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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:	**3.4 Benchmarking selected cases and success factors analysis**
Responsible Partner:	**EC. Business Innovation Center of Epirus (E.C BIC of Epirus)**
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Executive Summary

The development within the LiMIT4WeDA project has shown how those areas afflicted by the weak demand of transport, tend to catalyze the use of unfeasible private modes of transport. In this context, earlier phases of this component were aimed to focus on the best practices in the transport sector in similar scenarios.

The aim of this study is to delve into the critical success factors of each transport application which was scrutinized in the previous phases within the third component of the project.

In this light, the study will converge towards the chemistry behind the success factors amongst the most viable transport applications in the Municipality of Bremen (Germany) and those being developed by CENEX in the United Kingdom.

Subsequently, the scalability of each transport application, such as the inter-modal transport station in the Municipality of Bremen, can be finely tuned as time passes by. Feedback can be obtained through the dissemination of questionnaires and surveys amongst the general public.

During CENEX's pilot projects, which were related with electric cars, CENEX collected a substantial amount of data related to the use of the Smart electric-powered cars amongst the participants of the pilot project. The results showed how cutting edge technology achieved a substantial amount of trust form the general public. Statistically, it was discovered how the pilot project induced confident attitudes towards the use of an electric vehicle, such as a regular car.

The penultimate stage of this study consisted of analyzing the success factors behind the most successful innovative transport solutions. In this way this study had a look at the best practices and success factors in terms of the key factors which brewed the most successful cases.

In this manner the study could back up conclusive arguments related to the design of the pilot project. In this way we know how it can be used during the design of the pilot project for the Maltese case.

Introduction

The proceedings of the LiMIT4WeDA project has proved that mobility in demand areas afflicted by weak demand of transport, generally evolve into infeasible public modes of transport and consequently in the popularity of the use of private cars. This reduces the territorial accessibility while perpetrating an unsustainable mobility system which discriminates accessibility.

Up till now the project elaborated the definition of 'weak demand areas' in its wide context. This goal was of strategic importance in visualising the means which can mitigate the unreliability of local public transport in areas of weak demand.

During the earlier phases of this component, various technological applications were scrutinized so that the best innovative transport systems could be short listed. An overview of the existing solutions covered various topics including but not limited to the development of solutions for constant and the information about mobility services and possibilities.

The utilization of cutting edge technologies and the nurturing of networks with the most appropriate business models within the corresponding legislation frameworks can ultimately shed light on efficient use of transportation resources. Ultimately, this project will bring decision makers on the same sustainable levels while promoting the same concepts to the general public.[1]

This task will investigate the existing innovative applications in weak transport demand areas develop across Europe. During the task data concerning the practice conditions of the already existing innovative applications will be collected and analysed. Data during the pre-implementation and post-implementation will be gathered and examined so that any impacts on the implementation of innovative transport applications can be foreseen.

In this manner the LiMIT4WeDA project can identify stumbling blocks during implementation and the transferability of solutions in similar areas.

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[1] www.limit4weda.eu (accessed on 20th January 2012)

Aim of the Report

The outcomes from previous analysis which took place during the the first three phases of the third task within LiMIT4WeDA have been summarized in this document as the best recommendations and case studies within the context of sustainable means of transport amongst the weaker demands areas of transport. The best case scenarios will be amalgamated to provide the most appropriate criteria for their implementation.

Then, for each social cluster defined, the project will delve into a study of the most yielding performances amongst a pool of innovative transport solutions so that we can analyse impacts of innovative transport solutions amongst social and financial dimensions. The identification of the best success factors can finally aid at finding the best routes in developing a successful transport solutions.

Outcomes in Bremen

In the Municipality of Bremen, the scalability of each inter-modal transport station also known as “mobil.punkt”, is continuously tuned through the dissemination of a questionnaire in the aim of obtaining more feedback from the customers on their website. Adding to this, telephone interviews are made after two years of the service's utilisation. It is estimate how there are an average of 435 registered carpooling users in a radius of just 500 meters from any two stations.

