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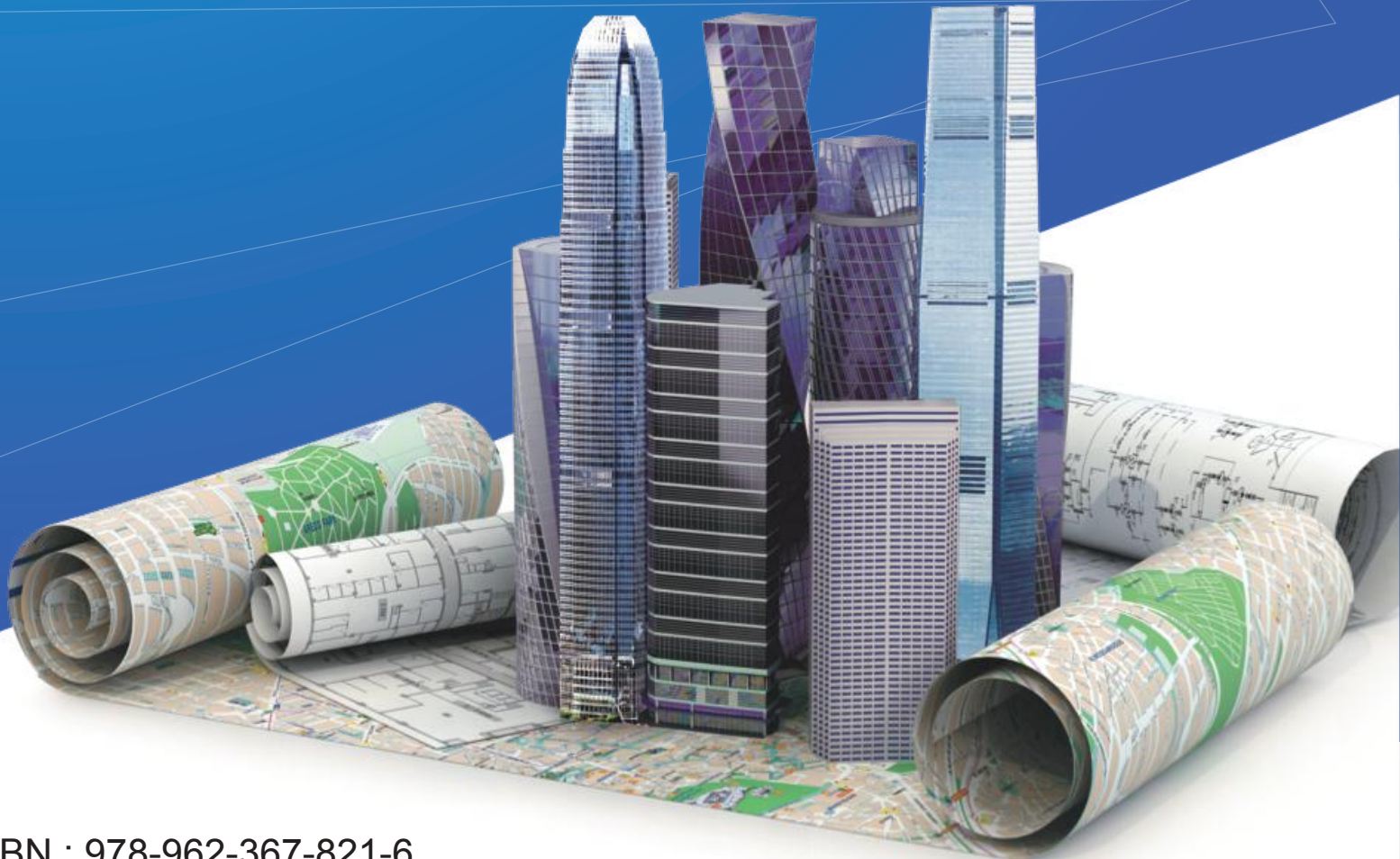


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World Building Congress 2019

Constructing Smart Cities

17 – 21 June 2019 (Monday – Friday)
The Hong Kong Polytechnic University,
Hong Kong, China



