The expansion of the port of Genoa: the Rivalta Scrivia dry port

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# THE EXPANSION OF THE PORT OF GENOA: THE RIVALTA SCRIVIA DRY PORT

Claudia Caballini* and Enrico Gattorna*


## *ABSTRACT*

There are two main ways for a port to face the long-term increase in freight demand: a better usage of the current available port land or an enlargement to new port areas. Within this second solution is included the movement outside of the port's borders of some activities currently carried out in the port, but not directly connected with the loading or unloading of goods. This relieves the territory and the port itself of the negative consequences (represented by the occupancy of scarce resources, such as the port areas) resulting from increased time and costs due to the handling of goods taking space and time from more value added activities and from the negative externalities associated with the presence of the port industry highly impacting the city fabric (such as congestion, atmospheric and acoustic pollution and space taken away from the city). This is the situation of the port of Genoa, where the particular orographic configuration of the territory and a large urbanization of the immediate proximity of the port property have forced the Genoa Port Authority to look for more space in the hinterland in order to manage the import/export of goods in the most efficient and effective way possible. This paper examines the case study of the Rivalta Scrivia dry port, located 75 km from Genoa along the railway line that links the Ligurian capital with the reference market. The need for more space at the service of Genoa port is confirmed by the analysis of the port demand, including both current and forecasted container traffic.


**Keywords:** Genoa, Rivalta Scrivia dry port

* C.I.E.L.I. – Italian Centre of Excellence in Integrated Logistics, University of Genoa, Via Bensa 1, 16124 Genoa, Italy.

## INTRODUCTION

In order to face a long-term increase of freight demand, with the aim of maintaining—or better enhancing—its market share, a port can put into place two different types of solutions: intensive, based on technology, or extensive, based on space enlarging. The first case involves a radical change of the technologies utilized in the manufacturing process, allowing a more efficient use of the available areas. The second hypothesis, instead, implies the maintenance of the existing technology against an enlargement of the port areas. This latter solution often appears to be hardly feasible, especially for those ports that are strongly embedded in the city fabric, unless it is decided to develop waterfront areas or an area beyond the port borders. So, frequently the shifting of some port activities outside the port borders appears to be the best answer for allowing the increase of a port's handling capacity. This is also the solution chosen by the Genoa port in order to face the global freight traffic increase.

In fact, the demand for maritime transport in the containerized segment in the Mediterranean has grown by 126 per cent in the period 1995-2004 and by 40 per cent in the last five years, exceeding the 77 million TEUs handled. The more significant growth of freight demand in this area has allowed the Southern European ports to partially reduce their gap in respect to the higher market shared by the Northern European ports.

Italian ports, having registered a container handling of 82.4 per cent of the total throughput in 2004, in comparison to 80.4 per cent in 1995 and 83.6 per cent in 2000, represent the heart of the central Mediterranean port region. Even if separated by the Alps, the urban centres of southern Germany and Central Europe are closer to the ports of the Mediterranean than to those of the North Sea and the sea distance from the Far East to Europe is obviously shorter if a stop is made in the Mediterranean ports (a savings of three to five days of navigation is estimated). In this sense, the Italian ports of the Adriatic and northern arch of the Tyrrhenian have made efforts to develop intermodal connections capable of enlarging their traffic basin thanks to a reduction of delivery time.

The demand forecasts made by important consulting companies of the sector indicate continuous growth through the years, even if the current economic crisis will slightly slow it down. In this context of growth, a port sets the objective of at least keeping its market share stable, if not enlarging it, and it needs solutions that tend to increase its handling capacity. In these cases, the port can respond to that need by changing the technologies used and the productive processes, or even by enlarging the available spaces.

The case of the port of Genoa is an example of a port situated in the heart of an urbanized centre and, for this reason, it is difficult to find additional space to be assigned to port operations.

Taking into consideration the perspectives of port development, the solution to the problem of lack of space has been found in the location of a dry port beyond the Apennines. The area of Rivalta Scrivia has been chosen, which is situated 75 km away from Genoa in the Po valley. The desire of creating a dry port to aid the port of Genoa dates back to 1966 but, due to various reasons, only in the last few years the idea of creating a real dry port has been put in practice. However, some dry port activities have been already going on in the Rivalta Scrivia Inland Terminal (RSIT), for more then 40 years. So it can be said that currently, waiting for the building of the new areas, the dry port is utilizing some inland terminal spaces. Therefore, for a matter of completeness, hereafter we will include the inland terminal history.

