



Analisys of national/regional framework conditions and barriers of flexible transport

Catalonia

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Summary

In the frame of the activity 1-A.1 within the LAST MILE project, the main framework conditions will be analysed and obstacles in establishing and operating Flexible Transport Services (FTS) will be identified. Therefore a survey was drafted where potential main issues hindering the implementation of FTS are raised. In addition, partners also have the opportunity to add further aspects and to summarize their viewpoints of what are the major barriers against Flexible Transport Services. This work shall be the basis for the individual analysis of barriers for Flexible Transport Services of the partner regions within the LAST MILE project. At the end there will be a synopsis of the main findings, which will be conducted by the Regional Management East Tyrol (RMO).

The consolidated findings of this joint analysis will finally flow into the general synthesis report at the end of phase 1 with overall conclusions and policy recommendations.

1. Introduction

Already the European-wide CIVITAS initiative, who is redefining transport measures and policies in order to create cleaner, better transport in cities, points out the importance of flexible transport systems. These flexible transport systems may overcome the two diverging classic systems of either relatively low cost with rigid timetables and routes (traditional local public transport) or high cost, high quality and high comfort alternatives (taxi and private car).

This discussion is not only about transport systems and transport means in the urban area but foremost about rural areas. In this regard, manifold positive transport solutions and projects have already been realized, in various contexts and settings. Thus, in this study it is not necessary to think of concrete transport solutions and to reinvent the wheel but to think about the concrete and situation-wise hurdles and barriers (institutional/legal/economical/other) for a region to implement flexible transport solutions. Since we are talking here about Flexible Transport Services that shall be elaborated as touristic transport offers and as transport service for local citizens, a detailed analysis of the framework conditions, the barriers and the state-of-the-art in the regions under investigation is pivotal. This was also the point of departure in order to design a questionnaire building the basis for the analysis of the barriers that allows quantification on the one hand but requires further qualitative details on the other hand. In the focus of the analysis stands always the regional setting and consequently the regional framing conditions.

2. Flexible Transport Services – Definition

2.1 Definition

Since we are dealing here with an international context and thus very different regional settings regarding forms and approaches of flexible transport, it is important







to have a common understanding of the term "Flexible Transport Services" and what it comprises.

In this study, we define Flexible Transport Services as services that only operate on demand. Operation on demand in this context includes call/dial systems (i.e. hailed shared taxi), seasonal/temporary systems (i.e. event bus/train) and other forms of ondemand transport such as sharing and pooling systems. Therefore it can comprise services that can be summarized as enhanced public transport services (also flexible public transport services) like a hailed shared taxi service and also other Flexible Transport Services such as car- and bikesharing or carpooling which are not part of public transport in the narrower sense.

For this definition, we took also into account different sources of literature. Often, flexible transport is regarded a special form of public transport, like in the definition of Penelope bacchus (n. d.):

Flexible Transport Services or demand responsive services (further on partly also as flexible transport solutions or flexible transport systems termed) are defined as "an advanced, user-oriented form of public transport characterized by flexible routing scheduling of small/medium vehicles operating in shared/ride mode between pick-up and drop-off locations according to passenger's needs" (Penelope bacchus, n. d.).

In the LAST MILE project, however, also other flexible forms of transport like sharing and pooling shall be included in the term.

The main characteristic within the definition of FTS in the LAST MILE project is that the service operates only on demand. Thereby empty trips can be avoided.

Against this background, we differentiate the following categories, which can be divided by further attributes.

- Call/Dial Systems (operates only after calling)
 - following the regular route/schedule of the bus line (only after calling)
 - fixed start and end stop, deviation from the regular route to serve additional request stops within a defined corridor
 - fixed stops, flexible routing to individual destination
- Shuttle seasonal/temporary (operates only seasonally or at specific occasions) with fixed route and stops, mostly small distances
 - seasonal
 - events
- Sharing
- Pooling







2.2 Overview of Flexible Transport Services

The following table includes possible concrete services within the above described categories, however, without intending to be exhaustive. After the detailed analysis of framework conditions, the fields may be completed.

Operating System	Means of transport / name of the service						
	train	bus	car	bike	boat	others	
Call/Dial Systems (operates only after calling)							
 following the regular route/schedule of the bus line (only after calling) 		dial-a-bus					
- fixed start and end stop, deviation from the regular route to serve additional request stops within a defined corridor		dial-a-bus					
 fixed stops, flexible routing to individual destination 		hailed-shared- taxi	hailed-shared- taxi				
Shuttle seasonal/temporary (operates only seasonally or at specific occasions) fixed route and stops, mostly small distances							
- seasonal	Seasonal train	hiking/skiing bus			boat ferry in summer		







- events		festival shuttle				
	train					
Sharing			Carsharing	Bikesharing		
			_	/-rental		
Pooling			Carpooling			
others						

Table 1: Overview of Flexible Transport Services







3. Survey on national/legal framework conditions and barriers for flexible transport

3.1 General information

The survey is split into four different categories of possible barriers and related questions, namely institutional -, economical -, legal - and other barriers. All questions (and the corresponding answers) are referred to the regional situation/setting, although questions on regulatory issues may be related to the national legislation. For the better quantification and the further processing of the data, different assessment categories were chosen. Almost all questions however also require further specifications and more detailed answers which are supplementary to each question (always straight below to each question). These supplementary questions relate to expected barriers when implementing Flexible Transport Services and shall investigate and extract specific information about the various regions. Hence, they provide us with further details and allow a better interpretation and assessment of the answers.