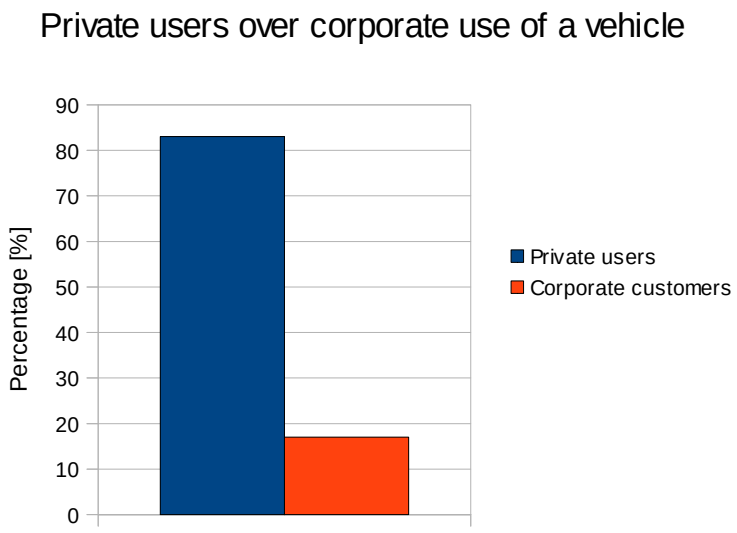

Figure 1: Predominantly private users over corporate customers

Source: MobilPunkt in Bremen, available at **http://www.civitas-initiative.eu/alt/measure_sheet.phtml?lan=en&id=70** (accessed on 19th Janurary 2012)

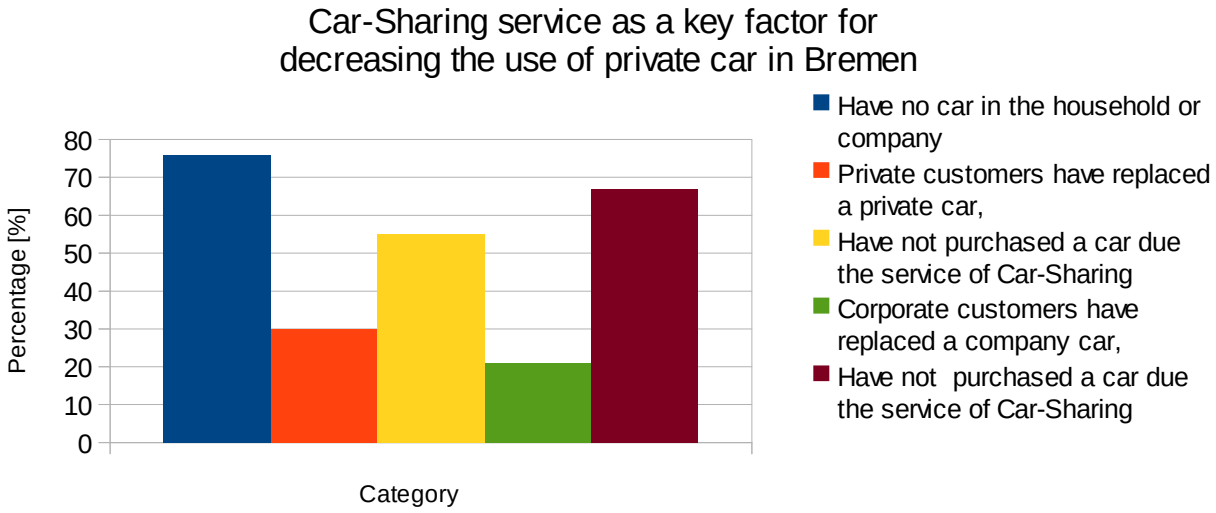

Figure 2: Tendencies affecting car sharing

Source: http://www.add-home.eu/docs/FGM_Bremen_MobilPunkt_ADDHOME.pdf

Figure 1 shows how the interviews which were carried out to 189 users revealed that 83% predominant use of private users against 17% of corporate customer

Figure 2 shows how success factors of car sharing amongst the citizens of Bremen after the deployment of inter-modality. This has resulted in the reduction of more than 90 cars in any adjacent area around the 'mobil.punkt'-stations thus relieving the parking situation.[2]

The interview revealed that the majority of the customers would buy an own car or share the private car if the Car-Sharing service didn't exist. Therefore the proximity of the Car-Sharing service is named as a key factor for being very attractive.[3]

The Chemistry and success factors at Bremen

The Municipality of Bremen participated in various European funded initiatives and it is in the position of disseminating the proficiency and effectiveness of inter-modal transport systems. This report proceeds by looking into the innovative transportation system in Bremen so as to identify the success factors of scalability of these solutions.

