

**Mobility of the elderly through
ICT support**

**ITRACT | OV-bureau Groningen Drenthe (Groningen Drenthe
public transport office)**

Contents

Credits

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1 Introduction

Within the European Interreg project called ITRACT (Improving Transport and Accessibility through new Communication Technologies), applications have been developed in order to make public transport more accessible for the elderly. Before these apps are made available to the general public, a pilot group has been asked to test the apps. Commissioned by the OV-bureau Groningen Drenthe, the Sociaal Planbureau Groningen, part of CMO Groningen, organized this test. Its findings are set out in this report.

1.1 ITRACT and a living lab in East Groningen

The OV-bureau Groningen Drenthe is one of the partners in ITRACT. This project is developing innovative tools that will help achieve a transport network that is as efficient as possible, easy to use and environmentally friendly. The project partners are from the Netherlands, Sweden, Germany and the UK. Hanze University Groningen is the lead partner. In this project, the OV-bureau is focusing on the population of East Groningen, more specifically the municipality of Oldambt. East Groningen is one of the fastest shrinking areas in the province of Groningen.

It is expected that, in the future, a larger group of the elderly in East Groningen will be dependent on public transport. Not only because of an increase in the number of elderly people, but also because of the concentration of facilities in central villages. A large proportion of the population will have to cover larger distances to reach facilities such as hospitals and supermarkets. It is a challenge to maintain the accessibility of facilities and the mobility of the population of East Groningen at the highest possible level.

To offer the elderly support in the use of public transport, ITRACT has developed user-friendly ICT solutions in the form of 3 different apps. These apps can help older people before they are using public transport (for example when planning a journey, looking up departure times, etc) and when they are using public transport (for example to find out where to get off the bus, to find the bus stop for the return journey, etc).

During the pilot project in East Groningen, a group of elderly people tested prototypes of the apps in a living lab. The Sociaal Planbureau Groningen was asked to organize the test and to chart the results of the living lab. Its findings are set out in this report.

1.2 Objective

To explore how and to what extent the developed apps contribute to the objectives of the ITRACT project. That is to say, whether they contribute to the mobility of the elderly and also to the development of user-friendly technologies.

1.3 Method

The research assignment was carried out in the following phases.

Phase 1: Assist in putting together a group or groups of test subjects

Three different groups of potential test subjects were approached. The first group was contacted through the Grijze Muizen, a group of elderly people from Winschoten and the surrounding area who, together with the Stichting Welzijn Oldambt (Oldambt foundation for welfare services), organize meetings to increase their computer skills. Approximately 30 persons were contacted through the Grijze Muizen and were asked to participate. The second group was approached through the Steunstees (support centres) at Finsterwolde, Bellingwolde and Bad Nieuweschan. This group consisted of 20 elderly persons. The third group that was asked to participate consisted of a number of people from CMO's network.

In total, 5 persons were willing to cooperate. Three of them were members of the Grijze Muizen and two of them were people from CMO's network. Clearly, recruitment through the Steunstees did not result in a group of suitable test subjects. Those approached were slightly older (75+) and had no or little experience with the internet and mobile phones. In addition, they made little or no use of public transport. Instead, they tended to use a RegiotaxiPluskaart (a travel card for a shared taxi) if they did not have a car or no longer owned a car.

The OV-bureau made Dal-Dagkaarten (day-tickets for off-peak hours) available for the pilot project. Also, a number of smartphones and tablets were made available. They were used by the test subjects.

Phase 2: questionnaires

Before the test period, the participants were asked to fill in a short questionnaire about their mobility and internet use. The aim was to gain insight into their use of public transport and their knowledge of the internet and smartphones. After the test, the participants were asked to assess the apps by filling in another questionnaire. This questionnaire was developed by ITRACT. CMO Groningen adapted the questionnaire and made it suitable for use in the Netherlands (see Appendix 1).

Phase 3: support at the beginning of the test period and when the apps were tested

This involved providing support and explanations of the various apps. That was done in groups and also on an individual basis. During the test period, the support included providing follow-up support and answering any questions from the test subjects.

Phase 4: group discussion

During a group discussion, the test subjects were asked about their experiences with the apps and about their ideas and needs for the future. The questions included the following:

- Does the app meet your expectations? What went well and what did not go so well?
- Was a good explanation given of how public transport works?
- Is the app user-friendly?
- Is the design clear?

