Territorial Transformation in the Digital Age: Remote Work, E-Commerce, and Resilience Implications

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Abstract. Covid-19 played the role of one of the biggest territorial disruptors in modern history, since it changed our lifestyles through changes in housing choices, shopping behaviours, and our working routines. Precisely following the preventive lockdowns that forced the mass adoption of remote working and e-commerce to ensure the continuity of economies and provide for our needs, we then witnessed an acceleration of the virtualization process, even after the pandemic period, provoking a butterfly effect on commercial activity, real estate, territorial flows and consequently land use. It is not just an acceleration of existing digital trends, but an intrinsic metamorphosis of territorial dynamics and organization. Therefore, there is an important need to develop an integrated framework encompassing all the aspects related to these territorial dynamics, especially housing choices, property prices, logistics land, commercial real estate and land use, across different global contexts, in order to develop the most adapted and adaptable resilience framework capable of addressing these changes and making territories more agile and better equipped to benefit from this new territorial configuration. Our research work aims at developing this new resilience framework to assist policymakers in this context of these new territorial transformational dynamics. This paper serves as a theoretical foundation for upcoming subsequent research papers where each aspect will be addressed in detail.

Keywords: Covid-19 · e-commerce · remote work · housing · real estate · land use · territorial resilience

1 Introduction

The pandemic the world witnessed in late 2019 caused a profound shock across different aspects of human life: health, the economy, lifestyle, and territory. After a few weeks of its emergence in early 2020, around 90 countries resorted to lockdowns to limit its spread [1]. This new condition generated a rapid global decrease in most activities requiring human presence. Consequently, two important alternatives emerged and have persisted to this day: e-commerce and remote or hybrid working. None of them was new, but Covid-19 compressed years of their gradual adoption into a few months of lockdown, which had a profound impact on territories.

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O. Gervasi et al. (Eds.): ICCSA 2026 Workshops, LNCS 16758, pp. 631–644, 2027.
https://doi.org/10.1007/978-3-032-30497-1_38

The spatial dimension is what makes this disruption different from previous shocks. The crises the world has undergone throughout history, whether financial downturns or industrial recessions, have mainly changed economic geographies through employment losses, investment withdrawal, and similar effects. Unlike these, the pandemic simultaneously altered not only the organization of work, businesses, and consumer behavior, but also impacted physical dynamics within territories, such as residential patterns, work locations, and transit.

We should not only focus on the negative side of these shifts; they should also be perceived as an opportunity for a new territorial redistribution, where goods, services, activity demand, value, and investment move back and forth between suburbs and cities, creating more balanced and equitable dynamics. However, this challenge requires a better understanding of new data through a systemic analytical perspective (Fig. 1).