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Papers





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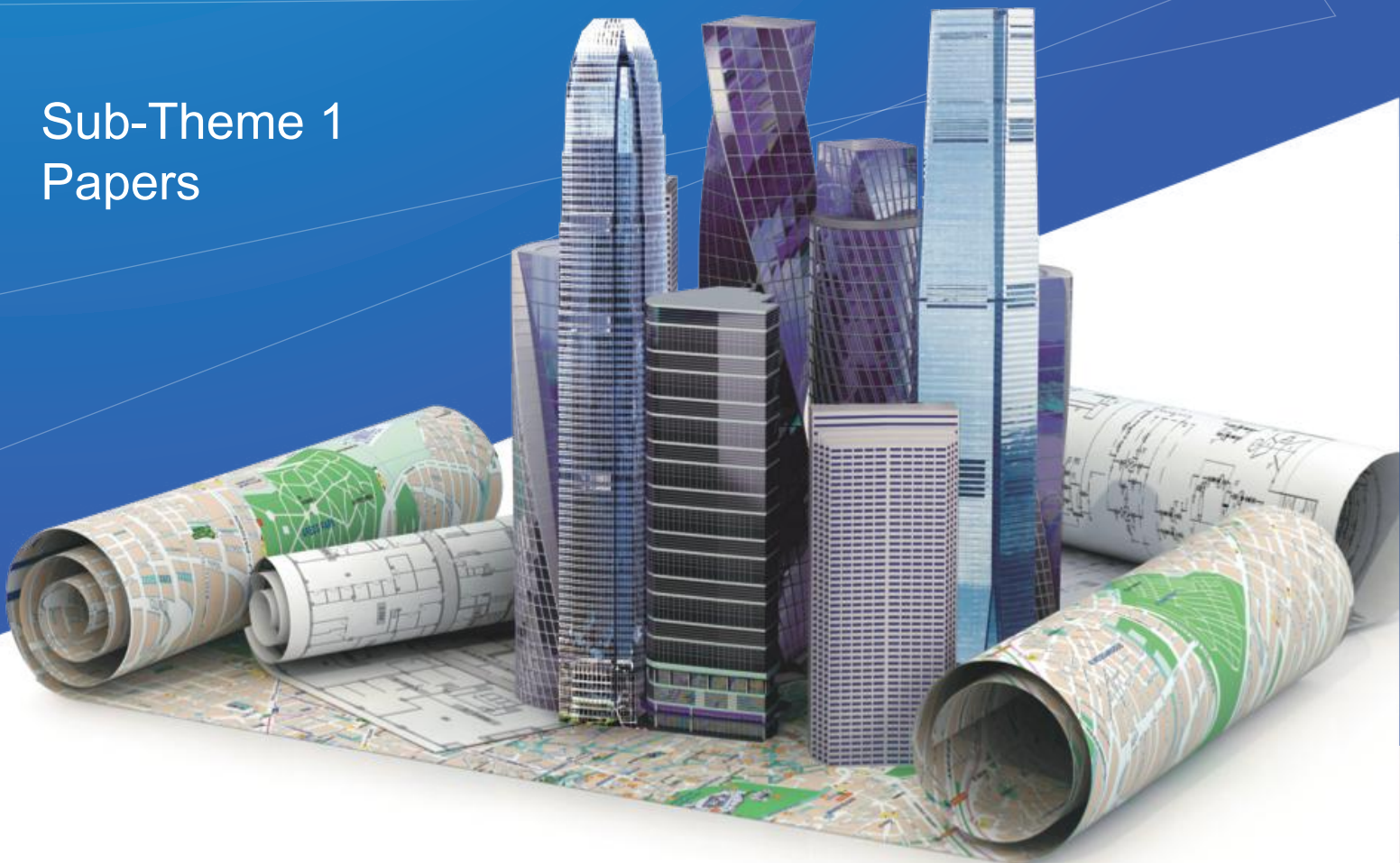
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Sub-Theme 1
Papers



The evolution of the Italian real estate sector: How property and technology are merging to support smart cities

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Abstract

This paper examines the state-of-the-art of the Italian digital real estate sector and proposes strategies to exploit its full potential.