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[2] http://www.civitas-initiative.eu/alt/measure_sheet.phtml?lan=en&id=70

[3] CIVITAS: "mobil.punkt": Interchanges between Car-Sharing, Public Transport and cycling in Bremen, Germany. http://www.add-home.eu/docs/FGM_Bremen_MobilPunkt_ADDHOME.pdf
CIVITAS: "mobil.punkt": Interchanges between Car-Sharing, Public Transport and cycling in Bremen, Germany www.add-home.eu

Spatial Planning

Glotz Richter described how the City of Bremen analyzed the viability of spatial planning in the context of importing mobility across the municipality. Spatial planning in the context of public transport refers to the influence which the distribution of people and their activities has on transportation demand[4].

Communication Action at Bremen

Simultaneously the Municipality of Bremen has influenced mobility culture by showcasing already existent developments in the transport sector. In this way a feedback link has been set between the municipality and the general public and the evaluation of existing innovative transport solutions. This link enhanced policy making in the field of transportation planning.[5]

The connectivity between transport planners and the general public through the showcasing of success stories proved how planners are required to abide to a multidisciplinary approach due to the looming 2020 environmental goals set by the European Commission.

Transportation frameworks of thought

This shed light on the need of behavioural psychology to convince those citizens who solely make use of their private car to use means of collective transport instead. Therefore, the role of transport planners nowadays simultaneously requires a technical approach and the promotion of energy planning through integrated transport policies so as to improve the mobility culture[6].

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[4] Michael Glotz-Richter Free Hanseatic City of Bremen Department for Building and Environment North Sea Commission's conference on sustainable trasnport "Car-Sharing - a concept towards sustainability in transport and urban development " Aarhus 19.04.02

[5] http://www.mocuba.net/

[6] Southern, A. (2006), Modern-day transport planners need to be both technically proficient and politically astute, *Local Transport Today*, no. 448, 27 July 2006.

Transit Oriented Development

The Municipality of Bremen took into account Transit Oriented Development (TOD). TOD promotes the increased spread of pedestrian areas within those areas containing housing, workplaces, commercial outlets, schools, and civic facilities. In this manner it can be easier to create inter-modal transport stations. In this manner the most popular areas are centred around transit stops. In this way Transit Oriented Development has been regarded as a key instrument in Bremen to tackle urban sprawl.

Conventionally car sharing is associated with the environmental and financial aspects of transport. The showcasing of success stories at the Municipality of Bremen has highlighted how it is possible for the general public to reduce cars from the roads in their own locality as well. Each person participating in car pooling is reducing a vehicle from the road therefore reducing traffic flow all day long. In this manner vehicles do not get congested while the driver and the commuters are released from stress.

Moreover, the car pooling practice also affects on the financial aspects of transport since, the use of personal cars is reduced, the maintenance and chance of a traffic accident are reduced proportionally while the commuters gain a better state of mind perk during the trip.

Mobility and Health lifestyle

The Municipality of Bremen has promoted public transport and has commissioned the use of efficient Diesel buses for public transport as a cleaner way of transportation. Bremen was amongst one of the first cities in Europe to make use 'Solaris Urbino 18 Hybrid Vehicles' which combine combining a 181 kW European Emmission Standard 5 diesel engine with two 75 kW electric motors to reduce fuel consumption by up to 24%. In this manner air quality, mobility and health can be improved by making use of the public network across the city and region.[7]

[7] http://www.solarisbus.pl/en/busmania,aktualnosci,0,658.html

CENEX

The highlights from the pilot project carried out by CENEX shows an increase in the number of drivers who would use an electric vehicle as their regular car when compared to 47% before the trial. Moreover, an astounding 88% of fleet administrators felt more confident about including electric vehicles into their fleets, in spite of the lack of public electrical charging system.

There were other key findings in this initiative regarding the perception of reliability related with electric vehicles, after the pilot project. These tendencies are portrayed in Figure 3.

