Innovation Informs Minnesotans about COVID-19 Resources, Risks, and Guidance

State of Minnesota — Minnesota IT Services

CATEGORY:
State CIO Office Special Recognition

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INITIATION DATE:
March 2020

END DATE:
January 2021

MINNESOTA IT SERVICES

Information Technology for Minnesota Government

Executive Summary

In 2020, Minnesota faced an unprecedented public health emergency that created economic uncertainty and restraints on physical movements and business operations intended to curb the spread of COVID-19. On March 13, Governor Tim Walz issued Executive Order (EO) 20-01, declaring a peacetime emergency, and EO 20-20, directing Minnesotans to Stay at Home, creating an immediate need to transition to remote work to keep state employees safe and able to continue providing the critical services that Minnesotans rely on. Everyone learned how to work and live in new ways.

This nomination covers the state's campaign to keep Minnesotans informed with current facts, data, guidance, and resources. Collaborators from the Minnesota Department of Health (MDH), the Governor's Office, nearly every executive branch agency, and Minnesota IT Services (MNIT) engaged myriad private sector vendors, including IBM, PathCheck, Apple, Google, Nighthawk, CCF, and many others. The campaign included the [Stay Safe MN](#) website, the [COVID-19 Response](#) website, integrated AI (artificial intelligence) chatbots, the COVIDaware MN system, an exposure notification system for iPhones and Android phones, and [COVIDaware MN.com](#). To date, **over 1.3M Minnesotans have "opted-in"** to the COVIDaware MN system. The campaign also included testing and vaccine locator maps, and vaccine registrations.

Minnesota IT Services worked around the clock throughout the year to provide Minnesotans with access to critical services and to activate teleworking capabilities for state employees. We witnessed, first-hand, the role that innovative technology and solutions play in supporting Minnesotans, and the need for digital government services and data-driven decisions will only grow in the years to come.

Idea

What problem did this address, and why does it matter?

During the pandemic, the safety of Minnesota citizens depended on sharing critical health information. The state launched a wide-reaching campaign that has spanned the course of the pandemic, including:

- On April 6, 2020, Minnesota launched the **[COVID-19 Response](#) website** to provide keep Minnesotans informed. This website was updated frequently as the course of the pandemic evolved.
- On June 9, 2020, the state launched **[Stay Safe MN](#)** to serve as a one-stop-shop for all of the guidance created by state agencies to help businesses, organizations, and individuals stay safe while returning to work and the activities we enjoy.
- Both websites featured integrated **AI (artificial intelligence) chatbots**. The chatbot was trained to answer commonly asked questions which helped lessen overwhelming call center traffic. By monitoring chatbot interactions, we could quickly pivot and develop responses to unanticipated pressing questions.
- For state employees who were now working remotely, the Minnesota Department of Administration developed a **COVID-19 Employee Health Screening and Attendance System** quickly after the Stay Home order was announced. A phone-based system integrated data with two online Office 365 form-based systems and fed a Microsoft Power BI controlled-access dashboard.
- Teams developed locator applications for [testing](#) and [vaccine](#) locations that integrated geospatial data.

- On November 24, 2020, the state of Minnesota launched **COVIDaware MN**, **an exposure notification app and the companion site [COVIDaware MN.com](#)**, with information for individuals and businesses.
- In January 2021, Minnesota announced an expansion to the COVIDaware MN system with a settings-based **exposure notifications option for iPhones and Android phones**.

To date, **over 1.3M Minnesotans have "opted-in"** to the COVIDaware MN system.

The COVIDaware MN system was developed to securely and anonymously notify citizens that they may have come in contact with someone carrying the COVID-19 virus. With this critical information, they could take action to get tested, quarantine, and protect other Minnesotans. The app was made available by the state of Minnesota with the nonprofit PathCheck Foundation, and it uses COVID-19 exposure notification technology developed by Apple and Google. The technology is built with privacy protection that ensures no personally identifiable information ever leaves a user's device.

