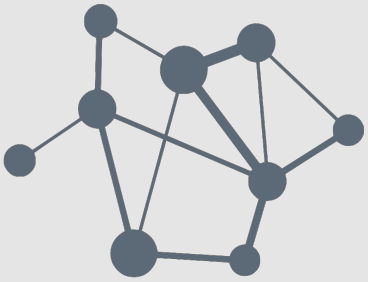

AN OVERVIEW OF THE NETWORK

The User feedback Project engaged with over 70 individuals, from universities to government offices. Practitioners worked in public health departments, city and county governments, and some were part of government data response teams. Researchers came from all over the world, with many based in the United States. The COVID-19 Mobility Data Network (CMDN) was a intended to be

> *"...a network of infectious disease epidemiologists at universities around the world working with technology companies to use aggregated mobility data to support the COVID-19 response. Our goal is to provide daily updates to decision-makers at the state and local levels on how well social distancing interventions are working, using anonymized, aggregated data sets from mobile devices, along with analytic support for interpretation"*
>
> - *COVID-19 Data Mobility Network*

Those interviewed for the User Feedback Project consisted of a purposive and convenience sample of interviews and email communications to gain a deeper understanding of how researchers and government teams used Facebook mobility data for COVID-19 response activities. Interviews covered all continents around the world except for Antarctica with a bias toward US-based collaborations.

While the CMDN originally was intended as a global network of academics in infectious epidemiology the findings from the User Feedback Project revealed a much larger network. The ripple effect of their efforts was large and this thematic brief describes some of the early patterns seen in this broader network. It also discloses much of what is unknown.

CMDN NETWORK CHARACTERISTICS

Network collaborations vary greatly and a description of research and disaster networks are outside the scope of this short brief. Nonetheless, the CMDN embodied many network principles and fundamentals described by the Stanford Social Innovation Review.

Four Network Principles	Fundamental Process
Trust, not control	Clarify purpose
Humility, not brand	Convene the right people
Node, not hub	Cultivate trust
Mission, not organization	Coordinate actions
	Collaborate generously

Stanford Social Innovation Review

Network members supported city governments, governors offices, and emergency operational centers (EOCs). They also supported public health offices and multinational organizations such as the European Commission. There was a common commitment to leverage academic and data science with a focus on transforming the analyses for the practical use of public health and policy makers in COVID-19 response activities.

The response environment varied widely among practitioners, but with a common mission. Public health teams in New York City (NYC) faced a peak in cases and deaths March-April 2020, while other teams, such as those in East Asia worked with much smaller caseloads.

Trust was apparent throughout the Network and there was a collective commitment among participants to use anonymized data, and agree to Facebook's Data Use Agreement and the Network Data Use Policy. Among researchers, the Network was able to coordinate actions in a distributed manner. Weekly network calls were opt-in and researchers convened during these virtual calls to share their ways of working, often posing challenges that other members of the groups would help with sharing ideas for potential solutions.

"A collaborative network is a network consisting of a variety of entities (e.g., organizations and people) that are largely autonomous, geographically distributed, and heterogeneous in terms of their operating environment, culture, social capital and goals, but that collaborate to better achieve common or compatible goals, and whose interactions are supported by computer networks."

- Wikipedia

WHAT THE NETWORK LOOKED LIKE FROM THE USER FEEDBACK PROJECT

While the Network is described as a "network of infectious disease epidemiologists at universities around the world", the people involved were much more diverse than this initial intended group. Collaborators in government offices were emergency managers, data fellows, chief technology officers, analysts from consultancy groups, and even volunteers supporting data teams in government offices. Researchers who collaborated with practitioners were largely epidemiologists from universities, but also included professors of ecology, engineering, and urban planning. It was remarkable to observe 150+ individuals from academic and research organizations engage with the Network, and a smaller proportion of them work to analyze data with practitioners. The Network asked participants to commit to applying research to practice and this was expressed regularly by the CMDN coordinators during weekly network calls with researchers, and this view was echoed in the interviews during this project.

There was neither a prescriptive process nor a set of requirements of how to engage and act within the network. Each group took the journey of transformation and translation based upon their regional or local context in the constantly changing pandemic environment, which has yet to abate.

150+
researchers in the Network

54
practitioners or researcher perspectives

29
collaboration teams

16
global locations

PRE-EXISTING RELATIONSHIPS AS A CATALYZER FOR THE CMDN NETWORK

Connections appeared to drive the majority of engagement from researchers in the Network. It appeared to be Caroline Buckee's worldwide connections which catalyzed the global engagement. There was also a network of graduate students and post-doctoral researchers that helped jumpstart much of the collaborations in the United States. The Facebook Data for Good group, led by Laura McGorman, also brought researchers and a data analyst to the CMDN. A few groups from India who had previously worked with Facebook Data for Good also joined the network.