The *proptech* sector was recently born as the merge of property and technology to introduce digitalization in the real estate sector. Its inception encourages both real estate products (e.g. infrastructures, buildings and equipments) and processes (e.g. design, construction, and in-use management) to move from an industrial past to a digital future. This evolution promises to support the creation of ‘smart’ cities and services for society. Due to the young age of this phenomenon, though, still little literature exists investigating the dynamics of its development, and interpreting its impacts.

When thoroughly reviewing the available literature, a particular lack of information emerges for the proptech scenario in Italy, where this sector is still in its infancy. Thus, we conducted an in-depth analysis of the state-of-the-art at national level through (a) desktop search on different databases, and (b) interviews with key proptech leaders in our Country.

Desktop investigations allowed to map and categorize today’s Italian proptech players, and compare this panorama with the international context. Interviews revealed the main strengths and weaknesses of the digital property business in our Country.

The results of these investigations are valuable for prospect proptech startupper, business investors, and well-established real estate actors. The set up of this research shed light on the opportunity to establish a permanent observatory of the Italian proptech realm. This eventually aims at supporting innovation in the real estate and construction environment toward the creation of smart services for our cities and society.

Keywords: Proptech, Italy, Real Estate, Digitalization.

Introduction

The term “proptech” derives from the crasis of “property” and “technology”. It includes all products, processes and business ideas that apply the most innovative resources in the Information Communication Technology (ICT) realm (Hasenmaile and Rieder, 2017).

This word has taken roots since the beginning of the new Millennium. By looking at the search frequency on Google, it has definitely blown up from 2016 to today. However, Google searches for “proptech” by Country reveal that Italy appears only in the last positions among European Countries. This means that, on average, searches conducted from Italy do not reflect much interest in this novel topic. On the contrary, in other Countries such as the UK, Norway, Germany and Spain “proptech” seems a very popular query.

This paper explains why Italy has revealed less interest and activities than other Countries in the proptech sphere. Moreover, it examines the Italian state-of-the-art of this sector and compares it with the international context. Finally, it outlines some key directions for future research.

Definitions of proptech

Despite the relative frequency of web searches based on the word “proptech”, the definition of this term is still fuzzy. Expressions like “CRETech” (Putzier, 2016), “Real EsTech” (Pyle, Grunewald and Wright, 2017), “Real Estate Tech Companies” (CBInsights, 2017), but also “RealTech” and “ConTech” are often used as synonyms for similar types of business. For sure, KPMG (Pyle, Grunewald and Wright, 2017, p. 5), The Royal Institution of Chartered Surveyors (RICS, 2018) and other companies, agree on defining “proptech” as a general term referring to all the aspects that cover how technology and digital innovations affect the built environment.

James Dearsley, guru of the UK PropTech sector, in collaboration with professor Andrew Baum, from the University of Oxford, elaborated a common definition entailing a more complex concept. According to them, proptech is, on the one hand, a name defining all the technological innovations in the property segment and, on the other hand, the industry itself, the business sector and, more in general, “*a movement driving a mentality change with the real estate industry*” (Dearsley, 2018).

The main objective of proptech is to optimize the traditional value chains of real estate to obtain more efficiency and effectiveness (Pyle, Grunewald and Wright, 2017). The three main branches of real estate have been involved in this wave of change, namely facility, property and asset management. However, proptech companies have to do also with the real estate market, softwares and databases, and the Internet of Things (IoT).

Most of the time, proptech companies are startups (Hasenmaile and Rieder, 2017). Nevertheless, many Small-Medium Enterprises (SMEs), corporations and unicorns have been playing a significant role in the introduction of technology in the real estate sector (Baum, 2017).

Given these considerations, our research uses the term “proptech” including “solutions, technologies and tools for the innovation of real estate processes, products, services and market”.

Global market trends

According to data published by Venture Scanner, the proptech market has accelerated abruptly between 2011 and 2017, with +63% Compound Annual Growth Rate (CAGR). The total funding collected in 2017 reached 12 Billion USD, which corresponds to an increase of 30% compared to the previous year 2016. At the same time, the total number of funding rounds seems to be decreasing significantly from 2015 (more than 550 rounds) to 2017 (less than 400). The combination of these two trends suggests a general intention of investors to raise their funds in the sector, but concentrate them in a few proptech businesses, which demonstrate to have more potential. In fact, the number of proptech companies funded by year decreased in 2015, for the first time after the beginning of the 2000.

