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GOAL

GOAL
Growing Older, StAying mobiLe

1 Final publishable summary report

1.1 Executive summary

The GOAL project aimed at comprising current knowledge and identifying research gaps in order to develop an action plan to fulfill the transport needs of an ageing society. This action plan is being developed through the interaction with different stakeholders, state-of-the-art reviews, identification of possible and relevant societal developments and alternatives to transport. To achieve these objectives, GOAL has organised different workshops where the main findings from state-of-the-art reviews were presented to key stakeholders and interactive sessions were played to get their feedback.

In GOAL we described the physical and mental characteristics of older people and use these to develop profiles which will represent the range of characteristics to be formed in the population now and in the future. These profiles are used to explore in a structured way the needs while driving, using public transport, walking and cycling and the relevant information needed before and during travel. The profiles are also used to address additional issues of older people and other developments which may impact on travel decisions in the future. The research and development needs that were identified based on the research were used used to develop an action plan to achieve the goal of growing older and staying mobile.

The action plan summarizes the key findings of the GOAL project with regard to each of its main activities dealing with transportation options and services for older people. The action plan presents seven research actions that need to be addressed because of the considerable transport challenges we face by the growth of the older people population in the coming decades.

The seven research actions should be taken forward immediately if we are to understand and exploit the opportunities to enable older people to enjoy safe, sustainable and socially satisfying lifestyles. When we have looked further into the future, these same building blocks of fundamental understanding remain crucial for all the potential long term scenarios that we have identified within the GOAL project.

These are the research actions;

1. Develop databases on walking and cycling behaviour by older people
2. Identify motivators for walking and cycling for older people
3. Investigate the transition behaviour from car to other modalities
4. Develop methodologies to assess the benefits of public transport accessibility measures
5. Identify the requirements for travel information and social media suitable for older people
6. Assess the impact and potential of future technology for the older driver
7. Develop driving screening and assessment tools and programs

1.2 summary description of the project context and the main objectives.

Project context:

Current predictions show that the share of people aged 65 years or over in the total population is projected to increase from 17.5% to 29.5% (Figure 1). Similarly, the number of people aged 80 years or over is expected to grow from 4.8% in 2011 to 12% in 2060. In order to keep older people actively involved in their daily activities, it is vital that they are able to travel and have access to acceptable levels of mobility. These demographic changes produce considerable challenges for future transportation systems and place new and growing demands on transport systems. According to an OECD report (2001), on the whole, older people who drive will prefer to continue doing so for as long as possible and will also expect to have access to alternative transport modes that meet their individual needs, especially as they approach 80 years of age. Future transport systems and services will play an essential role in supporting independent, healthy ageing.

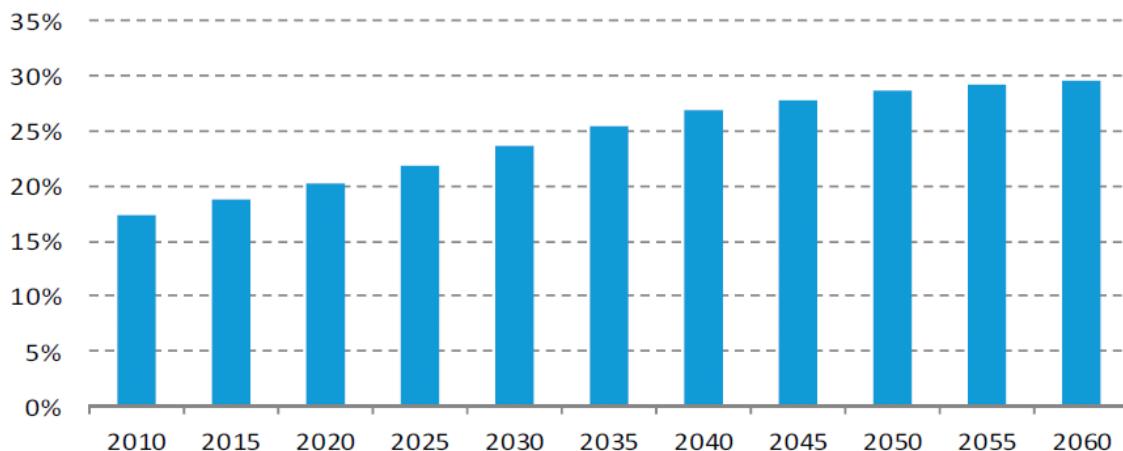


Figure 1: Trends in the population aged 65+ as a share of the total EU-27 population, 2010-2060 Source: Eurostat

Main objectives:

The general objective of GOAL is to develop an action plan that identifies gaps and research needs for transport needs of older people in the near future. To achieve this objective we will use the extensive available knowledge within the consortium, state-of-the-art reviews and interaction with stakeholders and other (non-European) experts:

- i) To develop a comprehensive and coherent appreciation of how the ageing process impacts on the physical and mental capabilities of individuals to meet their transport needs.
- ii) To identify different profiles of older people with different capabilities and transport needs.
- iii) To identify the wide range of technical and other approaches which may be used to overcome or mitigate the problems identified in one.
- iv) To deliver projections of trends and developments in the near future.
- v) To identify research gaps in terms of both knowledge and technologies.

The action plan, which is the main objective of this proposal will guide future development and research programs. To achieve wide acceptance and ownership of the action plan GOAL has organized six workshops on different topics (e.g., on the profiles of older people, future developments that will influence transport needs) to ensure that different stakeholders are able to contribute to and influence on the development of the action plan.

1.3 Description of the main S & T results/foregrounds.

When evaluating current developments of solutions to fulfill the transport needs of an ageing society, it is vital to gain comprehensive insight into the characteristics of the group of older people. Basically, the group is merely defined by age and includes a wide range of different characteristics, comprising highly unsimilar types like physically fit and active seniors as well as frail and immobile seniors suffering from physical or mental limitations. In order to thoroughly provide for the specific, heterogeneous and varying requirements of older people, the project has started with the development of distinguishable and internally cohesive types of the older people. The Profiles of Older People resulting from this work represent typical combinations of mobility-related characteristics and have subsequently been used to explore in a structured way the needs while driving, using public transport, walking and cycling and the relevant information needed before and during travel.

Identification of profiles.

The intention of developing comprehensive, multifaceted and well-grounded profiles required the inclusion of different information sources. The initial identification of common sets of characteristics in the older population in Europe has been based on a cross-national panel database comprising data on health, socio-economic status and social and family networks of more than 55,000 individuals from 20 European countries aged 50 or over: the SHARE¹ database (Survey of Health, Ageing and Retirement in Europe). These first types derived from statistical cluster analysis have been advanced by adding findings from the literature concerning physical and mental barriers, regional and socio-demographic differences, transport, life satisfaction and living environment from more than 70 relevant international publications, studies and reports. Relevant aspects which have not been covered by the database or the information from the literature finally been addressed in two small-scale trans-national surveys (among older people as such and among experts and intermediaries working with older people) as well as in the course of two workshops aiming at the discussion of the profiles at different stages of their elaboration.

Eventually, the Profiles consisted of a broad range of mobility-related features, providing a comprehensive and holistic insight into the living conditions of older people in Europe and the consequential effects on mobility options, behaviour patterns and transportation needs. Table 1 shows the main sources of information that have been included in the analysis and development of the profiles.

