



UNIVERSITÀ
DEGLI STUDI
FIRENZE

FLORE

Repository istituzionale dell'Università degli Studi di Firenze

The relaunch of branch lines as a territory project for the inner areas

Questa è la Versione finale referata (Post print/Accepted manuscript) della seguente pubblicazione:

Original Citation:

The relaunch of branch lines as a territory project for the inner areas / Francesco Alberti. - STAMPA. - (2017), pp. 979-985. (Intervento presentato al convegno AIIT International Congress on Transport Infrastructure and Systems tenutosi a Roma nel 10-12/04/2017).

Availability:

This version is available at: 2158/1110687 since: 2022-07-11T22:30:56Z

Publisher:

Taylor & Francis Group

Terms of use:

Open Access

La pubblicazione è resa disponibile sotto le norme e i termini della licenza di deposito, secondo quanto stabilito dalla Policy per l'accesso aperto dell'Università degli Studi di Firenze (<https://www.sba.unifi.it/upload/policy-oa-2016-1.pdf>)

Publisher copyright claim:

(Article begins on next page)

Postprint

Alberti F. (2017a), *The relaunch of branch lines as a territory project for the inner areas*, in Dell'Acqua & Wegman (Eds), *Transport infrastructures and Systems*, Proceedings of the AIIT International Congress on Transport Infrastructure and Systems (Roma, 10-12/04/2017), Taylor & Francis Group, London, pp. 979-985 (ISBN 9781138030091)

The relaunch of branch lines as a territory project for the inner areas

F. Alberti

Università degli studi – Dipartimento di Architettura, Florence, Italy

ABSTRACT: In the Italian National Strategy for Inner Areas, included in the Partnership Agreement 2014-2020, improving accessibility is one of the priority axes of intervention, either as a lever of territorial cohesion, or a driver of economic development. Therefore, the presence of a railway line, even if underused or abandoned, may represent for these areas a strategic asset to activate revitalization processes, through the integration of regional and mobility policies. Good practices demonstrate how innovative management models in rail service, together with an approach to regional planning oriented to public transport, may have significant multiplier effects on the demand side. On this basis, the paper presents two project researches for inner areas in Tuscany, both characterized by the presence of an old underused railroad, whose “smart” use is the key element for a “territory project” aimed at the enhancement of the local conspicuous territorial capital.

1 INNER AREAS IN ITALY: FROM WEAKNESS TO OPPORTUNITY

The Partnership Agreement for Italy 2014-2020 adopted by the EC has highlighted the importance for the country's development of ‘inner areas’, which include a large number of minor centres, settled in different historical phases and in various regions. Therefore, it relates to a very wide range of territorial areas, which since the 50s of last century have been cut out of the process of Italy's industrialization and economic growth.

We know that this process followed very different trajectories between Centre-North regions on one side, and Southern Italy and the islands on the other. But even in regions where it was quicker and more intensive (such as in Emilia Romagna, Piedmont and Lombardy), it generated significant differences between the ‘central’ areas, corresponding to cities and urban systems of any size directly affected by the economic development, and the ‘peripheral’ ones, mainly, but not exclusively, located in high hilly and mountain areas, marked by more or less evident signs of economic de-growth, population decline and an increase of aging population.

In addition to being located at a significant geographical distance from supply centres of essential services – such as, in particular, education, health-care and mobility – inner areas, as described by the dedicated National Strategy set out in the Partnership Agreement, are characterized by a largely underused “territorial capital”, concerning environ-

ment, cultural heritage, local knowledges, etc.: a waste of resources that results in high social costs, for example in terms of hydrogeological instability, due to the lack of slope maintenance, or deterioration of the historic heritage and landscape. But, at the same time, it is also a measure of the “economic development potential” of these areas, that cover about 60% of the total national territory, where about a quarter of the Italian population still lives split into over 4,000 municipalities. Therefore, local development policies – refers the Strategy – have to be, “first and foremost, policies for activating latent local capital” (UVAL, 2014).

If reduced accessibility to basic services is for locals a strong limit to their citizenship rights, the objective difficulty of moving from a place to another, due to the geomorphological features of the territory, the distance from major infrastructure networks, the poor conditions of local roads, and the inadequacy of public transport, represents the main obstacle to the economic development of inner areas and may be a cause of their “desertification” – a situation that we find not only in the regions of South Italy, but in the whole southern Europe: Portugal, Spain, France, Greece (Camagni, 2011).

