License Agreement Addendum

This Addendum (the "**Addendum**") to License Agreement no. 100996 by and between Doral, FL("**Customer**") and Zencity Technologies US Inc.("**Zencity**"), dated as of Oct 2, 2018 (the "**License Agreement**") is entered into as of October 1, 2022 (the "**Addendum Date**").

All capitalized terms not defined herein shall have the meaning ascribed to such terms in the License Agreement.

Whereas, the Parties wish to amend certain terms of the License Agreement as set forth herein;

Now, therefore, the Parties hereto agree to amend the terms of the License Agreement as set forth below.

1. **Term**. The Term of the License Agreement is hereby extended for a 12-month period commencing as of October 1, 2022 and ending on October 1, 2023 (the "**Renewal Term**")

2. **Recurring Fees**. During the Renewal Term The Recurring Fees table included in the License Agreement shall be amended and replaced in its entirety as follows:

RECURRING FEES

Name	SKU	Product Description	Unit Price	QTY (units)	Initial Term Discount	Net Price
Zencity Organic	ZC-ORG	SaaS Platform for gathering and processing organic feedback from channels throughout the client's community and translating that data into quickly digestible analysis and personalized insights, for cities with up to 100,000.	$36,000	1 year	60%	$14,500

Total Gross List Price	**$36,000**
Total Initial Term Discounts	**$21,500**
Total Fees	**$14,500**

3. **General**. This Addendum shall form an integral part of the License Agreement. Unless expressly specified herein, all other provisions, terms and conditions in the License Agreement shall apply and shall remain in full force and effect. In case of any contradiction or discrepancy between the terms of this Addendum to those of the License Agreement, with respect to matters described herein, the terms of this Addendum shall prevail.

In witness whereof, the parties have executed this Addendum, effective as of the Addendum Date.

Eyal Feder

Zencity

Customer

ZenCity // Differentiating Technology + Unique Attributes

ZenCity works **only with the local government sector**, for the sole purpose of garnering an in-depth understanding of citizen feedback and making it useful to different decision makers across the city. We understand that cities have **particular, city-specific needs** in analysing social media and other data, and have built our whole platform to fit the unique, city use case.

Our platform relies on award-winning Artificial Intelligence technology and provides the following differentiating features:[1]

1. **Classification Algorithm:** *ZenCity's classification algorithm categorizes a wider breadth of data automatically to fit the city's organizational structure. Our machine learning was trained trained on literally millions of data points.*

The ZenCity solution both collects a much wider data-set than other services and automatically classifies all data coming in according to city-centric topics that reflect the organizational structure of city-hall. There are a few key components to this:

a. ZenCity **does not require keyword lists.** Our automatic classification means we are not constrained to collecting data by keywords, as many other platforms are, and that we can therefor cast a very wide net. We collect data automatically, based on its source and *not* based on keyword.
b. ZenCity only classifies **relevant** data. Our automatic classification enables us to sift through as many data sources as necessary, automatically classify them according to topics of interest for the city, and filter out spam and irrelevant data or mentions. This means **more, relevant data** for the city.

2. **Analysis of More Data Sources**: *We aggregate and analyze data from a more diverse pool of both internal and external data sources, providing a more comprehensive view of citizen feedback.*

The ZenCity platform integrates and processes citizen-generated data from across both **external sources** such as **social media** and local media, *and* **internal data sources** such as **311**, contact emails and more. This makes our analysis platform 10X stronger and much more representative since it actually provides a wholesome view of citizen feedback in the city in one easy-to-use platform. You can see all of the data together or filter by type of source.

3. **Geolocation Technology:** *Our unique geolocation technology enables us to geolocate up to 40% - 50% of data, in comparison to 3-5% of the data on social media.*

We know cities are run geographically, and therefore we've built a strong geolocation mechanism which helps cities visually understand the *where* in citizen feedback. We use **Name Entity**

[1] For a deeper dive into our technology, please see *Appendix A.*

Recognition (NER) to extract locations from data like social media posts and tweets, and other written content. NER technology is an NLP (Natural Language Processing) classifier algorithm that extracts a defined location based on the mention of specific types of words, for example the name of a park, school or other landmark.

Our geolocation technology, integrated with a city's GIS layer, then maps the data points in three different ways. By:

a. **Leading Topic Map**, which demonstrates the city-centric topic in each neighborhood or district.
b. **Topic Map**, which identifies the location of each individual data point, categorized by city topic.
c. **Heat Map**, which visualizes the level of discourse about each area of the city.

