



**CROSSING THE ALPS:
THREE TRANSPORT POLICY OPTIONS**

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WORKING PAPERS



2007/12

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TITOLO: CROSSING THE ALPS: THREE TRANSPORT POLICY OPTIONS

ISBN: 978-88-8467-424-1

Prima Edizione: Gennaio 2008

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09123 Cagliari
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www.cuec.it

CROSSING THE ALPS: THREE TRANSPORT POLICY OPTIONS

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Abstract¹

In recent years crossing the Alps has become a central issue in transport policy. The constant increase in global transport flow has contributed to bringing two distinct objectives to the centre of attention: making transalpine transportation of goods easier and reducing the negative impact of this on the alpine environment. The debates and disagreements on the subject are often bad-tempered, and are evidence of the lack of communication between the interested parties. This is also due to the existence of three distinct transport policy options: territorial competition, sustainable development and de-growth. The different positions taken by the various parties are more understandable when one is aware of these options, and this awareness could assist the parties in making the necessary decisions, which all those involved recognise are important.

Keywords: Transport policy; Alps; Territorial marketing; Sustainability; De-growth.

JEL classification: R49, Q01

¹ The article is an expansion of a paper that the author presented at the VIII Scientific Meeting of the Italian Transport Economists Society (Trieste, July 2006) and at the XXVII Italian Regional Science Conference (Pisa, October 2006). The internet sites quoted were visited in April 2007. An earlier version of the article in Italian was published as Marletto, G., 2007. Transport policies for crossing the Alps: a reflection on three alternative paradigms. *Economia, Società, Istituzioni*, 19 (3)

1. Introduction

The increase in trade between the Far East and Europe has resulted in an increase in the flow of transport between the principal European ports and the rest of Europe. In the medium and long term this brings the question of the future of transalpine transport to the centre of our attention. Two objectives in particular have occupied centre stage in the debate on transport policy: 1) the need to make crossing the Alps more economical and technically easier; 2) the desire to preserve the alpine environment and to defend it against the negative effects of the growing increase in the flow of transport.

The resulting discussion has shown that there are alternative approaches to transport policy. These differences are not so much the result of different evaluations of the trends in alpine transport, but rather of the, mainly implicit, references to profoundly different economic policy paradigms². The aim of this article is to define the links between these paradigms and the alternative crossing the Alps policy options, and in particular to highlight the contribution of economic theories and policies in each paradigm.

Three paradigms are described in the article: territorial competition, sustainable development and de-growth.

Before entering into the merits of each paradigm, the salient elements of the tendencies in transalpine transport are described, both in terms of data on the historical development of the transport flow and in terms of the structural changes in global logistics, which influence the future evolution of these tendencies.

² The concept of paradigm was first used by the historian and science sociologist Thomas Kuhn (1962). Kuhn emphasised that scientists form communities within which they develop relationships between universities and journals, and they share core knowledge, research goals and investigation methodologies. All these elements must be considered as social and cultural factors which preserve a prevailing paradigm. A paradigm approach can also be applied to economic policy. A community of politicians, scientists and stakeholders gather around a certain core of knowledge and primary concepts which are assumed as demonstrated, and they thus share a specific approach to economic policy.

2. The transalpine transport scenario

2.1. The present framework of the transport flow³

In 2005 more than 150 million tons of goods were carried across the Alps, 70% by road and 30% by rail. Road traffic accounted for 86% of goods to and from France, 35% to and from Switzerland and 77% to and from Austria. Most traffic is North-South. Put together, the flow across the Brenner (42 mil. t; 32 by road and 10 by rail), Gotthard and Simplon (35 mil. t., over 25 mil. t. by rail) passes comes to more than 50% of the whole transalpine traffic flow.

This is an increase of 73% when compared to 1990. The increase has not, however, been uniform. French transalpine trade increased by only 19%, Swiss by 66% and Austrian by more than 150%. The increases in the type of transport used were also different. Road transport increased by 99% and rail transport by 33%.

2.2. The expected impact of globalisation on transport

Predictions of the future evolution of transalpine transport must bear in mind three important intimately connected elements of the changes, which are already modifying the structure of the global transport scenario.

