



NORRTÄLJE
KOMMUN

Client case: Applying AI in the social services sector to improve quality and results

Creating more comprehensive, safe and accurate assessments of social service cases in Norrtälje Municipality

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The Swedish municipality, **Norrtälje Kommun**, covers a third of Stockholm County, with more than 62,000 citizens. The operations of the municipality are conducted in five different offices, one of those belonging to social services. The social services are organized into four departments where one administrates and investigates concerns of various child and youth mistreatments.

This department has about 70 employees, seven of which, perform the initial assessment of each case. Each notification about suspected mistreatment is divided into the following steps: pre-assessment, investigation, and intervention. Over the last six years, the number of case notifications has increased significantly, and Norrtälje expects this tendency to continue.

The challenge

The notifications of potential cases for child mistreatments are received through letters, phone calls, or faxed in from the police, childcare facilities, schools, or health care services. The volume of case notifications has increased by 66% since 2014, and with the current forming system in place, the reporting results received are already queued up at first contact with the department.

The cases are handled manually, and it takes the individual social assistant a good deal of time to properly assess each case. The queue follows throughout the entire process. For some children, timing is critical, and this long process could prevent the right actions to be taken at the right time to help their situation. Furthermore, the timely process can increase costs for the public sector due to case intervention at a later stage when a situation could have become more severe, and require more resources.

To handle the increase and variation of cases, Norrtälje wants to digitalize, automate, and streamline the process of pre-assessing the cases. To do this, Norrtälje is executing a program introducing five e-services, where one of the four projects is focused on developing and implementing an AI model to support decision making in the pre-assessment stage to become more productive, without sacrificing the quality and accuracy of each assessment.

"We asked ourselves: How do we get our department to work differently? We have many children waiting for the investigation of their case, so applying AI to build a system that supports our employees might improve the way we handle social service cases."

Pia Molander Wistam,
Head of the Department of Children and Youth,
Norrtälje Municipality.



Norrtälje Municipality & 2021.AI worked together to:

- Identify the potential improvement of social service cases, using AI
- Highlight the potential and make suggestions for improvement of the data
- Build a beta AI model to predict similar cases to newly filed cases in reports of child mistreatments
- Plan the implementation and explain the function of the solution to the social assistants

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The solution

To solve the challenge, a Natural Language Processing (NLP) topic model was trained on historical data from previous social service cases to find similar cases and match them with newly filed ones. The model was trained to support the social assistants in processing cases, as if they will have 1000 virtual colleagues to consult with, instead of the six people they usually have access to. By multiplying existing knowledge from the cases, the AI model mimics how cases are handled and augment the work that would usually be done by the social assistant.

"In areas where we see certain types of cases and reports being extraordinarily similar, we can manage our resources and meet those who need our help the most, significantly earlier. Thus, spending time on the most value-creating areas of the social service department".

Bawar Akrawi, CIO,
Norrtälje Municipality.



The final model was trained on hundreds of cases, with each having multiple filings. The model compares the words and word combinations in the written texts, then measures the distance between the text contents, and finally, measures the difference between the new and previous cases to predict which five historical cases are most similar to the newly filed one.

The AI model does not have access to personal data but makes its predictions based on a combination of reporting factors such as domestic violence, substance abuse problems or the like, but can never be diverted to individuals.

The result

With the application of AI, each social service case is assessed in a more comprehensive, safe, and accurate way. The overall result of the program is expected to increase the quality of information and decision-making data, which can lead to increased legal accuracy while reducing the waiting time in each case. With AI, efficiency gains are up to 50 minutes per case, which equals a total of up to 1,5 years of service from a full-time employee, worth SEK 1.2 million annually.

Without using AI, each case can take up to several days to process, but with the AI model, the assessment can be reduced to a few hours, without sacrificing the quality of the evaluation. The judgments made by the social assistant become more legally secure, as cases are made equal to one another.

By utilizing collected data from previous cases into all assessments, and submitting proposals for decisions much faster, administrative tasks that follow the social service case can be significantly reduced. Thereby, freeing up time for social assistants to work more with preventative tasks and customer-oriented work despite the increasing number of case notifications.

"With this AI model in production, we will reduce the administration for social assistants who will instead be able to work with what they are trained to, namely meeting people."

Pia Molander Wistam,
Head of the Department of Children and Youth,
Norrtälje Municipality.



About the project:

The project is run in collaboration with Vinnova, Valcon Consulting, AKQA and Norrtälje Municipality. 2021.AI covered the AI track, including use case development and modeling.

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The development started with an e-service, launched in November 2019. At the beginning of 2020, the first AI-supported pre-assessments will take place, marking the first step for Norrtälje in working proactively with the help of technology.

Additional source: <https://www.voister.se/artikel/2019/11/ai-for-norrtaljes-orosanmalan/>

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About 2021.AI

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