

Collaborative Spaces: Nodes Within an Accelerated World

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Abstract

This study investigates the locational patterns and socioeconomic implications of collaborative spaces (CSs) within the Veneto region of Italy from an accelerationist perspective. Through a comprehensive analysis of the CSs distribution, infrastructural correlations, and socioeconomic contexts, this study explores the evolving role of CSs in contemporary urban landscapes. The findings reveal a nuanced picture of CSs localisation, indicating a dispersal pattern across medium- and small-sized cities, rather than concentrating solely on major urban centres. Proximity to productive and reproductive infrastructures has emerged as a consistent theme, underscoring the economic orientation of CSs within local economic systems. Furthermore, this study delves into the ambivalence of CSs, illustrating their dual role as catalysts of knowledge-based capitalism and sites of socioeconomic tensions. Despite their initial intention to foster professional communities, CSs often become enmeshed in the broader processes of economic exploitation and hegemony. By framing CSs within the context of local innovation systems, this study highlights their potential for intensifying knowledge circulation and collaboration among local actors. This study opens avenues for future research into the evolving role of CSs within innovation systems and their broader socioeconomic implications.

Keywords: Collaborative Spaces; Acceleration; Locational Patterns; Innovation Systems; Regional Analysis.

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1 Grounding Collaborative Spaces in a Changing and Accelerated World

During the last ten years, since the first study dedicated to coworking spaces (Spinuzzi, 2012), collaborative spaces (CSs), such as coworking spaces, incubators/accelerators, maker spaces, and creative hubs (e.g., Howell, 2022; Montanari et al., 2020), have emerged as crucial nodes within innovation systems. Consequently, CSs have been the subject of an increasing number of studies pertaining to a diverse pool of disciplines, including economics, geography, spatial planning, and sociology (Kraus et al., 2022). Although the concept of CS is evolving, few fundamental principles of its understanding can be recognised.

First, as the *locus* of innovation has shifted from both individuals and organisations to the local economic systems that encompass them (see Cavallo et al., 2019), and models of open innovation have emerged (Chesbrough, 2003), CSs have gained increased attention as they can favour not only physical closeness but also other forms of proximity (Mariotti & Akhavan, 2020) generating new business opportunities (Fuzi, 2015), creativity and innovation (Wijngaarden et al., 2020), sharing knowledge (Parrino, 2015), and value creation (Bouncken et al., 2020). Second, CSs have emerged as new economic actors under the influence of growing globalisation (Moriset, 2014), new ICTs and the expanding knowledge industry (Gandini, 2015), precarious employment conditions (Capdevila, 2013; Merkel, 2015), and the new forms of work-life balance required by professionals' nomadism (Orel, 2019a). In short, CSs have turned challenges within the economic system into opportunities for enhanced performance.

As a consequence of the increasing centrality of CSs in both innovation systems, urban policies and the scientific literature, an increasing number of studies have sought to understand the locational mechanisms of CSs (Avdikos & Merkel, 2020; Bednář et al., 2021; Mariotti et al., 2023).

To contribute to this debate, in this paper we adopt the accelerationist perspective (Rinaldini et al., 2021), interpreting the spread of CSs as a consequence of the processes of social and economic acceleration (Hassan, 2010; Rosa, 2013).

The paper is organised as follows: first, we illustrate the state-of-the-art and research questions by focusing on recent literature dedicated to the relationship between CSs and space and situating them within the context of the knowledge economy. Subsequently, we present our research design (Section 3) and main findings (Section 4). Finally, we discuss the results and provide suggestions for future research.

2 Collaborative Spaces and “Space”: The State of the Art and Research Hypotheses

CSs are widely understood as “third spaces” (Waters-Lynch et al., 2016; Larson, 2020; Akhavan, 2021) that can satisfy an individual's needs for affordability, flexibility, and autonomy (Brown, 2017). While providing a work environment characterised by collaborative peer relationships, CSs are considered to be “an attempt by an increasing urban precariat (creative) workforce to reclaim urban spaces” (Brown, 2017, p. 116). Accordingly, in the literature, we recognise the presence of two intertwined but polarised bodies of interpretation. On the one hand, CSs have been “compared to a *community*” (Ivaldi et al., 2020) by giving primary importance to social interactions, to the creation of a sense of community (Fuzi et al., 2015; Gerdenitsch et al., 2016; Garrett et al., 2017) and the construction of networks and relations based on collaboration and knowledge sharing (Capdevila, 2014; Clifton et al., 2016). On the other hand, CSs are understood as a physical expression of a neoliberal culture of work (Gandini & Cossu, 2021)

and as infrastructures that both reproduce and mitigate the “effects of flexploitation, albeit in a manner that tends to deepen neoliberal subjectification” (de Peuter et al., 2017, p. 701), thus delineating coworkers as “double-sided economic subjects” (Gandini, 2015). What these two strands of literature have in common is how they frame CSs as physical spaces.

In this study, we consider CSs as social constructs intertwined with both indoor and outdoor spaces. Indeed, this essay focuses on a recent approach centred on examining the relationship between CSs and territory (e.g., Coll-Martínez & Méndez-Ortega, 2020; Dierwechter, 2021; Durante & Turvani, 2018; Mariotti et al., 2015, 2017 & 2021; Moriset, 2014; Pacchi, 2015; Usai, 2019).

2.1 Localisation That Chases

Moriset (2014) recognised a correlation between the presence of CS and creative industry districts in urban contexts. Conversely, Leducq and Demazière (2021) highlight how this interpretation has been recently problematised by Moriset himself (2017) and other authors (Besson, 2017), following the “witnessing of a dual progressive expansion of CSs, at global and regional levels, and from the centre to the periphery” (Leducq & Demazière, 2021, p. 133). However, this understanding does not weaken the interpretation of the phenomenon as predominantly urban on the supra-local scale.¹ These authors recognise the presence of several exceptions to the urban vocation of CSs, the reasons for which have been explored by Felton et al. (2010) regarding creative industries. The CS concentration-rarefaction dynamics can indeed undergo significant deviations from being located solely in the so-called *creative cities* or, in general, in urban contexts. On this premise, the CSs have been identified as “neo-corporate” model of a flexible and hybrid way of working, which eludes from being positioned in appealing areas, exploring periphery and disadvantaged areas (Gandini & Cossu, 2021; Fuzi, 2015). Bandinelli (2020), in fact, highlights the role of CSs as the re-territorialisation of “the professional lives of individualised workers, enabling bodies of socialisation” (Bandinelli, 2020, p. 6). Considering CSs as forms of “neo-corporate” model is specifically related to the role community and social interactions could have in producing and enhancing activities able to be competitive in the market (Bandinelli & Gandini, 2019). This perspective reduces the role of localisation as marginal, supporting “community” as a device that is instrumental within the market (Gandini & Cossu, 2021). These diverse perspectives share the notion that CSs are chasing new geographies of cognitive and creative work.

