

# DESIGN CULTURE(S)

Cumulus Conference Proceedings Roma 2021

Volume #2

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**Design Culture(s)  
Cumulus Conference  
Proceedings Roma 2021**

Volume #2

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# DESIGN CULTURE(S)

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Volume #2

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# Food Cycles. Processes and products

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**Abstract** | This paper illustrates an on-going research project, Creative Food Cycles, that addresses the topic of food as a cross-cutting factor and powerful accelerator towards co-designing sustainability in cities. In this direction, the activities of the two-year-span interdisciplinary project explore new ways, not only of targeting food as an industrial product, but also trying to move the levers of cultural innovation. This culture-based approach to food cycles can provide a deeper understanding of and practical tools to enhance a circular economy in everyday life and become a driver for positive change. The multidisciplinary platform, booted with the project, simultaneously displays a recursive set of thematic actions in three cities, such as workshops, art-installations and itinerant exhibitions, following three phases: from production to distribution on the intersection of digital technologies and scattered food production. Distribution to consumption explores cultural experiences with special focus on new models of distributing, processing and consuming food. Lastly, that from consumption to disposal highlights new ways of recycling food waste as a resource for new materials and prototypes.

**KEYWORDS | FOOD CYCLE, FOOD WASTE, CREATIVITY, CIRCULAR ECONOMY, RESILIENCE.**

# 1. Introduction

Food is an essential constituent to guarantee life on the planet, it is our energy and fuel for nourishment, it is needed for growth, and is a key element of most economic, anthropic and cultural systems of every territory and as such it deserves special attention from the design world (Fagnoni, 2019). This is even more evident when one considers how the food industry has conditioned our daily routine in an increasingly intrusive way as postmodernity progresses. From the wheat bread revolution to the invention of refrigeration, and the food globalisation process, culminating in our times, food has turned out to be an industrial product strongly subject to profit and to an unceasing process aiming at better productivity. The invention of refrigeration, in the mid-nineteenth century, provoked a radical and unstoppable change: the delocalisation of food tastes, or food globalisation (FAO, 2004), that is culminating in our time. It is a widespread system, which after the disruptive crisis of the beginning of this century has become ever more a new land of conquest of speculative capital (Liberti, 2016), as a product for mass consumption, that requires the design of its entire lifecycle. (Di Lucchio, 2010).

World population growth, together with diet change in developing countries and land scarcity, makes investment in the sector particularly attractive. It is nothing new, as the food industry has developed over time a fool proof way to subvert the relationship between food, territory and people, and it has progressively and systematically designed the products that support the distribution and consumption of goods in our daily lives. Design cultures today have begun to rethink and question new production, distribution and recycling models of food cycles. The ways of producing, distributing, transforming and consuming it must be reviewed in order to achieve the goals of the UN Agenda by 2030 (UN, 2015). Food provides the opportunity to address the hottest issues of sustainability in our contemporary society, because with its several life-cycle phases it is the common thread that unites almost all the 17 Sustainable Development Goals. As researchers, sustainability issues about food as an industrial product have to be integrated in every design action related to it, and above all it must be taken into account that at a general level people still have some difficulties in understanding the sustainable values of the projects related to this topic. Subsequently, even if they recognise the ones for their own lives, they tend to overlook those for the planet. This must force us to push more strongly sustainable values while developing, communicating, disseminating and practicing our research and actions in order to develop, at the users' side, a sense of responsibility towards every single action dealing with food and to be able to translate inputs from virtuous projects into everyday life practices.

The question that emerges at this point is: can we use food as an accelerator of the disruptive change towards co-designing sustainability in our cities and implement it in our everyday lives? This research project starts from the idea that food is a powerful medium because it has the "ability to work on the functions of the emotional process, which is closely linked to the cognitive process, or rather to the aesthetic emotion that objects trigger" (Di Lucchio, 2010). In particular, taking a step back from the importance and urgency of the



theme, the project addresses creativity about food as a lever of innovation, redesigning food cycles, from production to disposal, trying to anticipate what will happen in the short term, but, above all, to subvert what we are used to and raise awareness as much as possible.

To do this, we must refer to the circular economy cycle for food as a natural system of regeneration in which waste does not exist, but instead is a new resource. From a linear to a circular one, our food system has to be changed with a wide range of actions that can address climate change, create healthy cities, and rebuild biodiversity, because they have come at an enormous cost to society and the environment. There are three main aims in the opportunity to change the global food system that the Ellen Mc Arthur Foundation summarises as follows: “Sourcing food grown regeneratively, and locally where appropriate. Designing and marketing healthier food products. Making the most of food” (2019). These three goals highlight the catalytic role of cities and the necessity to involve local communities, stakeholders and active urban society, developing a cultural and holistic approach, joining all the aspects of food cycles. This also means stimulating with an open and inclusive approach a deeper interconnection of all the disciplines dealing with the urban environment. Starting from the way we build our environment, exploring the potential for cities to act as food production hubs, developing resilient food supplies that rely on a diverse set of local, regional and global sources, according to where food types grow best, reconnecting city dwellers with food and the farmers who grow it, and in the end, of course reducing food waste and co-designing a new concept of waste itself.

