Ostana – Smart Rural 21 –

Mobility Development Plan

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1. Introduction

Ostana is an Occitan multi-centric settlement in the north-western Alps, in the Po valley, facing the Monviso mountain in Italy. In 1921 there were 1 200 inhabitants. At the end of the 20th century only six were left with a depopulation rate of 99,5%.

Nowadays, the inhabitants count 50 permanent ones, while in the summer and high season this number grows to 500 tourists and second-home owners in total. The rebirth of the village began in the late 80s of the 20th century when a group of former Ostana inhabitants returned from Turin with the idea of a high-quality architectural renovation based on very strict rules and the protection and promotion of alpine landscape.

Over the years, Ostana was able to attract a network of qualified supporters and build a system of competences and alliances from outside the valley. A small and tough community created the conditions for a better life, including work around architectural renovation, providing services to the inhabitants, developing cultural projects, and taking care of the deployment of renewable energy, agriculture and forest management.

Many hamlets of the village are located at different altitudes and are connected by small, narrow streets. The lack of collective public transport (such as public bus) in the valley made this specific geographic shape a source of problems and hardship for the daily life of the residents.

The town is overpopulated during the high season (with shortage of parking space during weekends and special events) while keeps staying under-populated during the low season. Sustainable mobility is a problem to be solved and should take into consideration the provision of new mobility services, the reduction of carbon emission, the public transport connection and the relation with education and cultural facilities.

During summer 2020 the Municipality due to high turistic flow regulated the access of motor vehicles in the villages launching a shuttle services and involving many local volunteers in its management.

Economic activities are under pressure at peak times while are unloaded in the rest of the year: the creation of a constant working economic flow is complicated by this factor connected to the seasonality of the offer. The community is trying to promote activities all year long in order to stabilise overall economic income.

In order to decrease CO_2 emissions and overcrowding, Ostana intends to develop a new mobility model based on wider use of electric mobility, creation of a local car pooling system, installation of new infrastructure for recharging electric bikes and the creation of new interchange areas for intermodal mobility.

Ostana is the only Italian municipality selected today by the call "Smart Rural", launched at the beginning of the year by the DG Agri of the European Commission.

The project is funded by the European Commission (DG Agri) and will have a total duration of two and a half years, under European coordination by the E40 Group. The objective of Smart Rural is to develop and implement smart village approaches and strategies throughout Europe, drawing from the concrete experience of cities some useful indications for local interventions of the future Common Agricultural Policy, as well as deepening possible connections with other European and national instruments for financing innovative actions.

2. Key challenges & assets

Increasing the number of residents in Ostana is one of the main challenges that the village is facing, with the objective of consolidating services at the local level. While Ostana has been mostly perceived over the years as a beautiful destination for tourists, the village aims at attracting new residents and potential entrepreneurs and innovators who can contribute to social and economic growth.

Ostana is facing other major challenges, such as increasing the amount of affordable housing solutions and getting a better connection to fast broadband (a challenge shared with most of the Italian villages located in mountainous and inner areas), but also improving a sustainable mobility system.

A cohesive and integrated local community, the presence of high-quality public infrastructures and the local Monviso natural biosphere are considerable assets for creating interesting opportunities for new temporary or permanent residents.

The Smart Strategy was developed collecting inputs expressed by Ostana's residents and a wide range of local and regional stakeholders. The development of the Smart Strategy was an opportunity to develop a vision for the medium and long terms, as well as to consolidate a local participatory scheme which may be decisive to increase collaboration with social enterprises and innovators willing to invest in Ostana.

The Smart Strategy will contribute to the introduction of new forms of sustainable mobility, in line with the action carried out to reduce CO_2 emissions and to better connect Ostana to other cities of the province.

The Municipality of Ostana, within the Smart Rural initiative, proposed an Intervention Fiche called CarPooling, aimed at characterizing the territory both in terms of improving environmental quality, i.e. the reduction of emissions into the atmosphere and the rationalization of transport, both of quality and overall attractiveness of the territory for new inhabitants, tourists and economic activities.