2.2 Localisation that Reconciles

Recent studies have underlined the significance of CS spaces’ localisation; not only it is related to businesses and creative industries, but also to temporary work-life spaces (Cochis et al., 2020). It should also be noted that the post-pandemic situation has challenged ordinary and traditional ways of working, supporting more hybrid and flexible ways of doing so (Rodríguez-Modroño, 2021). Accordingly, the utilisation of CSs has started to be associated with work-life balance. This flexibility in space, as well as in terms of time (see Hill et al., 2001), has been considered crucial for individuals’ balance between work and life (Thompson, 2018; Orel, 2019a). This tendency is important for two reasons. On the one hand, the flexibility of the localisation of spaces enhances and improves socialisation and creativity. On the other hand, for certain

1. See Stam & van de Vrande (2017) for the Netherlands; Krauss et al. (2018) for the French and German case; and Mariotti et al. (2021) for the Italian case.

categories of workers, it is essential to balance work with family management and conflict (Oldenkamp et al., 2018). In the first case, in a recent study on “digital nomads” by Orel (2019a), one of the primary focuses is comprehending individuals’ behaviour related to the localisation of CSs. It emerges that “digital nomads” (but it could be applied to freelancers, more in general) are more likely to choose spaces where the work and leisure facilities enable them “to freely practice the modern nomadism” (Orel, 2019a, p. 6), including their willingness to enhance their “quality of life” or their “leisure-oriented” lifestyle (Orel, 2019a). In the second case, CSs are spaces where the relationships, both personal and those pertaining to “work-home” dynamics, are balanced. CSs establish boundaries, allowing for stabilisation and differentiation between domestic and familial matters, and those specifically related to work (Orel, 2019b). It has been noted that working from home, in contrast to working in CSs, is more time-consuming and less effective (especially when considering gender aspects, see Rodríguez-Modroño, 2021).

2.3 Localisation that Intermediates

CSs are increasingly seen as intermediaries that encourage and foster innovation (Wijngaarden et al., 2020). Indeed, in recent decades, territorial aspects have become integral to innovation processes (Sassen, 2000), involving specific knowledge, know-how, and practices crucial for effective innovation (Ramella, 2015). Additionally, a territory may promote innovation through specific relational dynamics, proximity, and the co-location of multiple actors, which facilitates coordination, collaboration, and the circulation and cross-fertilisation of knowledge (Bathelt et al., 2004; Capello & Faggian, 2005). Proximity is encouraged by mobilising “physical nodes” within the local innovation system.²

Presently, the significant physical nodes appear to be CSs (Capdevila, 2015; Mariotti & Akhavan, 2020). CSs have been increasingly considered as “middlegrounds” (Capdevila, 2015) that actively foster collaboration among actors operating in the local economic system by increasing opportunities to meet, share, and collaborate through three main forms of action: hosting, producing, and brokering (Rodighiero et al., 2024). Traditionally, the concept of innovation has been viewed as inherently closed (Lichtenthaler, 2011). Operations primarily occur within the controlled boundaries of individual actors, and research and development (R&D) is typically confined to secretive in-house laboratories, safeguarding knowledge from external influences (Borghys et al., 2020). In recent years, open innovation models have emerged (Chesbrough, 2003), with many entities shifting from a “silo mentality” that encloses and protects knowledge to a more open approach involving increased distribution, sharing, and democratisation of innovation (Baldwin & von Hippel, 2011; Lorne, 2019). Open innovation models extend beyond the corporate perspective, highlighting the importance of a user-centric and community-oriented approach that places the local community and its needs at the forefront of innovation pursuits (Borghys et al., 2020; Carayannis & Campbell, 2009).

2.4 Research Hypotheses and Questions

The three strands of literature presented above explicate the fundamental dimensions underlying the choices of CS localisation in a knowledge economy context, where productive and reproductive work increasingly overlap, and proximity represents a key factor of innovation.

2. Historically, in business agglomerations such as Italian districts (Becattini et al., 2014), Silicon Valley, or Route 128 (Saxenian, 1994), these nodes primarily consisted of universities, training centres, or corporate and district museums, aiming to encourage knowledge and trust circulation, functioning as knowledge integrators (Buciuni & Pisano, 2018).

By strategically leveraging proximity in various forms, organisations can create an environment conducive to the seamless flow of knowledge, foster innovation, and enhance their overall competitiveness. The activation and integration of both inbound and outbound knowledge and other resource flows are often pivotal for companies and institutions aiming to sustain long-term innovation initiatives. In fact, while incorporating external elements through inbound flows (“from the outside-in”), they can enhance an organisation’s knowledge base by assimilating inputs from suppliers, customers, citizens, or external resources. Meanwhile, outbound flows (“from the inside-out”) can enable companies and institutions to maximise profits by externalising internally developed ideas, intellectual property, technology, or resources, rather than keeping them internal. This underscores the significance of organisations gathering, merging, and leveraging inputs from both internal and external realms (e.g., Lichtenthaler, 2011).

In this context, where knowledge acts as both an input and output in the form of innovation in the production process, facilitated by sharing and collaboration, we anticipate CSs to be consistently located near productive and reproductive infrastructures.³ This proximity enables them to facilitate the circulation of knowledge, which, by its nature, tends to increase if utilised more frequently and fosters innovation.

Based on these assumptions, this study questions the data to grasp “where are CSs located”? How close are they to the productive and reproductive infrastructure?

3 Research Design: Scale, Data, and Methodology

In the following three sections, we outline the research design and describe how data were generated.

3.1 The Regional Scale for Investigating Collaborative Space Location Patterns

Two of the most well-known online maps of coworking spaces, namely Coworker⁴ and the Global Coworking Map,⁵ illustrate the global spread of the phenomenon across continents with a strong relationship to levels of economic development, wherein CSs are concentrated in the economically most developed countries. However, the great variability in CS locations poses a challenge for comprehending the phenomenon, as there is no explicit correlation between CSs and their contexts. Some CSs are situated in economically underdeveloped rural contexts, while others are in large, highly tertiary international cities and medium-sized cities with moderately developed manufacturing economies. This list is almost endless. Similarly, seeking a counterfactual sample is quasi-impossible.

Following Felton et al. (2010) line of thought, we believe that the regional level is ideal for investigating location patterns in relation to local economic models. Only a few studies have explored the issue of CS localisations at this territorial level.

Several studies have examined the phenomenon on a local scale, while few others have deliberately decided to concentrate their attention on a supra-local scale to investigate extra-urban

3. Productive infrastructures include businesses and local innovation systems, which comprise businesses, institutions, universities, and civil society. Reproductive infrastructure includes services and activities related to caring for others, especially weaker groups such as children and the elderly. It also includes services for self-care, such as hospitals, gyms, and other activities and services necessary for daily life. Additionally, reproductive infrastructure encompasses religious buildings intended as facilities for the care of souls.

4. <https://www.coworker.com/map>

5. <https://coworkingmap.org/api/>

contexts. In this regard, Krauss et al. (2018), focusing their attention on CSs' presence in small and medium-sized cities of France and Germany between 2016 and 2017, have found that among the forms of proximity with the greatest impact in terms of localisation, there is the so-called electronic proximity (Clifton, 2022), which is able to compensate for a lower geographical proximity. Felton et al. (2010), analysing the suburban and extra-urban areas near Melbourne and Brisbane (Australia) have reached a similar conclusion by attributing the creative industry's variance from urban centres to the increase in technological and electronic proximity. Similarly, Fuzi (2015), while validating the predominantly urban character of the phenomenon, has directed her attention towards marginal areas and smaller centres in the South Wales area and has concluded that in areas characterised by a weaker entrepreneurial ecosystem, CSs can positively impact social isolation by promoting encounters and collaborations. Likewise, Mariotti et al. (2023) focused their research on the location patterns of CCs in pole and non-pole areas to understand CSs' role and indirect effects on the urban context (Mariotti et al., 2021). The authors have once again confirmed the urban vocation of the phenomenon and called for tailored policies to foster the rise of CSs in peripheral locations.