What makes it different?

Minnesota IT Services (MNIT) didn't wait for full buy-in from expected stakeholders. MNIT Commissioner Tarek Tomes formed teams and started development without knowing how the projects would unfold. When the need for an exposure notification app became clearer, MNIT had already worked with the PathCheck Foundation, Google, and Apple to have the COVIDaware MN system ready for deployment. Nobody on the COVIDaware MN system project team had ever worked on a "similar initiative". Because of the pandemic, a core multi-agency team had to quickly envision, research, build, test, promote, and deploy new Apple and Google mobile applications. They learned as they went and sought out help and expertise as new challenges arose.

To reach the maximum number of phone users as quickly as possible, the COVIDaware MN system leveraged the best possible deployment options allowed by the iOS and Android phone operating systems. This let users choose between using a downloadable app or built-in operating system capabilities. This approach enabled fast initial delivery and wide distribution while continuously protecting user privacy.

[Stay Safe MN](#) compiles over 1,100 pages, links, and documents in an easy to understand format. They are mobile responsive, feature chatbots and a robust search, and are designed to answer the questions of Minnesotans, rather than provide information categorized by state agency. The chatbot enables 1,900 conversations a month and the website around 5 million visits a day in the first three months of launch.

What makes it universal?

Many states created systems like COVIDaware MN. In keeping with our mission, Minnesota went further to help inform and guide Minnesotans with additional innovative communication methods. NASCIO CIO priorities align with [MNIT's Strategic Plan](#) to promote people-centered digital government services, and prioritize the security of our state.

Implementation

Roadmap

MNIT pulled together interdisciplinary teams of experienced staff members who weren't afraid to ask questions and learn new things. Nobody had ever worked on a mobile app during a pandemic so there was little time for bruised egos or business as usual. The team challenged each other in the areas of application development, project management, privacy, legal precedence, marketing, communication, health policy, records management, epidemiology, and security. We engaged experienced staff from other agencies, and from the private sector. Every project was designed to answer the questions and needs of Minnesotans, rather than categorizing the information by state agency. The research into developing Stay Safe MN included:

- 7,644 survey responses from Minnesotans about social distancing norms.
- 13 interviews with members of a statewide reopening advisory panel.
- 400 ideas brainstormed; 3 ideas built into prototypes; 2 prototypes tested with 28 Minnesotans.

Assessment and successful implementation

To preserve the privacy of Minnesota citizens, the COVIDaware MN system was designed from the ground up to not share any information about users, meaning that our usage telemetry comes from entirely anonymous activation metrics. With that model, we strove for a 15% app usage rate emphasized by an Oxford University study of how exposure notification apps could reduce the spread. Because of very strong support and promotions from Governor Walz, other administration officials, and external partners, the COVIDaware MN system has been **deployed to over 1.3 million phones**, exceeding our minimum goal by over 504,000 users.

Who was involved?

- The PathCheck Foundation was a critical partner in developing the COVIDaware MN system. Our work together helped to make the COVIDaware MN app easy to use and incredibly engaging. It was a true partnership. Their willingness to stretch and include our design and language suggestions to enhance user experience and adoption helped our success.
- Google and Apple developed the Bluetooth low energy technology behind Minnesota's COVIDaware MN app. These incredible partners provided marketing assistance and talking points while we developed the COVIDaware MN website and social media materials.
- CCF, a marketing firm, worked with the Governor's Office to raise COVID-19 awareness. We were able to integrate our COVIDaware MN marketing efforts into their broader campaign.
- Nighthawk Marketing (vendor) also helped to develop the COVIDaware MN and Stay Safe MN websites.
- Agency staff: We worked with communications leadership from the Minnesota Department of Health to ensure the language we used in the app was accurate/consistent, and on message. MNIT Communications Director and web team worked with agency communications teams to organize information from several state agencies, including information about education, human services, the economy, and health guidance.
- Partners in messaging: local colleges, universities, community organizations, and local governments shared our COVIDaware MN and COVID-19 messaging and graphics.

