Designing urban rules from emergent patterns: co-evolving paths of informal and formal urban systems - the case of Portugal

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Abstract. In many societies, informality has been a relevant part of the construction of the urban fabric. This is valid along a city’s history and in recent urbanization processes. In the past, informality was in the origin of many of urban planning. Very soon urban planning adopted, as one of their main missions malfunctions in cities. Therefore, the need of formalization became one of the main reasons on the emergence, the control of informal processes. As an answer to informal individual solutions, urban planning responded with standardized rules and the urge of creating spaces fitting into pre-established rules instead of rules fitting in to spaces. Urban planning as a discipline has gradually changed its path. The contrast between urbanization promoted under formal urban planning and informal urbanization is only one sign of the mismatch between urban planning actions and informal urbanization dynamics.

Considering this tension between formal and informal dynamics, in some cases, planning rules and planning processes continue ignoring informal dynamics; in other cases, planning rules are designed to integrate informality “without losing its face” through “planning games” [1]; and a third and less explored way in which planning systems interact with informality and from that interaction learn how to improve (we consider it a process of enrichment) planning rules while they promote an upgrade of informal interventions [2]. This latter win-win situation in which both informal and formal systems benefit from their interaction is still rare; most of the time either only one side benefits or none benefit from the interaction. Nevertheless, there are signs that from this interaction co-dependent adaptation might occur with positive outcomes for the urban system – in which co-evolutionary dynamics can be traced.

We propose to look at the way building rules have been designed in Europe in a context considered successful in the sense of dealing of informality – the one of Portugal. The country experienced a wave of informality associated with illegal urbanization since the 1960’s in the main urban areas. The process of interaction between informal and formal urban systems proved to be a success in statistic terms. Slum clearance reduced the existence of informal occupations to almost zero. Informal settlements involving land tenure have been dealt with in the last two decades with considerable positive impact in the urban fabric.

Based on this, with this paper we will evaluate how informal and formal systems are impacting each other and changing along the time the shape of building and of planning rules. For this we will look at the planning tools created to formalize informal settlements in the Lisbon Metropolitan Area from the last forty years to see how urban and building rules were adapted to respond to the specific needs of informal settlements; how this adaptation moved from temporary and exceptional to permanent rules; finally, how were these new rules able to “contaminate” the general planning and building codes. We aim that these findings would help us to contribute to a “healthier” relation between formal and informal urban systems, not ignoring each other, not controlling each other but instead learning with each other. By achieving this, planning systems become more responsive; on the other hand, informal occupations can be upgraded without being destroyed with the contribution of the planning systems.
1. Introduction
Informality has been at the root of a relevant part of the construction of the urban fabric. All over the world this is valid for a city’s history and recent urbanization processes, particularly in the global south [4]. Informality was the origin of many malfunctions in cities, but also the “normal” way of building them. The need of formalization became one of the main reasons for the emergence of urban planning as a discipline, to deal with the effect of rapid industrialization and population growth. Very quickly urban planning adopted, as one of its main missions, the control of informal urban development. As an answer to individual informal solutions, urban planning responded with standardized rules. The creation of spaces that fit into pre-established rules replaced rules fitting into pre-existent spaces. The contrast between urbanization promoted under formal urban planning and informal urbanization is only one sign of shift. Another is the interdependence between urban planning actions and informal urbanization dynamics.

We proposed to look at the way building rules were designed in a European context that was considered successful in the sense of dealing with informality – the one of Portugal. The country experienced a wave of informality associated with illegal urbanization since the 1960’s in its main urban areas. The process of interaction between informal and formal urban systems proved to be a success in statistic terms: informal settlements involving land tenure have been dealt with in the last two decades, with a considerable positive impact in the urban fabric.

The Lisbon Metropolitan Area will be the focus of this paper for two main reasons. First, the Portuguese urban informality had its largest expression in this territory. In the 1980’s, over ten percent of the population of this metropolitan area resided in informal settlements. This dynamic coincided with another one – the conceptual shift from the Greater Lisbon to the Lisbon Metropolitan Area. In 1986, Portugal joined the European Union and benefited from EU funds through the ERDF (European Regional Development Funds) program, dedicated to the construction of infrastructure. During the second half of the 1980’s and during the 1990’s, the face of the metropolitan area radically changed. The dependency from a single pole (the municipality of Lisbon) to the development of a formal multipolar structure put some of the former peripheral informal settlements into the centre of the LMA.

