

Project Acronym: LiMIT4WeDA

Project Title: Light Mobility and Information Technologies for Weak Demand Areas

Lead Partner: LAZIO REGION - Regional Department for Transports

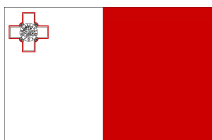
Component: 3 Benchmark of best practices on innovative transport systems in weak demand areas

Phase: 3.2 Analysis of existing innovative transport applications in weak demand areas

Responsible Partner: LAZIO REGION - Regional Department for Transports

Deliverable: 3.2.1 Private Business Initiatives

Partner: Malta Intelligent Energy Management Agency



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Executive Summary

The LiMIT4WeDA project aims to investigate mobility issues in areas classified as 'weak demand'. Component 3 of the project scrutinizes existing transport applications which can be classified as green transport and which can be utilised in weak demand areas within the Mediterranean countries. This deliverable is aimed at investigating statistical data related to the impacts and changes brought about by innovative applications and their corresponding practice conditions. The approach used for this study takes into consideration quantitative descriptions by analysing existing statistical data, engaging in a quantitative scrutiny which involves the comparison of the actual number of trips with the number of rides for any given transport application. Ultimately the study is aimed at examining the number of trip demands attracted. In this manner LiMIT4WeDA can quantify the effectiveness of each innovative transport application. The next step will focus on the qualitative analysis of the users' perception by the collection and analysis of data via a questionnaire.

Such an approach will enable the evaluation of the impacts on the mobility demand, through the use of innovative mobility measures in weak demand areas. In this manner, the consortium can identify the scalability of each application for the municipality. Finally, probable barriers will be identified so that any issues related to the scalability and transferability of each transport solution can be verified.

1 Introduction

Deficient demand for public transport usually leads to inefficient public transport systems, consequently increasing the use of private vehicles. Within the LiMIT4WeDA project, it should be possible to devise measures that will bring support to local public transport in general, with the overall aim of improving the feasibility of public and private transportation systems. This will be achieved through the setting up and exploitation of various kinds of transportation and social networks, information technology enabled mobility, inter-modal transport, and the creation of transport related policies at different levels.

Faced the various modes of transport, it is very likely that the general public's choice is affected as much by one's lifestyle, location and trips, as by a number of stereotypes. Consequently, the aim of this report is to shed light on the philosophy behind the present modes of transports and the possible outcomes from the implementation and availability of innovative transport systems. This approach is likely to grow in importance as Europe strives to come to terms with global warming and climate change.

1.1 *Overview of the project*

LiMIT4WeDA stands for Light Mobility And Information Technology For Weak Demand Areas. The aim of this project is to explore mobility issues in areas classified as 'weak demand'. Such areas are typified according to their transport demand, and are generally characterized by inefficient public transport and the consequent widespread and heavy dependence on private vehicles. This tendency leads to a reduction of the accessibility of weak demand areas and an unsustainable transport system which consequently discriminates between individuals on the basis of social class as well as physical and mental impairment.

Regions characterised by a weak demand of transport are populated by diversified users, low density population, low density housing, and differentiated transport demand. Examples of such areas can be peripheral

areas or urban sprawl areas. In these situations, public transport needs to be coherent with the population's transportation preferences and needs with the aim of overcoming accessibility barriers and equity problems, foremost for socially impaired people. LiMIT4WeDA deals with mobility in urban areas of weak demand transport, and in so doing it abides by the following overriding considerations:

- Cooperative tools must be investigated in the aim of reducing the use of private cars;
- every citizen should easily access public transport;
- the design of transport systems through unconventional systems should be coherent with local economies, such as tourism in the case of Malta.

1.2 Objectives

The project intends not to leave any stones unturned in its quest to come up with appropriate solutions that will make local public transport systems for weak demand areas more practical and, ultimately, more viable. Consequently, the main objectives of the project have been identified as:

- A reduction in the movement of people through the improvement in accessibility of transport services: such a result can be obtained through the support of private initiatives and with the support of information technologies;
- The increase in the use of collective and public transport, via the implementation of self-organized services: in turn, such transportation systems should be able to achieve economies of scale corresponding to the specific needs of the territory;
- A reduction in the emission of green house gasses resulting from transport systems in general. This can be achieved through the promotion of the integrated access to low environmental impact solutions such as bike sharing in urban and peripheral areas;

- The setting up of alternative transport systems integrating flexible routes in the aim of providing efficient services: economically and environmentally.

