



# Customer case study: How to share medical data for research safely

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Statice enabled M-sense to share privacy-preserving health data for research. As a result, 170,520 data points in a 10-dimensional space, consisting of migraine symptoms over time, were anonymized by Statice using a generative model. The machine learning model automatically learns the hidden dependencies and finds the relevant properties, thereby generates anonymous data with a high utility. This project was funded by the EU Horizon 2020 framework program.

## Migraine research made possible

Healthcare data is crucial for researchers to understand the patterns and causes of disease. As services are increasingly digitizing, healthcare applications could be the new ideal data source for medical research.

The healthcare industry is booming, with digital technologies and AI solutions enabling the industry to expand more than ever before. The data collected in hospitals or clinical studies is not sufficient for medical examination as it only shows partial aspects of the clinical picture. Moreover, new data protection laws such as the GDPR and the DVG create roadblocks for the use of data – a key ingredient for the advancement of the healthcare sector. Solving both problems at once, Statice enabled the mobile healthcare provider M-sense to successfully anonymize their user data for medical research purposes.

## The challenges of sharing medical user data for research purposes

Data protection regulations such as the GDPR demand that companies preserve the privacy rights of individuals and their data from misuse, which makes it difficult for healthcare providers to store and share their user data in its original form. Healthcare data, in particular, is extremely sensitive and must be treated with caution, to prevent harm to any individuals through disclosure of their personal data. Sensitive healthcare data is spread beyond hospitals and clinics. In addition, many health applications gather data from thousands of users. Such is the case for the migraine and headache application M-sense, where users document their disease progression and symptoms on a regular basis.

*“Statice’s data privacy solution enables us to work together with our clinical partners to advance fundamental research on the causes of migraine and headaches while completely protecting the data of our users.”*

- Simon Scholler, Head of Research at M-sense

Healthcare data is highly sensitive data - and certified medical apps such as M-sense attach extreme importance to the greatest possible protection of this data. In order to make this valuable data available for research purposes, data anonymization is an obvious solution.

The problem is that traditional methods of data anonymization are either not secure or the original data is altered to such a degree that it becomes useless. This means that traditional methods of data anonymization either compromise the safety or usability of the data.

## **Enabling privacy-preserving data sharing with synthetic data**

Statice anonymized M-sense's user data by generating privacy-preserving synthetic data – new artificial data that can be used and released without ever compromising the personal privacy of any individual. Using machine learning, a new dataset was generated which contained the same statistical and structural values as the original data. This way, Statice enabled M-sense to share their user data for research purposes, without using any personal information of the app users.

By generating synthetic data, Statice enabled M-sense to contribute to migraine research by sharing their healthcare data with clinics and researchers, while fully preserving the privacy of the individual users. Statice and M-sense are together proving that sensitive data can be anonymized and used without any significant loss of quality or statistical significance.

## **Anonymous data can transform healthcare R&D**

How healthcare providers benefit from anonymous data:

- Highly valuable data in the business' data exhaust which cannot be properly explored due to privacy concerns
- Inability to scale a data processing and analysis pipeline on cloud infrastructure due to sensitive data exposure
- High costs and major delays in innovation projects due long lead times for data to be shared and processed

## About Statice

The Statice solution offers guaranteed data privacy across industries and use cases. We offer a data anonymization software that allows companies quick and easy use of sensitive data. Synthetic data generated by Statice fulfills a guarantee can be regarded as anonymized data and therefore excluded from the GDPR. Statice won the global audience prize in the Pistoia Alliance 2019 President's Startup Challenge for innovating and transforming the life science R&D. To learn more about our product, visit our website [www.statice.ai](http://www.statice.ai)

## About M-sense

The headache and migraine app M-sense investigates the effects of lifestyle and environmental factors on migraine and headache attacks by recording potential triggers. The app records the weather data automatically. Other relevant trigger factors, such as sleep patterns, activity levels and stress phases rely on manual input by the user. M-sense analyses this input and establishes a plan towards personalized care which has proven to reduce the frequency and intensity of the user's attacks. To this end, M-sense Active offers clinically validated therapy methods. Users profit from the mobility that a digital therapeutic offers: M-sense enables patients to proactively combat their headaches by giving them access to effective therapy methods, everywhere and at any time. Right now, M-sense is available in Germany, Austria and Switzerland for Android and iOS. The app has won the Eugen Munch Prize for Network Medicine, as well as partnerships with Barmer GEK and Deutsche Telekom AG. M-sense has been Apple's favourite app several times and its user approval rates are high. A clinical trial in cooperation with Charité Berlin, AOK, and other partners is currently in the process of proving the effectiveness of M-sense Active.

### **Please get in touch to learn more:**

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