Also, the amount of investment capital collected in the late stages of funding has been increasing significantly from 2014 on (Venture Scanner, 2018a), which proves that the global market is being

consolidating and is rapidly reaching a more mature stage.

In the global panorama, the US lead the investments in this industry, both in the number of funding rounds and in the amount raised (Singh, 2018). UK and China follow with investments that are proportional to the dimension of each Country. Other European Countries demonstrate to play a role on a global scale, such as Spain, France, The Netherlands, Germany, Finland and Poland (*Figure 10*).

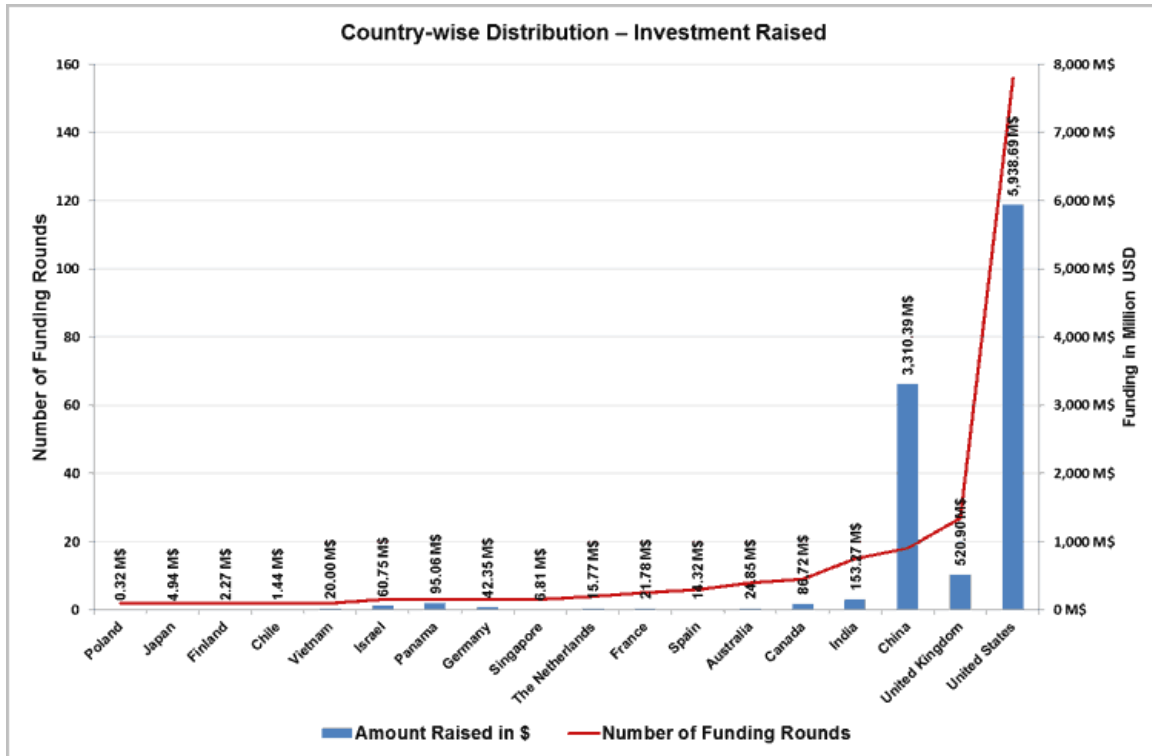


Figure 10: Investments in proptech companies by Country (Singh, 2018)

Proptech areas

The proptech sector comprehends a variety of business typologies that range from real estate management to financial services, transaction, construction, data exchange and digitalization of maintenance and facility management services. These loose boundaries explain the difficulty in elaborating a univocal and stable definition of proptech. Different interpretations are sprouting, which offer a separation of several proptech sub-sectors. These have been proposed mainly by consulting companies, but also by researchers and institutional sources.

Extant classifications are based on different criteria:

- One level (e.g. MIPIM, Venture Scanner and Gewerbe-Quadrat). These offer a typological clusterization of proptech companies, that aims at describing the extent of technological innovation;
- Two levels (e.g. CBInsights, James Dearsley and JLL). These reflect a differentiation of the activities by asset class, namely residential, commercial, or both; and
- Matrix of criteria where verticals and horizontals intersect one another to give a more complex interpretation of the innovation drivers (e.g. Baum, 2017).