- Is the app a valuable addition?
- Would the test subjects benefit from a help desk and, if so, how should this help desk be set up?
- Which app should be developed further?
- What are your needs for the future?

1.4 Reader's guide

Chapter 2 contains a brief description of the developed apps and a description of the state of affairs with regards to the prototypes during the test period. Chapter 3 describes the group of test subjects and their experiences with the apps. It also describes their ideas for the future and their needs with regard to public transport. Literal quotes from test subjects have been put between quotation marks. The final chapter provides a number of conclusions and recommendations.

2 Three different apps

Three prototypes of apps were developed during the ITRACT project: Step by Step, Scan & Go en OV Lift.

2.1 Step by Step

This app provides a step-by-step explanation of how public transport works. The app only contains text on travelling by bus or train. For example, information on how to plan a journey, on the public transport chip card and on the map location of neighbouring bus stops. The app can be viewed during or before a journey.

2.2 Scan & Go

This app provides information on tourist destinations in the East Groningen region and how they can be reached by bus. A destination can be selected by scanning a QR code or choosing a location. The QR codes and the details on the destinations are listed in a booklet.

The app provides information on destinations, a bus travel planner and a map showing how to get from a bus stop to a destination. The app can also be used to plan a return journey.

2.3 OV Lift

The OV Lift app helps travellers find a public transport hub. Travellers can also request a lift to that hub and offer one themselves. This app will be more effective if an increasing number of people are using it.

2.4 Availability of the apps

During the test period, it turned out that not all apps were ready to be properly tested. The Step by Step prototype proved to work well and could therefore be used during the test period.

At first it seemed that the Scan & Go app could be properly accessed. However, after a while various test subjects noticed that this app showed an error message when they were searching for a destination. With the result that not all participants took the actual step of travelling by bus to a destination.

The OV Lift app could not be accessed during the test period, so it was not used. It was therefore not included in the test results.

3 Results

In this chapter, the participants are sharing their experiences, thoughts and ideas with regard to Step by Step and Scan & Go. To gain more insight into the participants' background, their use of public transport and the internet will be discussed first.

3.1 Test group

A total of five persons aged between 65 and 80 were willing to cooperate during the test period. Four of them subsequently took part in a group discussion. Three participants occasionally travelled by bus; two of them at least once a week and one of them less than once a month. One person never used public transport. All of them, as individuals or as members of a household, had a car at their disposal. Three persons had a driving licence. Three of the four participants used the internet and they all had a mobile phone. Two of these participants used a mobile phone with access to the internet and they occasionally downloaded apps by themselves.

What were the participants' expectations before the test? First of all, they expected to get a good explanation of how public transport works. Secondly, a number of participants wanted to gain more confidence in travelling by bus. And thirdly, they expected that it would be easier to reach facilities, because they would be able to check exactly how to get there by public transport.

3.2 Step by Step

Clear information

All the participants thought that Step by Step provided a good explanation of public transport. The information was presented in logical steps. In general, they were satisfied with its user-friendliness, speed and usability. The participants were non-committal about its design, partly because the texts contained a lot of language mistakes.

Much of the information was already known to the participants, even to the person who never travelled by public transport. This meant that the participants themselves were not offered a lot of new information. However, they could imagine that the app might be useful to inexperienced public transport users.

Further explanation of the public transport chip card

From 9 July 2014, all train travellers will need a public transport chip card and will no longer be able to buy a paper train ticket. The participants thought that the Step by Step app lacked a clear explanation of how to pay with the public transport chip card. 'It does not really explain all the ins and outs of the public transport chip card. Especially the background information about the public transport chip card could be clearer. Where do I pay, how do I pay, what should I use. There are a lot of things going on at the moment'.

In view of these changes, the participants were also wondering whether the information provided by the Step by Step app was still correct. They thought that the information should be constantly updated. One of the discussion partners was

also wondering how foreigners could be given clear information on how to use the public transport chip card. One of the other participants agreed: 'If you never travel by public transport, you will find it hard to get the hang of it. I always travel by car, except when it is out of order. Then I take the train and bus. So this app will come in handy. But it should also be available in English and German. For this region in particular, it is important to have a German version'.