Nevertheless, there are recent exceptions: Dierwechter (2021) examines the case of the Seattle city region, where he states that "coworking across the city-region reinforces core-area economic advantages"; Leducq & Ananian (2019), Leducq et al. (2019) and Leducq & Demaziere (2021) studied the localisation patterns in the Loire Valley, realising that in more recent times, there has been a gradual extension of coworking throughout the region, particularly in areas suffering from deindustrialisation and seeking a new economic vocation.

We believe that focusing on the scantily investigated regional level can open interesting lines of research regarding mid-territories that are either urban or rural, vast cities, or inner areas. As will be further explained in the methodological paragraph, the Veneto — a region in the North-east of Italy characterised by a spatial phenomenon of great dispersion and non-concentration of human settlements — was chosen as a case study to investigate CS location patterns within the urban-rural continuum.

3.2 Data Setting

To examine the relationship between the locations and functions of CSs, we opted for the nested methodology (Lieberman, 2005) outlined in the following section. This approach was applied to a (regional) case study (Yin, 2009), focusing on the Veneto region. The selection of the Veneto was based on several key factors, as highlighted by Romeo et al. (2024). First, it is characterised as an economically dynamic region without high levels of development in the advanced tertiary sector (Da Roit & Iannuzzi, 2023), which helps mitigate the overinfluence of tertiarisation processes on the labour market. Second, Veneto transcends traditional urban/non-urban dualism, favouring a dispersed anthropised system (Fregolent & Vettoretto, 2017), reducing the overinfluence of urban development. Third, it stands out among the Italian regions alongside Lombardy and Emilia Romagna, where the CS phenomenon is prevalent and has been previously explored by researchers (Busacca et al., 2022). By adopting a regional scale, we can explore diverse contexts and identify both convergences and contrasts among them.

3.3 Methodology

Data were collected and analysed (Step 1) by an interdisciplinary group⁶ of eight researchers who collaborated from February 2020 to October 2021. During this initial phase, they collected data through online desk research, updating a previous map created by a group of students at the University of Bologna, and contacting networks and associations of CSs. Between October and December 2020, a full set of questions⁷ was developed, and during the following months, an online questionnaire was submitted to all CS managers. Those who did not respond to the questionnaire underwent phone interviews.

Then (Step 2), from April to October 2021, each member of the group developed a line of analysis specific to their scientific disciplinary fields. We collected data about the specific locations of CSs (both active and recently closed) using QGIS software and classified CSs based on two spatial dimensions, considered useful in understanding the context: the position on the rural-urban spectrum and the morphological tissue. From a methodological standpoint, each CSs was assigned an indicator based on the analysis of aerial images. This process was iterated three times to ensure the robustness of the analysis. Subsequently, the data were cross-referenced with land-use information from Corine Land Cover (2018) to enhance the reliability of the findings. The identified categories include urban areas (comprising historical centres, continuous and discontinuous urban tissues), urban periphery (characterised by a predominance of industrial and commercial zones), periruban areas (smaller centres with nearly continuous built environments connected to the nearest city), and rururban areas (scattered and diffuse urbanisation within the rural landscape resulting from rapid growth in the Region during the 1980s). The morphological tissue was investigated with the same procedure, and the several categories were identified: residential, industrial, commercial, educational, agricultural, historical (Ville Venete), and mixed (mixed residential-commercial; commercial-industrial etc.). The CSs were then analysed in relation to a set of data available at the municipality scale, such as population density and incidence of industrial surfaces within the municipality. This phase allowed for a deeper understanding of the CS location patterns within regional boundaries and their distribution beyond the urban context.

The final phase (Step 3) unfolded from June 2023 to November 2023. The aim was to enhance comprehension of the immediate context surrounding CSs and highlight the correlation between the presence of productive infrastructure (e.g., industries, firms, offices) and reproductive infrastructure (facilities supporting the reconciliation of work and life times, such as kindergartens and nursing homes). According to Mariotti et al. (2022), our analysis was deliberately confined to areas accessible within a 15-minute car journey from each CS, a choice related to the high dependency on individual transport that characterises the Veneto Region

6. Two were urban sociologists, two were work and organisational psychologists, three were economic sociologists, and one was an organisational scholar.

7. The questions asked were related to the physical space, such as dimensions in square meters, type of building (warehouse, industrial building, apartment, independent building etc.), as well as previous use of the building and the right of possession (lease, ownership, gratuitous loan for use). Other questions were related to the services offered, both in terms of number of desks available, number of offices available, equipment available (hardware and software), type of ambiances (such as open spaces, private offices, open air spaces like gardens or terraces) and presence of other internal spaces (kitchen, relax area, waiting room etc.). A following set of questions was related to the presence of spaces and activities for the public during or after the working hours. Additionally, it was investigated whether the CSs were economically sustainable by asking if any public or private financial contributions were received, and if the Covid-19 pandemic influenced their budget and expenditures (by comparing 2019 and 2020).

(Figures 1a and 1b).⁸

Using QGIS enabled us to display isochrones in the Veneto territory, with a specific focus on their coverage, the distribution divided by provinces, and the patterns of development. To better understand the “urban materials”, we integrated these data with OpenStreet Maps information about key elements that can contribute to understanding CS locations (e.g., productive infrastructures⁹ and social reproductive infrastructures, namely facilities supporting the reconciliation of work and life times¹⁰). Subsequently, we created two different datasets: one for the considered ‘business activities’ and the other for the considered “leisure and reconciliation activities”. In addition, we considered infrastructure and its density within the isochrones. To facilitate the analysis and compare the different CSs, their locations, and their specific features, we divided them into quantile categories (with five subsection divisions, from very low to very high) to understand the relationship between the density of economic infrastructures and the density of facilities supporting the reconciliation of work and lifetimes.

8. As previously outlined (in section 3.1), the Veneto central plain is characterised by a unique form of urbanisation referred to as a “dispersed city” due to the widespread distribution of its built settlements. Fregolent & Tonin (2016) have highlighted the repercussions of this regional characteristic on the transportation system, resulting in an upsurge in private car usage and subsequent environmental impacts. Data indicate that in Veneto, daily commuting for study and work predominantly relies on motorised transportation, with 85% utilising private vehicles and a minimal 5.9% opting for public transportation. Consequently, our focus has been directed towards areas accessible within a 15-minute car journey.
9. To identify the so-called economic productive infrastructures we used OpenStreetMap dataset merging two types of data: the physical features on the ground (<https://wiki.openstreetmap.org/wiki/Features>) and the tags attributed to them through the free tagging system (https://wiki.openstreetmap.org/wiki/Map_features). In terms of physical features, we selected all buildings identified as industrial, commercial and retail; transformed them into centroids; counted the number of centroids for the isochrone maps of each CSs. In terms of tags we selected all nodes identified as “craft: places that produce or process customised goods” (for details see <https://wiki.openstreetmap.org/wiki/Key:craft>); all nodes identified as “office: place of business where administrative or professional work is carried out” (for details see https://wiki.openstreetmap.org/wiki/Map_features#Office); all nodes identified as “shops: place of business that has stocked goods for sale or sells services” (for details see <https://wiki.openstreetmap.org/wiki/Key:shop>).
10. Similarly, to identify the reproductive infrastructures facilities that support reconciliation of work and life times we used OpenStreetMap dataset merging two types of data: the physical features on the ground (<https://wiki.openstreetmap.org/wiki/Features>) and the tags attributed to them through the free tagging system (https://wiki.openstreetmap.org/wiki/Map_features). In terms of physical features, we selected all buildings identified as: abbey; administrative building; art gallery; bank; basilica; chapel; church; cinema; civic building; government building; gym; hospital; kindergarten; library; town hall; museum; oratory; public building; public office; restaurant; school; socio-cultural association; service; shop; sport facility; sport centre; sport hall; stadium; supermarket; swimming pool; synagogue; theatre; temple. We also searched for nursing homes and social facilities; however, they are not tagged within the given territory. In terms of tags, we selected several nodes part of the category called “amenities: useful and important facilities for visitors and residents” (for details see: <https://wiki.openstreetmap.org/wiki/Key:amenity>). Specifically, we selected: bar; café; cinema; restaurant; bank; arts centre; events venue; exhibition centre; theatre; market place; leisure — fitness centre.