Subsequently, in order to better understand the meaning of the question, most details and explanations are always written in brackets (=).

3.2 Barrier categories

Specifications on categories of framework conditions and barriers:

For the analysis of framework conditions and barriers, four major categories were chosen:

a) Regulatory barriers

Legal foresights can play an essential role when it comes to the implementation of Flexible Transport Services and thus also define the frame if and how transport services can be established. Often there are minor legal aspects that may facilitate or complicate the implementation and operation of flexible transport solutions.

<u>Example</u>: Legislation restrains the aerial/spatial use of a flexible transport solution that it can i.e. only be used within the municipality boundaries.

b) Institutional barriers

Institutional aspects can also be central hurdles for the implementation and operation of flexible transport solutions, whereby the term institution(al) has to be interpreted quite broadly. Institution in this context can thus range from political to private to associational etc. institutions. All these institutions and the related stakeholders are important when planning, implementing and operating flexible transport solutions. Moreover not only stakeholder involvement but also active contribution, know-how about the transport services and responsibility distribution are required for a successful management. However, as a nature of human being there is also quite a







potential for conflicts, resistance and opposition due to conflicting interests and viewpoints involved. Effectively it's the people who are responsible for the transformation process and where most barriers lie.

<u>Example</u>: An interest group like the political opposition or a local taxi entrepreneur may agitate against the planning of flexible transport solutions.

c) Economical barriers

Independent of the before-mentioned aspects, the economic and financial side has shown to be the decisive criterion either for success or failure of a project (in this instance the implementation and operation of a Flexible Transport Service). Hardly any project can be realized without the necessary financial means. This particularly challenges smaller municipalities and structurally weak areas. One aspect thereon is among others the sustainable financing without or with low subsidies in the long run. Example: Initial costs for the implementation of flexible transport are covered by funds but there is no financing for the long term operation. Operational costs are not covered by the revenues.

d) Other barriers

Apart from the above-mentioned categories, there can also be obstacles and difficulties concerning technical, organizational, structural, topographic, demographic, marketing, information dissemination and other feasibility aspects that may intervene or hinder the realization of flexible transport solutions.

In this section there are some predefined questions which cover a few more aspects that have not been addressed within the above categories. However, these questions are not conclusive and further aspects can be addressed in the summary part following the survey.

<u>Example:</u> A very challenging settlement structure (i.e. low population density in a valley), which requires even for Flexible Transport Services a sound organisation and routing.







4. Survey

4.1 Survey questions

	gulatory barriers				
1.)	National legislation for Flexible Transport Services (FTS)	Yes	No	Partially	Don't know
1.	Is there a national legislation that regulates Flexible Transport Services like				
a)	Call/Dial systems		х		
b)	Seasonal/Temporary systems		Х		
c)	Sharing systems		х		
d)	Pooling systems	П	x	П	П
e)	Other flexible transport:		Х		
	If yes, where are they regulated (in which juridic acts / law books) and how are these Flexible Transport Services defined (please give a brief definition here)?				

2.)	Territorial legislation and regional programmes	Yes	No	Partially	Don't know
2.	Is there apart from the national legislation also a regional legislation like a decree or an edict (such as a regional program is) that bindingly regulates flexible transport solutions?				
			Х		
a)	Call/Dial systems		х		
b)	Seasonal/Temporary systems		х		
c)	Sharing systems	П	х	П	П
d) e)	Pooling systems Other flexible transport:		x		
	If yes, where are they regulated (in which juridic act / regional program etc.)?				







3.) Regulatory minimum standard	Yes	No	Partially	Don't know
Is there a regulatory minimum standard or recommendations concerning the provision of public transport for settlement areas in your country/region?			Х	
If yes, please briefly describe how that minimum standard looks like?				
There's a national law that regulates the Basis of Local Governments, in accordance to that law, cities with more than 50.000 inhabitants are obliged to offer urban public transport.				
There's a law of the catalan government that also regulates local governments and states that not only cities with more than 50.000 inhabitants but also the capital of the "comarca" (similar to a county).				
Moreover, there's a Passengers transport plan in Catalonia, horizon 2020, that between its objectives has the next ones:				
 Connect all the neighbouring county capitals by public transport with a minimum frequenzy of an hour and at high commercial speed. That cities over 5.000 population and county capitals have, working days, at minimum one public transport expedition to connect with their county capital and another one to return to their homes. Garantee that citizens from cities with less than 5.000 inhabitants can get to their county capital and return once every working day by public transport, either regular or on demand. Garantee that citizens from cities with more than 5.000 inhabitants or from county capitals are able to travel daily to Barcelona and return by public transport on the same day. 				







