

Chapter 5. Funding Public Transport in Turin with TOD Land Value Capture
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<a> Introduction

Imagine a region made by great neighbourhoods [...] places where residents of diverse income, ages, and backgrounds have the option to walk to nearby shopping, parks, and schools; where streets are safe to walk along and public spaces are beautiful, inviting and frequented; and where people can choose to take a train or a bus to their destinations easily and conveniently as a car (Dittmar and Poticha 2004, p.20).

The vision of good life explained by Dittmar and Poticha (2004) in ‘The New Transit Town’ describes what planning and urban design principles of transit oriented development (TOD) might look like. However, what is not emphasized enough is an important precondition to make TOD happen, that is to have an effective, often rail based, public transport system. Funding these infrastructures, especially in times of austerity, becomes one of the crucial challenges for many cities seeking more sustainable futures.

This chapter concerns the funding of public transport in the context of TOD and, in particular, how it was tempted to fund a metro lines through property development value capture techniques around metro stations in the Italian city of Turin. It speaks to the fourth stage of Newman and Kenworthy’s (1999) strategy to transform car-dependent cities into sustainable ones, namely ‘to extend the transit system into poorly served suburbs [...] and to build urban villages around them [...] only if it can involve land development at stations to pay for it’ (1999, pp.186-188). More recently, Newman *et al.* (2017) developed this idea by envisaging new tools for a potentially financially self-sustainable public-private partnership (PPP). Nevertheless, development-based value capture techniques are not easy as they require a time-consuming process to integrate urban and transport planning with land policy that must withstand the volatility of the property market. The aim of this chapter is to clarify how development-based value capture works. In the following sections, complex interactions between land use and transport integration, on the one hand, and land policy, on the other hand, are examined. The chapter then explores these ideas in a specific case study to understand how planning decisions and land policies applied in TOD areas have been mobilized to fund public transport infrastructure in Turin; to assess whether such attempts have been effective, and to examine how this development-based funding process could be improved.

<a> Theoretical background

Considering this integrated transport and property development policy as a system, there are two main components: a public transport infrastructure, on the one hand, and some property developments planned around its stations, on the other. There are then two policies in the system which join these components in a circular way: a planning policy of land use and transport integration, which, to be relevant here, implies a planning decision to increment development rights (resulting in land value uplift); and a land policy which may capture part, or all of the value created. These two policies may reinforce one another, not only in terms of value created and captured, but also in terms of transport, as the infrastructure provides accessibility to the development, and the development provides ridership for the infrastructure. Nevertheless, this system is an open one as both the transport infrastructure and development component are part of a wider transport and planning policy context. Considered in a different way, the public transport infrastructure and development components are also variables of the system: the infrastructure may be modified if the system is not able to generate sufficient funding to pay for it; and density bonuses may be questioned if they are not able to generate funding, or if market demand is weak. While this interdependence appears to be intrinsic in entrepreneurial models of infrastructure development (Newman *et al.*, 2017), it is often overlooked. Potentially, however, a combination of these variables can be used to achieve financial self-sustainability of the infrastructure development (*ibid.*).

In this system, the most comprehensive policy connecting transport infrastructure and development is TOD. By combining the benefits of local compactness with the advantages of urban rails (Newman *et al.*, 2017), TOD is considered a powerful policy in producing a more sustainable urban form. If well designed and projected at regional scale (Calthorpe and Fulton, 2001), the result is an urban environment where walking and cycling can be easily combined with public transport, maximizing their ‘operational complementarity’ towards providing sustainable mobility (Bertolini and Le Clercq, 2003; Marshal, 2005). Moreover, TOD features such as density, diversity and pedestrian-friendly design reduce the need for private mechanised travel (Cervero and Kockelman, 1997; Ewing and Cervero, 2001). At the same time this is a strong enabler for improving the density of the urban form, which in turns supports land value uplift. In contrast with car-oriented densification, which inevitably increases traffic congestion, thanks to the modal shift that can be induced by public transport infrastructure and TOD design, TOD densification around stations of a simultaneously developed new public transport infrastructure can break the density-congestion relationship. This makes denser development more sustainable and often increases land value.