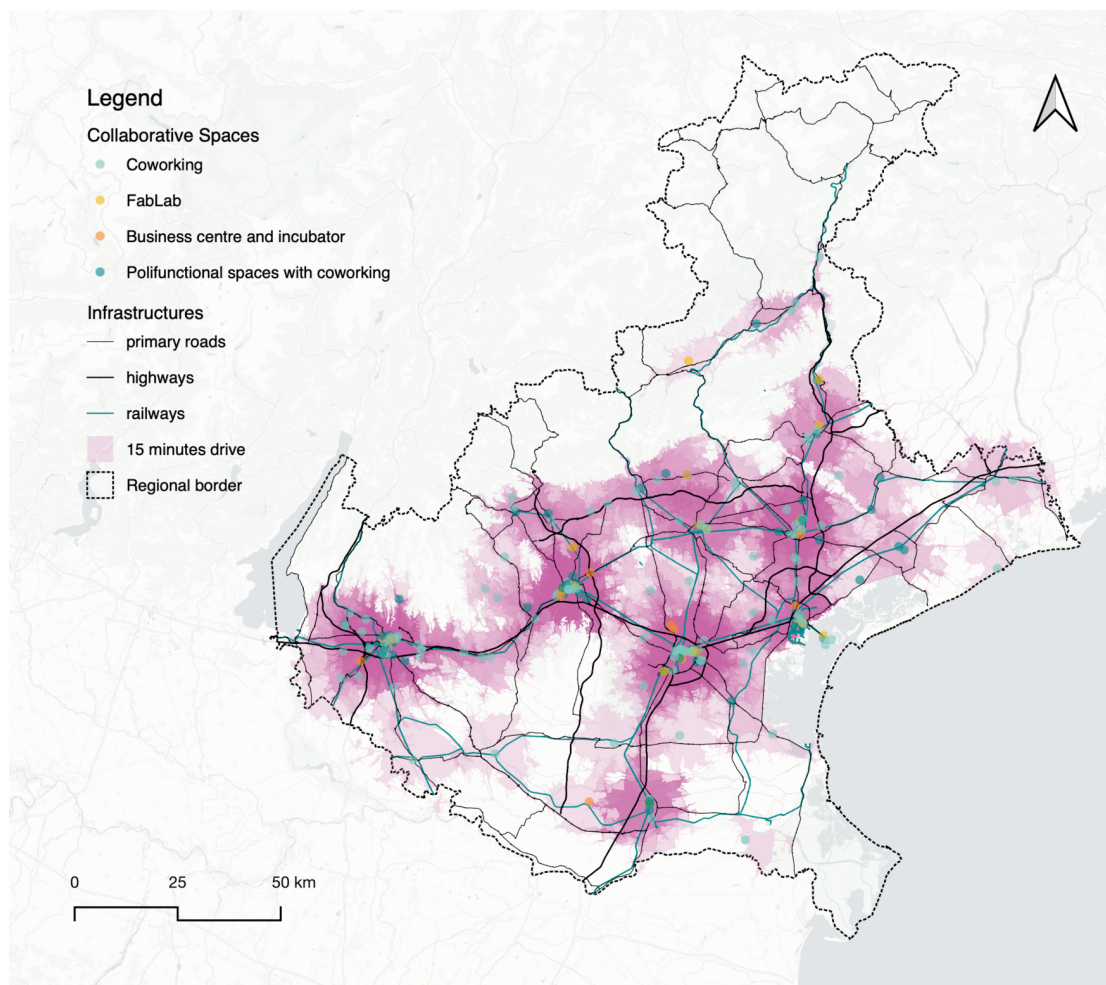


Figure 1.a CSs localisation related isochrone territories, transport infrastructures

The map displays the location of CSs divided by type (coworking spaces, polyfunctional spaces with coworking, business centres and incubators, and FabLabs), the coverage and concentration of the isochronous territory of each CSs, and the main regional infrastructure.

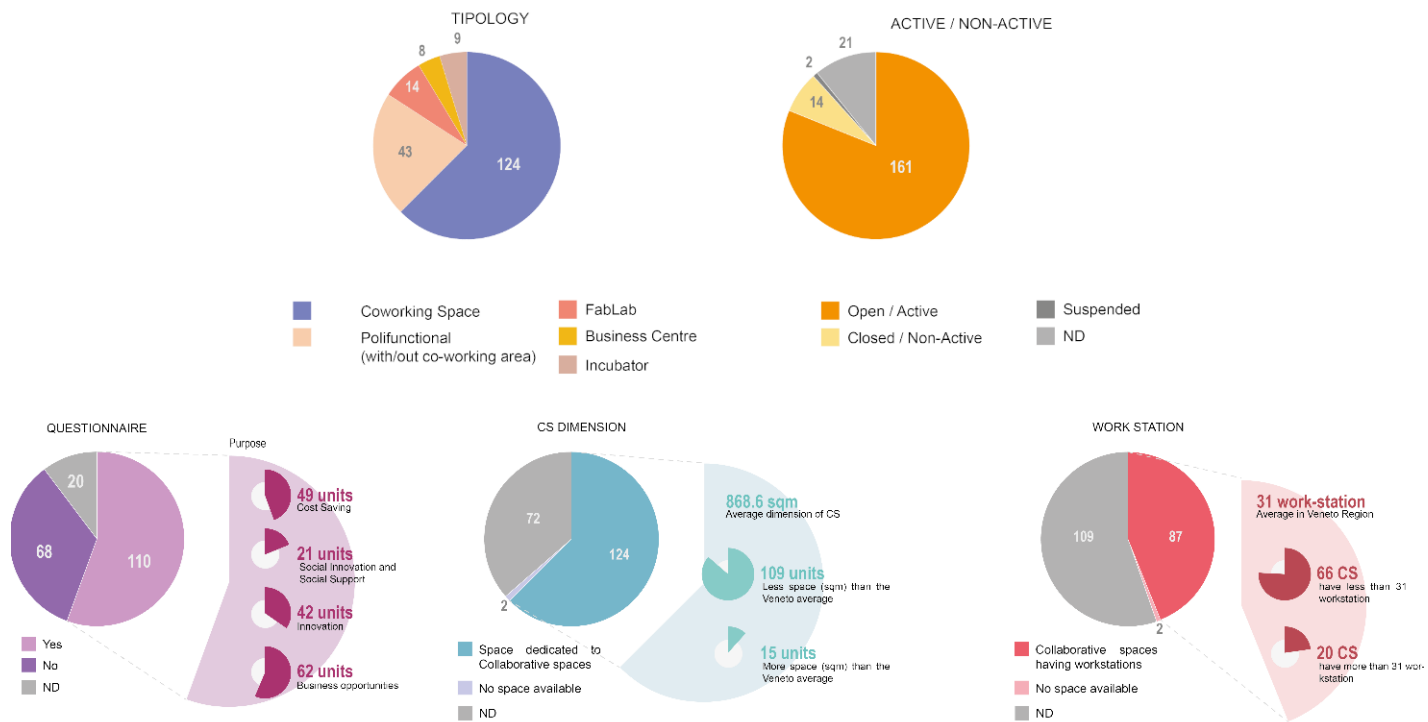


Figure 1.b Main characteristics of mapped CSs

The graphs provide a detailed analysis at the minimum unit level; the CS is useful for understanding the diversity of the CSs ecosystem and the correlations between each CS's vocation (business or social orientation) and location.

