

Understanding the Relationships between Spatial Organisation and Adaptive Capacities in African Informal Markets: The Toi market case study, Nairobi (Kenya)



Fig. 1: Toi market after the 2008 crisis. Photos credit: Cardosi, 2011

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Abstract: Since the 1960s, design and urban development studies have analyzed spatial transformations in informal settlements in developing countries. While housing has represented the focus of research and policies for decades, informal, or unauthorized, markets have been poorly considered, despite their relevance in the urban growth. Moreover, critical aspects of spatial transformations, such as adaptation and effective adaptive capacities, have been most often addressed from within the resilience and climate change framework. Hence, very little is known



about the relationships between design and adaptation to urban conditions related to tenure insecurity in informal markets, where poverty, marginalisation, and demolition and eviction risk represent daily stressors. This research analyses the role that design, intended as individual or collective deliberate transformation of space, plays in enhancing adaptive capacities in informal markets. Based on a conceptual framework that includes Simon's (1996) decision making-based approach to design and Norris' (2008) model of adaptive capacities, this research draws results from the Toi Market, a case study in Nairobi, Kenya. So far, the study has revealed two important findings. First, it shows that the interaction between design and adaptive capacities creates a positive-feedback process where design activities encourage the development of resources such as decision-making, collective action, conflict resolution, which can in turn increase the level of commitment and investment in design activities in the settlement. Yet, the dynamic attributes required, according to Norris (2008), to make these resources become adaptive capacities in a path of community resilience is still to be verified. Second, the study of spatial organisation and control dynamics within the market area reveals that different levels of informality exist within the same community. These levels are differently interconnected with formal public and private institutions. This result has critical theoretical and practical implications. In fact, while it paves the way to a new theoretical approach to informality which overcomes the classical *Formal/Informal* dichotomy, it makes necessary to initiate practical interventions based on the analysis of each level of informality and the system of relationships among them.



Fig. 2: The Jua kali and tomato sections in Toi market (2011). Photo credits: Cardosi, 2011

Research Problem	Kenya is facing massive processes of urbanization, however, urban policies still lack appropriate planning tools for public markets (UN-Habitat, 2006) and informal markets have not been incorporated in the land use framework (Ouma, 2010). Informal markets are critical for affordable food and goods distribution in the cities (Paulais et al., 2000) and sustain an ever-growing urban population, especially slum dwellers. In the 1980s, due to the State withdrawal from infrastructure provision, Kenya demographic increase "has not been followed by the creation of new urban markets" by urban authorities (FAO, 1999). Consequently, markets have been growing spontaneously through unauthorized land occupation and without building permits. Nairobi, the capital city of Kenya, presents tens of informal markets which largely contribute to the informal sector which provides job and income opportunities to millions urban poor (Ouma, 2010). In 2014, 82% of total Kenya employment was provided by the informal sector (ADBG,
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2014). Nevertheless, local authorities typically oppress these market communities through goods confiscation and evictions (Mitullah, 2003). Demolition risk is also common for vendors (Sigauke, 2008). Due to lack of access to urban land by urban poor, typically informal markets emerge in disaster-prone areas (e.g. dump sites and riparian areas) and lack infrastructure and services (Ouma, 2010). Informal markets embody the paradox of being apparently unsustainable and precarious while having a longevity that significantly impacts the urban milieu. Our case study, for instance, which formed in the late 1980s, now accommodates about 2,400 stalls and commercial activities, and creates a dependency for about 20,000 people. Unfortunately, this market areas lacks infrastructure and public services, and the environment is highly polluted mainly due to lack of drainage and sewer system. So far no upgrading project has been implemented for this market.