Nevertheless, there are a number of implementation barriers to successful land use and transport integration strategies across a range of institutional, political, legislative, financial, physical, social and cultural issues (Clifford *et al.*, 2005; Marshall and Banister, 2007; Curtis *et al.*, 2009; Tan *et al.*, 2014). Furthermore, achieving density and densification is a challenge for the local community opposition to it. In addition, in Italy the minimum urban standards for service provision (which include a land availability requirement) make densification processes even more difficult. For these reasons, a crucial factor for success is to have a

strong and politically supported vision to guide land use and transport integration strategies (Dittmar and Poticha, 2004; Cervero, 2009).

To what are already complex policies, the funding of the public transport infrastructure using value capture techniques adds another layer of complexity. In times of austerity, there are often insufficient public resources to fund what is often expensive infrastructure. This concern sits in contrast with the potential financial value that can be created by infrastructure investment in terms of land value uplift. Hence, adding a value capture mechanism to urban development plans can provide the necessary funds for the development of public transport infrastructure, helping in this way to realise the benefits of the TOD policy.

Land value uplift, apart from land owner investments, can be the product of ‘general economic or community trends’ resulting in an ‘unearned increment’, or can be ‘directly caused by a specific government decision related to physical development’ resulting in ‘a betterment’ (Alterman, 2012, p. 765). In this context, value capture is defined as the ‘appropriation of land-value gains resulting from the installation of special public improvements in a limited benefit area’ (Smith and Gihring, 2006, p. 752). Thus, public authorities should be entitled to recapture part of land value uplift as it would be ‘a taking by the community, for the use of the community, of that value which is the creation of the community’ (George [1879]1962, p.421). Hence, different kinds of land policy mechanisms have been invented to capture this value. In the case of joint public transport infrastructure and property development, these tools are promising thanks to the compelling rationale of taxing the betterment created by the increased accessibility attributable to the new infrastructure (Medda, 2012), and the consequent land capitalisation of these accessibility benefits (Suzuki *et al.*, 2015). Nevertheless, accessibility is not the only benefit created by a new public transport infrastructure. The effects of public transport’s additional capacity and of the modal shift away from traffic congestion, allow planning for additional development where it would have been otherwise unthinkable due to the inability of the road network to cope, as well as the inevitable community opposition. This further strengthens the rationale for value capture.

Alterman (2012) groups value capture mechanisms into three kinds: ‘Macro, direct and indirect’ (p.762). ‘Macro’ tools which include ‘nationalisation of land’, ‘substitution of private property by long-term public leasehold’, ‘land banking’ and ‘land readjustment’ (p.763) were broadly used in Europe, and they are still used in Asia, also to fund public transport. A recent European example is Copenhagen’s Ørestad, where Ørestad New Town has been built on public land using a development corporation which funded, primarily through land sales, a 22 kilometre (km) automated metro (Milotti and Patumi, 2008; Peterson, 2009; Knowels, 2012). Another recognised example is railway and property joint development in Hong Kong, where the revenues of incredibly high-density development (therefore difficult to export) on public land around stations were given as grants to the metro operator, Mass Transit Railway Corporation (MTRC). This contributed to the substantial financial sustainability of the infrastructure (Cervero and Murakami, 2009; Murakami, 2012; Suzuki *et al.*, 2013; Suzuki *et al.*, 2015). ‘Direct’ value capture instead ‘is a wealth redistribution instrument’ which ‘is often regarded as a tax and require legislative authority’

(Alterman, 2012, p.765). It could be ‘the capture of the unearned increment’ or ‘the capture of a betterment’ which could arise from ‘public infrastructure works’ or ‘land use regulations’ changes and includes tax on lands and real property, capital gains tax and different forms of betterment levies (*ibid.*). Finally, ‘indirect’ instruments, which are considered to be ‘more pragmatic’, aim ‘to leverage local governments’ authority to regulate land use, and solicit from land owners or developers money, land or construction services in exchange for additional development rights, fast-track processing, or relaxation of some regulations’ (Alterman, 2012, p.775). This group of instruments includes, between others, developer obligations or agreements, planning obligations, impact fees and cost recovery.

