

Appendix E2: Visualizing the 2nd Transform911 Convening

Mentimeter Feedback

During each workgroup convening session, workgroup chairs presented a series of recommendations and questions to participants based on each workgroup's focus area. Feedback was collected through Mentimeter (<https://www.mentimeter.com/>), and anonymous text data was recorded¹.

The analyses presented in this report are intended to provide Transform 911 participants with several ways to begin to wrap their arms around a vast amount of text generated through Mentimeter at the Transform 911 convening. The source text is comprised of comments, opinions, and questions of people who attended the convening. We used two analytic strategies, word clouds and topic modelling, to give participants an initial birds-eye view of participants' feedback. More traditional in-depth qualitative (non-numerical) analyses of the text will be conducted subsequently. A description of word clouds and topic modelling, along with their results, are described below.

Word Clouds

The first analytic strategy used is word clouds, an interesting way of visually representing a body of text. The graphic produced gives greater visual prominence to words that appear more frequently in the text. In our case, the larger the word in the graphic, the more frequently it occurs in the Mentimeter text. The word clouds in this document were produced in Python 3.8.0 by adapting the *wordcloud* module², and applying a mask created in Adobe Photoshop that produces the "backdrop" in the shape of a phone. The word cloud in Figure 1 is generated by merging the text data across all workgroups, whereas Figures 2 - 7 are based on discrete text from each of the six workgroups.

¹ Transform911 Team. (2022). Public feedback during Transform911's Alternative First Responders workgroup convening session on March 2, 2022. University of Chicago Health Lab.

² Mueller, A. (2020). WordCloud for Python documentation—Wordcloud 1.8.1 documentation.
http://amueller.github.io/word_cloud/

Figure 1. All Workgroups



Alternative First Responders Workgroup

Recommendations:

- Emphasize trauma-informed, culturally-sensitive, person-centered response
 - Collect data to understand needs, iterate on progress, and support accountability
 - Build toward sustainable positive outcomes for everyone involved in the system
 - Create community-led accountability to support desired impact

Questions:

- What context or information would you want a first responder to know before they come to help with an emergency in your neighborhood?
 - How do you think we can ensure that alternative response agencies have the staff, funding, and resources they need?
 - What do you think is missing from these recommendations that is really important to consider when it comes to alternative first responders?

Figure 2. Alternative First Responders Workgroup



Emergency Communications Center Operations Workgroup

Recommendations:

- Ensure ECCs are independent agencies and not subordinate to peer agencies (fire, police, and EMS)
- Ensure governing authorities and boards that control emergency communications centers are representative of the community they serve
- Require ECCs to offer all advanced services, including text-to-911 and enhanced location data, required by the i3 standards – particularly for people with disabilities and people whose first language is not English
- Formally recognize emergency communication professionals as public safety responders at the local, state, and federal levels
- Ensure state statutes require communication interoperability among fire, police, EMS, and alternative responders
- Develop a credentialing process for technology vendors to apply and demonstrate compliance with all American National Standards Institute standards
- Legislate a national minimum training standard for emergency communication professionals

Questions:

- ECCs should be independent and not subordinate to peer agencies (police, fire, and EMS). What are your reactions to this?
- Ensure state statute requires communication interoperability among fire, police, EMS and alternative responders. What are your reactions to this?
- How might we educate the public on avenues available for support when they do not have a critical law enforcement, fire or medical need?

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Figure 3. Emergency Communications Center Operations Workgroup



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Governance Workgroup

Recommendations:

- Establish a high-level federal position and cabinet-level working group to create and implement national standards for 911
- Invest 911 professionals and community members with power in governance decisions
- Establish national and state level standards for how ECCs operate
- Increase coordination among ECCs and consolidate where possible

Questions:

- What are other ways, not contemplated here, that communities can meaningfully define what success for the 911 system looks like?
- What would it take to make the creation and adoption of national standards a priority for federal leadership?
- How can we balance the need for meaningful community participation and power-sharing with the benefits of consolidating ECCs across jurisdictions?