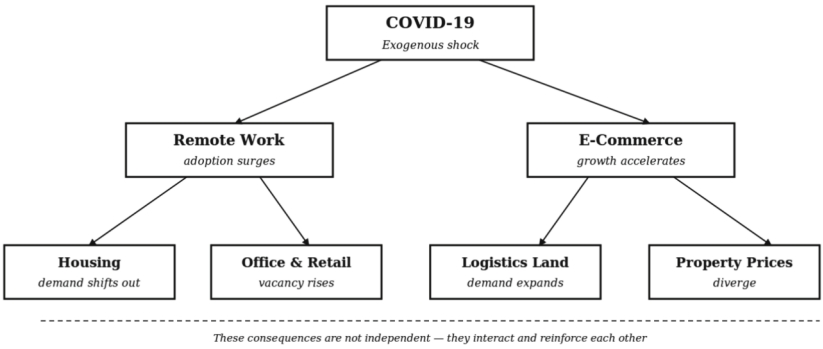

Fig. 1. COVID-19 and its territorial consequences

During the lockdown, physical retail experienced a significant decline, while e-commerce saw rapid and exponential growth. Projections indicate that it will exceed $8 trillion by 2027, representing a 39% increase from 2023 [3]. This growth did not only change consumer behavior, but also the territorial and physical organization of urban areas and territories in general: an increase in demand for urban logistics land, the intensification of last-mile delivery, a rise in the number of delivery agents, and commercial real estate vacancies across traditional commercial strips [6] Research projects a 60% increase in carbon emissions, resulting from a global rise in last-mile delivery vehicles, estimated at 61% [3]. These consequences go beyond logistical impacts; they are affecting the entire territory, as the spatial dynamics of consumption are being reorganized on a large scale. For example, every parcel delivered to a home represents a trip that once brought a consumer to a physical store. Multiplying this pattern across billions of transactions each year makes this shift a fundamental transformation of urban mobility, land use, and economic geography.

The size and capacity of the logistics infrastructure required to support this transformation should not be underestimated. The real estate and land reserves needed for the different components of this logistical chain, whether warehouses, sorting facilities, last-mile depots, or urban consolidation centres, now form a new layer of urban land use and compete directly with residential, commercial, and institutional uses. The demand

for logistics land is increasingly shifting toward peri-urban areas, which are simultaneously attracting more residents from core urban areas. This creates a form of collision between two powerful dynamics, generating pressure on the same land at the same time. It is a tension that existing planning frameworks are not equipped to handle, as they were designed for slower, more separable sectoral systems rather than integrated and mixed territorial dynamics (Fig. 2).

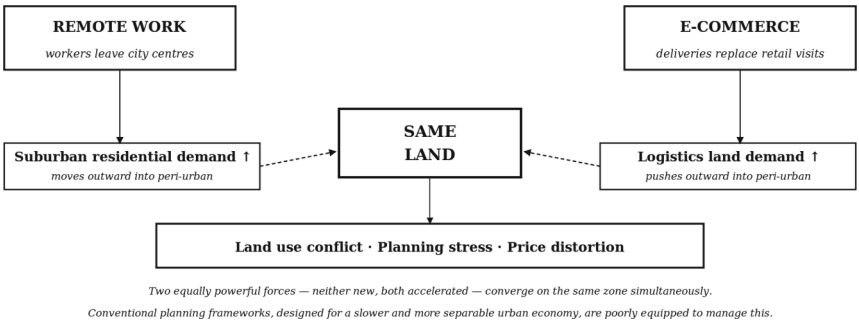

Fig. 2. The peri-urban collision: two forces, one zone

The second consequence of the lockdown, namely remote work, experienced a similar transformation to e-commerce, with the share of home working days increasing from around 5% before the pandemic to 60% in 2020, and then stabilizing at 28–30% by 2023–2024 [2]. By the end of 2023, 12.7% of workers remained fully remote, while the majority adopted a hybrid work model [1]. According to researchers, this shift is no longer considered a temporary adjustment but a structural change in where and how we work [1]. The new flexibility of work patterns is pushing cities that once depended on the daily concentration of workers to adapt to this new reality, as offices, originally designed and built for full weekly occupancy, are now vacant most of the time, raising many questions about their use and efficiency.

The consequences of this shift go beyond the office real estate market. A worker moving from daily commuting to remote working several days a week impacts all layers and systems of territories. Public transport use declines, and commercial activity in core urban areas loses the consistent daily flow of customers on which its economic model relies. With the convenience of remote work, co-location is no longer an obligation, so households begin to reevaluate their residential choices, placing greater emphasis on space, access to outdoor areas, quiet environments, home accommodations, and overall better living conditions rather than proximity to the workplace. As a result, suburban and peri-urban areas with lower land prices are becoming more attractive to urban households, creating a disruption of the pre-pandemic territorial equilibrium based on commuting patterns and housing costs.