3. Objectives

The following is a proposed design process aimed at:

- *Define an executive and sustainable path for freight management services and the arrival and departure of tourists*
- *Identify a management strategy for "community mobility", understood as permanent and occasional*
- *Develop an action plan for the enhancement of the experience and communication.*

4. Methodology

The proposed intervention methodology is the integration between Project Cycle Management and participatory planning.

Project Cycle Management is proposed in order to develop both executive intervention plans in relation to the different type of local resources available and exogenous solutions that can be activated or borrowed, and systems of indicators aimed at measuring the degree of achievement of the classified objectives and leaving a system permanent monitoring of the path of environmental sustainability and circular economy pursued by the Municipality.

At the same time participatory programming, as well as allowing to classify the active or available local presence both in the planning function that organizational, helping the process of identification and

accountability of the residents, as well as a model for extending the experience according to an effect "snowball ", offers the possibility of actively involving both in preparatory and monitoring terms the permanent and non-local guests, with traditional detection tools or better by activating data analytics systems on existing or activatable social channels.

Finally, on the basis of the design indicators deriving from Smart Rural and identified for the specific action, a final evaluation will be conducted.

5. Analysis of the current local mobility

A mobility system qualifies according to the following components:

- Infrastructures: obviously understood as roads, parking lots, etc., and also as vehicles and means that can use them
- Rules: or ways in which the infrastructures can be used autonomously or to provide public or private transport services
- Information: the methods and tools with which to inform and communicate to end users the modes of transport and access to mobility

The types of mobility can be classified by:

1) Subject:
   a) goods:
      i) inbound
      ii) outbound
      iii) inner
   b) people:
      i) residents:
         (1) permanent:
            (a) schoolchildren
            (b) commuters
            (c) active
            (d) inactive
         (2) non-permanent:
            (a) commuters
            (b) inactive

      ii) non-residents:
         (1) vacationers
         (2) tourists
         (3) daily
         (4) complementary
2) Mission:
   a) goods:
      i) supplies for local economic activities:
         (1) independently
         (2) by third parties (suppliers or logistics)
      ii) export of local productions:
         (1) independently
         (2) by third parties (suppliers or logistics)
      iii) intra-municipal logistics
         (1) between economic activities: autonomously
         (2) between economic activities and housing: by private individuals
   b) people:

   i) internal relaxation
   ii) local trade
   iii) external trade
   iv) tourism / leisure
3) Type of means of transport:
   a) Individual:
      i) on foot
      ii) bicycle
   b) TPL / School bus
   c) Private people vehicles
   d) Freight vehicles / people economic activities

In the Municipality of Ostana, in relation to the population and presences we find that:

- there is no school bus service but the number of children is also limited;
- the number of commuters is very small;
- most of the mobility, even for significant presences related to holiday tourism or second homes, is resolved within the municipal perimeter
- the mobility needs towards the outside are:
    - o freight logistics for the economic activities present
    - o procurement of goods for residents and non-residents
    - or free time for access to other areas of the valley.

In addition to this, it is necessary to point out the frequency of access peaks by visitors and external tourists which tends to create temporary situations of internal mobility crisis also in relation to the lack of parking spaces in the access points to the municipal area, which, although compensated by the presence of many areas located in the different hamlets are not sufficient and cause crowding of the roads both in terms of safety and polluting emissions

6.Tree of objectives

Ostana Smart Rural general objective is to keep the village alive and give services to new and actual inhabitants through smart mobility, social housing, cultural and social innovation, forest management.

As we have seen, this goal implies the maintenance, or rather the increase of the population, ensuring an environmental quality, landscape and high quality services, including the absence of emissions or rather at least a strong containment of those deriving from mobility.

We can therefore state that the general objective of our Plan is to be able to organize effective mobility, in terms of response to the required transport missions, and with low emissions, that is strongly linked to electric traction.

In fact, in its Smart Rural plan, in order to decrease CO_2 emissions and overcrowding, Ostana intends to develop a new mobility model based on wider use of electric mobility, creation of a local car pooling system, installation of new infrastructure for recharging electric bikes and the creation of new interchange areas for intermodal mobility.

