

# Digitaal Stelsel Omgevingswet:

## Data conversion tool

### SHORT SUMMARY

On January 1st 2023 new legislation will come into effect in the Netherlands: the Omgevingswet. With this new law, on many occasions data must be shared with the public through a platform called Digitaal Stelsel Omgevingswet (DSO). The dataformat for this platform will often be GML, a filetype most of us rarely use in their daily work.

We developed a tool that converts traffic noise data from a geodatabase to GML, meeting the precise (and sometimes complex) demands of the DSO. The tool can be redeveloped to support other input data types, like shapefiles or Office applications as Excel and Access.

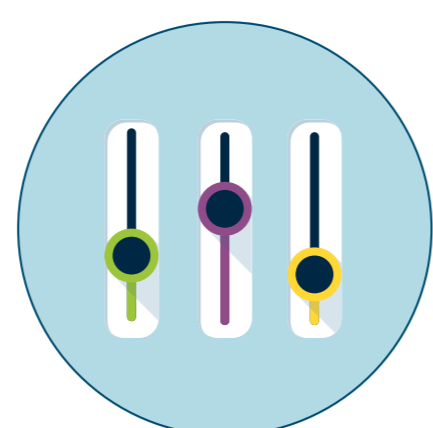
The tool is built in FME (Feature Manipulation Engine).

#### Contact persons:

Andries van der Veen

Simon Bos (functional design)

Deyong Zhou (developer)



### Define format and conventions of your data

Parameter names, file structure, attribute names, column names, data types (texts, numbers, dates), et cetera.

STEP 1



### Create a 'dummy' file

This will be the standard for future projects. The tool in FME fits exactly to the format of this file.

STEP 2



### Develop tool

STEP 3



The tool outputs a GML-file that meets acceptance criteria DSO!

STEP 4



# TransitExplorer:

# Understanding the structure of bus networks

## SHORT SUMMARY

Public transport timetable data is a very useful tool for urban transport diagnostics, even in developing country cities where formal public transport is limited or non-existent and use of low-density, inefficient modes, like motorcycle taxis and minibuses, is common. Our work often includes collecting and analysing of transport timetables.

But understanding the public transport network of a whole city is complicated, and requires extensive GIS experience to process and understand. We started to develop tools which use simple street-routing algorithms to tell us where buses might be likely to travel on a road network.

Most recently, we've been developing an interactive tool 'front-end' that allows us to explore this data in real time. This includes visualising important descriptive statistics, particularly frequency of vehicles and numbers of seats available, which usually feed into major investment decisions.

### Contact persons:

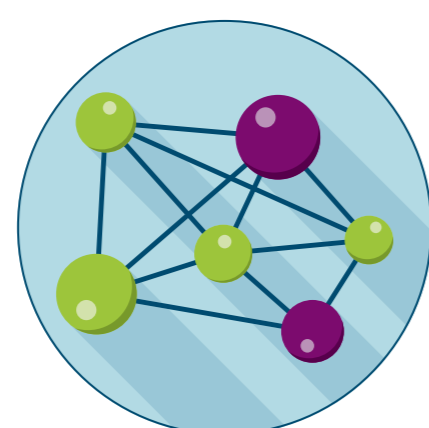
Mark Dimond  
Giles Lipscombe  
Colin Brader



## Collect or obtain public transport route timetables

Availability of transport within the city: geography, route and frequency of vehicles of different types.

# STEP 1



## Load and 'link' bus data to the road network

This allows us to simultaneously understand the bus network and its relationship to the road network in a city.

# STEP 2



## Analyse the structure

Where are buses travelling? Where are they held up by congestion? Where are they causing congestion?