The ultimate objective of the National Strategy for the inner areas, which sums up all other objectives, is to reverse the demographic trend, both in numbers and in terms of generational change (Figure 1); then, beyond the advantages that may be obtained through the development of immaterial infrastructures and the remote access to a growing range

of services provided by ICT's, it is easy to understand that the improvement of material links, through the enhancement of transport infrastructure and services, is the *sine qua non* for achieving the result. At the same time, it's necessary – as OECD reports on regional sustainable development has in turn highlighted – that such interventions go beyond sectoral policies to be seen as a part of a territorial strategy, both integrated and strongly place-oriented: «In order to overcome accessibility limits while valorising place-specific assets, individual rural policies typically need to cut across several policy streams, including transport and ICT, public service delivery, and SME development» (OECD, 2009).

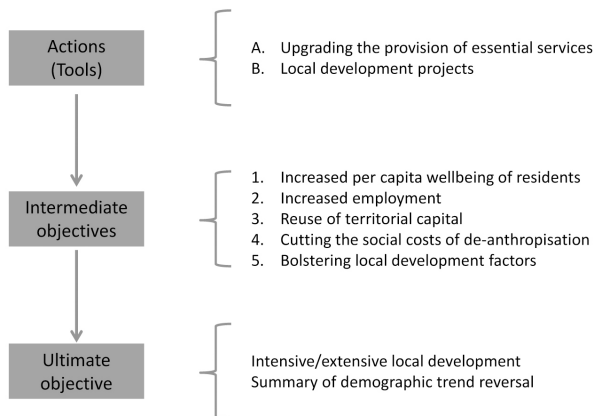


Figure 1. Objectives of the Italian Strategy for Inner Areas.

2 BRANCH RAILWAYS AS THE “INNER AREAS” OF TRANSPORT INFRASTRUCTURE

Although not explicitly mentioned in the National Strategy, among the underused resources of the territorial capital that are spread all over the country, a large number of branch railways must be included. The range of the lines is varied, with regard either to operating and maintenance conditions (totally abandoned lines, closed but still functional lines, closed railroads occasionally used as a tourist attraction, operating lines with reduced numbers of train rides and stops, etc.) or to the technical characteristics of the infrastructure (track gauge, power, presence of viaducts and tunnels, etc.).

The stories of these railways largely reflect the transformation process that in the second half of the twentieth century led to the concentration of activities and population in some parts of the country and to the formation of inner areas. Despite the disastrous damages occurred to the national rail network during the Second World War - at the end of the conflict, in 1945, 7,000 km of track, equal to 30% of the total track line length, had been destroyed, as well as about the same rate of railway bridges (Maggi 2012) - by 1955 the restoration works are completed for approximately 22,000 km of track, with a

loss of 1,000 km compared with the pre-war network.

Between 1955 and 1972, going hand in hand with the explosion of individual motorisation and the development of the motorway network, other 2,100 km of lines (including 1,500 km of lines under concession) became unproductive and closed. The new geography of development, drawn by the routes of private mobility, that receive most of the public investment (in the 60's road transport already absorbs 80% of the total budget allocated to infrastructure in Italy), has, as a side effect, the concentration of 95% of passenger traffic and freight on just a half – 11,000 km – of the total operating tracks, threatening the survival of train services on the other half.

In 1985, a decree attached to the Budget Law, signed by the former Minister of Transportation Claudio Signorile, contains a list of 57 lines, some of which still used daily by a not insignificant number of commuters, that should be immediately closed as “not included in the railway network of general interest”. The measure, presented as an act of rationalization, actually reveals the indifference of the State to seeking a way, through the reorganization of services, to take as much advantage as possible from existing rail infrastructure as an alternative to the spread of car mobility.

After the protests that followed the decree, only 6 lines were actually closed at the time. Nevertheless, it has become the first step towards the closure in the following years of an increasing number of secondary railways, as an inevitable outcome of the vicious circle between poor services and demand reduction: a situation that the transfer of power on local railways from the State to the regional authorities (2001) has been able to correct only in few cases.