4.)	Liability	Yes	No	Partially	Don't know
4.	Is the Flexible Transport Service regulated in terms of <u>liability</u> (= who is liable in case an accident happens with/without passenger happens)?				
a)	Call/Dial systems	Х			
b)	Seasonal/Temporary systems	Х			
c)	Sharing systems	Х			
d)	Pooling systems	Х			
e)	Other flexible transport:				
	If yes, please describe in brief how the different services a) $-$ f) (where the yes applies) are regulated:				
	Spanish Road Traffic Regulations, establish that any owner of a vehicle must have a liability insurance that cover all personal and material damages that may be caused because of the circulation of the vehicle.				
	The owner of the vehicle is liable for the damages caused as long as the owner has allowed the use of the vehicle and it benefits him (economically or not)				







5.)	Spatial limitations	Yes	No	Partially	Don't know
5.	Is the Flexible Transport Service regulated in terms of aerial/spatial limitations (= can the transport service be used/offered without spatial limitations)?				
a)	Call/Dial systems			X	
b)	Seasonal/Temporary systems			X	
c)	Sharing systems		X		
d)	Pooling systems		X		
e)	Other flexible transport:		X		
	If yes, please describe in brief how the different services a) $-$ f) (where the yes applies) are regulated:				
	a) b) Road Public transport services present spatial limitations due to interurban administrative concessions given by the catalan government.				
	c) d) there are no regulations but there are conflicts with taxi drivers with licenses that allow them to provide their services only within a certain area.				







6.)	Pricing	Yes	No	Partially	Don't know
6.	Is the Flexible Transport Service regulated in terms of <u>pricing</u> (= is there a minimum/maximum price/service; is the pricing open etc.)?				
a)	Call/Dial systems			X	
b)	Seasonal/Temporary systems			X	
c)	Sharing systems			X	
d)	Pooling systems		X		
e)	Other flexible transport:				
	If yes, please describe in brief how the different services a) $-$ f) (where the yes applies) are regulated:				
	a-b-c) if they are public services, there must be an administrative resolution from the Administration that owns the service recording pricing.				







7.)	Scheduling and pulsing specifications	Yes	No	Partially	Don't know
7.	Is				
a)	Call/Dial systems			X	
b)	Seasonal/Temporary systems			X	
c)	Sharing systems		X		
d)	Pooling systems		X		
e)	Other flexible transport:				
	regulated in terms of <u>scheduling/pulsing specifications</u> (=is the schedule free or does it have to be coordinated with other means of transport)? If yes, please describe in brief how the different services a) $-$ f) (where the yes applies) are regulated:				
	a-b) if they are public services, scheduling must be approved by the administration that owns the service.				







8.)	Scheduling and pulsing specifications	Yes	No	Partially	Don't know
8.	Is				
a)	Call/Dial systems		Х		
b)	Seasonal/Temporary systems		X		
c)	Sharing systems		X		
d)	Pooling systems		Х		
e)	Other flexible transport:				
	regulated in terms of <u>stipulations of the national road traffic act</u> (=does the road traffic act apply to all of these flexible mobility services)? If yes, please describe in brief how the different services a) $-$ f) (where the yes applies) are regulated:				
	The road traffic act apply as it apply at any other vehicle.				







9.)	Accessibility	Yes	No	Partially	Don't know
9.	Is the Flexible Transport Service regulated in terms of <u>accessibility</u> (= does everyone have access to this service)?				
a)	Call/Dial systems		Х		
b)	Seasonal/Temporary systems		X		
c)	Sharing systems		X		
d)	Pooling systems		X		
e)	Other flexible transport:				
	If yes, please describe in brief how the different services a) $-$ f) (where the yes applies) are regulated:				







10.)	Transboundary traffic	Yes	No	Partially	Don't know
	he Flexible Transport Service regulated in terms of <u>transboundary traffic</u> (= is rincipally possible to use the specific service also transboundary)?				
a) Cal	Il/Dial systems			X	
b) Sea	asonal/Temporary systems			X	
c) Sha	aring systems	X			
d) Poo	oling systems	X			
e) Oth	ner flexible transport:				
•	es, please describe in brief how the different services a) – f) (where the yes blies) are regulated:				
ser\ pos	nsboundary transport services are liberalized, but public transboundary vices are not regulated so it is difficult right now to coordinate services but sible. (In fact the Ministry of Territory and Sustainability is working on it with buthern French region on an Interreg project framework)				