4. **Privacy + Security:** *As a platform tailored for government, we put a high emphasis on privacy, and we don't keep any names of specific residents in our data.*

ZenCity only collects public and open data, or proprietary, city-owned data. Our platform *always* anonymizes the names or identities of an individual source - even when a name is tagged in the post. In cases where we incorporate city data (such as 311), we anonymize it. This means we will never hold any PIIs in our system at any point. Finally, all of our data is stored on Azure Microsoft Cloud - central West US node (SF) and is protected also by Microsoft's cloud security.

APPENDIX A

Technology Deep Dive:

The ZenCity platform's core capability is analyzing content, context and sentiment of social conversations and interactions in real time and over-time, in order to deliver insights to different stakeholders in the city's management. We aggregate data in a dashboard that visualises millions of conversations by city department and by geographical area, and by sharing a mobile-first alerting system providing relevant alerts to each stakeholder in real time and over-time. All of this is possible based on robust AI developed especially for tracking social media for cities.

Our world class, award-wining 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 topics of citizen life (e.g. public spaces, personal safety, sidewalk maintenance, education, public / private transportation to name just a few), 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 other features (time of day, geography when available, for example). The topic classifier is based on our own, improved implementation of Facebook's FASTText, with an NLP pipeline based on NLTK (and other libraries) stacked with a model taking into account content "metadata" (e.g. neighbourhood, time of day, data source and other features).

2. **A sentiment analysis tool** based on a unique combination of Machine Learning and a self-developed, city-specific phrase lexicon, allowing us to discern positive, negative or neutral conversations and requests of citizens around city issues. We use a combination of a lexicon-based approach (using a modified version of VADER sentiment analyzer) with our own, bespoke use-case specific lexicon that generalizes to new phrases automatically, and we combine that with a Machine Learning classifier to improve results. We have been very successful in this approach, and are seeing accuracy of greater than 90% across all implementations of the sentiment analyzer.

3. **A name-entity recognizer** trained to identify locations and personas/organizations in conversations, which helps us provide geographic context to conversations happening in the city, or identify entities relevant in understanding what the conversation is about. We have wrapped the Stanford NER implementation and augmented that with clients' data about streets and landmarks in their city, and our understanding of data sources in a

learning and rule based system (e.g. conversations for a neighbourhood specific citizen group are likely to be in the context of the neighbourhood). We can provide a geographic context ~30% of locationless data, much more than can be achieved using naive approaches.

4. **An anomaly detection engine** which can produce alerts when out of the ordinary phenomena appear in citizen conversations (e.g. there's a peak of negative conversations around a topic). we've implemented linear convolution with a moving average to detect anomalies. We've implemented this algorithm ourselves since it's not based on any openly available library, but on statistical analysis of the data.

5. **An image classification engine** which helps provide context for conversations which include images (e.g. photos of garbage on the street, graffitis, cracked pavements, potholes and other types of common city phenomenon). The image classification engine is a self-trained CNN (convolutional neural network) implemented on TensorFlow.

Our current process of analyzing data includes ingesting the data into our own pipeline which analyzes the data using a pipeline with some, or all, of the core services described above.
We are experienced in building dedicated ETL (extract/transform/load) data pipelines and bespoke Artificial intelligence models based on citizen customer experience data, in case those are needed to support data streams as they are collected by the city. Our technology stack is based on proprietary modifications on top of heavily used open source libraries such as NLTK, Gensim, SKLearn, FastText and Tensorflow, and we use external APIs such as Google Vision and Microsoft's Cognitive Toolkits and AI APIs when applicable.

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RECURRING FEES						
SKU	**Product Description**	**Unit Price**	**QTY (units)**	**Gross Price**	**Special Discount ***	**Net Price**
ZC-CORE	Zencity core SaaS platform allowing state and local governments to better understand and engage with their residents, for cities and counties with up to 100,000 residents.	$3,000	12	$36,000	60%	$14,500
					Total Gross Price	**$36,000**
					Total Special Discounts	**$21,500**
					Total Fees	**$14,500**

***- Special discount: Special design partner (early adopter) discount for The City of Doral, FL (extended to September 30 2022) .**

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In witness whereof, the parties have executed this Addendum, effective as of the Addendum Date.

Zencity

Eyal Feder-Levy

CEO

Zencity Technologies US Inc.