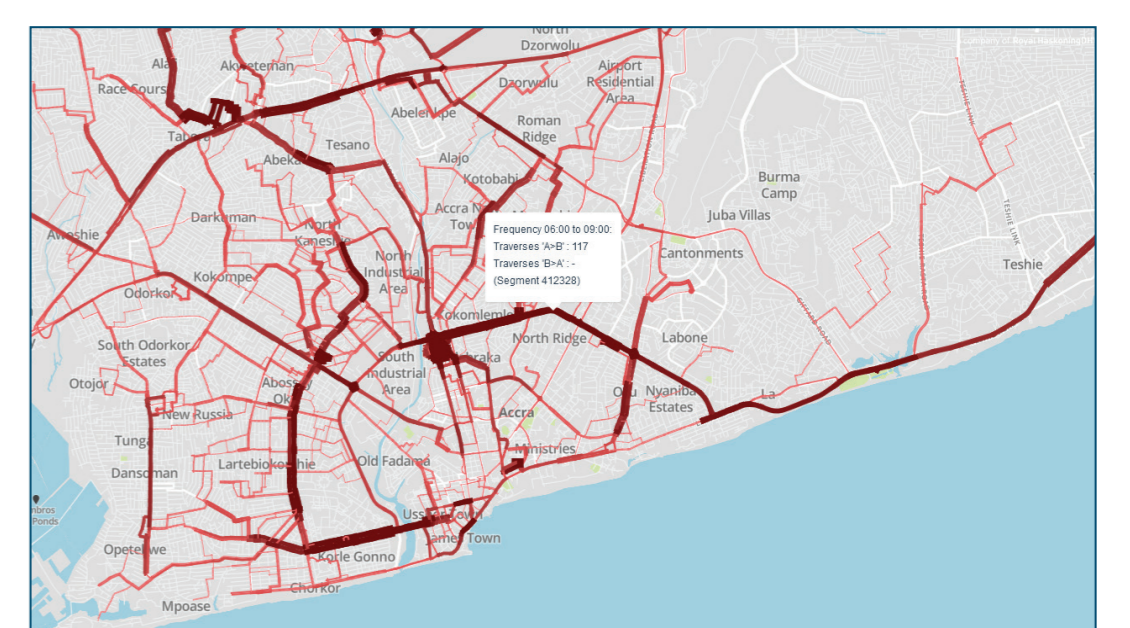
# STEP 3

# NEXT STEPS



## Using interactive tools brings our clients and partners into the analysis process

...ensuring that their local knowledge gets fed into the questions we ask about bus networks.





# Environmental noise modeling and workflow in Arcgis Pro:

# dBgeotools Pro

## SHORT SUMMARY

Due to increasing quality requirements and complexity of acoustic models, the Smart Environment department developed the dBgeotools application. This application is aimed at the uniform arrangement, calculation, processing, analysis and visualization of acoustic models. Since 2011 dBgeotools has grown into a fully-fledged modeling tool and is used by a large proportion of our acoustic modelers. Since its inception in 2011 dBgeotools has been used in over 200 projects.

### Contact persons:

Paul van der Stap (design)

Amoun Mensink (beheerder)

Deyong Zhou (developer)



### Market perspective

dBgeotools is an indispensable tool for which no comparable commercial software is available. dBgeotools enables us to carry out complex projects efficiently and with high quality, making us a leader in the market.

