III TWR CONFERENCE

TRANSDISCIPLINARY WORKPLACE RESEARCH

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Chiara Tagliaro, Alessandra Migliore and Rossella Silvestri (eds.)

Proceedings of the 3rd Transdisciplinary Workplace Research Conference

7-10 September 2022 in Milan, Italy

Politecnico di Milano
Department of Architecture, Built Environment and Construction Engineering
Department of Architecture and Urban Studies
Department of Management, Economics and Industrial Engineering

TWR NETWORK

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PREFACE

In the wake of the COVID-19 pandemic, radical changes in the ways of working have rapidly put the workplace at the centre of a profound debate over its function and *raison d'être*. More than ever, employers, consultants, and researchers have acknowledged the necessity for a transdisciplinary approach to advance knowledge and practice in this area and foresee a reasonable evolution of the workplace.

These Proceedings address such pressing issues by collecting the most recent knowledge advancements in this field that were presented at the III Transdisciplinary Workplace Research (TWR) Conference, held in Milan, Italy, from September 7th to 10th 2022.

The Conference brought together work environment experts in a wide range of disciplines, from both academia and practice, in line with the spirit of the Transdisciplinary Workplace Research (TWR) Network (www.twrnetwork.org), whose aim since 2017 has been to encourage the convergence of the various aspects of the workplace that are usually studied in isolated academic and professional fields. The idea of the Network is that design and operations of healthy and productive working environments not only take individual economic, personnel, design, or technical-communicative aspects into account; integrative approaches beyond disciplinary paths are also necessary. Moreover, practical experience must underpin a sound evidence-based approach to research, in order to overcome the traditional theory-practice dichotomy. The TWR Network has an international board which contributes to expanding the types, methods, and reach of workplace studies, finding common paths across countries, and enhancing the differences among them.

With this aim, the TWR Network organizes a biannual conference that is brought every year in different parts of the world. After the first TWR Conference (2018) in Tampere, Finland, and the second one (2020) in hybrid form between Frankfurt and online, this year's conference took place in Milan, Italy, hosted by Politecnico di Milano.

The III TWR conference included a multiplicity of topics, regarding the physical work environment (such as architecture and design, building physics, material science), social work environment (such as human resources management, behavioural sciences, organisational science, business, health and safety, neuroscience, environmental psychology, philosophy), digital work environment (such as information communication technology, virtual reality, sensor engineering, data analytics), and management of the built environment (such as asset, facility and property management, economics, corporate real estate management, decision science). Presented research focused on an individual, team, organisational or urban level of analysis.

The tangible outcome of this initiative is this publication: the Proceedings of TWR 2022 gather all the 80 contributions that were included in the Conference program after a thorough selection of 120 submitted abstracts.

A special thank goes to all authors and reviewers for their diligent participation in the double-blind peer review process. On the one hand, all the authors presented original investigations described concisely and effectively. On the other hand, all the reviewers provided constructive feedback that the authors carefully considered to improve their work. Most of the authors gave their consensus to publish their short papers in this volume. For those who preferred to submit

their paper elsewhere, we included only the abstract. This is a remarkable collection of insights that keep adding value following up on the precedent TWR 2018 and 2020.

The III TWR Conference was for many of the attendees the first in-person large gathering after the COVID-19 pandemic. The enthusiasm about engaging in physical exchanges across borders and disciplines was clear in the large participation that the event obtained, demonstrated by the following numbers:
172 authors
26 countries
100 in-person presenters
8 virtual attendees (non-presenters)
71 papers
5 posters
4 book presentations
21 parallel sessions spanning from Corporate Real Estate to new working spaces, from salutogenic approaches to hybrid working, from communities to academic campuses
3 workshops with the industry about *diversity and inclusion* in the workplace
4 networking events
1 keynote speech proposing a philosophical perspective on spatial relations and mutual respect in the workplace
3 days and a half of workplace formal and informal chats among enthusiast people on state-of-the-art of transdisciplinary workplace research.

We would like to thank the TWR Network for all the support over the past (nearly) 2 years. In particular, the leading force, Rianne Appel-Meulenbroek, for her contagious passion for the TWR mission and values, as well as Mascha Will-Zocholl and Annette Kaempf-Dern, organizers of TWR 2020, for being always available to pass on their experience and share their guidelines.

Finally, this TWR 2022 would not have been possible without a common purpose that we achieved with Politecnico di Milano and Fondazione Politecnico di Milano, and with our sponsors - CBRE, Lendlease, Unispace, and StudioWé. In particular, we are grateful to our mentors Andrea Ciaramella, Ilaria Mariotti, and Cristina Rossi-Lamastra who put themselves on the frontline whenever necessary to endorse the initiative.
Enjoy the read!