We can therefore identify two strategic objectives:

1. reduction of mobility linked to emissions
2. promotion of electric mobility

from which to develop specific objectives to be translated into actions, or for the first objective:

1.1 development of mobility consistent with the territory, or the use of footpaths and footpaths
1.2 activation of individual mobility services such as e-bikes, car and van sharing, or car pooling
1.3 activation of electric collective public transport services

while for the second:

2.1 installation of charging points for bikes and vehicles in the various hamlets
2.2 development of a regulation for mobility
2.3 activation of a community van sharing service

But our goal is not a mobility plan, but the development of actions that make it possible to pursue the goal of carbon free, then identify and choose actions, together with the promotion of behaviors, which identify the Ostana territory as an area and community that wants to reduce emissions to zero.

The use of the equivalent of CO_2 reduction deriving from actions and behaviors could be the main indicator to be used, together not so much with the resolution times of the transport mission but with the completion of the mission itself, i.e. the parameter is not performance but the achievement of the objective in the conservation of the chosen territorial quality.

Together with the general objective, we carefully consider this last aspect: the qualitative value of the territory that determines the choice of residing permanently or temporarily in the territory of Ostana.

The quality of the environment, landscape and natural and social resources are and must remain the criteria for choosing Ostana: that is, you come to Ostana for these reasons, but it is a question of making all the people involved (from permanent to daily) aware that they are beneficiaries and guardians at the same time.

In fact, the relationship between the individual and the territory / community represents the value of Ostana, which can exemplify how, in relation to mobility, the first form of powertrain to look at and to value is the man himself, or walking (also use the bicycle). Therefore, rather than analyzing the structure of mobility in Ostana and reducing emissions, which would be like trying to replace endothermic cars with electric ones, it is a question of identifying a "territorial transport system" (infrastructure, vehicles, regulation) consistent with the objectives of the territory and able to mitigate the use of private vehicles (especially if endothermic) as a solution to the required transport missions.

Obviously, it is necessary to take into account the external factors that bind, but in reality also characterize, the freedom of use of the territory: orography and seasonality. This obliges us to always consider the possibility of having backup solutions available which, even if less eco-friendly, solve the necessary transport missions.

We can therefore design a new mobility structure:

Mode	Infrastructure	Reglement	Information
Pedestrian	Paths and urban links (of distributed villages), highlighted with different accessibility priorities (always open, seasonal, tourist). With characterizations based on elements of	Scheduled maintenance. Management committee for urban paths and routes	Travel times and route characteristics (also via layers on google maps). "Hourly" map of the quality of practicability of the paths (when in the sun, panorama, speed, ...)

	craftsmanship, including artistic ones		
Bike (EBike)	Routes highlighted with different accessibility priorities. Decentralized pick & place stations. Sherable charging stations	Bikesquare model rental regulation distributed and sherable	Platform for using the rent service
Community vehicles	Sharing, regulation of a vehicle for transporting goods and people	Specific regulation for use by the different user levels	Platform for using the rent service
Integrated TPL	Activation of integrated public and school transport services	Seasonal access and parking regulations, together with additions to the TPL timetables, even extra	Updated timetables and on-call service test Booking platform for parking and seasonal shuttles
Private vehicles	Parking areas open to the public and electric charging stations	Regulation of maintenance and opening of car parks according to seasonality	Parking reservation platform

In parallel, some aspects can be highlighted, detectable but difficult to regulate by regulation, even mitigable.

The first is that of interaction with the territory outside the Municipality. Pending an integration of policies between administrations in a more articulated and shared way, with the exception of mobility on foot and by bike, there are only two solutions:

- Use of planned public mobility

- Use of private vehicular mobility (people or goods does not change).

It is about trying to:

- Ensure that the cars when they arrive in Ostana remain parked (in an orderly and safe manner throughout the year)

- Reduce the need to leave the Municipality or to travel through it many times.