11.) FTS for different purposes	Yes	No	Partially	Don't know
11. Is the Flexible Transport Service regulated in terms of limitations with regard to certain purposes (i.e. a school bus –which is rather categorized as public transport service – is often only allowed to transport school children but no other citizens)?				
a) Call/Dial avatama		X		
a) Call/Dial systems		X		
b) Seasonal/Temporary systems		X		
c) Sharing systems		X		
d) Pooling systems				
e) Other flexible transport:				
If yes, please describe in brief how the different services a) - f) (where the yes applies) are regulated:	S			







	titutional barriers Embedment in the transport association	Yes	No	Partially	Don't know
1.	Is flexible transport organizationally, institutionally or administratively covered/embedded by the national or provincial transport association for				
a)	Call/Dial systems			X	
b)	Seasonal/Temporary systems			X	
c)	Sharing systems	X			
d)	Pooling systems	X			
e)	Other flexible transport:				
	If yes, please describe in brief how the different services a) $-$ f) (where the yes applies) are embedded/covered:				
	a-b) Provincial transport associations from Lleida and Girona are involved on the financing and on the operational management (for example taking telephone calls asking for a service).				







2.)	Opposition to FTS	Yes	No	Partially	Don't know
2.	Do you expect (or already experience) opposition to Flexible Transport Services such as				
				X	
a)	Call/Dial systems		X		
b)	Seasonal/Temporary systems			X	
c)	Sharing systems			X	
d)	Pooling systems				
e)	Other flexible transport:				
	by other transport service providers (i.e. taxi companies, provincial transport associations, private transport service providers etc.)?				
	If yes, please describe in brief how this opposition for the different services a) – f) (where the yes applies) looks like/might look like:				
	a) In general, bus operators are not interested in transforming conventional bus lines into flexible transport services, because of the difficulties for managing those kind of lines (taking phone calls and so on) and because of the uncertainty of the income.				
	c-d) we already have known about opposition from taxi drivers towards services like Uber or similar.				







3.)	Integration into public transport	Yes	No	Partially	Don' knov
3.	Are any of the transport services (incl. timetables) and possible connections integrated and listed at the transport information services (i.e. journey planners, route planner for public transport) of national/provincial transport associations				
a)	Call/Dial systems	Х	П	П	П
b)	Seasonal/Temporary systems	X			
c)	Sharing systems		x		
d)	Pooling systems		x		
e)	Other flexible transport:				
	If yes, please describe in brief how the different services a) $-$ f) (where the yes applies) are integrated at the online platforms:				
	The Generalitat de Catalunya, offers a route planner for public transport managed by the Transports and Mobility Directorate. This route planner is called Mou-te (http://mou-te.gencat.cat) and nearly all public systems are integrated, call or dial and seasonal.				







4.)	Political barriers	Yes	No	Partially	Don't know
4.	Do you expect great political barriers (= political opposition in the municipal committee) for implementing				
a)	Call/Dial systems		x		
b)	Seasonal/Temporary systems		x		
c)	Sharing systems		х		
d)	Pooling systems		x		
e)	Other flexible transport:				
	If yes, please describe in brief what kind of political barriers you'd expect for the different services $a) - f$) (where the yes applies):				







5.)	Municipal management of mobility services	Yes	No	Partially	Don'i know
5.	Do you expect difficulties (regarding payment, administration, workloads etc.) when municipalities have to manage different mobility services like cable cars, shuttle services, ordinary bus lines, ski buses, hailed shared taxis and so on?			Х	
	If yes, please describe (also with regard to your personal experience hereon) in brief what kind of difficulties you would expect:				
	We expect payment difficulties in a short term in the areas that nowadays have an integrated fare transport system because it is unaffordable to have a ticket validating machine in each van or taxi, and in a future horizon (2019) when the whole Catalonia will have an integrated fare system.				







6.)	Risks in collaboration between stakeholders	Yes	No	Partially	Don't know
6.	Do you see any risks (= risks due to deficient communication, risks evolving through conflicts, etc.) in the collaboration between local stakeholder groups who are involved in the planning, implementation and operation phase for				
a)	Call/Dial systems			x	
b)	Seasonal/Temporary systems				х
c)	Sharing systems				Х
d)	Pooling systems				х
e)	Other flexible transport:				
	If yes, please describe in brief of what you would expect on how the realization of the different services a) $-$ f) (where the yes applies) might be affected by a collaboration within the establishment of flexible mobility services in your region:				
	a) We see risks in the coordination and communication between municipalities, transport operators and taxi drivers (we already had problems at the county council of Pallars Jussà)				







7.)	Acceptance of FTS for touristic purposes by locals	Yes	No	Partially	Don't know
7.	Do you see opposition from the side of local residents when developing Flexible Transport Services such as				
a)	Call/Dial systems		х		
b)	Seasonal/Temporary systems		x		
c)	Sharing systems		x		
d)	Pooling systems		х		
e)	Other flexible transport:				
	which are in its origins designed as touristic mobility offers?				
	If yes, please describe in brief how this opposition could look like for the different services $a)-f$) (where the yes applies):				