The interaction between formal and informal is therefore useful to understand the contribution of informality to the construction of the metropolitan fabric. Most approaches look at formal and informal systems separately. Comparative studies on this field, in regards to the interaction of formal planning institutions with informal settlements, are scarce [5]. It is easy to find research on formal planning systems, also on informal ones, but much less easier to find comparative ones between the two. This dichotomy between formal and informal that is based on a regulatory vision of planning narrows the interpretation of people’s personal needs [6] and impeaches the improvement of planning tools.

Informality implies the existence of a formal statutory system that regulates urban transformation and expansion. Some experiences in (mainly southern) European countries are said to be relevant as inspiration for new ways of dealing with informal settlements [7]. In the case of Portugal, recent researches add evident signs of co-evolution between informal settlements involving land tenure and planning institutions [2], and the fact that the possession of land might play a relevant role on how spatial policy and planning instruments have been designed in recent decades [3]. As opposed to other situations in which “one fits all” solutions were applied independently of land tenure [9], in the Portuguese case, land tenure seems to play a crucial role in relations between formal and informal, or in practice in the relation between individuals and planning institutions.

This has an impact on urban design, by way of how territorial development is shaped and how spatial strategies are informed towards a more sustainable territorial setting, by combining the individual needs with metropolitan visions are. There is a fine grain of connection between one and the other that often escapes the planner and urban designer’s scope. In fact, it is not always easy nor evident how to combine in a coherent discourse the glamour around new centralities and the much less glamorous background of informal settlements.
Based on this, we pretend to make an evaluation of how informal and formal systems are impacting each other and changing the shape of building and of planning rules. Therefore, we will look at planning tools created to formalize informal settlements in the Lisbon Metropolitan Area from the last forty years to see how urban and building rules adapted to respond to the specific needs of informal settlements; how did this adaptation change from temporary and exceptional to permanent rules; finally, how were these new rules able to “contaminate” the general planning and building codes. Our aim is that these findings would help us contribute to a “healthier” relation between formal and informal urban systems, neither ignoring, nor controlling/being controlled processes, but instead engaging on learning. By achieving this, planning systems can become more responsive; on the other hand, informal occupations can be upgraded without being destroyed by the contribution of the planning systems.

This paper is based on the planning data collected from the website of Direção Geral do Território – Sistema Nacional de Informação Territorial (Territorial Information National System), the Portuguese database of planning instruments, from the national to local level. We analyzed all the detailed plans approved for the municipalities that compose Lisbon Metropolitan Area. Another element was crucial to this research, the analysis of the AUGI Act. This legal document was approved in 1995 by the national parliament, culminating three decades of attempts to formalize informal settlements. To discuss it, in section 2 we will establish the formal and informal settings that constitute the ground to the debate, based on a bibliography review. In section 3 we will present the way formal and informal settlement had evolved in an interdependent way until the “moment” in which they started to co-evolve. In section 4 we will present the data regarding the use of planning tools to deal with informal settlements. In section 5 we will discuss those findings before moving on section 6, the conclusion and final remarks on advantages and limitations of the co-evolution between informal and formal systems.

2. Formal versus informal

In some cases, planning rules and planning processes continue ignoring informal dynamics. The first generation of urban regeneration policies Error! Reference source not found. was launched to deal with informal settlements (slums in particular) in countries that experienced the effects of the industrial revolution earlier. Slum clearance was a major movement mainly in western Europe, first in-between wars in England, later in the post second world war in countries such as France. If this worked as a significant and effective way of reducing informal settlements in many western European countries, it solved mainly physical issues. Decades later, these countries are still dealing with the negative (mainly social) effects of the radical measures and are still seeking alternatives. The global south seems to be discovering this “old” way of dealing with informality and negative social impacts can be expected from these processes [9]. In fact, in many cases, early informal settlements that were formerly peripheral became surrounded by formal urbanisation. New accessibilities and infrastructure contributed to increase the attractiveness of these areas.