3.3 Scan & Go

Not ready for use

During the test period, it turned out that the Scan & Go app was not working properly. The app did start up, but the navigation planner was not working. For that reason, a number of participants was not able to set off to visit a destination. These technological glitches were understandably annoying for the participants:

'If an app is made available, if you have it on your phone, you expect it to work'.
'The app is fun if you can get it to work. That's why a lot of changes have to be made to the technology in the device. The moment I get an app like this, I expect it to work'.

One of the other discussion partners pointed out that she was able to plan a journey, but that the app was very slow. A lot of photographs were included in the app. When the internet connection is not very good, it takes a very long time to download the photographs: 'At first I was fed up, I wanted to rush things. The device was still downloading the photo while I could not wait to plan the journey. I could not do that, because I had not yet downloaded the picture'. In rural areas in particular, where fibre-optic networks do not cover the whole area, it will be a slow process to download photographs. The group discussion showed that the participants would not use the app in those circumstances and that they would continue using other apps, especially 9292.

Not surprisingly, the participants were mostly dissatisfied with the app's user-friendliness and speed.

Added value

In spite of all that, all the participants were able to take a look at Scan & Go and form an opinion on this app. Their opinions are described below.

The participants thought this app complemented the 9292 app very well because of its information on tourist destinations. They could scan QR codes for information on their destination and a map showing them how to get there. The following quote clearly reflects that: 'In this case, the added value is that you get information about the journey and the destination. The same goes for the booklet. Nice, you can see the building. And the map, so you know where you are when you are on the road'.

However, the participants indicated that more information on destinations should be included in the app. For example, opening hours and prices. They suggested that many more destinations should be added to the app. 'It has now 14, but

there are many more tourist attractions. For example, Scheemda has a lot of QR codes. Put them in too'. The follow-up group discussion provided a number of possible additions:

- The app could include more destinations where events are taking place in the near future. Then this app will be like a calendar of fun things to do and it will show how to get there by public transport.
- QR codes offered by businesses should be included in the app, so that the app is supported by the retail sector and value is added. 'This will make it dynamic and interactive', one of the discussion partners said.

Design and update

The design is clear and serves its purpose. They participants advised to use larger fonts or to ensure that they can be enlarged by the user. At the moment, the font size is fixed and the text is illegible for a lot of the participants.

In addition, it is clear that public transport is constantly changing; bus schedules and services are being changed. This means that the information in the app should constantly be updated. During the test period, a number of mistakes were found, as shown by the experiences of a number of participants:

'Yes, they will have to update that. At one point we were standing at a bus stop where the information was no longer correct. So it should constantly be updated. Any time something changes'.

'If you wanted to go to Veendam by bus, you would have to go to Groningen first. I would have to get off the bus at Boumaboulevard. At a point where I would be standing in water if the map was to be believed, so it must be changed'.

Bus and train connections should be included

The test subjects all thought that one of the downsides of the Scan & Go app was that it only contained a bus journey planner. A few quotes: 'It only gives information about bus services, but here you won't get far by bus'. 'It does not list any train services. That does not make sense. It would take you 2.5 hours to get to the Veenkoloniaal Museum by bus. I do not understand why they have not included train connections'. What is lacking are bus and train connections. To promote public transport and make destinations more accessible, these connections should be incorporated.

Larger margin of time needed

Another matter that should be addressed is the margin of time for getting from a residential location to a bus stop. This margin should be adjusted to a slower walking pace. 'At one point it said that it was a 3 minute walk from our house to the bus stop. That's not correct, our elderly legs could not manage that. They should not forget to allow more time for older people'. In addition, it was suggested that the app should show not only the number of walking minutes, but also the exact distance and the option to select a walking pace (slow, normal or fast), so that the number of walking minutes could be adjusted.

3.4 Where do we go from here

The discussion partners were willing to use the Scan & Go app in the future if the technological problems were solved and the app was made more user-friendly. It would not replace the 9292 app, but would complement it. Further requirements were that no charge should be made for the app, that train and bus connections should be added and that the information should constantly be updated. This is clear from the following quote: 'If it was free of charge, I would certainly like to use it, in addition to the 9292 app. Definitely if the information file was modified. If it included, for example, a new exhibition at the Groninger Museum, this would be an incentive for me to use this app as well'.