Also, various graphical representations help visualize different aspects, as follows:

- Bubble charts have the advantage of showing the relative dimension of the different classes and make it possible to depict business relations (e.g. James Dearsley’s UK map and Spanish Estate);
- Tree diagrams with categories and subcategories allow to schematize the complexity of different business areas (e.g. CBInsights);
- Tables help represent different sectors and are functional to explain matrixes (e.g. Baum, 2017).

Finally, existing classifications work at different scales:

- Supra-national (three to seventeen classes), e.g. Venture Scanner (Venture Scanner, 2018b), CBInsights (Yatskevich, 2018), MIPIM (Yatskevich, 2018), and Baum (2017) for a global view, and JLL (JLL, 2017) for the Asia-Pacific area;
- National (12-17 classes), e.g. UK (Dearsley, 2017), Germany (Gewerbe-Quadrat, 2018), Spain (Spanish Estate, 2018), Finland (Käki, 2018), France (Flattin, 2017).

Gaps and methodology

This broad summary of the state-of-the-art leads to a few considerations.

First, European countries are pretty active in investing in proptech, which is demonstrated by Spain, France, The Netherlands, Germany, Finland and Poland (Singh, 2018). Italy is missing among these countries, for unclear reasons. For sure, something can be done to encourage both Italian proptech companies to attract the attention of investors, and local and international investors to focus their attention on Italian initiatives.

Second, no map of the Italian proptech still exists, at least to our knowledge. This lack can hinder investment attraction, as well as proptech business development.

Thus, the goal of this paper is twofold: (A) to develop a draft map of the Italian proptech sector; and (B) to outline a few critical actions that can contribute to the development of the sector in this Country. Moreover, debate about proptech is very recent, as the phenomenon itself, and academic contributions are still scarce, as Käki (2018) laments. Indeed, when searching through Scopus, only a couple of scientific papers appear for the word “proptech” (Jack, 2018; Shaw, 2018). Thus, an additional value of this paper will be to contribute to the proptech debate by applying a scientific approach to the topic.

In order to reach the abovementioned goals, we proceeded through subsequent steps.

- 1) We put together from several sources a list of Italian proptech companies;
- 2) We collected several proptech maps, we compared them and outlined the main clusters that appear at a global scale; then we created a map of the Italian proptech clusters;
- 3) We interviewed 6 Italian proptech startupper to understand their point of view on the strengths and weaknesses of this sector in Italy.

Results and discussion

Italian proptech companies

The analysis on the National innovative ventures related to the digital real estate universe was created taking into consideration four main sources: Internet, Fintastico online platform, Assolombarda database, and Polihub incubator. In addition, personal contacts of the researchers and our expertise allowed us to include some more companies in our analysis.

Google searches were performed on the internet through the following combination of keywords: “proptech Italia”, “startup innovative real estate Italia”, “immobiliare innovazione”, and “real estate Italy”. The most reliable websites were therefore selected and analyzed in depth. From this process only 14 proptech companies emerged which can be properly attributable to the Proptech sector.

Fintastico (<https://www.fintastico.com/>) is an online platform born in Italy just a couple of years ago with the aim to give users the opportunity to identify the digital services suitable to their needs, by selecting hundreds of fintech companies on the web. Fintastico contains also a section that is specifically dedicated to proptech businesses. This section collects proptech companies that valutarily manifest their existence and want to appear in the platform, or Fintastico organization scouts itself new companies through its contacts and expertise. From here, we gathered 4 proptech companies.

Assolombarda (<http://www.assolombarda.it/english-version>) is an Italian association of enterprises

based in Lombardy region. It currently expresses and protects the interests of about 6,000 companies of all sizes: small, medium and large, national and international, producing goods and services in all product sectors. Assolombarda plays a fundamental role in terms of representation and lobbying. Assolombarda shared with us a list of its associated startups active in the following business areas: architecture, energy, design & furniture, innovative tertiary, and chemistry and commerce. These are about 200, but only 13 of them could be identified as proptech startups.