1.)	Investment costs	Yes	No	Partially	Don't know
1.	Do you expect that it is rather easy for local/regional stakeholders (i.e. regional institutions, municipalities etc.) who are involved in establishing flexible transport to gain the needed investment costs for implementing/purchasing/installing				
a)	Call/Dial systems	П	x	П	П
b)	Seasonal/Temporary systems		X	П	П
c)	Sharing systems	П	x	П	П
d)	Pooling systems		x		
e)	Other flexible transport:				
	If yes, please describe in brief what kind of financing at the implementation phase you'd expect for the different services a) $-$ f) (where the yes applies):				







2.)	Investment costs	Yes	No	Partially	Don't
2.	Are there specific (national, regional, institutional or other) funding schemes for flexible transport solutions for				know
a)	Call/Dial systems		x		
b)	Seasonal/Temporary systems		x		
c)	Sharing systems		х		
d)	Pooling systems		х		
e)	Other flexible transport:				
	If yes, please describe in brief the funding schemes and the connected conditions for the different services a) $-$ f) (where the yes applies):				







3.)	Financial support by transport association	Yes	No	Partially	Don't know
3.	Does the national/regional transport association financially support flexible transport solutions like				
a)	Call/Dial systems			x	
b)	Seasonal/Temporary systems			Х	
c)	Sharing systems		х		
d)	Pooling systems		Х		
e)	Other flexible transport:				
	If yes, please describe in brief from which level and how they are supported for the different services a) $-$ f) (where the yes applies):				
	Public transport services within areas with an integrated fare system are partially financed by the regional transport association. Nowadays in Catalonia there are four transport "associations", which are called mobility territorial authorities, Barcelona, Lleida, Girona and Tarragona.				







4.)	Extra costs	Yes	No	Partially	Don't know
4.	Do you see extra costs (especially with regard to marketing and information dissemination) for Flexible Transport Services compared to regular transport solutions for				
a)	Call/Dial systems	Х			
b)	Seasonal/Temporary systems		x		
c)	Sharing systems		Х		
d)	Pooling systems		х		
e)	Other flexible transport:		х		
	If yes, please describe in brief what kind of extra-costs you would expect and in which magnitude (low - moderate – high extra-costs) for the different services a) – f) (where the yes applies):				
	a) Call/dial systems require costs for an employer taking phone calls. This is a non existing cost for regular transport services, but comparing global costs, flexible transport services should be cheaper than regular transport ones.				







5.) Cooperation between private – private and private-public-partnership	Yes	No	Partially	Don't know
5. Do you see it realistic that private entrepreneurs (i.e. a taxi company) cooperate with i.e. the public transport association or possibly also with other competitive private entrepreneurs in order to offer Flexible Transport Services?	Х			
If yes, please describe in brief where you would expect the biggest challenges within the cooperation and which obstacles may possibly hinder such cooperation?				
In Catalonia, we already have taxi drivers cooperating with public transport operators and with public administrations responsible for public services (local governments, or regional government) in order to offer dial systems.				
The biggest challenge is to achieve a win-win relationship between taxists and bus operators so everyone feels comfortable with the deal.				
The main obstacle could be to convince bus operators so that they don't see flexible transport services as a thread.				







6.) Municipalities as providers and operators of FTS	Yes	No	Partially	Don't know
6. Do you think that municipalities are capable of delivering Flexible Transport Services in the same quality and professionality as private entrepreneurs (i.e. taxi companies, specialist firms etc.) do (think of / consider here also concession, professional background and expertise, personnel resources etc.)?			X	
If yes, please describe in brief where could be the advantage of having the municipality as operator vs. where would you expect the biggest disadvantages and obstacles in contrast to a private entrepreneur?				
Most of them would be capable if they had more economical means and if they were able to recruit employers for this aim. One of the main obstacles can be the existence of an administrative concession of a bus line given to a private operator.				







	er barriers Available information	Yes	No	Partially	Don't know
1.	Is information about offers for flexible transport (whenever there is already an existing offer/solution in your region) broadly (=in different media for different target groups and in a certain order of magnitude) available for the general public for				- Kilow
a)	Call/Dial systems	П		×	П
b)	Seasonal/Temporary systems	×		П	П
c)	Sharing systems	X			
d)	Pooling systems	х			
e)	Other flexible transport:				
	If yes, please describe in brief how information about the different services a) – f) (where the yes applies) and to which extent it is available: There is information available on the internet.				
a)	Information about call/dial public services can be found at the route planner Mou-te, and at the website from some local governments, for example: (http://www.alella.cat/ARXIUS/2015/mobilitat/Fulleto_Taxi_a_demanda.pdf)				
b)	The information can be also found at the route planner and at operators websites				
c)	Websites for each service but only in Barcelona area. For example: www.avancar.es, www.mu.peugeot.es				
d)					