In Apulia and in the autonomous Provinces of Trento and Bolzano, a different approach to extra-urban mobility in areas with a high tourist vocation and an efficient use of European funds have, in fact, led to the successful reactivation of railway lines that had been abandoned in previous decades, with new railroad equipment, rolling stock and mode of operation.

On the contrary, other regional authorities have continued to channel all available resources provided by the State, more and more reduced because of public spending cuts, only to the enhancement or even maintenance of the stronger lines, playing at local level the same policy of depletion and closure of secondary railways started in the 80's by the central Government. Significant, in this sense, the case of the Piedmont Region, which in 2012 decreed the closure of twelve railways, used every day by about 6,000 people: in the lack of demand-side policies in favour of sustainable modes of transportation on the commuter routes, the operating cost per passenger of the lines had gradually grown becoming unjustified in relation to the service standards.

From the post-war period to the present day the number of disused railway branches across the country amounts to 162 tracks, for a total length of 5,800 km (source: www.ferrovieabbandonate.it). More difficult is quantifying the lines with extremely low traffic density, that over the years have seen a constant reduction of train rides and stops: a prelude to possible further closures in the coming years.

2.1 *Secondary railroads as a resource for the accessibility of inner areas*

The recognition of the inner areas as a “national issue” of strategic importance (UVAL, 2014) leads naturally to identify the improvement of regional accessibility and mobility as one of the priority axes of intervention, either as a lever of territorial cohesion (in order to support the maintenance of residential functions, land conservation and the protection of cultural heritage), or a driver of economic development (especially with regard to tourism, agriculture, local manufactures, etc.).

This gives a new perspective also on secondary railways, which can be taken into account on the basis of different criteria than those which have led to the gradual decimation of lines and services.

The methodology itself used for the definition of inner areas identifies in the presence of a “silver class” train station (that is, according to the classification adopted for the Italian railway network, a small-medium station with a daily flow of about 2,500 people, including passengers, employees and users of complementary services) one of the criteria characterizing a municipality or a group of neighbouring municipalities as a “service provision centre”; the other criteria are the presence of a hospital with emergency room, diagnostic services and short stay ward (DEA level 1), as well as of the whole range of secondary schools. Inner areas are therefore defined by the time required for reaching in the quickest way the nearest service provision centre, distinguishing the so-called “intermediate” areas (located at a distance of 20 to 40 minutes), from the “peripheral” areas (40 to 75 min.) and the “ultra-peripheral” ones (over 75 min.) (UVAL, 2014).

In coherence with this approach, especially with regard to those territories with a valley in the middle, where a road and a railway linked to a service hub run parallel to each other, we can look at the latter, even if considered inefficient according to the usual operating standards, as a strategic resource of the territorial capital, an asset to be valued in the logic of integration of regional and mobility policies, actions for social inclusion and actions for growth.

As far as transport efficiency is concerned, the above mentioned regional good practices highlight how innovative management and operating models can have a significant multiplier effect on the demand even in places with low-density settlement,

which is especially true if new services are conceived as part of a multi-modal transport offer, capable of meeting the inhabitants’ mobility needs, as well as of enforcing the supply of tourism services.

The experience of the Province of Bolzano, where a single public transport company supplies integrated services by road, rail and cable car, is from this point of view very significant. Among the railway lines, Merano-Malles (the Venosta Railway Line) and Soprabolzano-Collalbo (Ritten Railway), both inaugurated at the beginning of last century, are very interesting examples, not only at national level, of historical infrastructure, that have been renovated in recent times in order to accommodate ordinary train services.

After being inserted in 1985 in Minister Signorile’s list of ‘dead branch lines’, the Venosta Railway Line was left to languish by the national operator (RFI) until it closed in 1991. In 1999 the abandoned railway was acquired by the Province of Bolzano. Six years later, it will reopen with its 60 km of track line and nineteen stations, after an investment of 130 million Euros, used for a complete renovation of its equipment, advanced traffic management and control systems, the purchase of trains with high comfort and performance, the restoration of bridges and other structures, and the building of road underpasses, architectural station canopies and areas for multi-modal interchange from train to bus or private car. Along with these interventions new services have been targeted at new kinds of users, like the transport of bike by train and bike rental at the stations. Thus transformed, from a ‘dead branch’ Merano-Malles has established itself in a short time as the flagship line of South Tyrol, with over 18,000 trains operating during the year and 3 million passengers (two-thirds are locals, one-third tourists), becoming the model for the adaptation of railways in the other valleys.