As land-banking is no longer in fashion in most western countries, macro value capture tools are more rarely used, even if they are still effective. One solution could be the conceptual and legal separation of land ownership and development rights ownership, which development control power entails. This separation allows public authorities to build an alternative to land sales to recapture the value of infrastructure improvement, as they can sell development rights (Peterson, 2009). Good examples, in which development rights are disembodied from land come from South America, especially Brazil (see Smolka, 2013; and Peterson, 2009, Mathur, 2016) and, more pertinently for transport, from Japan (Chorus, 2009; Suzuki *et al.*, 2013; Suzuki *et al.*, 2015). Land readjustment is another way to extract value from land ownership that can be used for infrastructure (der Krabben & Needham, 2008), which, given its potential and rare use, was also named ‘sleeping beauty’ (Alterman, 2012). Direct instruments, even if still used as property taxation, less often as betterment or value gains tax, are also in jeopardy as taxation on properties is in many countries unpopular among the electorate and hence tax rise to fund public transport is politically difficult to implement, especially where fiscal pressure is already high, thing often associated with austerity. Indirect instruments are instead widely used and are considered more realistic for funding public services (Alterman 2012). Overall, these tools, even if promising (Suzuki *et al.*, 2015), require clear enabling legislation and robust institutional capacity to be utilised effectively (Mathur, 2016).

The case of Turin presented in the following sections concerns recapturing value for public transport funding from a planned urban intensification on public and private land around new stations. It is a development-based value capture approach which mixes macro and indirect value capture instruments in an Italian context.

<a> Learning from Turin’s Line 2 of the Metro and Variante 200

Turin is the capital of Piedmont Region, an Italian historical second-tier city in the north of the country, with a population of 890 529 inhabitants in the municipality and almost 2.3 million inhabitants in the Metropolitan City area (Demo ISTAT, 2016). The number of households peaked in 2012 and contracted until 2016 when they stabilised (ISTAT 2018). Turin is a manufacturing city in post-industrial transition and was particularly affected by the 2008 financial crisis. The unemployment rate grew from 5.6 per cent in 2008, peaked at 12.9 per cent in 2014, with high levels of youth unemployment, and stabilised around 9.4

per cent in 2017 (ISTAT, 2018). This was in line with the Italian average, but much higher than the performance of the historically stronger north of Italy (*ibid.*). In Turin the scarcity of financial resources, at both national and local level, forced the experimentation of innovative development-based value capture approaches in an attempt to partially fund Line 2 of the metro. For this purpose, the new metro development was joined to a comprehensive regeneration strategy of the northern quadrant of the city called *Variante 200* (Città di Torino, 2009; Città di Torino, 2010). The main feature of the strategy was the redevelopment and urban intensification of brown field sites around the new line stations.

Towards the end of 2018, this attempt can be considered as a failure. Nevertheless, there is sufficient history of joint planning and infrastructure development in a progressively deteriorating macro-economic context to be investigated and learned from. An important characteristic of these approaches is the intrinsic interdisciplinarity and complexity. For this reason, the development of an integrated theoretical framework for this kind of cases was one of the first outcomes of the research which underpinned this chapter. One of the products was the definition of a diagram (Figure 5.1) to capture the systemic nature of these policies, working also as research protocol.