## I. THE HISTORY OF THE RIVALTA SCRIVIA DRY PORT

The Rivalta Scrivia dry port was created in 1966 with the goal of representing an ideal “appendix” to the Genoa port. In the 1960s, a common scene of the Genoa landscape included ships in the harbour waiting to be unloaded. In fact, the first containers were overlooking the market and pallets were a novelty, so the loading and unloading of cargo in ports were done manually, with long time periods and high tariffs, and vessels had to remain a long time outside of the port before being discharged.

The idea of Giacomo Costa, the founder of the company, was to clear the port of the goods sorting operations, loading goods from the holds of ships directly into the wagons that, with block trains, could quickly reach the hinterland. Here, the space available was greater and therefore times and costs were much lower, all the goods sorting and maintenance activities could be carried out and goods could be stored and protected in depots (or warehouses), if necessary.

On 11 November 1966, invoice number 1 was issued. “Rivalta, the city of goods” was off and was becoming an important reference point—also in terms of employment—for the development of trade and activities in the Scrivia Valley. By the 1980s, Rivalta had become a fully operational reality, offering its services to the biggest shipping companies and freight forwarders. Furthermore, the handling of containers had put into crisis the operation and development of the Ligurian ports and Rivalta provided a valid alternative for that.

In 1986, the registered office and headquarters were transferred to Rivalta Scrivia and, in 1986, Rivalta was classified as a first level inland terminal by presidential decree.

The great success of the inland port, however, spread the fear that a structure like this might alter the competitive relationships among the various players in the sector, reducing the political and economic weight of the Ligurian ports. For this reason, the Ligurian entrepreneurial class did not facilitate the development of the company.

On 4 April 1989, a fire completely destroyed some sections of the inland port, where liquors, synthetic fibres, mineral oil, footwear, industrial machinery, roasted coffee and bales of cotton were stored, and Rivalta had to reconstruct the lost sections. Luckily, in 1992, a law in support of intermodal facilities and inland terminals enabled it to be provided with the first modern logistics warehouses.

Meanwhile, the market required more and more integrated services and sophisticated software solutions for the computerized control of the depots. So between 1995 and 2000, the entrepreneur Alessandro Fagioli transformed Rivalta into a company able to offer logistics services with levels of efficiency and quality in line with the highest market standards, and comparable to the international context.

Rivalta today is a consolidated reality, strongly rooted in the territory and present in the world markets. It occupies an area of 2,250,000 square metres, aligned on the north-south and east-west axes and connected with port infrastructures and existing highways. Its warehouses are devoted to the most different types of goods, for an integrated management of logistics: receipt, storage, customs clearance, rework, and fragmented distribution. The railway siding tracks, integrated with the national network, penetrate inside the depots ensuring a full intermodality.

In February 2007 the Rivalta Terminal Europa S.p.A. (RTE) dry port was founded, which will operate over an area of 900,000 square metres, for the development of port terminal activities. It will be able to handle 500,000 containers annually, against the previous 60,000, thanks also to a new railway link of 900 metres and new dedicated depots of 100,000 square metres.

## II. THE GENOA PORT FACING THE TRAFFIC INCREASE

The presence of a dry port to serve the port of Genoa must be supported by the growth—historical and foreseen—of the port's traffic and of

its capacity—present and future—to receive the incremental traffic deriving from an increased demand. In fact, in this paragraph we want to verify if the foreseen increase in traffic is in line with the perspective of the development of the Genoese port. The basic assumption guarantees that containers can effectively reach a dry port.

The historical trend of the demand of containerized transport highlights that the port of Genoa has closed 2008 with traffic of about 1.7 million TEUs registering an average yearly growth from 1995 of approximately 7.7 per cent (as shown in table 1). The movement of containers has more than doubled in the considered period, moving from 615,242 TEUs in 1995 to 1,766,605 in 2008. The world economic crisis of 2008 has made it extremely difficult to foresee the future container traffic increase for the Genoa port.