In the municipality of Ritten, lying on a plateau of 110 sq. km, 1,000 m height above the city of Bolzano, a 4.5 km narrow-gauge and single track railway has come back to life, with a train frequency of 30 minutes, after the opening in 2009 of one the most modern cable-cars in Europe, connecting the terminal station of the railway at Soprabolzano to the city centre of the Province capital with a frequency of 4 minutes and a capacity of 550 people per hour. Such an intermodal combination of sustainable transport vehicles has made of this territory, where live 7,600 people, a unique case of an inner area that has suddenly ceased to be marginal as a consequence of a single act of modernization.

In addition to improving passenger services on the main railway lines, it is important to reflect on how to make easy, cheap and safe moving from the innermost areas towards the access points to the railway. On the other hand, regional planning can play a decisive role in promoting public transport

accessibility to inner areas, making of the existing tracks the backbone of the functional reorganization of settlements. The principle of “transit-oriented developments” (Calthorpe, 1993), postulated with reference to the model of the compact city, translates in this case into the idea that rail stations, located within very small centres or even in open country, should anyway play a role of ‘functional keystones’ of the territorial system, accommodating in their immediate surrounding (with a preference, wherever possible, for the re-use of railway buildings and areas that are no longer necessary for transport) basic public facilities, services for tourists, areas for multi-modal interchange, etc., as well as the access points to the network of nature trails.

3 RETHINKING THE ROLE OF BRENCH RAILWAY LINES IN TUSCANY. TWO RESEARCH PROJECTS

Moving from these assumptions, the next part of the paper presents two research projects recently undertaken by the Research Unit SUP&R (Sustainable Urban Projects & Researches) at the Department of Architecture of Florence, focused on the “smart” re-use of old underused railroads – by means of innovative services on the line and towards the stations – as the key element for ‘territory projects’ aimed at the enhancement of local territorial capital (heritage, landscape, agriculture, etc.) in the inner areas. The field of both studies is Tuscany, a Region that before the unification of the Kingdom of Italy, in the Grand Ducal period, and even more so in the decades immediately following, occupied an important position in the development of rail transport in the peninsula, so that about 3/4 of 1,500 km operating tracks in the region date back to the nineteenth century. Today, the situation in the sector of rail transport has peaks and troughs. On the one hand, it must be recognized the commitment of the Region to maintain or increase train service levels on the busiest commuter lines, despite the reduction in state funding: an effort rewarded by a progressive increase of the total number of passengers in recent years (234,000 passengers in 2015, +11,4% in comparison to 2008). On the other, the present situation also shows the stagnation or depletion of weaker lines, reflected in the cut of train rides and stops and in the increase of bus services overlapping to trains or competing with them.

The studies relate to this kind of situation, explored in two very different local contexts, that is the Cecina Valley, in the hinterland of the Tyrrhenian coast, and Garfagnana, in the Appennine Mountains. Both of them reached a first level of maturity as thesis works, followed by Prof. Francesco Alberti and carried out respectively by Fabrizio Baroncini (2015) at the master degree course on Urban and

Regional Planning and Design, and by Elisabetta Mennucci (2016) at the 2nd level master “Designing the smart city” of the University of Florence.

Taking that «The achievement of national and regional economic, social and environmental goals can be supported by improving synergies between sectoral policy measures», these studies, developed in the field of spatial planning, interpret its role as «one important means by which to promote these synergies and improve the allocation of investment and resources» (OECD, 2009), according to the principle that «development strategies should not be space-neutral, but [...] placed-based and highly contingent on context» (Barca et al., 2009). Their objective is therefore, first of all, to derive possible scenarios of development and regeneration of the territories from the comprehension of their strengths, focusing on some policies and interventions which may potentially activate positive processes as matters for further investigations, concerning in particular the economic and financial feasibility elements of the strategy.