Customer

Hernan M. Organvidez

Interim City Manager

City of Doral

ZENCITY

ZENCITY LICENSE AGREEMENT

Customer: City of Doral, FL
Contact Name: Alfredo Ortega, Chief of Staff
Maggie Santos, Public Information Officer

Quote Number 100996

Prepared By Noa Zeldin
Email noa@zencity.io

Created Date September 24, 2018
Expiration Date October 15, 2018

Licensed Program	Quantity	Unit Price	Total Price
ZenCity platform monthly subscription – cities of < 100K residents	12	$3,000	$36,000
Special design partner (early adopter) discount for the City of Doral, FL	-33%	-$1000	-$12,000
TOTAL PRICE for the first 12 months of usage		$2,000	**$24,000**
Early adopters discount (Old pricing special approval)	12	$1,208	**$14,500**

Thank you for choosing the ZenCity platform!

This License Agreement ("**License Agreement**") is entered into between ZenCity Technologies Ltd., ("**ZenCity**"), and you, the entity identified above ("**Customer**"), as of the Effective Date 10/2/18 . and will remain in effect for a period of 12 Months. This License Agreement includes and incorporates the ZenCity Terms and Conditions attached as Appendix B. By signing this License Agreement, Customer acknowledges that it has reviewed, and agrees to be legally bound by, the ZenCity Terms and Conditions. Each party's acceptance of this License Agreement is conditional upon the other's acceptance of the terms in the License Agreement to the exclusion of all other terms.

Customer – City of Doral, FL

Signature: _____

Name: EDWARD A. ROJAS

Role: CM

ZenCity Technologies US

Signature: _____

Name: Eyal Feder

Role: CEO

Date: 10/2/18 Date: 10/5/18

Appendix A

Description of Services

ZenCity is a platform for understanding people in the city on a wide scale. With the use of advanced AI algorithms, we analyze data from social media, city hotlines and other relevant sources, and provide local government stakeholders with detailed, real time insights about how their citizens view and use the city. The analysis can be accessed through a web-based interface on desktop and mobile devices.

1. **PLATFORM FEATURES**

The ZenCity platform collects data about citizen interactions from a variety of sources and analyzes them in real time using a set of Machine-learning based algorithms. The analyzed data can be accessed via a variety of graphs on our admin dashboard, including the following:

1.1. **Category bar chart** – the main bar chart shows how many interactions relate to each area of responsibility of the city, and what is the sentiment towards that topic. The name and amount of topics can be modified to fit the customer's needs based on our list of automatically identified sub-categories.

1.2. **Alerts and notifications** – the platform can create alerts about popular posts or comments or about significant changes in whole categories. The alerts can be accessed through the dashboard, but can also go out on a daily, weekly or real time basis via email – per the user's request.

1.3. **Word cloud** – The word cloud shows the most popular terms used in interactions analysed by the platform. The larger the word is the more popular it was.

1.4. **Overall sentiment view** – the overall sentiment pie chart shows the ratio of positive, negative and neutral interactions out of the total sum of interactions analysed.

1.5. **Popular stories** – the rotating digest of popular stories shows the stories which received the most interactions across all data sources.

1.6. **Map interface** – the map interface will show all interactions which have a location property, divided by category, by type or in a heatmap format.

1.7. **Category drill down** – each category has a drill down view which shows the level of discussion over time in that category, alerts, word cloud, map and popular stories views which include data just for this category and an operative view of city hotline calls for the category – including open calls, calls over the last week and changes over time.

1.8. **Conversation analysis** – the third level of drill down will be the "conversation analysis" which allows drilling down to the level of stories themselves. In this view, users can analyse conversations based on category, date range, sentiment or keyword search, or a combination of the above, and see both the trend and the stories themselves that make up the data. Each story will include its source, category, sentiment, location and a link to the original content.

2. **DATA SOURCES**

2.1. **Facebook** – we analyze all interactions (posts, comments, likes, tags etc.) from public pages and public groups, both official and unofficial. This includes official accounts of the city and other agencies, resident groups, accounts of local businesses, community organizations, causes and any other relevant page or open group.

2.2. **Twitter** – apart from the same analysis employed on facebook, on twitter we also collect all geotagged interactions in the area and all interactions mentioning specific hashtags or keywords.

2.3. **City Hotline reports** – we take all city hotline reports from your database.