## 2. A call to action

Creativity and food can turn out to be major driving forces in the current cultural and societal field to address this challenge. In recent years, the limits of sectorial policy programmes and academic research have become obvious in addressing the topic of food cycles as a main field of change. In particular, if we refer to the fact that technologies and the availability of ways of production, distribution, consumption and disposal of food are already within our reach, but always and in any case not widespread or adopted for various reasons, including not least, economic viability.

The project Creative Food Cycles (CFC), co-funded by the Creative Europe Programme 2018-20 of the UE, wants to empower cultural actors, accustomed to creative processes, such as architects, product and communication designers and artists, to assume a more proactive attitude, regarding food and its expressive capacity, as a cultural vehicle of identity, innovation and social integration. Even though technological progress allows the availability of new products and techniques, these are not sufficient for the necessary radical change without creativity as a means of diffusion and a call to action. The mandatory radical change for the pursuit of these goals requires a positive and creative attitude to reinterpret the reality that surrounds us and the objects of everyday life. Food is a fertile field both for experimenting, and for full understanding of the relationship between ethical elements and the way we produce, consume and recycle it in our cities. Even more because this topic is an

interesting field of investigation for design which has a “reparative role” (Antonelli, 2019, p.18) in respect of these kinds of environmental and social issues in which the system at a general level and the choices of individual consumers are intimately intertwined.

“Designers and artists are able to formulate, through artifacts and concepts, urgent political questions that cannot rely solely on regular processes to enter public discourse. With regard to the environment and all associated concerns, in particular, state policy is driven to make reforms by the priorities that researchers, designers, activists, scientists, architects and citizens set forth.” (Antonelli, 2018).

### 3. Food Cycles

This project, according to the sense of urgency, is therefore aimed at creating an international multidisciplinary platform that simultaneously displays a recursive set of thematic actions connected with creativity such as workshops, installations and itinerant exhibitions.

The proposed activities are based on a holistic approach, able to join all the aspects of food cycles through the interlinking of phases curated by the three partners: from production to distribution, from distribution to consumption and from consumption to disposal. Addressing different competences and disciplinary fields, the project aims at transforming three European cities into laboratories of creative food cycles — boosted by the combination of the partners’ competences in advanced information and communication technologies from by IAAC in Barcelona, urban resilience strategies from LUH in Hannover, and inclusive citizen participation and co-creation from DAD UNIGE in Genoa, the designers’ unit.

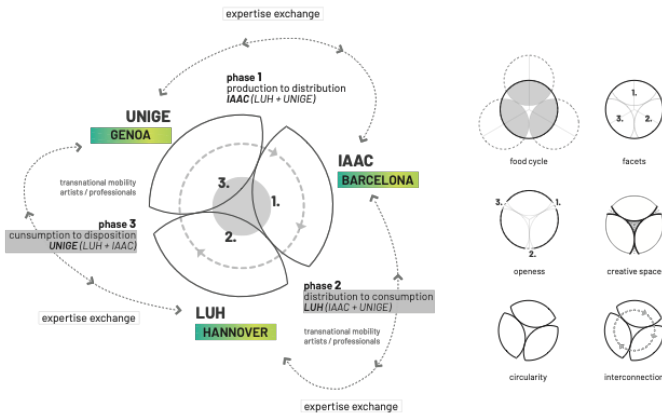


Figure 1. Common methodology of the project: the Food-Cycle Phases and roles of the partners in the international exchanges \_ Image: LUH Regionales Bauen und Siedlungsplanung.

The activities start with Food interactions, a co-design activity to edit an open access state of the art catalogue of best practices, including innovative, actualised and implemented projects, combined on a creative attitude basis. The catalogue expresses and materialises sustainable food cycles that emerge from digitalisation, advanced technological implementation, digital manufacturing, sharing and informal economies, innovative participatory processes, increased awareness of climate change and advanced strategies for urban and territorial resilience.