Milan, September 2022

Chiara Tagliaro
Alessandra Migliore
Rossella Silvestri

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TWR2022 CONFERENCE PROGRAM

WEDNESDAY
SEPTEMBER 7TH

9:00 - 11:00	**TWR Board Meeting** Event open only to TWR Board members Room 16B.2.1		
11:00 - 11:30	Welcome Coffee Room 16B.0.1		
11:00 - 11:30	**Conference Registration** Room 16B.0.1		
11:30 - 13:00	**Politecnico di Milano Campus Tour** Room 16B.1.1		
13:00 - 14:30	Lunch Break Room 16B.0.1		
14:30 - 16:30	**Parallel workshop sessions with industry sponsors, facilitated by Studio Wé**		
	Session W1 Unispace Workshop Room 16B.1.1	**Session W2** Lendlease Workshop Room 16B.2.1	**Session W3** CBRE Workshop Room 16B.3.1
18:00 - 21:00	**Welcome Aperitivo** @ Polimi Campus Leonardo - Room 16B.0.1		

THURSDAY
SEPTEMBER 8TH

8:30 - 9:00	**Conference Registration** Room 16B.0.1		
9:00 - 9:30	**Welcoming Session: Institutional Greetings from TWR Board and Politecnico di Milano** Room 16B.1.1		
9:30 - 10:30	**Opening Keynote by Roberto Mordacci** "Space relations and mutual respect" Room 16B.1.1		
10:30 - 11:00	Coffee Break "TWR anniversary celebration" Room 16B.0.1		
11:00 - 12:30	**Session 1A** Campus and Academic Work Room 16B.1.1	**Session 1B** Geography of New Working Spaces Room 16B.2.1	**Session 1C** Sustainable Workspaces Room 16B.3.1
12:30 - 14:00	Lunch Break Room 16B.0.1		
14:00 - 15:30	**Session 2A** Hybrid Campus Room 16B.1.1	**Session 2B** New Working Spaces and Communities Room 16B.2.1	**Session 2C** Corporate Real Estate Room 16B.3.1
15:30 - 16:00	Coffee Break Room 16B.0.1		
16:00 - 17:30	**Session 3A** Critical Thinking and Working Environments Room 16B.1.1	**Session 3B** New Working Spaces and Strategies Room 16B.2.1	**Session 3C** Salutogenic Approaches Room 16B.3.1
20:00 - 23:30	**Social Dinner** @ Museo della Scienza e della Tecnica Leonardo da Vinci, Sala delle Colonne		

FRIDAY
SEPTEMBER 9TH

8:30 - 9:00	**Conference Registration** Room 16B.0.1		
09:00 - 10:30	**Session 4A** Covid-19 and the Future of Workspaces Room 16B.1.1	**Session 4B** Co-Working Spaces, Health and Wellbeing Room 16B.2.1	**Session 4C** Work Environments Between Virtual and Physical Activities Room 16B.3.1
10:30 - 11:00	Coffee Break Room 16B.0.1		
11:00 - 12:30	**Session 5A** Covid-19 and Work Outcomes Room 16B.1.1	**Session 5B** Offices, Health and Wellbeing Room 16B.2.1	**Session 5C** Book Presentations Room 16B.3.1
12:30 - 14:00	Lunch Break Room 16B.0.1	**Poster Session** Room 16B.0.1	
14:00 - 15:30	**Session 6A** Practices of Hybrid Working Room 16B.1.1	**Session 6B** Workspaces, Inclusion and Corporate Social Responsibility Room 16B.2.1	**Session 6C** Workspaces, Culture and Experiences Room 16B.3.1
15:30 - 16:00	Coffee Break Room 16B.0.1		
16:00 - 17:30	**Session 7A** Theories of Hybrid Working Room 16B.1.1	**Session 7B** Working Environments: Interdisciplinarity Between Research and Education Room 16B.2.1	**Session 7C** Activity-Based Working: Theory and Practice Room 16B.3.1
20:00 - 23:30	**Farewell Party - Conference Closing** @ Balera dell'Ortica		

SATURDAY
SEPTEMBER 10TH

10:00 - 12:00	**Post-conference Event - Discover Milano** @ Monumental Cemetery of Milan