**Table 1. Trend of the container traffic in the port of Genoa**
(1000 TEUs)

| 1995 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | Average yearly rate (percentage) |
|---|---|---|---|---|---|---|---|---|---|---|
| 615 | 1 500 | 1 526 | 1 531 | 1 605 | 1 628 | 1 625 | 1 657 | 1 855 | 1 766 | 7.7 |

*Source:* Genoa Port Authority, 2008.

Regarding the increase in the handling capacity planned for the port of Genoa, new interventions will regard its three main container terminals:

- in the Voltri Terminal, PSA Sinport won the concession to develop a sixth module at the terminal that aims to boost terminal capacity to 1.5 million TEUs/year by 2009
- in the SECH terminal, the filling of Calata Bettolo will lead to the construction of a new terminal operated by MSC and SECH that will allow for a further handling capacity of 0.5 million TEUs/year
- in the Messina terminal, the filling between the Ronco and Canepa piers and the seabed's reduction of up to 14 metres of depth will allow for the enlargement of the terminal itself and a better use of the port infrastructure
- The handling capacity increases for the port of Genoa, consequent to the actions listed above, for the years 2010 and 2015 will amount to 3.05 and 3.55 million TEUs/year respectively.

It is emphasized that the additional capacity, even under the most optimistic scenario, leaves room for the future traffic growth that puts the

economic basis for the realization of a dry port in the service of the port of Genoa.

## III. THE RIVALTA SCRIVIA DRY PORT

The previous section explained the reasons why the port of Genoa should be provided with a dry port at its service. This need became a fact in February 2006 when the Rivalta Scrivia Inland terminal S.p.A. set up, as a branch, the Rivalta Terminal Europa S.p.A. (RTE) with the goal of constructing a container terminal to handle the Genoa port activities.

The ambitious goal of creating a dry port coincides with the same one that, forty years ago, led to the creation of the Rivalta Scrivia Inland Terminal (RSIT): to be the "dry quay" of the port of Genoa.

However, the Rivalta Terminal Europe S.p.A. has intentions that go beyond the nature of a dry port terminal. In particular, the goal is the integration of a container terminal and an intermodal logistics platform for the national and international re-shipping via rail and road of the import containers and for the export containers consolidation.

For such an ambitious project, the following priorities and strategies emerge:

- a proper infrastructure system for intercepting the future maritime traffic of the Genoa port
- a daily train service (shuttle service) connecting the dry port with the Genoa port in order to really and effectively "lengthen" its docks

As a matter of fact, RTE has the goal of achieving this sort of "expansion" without physical and customs interruptions, so that a greater portion of the Genoa port traffic will be able to "land" directly in Rivalta.

As introduced in the first paragraph, even if the brand new dry port areas are now still under construction, dry port activities at the Genoa port service are currently performed in the Rivalta Scrivia Inland Terminal, which is located in the vicinity and has been active for over forty years. RSIT is a multifunctional logistics hub, able to offer integrated solutions and customs terminal services oriented to transport and distribution. It includes 400,000 square metres of covered areas, 300,000 square metres of container terminal, 150,000 cubic metres of cold storage facilities and operates as part of a group belonging to the "Fagioli S.p.A. Finance" holding. RSIT is one of the most important Italian collection and sorting hubs for cocoa beans, coffee, sugar, walnuts, and food raw materials. The operational structure is responsible for all the activities regarding goods loading/unloading, transfer, customs clearance, and warehousing.

### A. The corporate structure

With respect to the partners of the project, as shown in table 4, Rivalta Scrivia Inland Terminal S.p.A.—that belongs to Fagioli Group S.p.A. - and Gavio Group hold the major shares of the investment, with 47.87 per cent each.

Moreover, the Piedmont region, Genoa and Savona port authorities have shown interest in taking part in the initiative.

In general, shipping companies, freight forwarders, maritime terminals, logistics operators, port authorities, public bodies, auto carriers, and railway operators represent the main dry port *stakeholders*.

**Table 2. RTE dry port partners**

| Partners | Percentage |
|---|---|
| Rivalta Scrivia Inland Terminal—Fagioli Group | 47.87 |
| Gavio Group | 47.87 |
| Alessandria Province | 2.95 |
| Tortona Municipality | 0.88 |
| Alessandria Municipality | 0.43 |

*Source:* RTE S.p.A., www.interportors.it.