Table 1: Information sources and range of characteristics considered in the profiles

SHARE	Literature	Surveys
<ul style="list-style-type: none">• socio- demographics (age, living conditions, financial resources)• physical and mental health• social activities (memberships in clubs, religious organizations, helping family and friends)	<ul style="list-style-type: none">• health and social live• social activities• live satisfaction• mobility behavior (usage of transport modes, number of trips, purpose of trips, etc.)• living environment	<ul style="list-style-type: none">• mobility behavior• technology usage• transition points (life-changing events where older people transfer to another profile)

¹ Survey of Health, Ageing and Retirement in Europe (SHARE) <http://www.share-project.org/>

Profile descriptions.

In total, five internally cohesive profiles have been identified and elaborated. The profiles include specifications concerning demographics, physical and mental health, social life, living environment, mobility-related aspects as well as transition points (life-changing events causing transitions in the profile affiliation). Figure 2 illustrates the five profiles in relation to two substantial characteristics: predominant range of age and level of activity.

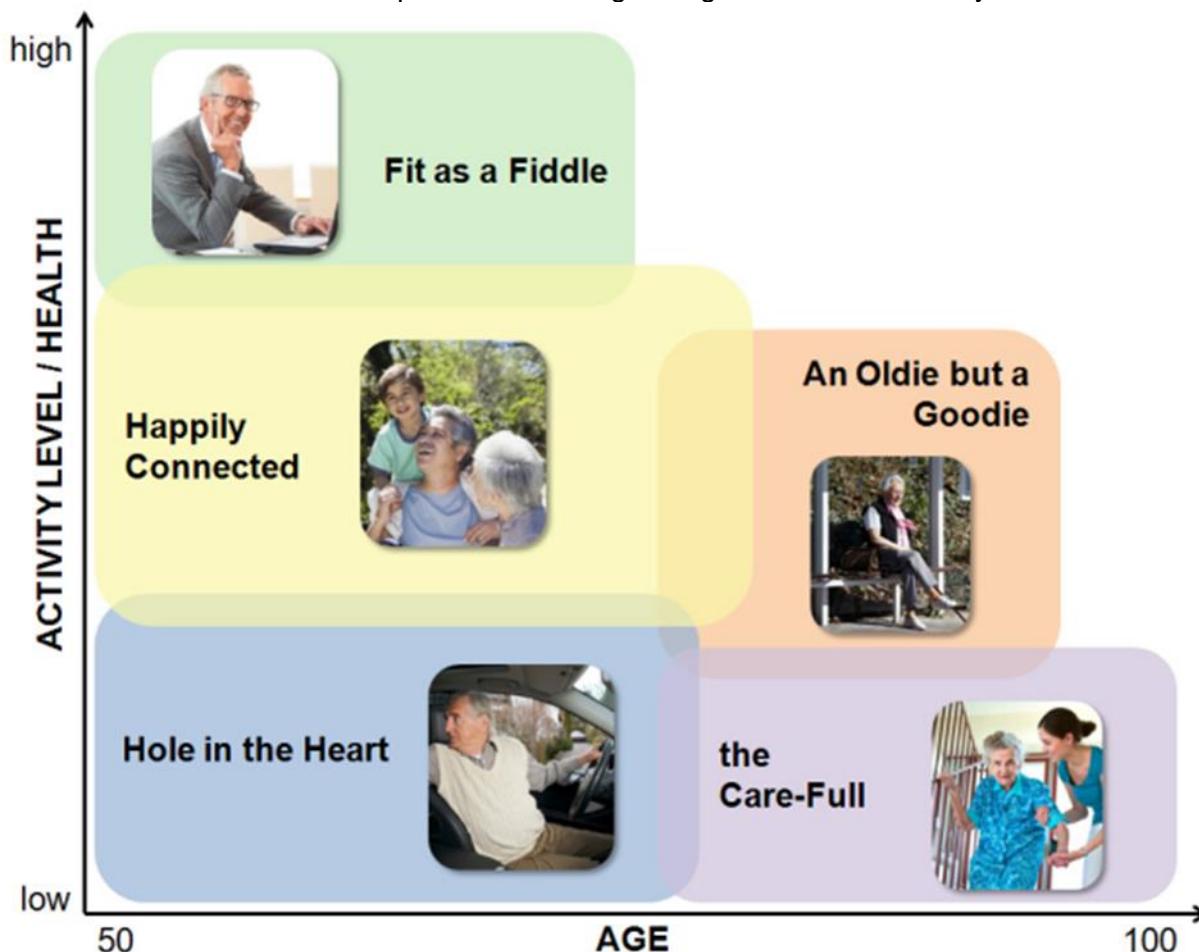


Figure 2: Profiles of Older people pursuant to age and activity level

The youngest, healthiest and the most active group is denoted *Fit as a Fiddle* (FF). The profile named *the Care-Full* (CF) contains the frail, impaired and immobile very old ones, who are dependent on the help of others. The members of the profile *an Oldie but a Goodie* (OG) are quite mobile and independent despite their old age. In the *Happily Connected* (HC) group are the fit, active and satisfied elderly with excellent social networks, and the profile *Hole in the Heart* (HH) includes older people suffering from mental as well as severe physical problems in younger ages. Each of the five profiles is now described in more detail.

Fit as a Fiddle (FF)

The comparably young and fit elderly within this group do not consider themselves as “old people”. Most of them are between 50 and 60, are married, live in a partnership or also with their children, have excellent physical and mental health and are still employed. The dependence on the car is high and the average number and length of trips does not differ from the average population. The group members have a comparably high income and are satisfied with their autonomy and their quality of life. Furthermore, they are very active and have excellent social networks. Technologies are used regularly but the amount of the usage

depends on experiences. Main life-changing events are retirement or illness / death of a close person. The profiles Happily Connected or Hole in the Heart are the most likely to follow.

Hole in the Heart (HH)

Despite their relatively young age (50 to 75), the members of this group suffer from pain and illness and are severely limited in activities. Chronic diseases like fatigue, diabetes, obesity or cardiovascular disease are often diagnosed among this group. Besides the physical problems, many group members are depressed, have fears and feel lonely. Limited activities and mobility problems also may lead to exclusion of participation in social life. The car is the preferred mode of transport because it is more comfortable and easier to use than public transport, but the risks for accidents of drivers in this profile increases. When members of this profile are not able to drive any more they use public transport only if they have made experiences in using public transport services before. Because of their health problems, the number of trips is reduced, they are shorter and there are more trips to hospitals and medical facilities. Members of this profile have the most problems coping with life-changing events like retirement, illness or the loss of the partner. If the physical and mental state of health gets worse, they will end in the Care-Full group, but therapy, support groups or new social contacts may change the situation and they can reach the Happily Connected or the Oldie but a Goodie group.

Happily Connected (HC)

This profile is characterised by a very active and social lifestyle. Most of the group members are between 60 and 75, are married or live in a partnership. The family and especially the care for their grandchildren are very important. Besides that, this group has a very active social life doing volunteer work, helping friends and neighbours, being members of seniors' clubs and organisations. All these activities and their good health lead to a high life satisfaction. Driving is the most important transport mode, where the men are the primary drivers and their women are mainly passengers. The members of this group do a large number of car trips and complex trip chains, but they are driving fewer kilometres than younger drivers and they are favouring calmer roads and avoiding traffic peaks and night time driving. After retirement they do more things on foot. The usage of technology is high among this profile compared to the other groups but there are differences within the group, depending on the experiences from former jobs etc. The internet, navigation systems and route planners such as driving assistance systems and e-bikes are used. Retirement and the loss of social contacts as well as injuries or illness are important life-changing events. Profiles like Hole in the Heart or the Care-Full may follow after worsening of the state of health. After the death of the partner or loss of social contacts they might get into the Profile an Oldie but a Goodie if they are still active and independent.