Approval, buy-in, awareness and adoption

For COVIDaware MN, MNIT leadership met with leadership at the Governor's Office and MDH multiple times to talk through the technology, work through messaging plans, finalize key stakeholders for outreach, and update them on progress. MNIT's Communications Director and Deputy Commissioner set up half-hour meetings with individual stakeholder groups (Minnesota colleges and universities, local government organizations, local business associations, the large event and sports organizations, for example) to socialize the app, request their help with promoting the tool, and provide them with resources to help spread the word.

Key pieces of communications/marketing plans

- Developed marketing website for COVIDaware MN, which featured FAQ, social media graphics, messaging kits for partners to share and download, and general materials explaining the way the app worked.
- Developed 30 second ad/video for YouTube.
- Worked with MDH to utilize ad grants on Google (online and through the Google Play store).
- Held a press conference with the Governor's Office and state leadership prior to the Thanksgiving holiday, coordinated marketing partners and digital campaigns through CCF post-conference.
- A pre-press conference media availability gave media the chance to ask detailed questions.
- Expanded the app and launched COVIDaware MN exposure notifications through iPhone systems settings.

Resources (financial, human, time)

- The financial resources needed were fairly minimal. Most of the cost was MNIT staff salaries/time.
- Developed COVIDaware MN.com with the help of Nighthawk Marketing, who assisted the MNIT web team on contract with developing and managing three websites during the COVID-19 pandemic.
- Resources included:
  - A web design lead.
  - A marketing lead.
  - An app developer.
  - Technologists at MDH who could ensure this technology worked with the contact tracing workflows.
  - Communications planning and execution leads.
  - Buy-in from leadership at the Governor's Office/MDH.
  - IT assistance (the ability to hold meetings with stakeholders remotely) – needed to socialize the app and the concept with Minnesota organizations to assess whether they could help to promote the app to their unique networks.
  - Web and communication teams to manage content and monitor/analyze data.

Technical architecture of the COVIDaware MN system

MNIT worked with the Pathcheck Foundation, Apple, and Google to build a COVID-19 exposure notification system. COVIDaware MN leverages Android and iOS operating system capabilities that allow Bluetooth Low Energy signals to detect the time and duration of interactions with other COVIDaware MN-enabled phones. If someone tests positive for COVID-19, the lab that performed the test reports it to the Minnesota Department of Health. MDH provides app users with a unique, anonymous verification code that is entered into the COVIDaware MN system on their phone. The verification code allows the phone to share fully anonymized "keys" that show

what other phones the positive test user has interacted with. Anyone with the same key receives a notification that they have come in close contact with someone who tested positive for COVID-19. When people are notified of an exposure, they can act to protect themselves and our Minnesota community. The overall architecture was intentionally designed to use open-source development methods so that other organizations could freely use the code to build other exposure notification solutions. MNIT and PathCheck involved accessibility testing experts and people with disabilities early in the process. This helped ensure that people with disabilities – a key vulnerable population – could use the COVIDaware MN system.

Impact

What did the project make better?

With wide deployment of the COVIDaware MN system to iOS and Android phones, **1.3M Minnesotans opted-in** to the system and ove**r 20,000 received exposure notifications.** We project that each notification prevented the recipient from spreading the virus to 4-6 other people, thereby diminishing cases by 80,000 to 120,000 people. We estimate that **COVIDaware MN helped over 100,000** citizens protect themselves and their communities. Using these figures and the approximately 1.2% fatality rate for the COVID-19 virus, it's possible that a thousand lives may have been saved by MNIT's deployment of the COVIDaware MN system.

Before deploying the COVIDaware MN system, MDH could only assist in COVID-19 contact tracing through interviews. Back-end integration between the Minnesota Department of Health and the Association of Public Health Laboratories enabled near real-time test result notifications via SMS text messaging. The resulting texts can be clicked to directly enter a verification code, thereby reducing app usage "friction" for non-technical users. Independent testing by MNIT and the PathCheck foundation verified that no personal information was exposed.