### B. The territorial context

RTE dry port is located 75 km from the Genoa port in the Province of Alessandria and in an area representing the intersection of the two future European commercial backbones: Corridor 24 and Corridor V.

The terminal is directly connected to the Novi Ligure/Tortona railway line through the Rivalta Scrivia station, and it will be the first terminal for the traffic of goods in transit on the Third Pass, which is the planned railway line that, starting from Genoa and passing through Milan along the Po valley-Rhine axis, should connect the north-west Italian regions to the heart of Europe.

The terminal, which is now being implemented, is physically located in continuity with the Rivalta Scrivia Inland Terminal, over an area of approximately 900,000 square metres.

The area is connected to the Novi Ligure/Tortona highway through two existing routes: on the west side of the Terminal with the road connecting with the city of Savona and with the provincial road No. 148. on the south side.

The link to the national motorway network is at the tollgate of Tortona, about 3 kilometres from the terminal at the crossroads of the A7 highway (Milan/Genoa) with the A21 (Turin/Piacenza/Brescia).

### C. Support infrastructures and service facilities

With respect to the infrastructures, the railway siding at the Rivalta station will consist of a group of five receiving and delivery tracks—separated for import and export goods—with a parking capacity of about 1,000 metres each; there will be two entrances or links to the track, from the north and south of the group of tracks respectively, so as to ensure the same operability in both Milan/Genoa directions and so to avoid the shunting activities for the locomotive's turning.

After the preliminary phase (from 2006 to 2008), three phases of the project have been scheduled. Phase A (from 2008 up to 2009) will increase the area to 230,000 square metres, that will be more than doubled with the phase B completion, in 2010. At the end of phase C, which should end in 2011, the dry port will have a total area of 670,000 square metres, including all the services for means and human operators.

It is also worth underlining a very particular characteristic of the terminal: the set of tracks inside the terminal (at the end of phase C, when the new terminal will be completed, there will be five tracks of about 900 metres each will be perpendicular to those for collection and delivery. This will have an impact in terms of better management of train scheduling and, at the same time, it will speed up operations.

The link will be north of these tracks and it will mark the boundary between the area for electric trains—the tracks for collection and delivery—and the area for diesel trains.

In the long run, the group of tracks inside the terminal will be operated by two or three transtainer cranes; 12 trucks, including 6 for full containers and 6 for empty ones, will ensure the yard operation.

From the current collection and delivery tracks of Rivalta Scrivia Inland Terminal there will be a track connecting the Rivalta station tracks directly to the inland terminal. In the future this track will supply about 80,000 square metres of warehouses.

South of the group of tracks inside the terminal, there are plans to build: a workshop for the maintenance of the containers (3,000 square metres), a container washing plant and some containment tanks for dangerous goods. Further south of the tracks there will be a track connecting with a locomotive storage depot.

The gateway will consist of eight tracks; four incoming and four outgoing. Close to the gateway, centrally located between the entry and exit routes, a warehouse of about 3,000 square metres, dedicated to customs inspections, will be built.

All of these gateway tracks will be equipped with an optical reading system for the containers' codes and for customs inspections. The same system will be installed in the internal tracks' link in order to input the container code directly during the railway shunting phase for entering the terminal; in the link, or where deemed appropriate, a system to scan the containers entering or leaving the terminal will be installed.

The terminal will be provided with the following services:

- a truck park of about 40,000 square metres, capable of handling 500/600 trucks per day
- facilities for human operators like a residence, a cafeteria, a bar, an ATM, which are currently present in the inland terminal areas

The truck park will be directly connected with the gateway of entry/exit to/from the terminal, from which it will be able to remotely manage the reservation for the maritime terminals.

The availability of a truck park, in addition to being functional to the operation described above, will constitute a relief valve both for traffic peaks and for the port closure due to strong wind or other causes.

The coordination with the maritime terminals, the port authority and the Prefecture of Genoa and timely information to the road haulage system, will lead to use of the truck park as a way to improve traffic circulation in the city of Genoa.

