



Figure 2. MAIO housing system © Maio Architects, 2016

PLATFORM SYNTHESIS: THE AUGMENTED DOMESTICITY

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Architectural creation is always affected by technological development and availability of resources. The aspects of globalisation, urbanisation, planetarization are demanding creative reactions from humanity. ICTs can promote better informed decision-making by reducing digital divide and actionable intelligence for our future urban sustainability. This could improve the efficiency, operation and transparency of physical infrastructure and flexible distribution of resources in urban, district and home habitat.

This paper examines two distinct examples of twenty-first century housing model: The Kitchenless project of Anna Puigjaner and the Automated Living System of Design Computation Lab. Both projects are building on the effects of a certain kind of industrial revolution on housing with a distinct approach.

augmented domesticity / kitchenless / automated living / platform synthesis / sharing

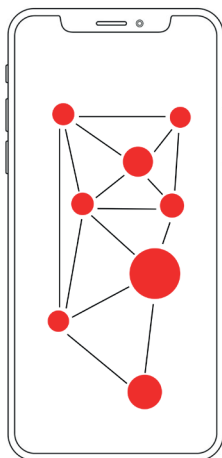


Figure 1. Augmented Domesticity sharing concept © Melinda Bognár, 2020

Technological revolutions are fostering changes in the way of living, consuming and inhabiting territories and cities. Following the cycles of industrial revolutions, smart paradigms, information and communications technologies (ICTs), many households evolved progressively in the way in which live urban and domestic spaces. The appliances used in the domestic environment provided different living conditions, not only the way of production altered but the consumption as well. These phenomena, through the evolution of Kitchenless homes, is evolving in the research of the 2016 Wheelwright prize winner Anna Puigjaner's research. The fourth industrial revolution brought automation, and digital technologies might bring the next significant change in housing projects. The investigation of the UCL Design Computation Lab, not only proposes the omission of the kitchen, but the whole flexibility of living, with no spaces dedicated to always the same process. This whole adaptability supposes an entirely outsourced consumption and a new understanding of domesticity. Both projects are moving towards a minimalist approach to living, where shared spaces have significant roles. How living affects food cycles and vice versa? The sharing model covers not only physical areas, but also the production, consumption and recycling of food. Augmented domesticity leads toward a way of living where - supported by digital platforms - consumable goods and spaces are both parts of the community life. (Fig. 1.) The domestic is not

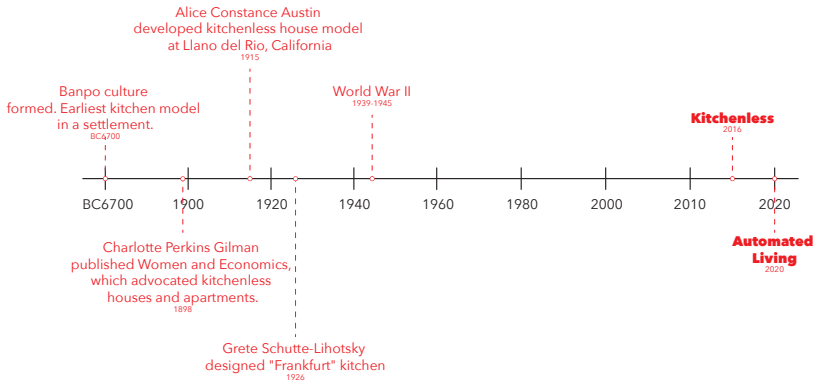


Figure 2. Kitchenless concept development in history © Melinda Bognár, 2020

limited to one household, but hides the opportunity of privacy, such as the distribution of goods, services and spaces. Creative Food Cycles embedded in the housing models can foster sustainable and alternative ways of living.

THE EVOLUTION OF SHARING FROM KITCHENLESS TO ALIS PROJECT

The judgement of food preparation and consumption in households changed over time. During 19th century the upper-class kitchen was located in the remotest part of the house and was dedicated only to food preparation; meals were then transported to the dining room, where the family reunite to eat together, as a shared experience. An enormous breakthrough, in the development of the kitchen was when plumbing and natural gas were introduced in the late 19th century giving shape to new furniture and appliances, such as the sink and the gas stove. This indicated the early starts of the revolution of industrial food processing. Following the World Wars, when several companies after weapon production shifted to domestic appliances and these appliances were being mass produced, another revolution in the kitchen habits was taking place: pre-cooked, ready mixed, canned and frozen foods started to appear in the market. (Calderón 2017) These changes were not