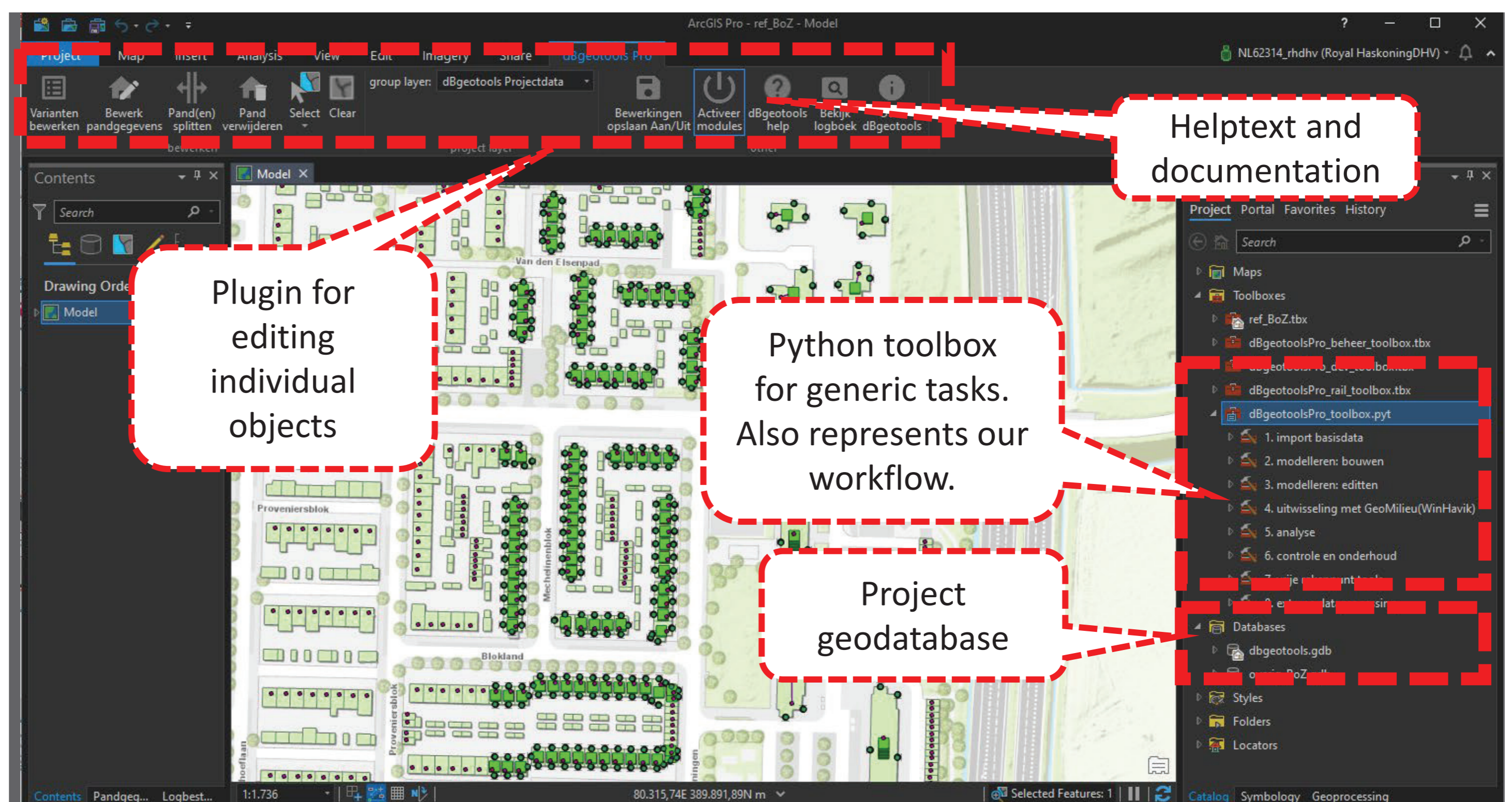
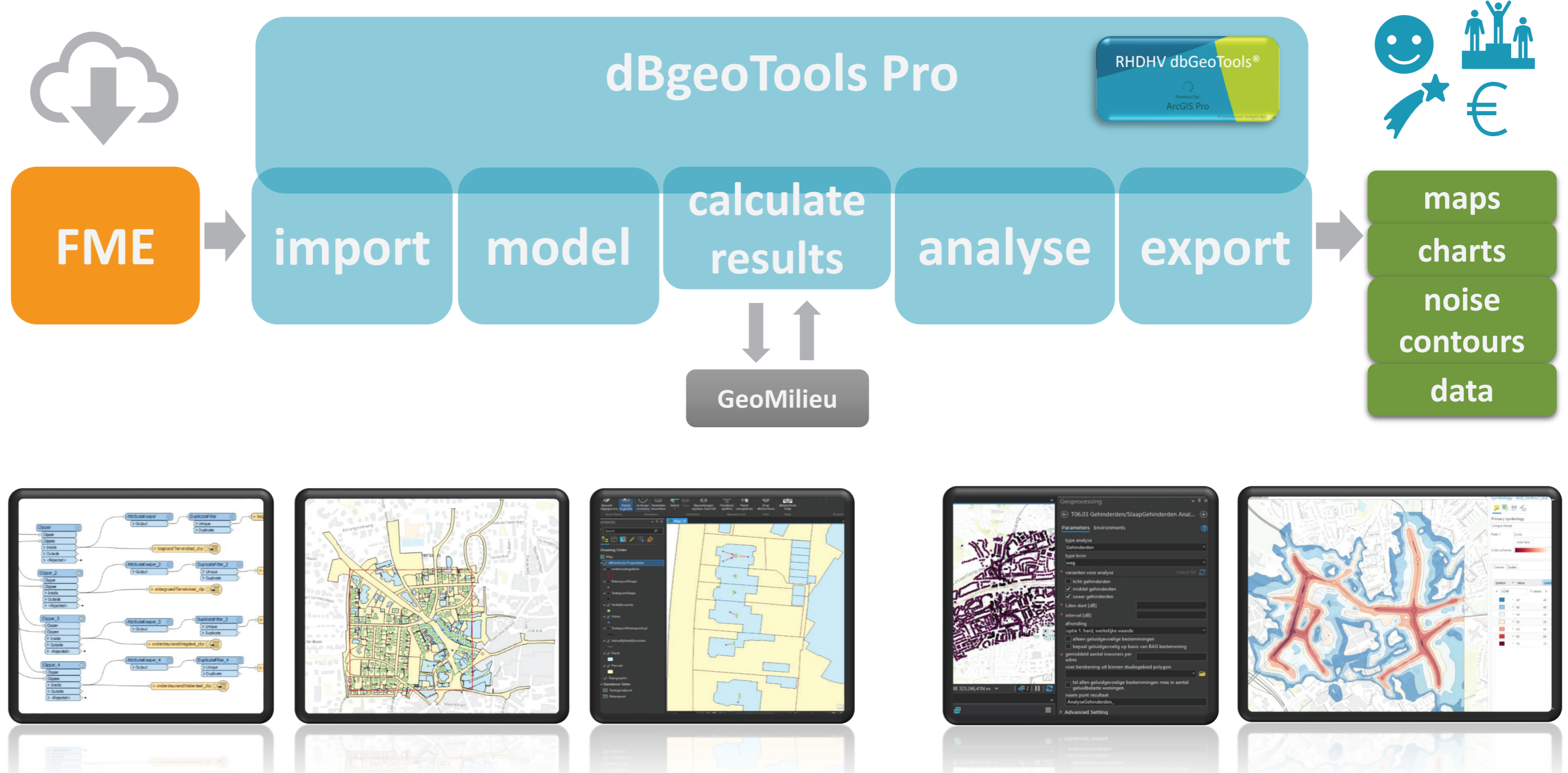
- Clients with projects in which dBgeotools Pro is applied: ProRail, RWS, HBR, provinces and municipalities.
- Type of projects: EIA, (O)TB, PiP, policy studies.