2.)	Risks in the anchoring of responsibilities	Yes	No	Partially	Don't know
2.	Do you see any risks when anchoring responsibilities (i.e. when anchoring responsibilities concerning the accounting, the operation, the administration, the maintenance, the project management and the organization) in realizing				
a)	Call/Dial systems		х		
b)	Seasonal/Temporary systems		x		
c)	Sharing systems		X		
d)	Pooling systems		X		
e)	Other flexible transport:				
	If yes, please describe in brief where you'd see the risks and what kind of risks you'd see for the different services $a) - f$) (where the yes applies):				







3.)	Acceptance of use	Yes	No	Partially	Don't know
3.	Do you expect barriers in the acceptance of use (of people) of flexible mobility solutions for				
			Х		
a)	Call/Dial systems		х		
b)	Seasonal/Temporary systems		х		
c)	Sharing systems		х		
d)	Pooling systems				
e)	Other flexible transport:				
	If yes, please describe briefly how pronounced you'd expect people in your region to have 'difficulties' in accepting such flexible mobility solutions for a) – f) (where the yes applies):				







4.)	Personnel resources for managing a FTS	Yes	No	Partially	Don't know
4.	Would you expect the provider of a FTS - apart from financial resources – to also invest in personnel resources (= to employ people) in order to manage a Flexible Transport Service such as				
a)	Call/Dial systems	Х			
b)	Seasonal/Temporary systems	Х			
c)	Sharing systems				X
d)	Pooling systems				Х
e)	Other flexible transport:				
	managing the different services a) – f) (where the yes applies) on an operational basis (= does not include the implementation and planning phase) given that a single unit of a certain Flexible Transport Service is offered:				
	a) Call/dial systems require an investment on personnel resources, because it is necessary to have someone attending phone calls and coordinating taxi drivers. The number of working hours will depend on the frequency of the service and on the schedule where users can call for a service.				
	b) Seasonal or temporary systems often require an investment in personnel resources in order to inform users at transport stops. We would expect, an employer working each day with seasonal services during the schedule where services are offered.				







5.)	Ticketing, booking and payment modalities	Yes	No	Partially	Don't know
5.	Do you expect difficulties with the ticketing, booking and/or payment modalities for				
a)	Call/Dial systems	х			
b)	Seasonal/Temporary systems		х		
c)	Sharing systems		Х		
d)	Pooling systems		x		
e)	Other flexible transport:				
	If yes, please describe briefly what kind of difficuluties and problems in relation to ticketing, booking and/or payment you'd see for the flexible transport solutions for a) $-$ f) (where the yes applies):				
	a) As we had already mentioned, in areas with an integrated fare system it is difficult to allow the use of integrated transport tickets because validating machines are too expensive to have them on taxis or vans.				







6.)	Online booking and online payment	Yes	No	Partially	Don't know
6.	Does an already existing flexible transport solution in your region (if you have one/several) like				
- \	O-11/D'-1(Х		
•	Call/Dial systems	Х			
b)	Seasonal/Temporary systems	Х			
c)	Sharing systems				
d)	Pooling systems				
e)	Other flexible transport:				
	offer online-booking and/or online payment via app or webpage?				
	b) Yes, for example seasonal systems like skiing buses: http://www.teisa-bus.com/ca/esqui-bus (booking and payment)				
	c) Yes, for example: http://www.avancar.es/ca?redirect_p=0 (booking and payment)				
	d) Online booking: www.blablacar.es, www.carpoolworld.com, www.carpling.com				







7.)	Professional management	Yes	No	Partially	Don't know
7.	Do you expect difficulties concerning the professional management (= professional management from the 'birth' to the actual operation of the Flexible Transport Service –embracing administration, marketing & PR, operation, financial management etc.) for				
۵)	Call/Dial avatama			х	
a)	Call/Dial systems		Х		
b)	Seasonal/Temporary systems		Х		
c)	Sharing systems		Х		
d)	Pooling systems		Х		
e)	Other flexible transport:				
	If yes, please describe briefly what kind of difficulties and problems in relation to the professional management you'd see for the flexible transport solutions for a) $-$ f) (where the yes applies):				
	 a) Call/dial systems require of a very good marketing management in order to keep citizens informed about the service. 				







8.)	Sustainable transport within education	Yes	No	Partially	Don't know
8.	Is transport and thereby more specifically >>sustainable transport<< with all its facets an integral part of education in schools in your region?			Х	
	If yes, please describe briefly what you know/think is taught in schools about sustainable transport:				
	There are two initiatives spread between many schools in order to teach about sustainable transport:				
-	Each year, during the mobility week there are activities for schools promoted by the regional Catalan government. Many schools are implementing "school paths" in order to promote the use of sustainable means of transport amongst children.				