These transformations cause rapid and significant spatial impacts: housing demand has shifted from city centers to peripheral fringes and surrounding territories, as workers are no longer dependent on daily commuting and have begun prioritizing the comfort offered by peripheral areas [4]. This had a direct impact on the real estate market. For

example, housing prices in the United States increased by 24% between 2019 and 2021, with remote work contributing more than 60% of this increase [14] Meanwhile, office markets experienced a drastic decline, with vacancy rates reaching 20.1% in 50 large U.S. cities by mid-2024, the highest level since 1979, equivalent to a loss of $556.8 billion in real estate value [5]. Cities were therefore confronted with multiple pressures occurring simultaneously: declining demand for office and retail space, increasing demand for logistics land, and rising housing prices in suburban areas, all without governance frameworks or analytical tools adapted to managing these combined dynamics.

What makes this moment analytically difficult is that these trends do not operate independently, but are closely interconnected. A worker relocating from a city centre to a suburb becomes, at the same time, a former office occupier, a generator of suburban housing demand, a daily logistics customer, and a contributor to changing retail footfall. Each of these roles feeds into property markets, land use patterns, infrastructure systems, and fiscal revenues. Examining any single dimension in isolation therefore produces a partial, and potentially misleading, interpretation. A city focusing only on the office vacancy dimension of remote work may prioritise the conversion of empty buildings into housing, without fully accounting for the fact that these same remote workers are also increasing e-commerce delivery pressures that compete with residential uses for surrounding land. Policies developed in silos are unlikely to be effective in a system that functions as an integrated whole.

This paper serves as the conceptual foundation of the research. Its purpose is to develop an integrated resilience framework linking all these factors—e-commerce, remote work, housing choices, property prices, and land use change—as an interconnected system.

2 Global Cases

As part of establishing the conceptual foundation of this study, tracking case studies from different global contexts helps us understand virtualization trends and their territorial impacts. None of these dynamics is specific to a single country, but their intensity and pace vary depending on the context, including local economies, housing market conditions, the quality of digital and physical infrastructure, and planning governance and tools. As a result, these redistribution processes are more pronounced in knowledge-intensive, digitally enabled countries:

2.1 North America

The United States represents one of the most documented cases of these transformations. In San Francisco, office vacancy rates increased from around 2% before the pandemic to nearly 30%, while in New York City, office real estate lost an estimated $90.3 billion in value between 2019 and 2023 [5, 8]. Cities with a strong concentration of knowledge-economy activities experienced the most significant disruptions, as their workforces were among the most capable of shifting to remote work. San Francisco is a particularly illustrative case, as its economic model was largely based on the co-location of tech talent, which became difficult to sustain once the need for physical proximity weakened.

These changes have also generated important fiscal impacts, as the decline in commercial real estate values has reduced property tax revenues, creating structural budget pressures that are not easily absorbed.

Suburban housing prices increased significantly as households relocated toward peripheral areas in search of more space and lower costs [4]. However, this pattern was not uniform across the country. Metropolitan areas with a large supply of affordable suburban housing experienced the strongest in-migration, while cities facing supply constraints saw price increases across both urban and suburban markets. This variation reflects underlying supply-side limitations that were revealed, rather than created, by the expansion of remote work. In areas where housing supply was more flexible, remote work allowed households to relocate toward preferred residential environments. In contrast, where supply was constrained, similar demand pressures resulted mainly in rising prices across all locations, without necessarily improving living conditions.

In Pittsburgh, the city responded to e-commerce delivery pressures by deploying AI-powered smart loading zones that increased curb turnover by 40% and cut CO2 emissions by 12 tonnes per year, [3] an early example of adaptive logistics governance. This case illustrates the potential for technology-enabled urban management to moderate the negative externalities of logistics intensification without prohibiting the e-commerce activity that generates it. It also illustrates the governance gap: most cities lack the institutional capacity, data infrastructure, and regulatory flexibility to implement such adaptive systems at scale.

The Congressional Research Service confirmed that while some secondary cities attracted in-migrants with purchasing power, many rural and peripheral areas remained unable to capture these flows due to inadequate broadband infrastructure and constrained housing supply [5]. The geography of remote work benefit is uneven even within a single country. Location flexibility benefits those who already have the most options. Workers in sectors that cannot be performed remotely, logistics, care, hospitality, construction, do not have access to this flexibility, and in many cases bear the costs of the spatial redistribution that their more advantaged counterparts generate: higher housing costs in receiving suburbs, reduced service intensity in abandoned urban cores.