[INSERT FIGURE 5.1]

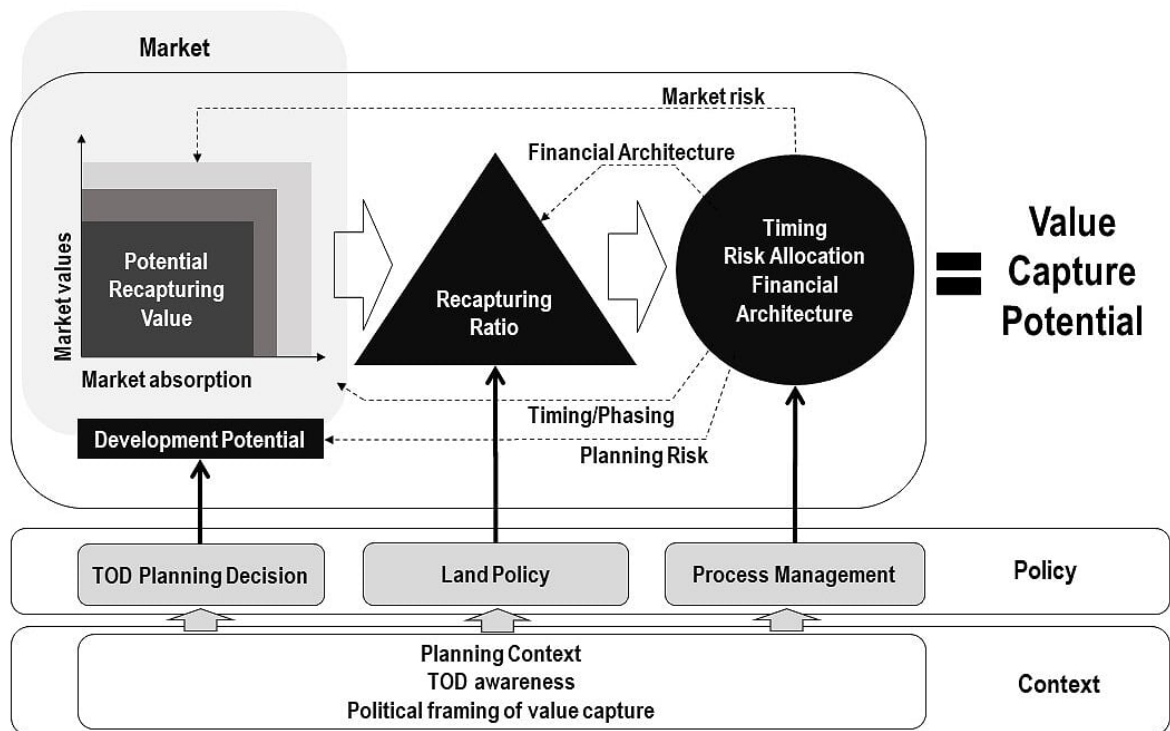


Figure 5.1 Integrating land use and transport planning and land policy for value capture.

The first step is to understand the context, from the planning system and land policy tools available to transport infrastructure funding sources, including more intangible elements

such as the TOD awareness between policymakers and the political framing of value capture tools. Then, in this kind of integrated policy there are at least three controllable subsystems, which, together with the market (a fourth independent element), determine the outcome of the policy in terms of value capture potential. The first element that determines the development potential, is how the planning system reacts to the planned transit infrastructure by allowing for density bonuses. It can be sequential to the transport alignment decision, or it could be in a dynamic interaction with a more entrepreneurial approach (Newman *et al.*, 2017), bending the alignment to try to activate as much development potential as possible. The second element is land policy, which by selecting the more appropriate value capture instruments can determine the value capture ratio (value captured on value created). This part is integrated with the planning part for if development rights are created on public owned land the recapture ratio would be 100 per cent, while on private land it must be negotiated. The third element is the management of the process, which is the more delicate part as it usually goes beyond the traditional boundaries of the departments involved. Crucial matters are timing, risk allocation and the design of the financial architecture, as the resulting value capture potential is heavily dependent on these details. Finally, all this complex machine must match the property market conditions, both in terms of market values, and demand volume. Indeed, the quantity of development defined by the TOD planning decision may exceed what the market is able to absorb in the defined time frame, with dire consequences for the financial equilibrium of the entire strategy.