Figure 4. Governance Workgroup



Hotline Alternatives Workgroup

Recommendations:

- Center the voices of those who have experienced unintentional harm or trauma by the emergency response system
- Foster a robust, well-marketed, and transparent ecosystem of alternative hotline options, including those both directly connected or not to centralized emergency response centers
- Identify 911 emergency calls-for-service that could be safely transferred to alternative hotlines through community engagement, services gap analysis and law enforcement data analysis
- Develop alternative hotlines that can provide immediate access to, and robust knowledge of, available resources that offer personalized supports
- Ensure viable alternative hotlines are cost-free, widely accessible, technology driven, and able to support high call volumes 24/7

Questions:

- Are alternative hotlines a viable option to transform the existing infrastructure of the 911 emergency response system? Why or why not?
- How can alternative hotlines address and/or resolve key systemic issues with 911 centralized emergency response centers?
- How can alternative hotlines obtain/gain buy-in from other public safety entities?
- How can alternative hotlines secure funds to build capacity and infrastructure to support high call volumes?

Figure 5. Hotline Alternatives Workgroup



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Professional Career and Supports Workgroup

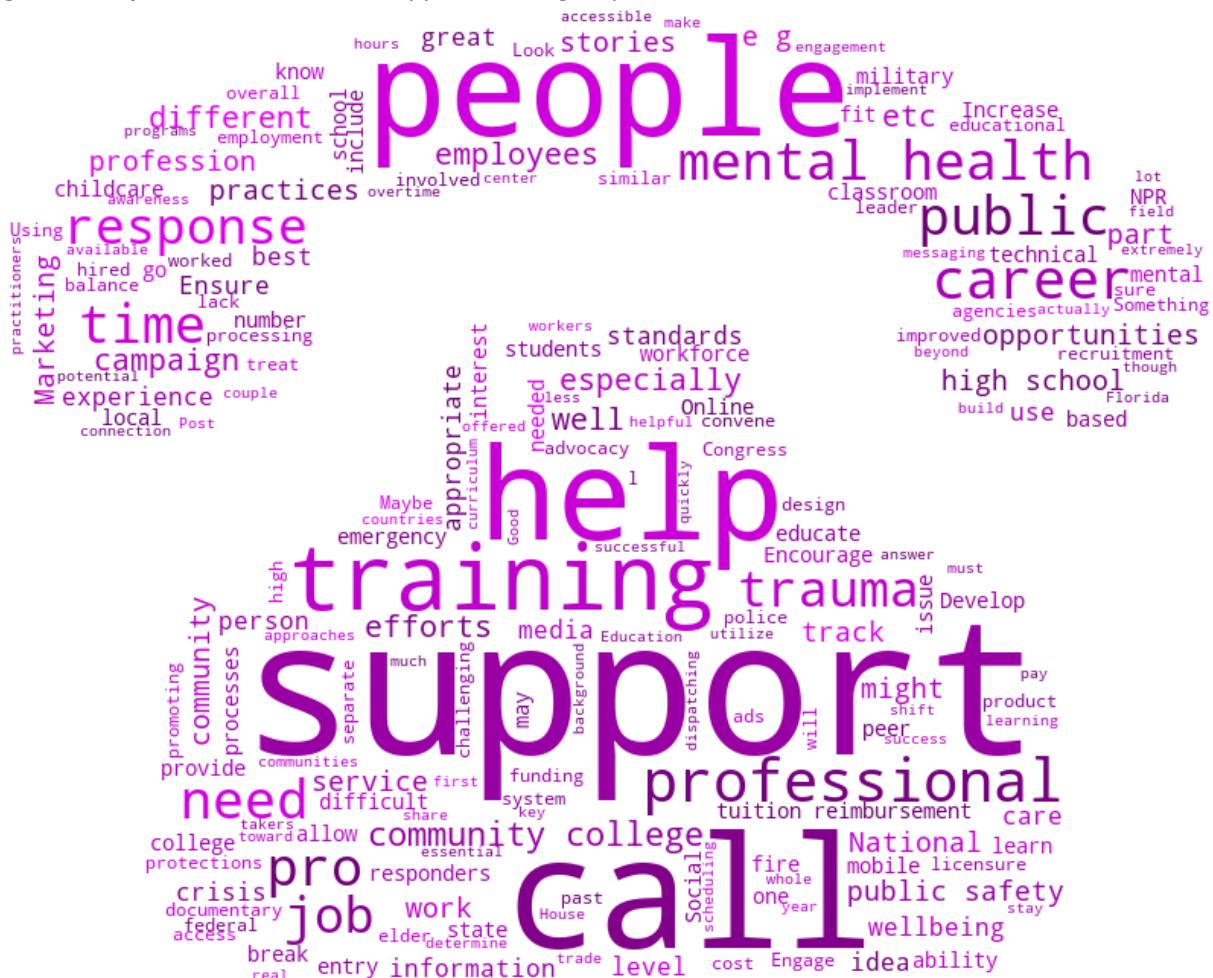
Recommendations:

- Ensure recognition of 911 professionals as public safety professionals
 - Reintroduce 911 and 911 professionals to the American public
 - Invest in workforce development and inclusive hiring processes
 - Take active measures to foster the career development and workplace retention of fully successful 911 professionals

Questions:

- The SOC goes back to sample in 2024 – any suggestions to ensure accurate info is submitted?
 - What should be done that hasn't been done?
 - When you hear “marketing campaign,” what comes to mind?
 - What elements should be included or considered in a national marketing campaign?
 - What are your thoughts on building a community or technical college track?
 - Do you have related experience or knowledge of where these might already be in place?
 - What practices or elements related to employee wellbeing should be included in our recommendations?

Figure 6. Professional Career and Supports Workgroup



Technology Workgroup

Recommendations:

- Adopt NextGen911 to create more equitable and effective emergency response outcomes
 - Develop a data ethics statement to ensure appropriate and ethical use of personal information in emergency service decision-making
 - Define and implement uniform data standards for call data to enable government transparency, achieve equity, and improve emergency response outcomes
 - Empower and incentivize ECCs with modern tools by using dedicated shared services models and cloud-based services to improve consistency and quality of service
 - Develop an emergency procurement playbook: a living document that helps emergency services professionals navigate the complexities of funding, technology, and operations
 - Require vendors to provide real-time access to call data for reporting and analytics to support continuous improvement

Questions:

- What is the potential impact of these recommendations?
 - Where should we look for inspiration related to implementation? (e.g. other communities, vendor requirements, and shared service models)
 - What would make you more supportive of the recommendations?

Figure 7. Technology Workgroup



Topic Modeling

The second analytic strategy we used is topic modeling, which mines a body of text to produce clusters of similar words. We employed a method known as Latent Dirichlet Allocation (LDA)³. Given a large amount of text from the Mentimeter feedback data, LDA uses a statistical algorithm to atheoretically reveal words that cluster together.

The number of clusters for the model to discover was set to 6. This number is arbitrary, although it was chosen to potentially correspond to the six workgroups. However, it is important to note that the model has no prior knowledge of the semantic meanings behind the workgroups. Therefore, it is not possible to predict how well or poorly the six clusters will relate to the six workgroups.