3.1 *The rail link from Cecina to Volterra*

The territory object of study, straddling the Provinces of Livorno and Pisa, lies along the river Cecina, between the homonym town (28,000 inhabitants) and Volterra (10,5000 ab.): that is, on one side, the main urban hub of the Etruscan Coast (one of the most beautiful Tuscan stretches of coastline), served by the Tyrrhenian railway line Rome-Pisa-Genoa, and, on the other side, one of the most outstanding examples of fortified city in Tuscany, rich in remains ranging from the Etruscan period to the Medicis, located about 40 km from the sea, on a hill overlooking the Cecina Valley. In the middle, lies an area of great interest for its geology and landscape, dotted with ancient villages located on the top of the hills as well as small mining centres on the plains; the last ones include in particular Saline di Volterra, that during last century asserted itself as an important location of salt industry.

The two main centres were directly connected from 1912 to 1958 by one rail line, with four intermediate stops placed either at the beginning of the roads leading to the villages on the hills, or at the edge of the lowland centres. The last 4 km-stretch of the line was a rack railway with a gradient of 100 ‰, in order to climb the slope between the valley and the foot of the walls of Volterra (Figure 2), outside of which, not far from one of the gates of the city, the terminal station was built.

In 1958 the rack section closed, outclassed by the speed of road vehicles, with the consequence that the line was reduced to the track Cecina-Saline di Volterra. Although in 1985 this one was in turn in the list of the “lines not included in the railway network of general interest”, it has survived until this

day, with a traffic volume that has been gradually reduced to the current 4 pairs of trains running only on school day. The agony of the railroad is reflected either in the loss of population in the villages or in the loss of jobs at Saline di Volterra, whilst at the coast, where seaside tourism is flourishing and full accessibility by road and train is provided, Cecina has in the meantime constantly grown and developed. Among positive indicators it can be however highlighted the constant growth of tourists, especially in extra-hotel facilities (holiday farms, campsgrounds, holiday apartments, etc.) also in the coastal hinterland.



Figure 2. Volterra. The old rack train at the foot of the city walls (Photo Archive Albertini).

In 2014, following the approval of the Regional Landscape Plan of Tuscany (Piano Paesaggistico Regionale della Toscana, PPRT), the Cecina-Saline di Volterra becomes topical once again. The Plan includes in fact a “Project for the slow enjoyment of Regional landscape”, aimed at improving slow accessibility to some regional places with special landscape qualities, by using the tracks of totally abandoned or underused railways: in the first case, the track structure should be converted to a nature trail; in the second one (that includes the Cecina-Saline di Volterra), new trains should be put in operation on the line to provide a tourist rail service. In addition to that, a concept plan attached to the Project shows some complementary interventions to be implemented along the Cecina Valley in favor of “slow mobility”, such as hiking paths, river-side cycleways, mountain-bike and horse trails.

In respect to the Regional proposal, the objective of the research project carried out at the Department of Architecture of Florence is to define a strategic scenario for the Cecina Valley, focused not only on the relaunch of the currently running line between Cecina and Saline, but also on the reactivation, with modern technology, of a rail service in the section Saline-Volterra. A direct, uninterrupted rail link between Cecina and Volterra is seen in fact as an in-

valuable option to get the most out of the synergy between two strengths of the Region – such as Volterra and the Etruscan coast – and to reconnect Volterra to the Tyrrhenian corridor, not only to support tourism but all economic activities as well, with the ultimate aim to reverse the demographic trend of the innermost areas.

The study revolves around three key issues, two of them conditioning the feasibility itself of the proposal, which were therefore dealt with at first:

- The availability on the rolling stock market of a train with adequate comfort and performance, able to run the whole track, including the slope from Saline to Volterra, on the same path of the old rack railway; through the analysis of case studies, possible solutions have been identified in different railcars by Stadler, running in combined adhesion and rack railways in Switzerland (Brig-Zermatt, Zermatt-Gornegratt and the Monte Generoso Line), as well as on the line between the seaside and the city centre at Catanzaro, in the Region Calabria;

- How to solve, by means of urban design, the problem of a new terminal station at Volterra (exact location of the stop and adjacent interchange area, connections with the old city centre, etc.), since the re-use of the old station is no longer practicable, due to recent urban transformation.