9.)	Awareness rising and information dissemination	Yes	No	Partially	Don't konw
9.	Are there also other (out-of-school) institutions that provide education on sustainable transport and flexible transport solutions in your region?			Х	
	If yes, please describe briefly what you know/think is taught about sustainable transport in these institutions and how important are they in the region:				
	There are associations promoting sustainable transport like "PTP. Promoció del transport public" https://www.transportpublic.org/en/				
	They promote activities and at the same time play the role of a lobby.				







10.) Existing awareness	Yes	No	Partially	Don' konw
10. Do you think there is sufficient awareness (= most people are aware that the motorized individual traffic causes environmental problems) on the importance of sustainable transport and particularly flexible transport within the general public and also within local stakeholders and decision makers?			х	
If yes, please describe briefly what are people aware of in relation to sustainable transport and why do you think there is still a discrepancy between environmental ideals and effective transport habits:				
Progressively, people are every day more aware about the environmental effects of the use of motorized individual vehicles. But, for the most of them is still more valuable the freedom, especially of schedules, that provides the availability of a private vehicle.				







5. Summary of barriers

On the basis of the information obtained as a result of the survey about the major barriers in Catalonia to establishing and operating flexible transport services we can summarize the following findings:

In the case of Catalonia, there isn't any specific legislation, neither national nor regional, on Flexible Transport Services (from now on FTS), but there are national and regional laws that regulate minimum standards for public transport services at cities with more than 50.000 inhabitants and also at the capital city of each "comarca" (figure similar to a county). In regard to rural settlement areas, the Passengers Transport Plan in Catalonia horizon 2020, approved by the Catalan Government on the 7th of March 2017, aims to guarantee that citizens from cities with less than 5.000 inhabitants can get to their county capital and return once every working day by public transport, either regular or on demand.

With reference to spatial limitations in call/dial systems and seasonal/temporary systems it should be noted that intercity road public transport services in Catalonia have spatial limitations because of interurban administrative concessions of bus lines given to private operators, awarded by the Government of Catalonia through public tender. In the case of sharing and pooling systems there are no regulations but the rights of taxi drivers with licenses that allow them to provide services within a certain area must be respected.

Concerning possible transboundary flexible transport services, it has to be said that transboundary transport services are liberalized and public transboundary services are not regulated so it is difficult right now to coordinate public services between different countries, but possible. In fact the Directorate for Public Transport and Mobility is working with a southern French region with the aim of starting transboundary services on 2018.

In conclusion, it seems necessary to adapt public transport regulations from the existing concessional public transport system in Catalonia to the new mobility needs required by current society, in order to be able to provide transport services in an economical and environmental sustainable way in rural areas.

In fact, nowadays, there are public transport services in rural areas provided on demand by taxi drivers thanks to different agreements between city councils, "county councils" and the Public Transport and Mobility Directorate. The Catalan law for public transport states that, in certain cases, public transport services can be provided by taxi but just temporally. The problem is that the need for public transport services is not temporally and it would be convenient that laws were changed in order to recognize and regulate flexible transport services.

Concerning extra costs for FTS compared to regular transport solutions, call/dial systems can require an employee taking phone calls and regular transport solutions don't. However, comparing global cost, FTS should be cheaper than regular transport ones, because of the fact that it avoids trips without passengers.

With regard to municipalities as providers and operators of FTS we must especially emphasize that, the most of them, would be capable to do it if they had more economical means and if they were able to recruit employees for the service.

In terms of investment costs, nowadays it is difficult for local/regional stakeholders who are involved in establishing FTS to get funds for implementing FTS due to the inexistent funding schemes (national, regional or institutional).

Even though, there are transport associations from the nuts 3 regions Lleida and Girona involved on the financing and the operational management in FTS (for example taking telephone calls asking for services).

Regarding pricing and scheduling, when FTS are public services a resolution must be issued by the public administration which owns the FTS, in order to establish the price of the service and the schedule.

In fact, we expect difficulties for ticketing, booking and payment in areas with an integrated fare system (which in the near future will be the whole region of Catalonia). Allowing the use of integrated transports tickets in FTS may be difficult because validating machines are too expensive to have one on each taxi or van providing FTS.

Talking about opposition on the implementation of flexible transport solutions, we can say that, in general, bus operators are not interesting in transforming conventional bus lines into FTS due to difficulties for managing those lines and the uncertainty of their income and, besides, we have already known about opposition from taxi drivers towards services like UBER or similar. Therefore, the challenge is to achieve a deal where taxi drivers and bus operators feel comfortable so they don't perceive FTS as a thread.

It's also important to note that there are associations promoting sustainable transport systems in Catalonia, and that we don't expect too much opposition from municipalities for implementing FTS.