2.2 Europe

Responses across Europe were more heterogeneous. US suburban price gradients continued to flatten in 2021–2022, while comparable gradients in Denmark, France, and the UK remained relatively stable, reflecting wealthier, better-serviced American suburbs being more attractive to relocating workers [9]. This divergence points to an important structural difference: European cities typically offer stronger public transport, denser service provision, and more mixed-use suburban environments than their American counterparts. The relative attractiveness of urban living is higher in many European contexts, which moderated the suburbanisation impulse that was so pronounced in North America.

London house prices fell post-lockdown while surrounding counties gained; office take-up in London's Q1 2023 was 19% below the five-year average [8, 16].

Paris showed a certain level of resilience, supported by its economic diversity, strong public transport system, and continued demand for co-working spaces [8]. This case

suggests that cities with more diversified economies, not relying on a single dominant sector, are better able to absorb these disruptions. At the same time, the quality of public infrastructure plays an important role in maintaining urban attractiveness, even with increased spatial flexibility. Cities that offer strong amenity value, rather than depending mainly on employment concentration, are therefore more able to retain both population and economic activity.

In Italy, the rise of remote work has increased residential mobility, especially among families, with pressures similar to gentrification appearing in secondary cities [13]. Cities such as Bologna, Turin, and Florence, which were attractive but not primary destinations, are now attracting households leaving Milan in search of more space and lower costs, while still offering urban amenities. This creates a double effect: these cities benefit from new purchasing power, but at the same time face increasing affordability pressures for lower-income residents who do not have the same ability to relocate. At the same time, urban congestion has increased in some contexts. For example, congestion in Dublin rose from 45% to 66% between 2018 and 2023, and in Milan from 30% to 45%, partly linked to the growth of delivery activity [3]. This shows a form of urban pressure that is often overlooked, as the reduction in commuting is offset by the increase in delivery traffic, which keeps congestion levels the same or even higher.

In Portugal and Spain, digital nomad visa schemes were introduced to attract high-income remote workers, supporting local economic activity while at the same time contributing to rising housing prices for local residents [7]. This dynamic creates a clear tension between economic benefits and affordability pressures, reflecting a structural trade-off that territorial strategies need to address. On one side, attracting these workers generates tax revenues, supports local businesses, and increases the international attractiveness of these territories, while on the other side it creates additional pressure on housing markets, particularly where local incomes cannot compete with stronger foreign purchasing power.

This dynamic is further reinforced by digital geo-arbitrage, where workers earn salaries from northern Europe or North America while living in lower-cost southern European contexts, intensifying these pressures and highlighting the limits of existing governance tools, which remain insufficient to manage these effects.

2.3 Asia and Australia

In Japan, cellular network data revealed a clear spatial redistribution pattern, where populations in office districts declined significantly while residential areas experienced corresponding increases, directly reflecting the adoption of remote work [12]. This approach, based on near real-time tracking of population movements, represents an important advancement in the analysis of territorial dynamics, offering a level of precision and immediacy that traditional survey-based methods are not able to capture. Although Japan, along with Italy, recorded some of the lowest sustained levels of remote work globally, largely influenced by cultural factors and the structure of their economic systems [8], the spatial impacts of these shifts remained clearly observable. This is particularly significant, as it suggests that even limited changes in work organization are sufficient to

generate measurable transformations in urban form, population distribution, and property markets, indicating that the threshold required to trigger territorial change may be lower than previously assumed.

China represents the largest e-commerce market globally, with online retail surpassing $2.17 trillion in 2023, which reshaped not only urban logistics systems but also rural settlement patterns and agricultural supply chains [17]. The Chinese case is particularly interesting in the extent to which e-commerce has penetrated rural areas, where platforms such as Alibaba's Taobao Villages allow rural entrepreneurs to access national and international markets without the need for physical relocation, reducing the importance of distance and enabling new territorial dynamics.