### D. The shuttle service

The terminal will be connected with the Genoa port docks by a daily shuttle service executed by Serfer Servizi Ferroviari S.r.l., a company of the Trenitalia Group (which is the Italian State-owned railway company). The composition of the shuttle and its operations are closely related to the siding configuration above described.

Currently the shuttle service is characterized by one round trip train but, starting from June 2009, there will be three round trip trains whose operations will be assured by three sets of wagons and only one locomotive. More in detail, the current modality is the following:

- the first shuttle train (composed of the first set of wagons) arriving from Voltri Terminal Europe—(VTE) in the Genoa port stops on the first south collection and delivery tracks; the locomotive at the head is dropped and continues on the north tracks, where it has to hook up in front of the second set of wagons ready to leave for Genoa.
- a diesel locomotive collects the first incoming set of wagons and brings it in the terminal for the unloading operations.
- once the incoming set of wagons is inside, the second set of wagons can leave for Genoa. The time required for the exchange of the sets of wagons at the Rivalta station is estimated to be 15-20 minutes
- upon arrival in Genoa, the shuttle leaves the second set of wagons and collects the third one to bring it to Rivalta.

The goal for the next few years is to have 6 return trains in 2010 and 15 in 2012, thereby increasing the service to the Genoa port—possibly including the “old” Genoa port—and, if the conditions are right, to Savona as well.

### E. Import cycle management and organization

Since November 2008 the import cycle started directly from the quays of VTE in the Genoa port. Up to that date the shuttle service handling the import from VTE was based on a more time consuming cycle. Containers unloaded from ships were put in stacks in the yard according to their final destination. If the Multimodal Transport Operator (MTO) did not provide the cargo list with the transport mode (rail or road) for each cargo unit, containers were unloaded in stacks according to the relative ship (all the containers unloaded from a ship were stored in a particular area in the yard) and then they had to be sorted according to their final destination. This operation required lots of shifting—which involves non-productive movements—to search for the required containers in the different stacks for the train composition, with a consequent loss of time and relative costs.

The new procedure proposed to VTE foresees the possibility of placing containers, according to their unloading order, in a single interim storage area rather than in separate cargo bays, one for each final destination. In addition, this storage area is divided into many different stacks, each one containing approximately 45 TEUs to form a single shuttle train and so respecting the ship unloading order. This interim storage area empties according to a first-in first-out (FIFO) logic as the shuttle trains are formed; the recomposition of the final destination and thus the shipment by

truck or train, is made in Rivalta, in the dry port, where it is easier to manage the forwarding priorities, also thanks to the larger available spaces.

This new way of operating means working with a "bulk" logic instead of a "scheduled blocked train" one. The main implications for the port terminal of such a modality are:

- a reduction of the space needed
- a decrease of the number of shifts, with a consequent improvement in terms of total time required for performing all the operations

Moreover, all the customs clearance operations and inspections are carried out in the Rivalta areas. In fact, this new management procedure has been made possible thanks to a relevant customs simplification procedure. The advantage of customs simplification is quite evident. Two steps are skipped, with consequent benefits in terms of time saved and relative costs.

More specifically the new customs procedure is applied to shipments of containers that, arriving via sea with a single transport contract (with the indication on the bill of lading of "Genova Rivalta Scrivia" as port of discharge) and disembarked at VTE Genoa Voltri port, must be transferred through shuttle trains from the Voltri territorial customs section to the Rivalta Scrivia one, where they will be put into the temporary custody warehouses managed by the Rivalta Scrivia Inland Terminal.

Regarding the import procedure after the customs simplification, upon arrival in the VTE terminal, the manifest manager, which is usually represented by the maritime agency or the ship freight forwarder, arranges and submits the arrived cargo manifest (ACM), so that containers can be unloaded.

After the submission of the manifest and the unloading of containers in the customs area of the Voltri terminal, while waiting to receive a customs destination, goods acquire the status of "cargo under temporary custody" and they are already virtually regarded as having been put in the temporary custody warehouses managed by the Rivalta Scrivia Inland Terminal S.p.A, which assumes responsibility for them.

The ACM is then processed by the customs system that gives back the list of all the A3 numbers (container clearance numbers) generated. The manager submits it to the manifest office of the customs section of Rivalta Scrivia, together with the ACM, for their validation. For each container clearance number there will be a warehouse temporary custody code where it will be stocked.