University hubs: an emerging phenomenon between campus, work, and social spaces

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ABSTRACT
In recent years – especially in the wake of the COVID-19 pandemic – work and learning have radically changed to support community-focused, inter-professional, and inter-disciplinary engagements. In response, companies and public administrations have been developing networked and dispersed workspaces to grant people access to a variety of places tailored to their needs. University campuses have been evolving in the same direction. Aiming to expand into the whole city, universities have been activating off-campus facilities that enact the university mission of sustainable development, integration, and social inclusion. However, the phenomenon is still poorly developed even though evidence exists that students and young researchers (a) do not have access to enough supply of both on-campus and off-campus spaces due to the high demand; (b) suffer from relative isolation from other social groups; and (c) experience a disconnection between their studies and the world of work. For these reasons, they are in severe need of space for studying, working, and engaging with the broader community and society. This study analyses the phenomenon of University Hubs by distinguishing it from other similar phenomena and by discussing it in the context of hybridization of spaces for study and work. By analysing a preliminary case study the paper reflects on the opportunities that University Hubs present for students and young researchers to pursue knowledge creation and sharing with diverse communities outside the campus boundaries while enhancing the university visibility in different places.

Keywords
University, Hubs, Off-campus, Hybridization, Campus.

1 INTRODUCTION AND BACKGROUND: UNDERSTANDING UNIVERSITY HUBS AS HYBRID SPACES

Recent literature showed that, thanks to the spread of Information and Communication Technologies (ICT), the traditional university-centric location model gradually evolved into a spatially distributed model that involves on-campus and off-campus locations (Kuntz, 2012). Hence, besides university campuses, a variety of alternative “third spaces” (Oldenburg &

Brisset, 1982) constitute the modern university. This phenomenon increased due to the COVID-19 pandemic, which accelerated the spread of university activities among different locations. Thus, universities are progressively including **"hybrid"** facilities, made of both on-campus and off-campus spaces. Temple (2009) was the first to argue that the physical relevance of a university can be linked to institutional effectiveness, through the role of space in assisting community formation. Traditionally, university education and research were unequivocally associated with the idea of a precise physical environment. The architecture of a university campus was the means to communicate the identity, ideals, and values of the university community (Temple, 2009). While universities are changing their models of education and research, their campuses are required to be increasingly flexible. "**Hybridization**" meaning the co-presence and co-existence of multiple functions, users, and building types (Migliore at al., 2021) is a trend that is generating original types of spaces also in the university context. Hybridization is happening in multiple realms of the real estate and design industry. The retail sector, for example, is integrating healthcare services and workspaces into its traditional commercial function (Cardinali, 2018). The hotel sector is offering 'mobile offices' (Vuokko, Kojo and Nenonen, 2015) and rooms for work-related activities (Scullica et al., 2019). Universities have gradually recognized that knowledge acquisition and production is not only restricted to formal teaching and research, but it is a more collaborative process. Therefore, they have **opened the campus** towards the city through **on-campus sites that welcome the community** at large and – more recently – even through **off-campus sites**. This paper aims at exploring this emergent phenomenon by recognizing University Hubs as off-campus sites that host multiple functions and activities and are open to the academic community as well as to externals. Jane Knight (2014), for instance, conceptualises education hubs as "reputed centres for higher education, training and research" within and extending beyond a geographic region, which build a "critical mass of local and foreign actors – including students, education institutions, training companies, knowledge industries and science and technology centres (Knight, 2014)." Den Heijer (2008, p.2) claims that "managing the university campus has gradually changed from monitoring the technical condition of campus buildings and reducing costs to effectively supporting education and research processes and adding value to university goals". Specifically, university goals may span from facilitating closer collaboration with industry and the territory at large to attracting new students in other areas which are not close to the main site of the campus. Therefore, campuses are changing both in its physical and in its symbolic presence across multiple locations **on-** and **off-campus**. These locations are *hybrid* since they allow different groups to share a place with fluid boundaries and functions (Star, 2010) and they configure as emerging designs and building practices characterised by *in-betweenness* and *indeterminacy* (Simões Aelbrecht, 2016). On one hand, some **on-campus sites** have gradually been opened to external users. For instance, Bouncken (2018) reports that some universities (*e.g.*, Harvard University, Lakeview University, Tübingen University, Aalto University, Berlin Technical University) operate coworking spaces either only for their members or for externals. These types of spaces are likely to foster entrepreneurship both for students and researchers, and, unlike universities' libraries, provide additional "non-silent" areas to give opportunities for teamwork. Moreover, Watson (2007) mentions the striking development in new university buildings of "*third places*" as physical and/or virtual areas that are not predominantly identified with either social or work/study perspectives but transcend both. On the other hand, universities open **off-campus hubs** with diverse aims. The literature shows that universities are becoming increasingly linked to the presence of non-academic spaces (Chapman, 2006; den Heijer, 2011; Haugen & Aasen, 2016). For instance, to assure knowledge transfer, stimulating innovation and increasing sustainability, which are typical strategic goals for universities, it is common that campuses are now partnering with **learning**