The Food Crossover phase follows in the research activity by proposing three creative workshops, one in each partner city, meant as co-creation open labs to empower thematic skills and to engage diverse audiences. The outputs are collected and illustrated in Food Cycles in action, co-produced art installations and place-making events in the three cities and arranged as an itinerant exhibition travelling to other venues, to end up with an academic symposium to evaluate outcomes, and the final festival at the end of 2020 to present prototypes and proof of concepts to target groups and stakeholders. Every single action of the project is conducted spreading open calls to action and for projects in order to allow a wider participation of professionals and foster local organisations to widen their audiences and to experience international exchange at the same time. Calls for projects are meant as essential tools to collect ideas on the topic of food, but also to allow the creation of a network of proposals, (Fassi & Sedini, 2017) with a high innovation level that can be spread at a larger scale.

***From production to distribution.*** How can food cycles enhance the transformation of cities and territories? In this phase the aim is to demonstrate how the use of technology can help to produce food in urban environments, or in close proximity, and enhance city resilience. Urban agriculture has the potential to make healthy and not expensive food available for citizens. Thanks to the use of digital fabrication and control interfaces, CFC shows different ways to produce food to citizens, architects, product and event designers, building self-sufficient cultivations. The use of digital fabrication allows the building of customised design gardens and the use of sensors helps to check performances. If soil cultivation may not be practicable in many urban conditions, especially in dense city cores, a different kind of cultivation can become a practical solution where the lack of space or farming knowledge are the main limitations. The prototypes developed explore these solutions for the cultivation of alternative food, also as new building structures for the urban environment.



*Figure 2. Food Shakers | Food Remakers Workshop, Genoa, 17–21 June 2019, was about food waste as new material, from organic food waste to the creation of new industrial materials, or food waste and packaging for new products, from organic food waste to real products for consumers. Workshop participants had the opportunity to showcase the designed prototypes at the 2019 SUQ Intercultural Food, Art and Craft, and Music Festival in Genoa.*

**Distribution to consumption.** How can we imagine a new conviviality through food cycles? The concept of this phase is to focus on new models of distributing, marketing and processing – as well as cooking, displaying, sharing – food in a collective place-making effect. The activities aim to create an urban food hotspot characterised by a multipurpose stage able to connect people, best practices, trends and movements through action. This is made possible bringing together sensorial experiences, digital technologies, storytelling and creativity, offering interactive ways to participate in an experience connected to food, addressing the extended audience who usually shops, consumes and interacts in our urban foodscapes (McKendrick, 2014).

**Consumption to disposal.** The process from consumption to disposal offers not only options for new uses of discarded food products, which can be transformed from waste to resources - but also focuses on defining new potential meanings of the concept of waste, because waste does not exist in nature and this is a word we have to erase especially if we talk about food. The Unige unit wants to answer the question of how to configure new design and creative experiences related to food and food waste, engaging a wide public to design by and for themselves (Brown, 2009), making sustainable habits and behaviours more compelling and attractive (Mau, 2009). Product design Unige researchers, students and local

urban activists have presented and implemented different activities, in which design has a role as a form of culture and major driving force for the envisioning and realisation of processes of social innovation towards resilience where people change their behaviour and act collaboratively (Manzini, 2015).

The main research outcomes include the development and prototyping of new materials and products obtained from food waste, which demonstrate the multiple aesthetic and ethical possibilities that considering food waste as a resource brings with it. At the same time these projects always work with the main idea of making the population aware of recycling, looking for easy to reproduce procedures and daily use of the products made, but also trying to inspire through the creation of evocative installations.

#### 4. Food Shakers | Food Remakers

Currently, a third of all food produced globally is thrown away each year. Food loss and waste represents one of the most significant environmental and economic issues and it is generally recognised that, if waste were a country, it would be the third-largest greenhouse gas emitter, behind China and the United States (EFC, 2016). It is a well-known issue which also fully involves European and Italian cities, that have to take an active role by making the most of food by redistributing surplus edible food, while turning the remaining inedible by-products into new products, ranging from food products, organic fertilisers to biomaterials (BCFN, 2018). Cities and communities have to be seen, rather than as a final destination for food, as places and environments where food by-products are transformed, through emerging technologies and innovations, into a broad array of valuable materials. A philosophy that is contextualised within a circular economy, using the material energy of food, but also its conceptual one, for a better safeguarding of resources.



Figure 3. *Bioplastic combination with eggshell, pasta, lentils. Bis Bioresina G. Centineo, M. Lequio, Li Changrui, Shi Xinran. Ph. M. Paolillo*

To investigate the after-consumption phase of food cycles in the *Food Shakers | Food Remakers* workshop and installation of the Unige research team, exploring the concept of food waste as a new material, addresses stakeholders related to design culture such as designers, architects and cultural organisations and to the world of education of all levels.