Polihub (<http://www.polihub.it/en/>) is the startup incubator of Politecnico di Milano (Milan, Italy). It is the second biggest university incubator in Europe and the fifth in the world. Polihub's mission is to support highly innovative start-ups with scalable business models and to push cross-fertilization processes between the Academy, various startups and consolidated companies that are committed to innovation. On their website they present in a dedicated page all the startups that are joining the hub. However, only two of them could be recognized as proptech companies.

In the end, by word of mouth, other 10 companies were added in the list that finally collected 43 businesses.

Overall (*Figure 11*), most of the list (33%) has been composed through general internet searches. Fintastico and Polihub give access to only a residual number of proptech companies, respectively 9% and 5% of the total, while Assolombarda seems the only structured effective database, providing 30% of the companies' names. Unfortunately though, this acts at a regional level and does not reflect National data. A lot of information circulation is entrusted to the simple word of mouth that suggested 23% of the companies we were able to put together. This fragmented landscape can have affected our analysis, especially for what concerns the geographic localization. However, it must be noticed that the lack of a unified and trusted source where to lookout for proptech companies makes research in this field troublesome and can discourage not only scholars from enquiry, but also investors and potential customers from our National market.

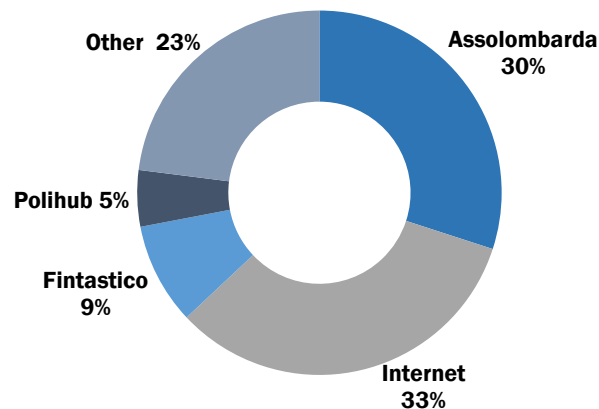


Figure 11: Italian proptech businesses by source

In the end, each single proptech was analyzed by year of foundation; localization (city); and description of the business (useful for subsequent clusterization).

The year of foundation (**Error! Reference source not found.**) shows that 2016 is a turning point for the development of this sector in Italy. In this year 11 proptech startups were born. This explosion is in line with the global phenomenon, but it might have been encouraged by a decree on tax incentives for investment in innovative startups (interministerial decree of 25 February 2016) released in the same year.

The geographic localization is considered in relation to Google and Fintastico sources, since Assolombarda and PoliHub embrace the catchment area only related to the region of Lombardy.

However, the largest concentration of proptech is highlighted in the north of Italy (88%) with particular attention to Milan. The presence of some proptech companies born abroad and operating in Italy is also underlined especially in Fintastico platform. They are 7, and their geographical location is mainly concentrated in the UK, Spain and Germany.

Overall, 43 companies seems still a small number if compared to the other European countries, many of which gave birth to hundreds of proptech companies in the last few years and appear in the first positions for *Investments in proptech companies* (Figure 10).

Proptech clusters

In order to build up an appropriate map of the Italian proptech, and effectively compare this with the international context, we proceeded through subsequent steps of elaboration. First, we thoroughly analyzed 12 proptech maps, five of which at supra-national level, and seven at national scale (see *Appendix*), and we matched them to obtain some transversal clusters. Then, we carefully read the descriptions of the Italian proptech companies and we matched these with the clusters previously obtained. Finally, based on Baum's (2017) verticals, we created four macro-categories that show a novel map of the proptech world, with a particular focus on the Italian area.

From our cross-interpretation of the proptech industry we retrieved 14 general clusters (see *Appendix*). Not all of them are present transversally in all supra-national and national maps.

Contech is a disputed category. Eight sources out of 10 mention it in the proptech panorama. However, we agree on Baum's argument that contech belongs to the construction world rather than the real estate world. Even if the engineering and construction sector could potentially converge in the real estate world soon, for now they can still be identified as distinct environments, with their own processes and progress. Consequently, we have excluded contech companies from our scouting in Italy.