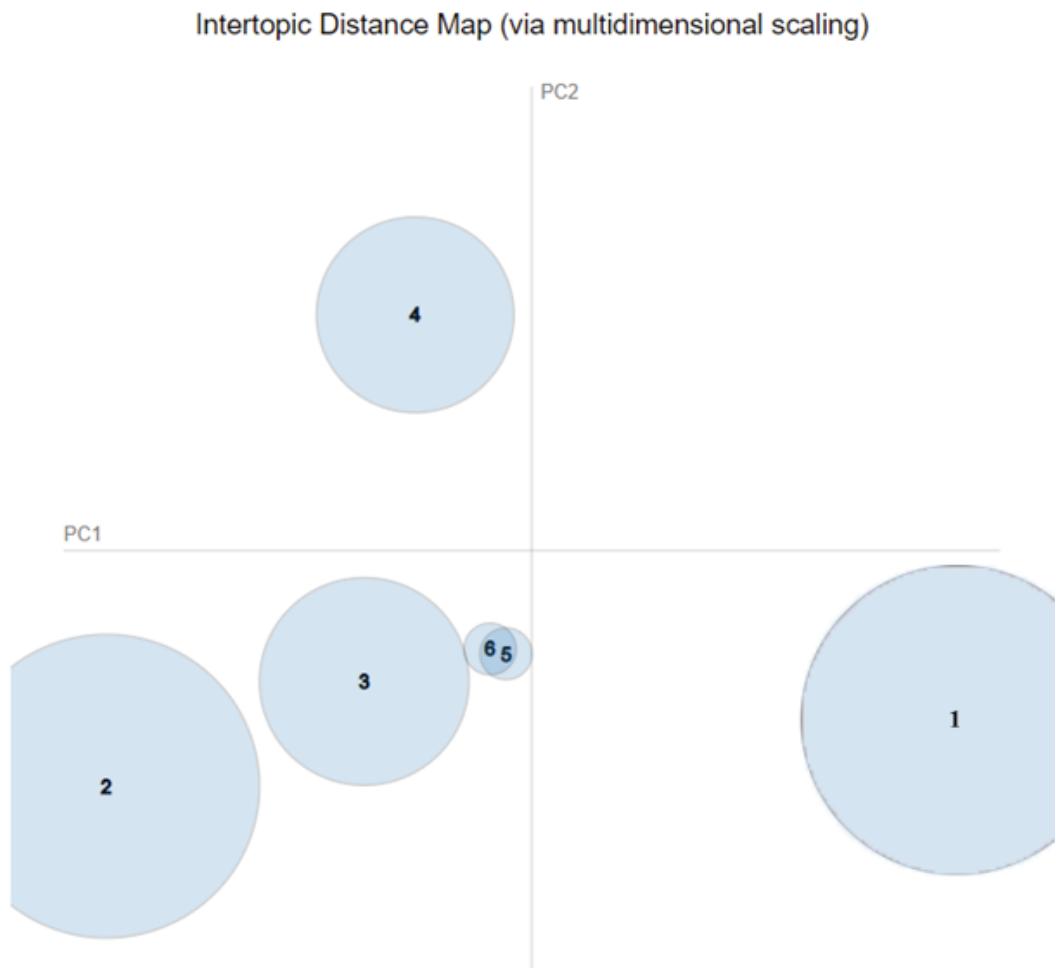
The results of the topic modeling analysis are presented in the next section: first, the intertopic distance map, and second, lists of the most frequent words in each cluster.

Intertopic Distance Map

The circles in the intertopic distance map shown in Figure 8 represent the six word clusters that were produced by the topic model analysis. The distance between each of the circles, labeled 1-6, is a spatial approximation of how proximal or distally related each cluster is to the others. For example, two circles that are close to each other suggests that the Mentimeter feedback in these two clusters has a relatively high degree of overlap. The size of each circle represents the proportion of words in that cluster (with respect to the total number of words in the Mentimeter feedback data).

³ Blei, D. M., Ng, A. Y., & Jordan, M. I. (2003). Latent Dirichlet Allocation. *Journal of Machine Learning Research*, 3(Jan), 993–1022. This approach assumes that words within a certain topic occur at defined probabilities.

Figure 8. Intertopic Distance Map



Most Frequent Words in Each Cluster

Figures 9 – 14 display the top 10 terms within each of the six word clusters. We also present potential overarching themes that may be discerned subjectively from these terms.

Cluster 1 (34.6% of all words)

Suggested overarching themes: Career, Professional Support, Training

Figure 9. Top 10 Words in Cluster 1

Career	Employee
Trauma	Escalation
Weapon	Team
Culture	Historical
College	Peers

Cluster 2 (33.7% of all words)

Suggested overarching themes: Data, Technology, Governance

Figure 10. Top 10 Words in Cluster 2

Vendor	Consolidate
Data	Metric
Gateway	Standard
Feedback	Capacity
Incorporate	Review

Cluster 3 (15.7% of all terms)

Suggested overarching themes: Media, Public Perception, Outreach, Marketing

Figure 11. Top 10 Words in Cluster 3

Agreement	ECC
Believe	Mass
Billboard	School
Independent	Difficult
Media	Booth

Cluster 4 (14.0% of all words)

Suggested overarching themes: Alternative Hotlines, Alternative First Responders, Governance, Collaboration

Figure 12. Top 10 Words in Cluster 4

Hotline	Alongside
Alternative	Hope
Complementary	Resolve
Screen	Policymaking
Complaint	Deploy

Cluster 5 (1% of all words)

Suggested overarching themes: Public Perception, History of 911, ECC Operations, De-escalation

Figure 13. Top 10 Words in Cluster 5

Weapon	Escalate
Cultural	Convict
History	Team
Prove	Salaries
Save	Present

Cluster 6 (1% of all terms)

Suggested overarching themes: ECC Operations, Governance, Collaboration

Figure 14. Top 10 Words in Cluster 6

Hotline	Agree
Vendor	ECC
Consolidate	School
Data	Career
Capacity	Private