An extract copy of the manifest is submitted to the border control police officers that give permission for exiting the terminal. Another two

copies of the manifest extract are given to the customs section of Rivalta and to the railway carrier. The packing list, containing all the information of the containers clearance numbers, accompanies the containers during their entire trip up to their destination warehouse and it is considered an important document for transport (as is the manifest extract).

Once the shuttle train arrives in Rivalta Scrivia, the relative customs section, through the packing lists and the manifest extract, can check the results of the procedure.

The goods placed in the Rivalta Scrivia temporary custody warehouses must receive a customs destination within 45 days of being assigned the containers' clearance numbers (A3). Moreover, during this temporary custody storage, goods cannot be tampered with, apart from the operations required for granting the storage status in which they were originally.

The whole procedure of a customs cycle in which all the cargo transfers from the Voltri port dock to Rivalta dry port take place without providing a customs declaration of transit for each container, but simply on the basis of the data of the ship's cargo manifest. This new way of operating allows the streamlining of the customs inspections without decreasing their quality but speeding up times.

However, such operations require the following:

- the direct involvement of the shipping companies, both in providing the ship's cargo manifest at least 24 hours before the ship's arrival, including the indication of the containers that will be shipped by rail, and in changing the return conditions of the bills of lading from Genoa CIF modality (insurance and freight paid) to Rivalta Scrivia CIP (transport and insurance paid)
- high safety standards in terms of route integrity, which implies the absence of intermediate stops, and cargo integrity, which means that each container is traceable during the transfer

Once a certain traffic volume is reached, a manifest office will be opened at the new RTE terminal, streamlining the quay operations.

## F. Export cycle management and organization

The export cycle begins at the dry port, in appropriate separate cargo bays distinct per ship (first, second and thjrd ship, if possible) and, within each bay, per bill of lading. Containers, once the customs formalities are carried out, are forwarded directly from Rivalta to VTE for boarding, thus avoiding any stops in the port.

Also in this case the benefits in terms of space management and time reduction are evident: Genoa Voltri port gains space by avoiding the storage in its yard of containers that do not require immediate boarding, but receiving only export cargo for the next incoming ship. These advantages have become even more noticeable in the light of the VTE decision to reduce, from November 2008, the number of days of free storage in the terminal from 10 to 6. After the day of ship berthing, and considering an average of 2 days needed for ship unloading, only 4 days are now available to complete all the customs procedures and any checks and proceed to the containers forwarding without paying the yard storage costs.

Moreover, with regard to the new European code that will be coming into force soon, there will be some benefits for the goods landing in Rivalta Scrivia dry port. According to this code the export packing lists will have to be processed where the maritime customs are executed. Giving Rivalta Scrivia the label of "maritime customs", will make it possible for the export procedures to take place directly in the RTE dry port with obvious advantages for speeding up the export cycle.

## CONCLUSION

The particular geographic conformation of the Genoa territory, with the mountains located a few hundred metres from the sea, and the foreseeable development of maritime trade within the Mediterranean basin clearly shows the current infrastructure situation of the port of Genoa.

The shortage of space within the port domain, which is necessary both for the movement of containers and for the creation of high value added integrated logistics operations, forces the Port Authority to look elsewhere beyond the port border to find new areas at the service of the Genoa port's logistical needs.

The initiative of the Rivalta Scrivia Inland Terminal that has sought to pursue the dry port cause since the 1970s was born in an analogous context. Recently, the Rivalta Terminal Europe S.p.A. was created, as a business segment of RSIT, with the aim of collecting all the container traffic coming from the port of Genoa and directed towards all of northern Italy and Europe, and vice versa. Thus the final objective for RTE is to create a logistics platform beyond the Apennines very similar to an inland terminal, but with a marked maritime vocation which is testified, among other things, by the use of the same technological systems and procedures typical of the Genoa port terminals.

In conclusion, it can be said that the convenient infrastructural location along the main south-north European communication lines, the already current high handling capacity, the presence of the maritime customs office within the dry port borders together with the recent implementation of an important customs simplification procedure in terms of time saved and, finally, the enormous opportunities of growth with reference to land and handling capacity, make RTE and RSIT the natural extension of the Genoa port quays beyond the Apennines.

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