and working incubators for entrepreneurs (Wissema, 2009). Moreover, den Heijer and Curvelo Magdaniel (2018) report that coffee bars and sport facilities are functional resources of the city that serve as crucial facilities for a dynamic university campus while public libraries are transitory spaces chosen temporarily for specific purposes (Di Marino & Lapintie, 2015). Among these recent practices, we refer to University Hubs as diverse spaces to study, work or socialise that are not within the normal boundaries of the main campus but that are mostly off-campus. Namely, anecdotal evidence shows that they can be located in other cities or even countries far from the main site of the university campus. For instance, the recent project of GTatrium promoted by Georgia Tech University is a case in point. GTatria are scalable gathering places and portals to real and virtual services for Georgia Tech University to achieve a distributed global presence and to provide - through co-working and co-learning spaces - education, career development, advising, enrichment, and specialised learning experiences to not only current Georgia Tech students, but also to alumni, prospective learners of all ages, and the community at large. The project is still under development, and it is planned to open in several places around the world where the distance learners and alumni community of Georgia Tech university concentrates (*e.g.*, Monterrey, Colombia, South America; Morocco, Africa; Taipei, Taiwan, as well as several locations in the United States). Alternatively, University Hubs can be hosted in existing spaces for temporary use. For instance, during COVID-19 pandemic, NYU Shanghai has leased and converted nearly 7,000 square metres of WeWork office space within walking and commuting distance of the campus into classrooms, lecture halls, and other academic facilities for students (NYU Shanghai[3]) and the same happened in Columbia University where they offered access to Columbia students and academics in 80+ cities to use at any WeWork location in their city. Apart from this anecdotal evidence, literature on these practices is still scarce and fragmented. To fill this gap, this research aims at understanding what university hubs are and why they are emerging internationally (*e.g.*, which other facilities they add to the campus). Our analysis starts from the assumption that university hubs appear as a category of hybrid spaces, by referring to the framework of 'hybridization level' proposed by Migliore et al. (2021). This paper aims at acknowledging the distinguishing features of university hubs which are not only related to their location outside the campus boundaries, but unfold on various levels: in terms of spatial forms, activities, user diversity, accessibility, management and openness to the public (Migliore et al., 2021). Starting from a preliminary case study analysis, we extrapolate the characteristic features of off-campus university hubs that could inform further studies on this topic, as they are shaping a trajectory for the evolution of learning spaces.

2 METHODOLOGY AND CASE SELECTION

Since the phenomenon of university hubs is still preliminary and poorly investigated, this research follows the approach of a phenomenon-based research (Von Krogh, Rossi-Lamastra & Haefliger, 2012), with the aim of capture, describe and document as well as conceptualise the phenomenon. Von Krogh, Rossi-Lamastra & Haefliger (2012) confirm that hypothesis-testing strategies may fail to create new knowledge about novel phenomena while a mix of research methods is often required for such work. According to Von Krogh, Rossi-Lamastra & Haefliger (2012), every stage of maturity of a phenomenon requires its strategies of research (*distinguish, explore, design, theorise, synthesise*). As university hubs are a novel phenomenon, still in an *embryonic stage* of maturity, this paper aims at *distinguishing* the phenomenon of university hubs from other similar phenomena which fall under the umbrella of hybrid spaces in university context. The *distinguish* phase of the phenomenon-based research has the goal to

[3] https://shanghai.nyu.edu/news/nyu-shanghai-host-students-nyu-and-nyu-abu-dhabi-shanghai-fall