Following this structure, the first information needed for Turin's case are about its context. On this, most relevant is Italy's recent history of economic stagnation and austerity, with the country's debt that in 2017 was calculated to be more than 130 per cent the value of gross domestic product (Eurostat 2017). As a Eurozone member, Italy is subject to the European Growth and Stability Pact, which limits the country's possibility to use further debt. In order to honour this, a national interinstitutional pact extended to local authorities rigid limitations in the use of debt, making difficult to fund infrastructure, during the first years of the project. The second important element is the planning system. In Turin a prescriptive general land use plan defines in details land uses and densities and therefore land value. In terms of Institutional capacity, Turin's local administration is recognised as effective. As emerged in interviews, the *Divisione Urbanistica ed Edilizia Privata* (the planning department) was familiar with both land use and transport integration and value capture ideas and it has been successful in gaining a long record of accomplishments in comprehensive regeneration strategies, such the *Spina Centrale* project and the urban transformations related to the 2006 winter Olympics.

In terms of planning, Turin has a joint regeneration and infrastructure development strategy, originating in 2007 and later named *Variante 200*, where a new metro line (Figure 5.2) was aligned purposely to trigger development opportunities in order to use value capture mechanisms to pay for the infrastructure. This case was a potentially good example of the Newman and Kenworthy (1999) strategy, or the entrepreneurial rail model (Newman *et al.* 2017). The development of the northern part of the metro Line 2 was intended to be a driver for a comprehensive regeneration strategy of the city's most neglected neighbourhood,

Barriera Milano. TOD density was to be accommodated using a general variation of the land use plan defined in a succession of studies and design phases strongly informed since the beginning by TOD principles (Città di Torino 2010; Città di Torino and To Make!, 2013a). Two new centres were designed: Rebaudengo, served also by the regional railway, which should have been the new ‘northern business gateway’ of the city, and Vanchiglia, a more village- like mixed use location for creative enterprises (figure 5.2). In all phases of the project, the TOD urban design included pyramids of density centred around stations, accompanied by a horizontal and vertical land use mix in a progressively improved pedestrian friendly public space.

[INSERT FIGURE 5.2]