## COLLECT

## PROCESS

## SHARE





# The Tool: Afwijkingsformulier (VTW) (Deviation form)

## SHORT SUMMARY

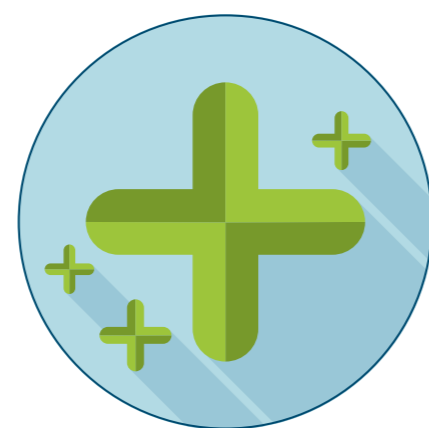
The deviation form (developed in 2007) is intended to record deviations in money (and time) in a project. This will:

- unambiguously recorded - for both us (Contractor) and for Client - what changes have taken place in time and money
- agreement on additional and less work obtained and with adjustment of the planning'

The deviation form can be used if the Client doesn't work with its own deviation forms. In practice, these are mainly clients such as (smaller) municipalities, contractors and real estate developers, etc.

All deviations (can also) be recorded on a collection sheet.

Contact persons:  
Helmer Nijland (developer)



## Improvement

The deviation form should be improved in 2022 with input from similar forms (used by other teams / departments) within RHDHV.

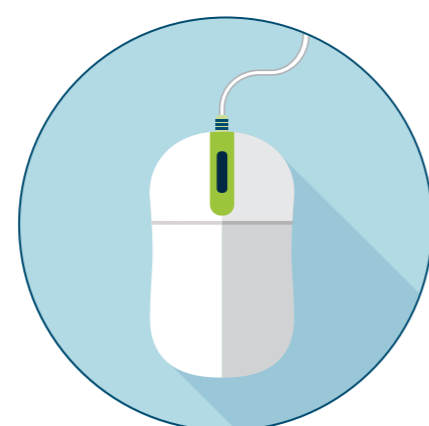
STEP 1



## Automation

The deviation form should be automated, so that it is easier to fill in and the collection sheet is automatically filled.

STEP 2



## Standardization

The deviation form can optionally be added as a standard and linked to the financial system (currently still ABW).