(1) bracket peculiarities encountered against the existing body of knowledge; (2) describe context in broad cultural terms; (3) identify inadequacy of given body of theory and knowledge in the field; and (4) identify relevant concepts for study (Von Krogh, Rossi-Lamastra & Haefliger, 2012). Specifically, this research aims at *distinguishing* University Hubs from three categories of university on-campus and off-campus facilities. First, from on-campus spaces (both workspaces and learning spaces) which configure among the traditional campus boundaries. Second, from university accelerators/incubators and new working spaces which universities open within their campus boundaries for specific purposes (Hynes & Hynes, 2018; Moultrie et al., 2007). Finally, from independent accelerators/incubators and new working spaces which recently universities are exploiting to distance learning for their students as well as for researchers and staff (Bouncken, 2018)). The aim of this research justifies the adoption of a case-study analysis methodology following Yin (2008) and Benbasat et al. (1987). Benbasat et al. (1987) argue that a case study strategy is well suited for problems in the very early stages of theoretical development and especially those dealing with situated action that can only be studied in context. This paper reports the analysis of **a preliminary case study**, located in Italy. The case study under analysis is *MilanoLuissHub*[4], a space located in the city-center of Milano in Italy. The space opened in 2018 from an idea of the LUISS University (*Libera università internazionale degli studi sociali Guido Carli*)[5]. The LUISS University is one of the most important Italian universities in the field of economics, law and social sciences. It is located in Rome and attracts students from all over the world for bachelor, master and post-university degrees. The *MilanoLuissHub* was conceived by LUISS as the first off-campus location of the university and was purposely founded in the business district of Milano, the most prominent Italian city for entrepreneurial and business activities. The case study was documented through multiple data sources, the main being interviews. The authors conducted a semi-structured interview (which lasted one hour) with the professor from the LUISS University who ideated the concept of the space (interviewee 1) and who is the contact person for the education activities of the space. Secondly, we conducted a site visit and observation of the space which allowed us to collect visual and ethnographic materials. During the visit a second one-hour interview was conducted with the local project manager of the space (interviewee 2) who is the contact person for the day-by-day organisation and management of the activities taking place in the hub. Other sources of secondary data include formal and informal documents and websites.
Table 1 summarises the data collected for the analysis of the case.

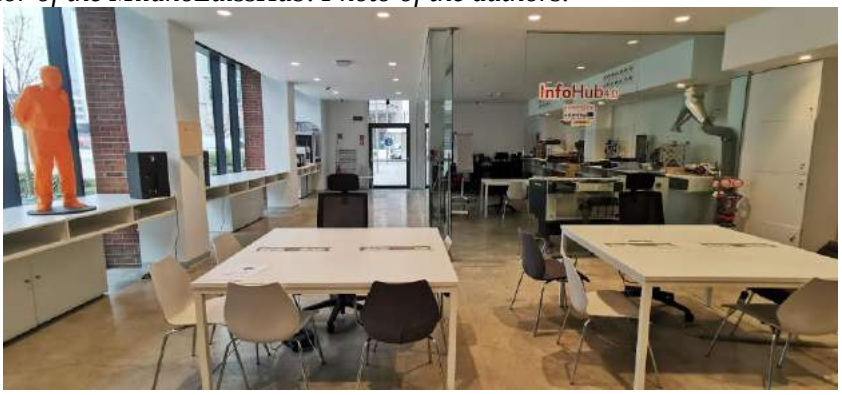
Table 1: Summary information of the selected case study and sources of data.

District/area	Porta Nuova/Garibaldi (Milano)
Year of foundation	2018
Type of building	Former garage and a goods depot (quasi totally rebuilt)
Interviewees	● *Interviewee 1:* Director of the space and originator – Professor of Luiss University (1h duration) ● *Interviewee 2:* Local project manager of the space – Staff of Luiss University (1h duration)
Other sources of data	● Photos of the space/Visual Data ● Websites ● Formal Documents (i.e., brochure and reports of the *MilanoLuissHub* collected during the visit)

[4] https://milanoluisshub.it/
[5] https://www.luiss.it/

Data analysis followed a qualitative approach aimed at disentangling the peculiar characteristics which distinguish off-campus University Hubs from other types of hybrid spaces in the university context. They are not learning spaces nor workspaces nor university incubators while neither independent new working spaces, instead they are undetermined and multifunctional spaces which transcend the education and research goals of universities.

Figure 1: Interior of the MilanoLuissHub. Photo of the authors.



3 PRELIMINARY RESULTS AND DISCUSSION

From both the interviews, *MilanoLuissHub* comes across as a highly diverse and multi-faced space. It was created by the shared initiative of the LUISS University with *Brodolini* Foundation and *ItaliaCamp* united into a newly established temporary association of enterprises (ATI, in Italian), with the support of the Milano Municipality that gave the space in concession. In the words of interviewer 2 this association is described as *"a hybrid of different entities that work as a graft, with the objective to create a space with its own identity where each partner would bring in its own capacities"*. On the website, this is presented as an urban regeneration project brought to life by a public-private partnership. Also, the website reads: "[MilanoLuissHub] *is a multidisciplinary* agora *of the knowledge economy dedicated to learning, sharing and integrating traditional and innovative entrepreneurial skills. The goal is to increase the creative potential of the territories for a more equitable and inclusive development of society and the economy*."

