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## **Zencity Sole Source Document**

Zencity is the innovator and sole provider of a groundbreaking, award-winning, advanced technology platform that drastically enhances the quality of decision-making by local government officials. Powered by an artificial intelligence (AI) algorithm (patent pending<sup>1</sup>), Zencity transforms data from the touchpoints residents have with and about their local government into actionable insights. Zencity is unique in that it is the only solution to provide one unified platform for discourse and sentiment analysis, always-on representative surveys, digital collaboration hub for community engagement, and smart service satisfaction. The tools all work together in one unified product, delivering a world-class experience with a local government that builds trust, and delivers better outcomes for all residents. We currently service more than 300 local government customers throughout the United States and abroad.

### **Why We Are Sole Source**

Zencity is the only all-inclusive platform of its kind built and tailored ***specifically for state and local government***, and no other platform provides Zencity's breadth of data sources (the majority of which are non-official, requiring little to no customization) and capabilities, effectively negating the need for other tools that provide only partial value.

Zencity utilizes its well trained classification algorithm (*in lieu* of keyword searches), to automatically classify all incoming data according to government-centric topics that reflect the organizational structure of a government entity. Our patent pending technology allows us to determine the sentiment and/or geolocation of our data for a multitude of social media items, based on geographical, temporal, or any other type of domain knowledge of each local government. Specific features that distinguish Zencity's technology from social media monitoring companies and survey companies include our integration of data ingestion and survey capability, our benchmarking services, the volume of historical data that empowers our AI and trains our machines, as well as our geolocation technology, proprietary algorithms, and advanced collection technology and accuracy. Moreover, Zencity's AI models are trained and tailored to process data **in the government context**, and the suite of extra capabilities we offer provide a more comprehensive, streamlined, and robust choice for state and local government agencies looking to apply monitoring, analysis and surveying and understanding of community opinions, as well as channels to launch and monitor initiatives. Zencity's AI is unique in its application as it does not rely on keywords to provide valuable insights. At a minimum, any government entity would have to contract separately for government-tailored social media monitoring and community engagement services to even hope to achieve what it can

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<sup>1</sup> The company is in the process of registering two patents for the following innovative technologies: (1) Geolocation Based Analysis of Social Media; and (2) Sentiment Analysis Based On Crowd Monitoring Sensors. Further details on each patent application may be provided upon request.

accomplish through Zencity's single, fully integrated platform.

Our Natural Language Processing machine learning model is continuously trained on millions of data points to fine-tune this categorization process and weed out irrelevant data. The data is classified and sorted to identify key topics, trends, anomalies, and sentiment, all of which can be tailored to the specific needs of each department or agency, and are accessible through an easy-to-use online platform and mobile app.

### **What We Provide**

The award-winning Zencity platform was independently developed by Zencity, and is designed **specifically for local governments**. By transforming otherwise unstructured data into valuable, quantitative metrics, Zencity's capability empowers local governments to use advanced technology to support the launch of new initiatives, make citizen-informed decisions, and ensure the wide range of residents' voices are heard, particularly those who are less likely to participate in traditional public engagement channels. The service also enables local governments to be proactive instead of reactive to information that could negatively impact the government entity or cause misinformation to be circulated. An overview of our distinctive features is provided below. For a deeper dive into our technology, please see Appendix A.

- 1. Collection of Wide-Ranging Data Sources:** The Zencity platform integrates, processes, and extensively analyzes citizen-generated data from across both **external sources** such as city-owned and non-city owned social media channels and local media, as well as **internal data sources** such as records of calls to **311**, emails, council meeting minutes, and more. Further, Zencity's survey solutions infuse these data sources with an added layer of resident data, leading **Zencity to become unparalleled in its breadth of resident data analysis**.
- 2. "Always On" Survey Tools:** In addition to data ingestion, the Zencity platform also provides the ability to survey richly representative samples of residents using a multitude of channels on an ongoing basis. While other vendors may offer survey tools that allow a government to survey on a selected topic after-the-fact, Zencity's "always on" tool is truly unique in that it allows its users to be proactive, not reactive, by constantly surveying. Zencity also offers full service distribution, customizable add-on questions, and advanced open-ended question analysis. The value unlocked by combining Zencity's data and algorithms together with its survey tools as part of a robust platform cannot be achieved by any other vendor in the market.