The first is certainly the growth in elasticity between transport demand and GDP. The two partly complementary processes of delocalisation and deverticalisation of the production process at global level⁴, and the growing internationalisation of the world economy (and in particular the Asian economy)⁵ have caused an increase in the quantity of transport required for the final products.⁶

³ The data used here refer to the arc of the Alps from Ventimiglia to Tarvisio. The source is Alpinfo (Federal office of transport, 1991-2006), which collects data on Swiss alpine transits in collaboration with France, Italy and Austria and their relative railway companies.

⁴ In low and middle income countries (which includes all of Asia and Latin America) the value of new direct investment as a percentage of GDP went from an average of 0.7% in 1990-1999 to 2.6% in 2000-2004. In the high income countries the value of new direct investment as a percentage of GDP in the same time periods went from 1.4% to 2.4% (World Bank data)

⁵ The value of world trade as a percentage of global GDP went from an average of 32.4% in 1990-1999 to 45.3% in 2000-2005. In East Asia and the Pacific region the increase was from 47% to 71% (World Bank data).

⁶ Between 1990 and 2005 world GDP grew by 50% while world trade grew by more than 100% (World Bank data in constant US dollars). In the same period

The second element of structural change is, in part, linked to the first: it is the new role played by logistics. The multiplication of the points of origin and destinations of the flow and the need to manage processes which are increasingly driven by the concept of *just in time* in production and distribution has increased the importance of logistics. If sea transport is the “arm” of globalisation then logistics is certainly its “brain”. This is another reason that production of logistics is increasingly *outsourced* to large specialised groups, which now directly manage a consistent quota of world goods trade. This also has a relevant impact on the structure of the flow of transport. This no longer depends only on the characteristics of the goods and the needs of the production and commerce, but also increasingly and directly on the results of the choices made by the logistics operators in terms of integration of loads and choice of transport modes⁷.

The third element of structural change is equally important. The transport networks are the ancillaries of globalisation. Necessary (but not sufficient) for producing transport services and only crucial in the collection and delivery of the goods to and from the ports. But the most important consequence is the new relationship generated between transport networks and local development. They lose the direct role in development which is assigned to them in the literature (Banister and Berechman, 2000)⁸ and become indirect. The transport networks are an essential element in the competition between regions and states to offer better local conditions to the global transport companies, and thus

international sea traffic grew by 77% and container trade by more than 300% (UNCTAD data, in tons for the former and TEUS for the latter). There is no data available on tons per kilometre, which would be a more appropriate indicator of transport demand.

⁷ *Global carriers* in particular have already universally opted for a *hub & spokes* organisational model: the goods are taken from their point of origin (usually by truck) to a hub where the different loads are integrated so that they reach a level where they can be carried by rail or by sea for long or very long distances to another hub. From this they are then distributed to the final destination, again usually by truck. Using this system means that the route taken by the goods no longer depends only on the origin and destination and can lengthen the journey in an apparently irrational way, while in reality reducing the per unit cost of transport.

⁸ However one should remember that historically regional economists have been divided between supporters of balanced development, where the transport network contributes to reducing regional differences, and supporters of the new economic geography where, by contrast, the transport networks facilitate economic polarisation and thus increase the inequalities in development.

attract their direct investment for establishing macro-regional *hubs*⁹. It is almost impossible to predict what will be the impact of these factors of structural change on transalpine transport. One can take for granted that it will increase, as a result of the global growth of transport, but one cannot predict the intensity of this increase. This will depend on the relevant strategic actions and decisions taken by the countries which directly or indirectly influence the alpine regions: if, and to what extent, they decide to participate in the competition to attract the global transport flow, what and how many, new transport infrastructures they build, what weight they give to environmental objectives, etc. If one attempts a prediction, this cannot but be described in terms of alternative strategic and policy scenarios.¹⁰

3. The territorial competition paradigm

3.1. From globalisation to the transport network

In the territorial competition paradigm globalisation is seen as a positive influence. Globalisation is identified as a typically *win-win* process which guarantees opportunities both to the advanced economies and to those at various different stages along the development path (Krugman, 1991). Thus, while the economies of the South compete to attract new production facilities and, on this basis, attempt to begin their own development, the economies of the North compete to attract the national and international distribution *hubs* for the goods produced by the South countries.

The general consequences for policy of this are clear, and in particular concern the different roles given to the transport network in the development process in the more advanced economies. These are no longer merely necessary factors in the internal functioning of the regional, national and international markets, but become essential elements that contribute to the capacity of the areas to attract the global flow of goods and the correlated direct investments in the logistics sector.¹¹

⁹ One only has to think that to serve South Europe, for example, a *global carrier* can be equally well be based in Liguria, Provence or Catalonia.