Table 2 summarises the results of the preliminary analysis. We present the results according to an interpretative scheme (Figure 2). University Hubs have distinguishing features compared to other University facilities according to two dimensions. The first dimension (the horizontal axis) is 'distance from the campus' since we started from the assumption that University Hubs are a novel phenomenon as they are located relatively far from their originator university. Therefore, we distinguished off-campus university hubs from the other types of hybrid spaces in the university context based on the physical distance that these have from the main campus location. The second dimension (vertical axis) is 'hybridization intensity' which we interpreted according to 7 layers of hybridization of space from Migliore et al. (2021).

Concerning *distance from the campus* (*x* axis), we classified the four spaces on a gradient from on-campus spaces (teaching and working spaces which are located within the campus boundaries) to off-campus spaces which are located far from the campus (they locate mostly in other cities or even in other countries from the central site of the campus). For instance, the *MilanoLuissHub* is located in Milano whereas the LUISS University is in Rome. According to interviewees 1 the idea was not to do Milano what the LUISS University does in Rome, "but to do in Milano activities that LUISS University does not do in Rome" Conversely, both university-related and independent new working spaces/accelerators/incubators are usually located semi-close to the campus (*i.e.*, they are in the same city or in the surroundings where

most students and staff live): the former benefit from the service exchange with the university, the latter, instead, need to be convenient in terms of commuting in order to be accessed by students and researchers of universities. Concerning *hybridization intensity* (*y* axis), we recognized off-campus university hubs as spaces that alternatively share with or strongly differ from on-campus spaces, university new working spaces/accelerators/incubators and independent new working spaces/accelerators/incubators. First, at the level of *spatiality*, intended as the "indeterminacy of spatial forms in terms of flexible furniture; complexity of the layout among multiple spatial combinations; historical overlapping of architectural characteristics and of relationships with the neighbourhood", *MilanoLuissHub* demonstrates to involve a superfetation of spatial arrangements over time and to host a variety of flexible spaces. An ex-parking garage was refurbished to host: 3 rooms that can function both as classrooms for learners taking courses from master's to professional refresher, as meeting rooms and as a large conference room (the walls can be opened to create a common room); One large learning space for interactive workshops, exhibitions, and shows; One coworking space that rents out workstations to start-ups both participating or not in the university's incubation and acceleration program; two enclosed offices for non-profit associations; and a maker-space. In total the space is 1500 sqm. Second, at the level of *temporal 'in-betweenness'* intended as "planned events or uses for temporary duration or unplanned uses and interactions in between the planned activities", off-campus university hubs are similar to university as well as independent new working spaces/accelerators/incubators since they host planned and unplanned activities, where multiple events, work, research and laboratorial activities overlap at the same time. In the case of *MilanoLuissHub,* the space hosts on different days a digitalization school with digital manufacturing classes, a group called H-ability that creates prototypes of new tools for supporting daily activities of impaired people, Creative Mornings – an initiative that welcomes all interested people to share opinions on a variety of themes including politics, a neuroscience lab which uses the space of their experiments on human-environment interactions, a number of exhibitions (also in collaboration with the European Parliament), the training classes of the accelerator program. Third, at the level of *users' diversity,* off-campus university hubs have the highest level of hybridization since they sum users' categories of the university on-campus spaces (*i.e.*, academics, staff and students) and of new working spaces/accelerators/incubators (*i.e.,* companies, start-ups, freelancer, researchers). *MilanoLuissHub* welcomes regularly the people enrolled in the incubation/acceleration program, startups that have concluded the program and are renting out their workstations in the same space, attendees all the abovementioned courses, Alumni who participate in different events, the citizenship at large in the occasion of exhibits and other public events, high-school students who participate in a program called "school-work alternation". In the words of the interviewees, the *MilanoLuissHub* target particularly what comes before and after regular university learning (*i.e.*, attraction of high school students and courses for young workers and executive persons). In addition, they target citizens as a whole, being a place of social regeneration of an urban area. Fourth, at the level of *occasionality of presence* intended as the "accessibility in relation to different needs of use (e.g., monthly, quarterly, annual subscription; single access)", the off-campus university hubs just like independent new working spaces/accelerators/incubators are open to different membership policies and to rental possibilities to the externals, while on-campus spaces and university incubators or coworking are open mainly to members and affiliated professionals. In the case under examination, startups members mainly have access to spaces according to their memberships' subscriptions, while for students and for the citizens community requirements are less strict and the space is spaces, students have free access related to their and the community have open and free entrance for public events. Moreover, there are also non-