In other cases, planning rules are designed to integrate informality “without losing its face” through “planning games” [1]; all over Europe, law-amendments, amnesties, and temporary windows of legalization have been opened. In many cases they are materialized in self-declaration procedures, payment of penalties, temporary legalizations and formalization with some restrictions. They concentrate more on bureaucratic procedures involving financial compensation. Most of the time, compensation is neither enough to finance the infrastructure nor represents a real penalty for landowners. In a context in which informality evolved from fulfilling basic housing needs to become the way to build secondary homes in privileged areas, in many cases this compensates. This formalization through the design of exceptional rules has worked mostly to statistically reduce the number of informal settlements than as an effective way of upgrading them.

Less frequently, planning systems have been interacting with informality. From that interaction they learned how to improve planning rules and at the same time promote an upgrade of informal occupations [3]. The research on this process added some differences in comparison with the two previous cases. This learning process was the result of several decades of interaction between informal settlements and planning institutions. It reflected the diversity of informal settlements and gave more sustainable answers
to informality. Given this, which seemed to be effective in the Portuguese case, some qualities of the process emerged: the long-term process of trying and failing was also the opportunity to experiment; the length of several processes developed at the national level allowed the establishment of long-term relations between actors as a fundamental ground for trust; and finally, all this context permitted the establishment of short-chains. These undermined processes of self-organisation and co-evolution, which together with other examples from southern Europe (Italy, Spain, Greece), are considered to be relevant and innovative by international institutions such as the United Nations.

It is important to note that these are not rigid patterns. In fact, it is possible to find within the same planning system the three different approaches. In Portugal, the “old fashion” slum clearance is still implemented, while at the same time administrative mechanisms to formalize the informal is also applied (recently an exceptional regime was launched in order to allow the formalization of economic activities installed in informal buildings). At the same time, more innovative and intertwined solutions have been implemented. Several factors might explain this. The lack of land tenure plays a crucial role when it comes to adopt more radical urban design changes. When informal settlers have no property rights, planning institutions feel free to define the design settings according to other criteria than the needs and aims of future residents.

The latter win–win situation in which both informal and formal systems benefit from their interaction is still rare; mostly, either one side benefits or none benefit from the interaction. Nevertheless, there are signs that from this interaction, co-dependent adaptation may occur generating positive outcomes to the urban system – in which co-evolutionary dynamics between planning institutions and informal settlements can be traced. Since this was possible to identify at the law-making level, In the following sections we will describe and discuss the main challenges at the urban design level.

3. Formal and informal settlements in Portugal

3.1 The formal setting

The Portuguese planning system evolved from being mainly concerned with urban areas (during the 1930’s), moved on to the regional scale influenced by economic planning, and later covered the entire territory at the municipal level. In the 1930’s, the first planning system in Portugal was created, with the establishment of urban plans for the largest cities in the country. In the meantime, the first officially considered informal settlement in Portugal was built in the outskirts of the city of Lisbon.

The 1960’s – the Plano Diretor da Região de Lisboa and the “informal” explosion of the city suburbia emerged. In the 1960’s, the first regional plan of Lisbon was produced. That plan still followed the concept of a greater Lisbon, which concentrated all the iconic functions of a national capital, such as government structures and public agencies combined with historical features, and, in a much lower level, combined them with a mixture of incipient satellite cities combined with dormitory areas. In this conceptual frame all the urban areas depended on the city of Lisbon. The plan also showed some environmental concerns that were quite inspired by the British planning system, by introducing the idea of a green belt. Since the city of Lisbon was corresponding to its administrative limits, the green belt corresponded predominantly to the suburban municipalities. The south bank of the river was considered mainly as a protected area that was to be preserved. Unfortunately, nobody knew how to do it, and with what means (Figure 1).
Figure 1. The Regional Plan of Lisbon (Plano Diretor da Região de Lisboa) from 1964: most of the areas from the green belt on the south bank actually became informal settlements.

The municipal level, which in content corresponds in general to a zoning definition, became mandatory in the 1990’s and later in the following decade gained more strategic content [10]. By the 1990’s an entire planning system was consolidated in theory with the publication of the decree-law 380/99 and in practice with the publication of the first version of the national spatial planning framework, known in Portuguese as Programa Nacional de Políticas de Ordenamento do Território (PNPOT). In the 2000’s, a part of the national territory had regional plans approved. The recent trends on spatial planning system emerged in the present decade with the concentration of binding rules applicable directly to private (individual or collective) entities on the municipal level, while the regional and national became or remained exclusively as orientations for municipal plans.