2.4. **Additional sources** – we may be able to incorporate other relevant data sources identified, such as local news sites, community message boards, other social media platforms etc. General new data sources implemented (such as new social media platforms) will be offered once they are available. Unique sources (such as local news sites) will be discussed and agreed upon by both sides.

3. **USERS AND PERMISSIONS**

3.1. The basic package includes up to 50 users within the organizations with varying permissions. Permissions will be set by the customer's project lead.

4. **SPECIAL DESIGN PARTNER ADDITIONS**

As early adopters of the system, we see you as our partners in the ongoing development of the ZenCity platform. This means you will be among the first to explore and try new features and capabilities, and that your feedback will direct our future development. Therefore, we will also ask to hold regular feedback sessions where we collect your feedback, needs and ideas for changes and additions to the platform. Additionally, we ask that the Customer reasonably assist ZenCity in the preparation of a case study.

Appendix B

ZenCity Terms and Conditions

1. **SOFTWARE LICENSE & SUPPORT SERVICES**

   1.1. Subject to the terms and conditions of these ZenCity Terms and Conditions and of the applicable License Agreement (collectively, the "Agreement"), ZenCity hereby grants to Customer a personal, non-exclusive, non-transferable limited licence to use the Licensed Program identified in the applicable License Agreement entered into by ZenCity and Customer ("License Agreement") and the documentation and user manuals for the Licensed Program supplied by ZenCity to Customer throughout the Term (the "Documentation").

   For the purposes of this Section 1.1, the term "use" shall be only in accordance with the confidentiality provisions of this Agreement and shall include the rights to use the Licensed Program only for the use of the Customer's organization, company or institution.

   For the purposes of this Section 1.1 the term "use" shall not include: (i) the right to make, use, or sell products incorporating the Licensed Program, or (ii) the right to sub-license the Licensed Program.

   No right is granted to the source code of the Licensed Program or to create derivative works thereof or to transfer ownership of the media containing such software except as a part of, or with, or for use in the equipment with which it operates.

   1.2. Routine customer support is available via email. Any claim will be answered within 24 hours of report. On or before the Effective Date, Customer and ZenCity shall each designate a liaison as a respective point of contact for technical issues. Each party may change such liaison upon written notice from time to time at reasonable intervals. ZenCity will not be obligated to provide support to any person other than the Customer's designated liaison.

   1.3. During the Term, Customer may have access to Updates upon request at no additional cost. "Updates" shall mean certain new features as determined by the company, or fixes of minor errors in the Licensed Program which are incorporated in a new release of the Licensed Program.

   1.4. Certain upgrades can be delivered to Customer upon commercial terms and conditions to be agreed upon. "Upgrades" shall mean enhancements, new functionalities which are added into the Licensed Program.

2. **RESTRICTIONS AND RESPONSIBILITIES**

   2.1. Customer agrees not to, directly or indirectly: reverse engineer, decompile, disassemble, or otherwise attempt to discover the source code, object code, or underlying structure, ideas, or algorithms of the Licensed Program, Documentation or data related to the Licensed Program, except to the extent such a restriction is limited by applicable law; modify, translate, or create derivative works based on the Licensed Program; or copy, reproduce, rent, lease, distribute, assign, sell, or otherwise dispose of the Licensed Program, in whole or in part, or otherwise commercially exploit, transfer, or encumber rights to the Licensed Program; or remove any proprietary notices.

   2.2. Customer will use the Licensed Program only in compliance with all applicable laws and regulations (including, but not limited to, any export restrictions).

   2.3. Customer shall be responsible for obtaining and maintaining any equipment and other services needed to connect to, access or otherwise use the Licensed Program and Customer shall also be responsible for (a) ensuring that such equipment is compatible with the Licensed Program, (b) maintaining the security of such equipment, user accounts, passwords and files, and (c) for all uses of Customer user accounts with or without Customer's knowledge or consent.

3. **PROPRIETARY RIGHTS.** ZenCity retains all right, title, and interest in the Licensed Program, Documentation and any future modifications and enhancements thereof, and all intellectual property rights (including all past, present, and future rights associated with works of authorship, including exclusive exploitation rights, copyrights, and moral rights, trademark and trade name rights and similar rights, trade secret rights, patent rights, and any other proprietary rights in intellectual property of every kind and nature) therein. Customer is granted only a limited right of use to the Licensed Program and Documentation as set forth herein, which right of use is not coupled with an interest and is revocable in accordance with the terms of this Agreement.