PRACTITIONERS AS KEY CONTRIBUTORS

Practitioners, specifically the users who worked with researchers in government offices, were considered a major part of the Network as they played the essential role of transforming data into practice.

Practitioners, specifically the users who worked with researchers in government offices, were considered a major part of the Network as they played the essential role of transforming data into practice. (see Appendix 1 Network map) While the intention was to collaborate primarily with government public health offices and a broader group of policy-makers, those who were interviewed described collaborations with a broader group of practitioners. For example, researchers in both the United Kingdom and in Spain were building collaborations with the United Kingdom Office for National Statistics, and Department of Transportation in their respective countries, rather than with Ministries of Health or other health focused government offices.

The collaborations in the state of Massachusetts and Arapahoe County in Colorado were with the governor and the county emergency operations manager respectively. The collaborations in British Columbia and other countries in Southeast Asia were with public health entities at the national and provincial levels, both stemming from prior relationships with government groups prior to the pandemic.

Interviews with practitioners revealed that many were not familiar with the Network as a named entity but more familiar with the individual researchers that they interacted with.

Interviews with practitioners revealed that many were not familiar with the Network as a named entity but more familiar with the individual researchers that they interacted with. This limited knowledge about the CMDN may be due to the lack of a central convening mechanism for the practitioners in this network, although one existed for the researchers. In addition, it was not apparent during interviews that practitioners were familiar with other government offices who were also using Facebook mobility data. This is different from many online distributed informal knowledge sharing groups in disasters and humanitarian sectors. Practitioner interviewees rarely, if ever, mentioned another team in the Network at the practitioner level. Nonetheless, a few practitioners expressed interest in knowing what other groups were doing with mobility data.

AN UNEVEN KNOWLEDGE SHARING ENVIRONMENT

The knowledge sharing environment was rich with opportunities for researchers to learn from one another, with GitHub repositories, weekly network calls, and templates for analyzing mobility data. Some researchers who lived in non-US and non-European time zones found it difficult to join the network calls and felt that this limited their engagement. Nonetheless, many researchers found the network structure valuable, and many wished they had more time to connect with others in the Network.

A knowledge sharing environment for practitioners and government data teams was virtually non-existent based upon the interviews and observations during the project. Many practitioner interviewees expressed a strong interest and willingness to learn more about the data and how to best use it in their circumstances. There are opportunities in the future for the Network to expand its scope to include some of the most crucial members of the environment for which it serves. The structure, design, and engagement of a shared learning environment for this group will likely be different than a research network, as the demands, culture, and work environment are different than academia. Nonetheless, some of the challenges described in this project's briefs, such as data translation, identifying the purpose and meaning of mobility data, can all be further advanced by bringing practitioners together to share their own lessons learned. This could be done by establishing a network model where researchers and practitioners can build a knowledge sharing environment together before, during, and after disasters.

Some researchers who lived in non-US and non-European time zones found it difficult to join the network calls and felt that this limited their engagement.

There are opportunities in the future for the Network to expand its scope to include some of the most crucial members of the environment for which it serves.

WHAT WE DO NOT KNOW

What we do not know from this project is the relationships and connections with over 60 individuals and their related groups who were not interviewed or contacted during this project period. Therefore, generalizations are not possible from the project's early findings. What can be gleaned is the possibility that like minded people with similar skill sets and related cultures may be catalyzers for new networks with such success as this one.

But what is not yet known is as valuable as what is. As this project's case studies and briefs are presented, future research and inquiry is needed to determine how and to what degree these network relationships positively impact disasters and humanitarian crises.

CONCLUSION

Individuals and groups across the CMDN expressed a remarkable willingness to share their experiences. They frequently offered their views of potential success, and their responses spoke to a humility about the complexity of the work and the importance of the engagement. There was often honest candor shared among researchers during weekly network calls where groups shared their experiences with data analysis, data acquisition, and the social side of the work - communicating with practitioners, and understanding what they needed and how they used the results. The challenges that all interviewees chose to share were thoughtful, often daringly honest, reflecting trust in the lived network, value in the process, and the importance of sharing knowledge. This in many ways reflects a commitment to improve the future of the Network and the use of mobility data in the future.

Acknowledgements: *We are grateful to every individual who shared their time amidst the COVID-19 pandemic to provide honest and insightful perspectives. Their voices, enact the change we need to advance translational readiness in future disasters. This project could not have achieved its goals without the support and guidance from Kate Bruni, Lauren Bateman, Abhi Bhatia, Andrew Shroeder, Nishant Kishore, Caroline Buckee, Satchit Balsari, and Alissa Scharf.*