The most common clusters are: Digital space (10 sources), Smartness & IoT (10 sources), Intermediation/disintermediation (9 sources); Financial services (10 sources); Facility, property and asset management (10 sources). The latter three clusters all entail a range of activities that strongly characterize the real estate sectors in the analog world. Hence, in the proptech world these services are reinterpreted in a digital logic. Digital space and Smartness & IoT are probably the first digital applications on buildings and real estate assets, thus it is not surprising that they are quite common across countries and well-established across sources. These two categories together with Safety and security, and Energy management can actually be incorporated into the whole "Smart real estate" vertical mentioned by Baum (2017), whereas Intermediation and Financial services regard the "Fintech" area. Facility, property and asset management, and Temporary spaces, workspace and events, which Baum (2017) would include in the "Sharing economy", can be rather identified as Product-service systems.

Generally, national categorizations tend to present a range of services related to "Information and knowledge exchange" that do not appear in supra-national clusters. These regard Professional services, Blockchain, Data and analytics, News/reviews, and Support to digital real estate businesses. In these clusters, Italian proptech include: General management, Consulting, Marketing, and Blockchain. The whole area that develops Data and analytics, News/reviews, and Support to digital real estate businesses seems particularly underdeveloped in our Country.

In all, Italian proptech companies belong to at least 8 out of 14 general clusters. These clusters can be merged into few overarching categories, following the approach proposed by Baum (2017).

However, we suggest a slight refinement of his three verticals. We confirm Smart real estate and Fintech as the most developed macro-sectors. The first including: Digital space, Safety and security, Smartness and IoT, and Energy management; and the second composing of: Intermediation/disintermediation, and Financial services. In our view, what he calls Sharing economy could be rather interpreted as Product-service systems, related to both Facility, property and asset management, and Temporary spaces, workspace and events. We also identified one more macro-sector in the Information and knowledge exchange, which comprehends Professional services, Blockchain, Data and analytics, News/reviews, and Support to digital real estate businesses.

Strengths and weaknesses of the Italian proptech sector

To detect strengths and weaknesses of the Italian proptech sector, we selected six companies from those that had been previously identified, and called their CEOs for an individual phone interview. The interviews followed a semi-structured list of questions directed to understand their perspective on the Italian proptech market, such as: (A) What is your view on the maturity of the proptech market in Italy? (B) What do you believe are particular challenges for proptech companies willing to establish their business in Italy?

All the interviewees talked about proptech as a business sector in its infancy. Unlike the European context, which is due to experience a boom, Italy remains a bit behind. According to our interlocutors, the main factor that is pulling back corresponds to a lack of adequate legislation, which should be developed with a mind-set ready for the change.

Regarding the challenges for proptech in Italy, several inputs emerged.

First, public administrations and bureaucracy often become an obstacle rather than facilitators and supporters of the process. This problem is transversally affecting numerous industries in Italy, and it is certainly not typical only of proptech.

Second, Italian startups demonstrate an individualistic attitude. This of course reduces information exchange and opportunities for collaboration. Probably the blurred panorama of the Italian proptech sector discourages single entrepreneurs from establishing new relationships and meaningful contacts with other innovative businesses. The difficulty of ventures to get to know each other might depend on the fact that no source offers a database to collect all of them and no events are organized to push cross-pollination.

Moreover, also cultural issues have been risen. Some of the most recurrent expressions in our interviews describe the Italian context as characterized by a “Conservative environment”, “difficult to adapt”, linked to a “cultural and sociological heritage that are difficult to unhook”, based on an “archaic system where trust and credibility are the two major obstacles”, and lacking “transparency and data circulation at a National level”.

Conclusions and perspectives

This paper has provided a first scientific attempt to (A) develop a draft map of the Italian proptech clusters; and (B) outline a few critical actions that can contribute to the development of the sector in this Country.

(A) Regarding the classification initiated in this paper for the Italian market, it is possible to identify 3 fundamental areas that could be object of future research. First, *Crowdfunding* seems the most promising area. Probably this depends on the fact that Italy was the first European country to have introduced a specific and organic regulation for equity crowdfunding in 2012. Understanding the specificities of these operations in Italy might be interesting. Another area of great interest is that of *Short-term rental and hospitality*. Given the large number of non-primary homes owned by Italian families (“second and third homes”), this area expresses great potential for growth. Proptech operating in this area are becoming very successful, including those that offer services to support Airbnb (marketing, concierge, facility and property management), and those that have been developing other innovative building products. Finally, a peculiarity of the Italian market should be noted: various companies in the sector can be traced back to the *Professional services* area (general management, consulting, marketing). These companies are born with the aim of providing innovative services to professionals and real estate operators, which gives the sense of many traditional real estate enterprises in need for help in transitioning to a digital model.