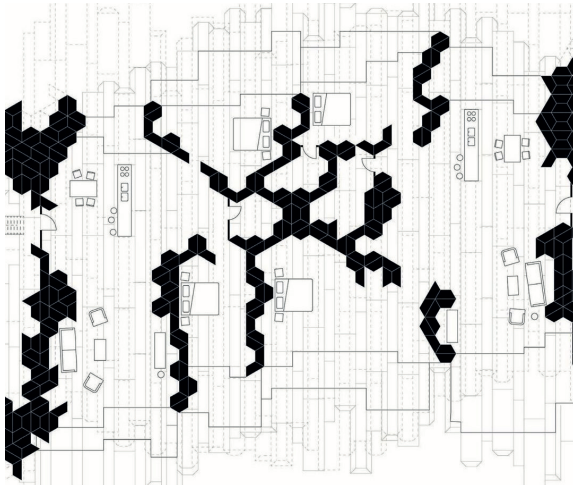


Figure 3. ALIS organic floor plan of discrete elements UCL Design Computation Lab © Yuk et al., 2020

only resulting of industrial development, but were also strongly connected to socio-economic alterations.

Anna Puigjaner's proposal, *Kitchenless City: Architectural Systems for Social Welfare*, takes as its starting point a historic housing type—housing blocks with collective kitchens, as well as other shared amenities, such as dining rooms, lounges, service areas. The research explores examples of collective housing in Brazil, Sweden, Russia, Korea, and elsewhere, which reflect a variety of approaches to organizing and distributing domestic spaces. This research shows a way to new housing development models as well as the rise of alternative sharing and resource-pooling economies. (Puigjaner 2016) The study is based in particular on American examples, where housing history grew differently from Europe. In the 19th century having a kitchen at home was especially unhygienic and the investigation of distribution and organizational aspects for indoor environment were not so common. The author, analyzing collective services borrowed from hotel typologies, such as Waldorf Astoria in New York, focuses her interest on the role of shared housekeeping spaces and how these have been implemented in traditional domestic typologies during the 20th century. (Puigjaner 2014)

Kitchen besides its functional role has also had a socio-cultural meaning. From the space for food preparation and cooking, occupying a later position in the hierar-



Figure 4. Housing block from "Autozoid" UCL Design Computation Lab © Yuk et al., 2020

chy of domestic spaces, it became the recipient of the fire-space, the heart of the house. Which not only can serve one household, but also provide a shared gathering place for multiple families. In her thesis Yupeng Lian (2019) based on the study of domestic developments distinguishes three types of shared settlements. The Communal Sharing Household, the Commercial Collective Household and the Collective Dining and Street-food Culture. The first two is mostly based on the sharing of equipment with different economic approaches, while in the third case the prepared food is being shared. The approach of living without in-situ kitchen fosters the creative distribution of food. Starting from the phenomena of shared meals cooked together, for the broader community can reduce food waste. In parallel, the study of Annika Carlsson-Kanyama investigates whether it is more efficient sharing meals in co-housing compartments, compared to regular individual meals, in terms of energy use and food waste. The theory is that a potential energy saving is practicable when the typologies reach an economy of scale and the act of cooking and storing food is implemented collectively. (Carlsson-Kanyama 2004). Production, preparation and consumption are all shared events of the food cycles. Especially if certain Kitchenless homes involve community gardens as well, even if these initiatives already emerged before the digital turn, they can become more effective by the involvement of online platforms and communities. Anna Puigjaner

and MAIO studio in their 2016 apartment prototypes, further investigates the idea of building a system of shared-rooms, rather than an arrangement of fixed floor-plans. The idea was to create a “system of rooms that can be used as desired with a not determined program” anticipating tenants’ needs and changes, with a degree of flexibility based on Real-Estate online market demand. Each apartment could be expanded or reduced by adding or subtracting rooms, according to family size or functions to be implemented. The building has 110 rooms, presuming 5 rooms per dwelling, for 22 dwellings in total.

For instance, a typical floor could be divided into four dwellings. Rooms about each other and are connected with large openings rather than corridors. Centering each cluster of rooms is a kitchenette, with bathrooms strategically placed on either side. Tenants may decide for themselves how to assign each room’s use. Puigjaner notes that the repetition of same-sized rooms, common in 19th century urban housing, disappeared in the last half-century despite the usefulness of open rooms and plans with regards to contemporary families and lifestyles. (MAIO, 2016)(Fig.2.)