1.3 Activities

Component 1 of the project deals with communication issues, and will be the main vector for the dissemination of the project and its results among stakeholders and the general public. Component 2 is concerned with the management of the project and the relationships between the consortium partners and the MED Programme Managing Authority.

The technical components will focus on the problem and the various solutions. Component 3 will bring together various kinds of technologies, innovative transport systems and applications, and will clearly identify the implementation process required during the introduction and maintenance of new systems. Pilot projects will be proposed in order to demonstrate the feasibility of new systems, to raise citizen awareness and to stimulate public and private stakeholders.

Component 4 will set up the pilot projects designated to identify potential barriers which can compromise the accessibility to the public, especially socially impaired groups, tourists and families. This will be achieved through a technological application capable of providing information about the opportunities, tools and resources that can help overcome any possible hurdles. In this light, Component 4 will finally improve the feasibility and usability of the territory.

This will be achieved through:

- a) the use of cutting edge technologies;
- b) the exploitation of virtual social networks;
- c) experimentation of light mobility, info-mobility and inter-modal transport;
- d) decision making at different levels ;
- e) horizontal activities; and consequently,

- f) citizens awareness raising.

1.4 Structure of the Report

Following from the introductory section, Section 2 of the report embarks on describing already existent frameworks behind private business initiatives, as applicable to weak demand areas. The basic ideas and tendencies behind these solutions, as well as a detailed description of the role of the innovative transport applications, will be presented. This will have a look at the economic perspective and the emergence of a sustainability conscience.

Section 3 analyses the operation of CENEX, which is the United Kingdom's first Centre of Excellence for low carbon and fuel cell technologies. This report will delve into one of its pilot projects, called 'Smart Electric', which is intended at promoting the feasibility of electric vehicles. The secondary aim of this project was to analyse the perception of electric cars amongst the public, before and after their deployment.

Section 4 follows with the identification of any possible internal forces that are expected to obstruct the transferability of the described application technologies in the European region.

Finally, Section 5 draws up a number of conclusions based on the ongoing analysis within the context of current economic and social trends and in line with existing government policies. This section also analyses in some detail the current innovation management process as a background to the Maltese National Energy Efficiency Action Plan.

2 Overview of Private Business Initiatives

The economic feasibility of new application technologies defines the viability of transport related private business initiatives. Within the transport industry The Economist (2011) describes how eBay, now the world's biggest auction website, went online in 1995, was expected to fail. Why would anyone buy used items from perfect strangers? Two new services—WhipCar, which was launched in London on April 21st 2009, and RelayRides, which will start up in Boston, Massachusetts, early this summer—will face similar scepticism. Both aim to get car-owners to rent their vehicles to strangers when not using them themselves.

The Economist (2011) describes the main hurdle as “car-owners are reluctant to share their personal possessions (and the requirement to keep it clean). The firms must also overcome a problem all exchanges face: attracting enough members to make the service useful”.

3 UK's Centre of Excellence (CENEX)

3.1 UK's first Centre of Excellence for low carbon and fuel cell technologies

Cenex has been established with support from the Department for Business, Innovation and Skills, to promote UK market development in low carbon and fuel cell technologies for transport applications. Cenex's principal focus is on catalysing market transformation projects linking technology providers and end users. As part of this work, it runs a number of programmes for UK national and regional government. Cenex manages a number of programmes on behalf of national and regional government in the UK, including the Infrastructure Grant Programme and Low Carbon Vehicle Procurement Programme for the Department for Transport (Cenex.co.uk, 2010).

3.2 Niche Vehicles

The Niche Vehicle programme is aimed to support and grant funding to groups of companies active in the niche vehicle sector in the UK. It promotes the development and application of new technology to take advantage of market opportunities for lower carbon vehicles. The programme brings together vehicle manufacturers, system suppliers, technology companies and universities, in order to collaborate in the innovative use of technology in low-volume vehicle production (Cenex.co.uk, 2010).

3.3 Plugged-In Places

Niche Vehicles programme is supported by the Midlands Plugged-In Places (PiP) by combining the roll out of electric vehicle infrastructure with the development of regional capabilities associated with the electrification of road transport. Jointly managed by Cenex and Central Technology Belt, the project is one of eight Department for Transport sponsored Plugged-In Places projects. It will see more than 500 electric vehicle charging posts deployed

across the East and West Midlands between 2011 and 2013, as part of a regional network with national connectivity (Cenex.co.uk, 2010).