STEP 3

Afwijkingsformulier 'Verzoek tot wijziging' aan opdrachtgever		Royal HaskoningDHV Enhancing Society Together																					
Project : Inrichtingsscenario's en onderzoek Middenweg en Randweg - Quick scan	Opgesteld door: Helmer Nijland	Projectnr. : B17325	Datum : 28 juli 2022																				
OG : Gemeente Goose Meren	Volgnr. : 22-01	Onderdeel : Onderzoek																					
Betreft : OO (ontplofbare oorlogstreken, voorheen NGE)																							
Reden/ omschrijving van werkzaamheden Opdrachtgever ziet geen noodzaak of bevestigde waarde in onderzoek naar OO																							
Nadere toelichting N.v.t.																							
Consequenties voor de (doorlooptijd) planning: ja / nee Zo ja, welke	Financiële consequenties: ja / nee Zo ja, geraamd bedrag: vast/ neg. (minderwerk)	Bijlagen: ja / nee																					
Voorgestelde maatregelen en/of verbeteringen:																							
<table border="1"> <thead> <tr> <th>Raming van kosten:</th> <th>uren</th> <th>functie</th> <th>tarief</th> <th> totaal</th> </tr> </thead> <tbody> <tr> <td></td> <td>2 PM</td> <td></td> <td>€ 115</td> <td>€ -230,00</td> </tr> <tr> <td></td> <td>12 Technisch specialist/ adviseur (Bodem)</td> <td></td> <td>€ 100</td> <td>€ -1.200,00</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>€ -1.430,00</td> </tr> </tbody> </table>				Raming van kosten:	uren	functie	tarief	totaal		2 PM		€ 115	€ -230,00		12 Technisch specialist/ adviseur (Bodem)		€ 100	€ -1.200,00					€ -1.430,00
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				€ -1.430,00																			
Naam/ paraaf Projectmanager DHV Naam : Helmer Nijland Datum : 28-07-2022		Naam/ paraaf opdrachtgever voor akkoord Naam : Jim le Duc (Goose Meren) Datum : *akkoord per mail volstaat ook																					



# The Tool: *Parking memo automation*

## SHORT SUMMARY

For (re)development project in the Netherlands calculations are needed for the number of parking spaces that are necessary and the corresponding traffic generation. With these calculations we check if the development fits in the area and connecting road-network. But also, within the rules and legislation about air quality and noise pollution.

We are developing a tool that automatically generates these memos by filling in a questionnaire. The tool automatically generates the calculations and the report.

The tool is a KES-tool.

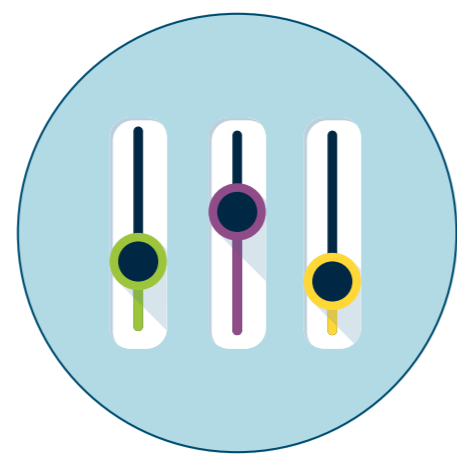
### Contact persons:

Wiandy Balster

Anouk Hick

Anna Cristofoli

Mathijs Schoenmakers

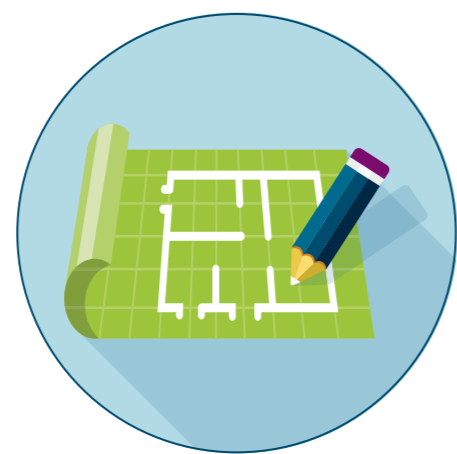


### Define the format of the parking memo

There is no standardization of parking memos. Every consultant has its own way of working. With this automation we develop a standard format for these memos.

**CAPABILITY**

**1**



### Develop 'proof of concept' of the tool

By developing the POC of the tool we knew it would be possible to develop a tool that could automatically generate memos.

