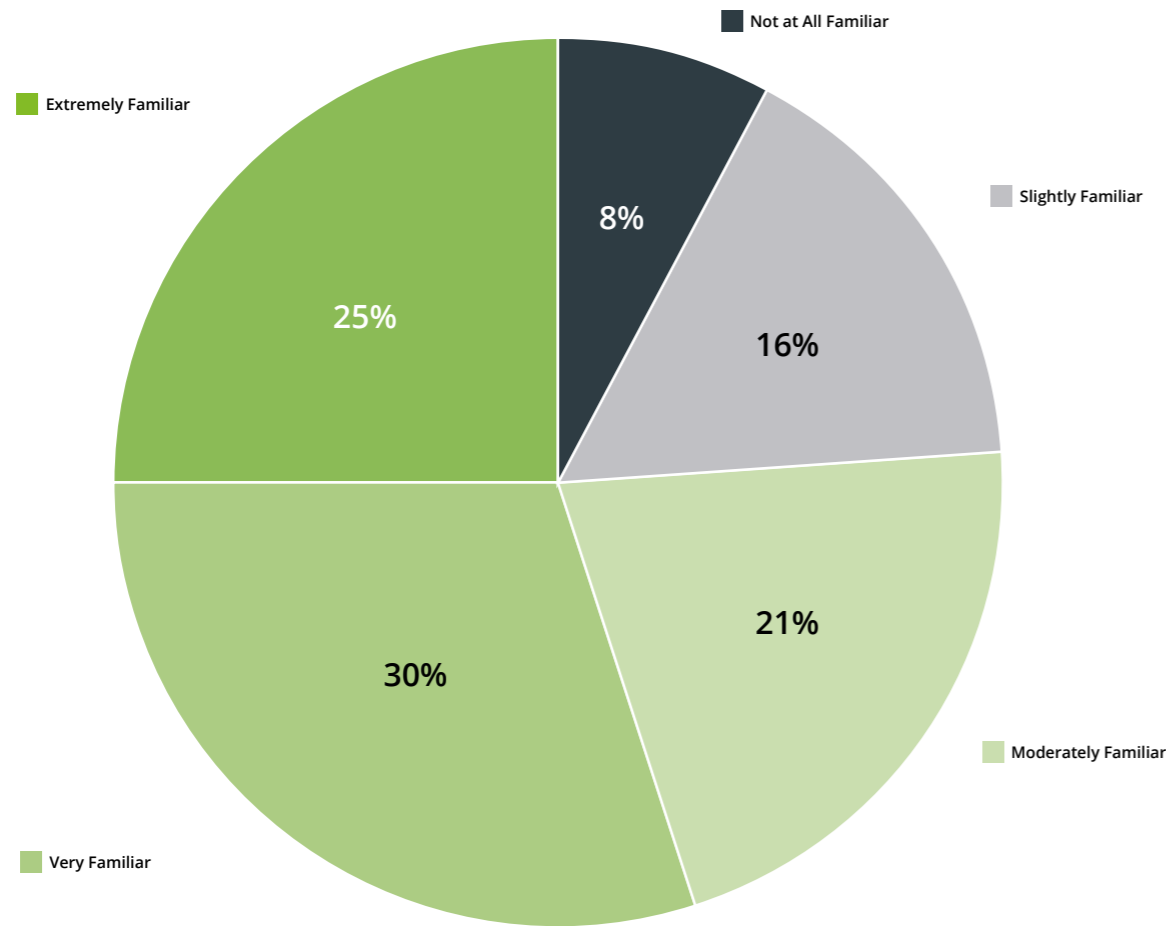
Both in our study and in our conversations with CARTO users and other data analysts, we've found that spatial data science methods are rarely applied to the business challenges and datasets that require them. Location data is becoming more and more vital to business' success and the methods and strategies for visualizing and analyzing that data have also become more complex. Companies are desperate for data scientists that understand how to manipulate spatial data effectively, and conducting iterative spatial analysis is the most important step in applying Location Intelligence.