4 Results

Following the assumptions presented in Section 2.4, we present the results of the data elaboration described in Section 3.2.

4.1 Distributed Community Spaces Within the “Città Diffusa”

In the initial research phase, we identified 198 CSs primarily concentrated in the central Veneto Region, with fewer in the mountainous and coastal areas. To correlate the CS distribution with territorial features, we collected data from 110 (active) CSs using questionnaires (Figure 1.b). Most CSs are small-scale, except for hubs and business centres. The analysis revealed diverse objectives, with 84.6% of respondents focusing on business (56.4%), innovation (38.2%), and 63.6% on economic savings (44.5%), and social support (19.1%).

The second research phase showed a mismatch between CS distribution and provincial population (Table 1). For example, provinces with larger populations such as Venice have fewer CSs, whereas others such as Treviso have fewer residents.

Table 1. Distribution of CSs by inhabitants

Provinces	Veneto	BL	PD	RO	TV	VE	VR	VI
Inhabitants ¹¹	4857210	210001	921361	242349	876790	846962	900542	859205
Total area	18337,021	3607,595	2143,278	1818,898	2477,95	2470,398	2722,099	3096,803
Total area covered by isochrones	8811,049	350,878	1742,636	494,911	1869,079	1186,659	1636,321	1347,518
% area covered by isochrones	48%	10%	81%	27%	75%	48%	60%	44%
Number of CS	198	5	38	9	49	22	39	42
Density CS per isochrones	–	0,0142	0,0218	0,0182	0,0230	0,0185	0,0238	0,0312
Number of inhabitants per CS	24531,363	42000,2	24246,342	26927,666	17893,673	38498,272	23090,820	20457,261

Table 2. Distribution of CSs by municipalities' size

Inhabitants range	Total inhabitants	Number of CS	Inhabitants per CS	Number of Municipalities
Less than 500	0	0		0
500 – 999	0	0		0
1.000 – 1.999	0	0		0
2.000 – 2.999	2.320	1	2320	1
3.000 – 4.999	3.385	1	3385	1
5.000 – 9.999	120840	18	6713	17
10.000 – 19.999	385.530	37	10420	29
20.000 – 59.999	731.985	51	14353	25
60.000 – 99.999	85235	8	10654	1
100.000 – 249.999	319.830	47	6805	2
250.000 – 499.999	518.545	35	14816	2
500.000 and more	0	0	0	0

11. Istat, 2011.

Table 3. Distribution of CSs by isochrone territories

Provinces	Veneto	BL	PD	RO	TV	VE	VR	VI
Total area (sqkm)	18.337,021	3.607,595	2.143,278	1.818,898	2.477,950	2.470,398	2.722,099	3.096,803
Total area covered by isochrones (sqkm)	8.811,049	350,878	1.742,636	494,911	1.869,079	1.186,659	1.636,321	1.347,518
% area covered by isochrones	48%	10%	81%	27%	75%	48%	60%	44%
Number of CS	198	5	38	9	49	22	39	42
Density CS per isochrones	–	0,0142	0,0218	0,0182	0,023	0,0185	0,0238	0,0312

Narrowing the analysis of municipality size and the presence of CSs revealed a positive relationship between resident dispersion and the presence of CSs (Table 2). Most CSs are in small-to-medium municipalities, with only a small proportion in large cities such as Padua and Verona.

Geolocalisation analysis conducted at the second and third levels revealed a significant concentration of CSs in urban areas across the main cities of Veneto. Nevertheless, notable CS presence extends beyond these urban centres, particularly in industrialised connecting regions such as the “Pedemontana veneta” near Bassano del Grappa and the Conegliano-Vittorio Veneto area (known as the Prosecco Valley in the Treviso province). Despite not serving as a provincial capital, these areas exhibit signs of strong industrialisation and anthropisation, characterised by the widespread presence of small businesses operating in various sectors and territories and acting as connecting areas between highly industrialised regions, such as Treviso, Padua, and Vicenza.

Furthermore, the analysis indicates that isochronous territories encompass 45% of the entire regional territory, including mountainous regions. This percentage was even higher in low-land areas. Specifically, some provinces demonstrated an isochrone coverage ranging from 60 to 80%, as detailed in Table 3.

Visual analysis (Figure 1.a) revealed many CSs near road intersections and railways, indicating enhanced transport possibilities. Most Veneto speedway tolls are within 15 min of driving from CSs, as are train stations, except in less developed areas, such as the Delta Valley and mountainous regions below Belluno. The CSs are strategically located to access long-range circulation lines.

4.2 Productive Infrastructures

The third phase provides an understanding of the territorial context in which CSs are situated. The investigation explored the presence of productive infrastructure, which might influence the localisation patterns of CSs, by integrating census data and data specifically produced, as outlined in Table 4.

The parallel analysis of census data and the productive economic system surrounding each CS highlights that most CSs are located in provinces with a high incidence of productive infrastructure, exceeding the regional average (see Table 5). This strong correlation between the presence of industrial activities and CSs was also demonstrated by the number of industrial buildings (Table 5). The isochrones showed a widespread presence of industrial activities near CSs, with an average density of 14 buildings per kilometre and a standard deviation of 5.5, thus having a low level of variability.

Table 4. Ratio of CSs to firms and workers by province
Data extracted the 20 of December 2023 from Istat (dati.istat.it) – data year 2011

Province	Active firms	Workers	Number of workers per firm (average)	Number of CS	% area covered by isochrones	Density CS per isochrones
Veneto	403169	1642359	4,073624	198	48%	–
Belluno	14971	63523	4,24307	5	10%	0,0142
Padua	84031	329401	3,919994	38	81%	0,0218
Rovigo	19915	63884	3,207833	9	27%	0,0182
Treviso	71734	291967	4,070134	49	75%	0,0230
Venice	66127	257504	3,894083	22	48%	0,0185
Verona	75408	320553	4,250915	39	60%	0,0238
Vicenza	70983	315527	4,445107	42	44%	0,0312

Table 5. Ratio of CSs to industrial, crafts, offices, and shops

	Average	Median	Standard deviation
Industrial buildings	14,32471574	13,914	5,486242272
Crafts	0,08123350254	0,067	0,06572077836
Offices	0,3004568528	0,237	0,2033465284
Shops	3,184903553	2,559	2,282929247

Moreover, the visual analysis (Figure 2) illustrates that the number of CSs tends to increase with the greater presence of industries. There is almost a perfect overlap between the territory covered by isochrones (black-hatched area) and high industrial presence (light blue areas), with a weaker correlation with the presence of shops, and an even weaker correlation with craft production sites (except for CSs located in dense urban areas and along the Valle del Piave in Belluno province). This phenomenon becomes more evident in the “Pedemontana veneta” area and in industrial zones near Vicenza, where visual analysis indicates that CSs are located far from the main urban centres but close to industrial agglomerations.