Research Objectives	This project explores processes of spatial organisation and their relationships with adaptive capacities in conditions of marginalisation, poverty and other stressors mainly related to tenure insecurity in the Toi market. It hypothesises that traders develop sets of adaptive capacities allowing the community to consolidate in the urban context. Design processes encourage the development of these adaptive capacities. And eventually facilitate their integration in a context of urban development, rather than their disappearance. The research question is: How do processes of spatial organisation undertaken by individuals and groups in the Toi market interact with adaptive capacities in conditions of tenure insecurity? Project objectives are: 1) analysing types of tenure conditions in the Toi market and how vendors value them; 2) understanding how processes of decision making related to spatial organisation are undertaken in such conditions; and 3) understanding <i>if</i> and <i>how</i> these processes contribute to the development of adaptive capacities.
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Theoretical Framework: The study of the Toi market has been initially approached under the perspective of informal urbanism (Dovey et al., 2011; Elsheshtawy, 2011; Roy, 2011), with attention to literature on Kenya informal settlements (Anyamba, 2011; da Cruz et al., 2007; Mitullah et al., 1998). Literature about urban poverty and development has hence contributed to develop an understanding of issues of urban policies, access to land, tenure security and regularisation (Ouma, 2010), as well as livelihoods and social capital (Lyons et al., 2005; Ulset, 2010). This preliminary analysis has provided the wider theoretical frame of the socio-economic, political and cultural context of the case study. A second phase has then considered to adopt Simon’s design theory and Norris’s (2008) framework of adaptive capacities in order to bridge the gap existing between the two. Design theory sees design as a deliberate process of transformation that results from a natural inclination to adapt our immediate environment (Simon, 1996). Simon regards it under the problem-solving paradigm in which decision-making, organization and action are constrained by our cognitive capacities (or ‘bounded rationality’). Simon also considers aspirational levels: our bounded rationality allows us only to make decisions in a world of constraints, and thus, designers must accept achieving ‘satisficing’ (his term) results. Satisfaction can therefore be evaluated by confronting aspiration levels with actual levels achieved (Simon, 1996, p. 30). For Norris, adaptive capacities include four sets of interconnected resources acting in a positive trajectory: economic development; social capital; information and communication; and community competence. These resources present dynamic attributes (redundancy, rapidity, and robustness) and are represented in terms of functioning levels. More recently, three additional dimensions have been incorporated in Norris’ framework: natural environment, built environment, and governance, to define a resilience framework integrating the social and the built environment dimensions (Fayazi et al., 2013).

Methodology: The research approach is qualitative and based on a longitudinal case study developed during different fieldworks in the period 2004-2016. This has allowed investigating the



market community before and after the 2008 conflict, during which the market was destroyed by a fire, and reconstructed. The case study strategy allows investigating "contemporary social phenomena within real-life contexts" where "the boundaries between phenomenon and context are not clearly evident" and where "the investigator has little control over behavioural event" Yin (2003). This case-study is explorative as it aims at developing a hypothesis and propositions for further inquiry, and is also explanatory of the 'how' and 'why' of phenomena object of study (Yin, 2003). The single case study strategy allows understanding spatial organisation processes occurring in the specific social, economic, political and cultural context of the Toi market, and in their multidirectional relationships with the variables of adaptation (Contandriopoulos, 1990). This case study thus challenges and enriches the theoretical framework of design and adaptation by developing abductive reasoning (Reichert, 2009). Adopted research tools are: direct and indirect observations, semi-structured interviews, informal conversations, focus groups, altogether with notes and photos taking and sketches. Drawings and mapping techniques are also used to document spatial configurations, the use of public spaces, and the types of relationship existing among different activities.

Preliminary Results

- In the face of exceptional stressors (i.e. the market destruction in 2008) adaptation responses in the Toi market influenced the design process and vice-versa. Relationships between design and adaptation were found in four dimensions, though with different weights and characteristics: 1) community competence; 2) built environment; 3) economic development; and 4) social capital.
- Design for reconstruction was considered as an opportunity for changing the market urban form and improving accessibility, visibility and security conditions.
- Design for reconstruction partially promoted a sense of community and sense of place. It must be said, however, that only a small group of individuals fully participated in the reconstruction process, due to war context and violence that had spread all over the urban area. Moreover, a consistent part of the community (800 members) were evicted by force during the ethnic conflict, because of their tribe (Kikuyu). This induces to revise the concept of community. Yet, we refer the definition provided by Norris (2008).
- Design also represented an adaptation strategy, as it brought out solutions to increase income opportunities, solve social conflicts, build knowledge and awareness among community members and respond to individual and collective aspirations.
- Proper design tools and methods incorporating adaptive capacities help determine common objectives, promoting inclusion and communication and creating a common vision of the future that, together, can boost relevant changes.
- The Toi market community still lives in extremely poor environmental conditions and faces an uncertain future, due to lack of resources, lack of access to land, and Without infrastructure provision and integration by the City, the market's physical conditions are far to be improved.
- Informality within the community appears to be organized in hierarchical levels. These levels have relationships with formal institutions and among them.

Implications

Promoting urban interventions to integrate unauthorised markets in the cities



requires a better understanding of the mechanisms of spatial organisation and control that take place there. This can be done by: 1) modelling the commercial sectors in their process of evolution; and identifying levels of efficacy of the food supply system in relation to rules and patterns of physical organisation; 2) investigating levels of informality and their interrelations within the community and with outer realities; 3) analysing the governance and stakeholders system and their interests on the market spaces, and their implication in conflict resolution; 4) investigating autonomous paths toward integration, boosted by negotiations with the local authorities through design and planning initiatives; and 5) explore the impact of the urban form on the community's adaptive capacities.

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