For more information:

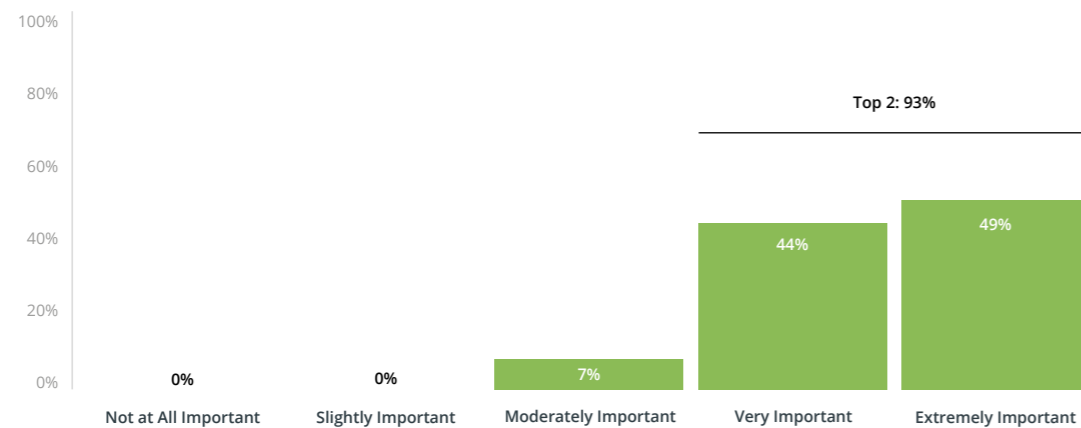
[LEARN Guides for Spatial Data Science](#)

Additional Figures

Q11: Generally speaking, how familiar are you with Location Intelligence?



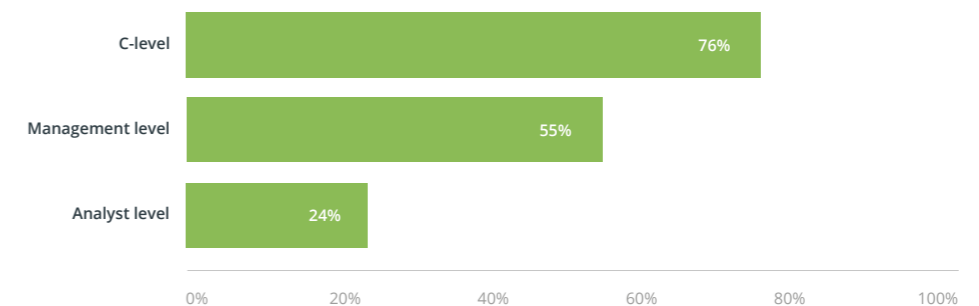
Q12: In your opinion, how important is Location Intelligence related to artificial intelligence (AI), machine learning, and/or Internet of Things (IoT)?



Q13: For which of the following does your organization use location data? Select all that apply.

IDENTIFY NEW CUSTOMER MARKETS	41%
IMPROVE MARKETING EFFORTS	37%
IMPROVE CUSTOMER SERVICE	36%
MANAGE RISKS	34%
UNDERSTAND CUSTOMER BEHAVIOR	33%
ASSESS MARKET PENETRATION	32%
OPTIMIZE SUPPLY CHAIN	31%
DEFINE MARKET SEGMENTATION	30%
NETWORK DEPLOYMENT AND OPTIMIZATION	28%
DETECT FRAUD	26%
INFORM NEW PRODUCT DEVELOPMENT	26%
INCREASE BRAND LOYALTY	26%
UNDERSTAND PATTERNS & TRENDS RELATED TO UTILITY CONSUMPTION & CAPACITY	24%
PERFORM VEHICLE TRAFFIC ANALYSIS	23%
OPTIMIZE SALES TERRITORIES / REDISTRICTING	23%
UNDERSTAND ENVIRONMENTAL CHANGES & IMPACT	21%
INFORM SITE PLANNING	21%
UNDERSTAND SHARE OF WALLET	16%
INFORM FLEET ROUTING	12%
IDENTIFY WORLD EVENTS & TOPICS OF INTEREST FOR JOURNALISM	10%

Q14: Overall, how accessible is cross-departmental data / documents / information in your organization? Percentages reflect respondents who answered "Very" or "Completely Accessible".