The next regional scheme was launched in the 1990’s and corresponded to the shift from the greater Lisbon to a metropolitan concept in two steps. The first and so far only regional plan that had a development scheme very similar to a mega land use plan; by analysing it one can see that it corresponds very much to the sum of the zonings of the different municipalities composing LMA. A second version of this plan was produced in the 2000’s but was never published (although it reached the phase of public discussion) and the process is already interrupted in the present decade due to the financial and economic crisis that affected Portugal and postponed many public investments in the metropolitan area (namely a third bridge connecting the two sides of the Tagus river and a new international airport in the south bank). While the first regional plan had an inclusive tone, this unfinished version had a selective approach in terms of the design of a regional development model.

3.2 The informal setting
The first illegal settlements in the Lisbon metropolitan area (LMA) were associated with dense industrial areas and emerged in the 1930’s. This was considered the first illegal settlement because for the first time an entrepreneur promoted a settlement to answer peoples’ needs of housing, predominantly of the working-class families.

In the 1960’s, informal settlements had spread all over LMA and diversified in size (from the minimum of 0.5 ha to several hundred hectares), typology (from multi-story apartments to individual detached houses), density, resistance of construction (since new structural elements were without previous
calculations), uses (from primary to secondary houses), visibility (from “real buildings” to permanently settled vans and even caves without any above the ground construction), tenure (from rented dwellings to self-owned houses), and environmental contexts (from river basins to slopes). In compensation for this diversity, the LMA informal settlements had a few things in common, among them the fact that they were built on rural land where construction, according to the incipient planning tools, was not allowed and that it was generally in a context of weak law enforcement.

With time passing, a specialization of areas emerged. In the 1990’s, this was already clear. The single house plot of land build under a regular geometric street pattern pre-established by the seller became the primary residence of many families living in LMA when settlements were relatively close to elements which could allow metropolitan integration – accessibility, concentrations of jobs, … In the cases where there were other values, such as in environmentally privileged areas and not so close to territories where jobs were concentrated, they became mainly areas for secondary residences. And third, the areas that were not interesting enough to attract enough numbers of either primary residents nor secondary residents and for that matter remained in limbo. This period of around four decades provides clear signs of evolution, as we will see in section 5. But before that, in the next section we will see how the planning system influenced the way informal settlements were formalized.

4. Formalization of informal settlements in the last 20 years – the case of Lisbon

In this section, we will focus on data regarding the detailed plans designed to formalize informal settlements. While in previous decades informal settlements were (1) first ignored and (2) then dealt with as if they were regular occupations, two decades ago a special regime was created to formalize this kind of settlement and which has been applied since then. With the approval in 1995 of the AUGI (acronym for ‘Áreas Urbanas de Génese Ilegal, which can be translated into urban areas generated by illegal processes) Act, a completely new setting was established. Since then a single model of formalizing was created in addition to a diversity of tools, processes and decision-making procedures.

First, the formalization of areas had to be included in municipal zoning plans as areas with vocation to become urban spaces, to be declared AUGI. When the law was published (1995), many municipalities were working on their land use plans, either concluding, discussing or approving the proposals. This was an important moment to launch the discussion between the municipalities and regional authorities about which informal settlements should be formalized and those that should not be. The general tendency was towards formalization with some exceptions. Especially on the north bank of LMA, informal settlements in land slide risk areas were excluded from this process. On the south bank the exceptions to formalization happened with the informal settlements located in coastal areas. This refusal to formalize was effective in planning terms, although it didn’t lead to demolitions and clearance of those areas in the short term:

- On the north bank, up to this day not many things have changed. Constructions remain in this risk area; without a chance to be legalized, access to infrastructure is precarious and the few improvements in public spaces are predominantly done to allow circulation. It is important to say that these areas, although very visible because they are built on slopes, represent the backyard of many municipalities, including Lisbon, where some of these informal settlements are located behind the airport.
- On the south bank, the situation is significantly different, with a special program being launched for the regeneration of the ocean front where many of these informal settlements are located. The Polis Program was a nationwide instrument created to regenerate urban waterfronts, launched after and inspired by the success of the regeneration of the industrial site where the EXPO’98 took place in the east side of Lisbon. A coordinated set of planning actions was carried out and a significant part of these occupations were relocated. It is important to mention that Portugal’s coastal areas are severely endangered by erosion and this plays a significant role in public debates and in public opinion in general, with a combination of general acceptance of the need of set backing with nimby local behaviours.
Once the it had been decided to formalize informal settlements, the model of management was defined by having in mind the diversity of situations referred to in the previous section. The management process could be either lead by the landowners, the municipality or by both the landowners and municipality. Some informal settlements had landowners with skills to deal with bureaucratic and technical procedures, usually because they had medium or high educational backgrounds. In other cases where those skills were missing, they could express their interest at the municipality’s process leadership, creating grounds to deal with the variety of financial, technical, and juridical issues which the formalization process implied.