In this case there can be two levers:

- Organization of local and possibly external service timetables

- Translation of services in the Ostana area, also in mobile form (i.e. the usual periodic market type modality, but also, as years ago, that even local businesses at market times put their stall in the square and did not remain among the their walls), but complete: brokerage and logistics. Physically, people go to commercial services, etc., while the goods are delivered autonomously in a delayed time. (this service can also be an element of community, for example taking home shopping to the elderly. These are all solutions that exist, it is a matter of bringing them to the system)

It is also possible to finalize part of the local taxation explicitly for some services. (my IMU varies if I maintain the "open" parking spaces on my lawn), or start organizing the collective production and consumption of energy.

Obviously, in addition to planning, organization, regulation, investment and management work, a strong communication action is needed but above all an example.

We are in the full paradigm of small communities, where small groups, consistent with the initial choices, become an example, not extemporaneous but programmed and planned, for a diffusion of a way of operating that becomes widespread practice until it becomes a "rule" of the whole community (for example eg. the Ladins, the Walser, etc., why not the new "digital" ones?)

7. Action descriptions

1.1 development of mobility consistent with the territory, or the use of footpaths:

Qualification of the path and pedestrian system inside the perimeter of the residential areas present in the municipal area, but normally outside the driveways, offering an alternative mobility infrastructure for people to move within the territory. detect the existing signs of the internal paths, integrate them with the themes of presence and the seasonality of practicability, to guide the population and visitors to make full use of the territorial quality, reducing noise and emissions. At the same time, there is a path maintenance service in the different seasons, also through the promotion of a territorial committee for the maintenance of the territory which could be part of a foundation of participation for the development and protection of the territory with a wider value. The promoter and the supervisor of the usability of the paths should obviously be the Municipality, but the participation of the residents or the realization of action projects with the involvement of tourists can allow to have an action at almost zero cost, if not for tools and signage maintenance. . (INSERIRE CARTINA E FOTO)

1.2 activation of individual mobility services such as e-bikes, car and van sharing, or car pooling

If the previous action is aimed at providing an infrastructure for individual mobility in the naturalistic or environmentally qualified field, it should be remembered that people may have to transport goods, face more uncertain climatic conditions or just wish to have faster travel times. In this, it is necessary to think of an infrastructure action and provision of vehicles for micro-mobility or transport. The development of a service for sharing electric bikes and electric vehicles would complement the transport needs. Platforms such as those promoted by the 5T Consortium can offer the basic system for managing the service alongside a fleet of vehicles that could also be of heterogeneous origin and ownership, integrating the times and needs of mobility and transport of the population and external users of the territory . To give an example applied to the different types of vehicles: - electric bikes: the vehicles made available by traditional e-bike rental, by the serials of guides, by shelters or b & b, but also by individual citizens or cooperatives for their own mobility and for tourists can both achieve greater efficiency in use, in " opportunity for renewal or replacement, as well as for a unitary maintenance and assistance system that can also generate an additional more or less permanent job and an increase in residential presences or income integration - cars or vans: if in this case the initial purchase or long-term rental cost is certainly higher, the sharing of vehicles, understood as individual assets, which enter into a community economy logic, as once furnaces and means for working the land, can flow into a unitary method of payment, remuneration and maintenance of the service. The management of such a service should be promoted by the Administration but through a participatory process, becoming on the one hand the guarantor of the management and on the other the stimulus to strengthen the Community heritage that leads to the safeguarding and qualification of the territory. The funds to refer to, in addition to any reliefs for the purchase of various vehicles or the promotion of cycle tourism, may be those dedicated to the development of shared mobility for the reduction of emissions. (QUALCHE FOTO DI VEICOLI E SCREENSHOT)