(B) The gap of the Italian real estate market compared to more advanced contexts is due, in large part, to the lack of data and transparency. This can be a great opportunity for those who, thanks to digital innovation, are able to use advanced tools for the collection of geo-referenced information, relating to real estate, and to process them for specific needs. The same Baum (2017), in his matrix, recognizes

that the theme of information management is transversal to all the proptech categories he identifies (Real estate fintech, Shared economy, Smart real estate). This potentially advantageous feature, however, is also the main obstacle to the development of the proptech sector in Italy. The difficulty in obtaining information, from open-data sources and more generally in a structured and reliable manner, makes it very difficult to develop innovative services that, on the contrary, are the reason for the success of many companies operating in the international market. This determines the difficulty, on the one hand, of foreign proptech companies to enter the Italian market and, on the other hand, of Italian proptech companies (especially startups) to draw inspiration from the international ones. This difficulty relates also to the lack of a unified representation of the sector. This makes it very difficult to find opportunities, for those wishing to invest, especially if we consider that investors prefer companies with a reliable track record, whereas the proptech sector is still in an embryonic stage in Italy.

In conclusion, the Italian proptech sector presents characteristics that make it very interesting in terms of growth potential. In particular, certain areas are structurally more favorable to the development of new business opportunities, namely crowdfunding, short-term rental and hospitality, and professional services. These areas could potentially attract investors who, working in mature settings that are already widely covered, are looking for new opportunities in young markets. We identify as a priority the establishment of a permanent observatory, able to aggregate proptech companies and to represent them in a unitary way, which can support this process.

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Appendix

Table 10: Comparative scheme of supra-national and national proptech maps

Categories	(Baum, 2017)	Clusters	1 ^a	2 ^a	3 ^a	4 ^a	5 ^a	6 ^b	7 ^b	8 ^b	9 ^b	10 ^b	11 ^b	12 ^b	Italy	
Contech	Contech	Contech		•	•	•	•				•	•	•	•		
Smart real estate	Smart real estate	Digital space	•	•	•	•		•	•	•	•	•	•		Virtual reality	
		Safety and security										•				
		Smartness and IoT		•	•	•	•	•	•	•	•	•	•	•		Smart building/IoT
		Energy management		•	•	•						•	•	•		
Fintech	Fintech	Intermediation/disintermediation	•	•	•		•	•	•	•	•			•	Short-term rental and hospitality; Brokerage	
		Financial services	•	•	•	•	•	•	•	•	•	•		•	Investment and auction; Crowd-funding	
Product-service systems	Sharing economy	Facility, property and asset management	•		•	•	•	•	•	•	•	•		•	Management (marketing, facility and property)	
		Temporary spaces, workspace and events	•				•	•				•	•	•	Workspace and co-working; Event spaces	
Information and knowledge e•change		Professional services	•		•			•	•	•				•	•	General management; Consulting; Marketing
		Blockchain						•		•						Blockchain
		Data and analytics	•	•						•	•					
		News/reviews							•		•	•				
		Support to digital real estate businesses							•	•	•		•	•		

Legend: ^(a) Supra-national map; ^(b) National map; (1) *CBIInsight* (Yatskevich, 2018); (2) *MIPIM* (Yatskevich, 2018); (3) *Venture Scanner* (Venture Scanner, 2018b); (4) *JLL* (JLL, 2017); (5) *PropTech Map* (Real Estate Innovation Network, E•po Real and PwC, 2018); (6) *UK* (Dearsley, 2017); (7) *Germany* (Gewerbe-Quadrat, 2018); (8) *Spain* (Spanish Estate, 2018); (9) *France* (Flattin, 2017); (10) *Finland* (Käki, 2018); (11) *The Netherlands* (Grünewald, 2018); (12) *Poland* (SkyConcept, 2018).