**CAPABILITY**

**2**



### Testing and improving the tool

During the testing phase we get new insights and discover improvements.

**CAPABILITY**

**3**



### Optimize the tool and test it with colleagues

After our own testing and improving a small group of colleagues will test the tool to validate and improve it even further.

**CAPABILITY**

**4**

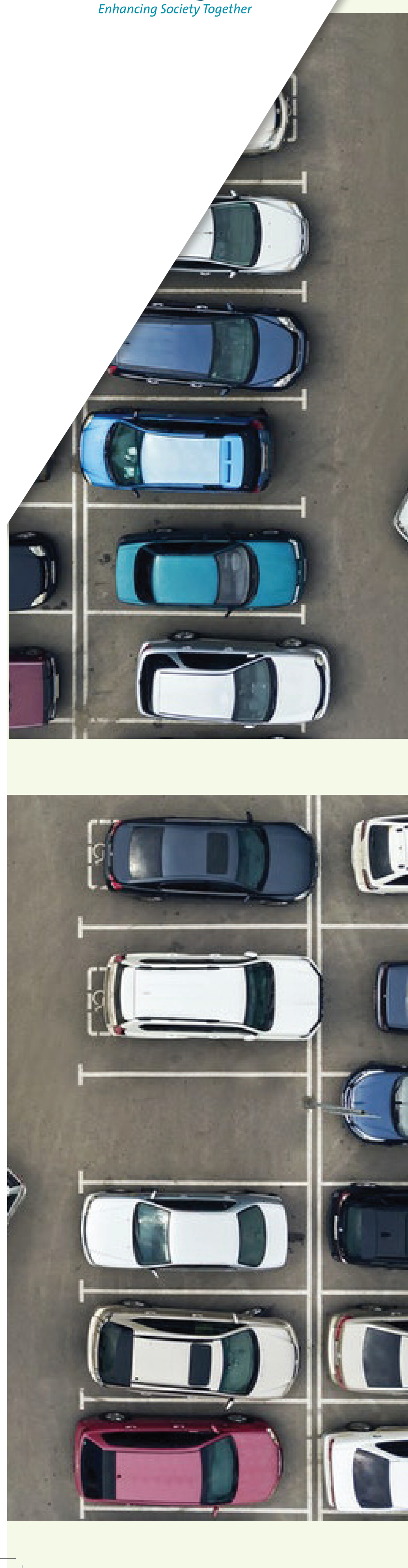


### Further development

Other developments could be linked with the tool, e.g., logistic standards, air-quality calculations, traffic models. These are topics for further development.

**CAPABILITY**

**5**





# Document management:

# Automated processing of stakeholder input

## SHORT SUMMARY

Stakeholder participation is a necessary step to a successful project. Participation comes in different forms. From reviewing reports or designs that are put to public review and making wishes and requirements known, to collectively defining the problem.

All these ways of participation generate large amounts of data in different formats.

All this input needs to be structured, processed and even reacted upon. The structuring and processing of the data costs a lot of time and efforts from our colleagues, but is a necessary step before there could be reacted accordingly.

The idea is to create a tool that can structure, analyze and process large amounts of data in different text formats in preparation of the necessary reactions of the project team.



Safe time



Ensure same quality level



Increase predictability of process duration



Allocate capacity better

### Contact persons:

Trung Nquyen

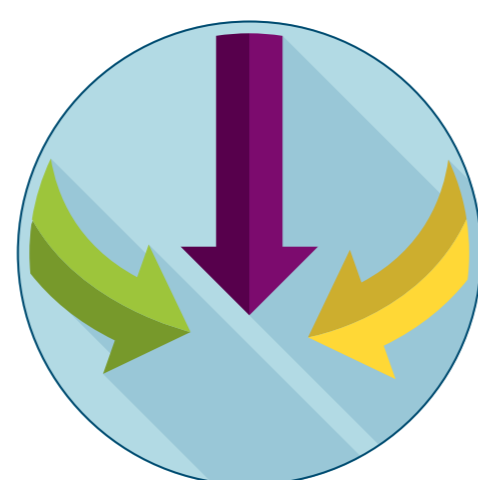
Randy Zeegers

### Domain experts:

Kees van de Kerk

Jos de Lange

Marcel Vrancken



## Acquire stakeholder comments/requirements/issues

The information comes in different formats. It could be in Excels, mails, PDF's or other text files.