4. **CONFIDENTIALITY.** Each party (the "Receiving Party") agrees not to disclose (except as permitted herein) any Confidential Information of the other party (the "Disclosing Party") without the Disclosing Party's prior written consent. "Confidential Information" means all confidential business, technical, and financial information of the disclosing party that is marked as "Confidential" or an equivalent designation or that should reasonably be understood to be confidential given the nature of the information and/or the circumstances surrounding the disclosure (including the terms of the applicable License Agreement). ZenCity's Confidential Information includes, without limitation, the software underlying the Licensed Program and all Documentation. The Receiving Party agrees: (i) to use and disclose the Confidential Information only in connection with this Agreement; and (ii) to protect such Confidential Information using the measures that Receiving Party employs with respect to its own Confidential Information of a similar nature, but in no event with less than reasonable care. Receiving Party shall, before receipt or usage of such Confidential Information inform its personnel of Receiving Party's confidentiality obligations under this Agreement. Notwithstanding the foregoing, Confidential Information does not include information that: (i) has become publicly known through no breach by the Receiving Party; (ii) was rightfully received by the Receiving Party from a third party without restriction on use or disclosure; or (iii) is independently developed by the Receiving Party without access to such Confidential Information. Notwithstanding the above, the Receiving Party may disclose Confidential Information to the extent required by law or court order, provided that prior written notice of such required disclosure and an opportunity to oppose or limit disclosure is given to the Disclosing Party.

5. **DATA LICENSE.** Customer grants ZenCity a non-exclusive, transferable, perpetual, worldwide, and royalty-free license to use any data or information provided by Customer for use in, by or in connection with the Licensed Program, any information collected, and/or any analysis of any such information conducted by the Licensed Program.

6. **PAYMENT OF FEES.** The fees for the Licensed Program ("Fees") are set forth in the applicable License Agreement. The Customer will be billed for the full term specified in the applicable License Agreement on date of first onboarding. Customer shall pay all Fees within thirty (30) days after the date of ZenCity's invoice.

7. **TERM & TERMINATION**

   7.1. Subject to compliance with all terms and conditions, the term of this Agreement shall be from the Effective Date and shall continue until the End Date specified on page one (1) of the Agreement (the "Term") unless terminated earlier in accordance with the terms and conditions of this Section 7. After the first Term, this agreement shall be automatically renewed for 3 successive one year terms with the same terms and conditions, unless expressly terminated by written notice by one party to the other three (3) months before the automatic renewal date. If either party materially breaches any term of this Agreement and fails to cure such breach within thirty (30) days after notice by the non-breaching party (ten (10) days in the case of non-payment), the non-breaching party may terminate this Agreement immediately upon notice.

   7.2. Upon termination, Customer will pay in full for the Licensed Program up to and including the effective date of termination. Upon any termination of this Agreement: (a) the license of the Licensed Program hereunder shall immediately terminate; and (b) each party shall return to the other party or, at the other party's option, destroy all Confidential Information of the other party in its possession.

   7.3. All sections of this Agreement which by their nature should survive termination will survive termination, including, without limitation, accrued rights to payment, confidentiality obligations, warranty disclaimers, and limitations of liability.

8. **WARRANTY AND DISCLAIMER**

   8.1. ZenCity represents and warrants that: (i) it has all right and authority necessary to enter into and perform this Agreement; and (ii) the Licensed Program shall perform in accordance with generally prevailing industry standards.

   8.2. Customer represents and warrants that (i) it has all right and authority necessary to enter into and perform this Agreement; (ii) it owns all right, title, and interest in and to all data provided to ZenCity (if any) for use in connection with this Agreement, or possesses the necessary authorization thereto; and (iii) ZenCity's use of such materials in connection herewith will not violate the rights of any third party.

   8.3. ZENCITY DOES NOT WARRANT THAT USE OF THE LICENSED PROGRAM WILL BE UNINTERRUPTED OR ERROR FREE; NOR DOES IT MAKE ANY WARRANTY AS TO THE RESULTS THAT MAY BE OBTAINED FROM USE OF THE LICENSED PROGRAM. EXCEPT AS SET FORTH IN THIS SECTION 8, THE LICENSED PROGRAM IS PROVIDED "AS IS" AND ZENCITY DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY, TITLE, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. ZENCITY DOES NOT WARRANT THAT ANY OR ALL FAILURES, DEFECTS OR ERRORS WILL BE CORRECTED, OR WARRANT THAT THE FUNCTIONS CONTAINED IN THE LICENSED PROGRAM WILL MEET CUSTOMER'S REQUIREMENTS.