Taking into account that the transport on demand could allow an increase of public transport services and, also, an optimization of the existing resources, new strategies must be developed taking advantage of the potential of new information and communication and knowledge technologies. With reference to available information about offers of FTS, it should be noted that the Government of Catalonia offers a journey planner for public transport named Mou-te, managed by the Transports and Mobility Directorate, where users can find, nearly all public transport systems in Catalonia including FTS.

Finally, in terms of existing awareness on the importance of sustainable transport, and particularly FTS, we can point out that progressively, people are every day more aware of the environmental effects of the use of individual motorized vehicle but, for most of them, the freedom of schedules and mobility that the private vehicle provides is still more valuable than the public and environmental benefits of a sustainable transport, thus, we must continue working on it.







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Glossary

Terminology

<u>Public transport</u>: Public transport is the provision of a shared passenger transport service which is available for the general public, as distinct from modes such as taxicab, carpooling or hired buses which are not shared by strangers without private arrangement (Glover, 2011).

<u>Micro-Public Transport service (Micro-PT service):</u> Micro-PT systems are an important part of Flexible Transport Services with the goal to promote local traffic solutions through a public provider (the financing of the micro-PT service is done by public institutions – i.e. municipalities - whereby the operation of the micro-PT service can be offered by a licensed private operator) (Wolf-Eberl et. al., 2011).

Flexible Transport Services: Flexible Transport Services or demand responsive services (further on partly also as flexible transport solutions or flexible transport systems termed) are defined as "an advanced, user-oriented form of public transport characterized by flexible routing scheduling of small/medium vehicles operating in shared/ride mode between pick-up and drop-off locations according to passenger's needs" (Penelope bacchus, n. d.).

<u>Last mile transport:</u> The last mile - or last kilometer transport describes particularly the last kilometers of a multi-modal travel chain based on public transport (mostly from a transportation hub –i.e. at the train station) for either passengers or goods (Wang H. and Odoni A., n. d.).

<u>Touristic transport services:</u> Touristic transport services is a quite broad term and does neither specify a certain means of transport nor whether the transport service is provided as flexible or standard transport. It can thus comprise any kind of the before mentioned transport services. The goal is to enable touristic transport aside from individual motorized traffic in order to access touristic destinations.







Commonly used Flexible Transport Services

On-demand bus

is a bus service that works in contrast to regular scheduled bus lines only after prior calling (call, depending from operator to operator, has to be done some time upfront) of the bus-operator. On-demand buses also deviate from the routing compared to an ordinary bus line service (Austrian Federal Chancellery – Kraftfahrliniengesetz § 38, 2016).

· Hailed shared taxi service

is a taxi service that works in contrast to a regular taxi with fixed stops but with a flexible routing choice. The taxi also has to be called upfront (Austrian Federal Chancellery - Kraftfahrliniengesetz § 38, 2016).

Shuttle service

Shuttle bus (or coach) is a bus service which transports passengers primarily between two fixed points. Shuttle services often fulfill the function as passenger interconnections and shuttle people mostly from transport hubs (i.e. train station) to different destinations (i.e. hotel, a specific touristic destination etc.). Seasonally it is also often used as supplementary transport offer like as skiing bus or hiking bus (Austrian Federal Chancellery – Gelegenheitsverkehrsgesetz § 2ff, 2016 and The government of Western Australia – Department of Transport, n. d.).

Carsharing

is the organized collective use of one or more cars for timely limited periods (mostly hours). Carsharing is particularly attractive to users who occasionally need a car. The organization of the renting of the cars may be a commercial business or the users may be organized as a <u>company</u>, public agency or <u>cooperative</u> (Bundesverband <u>CarSharing</u>, n. d.). Carsharing may also be attractive from a touristic viewpoint and could potentially substitute the use of private cars.

Carpooling

is <u>the sharing of car journeys</u> so that more than one person travels in a car. A popular carpooling variant is the common commuting to the work place. Another possibility of carpooling is the use of open platforms where registered members can book car journeys (Association for commuter transport, n. d.).







Bikesharing

is the use of publically available bycicles which can be rented for a short time-span and usually within a bigger rental network (several rental stations). The rental works as self-service. One important characteristic is that the bycicles don't have to be brought back to the original rental point but may also be returned to any other rental station within the rental service. The technical access via card, key, mobile phone or password at a terminal as well as the parking mode of the bycicles can deviate from system (provider) to system (provider) (Forum bikesharing Schweiz, n. d.).

Inland passenger water-way transport

is the transport of passengers via boat or ferry (trip boats, hotel boats, water taxis etc.) between defined 'destinations' either within a city or also as extra-urban transport. People can board or exit the boats at the defined destinations. This transport service can be interesting for both – residents and tourists (UK Government, 2012).

• Other Flexible Transport Service

There are many solutions and concepts on transport services and particularly Flexible Transport Services available. The foregoing were the most commonly used ones and were thus briefly addressed. Since this enumeration is not conclusive it is possible to present and describe here further flexible transport concepts. Also the questions in the survey are then related to this/these other Flexible Transport Services.