¹⁰ Thus the results of mere statistical projections based on the GDP growth forecasts of the alpine states, such as those of recent EC studies, are thus arguable, if not indeed without foundation (Cowi et al., 2006).

¹¹ An example of this kind of initiative is the *Holland International Distribution Council* (www.hidc.nl), a private non-profit organisation which works in close collaboration with the Dutch external investment agency and which has the

Finally the territorial competition paradigm makes no reference to the environmental impact of the policies, while in the following two paradigms this is of crucial importance.

3.2. The Alps as a barrier

The European states which have intercontinental ports see this as a new competitive advantage in attracting large logistic platforms for European distribution. But putting themselves forward as candidates to be gateways for the intercontinental traffic flow also means activating flows of traffic in countries which are neither the country of origin nor the destination of the goods. In these countries it means that it is necessary to build new infrastructures, and to increase the capacity of existing ones. Crossing the alpine passes is one of the essential areas where this need is felt and it has a direct impact on the strategy for completing the trans-European transport network. The new list of the 30 priority projects includes three for the infrastructure for crossing the Alps: The new Simplon, Frejus and Brenner rail tunnels. Probably the one which is most consistent with the logic of territorial competition is the “corridor between the two seas” which is designed to connect Genoa and Rotterdam. This involve building two new railway tunnels: the Simplon in the Alps and the Giovi in the Appenines (European Parliament and European Council, 2004).

In agreement with the traditional European preference for alternatives to road transport (Commission of the European Communities, 2001), the three priority projects for the Alps are for railways. What is striking, however, is the difference between the new planned railway capacity (including also that of the two new Loetschberg and St.Gotthard Swiss railway tunnels) and the fact that the present capacity is far from being used to saturation point¹². The new tunnel projects thus can only be justified by possible (and hoped for) new transalpine traffic flows generated by the increase of intercontinental port traffic.

In agreement with this approach – and with the constant growth of transalpine truck traffic (especially in the French and Austrian Alps) – there has also been support for new transalpine road projects. Here we

objective of promoting Holland as an Entrepot for Europe to foreign businesses. This has had great success and has been adopted as a model in other parts of the world, for esample in the USA with the *Maryland Distribution Council* (www.mdc.org).

¹² The present alpine rail infrastructure carries c. 100 million tons of freight per year and has an additional 66 tons of freight capacity (Alpinfo data).

are speaking of attitudes and pressure which have not found concrete expression, but which, however, are reflected in two important facts: 1) The Italian government has not signed the Transport Protocol of the Alpine Protection Convention¹³ which, among other things, obliges the contracting parties to not construct new transalpine motorways; 2) The Asti-Cuneo-Nice highway project – with the new Mercantour tunnel – has been inserted in the first list of public works in the trans-European road network scheme (European Parliament and European Council, 2004).

4. The sustainable development paradigm

4.1. Transport as consumption of the global environment

In this paradigm the environmental questions become crucial. According to the now consolidated principals of sustainability, one is indeed speaking of making the development process compatible with the renewal of resources, so that the environmental capital remains unchanged, and thus will be available for future generations (Brundtland, 1987). This is also valid for the multiplication of the transport flow which characterises the globalisation process and in turn has negative effects on both the global environment (consumption of non-renewable energy resources, greenhouse effect, etc.) and at local level (atmospheric and acoustic pollution, traffic accidents, etc.).

The first step was the unrealistic objective of *decoupling*, i.e. *reducing* the intensity of transport per unit of goods produced and distributed (European Parliament and European Council, 2002). As has been previously stated, in the interim period we have observed the opposite effect. World trade and the demand for transport has grown more than world production.

Thus the focus of attention moved to reducing the environmental impact per unit of goods transported and distributed, This objective depended on one crucial instrument: integration of loads, which allows the average dimensions of the consignment to be increased and makes the use of sea and rail freight, which are less polluting, more convenient. This is an objective which the global transport system has in part adopted spontaneously, through the effects of two complementary processes: 1) the foundation and growth of global transportation and logistic companies which are able to integrate the consignments from many production and distribution companies; 2) the growing

¹³ This convention will be more fully discussed later in the next chapter.

containerisation of the intercontinental flow of goods, which – thanks also to the spread of the transshipment system – in its turn has resulted in larger ships being used.