An Oldie but a Goodie (OG)

The members of this group are aged 80 to 90. Most of them are female and are living single. Despite of their high age, they are quite healthy and they are not severely limited in activities. Caused by their living alone, they are forced to manage daily live without support of others and to leave the house or flat. Walking and public transport (except underground) are their preferred modes of transport. Members of this group do not have as much contact to family and friends (compared to other groups) but they are active in clubs and organisations. They do less and shorter trips and use the time periods between rush hours. The high life satisfaction and self-efficacy of this group influences their physical health and their mobility in a positive way. Members of the Oldie but a Goodie profile avoid technologies and unknown trips if possible. The death of a close person or a severe illness could be incisive transition points after those people may leave this profile and change to the Care-Full group.

The Care-Full (CF)

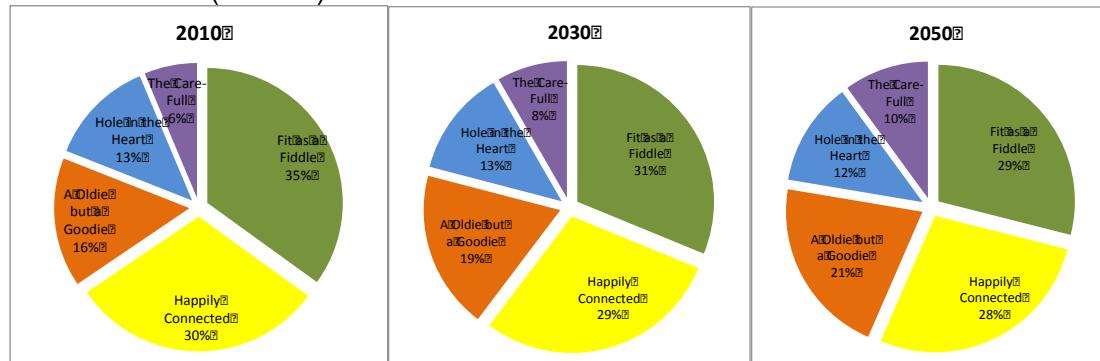
This is the group of the very old and frail elderly, who suffer from severe physical and mental diseases such as dementia, Alzheimer's disease, senility or Parkinson. The eyesight and the hearing are bad. Most members of this group depend on care, assistance and help of others. Caused by the diseases and mobility limitations the members of this group do not leave their homes very often. When they do so, most of them need assistance from their families (lift in cars) or they use special transport services. Usually, the very old are doing passive activities in their homes like watching TV, listening to the radio or reading newspapers. There is a high risk of social isolation, which is why this group especially likes receiving visitors. It is hard to leave this group again. Improvement of the physical and mental health conditions and less dependency on others may in some cases lead to the Oldie but a Goodie group.

Evolution of profiles

In order to identify actions in favour of future older people, it is necessary to develop profiles of future older people, specifically to 2030 and 2050 as these are the target time horizons for the project. In order to develop profiles of future older people a specific expert panel was organized during the fifth project workshop. The profiles were developed based on the current profiles of older people, the information gathered during the expert panel and the quantitative data available from the official reports of the European Commission².. Current profiles were used as baseline since the expert panel stated that no new older people groups will appear in the future decades, but rather the features of the profiles will change.

In 2060 the retirement will be generally postponed all over Europe: while in 2010 the retirement was between 58 and 64 years old, in 2060 it will be in the range 61-67 years old, coupled with a diminished difference between male and female workers. For female the change in retirement will span from no change, The Netherlands, to 6.3 year shift, Italy, and a median value of 2.4 year shift; for male the shift is comprised between 0.4 years, Slovakia, and 5.8 years, Italy, with a median value of 1.6 years.

The older people considered in the profiles will grow from 183 millions in 2010 to 220 millions in 2030 and 237 millions in 2050. The pure effect of demographic changes, applied to the current structure of profiles, would provide the subdivision of older people into groups shown in Figure 3. In case that also societal changes are included in the forecast (i.e. changes of age distribution of the profiles because of various factors – e.g. employment, health –), the distribution and relative importance of profiles is shown in Figure 4. A pictorial view of the profiles in 2050 is shown in Figure 5. In absolute terms all the profiles are increasing from 2010 to 2030 and 2050, with the exception of the Happily Connected, which slightly decreases in 2050 compared to 2030. In relative terms the Oldie but a Goodie and The Care-Full experience the highest percentual change with increase of 66% and 78% respectively in 2050 on 2010 data (Table 2).



² European Commission (2012). *The 2012 Ageing Report: Economic and budgetary projections for the 27 EU Member States (2010-2060)*. doi: 10.2765/19991.

Figure 3: Distribution of the profiles in 2010, and projection to 2030 and 2050 (effect of demographic changes)

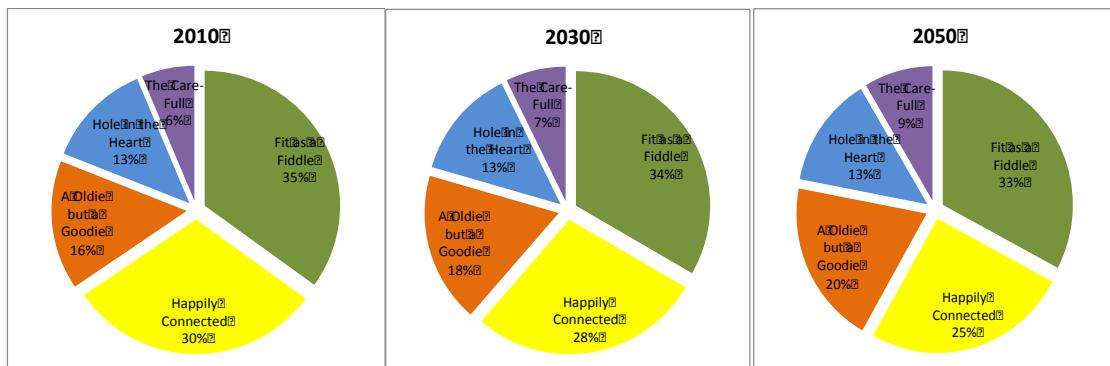


Figure 4: Distribution of the profiles in 2010, and forecast to 2030 and 2050 (joint effect of demographic and societal changes)

Table 2: Numerosity of the profiles and relative variation referred to 2010 data

	Fit as a Fiddle [/million]	Happily Connected [/million]	Oldie but a Goodie [/million]	Hole in the Heart [/million]	The Care-Full [/million]
2010	64.1	55.8	28.4	23.2	11.6
2030	73.3 (+14.4%)	61.7 (+10.5%)	39.7 (+39.9%)	29.2 (+25.8%)	15.9 (+37.8%)
2050	77.8 (+21.4%)	60.5 (+8.4%)	46.9 (+65.4%)	31.9 (+37.6%)	20.3 (+75.6%)