- 3. Unique Asset - the Data Powering Our Models:** We have been collecting, analyzing, tagging and classifying tens of millions of resident online posts and comments, 311 service requests, and millions of news articles from dozens of cities in the United States. This domain-specific data- which has been widely demonstrated to significantly outperform their general-purpose counterparts in terms of overall classification accuracy- powers our machine learning algorithms and other language understanding mechanisms. **The result for our users is higher accuracy in responding to resident sentiment, resulting in less time wasted and higher perceived responsiveness.**
- 4. Unique Integration Between Survey and Internal/External Data:** While Zencity competitors may offer tools for analyzing citizen generated data from either internal or external data sources, and may offer outreach engagement tools such as digitized surveys, Zencity's product offers a truly uniquely innovative integration of ongoing survey tools and government-tailored external and internal discourse analysis into one platform. The integration is not only seamless, but more robust than when patched together from multiple sources.
- 5. Benchmarking:** Zencity also offers a first-of-its-kind benchmarking capability, which leverages resident-feedback data from our database of hundreds of communities across the United States and gives cities and counties the unprecedented ability to compare their residents' own sentiments with those of other communities, around the most pressing topics of the day (e.g., COVID-19 measures, census data collection, etc.). **It is not possible to secure contextual benchmarking (e.g., how does my city perform versus city X on this issue?) without Zencity, since Zencity is the exclusive provider of this data to its network of cities.**
- 6. Cutting-Edge Geolocation Technology:** Zencity's unique, patent pending geolocation technology uses an algorithm to extract a defined location based on the mention of specific words, *i.e.* the name of a park, school or other landmark. Using this technology, the user can visualize topics, content, and trends by neighborhood or area for localized problem solving and a more nuanced view of your residents' needs and preferences.
- 7. Project Creation:** Zencity's platform allows local governments to create their own projects to help them focus on an initiative, program, or event in their locale using a customized dashboard. Local government administrators can then track resident feedback in real time, and over time, to deeply understand the emerging needs, priorities and challenges of their residents.
- 8. Automatic Alerts for Crisis Management:** Zencity also provides automatic alerts for crisis management, growing trends, and notable anomalies so you can stay ahead of the curve.

- 9. Insights & Reports:** Zencity's Insights & Reports functionality is embedded within the core product offering. The ability to produce tailored documentation on a theme or a specified trending topic or project is unique to Zencity.
- 10. Sentiment Analysis by Topic:** Our patent pending algorithms automatically classify data by relevance to the different departments and agencies of local government, and then run a sentiment analysis to determine if the data reflects positive, negative, or neutral feedback on each topic of interest.
- 11. Analyst Services:** Zencity's powerful AI is supplemented by a strong and robust team of industry-expert analysts providing additional layers of actionable analysis and output so that our state and local government customers can receive timely and accurate in-depth deep-dives into topics of priority and flag particularly noteworthy insights to the customers' immediate attention. Our team is industry leading, and owns unparalleled expertise in this field, having created over 3,000 such reports to over 320 state and local government agencies in 2021 alone.
- 12. Privacy + Security:** As a platform tailored for government, there is a high emphasis on maintaining resident privacy, and data involving resident identities is never kept or shared. Zencity only collects public and open data, or proprietary, local government-owned data. The platform anonymizes the names or identities of an individual source - even when a name is tagged by a user in the post, as well as other types of personal information such as e-mail addresses and phone numbers. In cases where local government data (such as 311) is incorporated, it is anonymized. Finally, all of the data is stored on the Azure Microsoft Cloud - Central East US node and is protected by Microsoft's cloud security technologies, in addition to Zencity's own safeguards.
- 13. Forum and Community Resources**  
Zencity offers an exclusive community resource page where government professionals from around the world can connect to share ideas, research best practices, network, and benefit from collaborating and interacting together.
- 14. Experience Surveys**  
As part of the platform, Zencity provides smart service satisfaction surveys for governments to use with their residents enabling them to measure and improve community interactions, providing real time quantitative feedback on the quality of service the organization is providing to the public. Zencity utilizes a smart distribution mechanism, the lives scores service and staff ratings. This is the only capability of it's kind to be included with
- 15. All-In-One Solution**