The attention of transport policy experts is now thus concentrated on the points where intercontinental transport becomes continental. To present in a simple way a series of very complex questions, the objective becomes that of managing to transfer to a local level the environmental benefits of integration, standardisation and logistic organisation of the global flow of goods. This objective becomes essentially one of promotion¹⁴: of intermodality, i.e. the transfer of the unitized global flow to sea, rail and inland waterways, and of logistic outsourcing, i.e. third party transport and logistics.

4.2. The Alps as environmental capital

The policy option based on the sustainable development paradigm takes for granted that there will be an increase in the global and transalpine transport flow, and its objective is to reduce the environmental impact of this.

The act which probably best synthesises the objectives and applicative instruments of this paradigm is the Alpine Convention of 1991¹⁵, with its linked Transport Protocol of 1998¹⁶. In Article 2 of the Convention the contracting parties already assume the responsibility to activate instruments in order to “reduce the volume and dangers of interAlpine and transAlpine traffic to a level which is not harmful to humans, animals and plants and their habitats, by switching more traffic, in particular freight traffic, to the railways in particular by providing appropriate infrastructure and incentives complying with market principles, without discrimination on grounds of national”. The “Transport Protocol” spells out the general objectives of the

¹⁴ The best integrated approach to sustainable freight transport policy is that presented in the European Transport White Paper (Commission of the European Communities, 2001).

¹⁵ The Alpine Convention is an international convention designed to achieve protection and sustainable development in the alpine arc. The Alpine Convention was signed in Salzburg on 7 November 1991 by Austria, France, Germany, Italy, Switzerland, Liechtenstein and the UE. Slovenia signed on 29 March 1993. A supplementary protocol allowing the Principality of Monaco to join The convention came into force on 6 March 1995.

¹⁶ Twelve sector protocols define the particular aspects of the Alpine Convention. Four of these still have to be defined. The Transport Protocol was signed by the participants in 1998 and came into force on 18 December 2002.

interventions more clearly, highlighting that it is necessary to (Art. 1) “ensure the movement of intra-Alpine and transalpine transport at economically bearable costs by increasing the efficiency of transport systems and promoting modes of transport which are more environmentally-friendly and more economic in terms of natural resources” and “ensure fair competition between modes of transport”. The contracting parties thus take the responsibility to take into consideration the needs of the economy so that they (Art. 3): “aa) increase the profitability of the transport sector and internalise external costs; bb) encourage optimum use of existing infrastructures; cc) guarantee employment in undertakings which are performing well in the various sectors of the economy”. Compatibility with economic processes – and in particular with market and competition mechanisms – is thus explicit. It derives from the need to see the Alps as an “environmental heritage” which must be taken into consideration in economic calculations, at both system level and by the individual economic operator.

At operational level this translates into two principal lines of intervention: a) promotion of rail transport, also by constructing and developing “large transalpine axes”¹⁷; b) application of the principle of “true costs” by using fiscal instruments which include infrastructure and external costs.

Switzerland is the country among the contracting parties in the Alps Convention which has most coherently applied the transport policies set out in the Protocol and it can be considered as a *best practice* in sustainable alpine transport. At the beginning of the 1990's Switzerland began an institutional debate to define and articulate policies for the development of rail transport. This has resulted, among other things, in the approval of the construction of the previously mentioned new Loetschberg and St. Gotthard transalpine rail tunnels. These are explicitly designed to make rail transport of goods more competitive¹⁸.

¹⁷ Important corollaries to the “preference for rail” in the protocol are the previously cited obligation to abstain from constructing new alpine highways and to exploit the potential of sea and inland waterway transport as an alternative to land transport.

¹⁸ The modernisation policy for the Swiss Railways also includes: The project “Rail 2000”, for reorganising and developing internal transport; integrating western Switzerland into the European HST network, and refurbishment of the sound signals beginning with the principal lines. The new Loetschberg tunnel is

In addition, since 1 January 2001 Switzerland has applied the new distance-related Heavy Vehicle Fee (HVF). The HVF is applicable for trucks with a total weight greater than 3.5 tons and is based on the number of kilometres driven, the total weight of the vehicle, and its emissions. The objectives of this tax are: to limit the increase in the volume of heavy traffic; to encourage the transfer of goods traffic from road to rail; and to reduce pollution. Two thirds of the tax revenue goes to the Swiss government which uses it to finance developments of the rail network. It should be emphasised that this tax will be progressively increased once the two new transalpine tunnels are opened. The Swiss government has reported that so far the HVF has had positive results in reducing the number of kilometres per vehicle, the renovation of vehicle parks and the concentration of loads (Federal Office for Spatial Development, 2004)¹⁹.