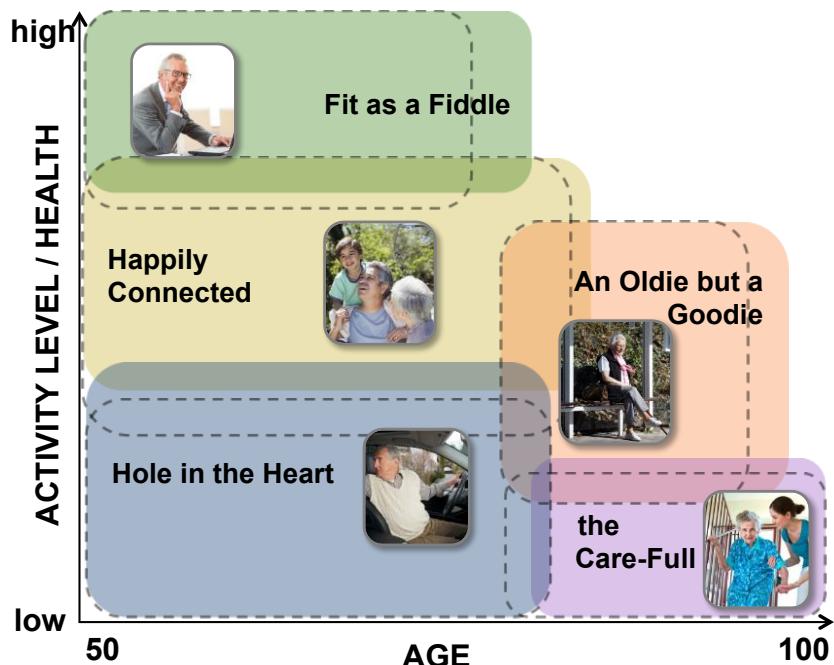


Figure 5: Profiles of Older people in 2050 pursuant to age and activity level (dashed the current position of the profile)

In the following the main trends of change within each profile are described.

Fit as a Fiddle (FF)

The members of this group will increase their average activity level and health condition, as a result of multiple factors (e.g. improvement of the healthcare system compared to previous generations, change in the retirement age). Especially the reorganization of the pension schemes throughout Europe will keep people at work for a longer time, *forcing* them to be active participants of the society. Thus this group will steadily expand its most representative age group from 50-60 to 50-65 in 2050.

Although the large majority of the people will still be in the labour force, full time employment will not always be achieved. Also an increase of single households will take place as lifestyle change. These two factors, which erode the purchasing power, will trigger some additional modifications in lifestyle, namely in mobility, where car will still be the most used transport mode, but progressively less dominant because of an increased use of public transport and other shared transport modes. Multimodality will be more appreciated since it will be supported by information technology, which will be regularly used since, already in 2030, this group can be considered digitally native.

Hole in the Heart (HH)

The age range of this group is not going to change in time, but a change in the activity level will take place. Specifically the profile members affected by physical problems, rather than mental ones, will improve their involvement in the society also as an effect of the already mentioned changes in the pension schemes. This beneficial effect will be supported by the increasing diffusion of information technology.

With reference to technology use, the youngest members of the profile will already be digitally native in 2030, while the older group members were exposed to technology for a long period of their lives and thus they are highly experienced users. Situation will further improve shifting to 2050. Technology will have several positive impacts on group members since: will facilitate the participation to social life through virtual communities; it will be an enabling factor for telework and thus it will allow general improvement of living conditions (e.g. better income, self-respect and sense of independence, improved access to general information). On the other side obesity and depression will add to the list of disabling illnesses of this many-faceted group. The continuous need for cares and medical expenses will still limit the expenditure for other activities and for mobility. In this respect the increased access to technology will also facilitate the transition to public transport since they will have better access information for trip planning. New, electrically powered, personal mobility solutions will support the mobility of group members in the short range, improving the quality of their life and social inclusion in the neighbourhood.

Happily Connected (HC)

The main characteristics of this group will still be in place and possibly improved in 2030 and 2050: the average activity level will increase and the social lifestyle will be unspotted. In addition the most representative age group will shift from 60-75 to 65-80, in line with the changes of the Fit as a Fiddle group. The increasing geographical extension of family and friends network will cause an increase of international trips, mainly by plane. In 2050 the usage of technology will be high since most of the group members will be almost digitally native. Car will still be a widely used transport mode, but a rebalancing among drivers will take place with female being more active and not anymore only on the passenger side.

An Oldie but a Goodie (OG)

This profile will extend towards the older age, including a increasing share of people, who are too fit to go in The Care-Full profile. Nonetheless the most representative age group will still be the 80 to 90 one. The social lifestyle will not change in the next decades, rather the tools available to pursue their daily tasks. Technology will have an increasing role: in 2030 the usage will still be dependent on former experiences, while in 2050 the youngest members of the profile will be digitally native. Technology is going to impact on their mobility patterns

since they typically avoid unknown trips, if possible, but not if adequate in travel information and assistance is provided. Thus information technology could remove barriers to mobility and help them to widen their mobility and to improve their independence.

The Care-Full (CF)

Physical and/or mental barriers will still characterise this profile. Available opportunities created by future technological and societal developments will not be exploitable without the support of other people (e.g. relatives or employees of the social security system). However, when adequately supported, the mentally fit part of the group will benefit from new communication technologies to stay in touch with their relatives. In addition technological development will also offer new opportunities for healthcare (e.g. e-healthcare, remote monitoring systems, etc.), although the practical implementation can be restrained by economical factors both at national and personal level. In general terms the profile will shift towards an higher average age and will experience a slightly higher activity level.

Driving

As far as driving is concerned, significant achievements have been made up to present although it is still a challenging task to ensure the safety of older drivers and the public, especially in consideration of future demographic projections. Thus, GOAL aims at addressing the needs of older people driving and proposing actions to improve older drivers' safety, by combining the research done on different areas (in-vehicle technologies, infrastructure elements, etc.) with indications on what may be promising and helpful for older people.

For older people in good health, the freedom to travel where and when desired, in relative comfort, is extremely important to quality of life. Driving remains the preferred mobility option for many older people, especially given its convenience and relative safety. It has also been acknowledged that a host of negative physical and mental outcomes are associated to driving cessation, as a result of the loss of personal independent mobility. Therefore, as the population ages, with potentially more seniors retaining their license, challenges related to older people driving will likely become more relevant.

Ageing can lead to declines in perceptual, cognitive, and psychomotor function, which result from the normal process of ageing as well as from age-related medical conditions and the medications used to treat the conditions. These declines affect driving skills in such a way that certain aspects may be weakened or complicated, such as:

- Difficulty in judging whether other road users are moving and at what speed they approach the intersection (motion perception).
- Overlooking other road users while merging and changing lanes (peripheral vision and flexibility of head and neck).
- Overlooking traffic signs and signals (selective attention).
- Increasing reaction time as the complexity of the traffic situation increases (speed of processing information and decision-making, performance under pressure of time).

Nevertheless, older drivers make up for these disadvantages through their driving experience, also adopting strategies such as driving when the roads are less busy or when it is daytime and dry. These strategies are known as self-regulation, which sometimes is not fully optimal.

Experience and expectancy are important assets for older drivers to keep good performance levels. Several studies have shown that age-related performance differences are predominately found with respect to new or unfamiliar skills, i.e. skills that were not acquired before old age, since learning unfamiliar or new skills requires the so called fluid intelligence which diminishes with healthy ageing. On the opposite, effects of age are usually smaller when knowledge or skills to be learned involve a familiar task domain, where the elderly can

use their stored knowledge, i.e. the crystallized intelligence which is stable or even increasing with age. So, older people have no (or less) learning difficulty when new knowledge can be integrated in an existing knowledge framework, building on their previous experience.

Several studies support the idea that overall, older drivers are not a high-risk group and find that only a sub-group of older drivers (namely, those travelling short distances per year) indicates elevated crash rates. The literature review has shown that older drivers are typically involved in crashes where there is a high cognitive workload due to complex road environments. The frontal and lateral crash car accidents are the most common crash types involving seniors. The typical crash scenario is when an older driver is turning at an intersection and a failure of observation occurs. Regarding the tolerance to injuries, older people are frailer than their younger counterparts, which makes them be physically vulnerable increasing injury severity in case of an accident. Thus, elderly drivers are more likely to hurt themselves than to put others at risk. The fatality rate for drivers over 75 is more than five times higher than the average, and their injury rate is twice as high.