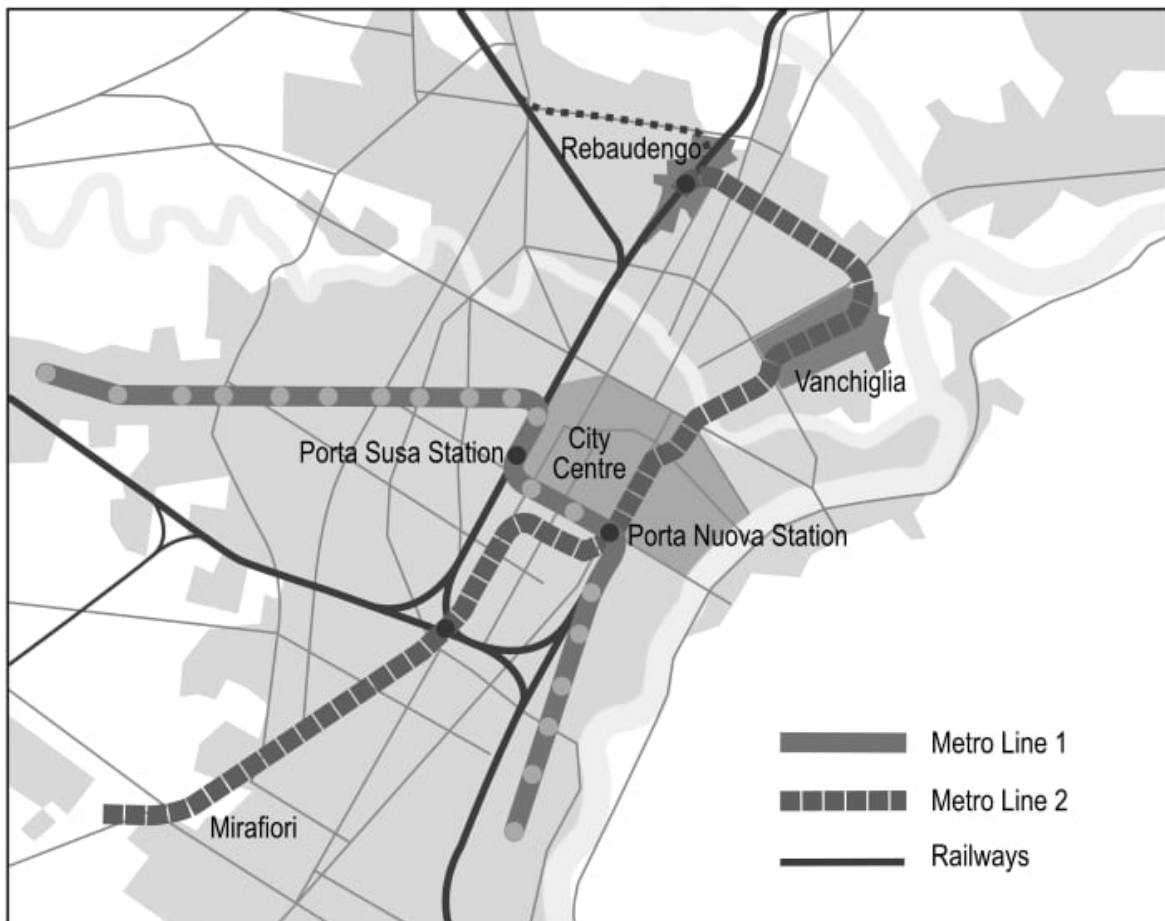


Figure 5.2. Line 2 of the Metro in Turin's transport network

On land policy, a series of value capture tools were envisaged. The main one, a macro tool, was based on public land ownership (brownfield) and on the planning of additional development rights on that land. Indirect tools were also used, according Turin's Municipality consolidated practice, of extracting extraordinary planning contributions (in

cash, in kind or, in this case, in land) from other land owners in exchange for density bonuses and value enhancing change of land use. This was negotiated as 50 per cent of the land value uplift. Overall the envisaged value capture mechanism could have raised €201 million, efficiently covering about 40 per cent of the cost of the first section (the northern part) of the metro. During the project's evolution, different land policy delivery tools were also contemplated, including an urban development corporation (Finpiemonte 2010a), and a more articulated structure of property funds (Città di Torino and To Make!, 2013b) that tested approaches to risk allocation with different timing of public land sales. In the last phase of the project, before it stalled, the deteriorating market conditions were factored in. Hence, a market driven incremental phasing of the transport and property development was suggested (Città di Torino and To Make!, 2013a and 2013b). This would have transferred most of the financial risk to the municipality, which should have funded the metro independently from the materialisation or not of development value.

In terms of management, the project was opportunely-led by the planning department for all the phases in which it was an integrated policy. Despite the great competence of all offices involved, the process was contorted. One of the reasons was probably the length of the process compared with the length of the local council mandate. When different mayors, local cabinet members and the teams working on the project followed one another, even if within the same political majority, slight changes in priorities, values, approaches, focus and support for this specific policy created enough disturbance for such complex processes to falter. According to some respondents, the progressive abandonment of an area based horizontal policy integration and the return toward a more traditional vertically siloed governance structure was also problematic. Thus, when the deteriorated economic and property market conditions required a rethink of the strategy the administration failed to adapt. A manifestation of this was the persistent rigidity on the metro alignment and transport technology choice, which, treated as a political fetish, became an unsurmountable obstacle for the adaptation and hence deliverability of the overall integrated strategy. This rigidity, when some national funds became available for the technical design of the metro, brought also to proceed with a call for tender for the defined alignment and a phasing which prioritised the northern part (Città di Torino, 2016a and 2016b), which as was noted, was the weakest in transport terms and the less effective in creating value to be recaptured. An explanation is that while the progress in the new metro project was a powerful message to deliver to the electorate, the complexity of the dynamic interaction between factors and assumptions in this integrated strategy were too complex for the political decision maker.