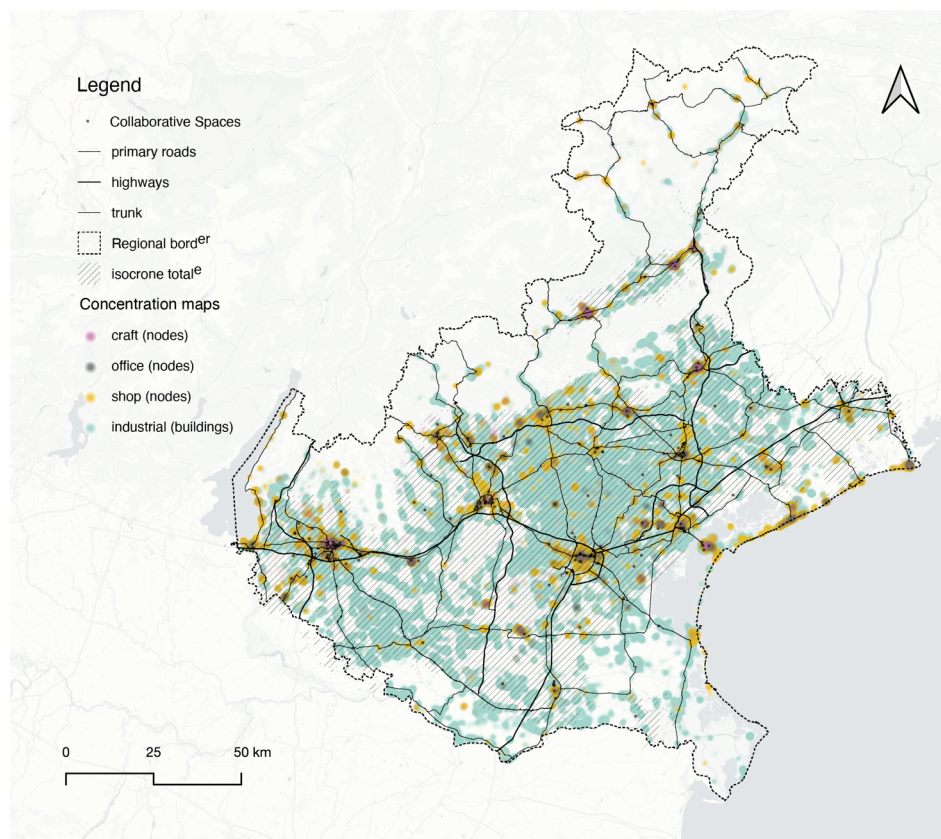


Figure 2. The distribution of productive infrastructures and CSs

The map shows the economic infrastructure (both buildings and nodes) located within the regional border and the total territory reachable from each CSs.

The presence of industrial zones serves as an attractor of CSs. Although CS isochrones cover 48% of the entire regional territory (see Table 5) and tend to be denser in provinces with the largest number of active small businesses, the number of CSs tends to be higher where the diffusion of firms is higher but is proportional to the density of CSs per isochrone. Shifting the analysis from isochrones to provincial distribution reveals that CSs are concentrated in provinces with the largest number of firms, whereas there is no relationship between CSs and firm size.

4.3 Reproductive Infrastructures: Life Amenities for Work-life Balancing

The presence of reproductive infrastructure, which might influence the localisation patterns of CSs, was investigated through OpenStreetMap data, merging census data and data specifically produced, as outlined in Table 6.

The positioning of CSs can be significantly impacted by the accessibility of reconciliation amenities and facilities, considering their pivotal role in promoting improved work-life balance. The visual analysis presented in Figure 3 highlights that retail outlets and other consumption venues are broadly dispersed, with a pronounced concentration within urban centres and along major transportation arteries. Additionally, there is notable clustering of such amenities along the coastline, extending from Venice towards the northern border of the region. Most CSs are situated in areas with a significant concentration of these services or in those that are close to

Main dimensions	Sub-dimensions	Data source	Elaborations	Aims
Productive infrastructures	Industrial, commercial, and retail (buildings)	OpenStreetMap dataset – physical features on the ground (https://wiki.openstreetmap.org/)	By using Qgis all buildings identified as Industrial, commercial etc etc that fall within the 15 minutes drive territory of each CS were counted and localized, resulting in a productive infrastructures dataset (excel) and a map of the productive infrastructures (Figure 3)	Understanding the density of productive buildings in the CSs immediate vicinity to identify whether or not the presence of such facilities influences CSs location patterns. Those buildings were mapped because they supposedly host many of the firms that potentially are or can become CSs' clients.
	Offices (nodes), Shops (nodes), Craft production sites (nodes)	OpenStreetMap dataset – tags attributed to physical features through the free tagging system* (https://wiki.openstreetmap.org/)		

Table 6. Data structure for productive infrastructures

them. Only five CSs were located in regions with relatively limited consumption spaces, three of which are positioned near the delta area and one along the northern coast of Venice. When examining administrative services, we did not observe a clear correlation with the localisation patterns of CSs. Administrative services tend to be concentrated in major cities such as Padua, Verona, and Vicenza, serving multiple CSs in these urban centres. However, in less urbanised areas, there was no apparent clustering of CSs around the administrative service locations.

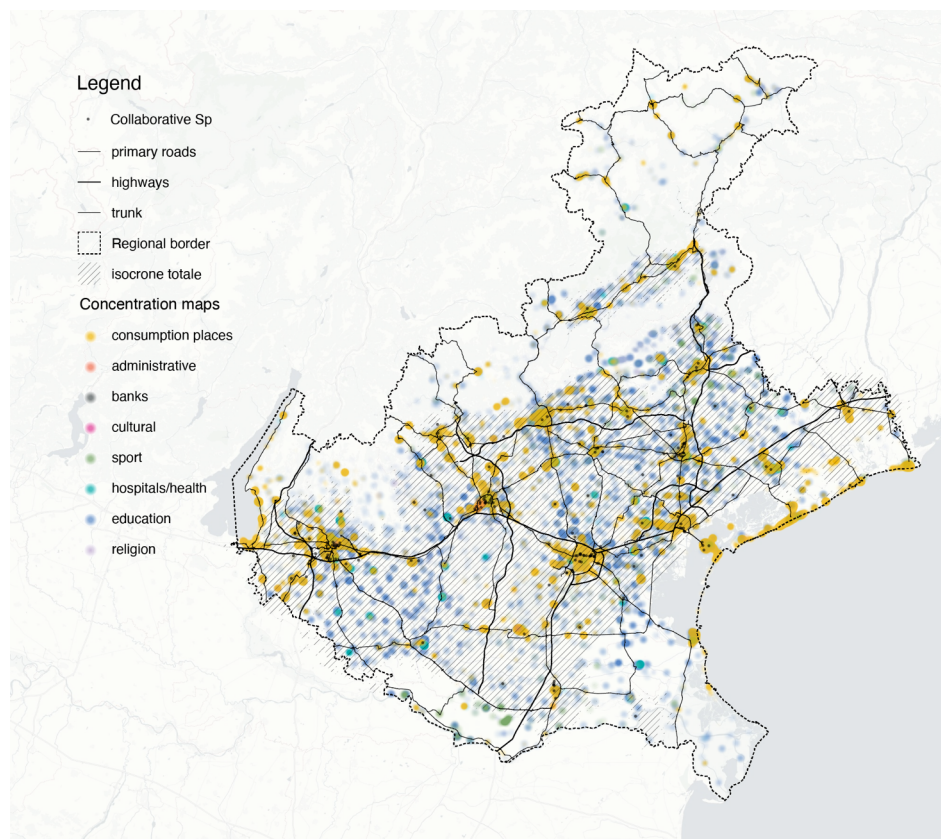


Figure 3. The distribution of reproductive infrastructures and CSs

The map illustrates the reconciliation infrastructure (both buildings and nodes) located within the regional border and the total territory reachable from each CSs.