Considering the driving environment, the accident data shows that those traffic situations where older drivers experience most difficulties are intersections and motorway exits/entries (interchanges). This is supported by the explanation that these situations are characterized by complex traffic environments and require a high cognitive workload. Thus, negotiating intersections poses a great challenge to older drivers.

Despite the existence of age-related declines, age has already been discarded as a valid indicator of driving performance (at least, not alone) since abilities and effects differ from person to person (even of the same age). This results in a lack of effectiveness of screening approaches such as the age-based screening, which is currently applied in most European countries. Many studies have concluded that the age-based screening results in negative mobility consequences for the older drivers' population, rather than producing safety benefits. There are alternatives to the age-based screening, such as the use of restricted or graduated licenses which are common in North America and Australia. This approach is aimed at restricting the circumstances in which older people are allowed to drive and seem to be more effective, even if it is also acknowledged that the majority of older drivers self-regulate their driving behaviour, thus not driving in circumstances where they feel uncomfortable.

Walking and cycling

Different prerequisites are required for walking and cycling. While walking (at least in the home or the adjacencies) can be done to an old age, cycling needs more physical as well as mental skills. But walking and cycling have one important thing in common: in various studies was found that walking and cycling has substantial health benefits for older people. Physical activity has emerged as an important mechanism for preventing and potentially reversing age related declines in psychosocial, cognitive and physical functioning. Walking helps to reduce the risks of cardiovascular diseases, stroke and other illness and cancers associated with the circulatory system.

Walking

On the one hand, walking is the most commonly used means of transport for the elderly. With certain age and health declines older people stop driving and avoid longer trips using public transport, they stay in their neighbourhood and do things on foot. But on the other hand, a walking decline was noticed for the whole population (also for the elderly) in several European countries. Walking and the role of pedestrians in traffic being inadequately recognised or generally overlooked by transport policy are considered to be the most important reasons for this trend.

There are several barriers that stop older people from walking. Next to physical and mental barriers, behavioural and social-environmental factors as well as information utility barriers exist. Pleasantness of surroundings or opportunities for social contact and enjoyment,

perceived safety of the neighbourhood and the risk of walking alone, concern over traffic (speed and volume) as well as lack of time, motivation, social interaction or social and cultural expectations can encourage or prevent older people from walking. Furthermore, a lack of knowledge of the walking environment (what is available locally) and under- or overestimation of walking time and distance can deter older people from walking.

To meet the requirements of older people in walking a user-oriented approach is necessary, which addresses their specific needs in terms of impairments and information provision and reduces the physiological, psychological and other barriers to walking. Facilities have to be accessible and acceptable from the perspective of older people. To increase accessibility urban design (proximity and connectivity between older people and shops, leisure and healthcare facilities), restricted motor use in cities (pedestrian areas), traffic calming, improved facilities for walking (improvement of pavement, stopping places, weather shields, pedestrian crossings, etc.), and protecting pedestrians from traffic (legal priorities of over motorists) is necessary. To improve the acceptability of walking (community) education and training programmes are beneficial. Safety and other concerns can be reduced by training and raising awareness. Furthermore, provision of information e.g. in forms of maps booklets, internet or held-held devices can help to increase acceptability of walking.

There are different walking needs and preferences in the profiles of older people. While e.g. for the FF profile walking is less important, for the group of OG it is the most important mode of transport. Different prerequisites for walking (infrastructure, aids, etc.) are necessary to encourage members of the various groups to do more things on foot. Furthermore, the health benefits are relevant for staying in one of the “good” profiles like HC or OG, even in older ages. The different walking preferences, needs, constraints etc. are summarized in table 3.

Table 3: Profile related walking needs

WALKING...	<i>Fit as a Fiddle</i>	<i>Happily Connected</i>	<i>Hole in the Heart</i>	<i>an Oldie but a Goodie</i>	<i>the Care-Full</i>
as mode of transport	less favoured (car or PT preferred; longer distances to cover) walking to other modes of transport	increasing, after retirement (decreasing distances)	less favoured (car or lift of others preferred); walking to other modes of transport	very important (do most things on foot – independency)	less used: often assistance needed for transport
for fitness	less favoured (hiking as sport)	walking as leisure activity	less favoured, but encourage HH to walk → health benefits	very important (“sports” often too exhausting)	very important to stay physically active
constraints	no physical and mental constraints; little time for walking	starting slight physical / cognitive constraints	physical, mental and cognitive constraints fears (night, violence,...) often little motivation to leave home and be active	physical (hips, knees, eyesight, hearing, etc.) and cognitive (orientation) impairments fears: night time, insecure environment, violence	bad physical and mental health; some not possible to leave homes anymore
infrastructure	no special needs	well designed urban areas	barrier free, toilets, benches, safe crossings, walking path	barrier free, toilets, benches, safe crossings, walking path	barrier free; even small kerbs and steps can cause problems
Aids	no aids needed	some may need walking sticks	walking sticks, crutches	walking stick, crutches, walkers,	walking stick, crutches, walkers, etc. (often assistance needed)
and profile transitions	positive effects rising awareness in younger ages	after retirement increase in walking; positive social effect of walking → less problems in coping	walking can improve health, leaving home and meet others positive social effect → possibility to leave profile	walking very important for old elderly to stay physically and mentally fit and keep social	hard to leave profile, but walking has very positive effect on health

		with life-changing events		contacts (stay in the profile as long as possible)	
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Cycling

The number of cyclists is below average among older people. Often older people are not used to cycling or they do not feel safe using a bike because of physical fitness or environmental barriers (traffic volume, traffic speed, missing cycling infrastructure, etc.). Research on cycling among elderly is scarce, as in many countries cycling is not even listed as a common mode of transport in the modal split of the elderly.

However, more and more older people start to cycle for leisure activities, exercise and fitness. There are several advantages of using a bike for older people: cycling is cheap, environmentally friendly and time saving. It also increases independency and autonomy and improves health and fitness. On the other hand physical restricts (eyesight, hearing, motoric functions, etc.) and cognitive declines (decision making, reaction time, multitasking and memory) cause more accidents and the risks of severe injuries are higher. Other barriers for cycling are real and perceived safety concerns generated by motorized traffic as well as cultural aspects and lacking cycling infrastructure. To make cycling more attractive separate cycling facilities along heavily travelled roads and intersections combined with traffic calming in residential neighbourhoods, extensive cycling rights of way, bicycle parking facilities, full integration with public transport, comprehensive traffic education and training for (older) cyclists as well as a wide range of promotional events are necessary. Because people nowadays remain fit at higher age, and the amount of fit and relatively active elderly will increase exponentially as a result of the sharp rise in ageing population, the promotion of cycling in this group can have a large effect on the health and well-being (and related costs) of older adults.

Older cyclists have a higher risk of accidents and severe injuries caused by the higher vulnerability of elderly and a decline in physical functioning as a result of aging. Hence, the encouragement of older people to use protective devices such as conspicuity aids and helmets is important. The question whether the health benefits of cycling can outweigh the risk of accidents has recently been investigated by the British Medical Association (2012). They concluded that the positive effects definitely outweigh the risks and consequences of accidents, because cycling for half an hour a day is one to two years increase in life expectancy, and that is 20 times as much as the reduction of life expectancy by accidents. Table 4 summarizes the profile related cycling needs of older people. While walking is possible for (almost) all profiles of older people, for cycling more physical and cognitive requirements are needed. Hence, cycling is often impossible for members of the CF profile, but for the other profiles cycling is important to stay mobile, independent and active. Promotion starting in younger ages (e.g. in the FF profile or even earlier) is desirable, because older people who are not used to cycling are less likely to start in higher ages or in the profiles HC, HH or OG. For the HC profile cycling has become more and more popular in the last years and there is also a high interest in e-bikes. To increase safety, particularly for the usage of electric bicycles, trainings courses for older people can be beneficial to reduce the risk of accidents.