The project's aims are described as:

- Providing an infrastructure that will support the early market for electric vehicles that we expect to see developing over the next few years with the Government's Consumer Incentive scheme.
- The provision of Plugged-In Places in aim of testing out different approaches for recharging electric vehicles. The lessons learned from these different approaches will inform future strategy and decisions on mandating a national charging infrastructure, as set out in the Coalition Agreement.

3.4 LCVPP

In May 2007 the Energy White Paper was published describing how Cenex will aid the Department for Transport in the Low Carbon Vehicle Procurement Programme (LCVPP). This programme aims to accelerate the introduction of lower carbon technologies onto the UK vehicle market, with the ultimate objective of reducing overall carbon emissions belonging to transport sector (Cenex.co.uk, 2010).

3.5 IGP Infrastructure Grant Programme

The Department for Transport funded the Infrastructure Grant Programme. Alternative (i.e. alternatives to diesel or petrol) road fuels offer a means of cutting carbon dioxide and air pollutant emissions, as well as reducing dependency on fossil fuels. Examples of alternative fuels include hydrogen, electricity for electric vehicles and methane (both natural gas and biomethane). For fleet operators the cost of installing refuelling or recharging infrastructure represents a barrier to switching fuel use.

As part of the UK Government's energy efficient action plan as applicable to road transport, grants were issued in aim of encouraging organisations to set up stations for the refuelling of alternative fuels. This funding was eligible for

infrastructures delivering hydrogen, electricity, natural gas, biogas stations and for other blends of gas.

3.6 *Smart Electric*

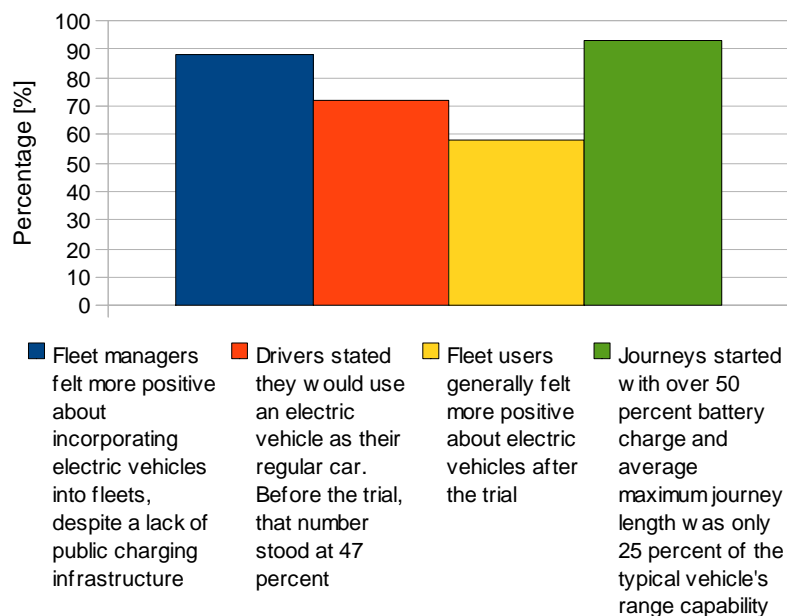
Source: *Cenex.co.uk, 2010*

Figure 1 Smart Electric Vehicle Trial

CENEX has carried out a 6 month study on low carbon vehicle emission technologies. During this period 264 participants had the opportunity to drive a Smart Electric (electric plug-in). Following its study, CENEX came up with the following findings:

- 88 percent of fleet managers felt more positive about incorporating electric vehicles into fleets, despite a lack of public charging infrastructure
- 72 percent of drivers stated they would use an electric vehicle as their regular car. Before the trial, that number stood at 47 percent..
- 58 percent of fleet users generally felt more positive about electric vehicles after the trial.
- 'Range anxiety' was dealt with by preparing before each drive: 93 percent of journeys started with over 50 percent battery charge and average maximum journey length was only 25 percent of the typical vehicle's range capability.
- Test drivers and fleet users in the 20-30 age group experienced the highest opinion shift in favour of electric vehicle ownership.

Experienced shift in favour of electric vehicle ownership



Source: hybridabc.com, 2010

Figure 2 Opinion shift in favour of electric vehicle ownership

Figure 2 displays the opinion shifts about electric vehicles was weaved by the driving experience of an Electric Smart. Such a study proved how the experience behind the wheel of an electric car put the technology in a brighter perspective such that it can suit their driving tendencies. Scepticism is typically featured by the batteries' lifetime, safety and reliability of the entire car. This study, as shown in Figure 2, proved how the pilot project involving Smart Electric dwarfed the scepticism related to the reliability and feasibility of electric vehicles.