Nevertheless, as anticipated, the final and probably fatal weakness of the strategy came from the property market. The strategy entailed almost 776 000 square metres (sq.m) of public mixed-use development planned to be put on the market on average at an estimated value of 2800 €/sqm for the residential, and on average at 2400 €/sqm for non-residential uses (Finpiemonte 2010b). Hence it was a large volume low value TOD value capture approach. Moreover, during the development of the project, property values fluctuated but with a downward trend, partly due to the global financial crisis and other demographic factors, often placing market property values below the development feasibility threshold. In these conditions, local experts considered with scepticism the possibility for the envisaged

development to be absorbed by the market, and particularly as the city was still dealing with a previous wave of oversupply. This meant that development would have required a prolonged and flexible market-driven phasing. Hence, the land capitalisation of the transport and transit-oriented densification benefits would have been difficult to determine and to cash upfront without discounting risk. Value capture within the defined time frame and the designed financial architecture was then hard to achieve.

Eventually in 2016 the transport and the development components were separated when it was decided, just before local elections, to use national funds for the infrastructure design only. The regeneration strategy was paused. When the then administration lost the election, and the Five Stars Movement took over, it was decided to reconsider the entire matter. At that point, in June 2016, is when the observation window of this research closed, and after that, while the appointed team was designing the metro, the possibility of other alignments was reconsidered and in general the northern part of it lost priority together with the regeneration strategy. Indeed, the weakness of the development component made value capture uncertain and it would have been unwise prioritising the new metro in a part of the city of uncertain development.

<a> Conclusion: lessons learned

The main lesson is that these are difficult and fragile policies for the high level of complexity, and for the time sensitivity of the market independent variables, which contrast with the open-ended approach of the Italian management of planning processes. This is not a general institutional capacity prerequisite, that of course is needed, as Turin was renowned in Italy for the effectiveness of its administration. The complexity is multidimensional and the town planning, land policy, property development and financial architecture are as important as the transport component. In this kind of processes time is crucial, and the planning process is too slow (this may go beyond the Italian context). Moreover, the sequencing and rigidity of transport infrastructure planning, town planning and land policy reduced the chances for the project to adapt. When the worsening economic and market conditions became apparent, there was a call to adapt the strategy, by adjusting both the transport and regeneration components and by making the phasing of the infrastructure more coherent with a realistic market demand expectation for the property development component. In these cases, the transport and land use policies interaction should not crystallise too soon. By contrast, both the planning process and the political handling of the strategy missed the required agility.

Market fluctuations and financial architecture are other crucial elements. Stronger market checks are needed, and the feasibility of the strategy should allow for safer fluctuation buffers. Low-value large-volume development components are more exposed to market volatility, putting the financial equilibrium of the strategy in jeopardy. Moreover, in these entrepreneurial rail development approaches, the weakness of the development component has also transport consequences, as the chosen new metro alignment may result in serving development opportunity areas for which there is little demand. This may materialise in the future, giving chances to the value capture mechanism to work on the long run. Nevertheless,

if demand is not strong and sufficiently certain in a definable time frame, it is unpractical and inefficient to bind together the financial equilibrium destiny of the infrastructure and development components, as risk would discount the value to be recaptured. In this case, where possible, public finance to bridge the time gap between the infrastructure cost and the harvesting of development value (taking also a calculated part of the risk) would be more effective.

In conclusion, the research results highlight the extreme complexity of these integrated policies which require exceptional governance capability for a long period of time, during which the projects are exposed to market fluctuations and political instability, and that the Italian land policy framework is still not supportive enough for these strategies. Part of the problems and the lessons learned are bound to the Italian context, nevertheless, the analysis of the systemic nature of this strategy can provide a useful checklist for other contexts.

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