The third theme is defining a framework of possible interventions, in addition to those set out by the PPRT, aimed at strengthening the role of the railway line as the guide-element of the functional reorganization of the territory. According to a first draft of the strategic scenario, interventions should apply the following principles:

- Concentrate in the areas adjacent to the railway stations the building capacity still resulting from the local planning instruments of all concerned municipalities, using abandoned freight yards for new developments; all new industrial sheds should however be concentrated in few locations (such as the existing industrial zones of Cecina and Saline laying along the rails);

- Locate additional service activities – like small camper areas, sports yards, public facilities, etc. – in the same areas close to the train stops: they will be easy to reach by train either from the coast or the hinterland;

- Add (few) new stops along the line, where necessary for a better service to the territory and making railway more competitive to cars (for example, to serve the populous neighborhood of San Pietro in Palazzi at Cecina; or at the exit Cecina Nord of the motorway Aurelia, where a park-and-ride could be realized to stop cars at the edge of the town; or west of Saline, where the medieval castle of Montegemoli and many holiday farms are located within 2 km from the line).

At a first estimate, the costs for the new rack and rolling stock – about 60 million Euros – seem to be

compatible with the figures on population and employment and with the volume of traffic (that today is mostly on the road) in the whole area, taking also into account the seasonal flow of tourists attracted either by the coast or Volterra, whose reverberations already affect the valley, as well as the increase of trips that can be expected from the restoration of a direct connection between the two main attraction poles of the area. These aspects will be the subject of specialized in-depth explorations in the next stages of the research, which will see involved the Region of Tuscany and the concerned local authorities.

3.2 The reorganization of mobility in Garfagnana

Garfagnana is an inner area in the Apennines, in the north of the Province of Lucca, on its border with Liguria and Emilia, characterized by widespread settlement of ancient small centres (sometimes just groupings of buildings), inside a natural environment and landscape of highest quality. The total population is about 28,400, spread over 16 municipalities. The main centre is Castelnuovo di Garfagnana (pop. ca. 6000), at the confluence of the River Serchio and its tributary Turrîte Secca, built around a remarkable medieval fortress (the Fortezza Ariostesca, after Ludovico Ariosto, author of *Orlando Furioso*, who stayed there as a governor on behalf of the Duchy of Este).

Transport infrastructure of Garfagnana consists of a corridor in the valley of Serchio, covered by the Lucca-Aulla railway (90 km) as well as the State roadway n. 445, and a secondary pattern of mountain roads engraving the territory. The construction of the railway, begun in 1884, had a troubled history and was completed only 75 years later (1959) with the inauguration of the gallery Lupacino (7.5 km), which connects Garfagnana with Lunigiana, that is the territory of the high valley of the River Magra, in the Province of Massa Carrara. The line is connected at one end (Aulla) with the railway La Spezia-Parma, and at the other end (Lucca) to the regional lines towards Florence, Pisa and Viareggio.

Although railways actually link Garfagnana to many regional and trans-regional destinations, rail transport has lost attractiveness hand-in-hand with the increase of traffic flows on the road network. Public transport itself is today mainly provided by bus services, including bus lines partially overlapping rail service, that are both inefficient and barely used, and targeted services such as school bus.

Given the need of re-modulating public transport supply both in terms of efficiency and sustainability, we must be aware that orography and spread settlement, which makes Garfagnana representative of many other inner areas in Italy and abroad, make it anyway impractical to apply here the typical “urban” approach to sustainable mobility, based on the inte-

gration between soft mobility and conventional public transport.