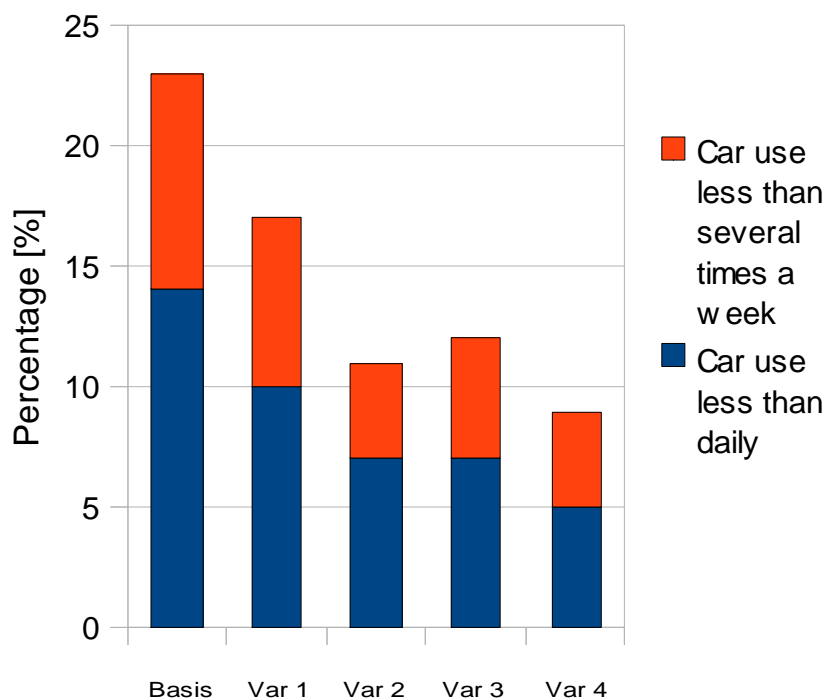
4 Barriers to the scalability of the project

The road ahead is featured by various obstacles existing in various forms and modes. Such challenges need to be identified and tackled such that awareness can be raised among the general public about any alternative to private car ownership. Stereotypically commuters are mind-framed into regarding their car as a prized possession and a status symbol thus illicitly justifying the continuous expenditure of its ownership and its green house emissions.

Additional criteria	Car use less than:		Projection of total value (millions)
	(a) daily or several times a week	(b) Share of a people fulfilling the criteria (%)	
	a	14	4.3
Basis: positive attitudes towards car sharing	b	9	2.6
Variant 1: positive attitudes towards car sharing and rational attitudes towards cars	a	10	3
	b	7	2
Variant 2: as for variant 1, additional negative statements towards car sharing are denied	a	7	2
	b	4	1.3
Variant 3: as for variant 1, additional positive attitudes towards public transport	a	7	2
	b	5	1.5
Variant 4: as for variant 1, additional positive attitudes towards public transport and negative statements towards car sharing are denied	a	5	1.5
	b	4	1.1

Source: *Cenex.co.uk, 2010*

Table 1 Variants and tendencies based on objective and subjective criteria



Source: Cenex.co.uk, 2010

Figure 3 Percentage share of people fulfilling one of the variants as described in table 2

Such a framework of thought can only be overcome through the correct promotion and dissemination of more efficient transport solutions. Table 2 and Figure 3 show the change in tendencies amongst those who have participated in the pilot project involving Smart Electric in England. This study evidently shows how pilot projects can weave stereotypes and aid at promoting cutting edge technologies. Such alternatives embrace better costs, more convenience, socialization and ultimately, less greenhouse gas emissions.

Glötz-Richter describes how in the cases of Bremen and Wallonia people can change, if given the right incentive, and the result will be fewer cars on the street, a more attractive urban environment and cleaner air (World Car Free, 2011).

4.1 *Prospective barriers to the implementation*

In Europe, the early adopters of the car-sharing concept have been largely motivated by environmental concerns and financial savings. For example, members of the Leiden car-sharing group in the Netherlands ranked the increasing costs of automotive driving as the primary reason they joined the organization. The excessive time public transport takes ranked second, and residential parking problems and age of car ranked third and fourth, respectively (Meijkamp, 2000).