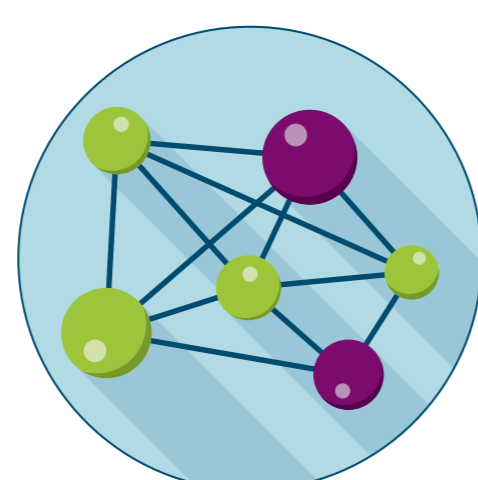
### STEP 1



## Structure information

Extract all relevant information and structure it in one format, whilst maintaining a link with the source. Connect information that overlaps and improve formulation if necessary.

### STEP 2



## Connect Metadata

Connect additional data to the extracted information. These could be for example: Objects, Stakeholders, Person responsible or Relatics required information.

### STEP 3



## (Export) an overview ready for after processing

Dependent of the process it could, for example, be an export to relatics or an interface to answer comments.

### STEP 4



# The Tool:

# Socio-Economic data Generator (SEG)

## SHORT SUMMARY

A key input for every strategic (macroscopic) traffic model is socio-economic data. It defines how many people live in an area, their social status, how many employment there is etc. Processing such data is a cumbersome task because it requires the handling of many different data sources (e.g. from CBS, NRM, existing models, etc.). Manual execution of this complex process is very prone to mistakes and time consuming.

To improve our efficiency and quality, we have built a tool able to automate and standardize the processing. We can now offer our clients higher quality but also better transparency. The tool is part of the innovation program Nebula, aimed at improving efficiency and quality of our modelling activities.

The tool is developed in Python.

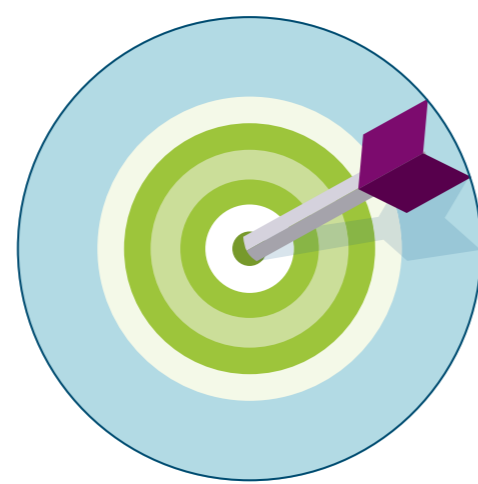
### Contact persons:

William van Genugten (functional design)

Michel Meulenberg (functional design)

Anna Cristofoli (developer)

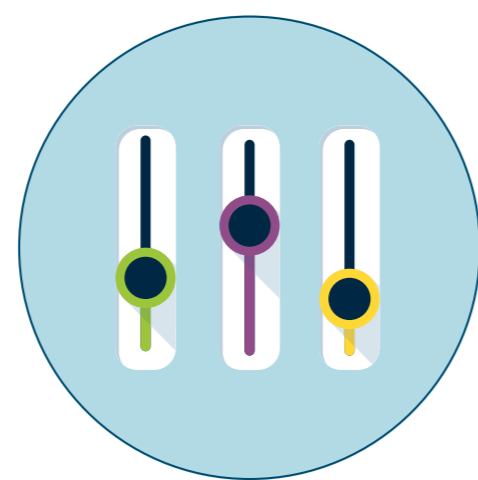
Erik de Romph (product owner Nebula)



## Define zoning of the model and collect source data

Assign a source data for each socio-economic attribute and area type in the model.

# STEP 1



## Define calculation methodology

Per attribute and area type, assign a calculation methodology from the available functions in the tool.

# STEP 2



## Run the tool

Create a simple script to execute the tool. In future developments, the script might be replaced by a user interface.

# STEP 3



## Control and use output

The tool produces a list of socio-economic attributes for every zone in the model, ready to be imported in the modelling software. The tool also generates a summary with information about the difference between the source data and the final outcome.

# STEP 4