Table 4: Profile related cycling needs

CYCLING...	<i>Fit as a Fiddle</i>	<i>Happily Connected</i>	<i>Hole in the Heart</i>	<i>an Oldie but a Goodie</i>	<i>the Care-Full</i>
as mode of transport	popular in countries with a cycling culture	popular in countries with a cycling culture	less favoured because of physical and mental problems; often depending on cars	less likely	often not possible anymore
for fitness	depending on preferences	getting more popular (also starting usage of e-bikes)	less favoured because of physical and mental problems (training	positive effects in rehabilitation (training together with a	often not possible anymore

			needed)	physiotherapist)	
constraints	little physical and mental constrains	starting physical and mental issues; training for e-bike usage may be necessary (higher risk of accidents due to higher speed, etc.)	high risk of accidents; fears of falling; physical and mental constraints; some not used to use a bike	high risk of accidents, physical and mental conditions, fear of falling	severe physical and mental impairment
infrastructure and safety	does not differ from younger bike users	safe cycling infrastructure needed particularly for cycling as mode of transport trainings for e-bike usage	safe cycling infrastructure necessary	safe cycling infrastructure necessary	special and safe infrastructure (safe cycling areas close by rehabilitation centres or senior residences, etc...)
Aids		e-bikes	tricycles, e-bikes, bikes meeting the needs of older people	tricycles, bikes meeting the needs of older people	very special bikes
and profile transitions	high potential for staying mobile, active and fit, raise awareness in younger ages	bikes more often used after retirement	cycling for rehabilitation after severe illness (chance to get better and leave profile)	less likely to start cycling in the OG profile, if not done in younger ages often quit cycling after a severe illness or injury	health benefits of physical activities, but cycling often not possible anymore for CF profile

The Action Plan

The final result is the action plan. It presents seven research actions that need to be addressed because of the considerable transport challenges we face by the growth of the older people population in the coming decades.

The seven research actions should be taken forward immediately if we are to understand and exploit the opportunities to enable older people to enjoy safe, sustainable and socially satisfying lifestyles. When we have looked further into the future, these same building blocks of fundamental understanding remain crucial for all the potential long term scenarios that we have identified within the GOAL project.

These are the research actions;

- 1 Develop databases on walking and cycling behaviour by older people
- 2) Identify motivators for walking and cycling for older people
- 3) Investigate the transition behaviour from car to other modalities
- 4) Develop methodologies to assess the benefits of public transport accessibility measures
- 5) Identify the requirements for travel information and social media suitable for older people
- 6) Assess the impact and potential of future technology for the older driver
- 7) Develop driving screening and assessment tools and programs

1.4 public website address, as well as relevant contact details.

At the beginning of the project a public website was launched: www.goal-project.eu. Also a project document share was launched in which the project partners share all relevant documents and information: <http://bscw.uni-duisburg-essen.de/bscw/bscw.cgi>

1.5 Furthermore, project logo, diagrams or photographs illustrating and promoting the work of the project (including videos, etc...), as well as the list of all beneficiaries with the corresponding contact names can be submitted without any restriction.



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Participant no.	Participant organisation name	Part. short name		Country
1 (Coordinator)	Nederlandse Organisatie voor toegepast natuurwetenschappelijk onderzoek TNO	TNO	Marika Hoedemaeker	The Netherlands
2	Transportation Research Group, University of Southampton	TRG	Mike Mc Donald	United Kingdom
3	Fundación CIDAUT	CIDAUT	Maria Alonso	Spain
4	Università degli Studi di Firenze	UNIFI	Niccolo Baldanzini	Italy
5	Österreichisches Forschungs- und Prüfzentrum Arsenal Ges.m.b.H.	AIT	Alexandra Millonig	Austria
6	RWTH Aachen fuer Institut fur Kraftfahrwesen Aachen	IKA	Alexandra Wulf	Germany

2 Use and dissemination of foreground

One of the main aims of the GOAL project is the dissemination of the obtained knowledge by means of the website, public deliverables and workshops. IKA will function as Leader of the dissemination, though all consortium members will actively contribute in the dissemination process by attending the workshops and expert meetings, and if possible contribute to scientific and popular publications.

The main objectives of our dissemination strategy are:

- To review and make a large quantity of knowledge and expertise on older people available to policy makers, experts and stakeholders.
- To interact with older people in Europe to ensure that the results are valid and produce maximal societal impact.

Target groups

Main target groups of the work performed in GOAL are :

- Policy makers at the local, regional, national and European levels, who among other things are responsible for combining increasing mobility for older people with increasing traffic safety and efficiency and reducing gas emissions.
- OEMs, developers and designers of transport and mobility solutions for older people
- Ultimately, the older people in Europe.

These groups may directly (policy makers) or indirectly (the industry and older people) profit from the outcomes and experiences of the GOAL project for producing new insights into the transport needs of older people in Europe. This insures a guide for a positive balance between transport safety, acceptance and usability from which other people may also benefit.

The dissemination strategy of the GOAL project aims at directly involving these target groups through workshops and questionnaires. Older people will be involved by including them in the research as participants in representative samples from the different subgroups. The outcome of the questionnaires and advice yielded by the workshops will be taken into account when preparing the roadmap in WP7.

GOAL results on research gaps will be very important for planning future research on mobility of aging society, in particular, in the area on:

- Innovative technology solutions (e.g. ICT) for supporting mobility of older people (e.g. information and guidance)
- Safety of older drivers
- Improving public transport to meet requirements of older people

GOAL provides knowledge on cross-European research and survey results concerning mobility of elderly people. These results need to be embedded in further research projects to develop and improve tools and the implementation of solutions suiting their particular needs, improving walking conditions and creating livable communities. The work within the project helps academic partners to identify further challenges, and GOAL academic partners will strengthen the European research on this topic by developing new innovations and evaluated approaches following the results in the GOAL action plan. All academic partners will disseminate their knowledge gained through the work done in GOAL in scientific publications and presentations at conferences.

Academic partner will gain in-detail knowledge of existing and future mobility needs of an ageing society and how to solve them by integrating behavioural patterns in technological developments. Academic partners will build up relevant experience to adapt, extend and exploit the GOAL action plan for their needs in sub-sequent research or industry projects. GOAL strengthens each partner's position in this research area and ensures that appropriate action will be implemented.

The consortium will make use of its network in the public transport, ICT, and pedestrian research community and will actively address the specific target audiences, like local authorities, relevant NGOs, like senior citizen organizations, and infrastructure operators, broaden their knowledge about these needs and support them to improve their mobility policy.

The partners have major research activities in the field of mobility of the future like mobility on demand systems and concepts of integrated and combined mobility concepts. All aspects and results of the GOAL project, not only the needs, but also the influence exercised by the elders in the future as an important and expanding sector of society on the culture of mobility and on urban planning will be taken into account in planning future transport systems, including all modes of transport and new concepts. Moreover, the results will be used to prepare future research project initiatives on the cutting edge of research and to steer future research assignments of undergraduate and graduate students, so that they will have more chances of an high acceptance in the industrial environment.