4.2 *Pedestrians*

Porter et al. (1999) describes how the need for improved conditions for pedestrians has recently received increased attention among transportation planners. Recognizing a growing popular interest in walking for health and recreation, they are promoting alternatives to auto-mobile travel and providing safe and convenient travel options for the entire population. Moreover the Pedestrian and Bicycle Information Center (2005) emphasizes how a transportation system that encourages walking can reduce traffic congestion and improve the safety of motorists and the quality of life.

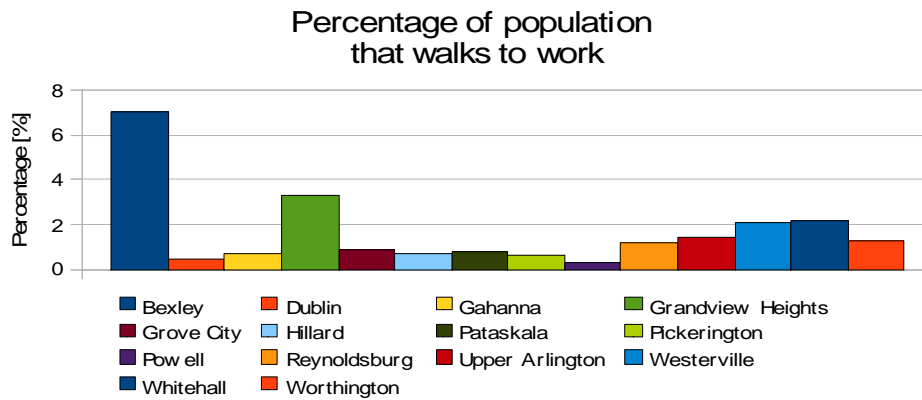
In the next pages, Table 2 describes the Columbus Metropolitan (USA) area sidewalks policies. Figure 4 shows that portion of the population who walk to work. Moreover, Figure 5 shows the population distribution amongst the cities in question.

Then, Table 3 and Figure 6 show those cities which consider maintenance policy. Table 4 and Figure 7 show cities where side-walks is assumed as property owner's responsibility

	Population	Percentage of population that walks to work
Bexley	12203	7
Dublin	31392	0.5
Gahanna	32636	0.7
Grandview Heights	6695	3.3
Grove City	27075	0.9
Hillard	24075	0.7
Pataskala	10249	0.8
Pickerington	9792	0.6
Powell	6247	0.3
Reynoldsburg	32069	1.2
Upper Arlington	33686	1.4
Westerville	35318	2.1
Whitehall	19228	2.2
Worthington	14125	1.3