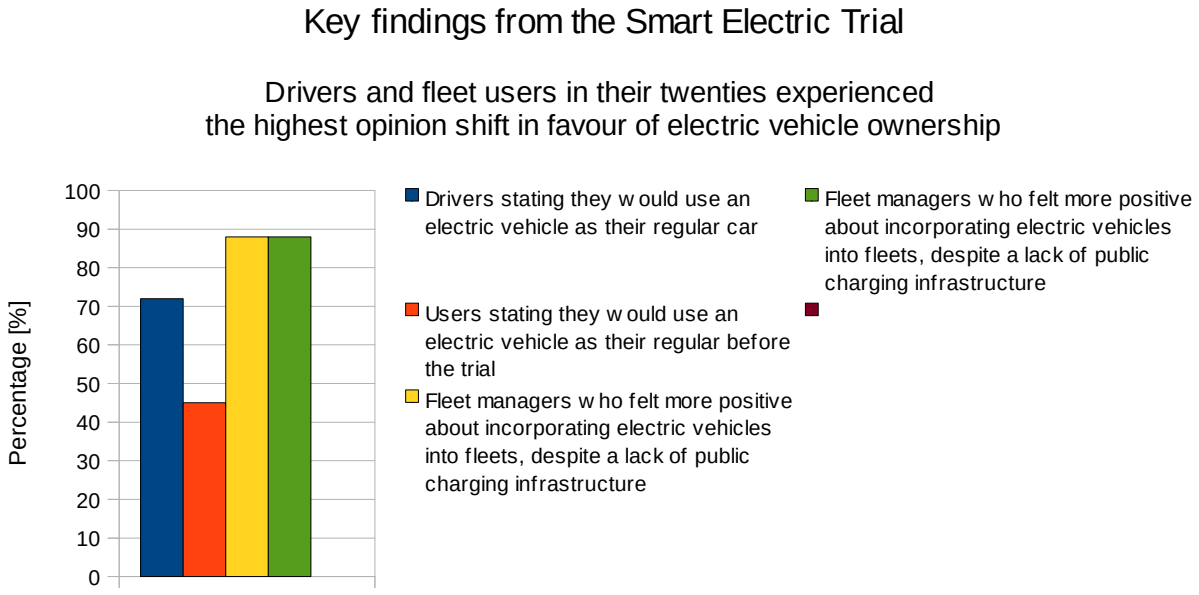

Figure 3: Tendencies affecting car sharing

Source: Green Autoblog (June 2010), available at http://green.autoblog.com/, (accessed on 15th April 2010)

As one could easily observe in figure 3, this proves how the prospect of the provision of an electrical charging infrastructure helps to pave the way to the widespread use of electric vehicles. This has been mainly attributed with the gaining of confidence with the reliability of electric vehicles.

However, at this point in time electric vehicles can not form part of the public's transport fleet as a result of the return-to□base operation of fleets and the lack of public charging facilities. Therefore it takes more than a pilot project to the integration of electric vehicles.

Success Factor Analysis

Up till now the report has illustrated the most successful stories of projects within the European continent which have aided transport connectivity. Success factors together with the innovative transport solutions may cluster and distillable the solutions according to adequate criteria. Ultimately this study will shortlist the best practices and success factors to come up with a roadmap which can develop successful innovative transport solutions (according to success factors). It can be identified as the element required for an initiative to attain its goals. "Critical success factors are those few things that must go well to ensure success for a manager or an organization, and, therefore, they represent those managerial or enterprise area, that must be given special and continual attention to bring about high performance. CSFs include issues vital to an organization's current operating activities and to its future success."[8]

Involvement of Key Stakeholders and Networking

The first thing that stands out in all case studies is the involvement of the real decision takers in the project. Key actors must be identified, without whose support the project cannot become a success. These core stakeholders give relevant contribution to the design and implementation of such a service transport application.

Typical decision takers include the respective authorities, such as Transportation Authorities and Spatial Planning Authorities.

Tapping the networks of these stakeholders is also considered an important success factor for such a project. The main objective of this type of networking is to connect different stakeholders in this sector so as to transfer the knowledge and best practices of each member. In this way inter-regional and trans-regional co-operation of the stakeholders is more probable. For example, the Municipality of Bremen and the Centre of Excellence for low carbon and fuel cell technologies (CENEX) are involved in various

[8] Boynlon, A.C., and Zmud, R.W. 1984. "An Assessment of Critical Success Factors," Sloan Management Review (25:4), pp. 17-27.

networks which are meant to improve the transferability of already existent transport solutions and come up with new ones.

Identification and involvement of successful private businesses in the sector is also very important. For example in Bremen, the company Cambio provides short leasing of cars. This is another form of car sharing which is available in Bremen. It is estimated that it has more then 44,500 which make use of a fleet of more than 1,350 vehicles in 22 Belgian and 14 German cities, thus being ranked as one of the most spread car-sharing provider.