standard opening hours (at night and during weekends) which may be easily aske to the management of the space assuring the highest occupancy. Fifth, at the level of *activities and functions*, university hubs are truly flexible spaces, since they are multi-functional spaces mixing activities which are typically hosted in university – such as workspaces, research spaces and learning spaces – and those which are typically hosted in both university and independent new working spaces – such as maker spaces, coworking spaces etc. For instance, the *MilanoLuissHub* offers a digital manufacturing laboratory capable of bringing together, in a synergic and multifunctional way, school-to-work activities and advanced managerial training initiatives, emerging startups and events open to the territory. Specifically, what the first interviewee argued was the *MilanoLuissHub* does the things that the promoter university does not do. Sixth, at the level of *managerial structure* intended as "management structure of the space, stakeholders involved, control of the space to different extents (top-down/bottom-up)", university hubs are hybrid in the sense that they mix a nearly bottom-up approach according to which members can propose and autonomously propose their initiatives while they are managed by multiple stakeholders. For instance, our case study was initiated by the LUISS University together with the Municipality of Milan[6], Fondazione Brodolini[7] and ItaliaCamp[8]. This hybrid managerial structure allows the LUISS university to maximise its social and inclusive mission by sharing the university life with local communities. Indeed, university hubs often have a business model which is independent of the main University, including a separate board of directors, partnerships with other entities such as public and private institutions in charge of activities related to education or social impact activities. Finally, at the level of *publicness/openness* intended as the "accessibility by non-official members to the space", off-campus university hubs such as university campus and university and independent new working spaces/accelerators/incubators are less open to non-official members (if not for events open to the public). None of these spaces are configured as public spaces, even if exceptions may exist. However, what is relevant about University Hubs and in particular about the case under analysis is that University Hubs, being off-campus, represent a tool to increase university "**brand reputation**". As interviewee 1 argue "if they [University Hubs] are not removed from the territorial context but are linked to the territorial context they are a mean of creating a brand reputation that then leads local students to enrol in our university, which, as I repeat, does not have an economic effect but it does have an effect of greater internationalisation of our university. For example, what if you want to have more students from a specific country? Opening a University Hub is one of the many possible ways to have more students from that country and is quite less challenging and expensive than opening your own university there". This is why the openness of the space is central for University Hubs. In the case under examination, particularly, the conference space has glass walls directly visible from the street because the University and its two partners want that "whatever happens in there is transparent to the citizens" [Interviewee 1].

[6] https://www.comune.milano.it/

[7] https://www.fondazionebrodolini.it/

[8] https://italiacamp.com/it/

Figure 2: Interpretative scheme for distinguishing off-campus spaces from other spaces.

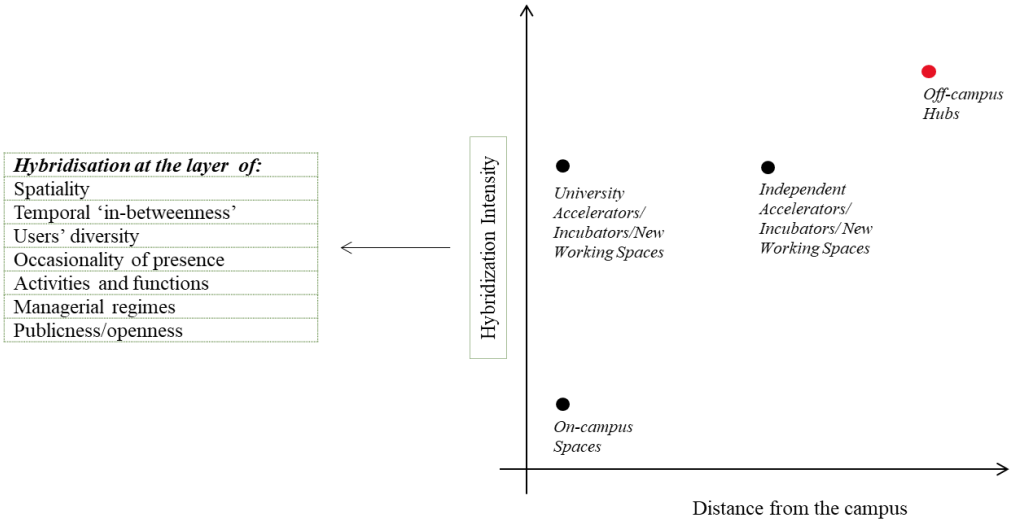


Table 2: Distinguishing features of the Off-campus University Hubs phenomenon.