One of these technical issues referred to the way of formalizing the urban design layout. This could be either made (1) through the submission of a parcelling out proposal by the landowners to the municipality (initially this corresponded to the cases in which the process was coordinated exclusively by the landowners) or (2) through a detailed plan to be produced by the municipality (initially this option was chosen when the municipality was assuming the coordination of the process). The parcelling out process was, most of the time, a follow up of the work already made by landowners before the AUGI Act was published. It was easy to design and to apply in less conflicting contexts. Detailed plans were usually adopted in the cases in which some land adjustments had to be made to the binding conditions defined by the municipal land use plan. In other cases, detailed plans helped to redistribute costs and benefits among landowners.

Either in the case of parcelling out or in the case of detailed planning, the urban design proposal was usually confined to the informal settlement official limits. Moreover, the binding rules were concentrated on combining the application of spatial planning rules with landowners’ recognized rights. It must be said that the application of spatial planning rules - from land use master plans to national laws defining street width or per capita collective facilities’ needs – were subjected to exceptional regimes. Sometimes informal settlements were already occupied in a way that made it difficult or impossible to achieve the ratio of soil for collective needs. In other cases, different street widths were adopted because setbacks were impossible to apply (informal settlers currently use the tactic of making constructions on the edges of the informally created plot of land to secure as much as possible what they consider “theirs”). The adoption of a detailed plan was the solution found by planning institutions to validate these exceptions. It is important to also mention that planning procedures became very open since the beginning (1990’s) and were subjected to a scrutiny from different levels of public administration (Figure 2 to 4). Also in the case of more binding rules, exceptions were created. Sometimes pre-existent buildings had a different height or number of floors from the plan’s rules. If they proved to provide healthy conditions in terms of ventilation and insolation, then they could be accepted as exceptions. The same could occur with the amount of built square meters, of functions, and of number of units.  

![Figure 2. Detailed plan from 1992 (municipality of Odivelas, LMA, north bank): one of several examples of formalized ex-informal settlements exclusively residential.](image)
Figure 3. Detailed plan from 1988 (municipality of Palmela, LMA, south bank) – flexibility on parameters: landowners were allowed several options from new constructions with full demolition to the possibility of keeping informal constructions or adapting informal constructions and enlarging them.

Figure 4. Detailed plan from 1988 (municipality of Seixal, LMA, south bank) – flexibility on parameters: landowners were allowed to decide which building typologies to adopt, although it must respect the ratio of construction.

In many informal settlements it is possible construction-wise to identify a “before” and “after” formalization. Also, at the public space level they represent an upgrade of the urban network, compared with formal settlements. The fact that taxes paid by landowners were applied in the formalization of informal settlements had a strong impact on these areas. The impact of assuming the payment of considerable sums of money by the landowners was generally well accepted because they would see money being applied on their streets and their neighbourhoods. But leaving the ex-informal settlement reality was totally different. These areas became connected with the rest of the urban realm by poor infrastructures, with insufficient number of collective facilities and suffered from an informal stigma.
This already long process of two decades of formalization of informal settlements changed the face of the metropolitan area of Lisbon and became an effective contributor to the metropolitan urban fabric. With the consolidation of the metropolitan network they experienced new and different contexts. While some joined and suburban areas, becoming one more dormitory of Lisbon, others became new urban centres with relevance at the metropolitan level. And finally, some remained not formalized, either because they didn’t follow environmental criteria or because landowners didn’t mobilise themselves to formalise their settlements. In the next section, the interactions of informal settlements with planning institutions will be addressed.