Australian city centres saw weekday pedestrian counts remain 35% below 2019 levels through 2024 while weekend counts fully recovered, indicating a reorganisation of urban rhythms rather than simple urban decline [20]. City centres are shifting from places of weekday obligation to places of weekend choice. That distinction has direct consequences for which businesses are viable and how public space should be managed and programmed. Businesses oriented toward Monday-to-Friday office workers, sandwich shops, dry cleaners, business hotels, face structural demand reduction that cannot be recovered by weekend visitors who have different needs and spending patterns. Meanwhile, businesses oriented toward leisure, culture, and hospitality may find that the shift to weekend urbanity creates genuine opportunity.

In Istanbul, professional workers expressed significant intentions to leave the city if remote work became permanent, seeking space and lower costs in peripheral areas [21]. This finding from a middle-income, rapidly urbanising context underscores that the spatial consequences of remote work are not confined to wealthy, post-industrial cities. Even in cities where urban-suburban price differentials are smaller and where the middle class is still investing in urban living, the spatial logic of remote work generates centrifugal pressure.

These dynamics suggest that territorial planners across different income contexts, not only in advanced economies, need to engage with these emerging spatial shifts, as these transformations are not limited to specific regions but are reshaping territorial organization more broadly.

2.4 Cross-Regional Patterns

Across regions, three main patterns can be identified. Cities with more diversified economies tended to be more resilient than those concentrated in a single sector [8]. Urban economies dominated by specific activities, such as technology (San Francisco), finance (parts of London), or government functions (some national capitals), were more vulnerable, as they lacked the capacity to absorb shifts in demand within a single sector. At the same time, flexible land use governance played an important role, allowing faster adaptation compared to rigid single-use zoning systems [11]. Cities and regions with planning frameworks that enabled the conversion of commercial to residential uses, or industrial to logistics uses, were better able to respond to these changes.

However, the spatial benefits of digitalisation were not equally distributed, as they tended to favour higher-income and higher-skill populations, raising equity issues across

different contexts [9]. What differs between regions is mainly the speed and the scale of these transformations, rather than the nature of the dynamics themselves.

3 Discussion

A significant amount of research has examined different dimensions of this transformation, particularly in relation to housing and commercial real estate dynamics. In the housing literature, Mondragon and Wieland [4] and Van Nieuwerburgh [10] quantified the causal contribution of remote work to residential price increases, showing through econometric analysis that housing price growth during the pandemic was largely driven by the decoupling of residence from workplace location, rather than by income growth or demographic shifts. In parallel, research in the field of commercial real estate, notably by the Congressional Research Service [5] and Penn IUR [11], documented the scale of the disruption affecting office markets and its fiscal implications, estimating losses that represent one of the largest declines in real estate value in American urban history. On e-commerce logistics, NAIOP [6] and the Center for Transportation Research [15] analysed how logistic infrastructure is reshaping urban industrial land, documenting the competitive pressure on scarce urban land that logistics demand generates. On resilience, Yang and Li [22] grounded the conceptual link between urban transformation and inclusive adaptive capacity, arguing that resilience is not merely about absorbing shocks but about ensuring that adaptation does not reproduce or deepen existing inequalities.

The gap in this literature, however, is that each of these bodies of work studies its dimension in isolation. Research on housing markets does not systematically account for what e-commerce logistics is simultaneously doing to industrial land use. Studies of commercial real estate decline rarely engage with the e-commerce dynamics that are partially driving it, consumers who shop online rather than in physical stores are not simply choosing convenience; they are generating logistics infrastructure that competes for the same urban land that commercial real estate once dominated. Resilience scholarship has engaged only marginally with digital economic transformation as a driver of territorial stress, tending instead to focus on environmental shocks, industrial decline, or demographic change as the primary stressors requiring resilience response.