		Distance from the campus			
		On-campus	*Close to the campus*	*Semi-close to the campus*	*Far from the campus*
		On-campus spaces (Workspaces & Teaching Spaces)	**University Accelerators/Incubators/New Working Spaces**	**Independent Accelerators/Incubators/ New Working Spaces**	**Off-campus hubs**
Hybridization layers	*Spatiality*	Very recognisable and compact spaces (especially in Italy). Image of the university identity. Layout: typically, standard workplace part and classroom part	Very recognisable and compact spaces More varied layout because they house different kinds of functions (informal spaces, maker space)	Very recognisable and compact spaces More varied layout because they house different kinds of functions (informal spaces, maker space	Less recognisable. Often housed in more recently converted spaces in terms of function of use (e.g., ex industrial spaces). More varied layout because they house different kinds of functions (informal spaces, maker space
	Hybridization intensity	**	***	***	*****
	Temporal 'in-betweenness'	High predictability in the use of space (standard lessons and working hours)	Activities are often planned. There are more overlaps between a higher variety of activities.	Activities are less planned. There are more overlaps between a higher variety of activities and temporary events. The quality of "independence" provides more flexibility for temporary use.	Activities are less planned. There are more overlaps between a higher variety of activities and temporary events.
	Hybridization intensity	**	***	***	***
	Users' diversity	Users are very well defined. They are almost exclusively	Users are defined and selected (they are	Users are selected according to different	Accessibility to different

		three types: academics, staff and students.	mostly academics, students, alumni, companies affiliated to the institution).	criteria (ensuring a high range of diversity) but generally these spaces do not target academics and students.	professional categories, but also to different demographic categories. Students, researchers, alumni, enterprises, occasional users, etc. Users' diversity is the highest because it sums those of the prior spaces.
	Hybridization intensity	**	***	****	******
	Occasionality of presence (e.g., need of subscription)	Need to be affiliated to the university in order to use all its spaces. Generally, not open to third parties for rental purposes.	Strict membership policies (medium-long term) Generally, not open to third parties for rental purposes.	Medium-short term membership. Open to rental possibilities.	Medium-short term membership. Open to rental possibilities.
	Hybridization intensity	*	***	****	****
	Activities and functions	Teaching Research Work Laboratories Eat Study Sport	Innovative learning Innovative Research, Laboratories (maker), Research Eat Study Sport	Innovative learning Innovative Research Laboratories (maker), Research, Eat Events	Innovative learning Innovative Research Laboratories (maker) Teaching Research Eat Study Sport Work Events
	Hybridization intensity	**	***	***	*****
	Managerial structure	Top-down and centralised (one main stakeholder: university)	In-between/nearly top-down (one main stakeholder: university)	Nearly bottom-up/Totally bottom-up (high number of stakeholders, mostly private actors)	Nearly bottom-up (high number of stakeholders, both public and private)
	Hybridization intensity	*	**	***	****
	Publicness/openness	Low. Externals cannot benefit from on-campus spaces continuously and not for rental purposes)	Low. Only for public events.	Low. Only for public events.	Low. Only for public events.
	Hybridization intensity	***	***	***	***

4 CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

This paper approached the emerging phenomenon of university hubs as the configuration of off-campus spaces that are distinct from any other university-related form of hybrid space. Even if this research relies on preliminary results only, this analysis opens avenues for future research on the emerging phenomenon of off-campus university hubs. The university hubs are configured as off-campus locations of academic campuses which are hybrid in terms of spaces, activities, users, functions, and managerial structure more than on-campus spaces and of university-related and independent accelerators/incubators/new working spaces. Indeed, off-campus university hubs mix the features of the three former categories of spaces, generating a hybrid that is still in its embryonic phase of development. Through its strong physical presence and their hybridity (Migliore et al., 2021), University Hubs configure as attractors of students, workers, research companies and industries from other regions and countries beyond the main

location of the campus. Their impact could be national, regional and/or global in scope (Knight, 2014) as they represent one of those non-academic spaces which complement campus spaces (Haugen & Aasen, 2016). The interpretative framework proposed to organise and understand the features of university hubs provides a basis for future studies. The preliminary analysis will be further complemented with additional cases in different geographical locations in order to validate these results and provide a more nuanced picture of off-campus university hubs. We call for more research on the topic, such as the direct and indirect effects of these spaces on, respectively, the individuals who use them and the neighbourhood/cities where they operate. For instance, at the moment they seem to be an urban phenomenon taking advantage of geographical proximity to complementary activities and services. Nevertheless, they have the potential to be used as a tool for not only urban regeneration, but rural regeneration where the University Hubs mission of social innovation could be maximised.

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