The Step by Step app did not offer the participants any additional information. However, they did see the added value of combining the two apps, because one app gives information and the other shows you how to get to your destination.

However, if the apps were to be made available to the general public, it would be necessary to set up a help desk. One of the participants indicated that the apps would be difficult to understand for inexperienced internet users: 'You should not give the apps to inexperienced users. They cannot work it out for themselves'. What kind of help desk will be needed, according to the participants? A telephone help desk would be the best solution, but the information booths at the larger stations could also be used as help desks. Because tourist information offices are fairly well spread across the country, they could also play a role, provided that they are well-informed and knowledgeable about the apps.

In general, the test subjects indicated that the apps provided a rather good explanation of public transport. However, this did not mean that they would take the train or bus more often. Most of the participants were non-committal about whether the apps actually helped make facilities more accessible by informing the participants about public transport. They were non-committal for several reasons. For one thing, the participants indicated that they would continue using their cars. The time they needed to get somewhere by car was far less than the time they needed to get there by public transport. For another thing, the participants already knew how public transport works and they were already using it.

3.5 Ideas for the future

The participants noticed a deterioration of public transport in rural areas. Possible solutions to this problem were briefly discussed.

Good pick-up points

The car is the most important means of transport in rural areas. The participants believed that the switch from private cars to public transport should be made more attractive. One of the participants thought that it would help if pick-up points were improved: 'a pick-up point you can reach by car and bicycle, and then an easy and fast bus ride from there to your destination. Without having to wait for half an hour in between'. The others agreed on the importance of building charging points for electric bicycles at pick-up points.

Fewer forms of transportation

The discussion partners indicated that in rural areas they often saw empty buses driving past, which could lead to a lower frequency of bus services in the future. One participant thought that this was due to the fact that too many forms of transportation were on offer. 'Some transport the sick, some offer special transport and some transport the elderly, and they all try to make money doing that. But that also means fewer passengers for our buses. If there is a good and frequent bus service, then I won't need *regiotaxis* (shared taxis) anymore'. Where possible, public transport, special transport and school transport should be combined. Transport organized by companies should also be included, according to this participant'. 'All the men working at Synergon Winschoten are picked up from their homes by minibuses. They are company minibuses. If they could use public transport, it would make all the difference as regards the empty buses. Public transport would have to be well-organized though'.

Connections to Germany

Finally, the participants considered connections to the public transport network in Germany to be extremely important for the East Groningen region. 'When you're at Vlagtwedde, you want it to be easy to cross the border by public transport. The train to Nieuweschans also stops at Bunde (Germany). Perhaps buses could also cross the border, maybe at different points as well'. The participants thought that this would add value to services, especially where tourist destinations and the Scan & Go app are concerned.

4 Conclusion and summary

The apps available for the living lab in East Groningen were prototypes. As regards technology, design and speed, the usability of the apps had not yet increased to such an extent that the apps could be made available to the general public. This was apparent from the experiences of the project participants during the test period. It influenced their opinions and judgements about the apps. This study brought to light a number of specific points that would deserve further attention.

Seniors, public transport and internet use

One objective of the development of the apps was to increase the mobility of older people through ICT support. During the search for participants, it became clear that a lot of the older seniors had no experience in using the internet and smartphones, and that, in general, they did not want it either. The same was true for their use of public transport. If they did not own a car, they would use *regiotaxis* (shared taxis) or ask relatives or neighbours to help. So, the question is whether the present generation of elderly people, vulnerable or otherwise, has an interest in the developed ICT resources. In the future, older seniors will probably have a greater interest in those resources, because more of them will be used to the digitization of society.

Step by Step

The Step by Step app provides a step-by-step explanation of how public transport works. The app contains only texts about bus or train travel, information on the public transport chip card and on bus stops. In the opinion of the discussion group, this app is a good addition to other apps and offers good information, especially to inexperienced public transport users. The available information was presented in logical steps. A number of points for improvement that were mentioned:

- Correct the language mistakes in the texts.
- Provide more information about the public transport chip card: what it is, how to use it, especially how to pay for journeys.
- The available information should constantly be updated on the basis of new developments.
- For the East Groningen region, it is important that a German version of the app should be available.