1.3 activation of electric collective public transport services

The last level for the management of emissions deriving from mobility concerns collective transport. In this case we have two situations that could, however, integrate: - The connection to the public transport network included in the regional support policies - The management of the peaks of access to the territory, with a more touristic value If for the first case the parameters for sustainability are known, as well as the path outlined by the PNRR in support of a more environmentally sustainable public mobility, the second must necessarily find an economic balance between revenues from a tourist "transport" ticket and access to parking areas for outlanders. A path that combines the sustainability of services and an increase in the availability of the service passes through two moments: - The updating of means of transport both in terms of low-emission powertrain and vehicle characterization in relation to the service to be implemented (smaller, more frequent, lower operating cost, less powerful charging systems) - A better correspondence to the needs of territorial transport, in addition to the directives at the bottom of the valley, to introduce supplementary sections and "tourist" or "park & ride" routes, which requires a greater knowledge of the mobility needs of the inhabitants and that of "visitors" in relationship to the offer deriving from economic activities of territorial attraction also in support of the use of the natural environment. If on the one hand the territorial sponsor of such an action must be the Municipality, also with a view to involving a wider territorial area, on the other hand it is necessary to cooperate with the traditional actors of public transport, i.e. transport and the regional mobility agency which plans, organizes and supports the regional administration in adopting interventions for mobility planning, support for the sector and innovation in the industrial product. The mapping and monitoring of mobility needs as well as the possibility of measuring the economic participation capacity of citizens, tourists and businesses in supporting services, can guide a transformation of the mobility system, which obviously affects both the economic structure that the social configuration of the communities. (QUALCHE FOTO??)

2.1 installation of charging points for bikes and vehicles in the various hamlets

Currently there are several market proposals for infrastructuring an area with recharging points, both public and private. The preparation by the municipal administration of a plan for the positioning of the columns for both vehicles and bikes, not only represents an element of regulation but also an element of attraction for top-up managers and promotion of local economic activities. Obviously the preventive study of the uses and the permanent monitoring represent again a possible path of "digitization" of the territory to support planning, investments and communication towards the outside for attractive purposes and therefore concentration of economic and employment flows mediated ex-ante on sustainability parameters that the local community intends to adopt and accept.

2.2 development of a regulation for mobility

The elaboration and definition of a regulation for mobility can represent for the Administration not only the development of a "Traffic Plan" or regulation and limitation of self-determined individual mobility, but also a manifesto and programmatic path to accompany the regulatory plan general both from the point of view of economic development, employment and the presence of skills in the territory and of interaction with neighboring territories and with individuals interested in the territory. It can include educational courses for the little ones, mutual assistance activities that involve residents and guests in managing the accessibility and use of the territory, with collective, individual and pedestrian transport vehicles. At the same time, the definition of an environment for mobility can be an occasion of attraction for the experimentation of solutions by startups, in fact there are not only areas for testing autonomous driving, but also for monitoring, for example, weak people who can benefit from autonomous mode of the territory, environmental safety, fire prevention, adverse weather events, applications for sports performance, monitoring of well-being, etc. The definition of a regulation for mobility allows to standardize characteristics for an open laboratory of sustainability, not necessarily only urban.

2.3 activation of a community van sharing service

A first application of the rationalization of the means of transport present in a territory, or the reduction of the potential of emissions into the atmosphere, is to try to organize transport that can be easily classified, that is, those linked to the presence of stable organizations in a territory: services or activities of public and private production. In fact, each of these organizations knows exactly the needs of the mission of transporting goods or people necessary for their daily life and normally also has a temporal planning, which allows to think of a "shared" and mediated use of a common vehicle / asset. In our case, the solution can be given by an electric vehicle mixed with people and goods which can be of support for the tourist economic activities of the area as well as made available to citizens when they are not in use. The attached design sheet illustrates the possible implementation methods, which integrate very well with the activation of a general vehicle sharing platform. Unfortunately, the reduced diffusion of electric vehicles and the particular characteristics of the vehicle determine a rather high financial step for activating the shared service that requires either an external intervention to support or a more in-depth analysis of how to make the service sustainable starting from the resulting economies for individual organizations.

8.Indicators

In order to support the implementation process, both to analyze the impact and to have a homogeneous reading of the same, it is necessary to identify a series of indicators that allow to measure the effects of the actions.