The visual analysis, as depicted in Figure 3, emphasises that the availability of cultural facilities is significantly limited outside the most densely populated cities. Consequently, we assert that cultural facilities have a relatively low impact on CS localisation patterns. However, contrarily, it appears that educational services may not strongly influence the presence of CSs either. This is because a substantial number of educational facilities are distributed broadly across the entire region, confirming the dispersed settlement layout in Veneto. In contrast, health-related facilities are less widespread, with their presence primarily concentrated in major cities, along key infrastructure routes, and even in remote regions. This distribution aligned with the overarching principle of ensuring equal access to essential services.

4.4 CSs Dispersion Within “Città Diffusa”

More specifically (refer to Figure 4), the analysis revealed that urban peripheries represent privileged location, accounting for 28,5% of the region’s CSs, followed by the central urban area (23,6%), rururban context (21,8%), and peri-urban one (17,0%). In terms of morphologies within each of these clusters, CSs are located in industrial, residential, and commercial tissues in alignment with the specific territorial context that hosts them (i.e. higher industrial locations in peripheral and peri-urban areas, and higher residential locations in central urban areas). Within this framework, what appears of foremost interest is the rural context, where CSs are

Main dimensions	Sub-dimensions	Data source	Elaborations	Aims
Reproductive infrastructures	Industrial, commercial, and retail (buildings)	OpenStreetMap dataset – psysical features on the ground (https:// wiki.openstreetmap.org/	By using Qgis all buildings identified as Industrial, commercial etc etc that fall within the 15 minutes drive territory of each CSswere counted and localized, resulting in a productive infrastructures dataset (excel) and a map of the productive infrastructures (Figure 3)	Understanding the density of productive buildings in the CSs immediate vicinity to identify wather or not the presence of such facilities influences CSs location patterns. Those buildings were mapped because they supposedly host many of the firms that potentially are or can become CSs' clients.
	Offices (nodes), Shops (nodes), Craft production sites (nodes)	OpenStreetMap dataset – tags attributed to physical features through the free tagging system* (https:// wiki.openstreetmap.org/		

Table 7. Data structure for reproductive infrastructures

mainly located (63.9%), within the sparse residential contexts that characterise the widespread urbanisation that has historically shaped Veneto’s landscape.

This schema also indicates that the streamlined concept of proximity and central area positioning was confirmed, although some interesting data in peri-urban and rural areas emerged from this localisation analysis. As presented in Figure 2, the Veneto Region can be considered “*città diffusa*”, which is also partially confirmed by the analysis of the isochrone. This strengthens the high number of CSs in territories that are frequently considered peripheral, as they are located in areas that, even if not central, are well-connected to businesses and amenities, confirming one of our assumptions.

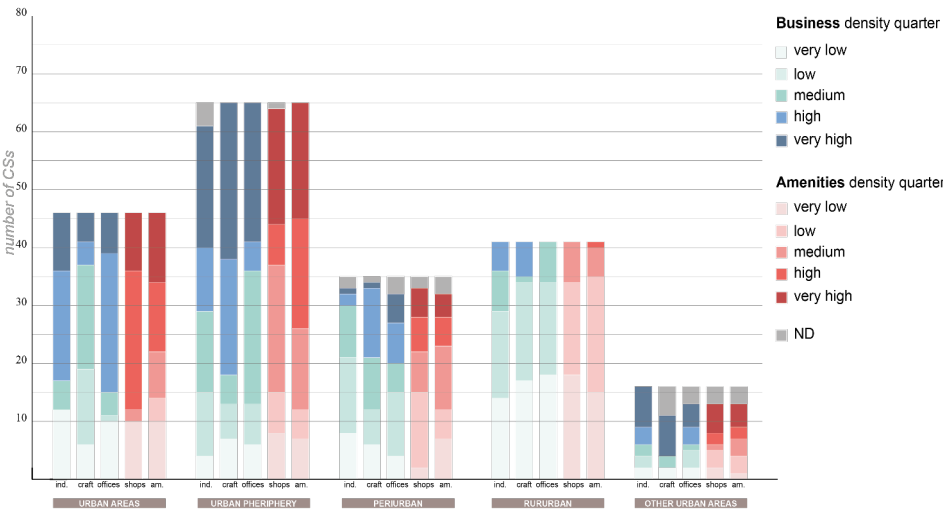


Figure 4. Subdivision of the density of activities (productive and reproductive) in quarters

5 Discussion

Although the study presents the results of a descriptive analysis that is informative regarding research questions for which the adoption of a qualitative methodology proves decisive, it nevertheless allows for the identification and problematisation of certain issues and related interpretative hypothesis that could be explored in future research. In this section, after summarising the main findings, we present the main interpretative hypotheses that we consider able to explain the phenomenon.

In Section 4, three main elements emerge that must be considered. First, CSs are not distributed *only* in major cities but also in medium- and small-sized cities (Section 4.1). They are also prevalent near the main communication routes and intersections. Second, the location of CSs almost always follows the distribution of productive activities (Section 4.2), showing a positive correlation in areas with a higher inclination towards industrial diffusion (e.g., Padua and Treviso) and those that are highly industrialised (e.g., the Conegliano-Vittorio Veneto area and the Bassano-Pedemontana Veneta area). Third, CSs are located in contexts where commercial facilities are denser, highlighting the market orientation of the reconciliation functions despite the presence of public and social services (Section 4.3). Each infrastructure analysed in Section 4 emphasises the proximity of the 15 minutes, considering the CSs reachable within this time span.

In Section 2.4, we hypothesised that CSs, irrespective of the type of area (urban or rural), are located near both economic and social infrastructures. These infrastructures facilitate the development of a knowledge-based capitalism model in which knowledge is the central resource (input), collaboration is the way through which actors operate (process), and innovation is intensively pursued (output). The results presented in Section 4 quasi-fully confirm our hypotheses and are discussed from an accelerationist perspective.

Hence, we attempt to discuss how their spatial configuration can promote the circulation of knowledge, collaboration among local actors, and innovation through different interpretative hypothesis. Before doing so, we introduce two hypotheses where the influence of context on the locational pattern described prevails.

The spatial distribution of CSs in Veneto can be better understood when considering the region's distinctive institutional and economic governance model of innovation. As Messina (2020) demonstrates, the Veneto region has developed a unique form of territorial governance that differs from the metropolitan city model, favouring instead a polycentric development pattern characterised by medium-sized cities and industrial districts. This institutional arrangement has historically supported the region's economic competitiveness through a distributed network of production and innovation nodes. Our findings on CSs' distribution align with this established pattern, showing how these spaces tend to follow the region's polycentric development model rather than concentrating exclusively in major urban centres. The data showing CSs' proximity to both productive and reproductive infrastructure (as evidenced in our isochrone analysis) suggests that these spaces are embedding themselves within the region's existing social and economic fabric, rather than creating new centralised hubs. This pattern of distribution appears to reinforce Veneto's traditional model of territorial development, where innovation and economic activities are spread across a network of medium-sized urban centres, supporting what Messina describes as the region's distinctive path to competitiveness through institutional adequacy and polycentric development.