Zencity's unique platform is the only one of its kind to offer all of the functionalities listed above in one product. **There are many tools that can address one part of the Zencity offering, but our platform is the only one that combines discourse and sentiment analysis, representative surveys, community engagement collaboration tools, and experience surveys all in one shared platform** and accessed from one dashboard.

Using these capabilities, Zencity is reinventing the way governments are making decisions. Zencity's solution is cutting edge, comprehensive, and far reaching, and no other vendor can meet all of these capabilities in one platform. For case studies of how our platform has been used and acclaimed by other local governments, please see Appendix B.

### **Our Company Background**

Zencity is incorporated and based in Delaware, with its central operations being run out of its parent company, Zencity Technologies Ltd., incorporated and duly standing under the laws of the State of Israel.

Supported by leading investors such as Microsoft and Salesforce, Zencity supports more than 300 cities and counties of all sizes across five countries and 41 States in the United States—including major cities like Los Angeles, Houston and Chicago, mid-size communities like Fort Lauderdale, FL, and Dayton, OH, and even small communities like State College, PA. A list of customers may be accessed on our website at <https://zencity.io/customers/>.

## APPENDIX A

### Technology Deep Dive

The Zencity platform looks at massive amounts of anonymized, aggregated feedback on municipal issues and trends from varied public sources like social media, digital news sources, broadcast media and government customer service channels. The technology then analyzes these unstructured data points using proprietary AI and NLP algorithms to make them structured and actionable for city managers, department leaders and relevant stakeholders. The data is classified by relevance to various government departments and grouped according to positive, neutral, and negative tone after an in-depth sentiment analysis. Local governments can access this data in real-time via a personalized dashboard, to determine what actions need to be taken. Mobile-first alerting systems provide relevant alerts to each stakeholder enabling them to act efficiently. This is all made possible via Zencity's robust AI algorithms developed specifically for local governments.

Zencity's world class, award-winning data collection and analysis technology, powered by cutting edge AI, is:

1. **A topic classifier** which identifies citizen conversation topics across 90+ different types of citizen life topics (e.g. public spaces, personal safety, sidewalk maintenance, education, public / private transportation, etc.), and filters out irrelevant results as well (ads, spam, irrelevant requests). In addition to textual features (the conversation itself) the classifier also leverages the context of the conversation, source of information, and additional details (time of day, geography when available, for example). The topic classifier is based on our own Deep Learning architecture trained on a proprietary dataset collected from hundreds of cities.
2. **A sentiment analysis tool** based on a specifically trained Machine Learning model, allows us to discern positive, negative or neutral citizen conversations and requests around city issues. We use a deep learning neural network and a unique dataset created for this purpose, and a unique procedure for tagging information to improve results. We have been very successful in this approach, and are seeing accuracy of over 90% across all clients.
3. **A novel survey bias reduction engine** that dynamically adjusts survey research respondent samples to match actual incidence rate in the population, ensuring that populations recruited to take surveys in any geographic area are balanced by race, age, sex and other important criteria. The result is incredibly high fidelity survey results representing the full diversity of the target population, without the inefficiency, slow speed and extraordinarily high cost of traditional survey methods.
4. **A name-entity recognizer** trained to identify locations and personas/organizations in

conversations, which helps us provide geographic context to conversations happening in local government, or identify relevant entities to understand the purpose of the conversation. We have wrapped the Stanford NER implementation and augmented that with clients' data about streets and landmarks in their municipality or county, and our understanding of data sources in a learning and rule based system (e.g. conversations for a neighborhood-specific citizen group are likely to be in the context of the neighborhood). We can provide geographic context for ~30% of location-less data, much more than can be achieved using native approaches.