Even more radical example of the Kitchenless house is the Automated Living System (ALIS). ALIS is a housing prototype created by the UCL Design Computation Lab, in response to the Global housing crisis. Inefficient housing, scarce and expensive land have been identified as core contributing factors to this crisis, and ALIS aims to address these by proposing spaces that do not have fixed functions, contents or ownership. Powered by an App, individuals can select the time and function (bedroom, office, café) of the spaces they need, 24/7. A system of robots changes the configuration of the walls, utilities and personal items are stored in an automated storage system for when they are needed next. (Buildingcentre, 2020) (Fig. 3.)

The idea is based on the opportunities fostered by digital revolution, robotic production and discrete building elements. Digital syntax, based on serially repeated building blocks with a digital connection logic, these building blocks act the same way as Digital data, which means that they can be recombined, are reversible, universal and versatile. (Retsin, 2016) According to this logic, there is no room for kitchen, and not even for a communal kitchen, the nutrition is solved out of the house, provided by delivery or eat-out options. By this extent, it involves an even larger community of food cycles; sharing food among one household, through the sharing of one living community, to the sharing of one housing zone. The two studies of less-ness are achievements of different industrial revolutions. However, it is clear that both transformations of living spaces have significantly affected the

area of food preparation, the kitchen, and enforces the creation of a sharing community of different scales.

DIGITAL PLATFORMS

Food sharing initiatives are one way to reduce food waste while also providing access to local food in convivial, inclusive settings. Through the use of social media, smartphone apps and websites, many of these volunteer-led projects have grown rapidly yet remain insecure as they often do not fit neatly into current public policy and planning regulations. A recent international research project called ShareCity, led by Anna Davies, professor of geography, environment and society at Trinity College Dublin, assesses the viability of city-based food sharing initiatives around the world. (Share City, 2020) The objective of Share City is that information and communication technologies are stretching the territories over which people can share, increasing the numbers of people who can be brought into sharing initiatives and bringing new forms of sharing amongst strangers into focus. Apps, maps, and other forms of online platforms are facilitating new connections between citizens, consumers, businesses, social enterprises and charities to jointly tackle issues such as food waste, food security, and sustainable food production, and to build better communities.

The ShareCity 100 database houses information for over 4000 ICTs, enabling food community initiatives that meet the SHARECITY criteria for ICT-mediated urban food sharing. The initiative has created a map from this database to locate these sharing activities at the city level. By the provided filters the user can search by city, what is shared and how it is shared. (Fig. 4.)

Through real-time smart food tracking, consumers can become producers, at the same time, and be aware of the whole production chain, tracing processes and qualitative details, the entire process becomes transparent. Today the sharing economy takes advantage of connected mobile technology to allow people renting things temporarily that they either don't need to own permanently or can't afford. Everything from cars, central city parking spaces, designer clothes to accommodation are easily accessible by transactions made available through smartphones, apps or websites. Digitalism triggers differences and variety in global production. As in the object production industry, FabLabs become more and more popular, and local food production cycles can also be affected by this digital fabrication revolution. Fab Labs are an open creative community, sharing the goal of democratizing access to the tools of technical invention. (Fabfoundation, 2020) Fab Economy is about creating a novel economic paradigm for everybody, where local fulfilment

and customization of households, take the place of mass production and global distribution. (Fabeconomy, 2020) While being virtually global, and staying connected in the planetary scale, by our physicality and consumption, we need to be more local, automated in regional production and connected by real-time evaluation platforms.

The digital revolution can lead to the rise of smart distribution, where participative internet stimulates participative communities. The realisation of the circular economy and collaborative cities is up to the inhabitants, which is well encouraged by digital platforms. The equilibration of demand and supply can result in a society without food-waste by producing the appropriate amount of food reacting to real-time demand. Augmented domesticities, where the consumer is aware of the full production chain tracked by digital platforms can guide towards a Creative Food Cycle, where the interests of the environment are paramount. This goal is supported by housing models, such as the Kitchenless project or Automated Living Systems, where the physical environment of flexible space is augmented by digital platforms providing a transparent real-time Creative Food Cycle chain.

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