Secondly, the spatial distribution of CSs could be interpreted through the lens of servitisation processes, where manufacturing companies increasingly integrate services into their prod-

uct offerings. Our data show that CSs tend to cluster in areas with high density of both productive and retail infrastructures, with 68% of them located within a 15-minute drive from industrial districts and commercial areas. This spatial pattern suggests that CSs might be responding to the growing demand for professional services that complement manufacturing activities. The high concentration of CSs near both production and retail sites (as shown in Figure 1) indicates that these spaces could be hosting professionals who provide services integrated into the product-service systems of local manufacturers. The correlation between CS locations and the density of both productive and commercial infrastructure (shown in Tables 2 and 3) suggests that these spaces might be functioning as nodes within servitisation processes, facilitating the spatial proximity needed between service providers and manufacturing companies.

Thirdly, in terms of knowledge flow, proximity to productive and reproductive infrastructures could drive the centrality of CSs in local innovation systems, offering significant benefits to users and other actors in the community. Users, including individuals and businesses, engage with local entities and gather and share information within a network of co-localised actors. This interaction enhances knowledge dissemination and intensifies connections between individuals and networks that might otherwise remain isolated. Central CSs within local productive systems may play a pivotal role in interconnecting actors and organisations and mitigating the risk of fragmentation. By fostering productive relationships, employees transform their work dynamics and infuse tasks of relational significance. However, CSs transform social relationships into productive (i.e. professional and commercial) relationships, shifting social networks towards the market. The centrality of CSs in local innovation systems is invaluable for collaboration. CSs engage with local actors by hosting, producing, and breaking (Rodighiero et al., 2024). Hosting involves providing services and activities to attract and accommodate local actors, including freelancers, startups, and cultural entities. Production encompasses the planning and delivery of various services and events, whereas brokering facilitates connections among isolated actors and enhances resource flow and knowledge exchange. Proximity amplifies the effectiveness of these engagements, streamlines efforts, and maximises resource utilisation. CSs act as conduits for innovation and adopt different roles in local innovation systems. Hosting stimulates inbound flows of knowledge and resources while brokering and producing both internal and external innovation processes, fostering coupled innovation dynamics (e.g., Lichtenthaler, 2011). In summary, CSs function as hubs, orchestrate interactions, and facilitate innovation within local innovation systems, thereby enhancing collaborative potential and driving societal progress (e.g., Cassiman & Valentini, 2016).

Fourthly, building upon the ideas introduced in the previous paragraphs, proximity (see Mariotti & Akhavan, 2020) could emerge as the catalyst for acceleration in the social and entrepreneurial systems where CSs are located. The proximity between CSs and other social and economic infrastructures highlights a general convergence, even though they are located in different local contexts and managed with different aims and styles. Ideally, they are at the centre of a network of services, spaces, activities, and actors that contribute to economic production and social reproduction. Religious buildings and childcare services, as well as places to market goods, fulfill fundamental functions for social life, but they also have significant implications for the economy, as they contribute, for example, to the production of human capital and creativity. Similarly, firms and roadways have important economic impacts, but also enable people to survive and interact with each other. Based on the data highlighted by the maps, we can offer an initial cross-cutting observation indicating that the actions of CSs adhere to a logic primarily based on proximity with others (physical dimension); continuity of action and relationships with other services, amenities, and spaces (temporal dimension); and the network dimension

to which CSs facilitate access (relational dimension). It is crucial to highlight that CSs are at the centre of a dense network of relationships with stakeholders who are indirectly and directly involved in professional support activities, potential clients, suppliers, investors, experts, other businesses, citizens, local institutions, or other public entities. This network expedites the circulation of resources at lower transaction costs (Williamson, 1975). In this manner, CSs become pillars of local networks, nurturing and supporting the innovation system logic of functioning and merging principles typical of both the market and community (Roundy, 2017).

Based on these considerations, CSs could be perceived as environments that can contribute to an individual's work-life balance by creating an equilibrium between the two spheres. However, in line with Rosa's accelerationist theory, which posits that in the contemporary accelerated world, the boundary between work and life become blurred and challenging to identify, CSs may intensify economic ties among local actors without strengthening their social ties. Indeed, social acceleration is not only concerned with the techniques and timing of production but also the fabric of life. From this point of view, the outcome of acceleration processes could be the overlapping of work and life times (Castells, 1996; Bologna, 2018).

6 Conclusions

Examining CSs in Veneto, this study contributes to the debate on locational choices from an accelerationist perspective. It reveals that the localisation patterns of CSs within Veneto assume different forms from the urban ones most highlighted in the literature. In the case of Veneto, where the "*città diffusa*" prevails, CSs also adopt a dispersed form. Nevertheless, what remained consistent across different locational schemes was their proximity to the productive and reproductive infrastructure. Notably, infrastructure dedicated to trade and consumption predominates, emphasising an economic orientation. From this standpoint, CSs have emerged as economic actors that tend to promote market-oriented and production-focused social processes. Based on this, our contribution to extant literature is quadruple.

First, we introduce four interpretative hypotheses of the data highlighted by the research, which might suggest future directions for research. Future research could seek to explore both the specific interpretative hypotheses presented above and the existence of mutual influences between the processes they describe.

Second, we contribute to the debate on the urban nature of CSs (Mariotti et al., 2023). In contexts characterised by distinctive forms of urbanity, such as the Veneto region, CSs adjust their location patterns. They are located outside of the major urban centres and creative cities towards smaller towns, suggesting that CSs seek production in a broader sense, beyond creative production alone. From this point of view, the spatial distribution of CSs may depend on Veneto economic feature.

Third, we participate in the ongoing debate on the ambivalence of CSs (De Peuter et al., 2017). We contend that they represent a critical node in fuelling the processes of diffusion and acceleration of knowledge-based capitalism. With CSs, the initial intentions of the creators are overshadowed by the rapid and pervasive nature of events, thus establishing hegemony over processes. This has initiated a continuous struggle between intentions (the creation of professional communities and their protection) and concrete results (the exploitation of their work). From an accelerationist perspective, we argue that it is possible to redefine the ambivalence of CSs, the dichotomy between corporatised and resilient spaces (Gandini & Cossu, 2021), and between spaces of entrepreneurship and the protection of individual lives (Bandinelli, 2020).

These are tangible manifestations of the ongoing battle between the original ideal of CSs and their concrete manifestations.

Finally, our contribution extends the discussion of existing studies on CSs and local innovation systems (Montanari et al., 2020). We provide insight into how proximity enhances the possibility of these spaces operating within their local contexts, fosters collaboration among local actors, and pursues economic sustainability by contributing to local innovation. By adopting the perspective of innovation systems, CSs can be framed as a new actor within innovation systems specialised in intensifying the processes of knowledge circulation and relations among local actors, instead of focusing on specific productive functions.

Although the study does not consider some other important CS features (e.g., the duration of the activities, their current activities, and orientation) and explores only a single region, it highlights a potential area for further research on the role of CSs within local innovation systems.

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