To reach more Minnesota communities the COVIDaware MN system and our websites were developed to support English, Spanish, Somali, and Hmong languages at its release.

Research made a difference: MNIT researched the level of citizen participation required for the COVIDaware MN system to have a measured impact on slowing the spread of COVID-19. Oxford University research indicated that a 15% participation rate was required. MNIT worked with the Minnesota Department of Health and the Governor's Office to develop and promote the app to meet this target. With this team effort, the **COVIDaware MN system has been deployed to over 1.3 million phones**, representing **24%** of Minnesotans—far exceeding the Oxford study's minimum recommendation.

Stay Safe MN was built for all Minnesotans with a human-centered approach. MNIT and the Minnesota Department of Employment and Economic Development (DEED) partnered with human-centered design vendors to survey and interview Minnesotans. We researched how Minnesotans and businesses might respond and interact with new social distancing and health mitigation norms and requirements, and created and tested prototypes to message MDH/state guidance around masks and social distancing:

- 7,644 survey responses from Minnesotans about social distancing norms.
- 13 interviews with members of a statewide reopening advisory panel.
- 400 ideas brainstormed.
- 3 ideas built into prototypes.

- 2 prototypes tested to get feedback from 28 Minnesotans.

The chatbots for these sites were the first AI bots used on a state of Minnesota website. We could respond to citizens in real-time with information that was important to them, and make adjustments for trending questions.

Analytics

- Stay Safe MN website. June 2020 launch to Jan. 30, 2021: 1,496,463 Page views, 674,447 visits
- COVID-19 Response website: 29,901,915 page views, 14,122,154 visits
- COVID-19 page on the Governor's site: 1,319,432 page views, 1,052,219 visits

Benefits for MNIT and constituents

Cost savings/avoidance: MNIT worked with the non-profit PathCheck Foundation, Apple, and Google to build the COVIDaware MN system. The generous donations from PathCheck's supporters paid for the software development. Apple and Google did not charge for developing the exposure notification elements of the iOS and Android operating systems. MNIT did not hire additional staff to manage the COVIDaware MN project. There can be no exact cost savings/avoidance associated with the COVIDaware MN system. The goal was to promote sharing critical health information that could save lives during the COVID-19 pandemic. If a single life was saved because the COVIDaware MN system provided early warning to someone exposed to COVID-19, the project paid for itself.

ROI: There is a real statistical possibility that the project prevented up to 100,000 exposures and saved 1,000 lives in Minnesota. There can be no measured return on this investment in the future lives of our citizens.

Usage: At this time, the COVIDaware MN system has been:

- Used by 1,342,702 Minnesotans, equal to 24% of the population.
- Instrumental in notifying up to 20,000 MN citizens that someone near them tested positive for COVID-19 and that they should take appropriate steps to protect themselves, their families, and their community.

Customer feedback and experience:

- In the Apple Store, the COVIDaware MN app is rated 4.8/5 stars with over 400 reviews.
- In the Google Play Store, the COVIDaware MN app is rated 3.6/5 stars with over 550 reviews.
- Media coverage:
  - [COVIDaware MN News](#)
  - [Over 1 million Minnesotans opt-in to exposure notification system, COVIDaware MN](#) KSTP TV 2/2/21

What now?

MNIT expects the COVIDaware MN system to remain in use until vaccination targets are achieved. At the current rate, it seems likely that the COVIDaware MN system will be active beyond fall 2021.

COVIDaware MN is a tool that very well could have saved many lives during the COVID-19 pandemic in Minnesota. MNIT pulled together a broad team that touched all state government to share information, proactively notify Minnesotans, and reduce the spread of the virus. In short, our response to the pandemic was exactly what people should expect from an effective Minnesota Information Technology service.