What remains limited is an integrated analytical framework that considers remote work and e-commerce simultaneously as joint drivers of territorial change, without accounting for the interdependencies between these outcomes and their collective implications for territorial resilience. This gap is particularly significant for developing countries, where the combined effects of these transitions may be most consequential and least understood. Middle-income urban economies that are simultaneously expanding their digital infrastructure, absorbing rapid urbanisation, and managing informality in housing and labour markets face a particularly complex version of the challenges documented in wealthy-country contexts, without the institutional capacity, data systems, or fiscal resources that have supported adaptation in those contexts.

The contribution of this research lies in directly addressing this fragmentation. So far no study has simultaneously and systematically examined remote work, e-commerce, housing, commercial real estate, logistics land use, and territorial resilience within a single integrated framework. This approach considers these dimensions as components

of a unified spatial system, where elements are causally interconnected: remote work influences residential relocation, [2, 4] which in turn affects commercial real estate outcomes, [11] while interacting with the expansion of e-commerce logistics, [6, 15] and together shaping how effectively a territory adapts [22]. Analysing any one of these elements in isolation leads to an incomplete and potentially misleading understanding.

These dynamics generate feedback effects that cannot be understood through single-dimension analyses, as changes in one component directly influence others within the territorial system. The increase in suburban housing demand driven by the arrival of remote workers leads to rising land values in these areas, which then increases the cost of logistics land, creating direct competition between residential development and logistics functions for the same space. As these costs increase, logistics activities are pushed further toward peripheral locations, increasing the distance between warehouses and delivery points, which results in higher vehicle kilometres, increased emissions, and additional congestion along the main corridors connecting these areas to urban centers.

These effects then reshape the way households, firms, and governments respond to these changes, as households relocating to peripheral areas may face the same congestion they initially sought to avoid, firms are required to integrate these constraints into their location and investment strategies, and governments are confronted with infrastructure and fiscal pressures resulting from spatial changes they did not anticipate. As a result, the system evolves through interconnected dynamics that cannot be explained through isolated or single-variable approaches.

The practical implications of these dynamics are significant, as interventions addressing one dimension without considering others may generate new tensions instead of resolving existing ones. For example, converting vacant office buildings into housing without taking into account the logistics pressures generated by e-commerce in nearby industrial areas may lead to new forms of spatial conflict rather than balanced territorial outcomes [11]. While such conversions may reduce one pressure, namely excess commercial vacancy, they can also intensify competition between residential and logistics uses over the same urban land. Residents in converted buildings are likely to expect quiet and clean environments, whereas logistics activities in adjacent zones generate noise, traffic, and air quality impacts. The governance challenge therefore extends beyond enabling conversion, and requires managing the interface between these competing uses in ways that are both economically viable and socially acceptable.

A city attracting remote workers through visa schemes without managing housing affordability risks displacing existing residents [7]. The digital nomad who occupies a rental property in Lisbon or Barcelona at a price determined by northern European earnings is not doing anything individually unreasonable, but the aggregate effect of many such decisions is to price local workers out of the housing markets of their own cities. Territorial resilience cannot be designed dimension by dimension. It requires simultaneous management of economic attraction, housing supply, and distributional consequence.

Short-run and long-run effects also differ in ways that complicate policy design. While vacancy and price shocks were acute in 2020–2022, long-run equilibrium depends on how housing supply, infrastructure investment, and planning adapt to the new spatial

configuration [18]. A city that responds to office vacancy by rapidly facilitating conversion may destroy stock just before hybrid work norms restabilise demand and occupancy recovers to a new, lower but stable equilibrium. A suburb that absorbs remote worker in-migrants without building complementary services and infrastructure imports purchasing power while creating congestion, school crowding, and infrastructure deficits that erode the quality of life that attracted in-migrants in the first place. Only a longitudinal, integrated framework can track these dynamics with the temporal resolution that good policy requires, one that can distinguish between the acute phase of a shock and its structural long-run implications, and that can model how policy interventions at one point in time will shape the system's trajectory over subsequent years.