5. **An anomaly detection engine** which can produce alerts when abnormal phenomena appear in citizen conversations (e.g. there's a peak of negative conversations around a topic). We've implemented a linear convolution network with a moving average to detect anomalies. We are factoring in past "time windows" to reduce seasonality effects (e.g. if a topic is trending every Friday, it isn't really an anomaly).
6. A unique clustering algorithm which allows us, based on both context and our analysis to group together similar conversations and allow our users to process larger amounts of information more effectively and go beyond a single conversation when analyzing trends.

## APPENDIX B

### Specific Case Studies

Roughly 200 local governments of all sizes throughout the United States and abroad currently use Zencity's insights to understand their residents' real needs and priorities, eliminating the guesswork from policymaking and initiatives. Here are 10 examples of real-world case studies from Zencity's existing clients, all of which can be accessed at <https://zencity.io/case-studies/>:

1. **Spokane, WA** used Zencity to work with the Governor's Office and Reopen during COVID-19.
2. **Bolingbrook, IL** used Zencity to track and increase mask wearing compliance.
3. **Scottsdale, AZ** increased resident support for a vital bond package by listening to its greater community.
4. **Austin, TX** assessed and acted on homelessness concerns during COVID-19.
5. **Savanna, GA** used Zencity to develop a messaging strategy for hurricanes to ensure vital safety information was presented effectively and correctly.
6. **Aurora, IL** leveraged data analytics to help manage a mass shooting.
7. **Apache Junction, AZ** used Zencity data to assuage resident concerns after a \$245 Million State Land Sale.
8. **Houston, TX** used Zencity to track citizen discourse around traffic congestion and implemented a unique initiative to combat the issue.
9. **Winthrop, MA** initiated a vital infrastructure project while protecting public health during COVID-19.
10. **Cary, NC** used Zencity to make data-backed policy recommendations about e-scooters to the town council.



## APPENDIX C

### Customer Feedback and Testimonials

Zencity serves local governments of all sizes. Our reviews have included positive feedback from mayors, city managers and assistant city managers, CIOs and CTOs, and communications teams. These reviews cover how customers use our product: to understand resident feedback around specific topics; for work with city council; as part of an organization's daily workflow; and in the context of crisis management. Reviews also discuss the value our product brings to its users. Some of the sentiments we have heard expressed repeatedly are that Zencity serves as a capacity-building tool; that Zencity has been invaluable in understanding the silent majority of a community's residents; and that Zencity's data and insights have enabled local government leaders to truly adopt data-driven decision making as part of their city's strategy. Oftentimes, reviews also mention that, without Zencity, city leaders would have missed out on an important issue that their residents were concerned with, and that the city did not otherwise know about.

Below are examples of specific customer testimonials, all of which can be found at <https://zencity.io/customers/>:

