DELA model

An technology that predicts how many people decease in a DELA region.

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Impact on society

What impact is expected from your technology?

What is exactly the problem? Is it really a problem? Are you sure?

During the COVID-19 crisis, and especially in the first and second wave, DELA struggled with its capacity to arrange funerals. Therefore, a model was developed aimed at predicting upcoming death counts per region/funeral centre. Some groundwork was laid and a basic model was developed. However, the current model lacks some significant
features. At this stage, the model is purely 1-diminsional, with its only feature being historic deaths in the past 30 days. It would be interesting to add other dimensions from other data sources (e.g. hospital admittances or other publicly available data sources), to improve the quality of predictions.

Are you sure that this technology is solving the RIGHT problem?

The ultimate goal of this project would be to support our funeral care workers to be able to handle this crisis in an efficient and proper matter. In addition, this project can also serve to advise DELA on future use of (related) prediction models or other AI-techniques

How is this technology going to solve the problem?

This technology helps DELA with predicting how many employees are needed during a week. People will have a bad funeral if not enough employees are available. Another problem is the capacity, but that is not within the scope of this project.

What negative effects do you expect from this technology?

A negative outcome could be that the technology says that less people are needed during a week and that people will get fired because there is not enough work.

In what way is this technology contributing to a world you want to live in?

This model helps predicting the total number of deaths. If the deathnumber is high in a certain week, extra employees are needed to give people a good farewell with their loved ones.

Now that you have thought hard about the impact of this technology on society (by filling out the questions above), what improvements would you like to make to the technology? List them below.

Additional datasets can improve the model.

Hateful and criminal actors

What can bad actors do with your technology?

In which way can the technology be used to break the law or avoid the consequences of breaking the law?

The AI tries to predict how many people will die of Corona and takes the old DELA data in consideration. We don't foresee any usage that can be unlawful.

Can fakers, thieves or scammers abuse the technology?

It's not possible to hurt, bully or harass individuals while there is no personal data involved.

Can the technology be used against certain (ethnic) groups or (social) classes?

We do not use any data that contains information from ethnic groups or social classes.

In which way can bad actors use this technology to pit certain groups against each other? These groups can be, but are not constrained to, ethnic, social, political or religious groups.

We do not use any data that contains information from ethnic groups or social classes.

How could bad actors use this technology to subvert or attack the truth?

We don't foresee a possibility to use this technology to subvert or attack the truth.

Now that you have thought hard about how bad actors can impact this technology, what improvements would you like to make? List them below.

There are no improvements neccesary for this moment.

Privacy

Are you considering the privacy & personal data of the users of your technology?

Does the technology register personal data? If yes, what personal data?

The DELA data doesn't use any personal data, it uses regional data. So x amount of people in that region has passed away. No names or contact information will be used in the data .

The other dataset, from the RIVM is already anonomised. There is only general information available.

Do you think the technology invades the privacy of the stakeholders? If yes, in what way?

We don't think that the technology will invade someone's privacy. All the datasets are anonomised and contain only general information.

Is the technology is compliant with prevailing privacy and data protection law? Can you indicate why?

The technology is compliant with prevailing privacy and data protection law while there is only general information available

Does the technology mitigate privacy and data protection risks/ concerns (privacy by design)? Please indicate how.

Only the minimum needed data is collected. The only risk is when the data is received from the crematories. The crematories need to make sure that data is correct.

In which way can you imagine a future impact of the collection of personal data?

No personal data is used.

Now that you have thought hard about privacy and data protection, what improvements would you like to make? List them below.

The improvement that can be made is that crematories get a training to make sure that anonimised data will be delivered.

Human values

How does the technology affect your human values?

How is the identity of the (intended) users affected by the technology?

The AI uses generic dta, so it doesn't stigmatize anyone. The AI does imply that everyyone want to be cremated.

How does the technology influence the users' autonomy?

The model does not make a choice for people. The users are affected because they know how many people will die.

What is the effect of the technology on the health and/or well-being of users?

It can be a pity if an user see that many people will die next week, but employees from DELA work already with deceased people so we think this won't be a problem.

Now that you have thought hard about the impact of your technology on human values, what improvements would you like to make to the technology? List them below.

We will think of a way to avoid bad health for users from the technology.

Stakeholders

Have you considered all stakeholders?

Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by answering these questions.

Name of the stakeholder
RIVM

How is this stakeholder affected?
The RIVM provides the algorithm with Data.

Did you consult the stakeholder?
No

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
DELA

How is this stakeholder affected?
This is our main stakeholder. DELA is owner of the main dataset and they are the client.

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Other Crematoria

How is this stakeholder affected?
Other cremetario can benefit from the model. DELA can sell the model to them.

Did you consult the stakeholder?
No

Are you going to take this stakeholder into account?
No

Did you consider all stakeholders, even the ones that might not be a user or target group, but still might be of interest?

Name of the stakeholder
Employees of DELA

How is this stakeholder affected?
It can be that less or more employees are needed according to the model.

Did you consult the stakeholder?
No

Are you going to take this stakeholder into account?
Yes

Now that you have thought hard about all stakeholders, what improvements would you like to make? List them below.

Not all stakeholders are consulted. Consultation with stakeholders is needed for a good outcome of the project.

Data
Is data in your technology properly used?

Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into account in the technology?
The RIVM dataset has three different ways of counting corona people. There is a column that says what method was used. It was difficult to test in the beginning so there is a big chance that more people tested positive on corona. But it is impossible to say if this is really the case.

How does the technology organize continuous improvement when it comes to the use of data?
The RIVM dataset has three different ways of counting corona people. There is a column that says what method was used.

How will the technology keep the insights that it identifies with data sustainable over time?
There is no personal data involved, so there isn´t a big risk for the future. The data will be available in the future, but the model itself will need new data to be up to date. The RIVM data is a Dutch institute so they will not be sold and they shall always share data with the public if it doesn´t contain public data.

In what way do you consider the fact that data is collected from the users?
The data is not for sale and is publicly available. There is no personal data collected so it is impossible to say if somebody data is used and how many times this would be.

Now that you have thought hard about the impact of data on this technology, what improvements would you like to make? List them below.
There is a small risk that the RIVM will stop with sharing data sets. Consultation is needed to reduce this risk.

Inclusivity

Is your technology fair for everyone?

Will everyone have access to the technology?

Not everybody will have access to this technology. DELA is our main client and they will have the data. However, DELA can sell this technology to other crematories or funeral caretakers.

Does this technology have a built-in bias?

Yes, there is a built in bias. Larger regions have more data so the AI can predict more accurate in these regions than in regions that have less people.

Does this technology make automatic decisions and how do you account for them?

This technology predicts automatically how many people will decease. The decision can be explained. The model uses old data to predict what the new data will be.

Is everyone benefitting from the technology or only a a small group? Do you see this as a problem? Why/why not?

A small group will benefit, this DELA. However, DELA can sell this data and other companies can do the same with their own data. So, DELA won't have a competitive adventage.

Does the team that creates the technology represent the diversity of our society?

The team that creates the technology does not represent the diversity of the society. There is one business student and there are four softwarestudents. But, it is not needed to have diversity to build a correct model.

Now that you have thought hard about the inclusivity of the technology, what improvements would you like to make? List them below.

What can be added is an explanation why decisions are made.

Transparency

Are you transparent about how your technology works?

Is it explained to the users/stakeholders how the technology works and how the business model works?

There will be an explanation with the technology that explains how the technology works and why it´s important. It´s an intern technology, so it´s not necessary to tell what the business model is.

If the technology makes an (algorithmic) decision, is it explained to the users/stakeholders how the decision was reached?

The used model will be explained. For example ARIMA takes dates from the past in consideration. The model decides what data is important and will produce the best model.

Is it possible to file a complaint or ask questions/get answers about this technology?

Employees can ask questions to the developers if they would like to.

Is the technology (company) clear about possible negative consequences or shortcomings of the technology?

While it´s an intern model that is needed for the board of a crematory and for the DELA-board is that not necessary. The developers from the technology will share the possible negative consequences with the DELA-board.

Now that you have thought hard about the transparency of this technology, what improvements would you like to make? List them below.

The shortcomings of the technology should be explained to the DELA-board.

Sustainability

Is your technology environmentally sustainable?

In what way is the direct and indirect energy use of this technology taken into account?

Crematories burn people. Less hours are needed for burning deceased people if the schedule is optimalised.

Do you think alternative materials could have been considered in the technology?

The technology is all digital. The only thing that can be done is using windenergy or solarpanels to have 'green' elektricity.

Do you think the lifespan of the technology is realistic?

The model needs updates constantly. For example, one of the main datasets is COVID-19. However, in the near future COVID-19 isn't a death factor anymore. The model needs to take this into account.

What is the hidden impact of the technology in the whole chain?

The hidden impact can be that less employees are needed and that therefore less people drive by their work. Another hidden impact can be that if DELA is aware of certain periods that people die, they can announce this.

Now that you have thought hard about the sustainability of this technology, what improvements would you like to make? List them below.

Improvents for the sustainability of the technology

- Updating the model with new data

Future
Did you consider future impact?

What could possibly happen with this technology in the future?
AI is very important in the future. It can do things that humans can't do. The DELA model has future. But it's important to update the model with new data because otherwise the model will be outdated.

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one utopian scenario.
In the best scenario is there a perfect working model. We know exactly how many people die every day in each region. DELA is aware of this information and knows exactly how many people are needed for the funeral centers. The employees of DELA are happy, because they know exactly whether they are needed yes or no.

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one dystopian scenario.
In the worst scenario is there a bad working model. The accuracy from the model is worse and a lot of people die more than that was predicted. DELA needs to call extra personnel and that will cost extra money. The worst scenario provides a personnel shortage what effects the clients. Clients cant have a nice farewell with their loved ones. This will hurt the image of DELA badly.

Would you like to live in one of this scenario's? Why? Why not?
The first scenario would be nice and won't hurt anybody. For that reason, it's good to live in the utopian scenario.

What happens if the technology (which you have thought of as ethically well-considered) is bought or taken over by another party?
We haven't considered this. But the technology belongs to DELA and they key dataset is about DELA. The buyer of the data has to be aware of this. There are no ethical reason to avoid sales of the technology.

Impact Improvement: Now that you have thought hard about the future impact of the technology, what improvements would you like to make? List them below.
The model needs updates to avoid mistakes

We need to think about a future sale of the model