5. Discussion
The process of formalization initiated more than two decades ago represented an enormous effort from both planning institutions and informal settlements to cooperate. This interaction had impacted each side of the table and affected the way they evolved. To formalize, informal settlements had to follow a strict number of rules. This inspired the binding rules created to the new formal settlement. It is striking in this respect the contrast between the diversity of informal settlements that emerged from decades of urban sprawl and the unifying character of binding rules that were designed to formalize them. In some cases, the rules were useful to control the density of some informal areas, but in some cases they also contributed to their densification.

Formalization was not achieved without mutual permanent change. Planning institutions created exceptional rules to deal with informal settlements. In some cases, informal settlements were composed by landowners who had never seen each other before. This made it difficult to design arrangements and to do simple things, such as registering land to conclude formalization. To overcome these obstacles, land registration became possible as an individual act (instead as a collective act as was before the AUGI Act). The system proved to simplify so much bureaucratic procedures that this simplification ended up being adopted also by general legislation.

The contribution for a metropolitan network revealed a process of adaptation undermined by another process of selection [11]. While time passed another process of adaptation emerged. Formal allows land right, enforces land tenures and eases transactions of land between new and old landowners. The change of the metropolitan setting put some new-formal settlements in the spot. The 1990’s when formalization started was also the decade of large public investments in infrastructure. Peripheral areas, such as the ones where informal settlements were located, became opportunity areas to develop those infrastructures. They include new metropolitan highways, a new bridge over the Tagus River and relevant investments on public transportation such as train and tram lines. The scale of informal settlements was also relevant for the change. An initial wave of occupants created a functional structure, emergent from the sum of hundreds of individual actions Error! Reference source not found. The combination of large scale informal settlements and good accessibility allowed the arrival of new residents to these areas. Of course, this cannot be generalized as many areas remained as dormitories, attracting low-income segments of the society, many of them immigrants.

6. Conclusions
With this paper we tried to highlight the potential for improvement of planning rules through the interaction with unplanned settlements, which are quite often confused with spaces with no rules. We chose LMA, an area where a process of informality took over in recent decades. Still, to this day, informal areas are being integrated in the metropolitan setting. We can say that those areas that were not successful in terms of formalization are those that, for one reason or another, were out of the metropolitan system, either because the accessibility network didn’t reach those areas or because, despite being in the inner parts of LMA, they are enclaves where natural risks are evident. And so far, this has been a red line for formalization, although not so much has been done in alternative to non-formalization.

As opposed to coastal areas where planned retreat has started to be discussed, this did not happen in terms of inner informal settlements in risk areas. However, the setting could not be better in terms of resettling. There were good reasons for removal since the State could not ensure the safety of people and
goods in landslide risk areas and therefore they could not formalize these settlements. And even with the economic and financial recovery of the last couple of years, which has attracted new investors for non-consolidated urban areas, the offer of vacant soil is still much higher than the search for it. Therefore, a displacement from risk areas to empty spaces in urban areas could be an option to be explored.

Evolution relates to adaptation in a permanent way to surrounding conditions. Co-evolution is to proceed to that change in an intertwined way with another entity, body, or system. When we look to the interaction between planning institutions and informal settlements this is clear, and the effect caused on each of them. At the legal level, planning institutions learned how to create more flexible possibilities governance-wise. Institutions shared with informal settlements the leading role of formalization, instead of concentrating, as it was happening before 1995, when the AUGI Act was approved and implemented.

If at the governance level the achievements are evident we can see that at the planning rules the tendency was to integrate the previously established codes without major changes. The reasons for that are there to be explored in further research. Possibly one reason was to ask the least of informal settlements in terms of urban rules (number of floors, ratio of construction, functions, setbacks) to simplify communication. By doing that, it was easier to communicate with landowners. On the other hand, the time to explore and test and sediment new rules was short. Landowners expected that during decades of formalization and to engage in a new experimentation process at the local level probably became more difficult to be accepted. However, it is interesting enough because this deconstructs the recently traditional perception; that the more we reach the top of the hierarchy the less effective decision-making processes are. In fact, in this case planning institutions’ adaptation seemed to be easier to formalize at the national level, with the parliament approving the AUGI Act, rather than at the lowest level of planning institutions – the municipalities. One reason for this may be that the decisions taken at the national level have it easier to introduce shifts in their path because they congregate aims from multiple stakeholders, whereas at the municipal level the landowners’ aims are perceived more as individuals and for that less legitimate to cater to.