The equity dimension of this transformation deserves particular emphasis. The spatial benefits of the post-pandemic digital economy, location flexibility, access to space, exposure to lower-cost housing markets, reduced commuting time and cost, are distributed highly unequally. They accrue primarily to knowledge workers in digitally-enabled occupations who already tend to be higher-earning, better-educated, and more asset-wealthy than average. Workers in sectors that cannot be performed remotely, logistics, care, hospitality, construction, not only lack access to these benefits but often bear the costs of the spatial redistribution that higher-income remote workers generate. They face higher housing costs in suburban receiving areas, reduced urban service intensity as commercial activity shifts away from cores, and increased traffic as delivery vehicles multiply. A territorial resilience framework that does not attend to these distributional dynamics will design adaptation strategies that serve some residents well while leaving others more exposed (Fig. 3).

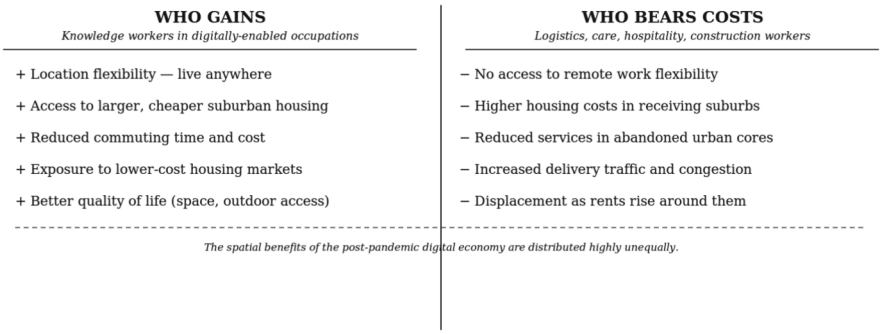

Fig. 3. The equity divide: who benefits and who bears the costs

4 Conclusion

Remote work and e-commerce are not simply economic trends. They function as spatial forces that are reshaping residential patterns, urban functioning, and the relative performance of territories. Across North America, Europe, Asia, and Australia, the same dynamics appear: housing demand is moving away from city centers, commercial real estate remains under pressure, logistics land is expanding at the urban fringe, and outcomes differ depending on infrastructure, governance, and economic structures. These

changes are not temporary, and cities are not going back to their pre-2019 situation, but are evolving toward a new spatial organization. It is a structural reconfiguration that has established a new baseline around which future urban development will be organised.

Territorial resilience in this context means more than bouncing back. It means converting obsolete office stock into productive uses, managing suburban growth pressure, decarbonising logistics, and ensuring that the benefits of the digital economy are broadly shared rather than concentrated among the already-privileged [22]. This requires active governance, not merely passive adaptation. The difference between a territory that capitalises on the new spatial economy and one that is damaged by it is not primarily a function of location or endowment, it is a function of institutional capacity, governance flexibility, and the political will to make distributional choices explicit and to pursue equity as a policy objective (Fig. 4).

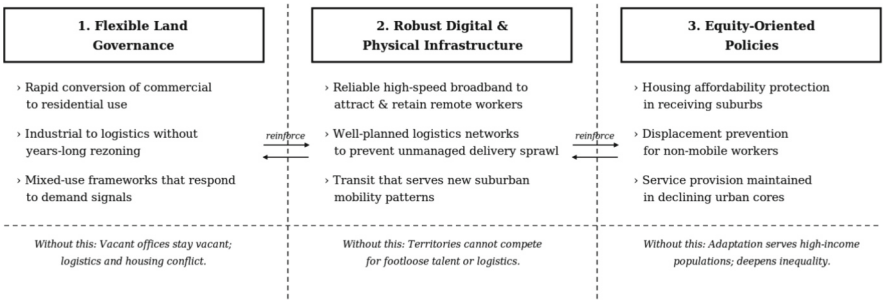

Fig. 4. Three conditions for territorial resilience

Three enabling conditions consistently distinguish more resilient territories across the evidence base. Flexible, mixed-use land governance that allows adaptive reuse [11] is the first: the ability to convert commercial to residential, industrial to logistics, or retail to community use in response to changing demand signals, without the years-long delays that conventional rezoning processes impose. Robust digital and physical infrastructure that enables both remote work and logistics [19] is the second: territories that lack reliable high-speed broadband cannot attract or retain remote workers, and territories that lack well-planned logistics infrastructure will experience unmanaged delivery intensification that degrades quality of life.