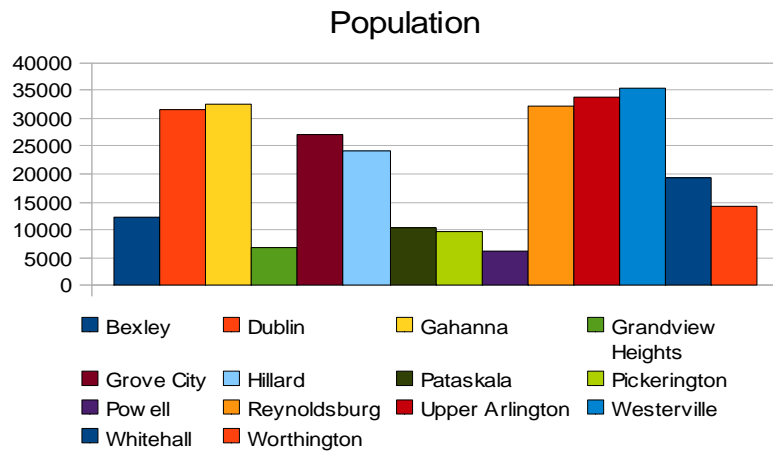
Source: Gaynor, 2007

Table 2 Columbus Metropolitan Area Sidewalk Policies



Source: Gaynor, 2007

Figure 4 Percentage of population that walks to work



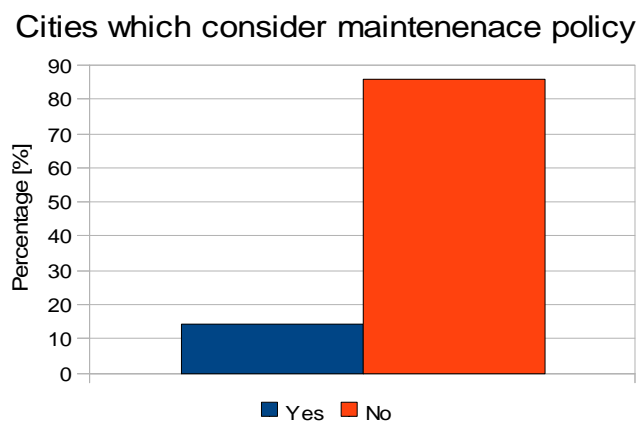
Source: Gaynor, 2007

Figure 5 Population distribution amongst the 14 Cities in question

Cities which consider maintenance policy	
Yes	14.29
No	85.71

Source: Gaynor, 2007

Table 3 Cities which consider maintenance policy



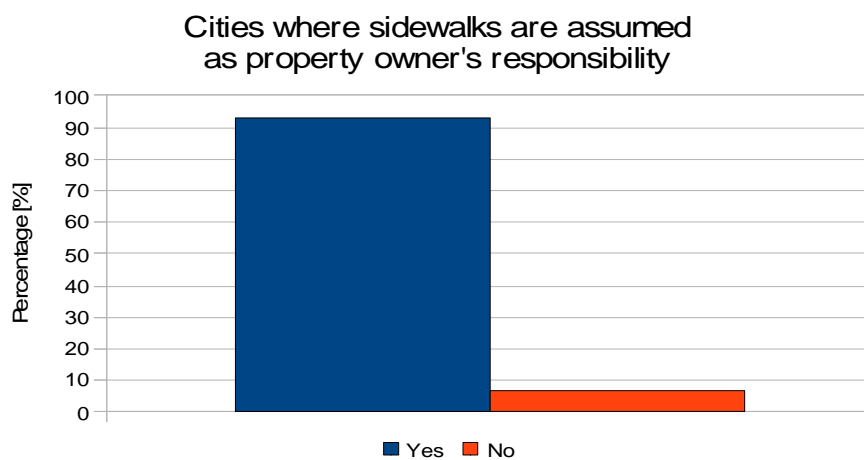
Source: Gaynor, 2007

Figure 6 Cities which consider maintenance policy

Cities where sidewalks is assumed as property owner's responsibility	
Yes	92.86
No	7.14

Source: Gaynor, 2007

Table 4 Cities where side-walks are assumed as property owner's responsibility



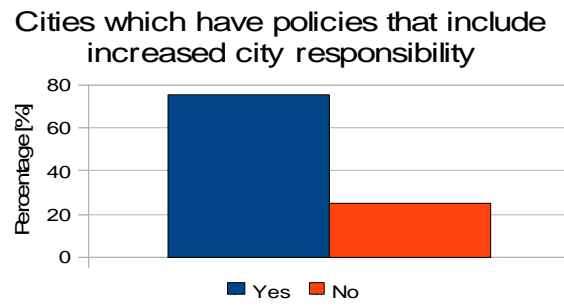
Source: Gaynor, 2007

Figure 7 Cities where side-walks are assumed as property owner's responsibility

Cities which have policies that include increased city responsibility	
Yes	75
No	25

Source: Gaynor, 2007

Table 5 Cities which have policies that include increased city responsibility



Source: Gaynor, 2007

Figure 8 Cities which have policies that include increased city responsibility

5 Conclusions

Recent revisions to the 2020 environmental goals stated in the introduction that 10 per cent of all fuel used for transport will be composed of bio-fuels. Malta is 99.5% dependant on fossil fuels, but this figure will definitely have to change in the future. One has to admit that this is not an easily achievable goal.

Initially, the deadlines mentioned above were to be followed and fulfilled by each of the member states. A deeper analysis showed how the resources of member states varied and what actually could be obtained by 2020. Unlike larger EU members, Malta can never adopt vegetable farming on a large scale with the aim of fulfilling the country's fuel dependency.

The Malta Intelligent Energy Management Agency (MIEMA) was set up with the support of the Intelligent Energy—Europe (IEE) programme and a number of public institutions. Its aim is to promote a more intelligent use of energy resources. MIEMA provides a free information service to stakeholders, such as local councils, trade associations, government entities and the general public.

In this light MIEMA has committed itself to deliver its co-operation in this project with the aim of coming up with the most practical transport applications which can aid the country to reach its environmental goals by 2020. In spite of the fact that *LiMIT4WeDA* is specifically meant to deal with the technical scrutiny and implementation of transport applications, we believe that "You must be the change you want to see in the world" - Gandhi.

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