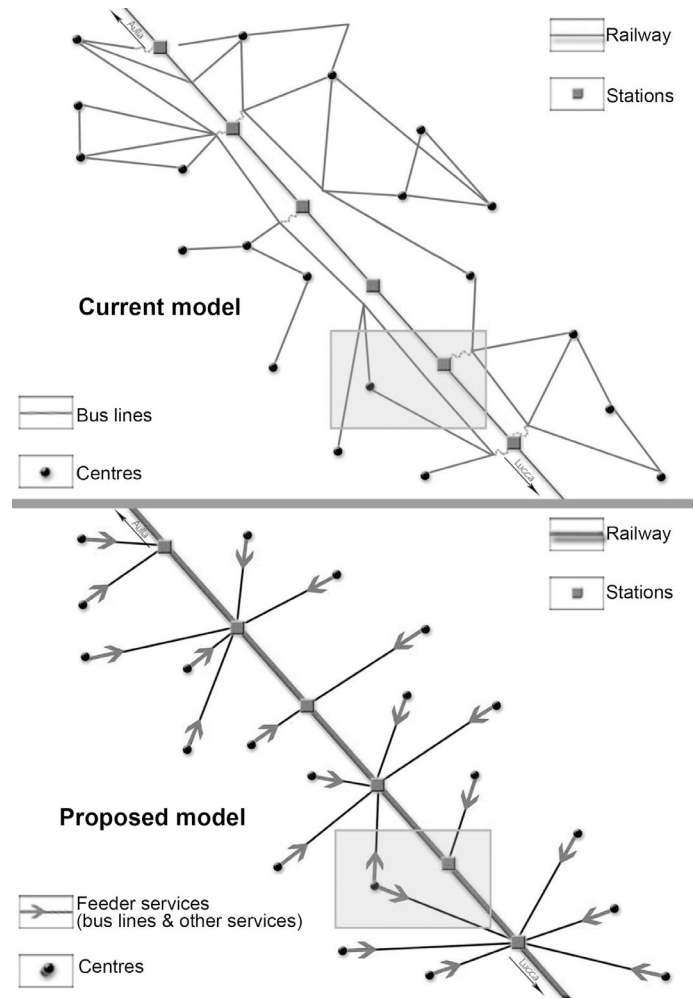


Figure 3. Current and proposed models for public mobility in Garfagnana.

The objective of the research project is therefore to set out a different model of mobility based on the optimization of the existing railway, that actually runs on the route which collect all traffic flows affecting the area. This shall be accompanied by a complete reorganization of services by road as feeder services to the main route (Figure 3), resultant of a process of public participation. A very interesting precedent, in this sense, is the participation process carried out in 2015 by the municipality of San Casciano Val di Pesa, in the Chianti area, with funds from the Region Tuscany: a wide consultation that has involved local associations, voluntary groups, transport operators and private citizens, which has finally brought in summer 2016 to test a new shuttle service, having rather flexible schedules and routes, in order to connect the small hamlets scattered in the territory to the main centre.

The key elements of the project, that got the endorsement of the Union of the Municipalities of Garfagnana, are therefore:

- the study of more affordable operating modes for the railway line, to ensure on one hand an ade-

quate service for locals, and support on the other the development of quality tourism, potentially attracted by the rich cultural heritage and environmental resources of the area together with its closeness to places of interest like Florence, Lucca, Cinque Terre;

- the optimization of feeder services by road to the railway stations, that should combine more rational and flexible public transport services (including as a possibility share taxis, on-call services, school bus used for additional services, etc.) with innovative forms of collective or shared transport at low-cost, that see the active involvement of the community, according to the principles of pooling economy;

- the development of a smart ICT platform for moving in Garfagnana, to provide citizens with an interactive information tool aimed at facilitating the integrated use of fixed and flexible services, so that to meet the mobility needs of each user.

Following this setting, the research project was selected on September 2016 in a call of the Banca Nazionale delle Comunicazioni (National Bank for Communications) for the funding of a research grant in the field of sustainable mobility, which will be devoted to the assessment of the technical, economic and social aspects of the proposal, involving the Union of the Municipalities of Garfagnana and the public transport provider societies, both on rail and on road.

4 CONCLUSIONS

Distant, by definition, from the urban hubs providing the main services to citizens and businesses, but “with resources that are missing in the central areas, with demographic problems but with high potential appeal” (Barca, 2012), the inner areas are a major challenge for the sustainable development of Italy and many other European countries.

Assuming that rural and environmental resources, cultural heritage, local traditions, etc., are the strengths that can be used to leverage opportunities for future development in the inner areas, difficult accessibility is at one time the most obvious weakness and the main threat to their possible economic revival. On the other hand, it is precisely due to this limitation and consequent lack of competitiveness with other regional areas, that they have been until now marginalized from the economic life and development of the nation.

Although isolation produces similar effects in very different contexts (such as unemployment, migration, aging, decay of buildings and the environment, etc.), it's evident that there is no ready-made solution to overcome this condition. As far as accessibility and transport are concerned, any action carried out with a sectoral approach, in areas that from

the start are very weak in terms of demand, is condemned to failure. On the contrary, any sectoral contribution is essential in the formulation of an overall strategic scenario using a place-based approach.