In 1990 and 1992 Cambio started operating in Aachen, Cologne, and Bremen as the provider of the conventional type of ride sharing. The company was born as a result of the environmental movements which rose in the nineties which induced an exponential increase in ride sharing. In this manner, Cambio gained a distinct presence in the transport sector such that it can influence the transportation system at policy level.

Another such example includes Parking Management Agencies. There are various privately run facilities in Bremen which provide parking spaces in strategic positions. These are also referred to as interchange stations where one can go and safely park his car or bicycle while wait till the regional train stops. In this way this kind of inter-modal transport overcomes the 'last mile' problem where people do not have access to public transport close enough to their point of origin. Such parking management systems play an important role in Bremen. In this light the authorities involved in this kind of system have been involved in the decision making of the public transport system.

Figure 4: The Inauguration of the MobilPunkt inter-modal transport stations by the Municipality Councillor, Cambio and the Parking Management representative.

Source: www.add-home.eu/

Ensuring Quality

Standardisation frameworks so as to ensure quality control, project management and environmental management systems are also necessary. The most commonly utilised quality management system is ISO 9000. It has been designed to ensure that the final product satisfies the customers' initial requests in a timely manner while safeguarding the environment.

The International Organisation for Standardization provides the requirements for EMS officers to abide to ISO 14004:2004. It explains how to identify and manage the environmental outcomes of its activities in order to implement a systematic approach to setting energy related targets within an organisation so as to enhance its energy consumption while reducing its carbon footprint.

The ISO 9000 Quality management standard has influenced public transport quality standards. These standards have been utilised to identify the public's requirements and deliver transport solutions to fulfil their needs. The most salient application technologies were

• Internet Travel Planner: a geographic information system which can enhance the planning of journeys

• Real-Time information: The continuous diffusion of data related with traffic densities and route optimization

• Displays and announcements in vehicles easy interchange between different Public Transport modes.

• Low-floor vehicles aimed at improving the services' convenience while ensuring fast embarkation and access to socially impaired persons.

Figure 5: Bremen's quality management system - The Institute for Applied Systems Technology Bremen GMbH[9]

Strong Identity and Branding

Innovative branding can include ways to use existing activities, such as the use of existing tourism advertising so as to promote the project. For example, 'Bremen Live It' is Bremen's logo aimed at those foreigners who are interested in visiting Bremen. In spite of the fact that its main objectives are related with the promotion of the City's attractions and character, it is involved in policy making in the transport sector. In this way, the accessibility to public transport is also targeted at the mobility of tourism. The mobility of tourists can be regarded as one way of assessing the effectiveness of any region's transport system.[10]

Figure 6: Logo has been used in public material published in connection with transport.

Source: www.brementourismus.de

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9 http://www.atb-bremen.de/projects/prosme/Doku/BQM-Model%20Presentation%20V1.1.pdf

10 http://www2.bremen-tourismus.de/btz/foreign/k1-rubrik_unter.cfm?index=771&m=1.11&RubrikID=1380&RubrikID2=771&lang=eng

Financing mechanism

A self sustaining financial mechanism needs to be identified. Ultimately, every project, however well intentioned it can be, will be doomed to fail unless the right financial mechanisms are employed. These have to sustain the project throughout its lifetime.

Each application technology requires sources of financing. In this light there exist various networks and partnerships which collaborate on a regional or a European scale to come up with the most innovative ideas so as to attract funding.

There are various programmes which are part-financed by the European Union such as Intelligent Energy Europe and the Framework Programmes which promote the existence of these kind of networks, this in addition to normal forms of finance from Central Authorities and the Banking sector.

Education Campaign and Success Stories

An educational campaign needs to be embarked on, targeting eventual users and participants in the scheme. This campaign should be used to demonstrate the benefits related to energy use, lack of congestion and reduced pollution. Some very successful examples, ideally from the same region, but alternatively from other places, need to be chosen to demonstrate that the project can work. This should be part of a promotion targeting campaign, aimed at educating the eventual participants and at encouraging take-up of the scheme.

Specialised organisations also exist. For example, CIVINET is the group of city connections which promote the CIVITAS methodology at a local level aiming at connecting local authorities and organisations concerned about urban sustainable mobility, CIVITAS standing for City Vitality Sustainability. The CIVITAS City Network enables its members to exchange their knowledge in their own language in order to engage with the European Union and national governments, about transport legislation, policy making and funding.