9. **LIMITATION OF LIABILITY.** NEITHER PARTY, NOR ITS SUPPLIERS, OFFICERS, AFFILIATES, REPRESENTATIVES, CONTRACTORS AND EMPLOYEES, SHALL BE RESPONSIBLE OR LIABLE WITH RESPECT TO ANY SUBJECT MATTER OF THIS AGREEMENT OR RELATED TERMS AND CONDITIONS UNDER ANY CONTRACT, NEGLIGENCE, STRICT LIABILITY, OR OTHER THEORY: (A) FOR ERROR OR INTERRUPTION OF USE OR FOR LOSS OR INACCURACY OF DATA OR COST OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES OR LOSS OF BUSINESS; (B) FOR ANY INDIRECT, EXEMPLARY, PUNITIVE, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES; OR (C) FOR ANY MATTER BEYOND SUCH PARTY'S REASONABLE CONTROL, EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH LOSS OR DAMAGE. IN NO EVENT SHALL EITHER PARTY'S AGGREGATE, CUMULATIVE LIABILITY FOR ANY CLAIMS ARISING OUT OF OR IN ANY WAY RELATED TO THIS AGREEMENT EXCEED THE FEES PAID BY CUSTOMER TO ZENCITY (OR, IN THE CASE OF CUSTOMER, PAYABLE) FOR THE LICENSED PROGRAM UNDER THIS AGREEMENT IN THE 12 MONTHS PRIOR TO THE ACT THAT GAVE RISE TO THE LIABILITY.

10. **MISCELLANEOUS.** Capitalized terms not otherwise defined in these Terms and Conditions have the meaning set forth in the applicable License Agreement. Neither party shall be held responsible or liable for any losses arising out of any delay or failure in performance of any part of this Agreement, other than payment obligations, due to any act of god, act of governmental authority, or due to war, riot, labor difficulty, failure of performance by any third party service, utilities, or equipment provider, or any other cause beyond the reasonable control of the party delayed or prevented from performing. ZenCity shall have the right to use and display Customer's logos and trade names for marketing and promotional purposes in connection with ZenCity's website and marketing materials, subject to Customer's trademark usage guidelines (as provided to ZenCity). If any provision of this Agreement is found to be unenforceable or invalid, that provision will be limited or eliminated to the minimum extent necessary so that this Agreement will otherwise remain in full force and effect and enforceable. This Agreement is not assignable or transferable by either party without the other party's prior written consent, provided however that either party may assign this Agreement to a successor to all or substantially all of its business or assets. This Agreement (including the License Agreement) is the complete and exclusive statement of the mutual understanding of the parties and supersedes and cancels all previous written and oral agreements, communications, and other understandings relating to the subject matter of this Agreement. All waivers and modifications must be in a writing signed by both parties. No agency, partnership, joint venture, or employment is created as a result of this Agreement and neither party has any authority of any kind to bind the other party in any respect. In any action or proceeding to enforce rights under this Agreement, the prevailing party will be entitled to recover costs and attorneys' fees. All notices under this Agreement will be in writing and will be deemed to have been duly given when received, if personally delivered; when receipt is electronically confirmed, if transmitted by facsimile or e-mail; the day after it is sent, if sent for next day delivery by recognized overnight delivery service; and upon receipt, if sent by certified or registered mail, return receipt requested. This Agreement shall be governed by the

laws of the State of Florida without regard to its conflict of laws provisions and the competent courts in the city of Doral shall have exclusive jurisdiction to hear any disputes arising hereunder.

Approved as to form and legal sufficiency
for the sole use of the City of Doral.

City Attorney

LUIS FIGUEREDO
Print Name

Maggie Santos (PA)

From: Noa Zeldin <noa@zencity.io>
Sent: Thursday, September 27, 2018 4:09 PM
To: Maggie Santos (PA)
Subject: ZenCity's unique technology
Attachments: ZenCity Differentiating Technology.pdf

Hi Maggie,

ZenCity is the only data analytics tool tailored for cities.
All of the cities that we work with (more than 25 that joined only this year) decided to purchase ZenCity for it's unique and city-specific technology and Artificial Intelligence algorithms that allows the cities to better understand their citizens' feedback, trends and more.