Dissemination of results and technology

The availability of the roadmap regarding transport needs of older people, which will be made available by GOAL, will increment and complement the current knowledge used for policy making taking into account the ongoing demographic trends.

A website will be developed to provide an overview of the total programme, its progress and the results of the separate work packages. From the outset of the programme, all contributors can indicate their fields of expertise and inform their network. During the course of the programme, the GOAL consortium can always be contacted by third parties for any questions on the content and/or results of programme. Incoming questions through a general email address (e.g. info@GOAL.eu) will be answered or forwarded to specific experts.

The consortium will promote the publication of articles and papers. Journalists from specialist press may also be invited to present the results of the project. Of course, all the partners of the consortium will actively contribute to relevant symposiums and conferences.

Knowledge is transferred in six workshops which were held during the project. Stakeholders were invited as well as experts on older drivers' needs from Japan and USA. The first three workshops were related to specific WPs (WP2 and WP3), whilst the fourth workshop combined several WPs (WP 4, 5 and T6.1). The fifth workshop focused on future scenarios developed in WP6. The final workshop was held during the international conference: Mobility and Road Safety in an Ageing Society, 19 June 2013, Vienna, Austria and included the results of all WPs and

mainly focused on the developed action plan (WP7). An overview of the key results and the roadmap was given and a discussion was held on what recommendations can be made for the needs of the ageing society.

2.1 Section A

No scientific publications were made apart from the poster and paper presentations on conferences which are reported in template A2.

TEMPLATE A1: LIST OF SCIENTIFIC PUBLICATIONS, STARTING WITH THE MOST IMPORTANT ONES										
NO.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Date of publication	Relevant pages	Permanent identifiers ³ (if available)	Is/Will open access ⁴ provided to this publication? Y/N
1										
2										
3										
4										
5										
6										
7										

³ A permanent identifier should be a persistent link to the published version full text if open access or abstract if article is pay per view) or to the final manuscript accepted for publication (link to article in repository).

⁴ Open Access is defined as free of charge access for anyone via Internet. Please answer "yes" if the open access to the publication is already established and also if the embargo period for open access is not yet over but you intend to establish open access afterwards.

TEMPLATE A2: LIST OF DISSEMINATION ACTIVITIES						
Type of dissemination Product (= presentation, conference, workshop, publication, flyer, poster, etc.)	Main leader	Title	Date	Place	Target Audience (Scientific community (higher education, Research) - Industry - Civil society - Policy makers – Media)	Countries addressed
Workshop (stand alone)	AIT (Alexandra Millonig, Bettina Mandl)	Profiles of Older People	27/28 February 2012	AIT, Vienna, Austria	Research, stakeholders	international
Workshop (conference)	AIT (Bettina Mandl, Alexandra Millonig)	Agreement on Profiles of Older People	29 June 2012	Italian SHARE Users' Conference, 28-29 June 2012, Venice, Italy	Research, scientific community	Italy, International
Presentation (conference)	AIT (Alexandra Millonig)	The Variety of the Golden Agers: Identifying Profiles of Older People for Mobility Research	15 January 2013	Senior Mobility Options Joint Subcommittee Meeting, Transportation Research Board 92nd Annual Meeting, TRB 2013, 13-17 Jan. 2103, Washington, D.C., USA	Research, scientific community, stakeholders	USA, international

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Poster (conference)	AIT (Alexandra Millonig, Bettina Mandl)	The Variety of the Golden Agers: Identifying Profiles of Older People for Mobility Research	16 January 2013	Transportation Research Board 92nd Annual Meeting, TRB 2013, 13-17 Jan. 2103, Washington, D.C., USA	Research, scientific community, stakeholders	USA, international
Workshop (stand alone)	AIT (content: Alexandra Millonig; presentation: TRG)	Older People and Walking and Cycling	13 February 2013	NIC - Nuovo Ingresso Careggio in Florence, Italy	Research, scientific community	international
Poster (conference)	AIT (Alexandra Millonig)	GOAL WP2: Profiles of Older People	19 June 2013	International Congress: Mobility and Road Safety in an Ageing Society, 19 June 2013, Vienna, Austria	Research, scientific community, stakeholders	Austria, international
Poster (conference)	AIT (Alexandra Millonig)	GOAL WP4 2: Older People and Walking and Cycling	19 June 2013	International Congress: Mobility and Road Safety in an Ageing Society, 19 June 2013, Vienna, Austria	Research, scientific community, stakeholders	Austria, international
Presentation (conference)	AIT (Alexandra Millonig)	Identifying transport needs of older people by taking into account the heterogeneity in the population of	13 September 2013	42nd Annual Conference of the British Society of Gerontology, BSG 2013, 11-13 Sep. 2103 Oxford, UK	Research, scientific community	UK, international

		seniors				
Presentation (US scanning tour)	AIT (Alexandra Millonig)	Transportation Research from a Human-centered Perspective	21-26 July 2013	ECTRI US Scanning Tour "Transport and Liveability – Sustainability of urban areas", MIT, Cambridge, MA; Volpe National Transportation Systems Center, Cambridge, MA; TRB, Washington, D.C.; OTREC, Portland, OR; MTC, Oakland, CA; UC Davis, Davis, CA	Scientific community (universities, national research institutes)	USA
WP3 Workshop (including various presentations and 4 posters, namely: one global for the whole WP, one on T3.1, one on T3.2 and one on T3.3)	CIDAUT	Older people and driving	03/10/2012	Brussels	Scientific Community	European countries mainly
Presentation on GOAL project and WP3 specific scope and status	CIDAUT	Insicurezza ambientale e stradale Il comportamento umano tra fatalità e prevedibilità	01/12/2012	Milan	Scientific Community	European countries, mainly Italy

		Buone pratiche tra prevenzione e cura in Europa				
GOAL paper on WP3 older people and driving	CIDAUT	The International Congress: Mobility and Road Safety in an Ageing Society	19-20/06/2013	Vienna	Scientific Community	International domain
Workshop	TRG	Workshop 4	February 2013	Florence, Italy	Scientific community, policy maker	Europe
Workshop	UniFi	Workshop 5	February 2013	Florence, Italy	Scientific community, policy maker	Europe
Poster presentation at Mobility and Road Safety in an Ageing Society Conference	TRG	Older People and Public Transport	June 2013	Vienna, Austria	Scientific community, civil society, policy maker	Europe
Poster presentation at Mobility and Road Safety in an Ageing Society Conference	TRG	Older People and Walking and Cycling	June 2013	Vienna, Austria	Scientific community, civil society, policy maker	Europe
Workshop	TNO	Workshop 6	June 2013	Vienna, Austria	Scientific community, policy maker	Europe

2.2 Section B

The GOAL project did not apply any patents, trademarks or registered designs.

TEMPLATE B1: LIST OF APPLICATIONS FOR PATENTS, TRADEMARKS, REGISTERED DESIGNS, ETC.							
Type of IP Rights ⁵ :	Application reference(s) (e.g. EP123456)	Intellectual Property Organization	Subject or title of application	Confidential Y/N	Foreseen embargo date	Applicants	URL

⁵ A drop down list allows choosing the type of IP rights: Patents, Trademarks, Registered designs, Utility models, Others.

Template B2: OVERVIEW TABLE WITH EXPLOITABLE FOREGROUND

Type of Exploitable Foreground ⁶	Description of exploitable foreground	Confidential Click on YES/NO	Foreseen embargo date dd/mm/yyyy	Exploitable product(s) or measure(s)	Sector(s) of application ⁷	Timetable, commercial or any other use	Patents or other IPR exploitation (licences)	Owner & Other Beneficiary(s) involved

⁶ A drop down list allows choosing the type of foreground: General advancement of knowledge, Commercial exploitation of R&D results, Exploitation of R&D results via standards, exploitation of results through EU policies, exploitation of results through (social) innovation.