1. **Austin, TX.** "Being able to pinpoint exactly what is driving community conversations in a matter of minutes is invaluable. Zencity is a powerful tool which helps us see where our messages are resonating and where we need to course correct in almost real-time."
2. **Aurora, IL.** "Since the shooting in Aurora, Zencity has become part of our tapestry. It's a very powerful tool in the decision-making process because it helps the Mayor laser focus in on the concerns of the community and it helps us keep the pulse of the community."
3. **Sarasota County, FL County.** "One of the first things I do every morning is scroll through the Zencity feed and determine whether there is anything crucial that my team and I need to tackle. As a relatively new county manager, it's a lifesaving tool for me and an excellent data source."
4. **Savannah, GA.** "We utilize Zencity to understand at a glance community sentiment across a variety of media outlets and digital channels. Before Zencity it was hard to obtain this valuable data. Thanks to Zencity we are able to see how our emergency information is dispersed and the community's reaction in real-time. This has been a game-changer for us when managing severe weather scenarios and other challenges."
5. **Town of Cary, NC.** "Zencity was a powerful tool for helping us make data-driven recommendations to Town Council, and also imperative in helping Council Members feel confident about their decision."
6. **McAllen, TX.** "Zencity's AI capabilities helped us quickly identify resident confusion at such a sensitive time as the Coronavirus outbreak. The platform detects important discourse across multiple channels, allowing us to directly address residents' questions and concerns and ensure their safety."
7. **Corona, CA.** "Thanks to Zencity, we were able to take something that was very negative

in the city and turn it into something positive. Zencity helped us transform an unfortunate incident into an opportunity to communicate with our residents about the right way to do things and how we, the City, can help.”

8. **Beaverton, OR.** “Beaverton’s staff is small and nimble. Zencity saves us time and money, particularly when it comes to pulling reports. Thanks to Zencity, we’re able to quickly and easily gather data on topics that would have normally taken extensive staff time. Zencity is therefore an excellent capacity-building tool for us, and a resource-saver.”
9. **Meridian, CT.** “We use the discourse timeline and event markers from Zencity’s dashboard to ensure the effectiveness of our resident-facing communications. Zencity is literally the only way I can get a true big picture view of all discourse taking place, both on our city-owned channels and those that are not run by the city. The ability to parse through the chatter from one place is invaluable.”
10. **Scottsdale, AZ.** “Zencity was very useful in identifying our blind spots when it came to residents’ questions and concerns about the GO bond - I can’t imagine we would have been aware of them otherwise.”

## APPENDIX D

### **Corporate Awards and Recognition**

Zencity has been recognized for our cutting-edge AI technology and for the impact of our work. In 2020, Zencity won the Smart City Expo World Congress (SCEWC) Award (<https://www.smartcityexpo.com/2020-awards/>), in the Governance & Economy category. This is one of the most prestigious international smart city awards. Zencity was recognized as “the most innovative and successful project being implemented and developed in the fields of governance and finance” globally.

In 2020, we were shortlisted twice: in Tracxn’s Emerging Startup 2020 list (<https://tracxn.com/d/emerging-startups/smart-cities-startups-2020>), and by The Future Society as one of the most promising initiatives related to responsible AI in pandemic response (<http://thefuturesociety.org/wp-content/uploads/2020/12/Responsible-AI-in-Pandemic-Response.pdf>).

Most recently, we were included for the second year in a row in the GovTech 100 Essential list (<https://www.govtech.com/biz/Essential-The-2021-GovTech-100.html>; <https://www.govtech.com/The-2020-GovTech-100-Investors-Bet-Big-on-Gov-Tech.html>).

Zencity is also the past winner of Innovate.AI, hosted by M12 (Microsoft’s Venture Fund), Madrona Venture Group, Notion and Vertex Ventures Israel (<https://www.prnewswire.com/news-releases/m12-and-vc-partners-award-3-5-million-to-most-innovative-companies-harnessing-the-power-of-artificial-intelligence-300639653.html>). As the winner of the Innovate.AI competition, Zencity was selected from hundreds of Israeli startups working to transform the future through AI as one of the most promising and innovative artificial intelligence and machine learning technology solutions in the world.

In addition to being awarded directly, we have also received a number of accolades for our joint work on specific projects with local government entities. Our projects have jointly received - along with city partners - Smart50 Awards (<https://spring.smartcitiesconnect.org/Smart50Awards/2020AwardRecipients.html>) for the past three consecutive years as “the most innovative and influential smart city projects” of the year.