The CIVITAS purposely sets up thematic groups so as to set up a community of best practices in which its members can exchange their experience and know how related with

the topic. Each thematic group has been designed to have a main contact point which can be the links to other city representatives related with transport.[11]

Figure 7: EEV-standard (Enhanced Environmental Environmental Vehicle) buses in Bremen, which were part of a European Project called Vivaldi within the CIVITAS initiative.

Source: http://www.civitas-initiative.org/index.php?id=70&sel_menu=6&proj_id=6

Another example is the "European Academy for the Urban Environment" and its main objective is to connect the relevant stakeholders in the transport, health, environment and policy making. The European Academy of the Urban Environment encourages the exchange of experience in all sectors of sustainable urban development by means of seminars, workshops, research and publications. The Municipality of Bremen's involvement in the EAUE enabled it to share its know how while gaining knowledge about the best in other regions. [12]

CORPUS is another organisation which promotes sharing of experiences. It stands for "Enhancing the Connectivity between Research and Policy-Making in Sustainable Consumption". It states that in aim of improving the impact of research, the knowledge how must be properly brokered between the relevant communities.

It is nicknamed as the 'Knowledge Hub' since it connects policy makers and researchers while providing the possibility to exchange knowledge and access the latest information

[11] http://www.civitas-initiative.org/index.php?id=69

[12] http://www.eaue.de/winuwd/default.htm

related to sustainable consumption and production prominent in the sectors of housing, mobility and food. The CORPUS project is supported under the European Commission's Seventh Framework Programme (FP7). The project runs from January 2010 to January 2013.[13]

Benefits for Participants

Apart from the environmental benefits, other real benefits need to be identified for the participants. Deep down, we all need that extra incentive to overcome the momentum for change. These benefits are aimed at doing exactly that. Such benefits can take many forms, and ideas should be offered by the participating stakeholders, including public sector and private sector organisations. Examples can include use of priority lanes, petrol tokens and guaranteed parking bays.

For example, the Municipality of Bremen boasts that it makes use of a number of cutting edge technologies. In this way it can ensure a distinct image in the market. Amongst the applications the most highlighted ones being used in Bremen one finds:

- Priority lanes: these lanes are dedicated to those vehicles which have more than 2 persons on-board. This includes all those system of collective transport such as public transport and ride sharing communities.
- Intelligent traffic lights: Computerised traffic monitoring and control systems which can ease congestion through the appropriate management of traffic lights.
- Extended coverage of the tram and regional rail system. This gives better coverage of the local tram network so that the general distance from one's ultimate location is closer to the train station.
- The ultimate, yet not least important point is dissemination of the benefits related to using the designed transport service. The advantages of collective transport and other means of energy efficient transport have been highlighted using appropriate

[13] http://www.scp-knowledge.eu/about

dissemination. Figure 8 compares the benefits of owning shopping trolley with that of borrowing one. This case example is used to compare the ownership of a car with the use of public transport.

Conclusions

Up till now the development within the LiMIT4WeDA project has shown how the inhabitants of those areas afflicted by weak demand of transport, may incline towards the use of unfeasible private modes of transport. Earlier phases of this component were purposely devised to focus on the best practices in the transport sector in the similar scenarios.

This study has showed the vital steps in the entire product life cycle of a transport service. Moreover, the study has delved into highlighting the critical success factor of modalities of transport which were previously analyzed.

The success of any innovative solution must embrace initial, ex-ante and ex-post evaluations in aim of ensuring a quality management system as described in ISO 9001:2008. This kind of feedback within the transport sector can guarantee customer satisfaction and financial sustainability to the organization in questions while boasting its environmental management system.

The approach of an organization towards the successful management of a transport system must bear other factors in mind, such as the image of the company running the service to effectively promote its services by means of promotional and educational campaigns so that it can highlight its factors of success.

Therefore the pre-design stage of the Maltese pilot project will involve the specification of the functionality of the transport applications so that it can finally demonstrate its effectiveness. In this light, the pilot design must focus on the project objectives, the user requirements and the locations in question so as to design a financial stable solution.

A correct management system will not only help to outline the critical success factors, but also to identify any potential barriers while reducing the risks associated with innovative transport solutions.

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