The main areas may concern:

- transport infrastructures
- people who pass and move - vehicles or vehicles in circulation
- the services made available in terms, for example, of operational mobility capacity
- income generated or caused by mobility

To monitor these factors, it is possible to use automatic detection methods, such as passage meters for people and vehicles (now they are low-cost standalone or IOT devices) to be combined with periodic primary and secondary research activities, through questionnaires and interactions. social networks, and studying the territorial planning documents (km or m of roads and paths), the timetables of public transport up to the regional transport planning. In addition to monitoring the project actions, the monitoring activity allows the acquisition of a large amount of data relating to the local community, which allows to develop a dynamic digital representation of the same and therefore create a valuable asset in the planning and management of the territory, economic activities and population. For this reason, it would be appropriate that the responsibility and management of the activity and data be directly in the hands of the Municipal Administration, or one of a form of citizen, business and administration participation that can represent an entity of study and planning for development. of the community.

As an example of indicators we can cite:

- Number of registered vehicles
- Number of incoming vehicles
- Number and bike
- Number of km traveled by car and bike sharing
- CO_2 reduction emitted by vehicles
- Number of vehicles that stop at the limits of the territory
- Number of e bikes entering the area
- Number of hikers and inhabitants who follow internal paths
- Number of passengers on permanent public lines
- Number of passengers on seasonal public lines

- Revenues in transport tickets
- Revenues for parking
- Revenues for accesses
- Top-ups made by vehicle type

9. Logical framework

	PROJECT SUMMARY	INDICATORS	MEANS OF VERIFICATION	RISKS / ASSUMPTIONS
Goal	Mobility of people and goods with lower emissions, also thanks to the strengthening of the spread of electric traction	Number of residents and attendees CO2 emissions	Demographics Environmental detection data	
Outcomes	1. reduction of mobility linked to emissions	Quantity of CO2 not produced following the use of the adopted solutions	Processing from collected data	
	2. higher percentage of electric vehicles	Number of vehicles for goods and people, including micro-mobility present	Data on registrations Data on vehicle purchases	
Outputs	1.1 pedestrian paths and signs used	Number of passes	Passage sensors	
	1.2 active and used sharing platform	Number of subscribers and members Number of km traveled in sharing	Monitoring data of the service platform	
	1.3 Local electric public transport services	Number of users Number of km traveled	Ticket offices Media tracking data	
	2.1 network of charging points accessible in the various villages	Percentage of territory, average distance, covered with charging points	Data processing based on municipal data	
	2.2 general plan for the regulation of mobility	Level of membership and acceptance of the plan	Subscriptions to the document	
	2.3 community electric vehicle used	Number of community vehicle users Number of km traveled	Service platform monitoring data	
Activities	1.1 development of mobility consistent with the territory, or the use of footpaths	Number of routes Number of km of urban path	Land use planning data	
	1.2 activation of individual mobility services such as e-bikes, car and van sharing, or car pooling	Number of shared vehicles made available by type	Data from the platform management	
	1.3 activation of electric collective public transport services	Number of lines and vehicles made available	Data from local LPT programming	
	2.1 installation of charging points for bikes and vehicles in the various hamlets	Number of recharging points by type	Data from territorial planning and authorization	
	2.2 development of a regulation for mobility	Existing mobility plan		
	2.3 activation of a community van sharing service	Number of community vehicles		
				Absence of events with a large environmental impact and of infrastructural interventions under the responsibility of other administrative levels

10. SWOT Analisys from Smart Rural Strategy concerning mobility plan

STRENGTHS	WEAKNESSES
• Cohesive, integrated local community and strong leadership • • Culture as a driver for social and economic growth • A defined path towards sustainability	• Limited number of residents • • Pressure on mobility and economic resource at peak times • Climate risks
OPPORTUNITIES	**THREATS**
• Increasing attention towards new liveability, new "ways of living" in rural areas (semi-permanent and temporary residency, smart working), also as an answer to climate change, covid-19 emergency and general inadequacy of urban spaces) • Potential synergy between sectors (agriculture, tourism, culture, sport, etc..) • Increasing interest towards slow/eco/cultural tourism locations	• Village becoming lively only in high season peaks for touristic purposes • High risk and low appeal of investments from private sector • •