⁷ A drop down list allows choosing the type sector (NACE nomenclature) : http://ec.europa.eu/competition/mergers/cases/index/nace_all.html

3 Report on societal implications

B. Ethics

1. Did your project undergo an Ethics Review (and/or Screening)?

*

Yes

No

If Yes: have you described the progress of compliance with the relevant Ethics Review/Screening Requirements in the frame of the periodic/final reports?

Special Reminder: the progress of compliance with the Ethics Review/Screening Requirements should be described in the Period/Final Project Reports under the Section 2.2 'Work Progress and Achievements'.

2. Please indicate whether your project involved any of the following issues (tick box) :

RESEARCH ON HUMANS

Did the project involve children?

*

Yes

No

Did the project involve patients?

*

Yes

No

Did the project involve persons not able to give consent?

*

Yes

No

Did the project involve adult healthy volunteers?

Yes
 No

Did the project involve Human genetic material?

Yes
 No

Did the project involve Human biological samples?

Yes
 No

Did the project involve Human data collection?

Yes
 No

RESEARCH ON HUMAN EMBRYO/FOETUS

Did the project involve Human Embryos?

Yes
 No

Did the project involve Human Foetal Tissue / Cells?

Yes
 No

Did the project involve Human Embryonic Stem Cells (hESCs)?

*

Yes
 No

Did the project on human Embryonic Stem Cells involve cells in culture?

Yes
 No

Did the project on human Embryonic Stem Cells involve the derivation of cells from Embryos?

Yes
 No

PRIVACY

Did the project involve processing of genetic information or personal data (eg. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?

Yes
 No

Did the project involve tracking the location or observation of people?

Yes
 No

RESEARCH ON ANIMALS

Did the project involve research on animals?

Yes
 No

Were those animals transgenic small laboratory animals?

*

Yes
 No

Were those animals transgenic farm animals?

*

Yes
 No

Were those animals cloned farm animals?

*

Yes
 No

Were those animals non-human primates?

*

Yes
 No

RESEARCH INVOLVING DEVELOPING COUNTRIES

Did the project involve the use of local resources (genetic, animal, plant etc)?

*

Yes
 No

Was the project of benefit to local community (capacity building, access to healthcare, education etc)?

*

Yes
 No

DUAL USE

Research having direct military use

*

Yes
 No

Research having the potential for terrorist abuse

*

Yes
 No

C. Workforce Statistics

3. Workforce statistics for the project: Please indicate in the table below the number of people who worked on the project (on a headcount basis).

Type of Position

Scientific Coordinator

Number of Women*

Number of Men*

1

0

Work package leaders

5

3

Experienced researchers (i.e. PhD holders)

3

3

PhD student

0

0

Other

3

2

4. How many additional researchers (in companies and universities) were recruited specifically for this project? *

0

Of which, indicate the number of men: *

0

D. Gender Aspects

5. Did you carry out specific Gender Equality Actions under the project ?

*

- Yes
- No

6. Which of the following actions did you carry out and how effective were they?

Design and implement an equal opportunity policy

*

- Not Applicable
- Not at all effective
- Not effective
- Effective
- Almost effective
- Very effective

Set targets to achieve a gender balance in the workforce

*

- Not Applicable
- Not at all effective
- Not effective
- Effective
- Almost effective
- Very effective

Organise conferences and workshops on gender

*

- Not Applicable
- Not at all effective

- Not effective
- Effective
- Almost effective
- Very effective

Actions to improve work-life balance

*

- Not Applicable
- Not at all effective
- Not effective
- Effective
- Almost effective
- Very effective

Other:

7. Was there a gender dimension associated with the research content - i.e. wherever people were the focus of the research as, for example, consumers, users, patients or in trials, was the issue of gender considered and addressed?

*

- Yes (Specify below)
- No

Gender was part of the profiles we developed of older people.

E. Synergies with Science Education

8. Did your project involve working with students and/or school pupils (e.g. open days, participation in science festivals and events, prizes/competitions or joint projects)?

*

Yes (Specify below)
 No

TNO involved a University student to perform a study for the GOAL project as part of his masters certificate.

9. Did the project generate any science education material (e.g. kits, websites, explanatory booklets, DVDs)?

*

Yes (Specify below)
 No

F. Interdisciplinarity

10. Which disciplines (see list below) are involved in your project?

Main discipline

* 5.4 Other social sciences

Associated discipline:

3.3 Health sciences

Associated discipline:

1.1 Mathematics and computer sciences

G. Engaging with Civil society and policy makers

11a. Did your project engage with societal actors beyond the research community? (if 'No', go to Question 14)

*

Yes
 No

11b. If yes, did you engage with citizens (citizens' panels / juries) or organised civil society (NGOs, patients' groups etc.)? Yes:
elderly organisations and political parties

11c. In doing so, did your project involve actors whose role is mainly to organise the dialogue with citizens and organised civil society (e.g. professional mediator; communication company, science museums)? No

12. Did you engage with government / public bodies or policy makers (including international organisations): Yes

13a. Will the project generate outputs (expertise or scientific advice) which could be used by policy makers? Yes

13b. If Yes, in which fields? Transportation and health

13c. If Yes, at which level? Policy makers

H. Use and dissemination

14. How many Articles were published/accepted for publication in peer-reviewed journals?

Total:0 To how many of these is open access provided (4)?

How many of these are published in open access journals?*

0

How many of these are published in open repositories?*

0

To how many of these is open access not provided?0

Please check all applicable reasons for not providing open access:

- publisher's licensing agreement would not permit publishing in a repository
- no suitable repository available
- no suitable open access journal available
- no funds available to publish in an open access journal
- lack of time and resources
- lack of information on open access

If other - please specify (7)

(7) For instance: classification for security project.

15. How many new patent applications ('priority filings') have been made?

*

("Technologically unique": multiple applications for the same invention in different jurisdictions should be counted as just one application of grant).

16. Indicate how many of the following Intellectual Property Rights were applied for (give number in each box).

Trademark0
Registered design0
Other0

17. How many spin-off companies were created / are planned as a direct result of the project?

*

Indicate the approximate number of additional jobs in these companies:*

18. Please indicate whether your project has a potential impact on employment, in comparison with the situation before your project:

*

- Increase in employment, or
- Safeguard employment, or
- Decrease in employment, or
- Difficult to estimate / not possible to quantify

*

- In small and medium-sized enterprises
- In large companies
- None of the above / not relevant to the project

19. For your project partnership please estimate the employment effect resulting directly from your participation in Full Time Equivalent (FTE = one person working fulltime for a year) jobs:

*



Difficult to estimate / not possible to quantify

I. Media and Communication to the general public

20. As part of the project, were any of the beneficiaries professionals in communication or media relations?

*

- Yes
- No

21. As part of the project, have any beneficiaries received professional media / communication training / advice to improve communication with the general public?

*

- Yes
- No

22. Which of the following have been used to communicate information about your project to the general public, or have resulted from your project?

- Press Release
- Media briefing
- TV coverage / report

- Radio coverage / report
- Brochures /posters / flyers
- DVD /Film /Multimedia
- Coverage in specialist press
- Coverage in general (non-specialist) press
- Coverage in national press
- Coverage in international press
- Website for the general public / internet
- Event targeting general public (festival, conference, exhibition, science café)

23. In which languages are the information products for the general public produced?

- Language of the coordinator
- Other language(s)
- English