Scan & Go

This app provides information on tourist destinations in the East Groningen region and how they can be reached by bus. A destination can be selected by scanning a QR code. The app provides information on destinations, a bus travel planner and a map showing how to get from a bus stop to a destination.

During the test period, this app was not working properly. This had an impact on test subjects' opinions. They were mostly dissatisfied with the app's user-friendliness and speed. In rural areas, it is a slow process to download the pictures of destinations. The technology in this app should be examined carefully and should be made suitable for areas without fast broadband connections.

The test group was particularly positive about:

- the combination of information on public transport and information on travelling to tourist destinations;
- the use of QR codes;
- the GIS map showing how to walk from a bus stop to a destination;
- the pleasant design.

Points for improvement that were mentioned:

- Public transport is constantly changing. During the test period, a number of mistakes were found in the available information. Constantly updated information is a prerequisite for usability.
- Increase the number of available tourist destinations.
- Add destinations where events are taking place in the near future.
- Get the retail sector involved and incorporate their QR codes in the app.
- At present the app focuses only on bus travel. The app should contain train and bus connections, so that more effective use can be made of public transport;
- Adjust the present margins of time for getting from a location (home / tourist destination) to a bus stop to the average walking pace of elderly people. Or include the option that a walking pace (slow, normal or fast) can be selected by the user himself / herself.
- Use larger fonts or ensure that they can be enlarged by the user.

In conclusion

The test group was willing to use the Scan & Go app in the future, in addition to the 9292 app, provided that its technology and speed would be improved. Further requirements were that no charge should be made for the app, that train and bus connections should be added and that the information should constantly be updated.

The Step by Step app did not offer the participants any additional information. However, they did think that the app could be useful for inexperienced public transport users. They also saw the added value of combining the two apps, because one app gives information and the other shows you how to get to your destination.

A prototype of the OV Lift app was not tested. However, we expect that this app will be a valuable addition to apps for public transport, especially in rural areas.

When the apps can be downloaded by everyone, it will be necessary to set up a help desk. This could be a telephone help desk, but tourist offices and the information booths at the larger stations could also be used.

In general, the test subjects indicated that the apps provided a rather good explanation of public transport. However, this did not mean that they would take the train or bus more often. For one thing, the participants indicated that they would continue using their cars. For another, the participants were already using public transport quite a lot.

Finally, we would like to add that the three apps now have English names. However, the target group of elderly people living in rural areas will probably be more inclined to start using the apps if these have clear Dutch names.

Appendix: questionnaire to assess the apps

A. STEP BY STEP

1. Have you used the STEP BY STEP app?

- Yes (go to question 2)
 No (go to the next block of questions)

2. In general, how do you rate the Step by Step app?

- Very satisfactory
 satisfactory
 Neutral
 unsatisfactory
 Very unsatisfactory

3. Did you like using the app?

- Yes
 No

4. What do you think of the following aspects of the app?

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	No opinion
user-friendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Usability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Does the app have the options that you need?

- Yes (go to question 7)
 No

6. If not, what options should be added?

7. To what extent does the STEP BY STEP app meet your expectations?

	Agree	neutral	Disagree
I got a good explanation of how public transport works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I now have more confidence in travelling by bus.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I will be more inclined to use the bus.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I will use public transport more often.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The accessibility of facilities has improved, now that I know how public transport works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. SCAN AND GO

8. Have you used the SCAN AND GO app?

- Yes (go to question 9)

No (go to the next block of questions)

9. In general, how do you rate the SCAN AND GO app?

- Very satisfactory
- satisfactory
- Neutral
- unsatisfactory
- Very satisfactory

10. Did you like using the app?

- Yes
- No

11. What do you think of the following aspects of the app?

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	No opinion
user-friendly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Speed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Usability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Does the app have the options that you need?

- Yes (go to question 14)
- No

13. If not, what options should be added?

14. To what extent does the Scan & Go app meet your expectations?

	Agree	neutral	Disagree
I got a good explanation of how public transport works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I now have more confidence in travelling by bus.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I will be more inclined to use the bus.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I will use public transport more often.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The accessibility of facilities has improved, now that I know how public transport works.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>