To complete an ideal hypothetical policy model for sustainable alpine transport one must also take into consideration the EU “Marco Polo” program. This instrument was established by the EU in 2003 to promote intermodal transport and – more generally – alternative means of transport to “all by road” (rail transport, coastal shipping and internal waterways). “Marco Polo” was very successful, attracting a number of requests far in excess of the available funds (€ 100 million allotted between 2003 and 2006). As a result of this success, at the end of 2006 “Marco Polo II” was set up. This is not only better funded than “Marco Polo” (€ 55 million are available for the first tenders for 2007), but has also expanded the type of projects which are eligible for financing. Examples of this are the “sea highways” and logistic projects that result in reductions in road traffic.²⁰

5. The de-growth paradigm

5.1. Transport as a destroyer of the global environmental equilibrium

An objective quantitative analysis of the relationship between the present economic processes and the global energy system – which it would be well to remember in the end derives exclusively on energy from the sun – shows that the sustainability paradigm is weak and

already in operation. The opening of the new St. Gotthard tunnel has recently been put back from 2016 to 2017. Source: www.bav.admin.ch

¹⁹ More information on the HVF is available on the internet site of the Federal Office for Spatial Development: www.are.admin.ch

²⁰ All the information on the “Marco Polo” program, including the norms, can be found on: ec.europa.eu/transport/marcopolo/index_en.htm.

unrealistic. The two laws of thermodynamics remind us that the planet is not capable of sustaining the present model of production and consumption, even if a consistent and prolonged effort is made to make it compatible with the environment (Georgescu-Roegen, 1998).

This is the basis, although abused in synthesis, of the de-growth paradigm. To allow the global environment to survive we must construct a new economic system which reduces energy consumption and the production of waste. One is speaking of an objective which is in opposition to the consumer society and is based on human relationships, local production and sharing. From here one can begin a process of change which allows an increase in wealth inside the framework of a reduction in development that can no longer be postponed. An important corollary of this is a reduction in the demand for transport.

From this point of view globalisation, with its concomitant multiplication of transport flow, is a true hiatus, and should be opposed by two instruments, one constructive and the other defensive.

The constructive instrument would be the consumption of local products (and thus the exact opposite of one of the constituent elements of globalisation), made economically sustainable by means of the organisational and technological tools of modern logistics (Holzapfel, 1995). In other words we would be speaking of reinforcing and spreading short haul logistics²¹, which would be able to create high income for producers and low prices for consumers in a regional area, beginning with the agricultural and food sector (Jones, 2002; Mathijs et al., 2006).

By contrast the defensive instrument would be based on the logical refutation of the concept of sustainability. One would no longer speaking of making globalisation environmentally compatible, but rather of taking into account the “ecological footprint” of human activity and accepting that this has exceeded the carrying capacity of the planet (Wackernagel e Rees, 2000). The environment would thus be relieved of the pressure from market forces, both the spontaneous ones and those artificially introduced by sustainable policies themselves (“green” taxes and subsidies, pollution tradeable permits, etc.). The combined actions

²¹ In logistic terms “Short” normally means in time and indicates as logistic system which can give a rapid response to demands. Here by contrast “short” means in terms of distance and means a logistic system which makes consumption of local products advantageous by removing the middlemen and improving information on the availability of the goods. Short distance links, *short supply chains* and short surcuit are synonymous.

for the “de-mercantilisation” of the environment would above all be based on rediscovering and re-elaborating the concept of commons (Ostrom, 2006). This in turn would be expressed in two general indications: 1) the elements which make up the environment (air, water, countryside, etc.) cannot be exchanged on the market because they are neither public nor private but collective; 2) thus they cannot be managed by economic instruments but by democratic instruments of participation and sharing.

5.2. The Alps as a common

The policies involved in a de-growth paradigm for crossing the Alps would be expressed in three complementary approaches.

