

# Seniors' Navigation: Understanding Their Needs so as to Create an Adaptive Smartphone Application

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## BACKGROUND

The World Health Organization (WHO, 2007) has underlined the importance of older adults' mobility to allow them a dynamic and independent life. Besides, losing mobility is a predictive factor of loss of autonomy, institutionalization, falling and death (Webber et al 2010).

Navigation helping younger users is nowadays widely available in mobile devices. Despite the variety of scopes used for their development, to the best of our knowledge, seniors' needs and requirements are not addressed by any navigation application, at least at a commercial level.

The aim of T&Tnet project is to provide a personalized context-based multimodal and multinational social journey planning, and an easy to follow adaptive real time guidance. Identifying the needs according to the lifestyle of the target population is a crucial preliminary stage to develop an adapted social navigation application.

## OBJECTIVE

Identifying daily navigation needs and issues of a little sample of seniors from four countries (France, Austria, Norway and Spain).

## METHODOLOGY

Forty nine seniors having some experience with mobile devices from four countries accepted and signed the consent to participate in this exploratory study.

Each country organized a two hour focus group (FG) divided in three sections:

- a discussion of end-users' habits, needs and issues during daily navigation,
- a brainstorming about functions of application that could improve their experience during navigation – based on a short demo with Google maps in smartphones and tablets, and
- an evaluation of ideas generated both by the T&Tnet Consortium and end-users during the brainstorming phase.



## RESULTS

In this communication we summarize the results concerning **habits, needs and issues by country**. A total of forty-nine seniors having some experience with mobile devices from four countries accepted and signed the consent to participate in this exploratory study. Socio-demographical data is summarized in Table 1

Table 1. Socio-demographical data

COUNTRY	GENDER (n)		AGE (m)
	Female	Male	
Spain	5	11	68
Austria	5	6	71
France	5	1	76
Norway	7	9	70

### End-users habits:

**Spanish** seniors walk every day and take the bus frequently; they also use private cars quite often; **Austrian** seniors prefer the underground and tram because it is fast, convenient and there are many connections; for **French** seniors, the preferred means of transportation is by bus because it is "easy to use", "fast" and "friendly"; and finally **Norwegian** seniors, prefer to walk or to use private vehicles to using public means of transportation

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## RESULTS

### Needs and issues in a daily navigation:

In **Spain** the main barriers are the lack of information about bus frequencies or about adapted means of transportation for family members with disabilities, in **Austria** the main issue is a lack of information regarding road situation, in **France** the main barriers are the use of stairs to reach the metro or the high steps to get on the bus, also lack of information about buses (schedule, strike, handicap access); in **Norway** participants are faced with various challenges: buying and validating tickets, inoperable escalators, knowing which tram or train-line to take, on which side to pick it up, and lack of information while traveling, making it difficult to know when to get off.

Figure 2. Main information and functionality points voted in the four countries.

TOPIC	COUNTRIES	FEATURES	VOTES
Public means of transportation	ES, AT, FR, NO	Routes and timetables	12
	AT, NO, ES	<ul style="list-style-type: none"> <li>Ticket information,</li> <li>whole-journey tickets,</li> <li>buy tickets</li> </ul>	14
	NO, FR, AT	Time of arrival, duration, travel times, delays, route time management	8
	ES, FR	Notification for stepping out of public means of transportation	5
Accessibility	ES, FR, NO	Urban accessibility information (road works, steep baths, architectural barriers, special hindrances like high thresholds)	9
	ES, FR, NO	Accessible paths for public means of transportation (with elevators and escalators)	8
Necessities	AT, NO	Hospitals, doctors, pharmacies (opening hours, location)	5
Usability	AT, FR, NO	<ul style="list-style-type: none"> <li>Big buttons, readable display, pleasant voice.</li> <li>Possibility of choosing different modality for different notifications.</li> <li>Easy to use. Few choices shown, low hierarchy of choices</li> </ul>	7
		Information about actual position and orientation	7
Personalization	ES, AT, FR	Get route recommendations, according to filters of interest (touristic, weather, accessibility) or generated by system e.g. 'would you like to take a walk today in the park?'	10
Social network	ES	Send a route to another user	2

## CONCLUSION

All participants from all countries ask for more information regarding public means of transportation and more accessibility information. In all countries, information about routes and timetables along with information and possibility to buy tickets via the application would be highly appreciated. Delays, road works and changes in the routes and timetables are a source of frustration for seniors. The results of this study will establish the first mock-ups and technical requirements of the application.

## REFERENCES

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