Please find attached a document that explains **ZenCity's Differentiation technology** and let me know if you need anything else to move forward.

Looking forward to getting started,
Noa

Noa Zeldin • MBA
Director of Business Development
m.noa@zencity.io
p. 347-632-1225
p. 050-4817788

ZenCity // Differentiating Technology + Unique Attributes

ZenCity works **only with the local government sector**, for the sole purpose of garnering an in-depth understanding of citizen feedback and making it useful to different decision makers across the city. We understand that cities have **particular, city-specific needs** in analysing social media and other data, and have built our whole platform to fit the unique, city use case.

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b. **Topic Map**, which identifies the location of each individual data point, categorized by city topic.
c. **Heat Map**, which visualizes the level of discourse about each area of the city.

4. **Privacy + Security:** *As a platform tailored for government, we put a high emphasis on privacy, and we don't keep any names of specific residents in our data.*

ZenCity only collects public and open data, or proprietary, city-owned data. Our platform *always* anonymizes the names or identities of an individual source - even when a name is tagged in the post. In cases where we incorporate city data (such as 311), we anonymize it. This means we will never hold any PIIs in our system at any point. Finally, all of our data is stored on Azure Microsoft Cloud - central West US node (SF) and is protected also by Microsoft's cloud security.

APPENDIX A

Technology Deep Dive:

The ZenCity platform's core capability is analyzing content, context and sentiment of social conversations and interactions in real time and over-time, in order to deliver insights to different stakeholders in the city's management. We aggregate data in a dashboard that visualises millions of conversations by city department and by geographical area, and by sharing a mobile-first alerting system providing relevant alerts to each stakeholder in real time and over-time. All of this is possible based on robust AI developed especially for tracking social media for cities.

Our world class, award-wining 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 topics of citizen life (e.g. public spaces, personal safety, sidewalk maintenance, education, public / private transportation to name just a few), 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 other features (time of day, geography when available, for example). The topic classifier is based on our own, improved implementation of Facebook's FASTText, with an NLP pipeline based on NLTK (and other libraries) stacked with a model taking into account content "metadata" (e.g. neighbourhood, time of day, data source and other features).

2. **A sentiment analysis tool** based on a unique combination of Machine Learning and a self-developed, city-specific phrase lexicon, allowing us to discern positive, negative or neutral conversations and requests of citizens around city issues. We use a combination of a lexicon-based approach (using a modified version of VADER sentiment analyzer) with our own, bespoke use-case specific lexicon that generalizes to new phrases automatically, and we combine that with a Machine Learning classifier to improve results. We have been very successful in this approach, and are seeing accuracy of greater than 90% across all implementations of the sentiment analyzer.

3. **A name-entity recognizer** trained to identify locations and personas/organizations in conversations, which helps us provide geographic context to conversations happening in the city, or identify entities relevant in understanding what the conversation is about. We have wrapped the Stanford NER implementation and augmented that with clients' data about streets and landmarks in their city, and our understanding of data sources in a

learning and rule based system (e.g. conversations for a neighbourhood specific citizen group are likely to be in the context of the neighbourhood). We can provide a geographic context ~30% of locationless data, much more than can be achieved using naive approaches.

4. **An anomaly detection engine** which can produce alerts when out of the ordinary phenomena appear in citizen conversations (e.g. there's a peak of negative conversations around a topic). we've implemented linear convolution with a moving average to detect anomalies. We've implemented this algorithm ourselves since it's not based on any openly available library, but on statistical analysis of the data.

5. **An image classification engine** which helps provide context for conversations which include images (e.g. photos of garbage on the street, graffitis, cracked pavements, potholes and other types of common city phenomenon). The image classification engine is a self-trained CNN (convolutional neural network) implemented on TensorFlow.

Our current process of analyzing data includes ingesting the data into our own pipeline which analyzes the data using a pipeline with some, or all, of the core services described above.
We are experienced in building dedicated ETL (extract/transform/load) data pipelines and bespoke Artificial intelligence models based on citizen customer experience data, in case those are needed to support data streams as they are collected by the city. Our technology stack is based on proprietary modifications on top of heavily used open source libraries such as NLTK, Gensim, SKLearn, FastText and Tensorflow, and we use external APIs such as Google Vision and Microsoft's Cognitive Toolkits and AI APIs when applicable.