The first must be principally institutional. The Alps should be considered as an international common with a highly relevant impact on the various interested states, which would be forced to cede far more sovereignty than that envisaged in the Alpine Convention. The status of common would be the preliminary stage for two concrete actions: 1) evaluation of the ecological footprint of the transalpine transport flow with respect to the capacity of the carrying capacity of the Alps; 2) activation of methods to reduce the traffic by means of rationing non-essential flow.

The second line of action must be political. One should avoid that the European part of global traffic flow must include crossing the Alps. Once again this would involve two complementary approaches: 1) Banning those territorial marketing initiatives which have, as a side-effect, an increase in the transalpine flow of goods; 2) looking for valid structural alternatives which allow one to avoid the Alps, not only evaluating alternative land corridors but also reconsidering the opportunities offered by maritime transport and internal waterways.²²

The third line of approach would consist of all those actions necessary to promote local products and to encourage the use of logistic innovations which increase the percentage of local goods as part of total consumption and thus reduce the long and extremely long distance flow of goods. Initiatives of this type are already in operation, but are mainly designed to promote the consumption of local and regional products,

²² It is clear that this means giving up any attempt to defend local and national economic interests. One must bear in mind that conserving the alpine environment rationally means collectively preferring Marseilles, Trieste and the Northern range ports (Rotterdam, Hamburg, Antwerp, Bremen, etc.) to Genoa or La Spezia (not to mentioni Naples, Salerno or Gioia Tauro) as gateway for Far East→Europe traffic.Europe traffic.

making them recognisable by the use of local branding. Here we are speaking of multiplying the number and quantity of these products – with possible coordination at national or European level – with the specific aim of reducing the intensity of transport of goods.

It is not by chance that the conditional form has been often used in this section. The de-growth paradigm has not yet been capable of entering not only the “control room”, let alone the contemporary debate on transport policy.

6. Conclusions

The quantitative and qualitative changes caused by globalisation generate an ever increasing flow of goods between European intercontinental ports and the rest of the continent. This has brought crossing the Alps into the centre of the debate on transport policy. There are two distinct objectives: 1) to make the passage of goods across the Alps easier; 2) to protect the alpine environment from the negative effects of transport.

This article has explained that there are three alternative paradigms which condition the transport policy options for crossing the Alps.

The first paradigm is territorial competition and it considers the infrastructure to be an essential element in attracting external investment in the logistics and transport sectors. From this derive the planning priorities for new alpine infrastructures, both rail (Brenner tunnel, new Moncenis tunnel, new Simplon tunnel) and road (Mercantour tunnel).

The second paradigm is sustainable development and it sees the environment as the key question. The objective is to guarantee that the natural resources can be replaced. In the goods transport sector it promotes maritime, inland waterway or rail transport as these have less environmental impact. For crossing the Alps it suggests two policy options: providing incentives to encourage the shift from road transport and to exploit to the full the existing rail network. The promoters of this approach have been: Switzerland which in addition to building two new railway tunnels (Loetschberg and St.Gotthard) has also imposed a new environmental tax on heavy goods vehicles; the European Commission which has successfully supported the “Marco Polo” program which promotes intermodal transport and sustainable logistics.

The third paradigm is de-growth and this believes that the present development model is incompatible with the global ecological equilibrium. The objective is thus to increase wealth while reducing

production and consumption. This is only possible by giving preference to policies with low levels of consumption and high levels of shared resources. For transport this implies avoiding globalisation - and the increase in the intensity of transport which it involves – and preferring short distance links. The “recipe” for alpine transport is thus as simple as it is drastic: consider the Alps to be an international common; promote alternative land and sea transport corridors which avoid the Alps; use modern logistics more widely to encourage consumption of local products. A corollary of this paradigm is the generally negative attitude towards new transalpine infrastructures, whether road or rail.

The existence of these alternative paradigms helps to explain the vivacity of the debate (and in certain cases conflict) on transalpine transport policy, as well as the sensation of a “dialogue between the deaf” which often accompanies it. The radically different viewpoints and approaches and the counterpositing of irreconcilable proposals are not indeed the result of different evaluations on the present state of transport flow and its future development, but are the result of the different paradigms.

Being aware of this may at least make the different positions of the various parties more comprehensible to each other and help in future discussions and decision making.

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Finito di stampare nel mese di Gennaio 2008
Presso Editoria&Stampa
Zona Industriale Predda Niedda str. n. 10
07100 Sassari

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