In hilly or mountain territories, with a valley acting as a transport infrastructure corridor, the presence of a railroad, especially if connected directly to an urban hub, can represent a key input in the building up of this strategy, even if it is abandoned or underused. The railway, in addition to being an environmentally friendly mode of transport, can be improved in performance (in terms of capacity, transport safety, etc.) simply working on the service to be supplied, with a minimum of new works and little impact: two aspects that are particularly relevant in areas with high environmental quality.

The placement of the railway line in the valley, that is on the main axis of territorial distribution, makes it easily accessible from the outside, encouraging the development of sustainable tourism; moreover, it allows to intercept all commutes from inside outwards (and vice versa) and most internal trips.

The case studies of Cecina Valley and Garfagnana highlight two important aspects of the enhancement of secondary railways aimed at improving the accessibility of inner areas, which,

depending on the circumstances, may have different weight in setting the strategy:

- on one side, the quality of the service (in terms of frequency, regularity, comfort, speed, ease of use) performed along the main axis, which should be the fixed component of local transport; to this aspect are also related all interventions on and along the line, aimed at optimizing the interactions between railway and territory, with particular attention to the role of the stations, seen as functional milestones of the settlement system;

- on the other side, the way to connect the innermost centres to the railway stations. With dispersed settlements and a weak demand, the solution to the problem can only be found with a totally new approach to mobility, that exceeds the distinction between public/private or collective/individual transport.

In this way, under the signs of pooling economy and smart city, the issues of social and technology innovation become fully part of the territory project for giving shape to the flexible component of local transport, complementary to the rail service. Such an integrated offer, in addition to encouraging a reduction of car dependency in the inner areas, responding to a universally valid objective of sustainability, can be an important enabling factor and a social inclusion driver as well, by ensuring access to mobility to non-motorized citizens. Furthermore, it can have positive effects as a catalyst of micro-entrepreneurial activities related to the provision of transport services, supplementary or alternative to the traditional

ones, according to the idea of a community that finds within itself the answers to its own needs.

REFERENCES

- Barca, F. 2012. *Metodi ed obiettivi per un uso efficace dei Fondi Comunitari 2014-2020*. Document of the Minister of Regional Cohesion, in agreement with the Ministers of Labour, Social Policies and Food Agriculture and Forestry Policies.
- Barca, F., McCann, Ph. & Rodríguez-Pose, A. 2012. The Case for Regional Development Intervention: Place-Based versus Place-Neutral Approaches. *Journal of Regional Science*, vol. 52, no. 1: 134–152.
- Baroncini, F. 2015. *Una pista d'argento nella valle del sale. Ieri oggi e domani della ferrovia Cecina-Volterra*. Master's degree thesis. University of Florence, Department of Architecture.
- Calthorpe, P. 1993. *The Next American Metropolis. Ecology, Community and the American Dream*, New York: Princeton Architectural Press.
- Camagni, R. 2011. Coesione territoriale: quale futuro per le politiche territoriali europee? In L. Resmini & A. Torre (eds), *Competitività territoriale: determinanti e politiche*: 33-52. Milano: FrancoAngeli.
- Maggi, S. 2003, *Le ferrovie*, Bologna: Il Mulino
- Maggi, S. & Giovani, A. 2005. *Muoversi in Toscana. Ferrovie e trasporti dal Granducato alla Regione*. Bologna: Il Mulino.
- Mannucci, E. 2016. *Il comune di Careggine in Garfagnana. Studio della mobilità in un'area interna*. Second level Master's degree thesis. University of Florence, Department of Architecture.
- OECD 2009. *Regions Matter. Economic recovery, innovation and sustainable growth*, Paris: OECD Publishing
- Pucci, P. 2008. Infrastrutture come progetti di territorio: con quali progetti e con quali strumenti. In A. Belli et al (eds) *Territori regionali e infrastrutture. La possibile alleanza*: 226-276. Milano: FrancoAngeli.
- UVAL (Public Investment Evaluation Unit) 2014. *A Strategy for Inner Areas in Italy: Definition, Objectives, Tools and Governance*. *Materiali UVAL*, no. 31.