Where to Go Next



CARTO Blog

Learn about new features, event updates, conferences, online mapping, and view how-to-guides at the CARTO blog.

www.carto.com/blog



CARTO LI Resource Center

CARTO's LI resource center is a one-stop shop for everything LI. Take a look at new resources and white papers, blog posts, and additional information about how to implement LI into your organization.

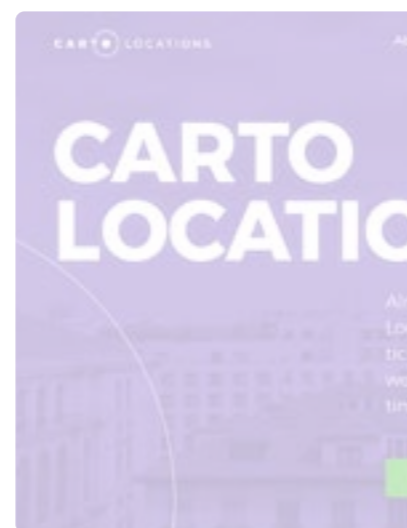
www.carto.com/location-intelligence



CARTO Locations

CARTO Locations is an annual summit for leaders in Location Intelligence. Check out the presentations from this years summit and signup to receive updates about the upcoming summit in 2018.

www.carto.com/locations-event



INDUSTRIES

Banking & Insurance

Whether it's for financial risk assessment or spatial fraud detection, exploiting location data enables financial service organizations to thrive.

CARTO Solutions website

CARTO provides Location Intelligence solutions for a variety of industries and use cases. Take a look at how some of the leading companies are implementing Location Intelligence into their business processes and starting to see dramatic results.

www.carto.com/solutions/



CARTO 5

The CARTO 5 is a weekly roundup of all the best Location Intelligence articles, resources, white papers, research, and blog posts.

<http://go.carto.com/subscribe-to-the-carto-5>

Spatial Data Science Newsletter

A bi-weekly newsletter rounding up the best in spatial data science, spatial econometrics and spatial machine learning. Join the slack community at

<http://slack.spatialdatasci.com/>



Methodology

CARTO partnered with [Hanover Research](#), a leading market research firm, to conduct this survey.

In order to qualify for the survey, respondents had to be C-level Executives, Managers, or Analysts at organizations with at least 500 employees². The following job titles made up the participants:

- C-Suite: CEO, COO, CTO, CIO, CDO
- Managers: Head/Manager of Business Analysis/
Business Intelligence Analysis, Data Science/
Data Analysis/Data Engineering, or Geographic
Information System Analysis
- Analysts: Business Analyst/Business Intelligence
Analyst, Data Scientist/Data Analyst/Data Engineer,
or Geographic Information System Analysts

After control measures to ensure accuracy and quality of the survey response data, a total of 220 respondents were included in the final sample.

² Respondents had to also be employed full-time in the United States.

About CARTO

CARTO is the platform for turning location data into business outcomes. CARTO's open cloud platform offers visual insights on where things happen, why they happen, and predict what will happen in the future. We accelerate innovation, find efficiencies, power new use cases, and disrupt business models through the use of Location Intelligence.

CARTO leads the Location Intelligence revolution, empowering any organization and individual to uncover insights through location data and then makes them available to their organization or the general public in the form of location intelligence apps. The apps help optimize processes, predict situations, and overall improve performance by leveraging location data.

Founded in 2012 by environment scientists, visualization experts, and big data analytics, CARTO is headquartered in New York City with offices in Spain and Estonia. CARTO has a team of 100 employees, a portfolio of 1,200 customers including BBVA, BCG, NYC, and Twitter and more than 200,000 users over the globe. The company is backed by investors such as Accel and Salesforce Ventures.

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For more information, visit

www.carto.com