Equity also becomes an important condition in this context, as the distributional effects of these spatial changes cannot be ignored [9]. Without addressing housing affordability, displacement risks, and access to services for less mobile workers, adaptation strategies that mainly benefit higher-income populations may reinforce and deepen existing inequalities.

When these conditions are present together, the post-pandemic digital economy can create real opportunities for territorial transformation. Suburban areas can attract higher-value activities without necessarily losing their existing character, while city centers can shift toward more mixed uses such as leisure, culture, and services instead of relying mainly on office activities. At the same time, smaller cities and even rural areas with

good connectivity can start attracting mobile workers, which was not possible before when proximity to major employers was essential.

However, when these conditions are not present, the same dynamics tend to reinforce existing inequalities. Cities may lose part of their economic base without finding alternatives, suburban areas absorb population growth without adequate services, and lower-income populations face increasing pressure between rising costs in the areas they move to and declining opportunities in the areas they leave.

The difference between these two outcomes is not accidental, but reflects deliberate policy choices related to land governance, infrastructure investment, and the groups that territorial adaptation is intended to benefit. Resilience should not be understood as an inherent characteristic that territories either possess or lack; rather, it is shaped through institutional design, fiscal commitment, and political decisions. The analytical work of identifying the mechanisms through which spatial change generates inequality or opportunity is inseparable from the normative work of deciding whose resilience matters and what kind of territorial future is worth building toward.

This chapter is the starting point for our research work. The integrated framework established here will underpin a series of subsequent papers that examine specific aspects of this transformation in empirical depth: the effects of remote work on housing affordability and residential mobility across different urban typologies; the logistics land use implications of e-commerce growth in peri-urban areas; the adaptive reuse of vacant commercial real estate and its governance conditions; and comparative territorial resilience across regions at different levels of digital development. Each of these future papers will draw on the conceptual structure developed here, testing and refining it through empirical investigation across diverse geographical contexts. The framework is designed to be generative, not a closed system but an open analytical scaffold that successive empirical studies will populate, challenge, and revise.

The holistic perspective is not an academic preference. It is a necessity. The post-pandemic digital economy is restructuring urban and territorial space as a system. Understanding it, and building resilient responses to it, requires an equally systemic approach. Fragmented analysis produces fragmented policy, and fragmented policy produces adaptation that solves one problem while creating another. The integrated framework developed here is an attempt to provide the analytical foundation that systemic governance requires.

The dynamics described in this chapter are already reshaping cities and territories in ways that are measurable, consequential, and in many cases irreversible. They are also deeply uneven: the same forces that generate opportunity for some territories and populations create stress and exclusion for others. This raises a question that is both analytical and normative, one that drives all the empirical work that follows:

What is the future equilibrium resulting from these dynamics? And what resilience framework can make it sustainable, integrated, and equitable?

Answering this question requires understanding not just how territories absorb shocks, but how they can proactively shape the new equilibrium: determining who benefits, who is protected, what land is converted and to what use, and how the infrastructure of the digital economy is governed in the public interest.

Territorial resilience, in this context, should not be seen only as a reactive response. It is rather a way to anticipate and manage these transformations, taking into account the structural role of digitalisation, remote work, and e-commerce. The objective is to understand how institutions, investments, and policies can guide these dynamics toward more balanced, sustainable, and productive territorial outcomes. This is the perspective adopted in the following analysis.

Acknowledgments. The author has no specific funding to acknowledge.

Disclosure of Interests. The author has no competing interests to declare that are relevant to the content of this article.

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