When we go into detail to the urban scale, we see how different patterns emerge and how planning institutions deal with them. First, some very particular features characterize these informal settlements. Once they were formalized, they brought into light urban spaces consolidated in terms of urban grid – with streets being completed at the ground and at the infrastructure levels, while the tissue remained quite unfinished. This is a challenge for urban management. Another feature is that as opposed to planned settings in which plans define centralities, in the cases of larger informal settlements, the emergence of centrality patterns occurred in a quite different way depending not of a collective debate but instead of a sum of hundreds or thousands of individual initiatives that later defined centralities’ patterns. Some shifts contradict pre-assumed ideas on informal settlements. For example, in the case of density there are many references of how high densities are in informal settlements as opposed to formal ones. Well, in the case of LMA there are many cases that the shift was inverse from expected. Instead of formalization decreasing density, in many cases the opposite occurred as part of the process of metropolitan integration. Aims and wishes from informal settlements’ landowners were most likely inspired by a rural background in which the detached house surrounded by some vacant soil is the representation of their dream house. Shifting from an informal remote settlement to a formal networked settlement they attracted new residents, mainly young couples moving from more central and densified suburbia to more distant yet better connected territories where their aims of a house could be fulfilled. The match between the formalization, the metropolitan integration and new residents’ aims made a new pattern of occupation emerge, the one of semi-detached houses, which doubled in practice the previous densities generated by informal settlements. Among others, informal settlements’ formalization remains a fascinating field of research, opening opportunities of reinterpretation of the urban fabric.

References
[1] Calor I 2017 A ilegalidade urbanística e o sistema de planeamento. Perspetiva comparada sobre políticas e práticas de controlo urbanístico de obras particulares PhD thesis (Lisbon: New University of Lisbon)
[2] Silva P and Farral H 2016 Lessons from informal settlements: a ‘peripheral’ problem with self-organising solutions Town Planning Review 87 297-319
[3] Silva P and Farral H 2016 From informal to formal: what can be learned from reviewing 50 years of portuguese models, policies and politics in Attia S, Shabka S, et al. (eds) Dynamics and resilience of informal areas – international perspectives (Cham: Springer Nature) pp 25-42
[4] Alzamil W 2017 The urban features of informal settlements in Jakarta, Indonesia Data in Brief 15 993-999
[5] Ascensão E 2016 Interfaces of informality City 20 563-580
[6] Davy B 2014 Polyrational property: rules for the many uses of land International Journal of the Commons 8 472–492
[7] UNECE (United Nations Economic Commission for Europe) 2009 Self-made cities: In search of sustainable solutions for informal settlements in the United Nations Economic Commission for Europe Region (New York and Geneva: United Nations)
[8] Carmon N 1999 Three generations of urban renewal policies: Analysis and policy implications Goeforum 30 145-158
[9] Jones P 2017a Formalizing the informal: understanding the position of informal settlements and slums in sustainable urbanization policies and strategies in Bandung, Indonesia Sustainability 9 1436
[10] Campos V and Ferrão J 2015 O Ordenamento do território: uma perspetiva genealógica ICS Working Papers 1 (Lisboa: Instituto de Ciências Sociais da Universidade de Lisboa) [Online]. Available from: http://www.ics.ul.pt/flipping/wp2015_1/index.html
[11] Silva P 2014 Infrastructures: discontinuities, design and planning in Bartolomei L and Bortolloti A (eds.) Ricerca e progetti per il territorio, la città e l’architettura, (Bologna: Departamento de Arquitetura, Univ. Bologna)
[12] Silva P 1996 Tendências recentes de ocupação do território: o caso da Quinta do Conde (unpublished MSc. thesis) (Lisbon: University of Lisbon)
[13] Totry-Fakhoury M and Alfasi N 2016 From abstract principles to specific urban order: Applying complexity theory for analyzing Arab-Palestinian towns in Israel Cities 62 28-40 [Online]. Available from: DOI 10.1016/j.cities.2016.12.001
[14] Calor I and Altermann R 2017 When enforcement fails: Comparative analysis of the legal and planning responses to non-compliant development in two advanced-economy countries
[15] Jones P 2017b Unpacking informal urbanism: Urban planning and design education in practice (Bandung: Penerbit ITB)