The project follows a clear public engagement strategy, that starts by mapping the stakeholders, dividing them into categories of interest, and involving them in the action at each stage. A strategy of events is the means to connect CFC to the local relevant citizenship initiatives, aiming to explore the needs and wishes of the communities and their potential, together with the spread of different calls for projects to local stakeholders, to engage them in co-designing activities.

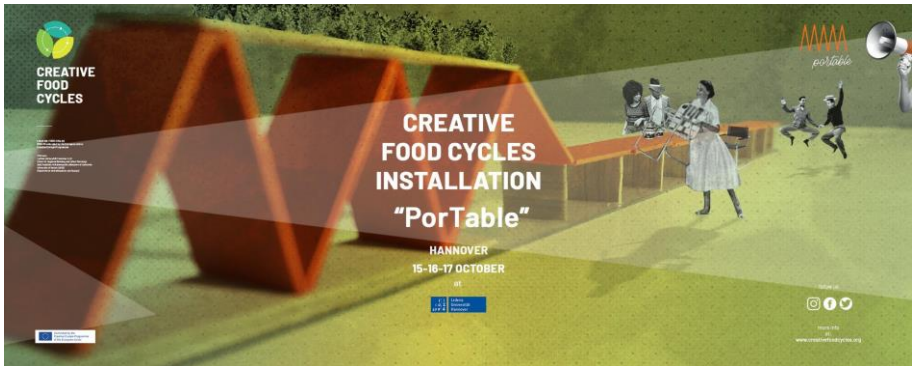
An innovative component is the constant use of public performances - live music, theatre, cooking-shows, etc. - as a common element of the installations that accompany the activities during the project life. These events work as prototyping actions (Fassi & Sedini, 2017), where products and spaces are shown, while people are interacting and experiencing actions connected with the general goals.

From organic food waste to the creation of new industrial materials, to food packaging for new products, or even to real products to eat or to wear for consumers, this process displays materials and products that can permanently change our perception of waste. From the project a strategy could be extrapolated that brings together collections of best practices, co-creation workshops, and installations open to the public that involve different levels of education. Putting together best practices with co-designing activities has proved in the activities carried out to be very effective in raising people's awareness and involving them directly in the creative and realization phase, allowing them to come- into contact with food waste as a material that takes on new meaning. In addition, the many prototypes coming out of the project activities of the workshops also have value at the level of innovative proposals, which should be explored and evaluated separately. The involvement of young architects and designers in the design processes of food waste allowed the research teams us to introduce new ideas and generate a high rate of innovation.

Once properly transformed, waste becomes a new resource both for industrial products and for applications in urban installations, following a development model that is anything but new, which takes advantage of new technical opportunities to recover the ancient culture of reuse that produced no waste whatsoever.

This two - years span investigation into the recycling of food waste, developed with product design students and designers under the Creative Program advocacy, makes use of a diversity of media, such as installations, videos and stage performances, to address the topic from multiple perspectives. The goal is to offer a platform for reflection and analysis on the meaning of a new use of materials, on their pervasive DIY production and how design could be an important agent in developing a more responsible use of resources. The results of the research can be measured through the number of prototypes developed, the people

physically involved in the activities and the knowledge produced and disseminated through the online channels. In the end the project is also become an itinerant exhibition that circulates, spreading its message in cities related to the CFC network, and at a digital level it is a website - [www.creativefoodcycles.org](http://www.creativefoodcycles.org) - conceived as an open platform where every single action that has been produced can be viewed and therefore replicated by using the tools, i.e., workshops, calls to action, calls for projects, webinars and DIY recipes, to generate new ideas and approaches.



*Figure 4 Leibniz Universität Hannover, CFC “PorTable”. Pop-Up Installation to raise civic actions and people awareness to create more attractive space in cities for food consumption - October 2019. Credits: A. Pape, J. Arfsten for CFC.*

This sharing of experiments also follows the concept of a return to materiality as resistance to the prevailing impositions of the digital world: an invitation to return to concrete sensations, such as smelling, feeling and touching, as a privileged space in which to rediscover contact with material reality, without digital intermediation (Han, 2019). Design cultures are in this sense lined up in an activity with strong ethical implications, offering products that aspire to the industrial scale, but in a creative way exploring what our choices may be in the near future, working on our common feelings in relation to food cycles.

## 5. Conclusions

A design culture-based approach to food cycles i.e., production, consumption and disposal, can provide a deeper understanding, as well as new models, and practical tools to enhance a circular economy in everyday life and become a driver for positive change (Schröder, 2019). Resilient food cycles can be key factors for strategical challenges and opportunities related to urban qualities, cultural values, informal practices, education, economic development, ecological targets and social integration. From the creation of feasible prototypes to the setting up of events, triggered by the three CFC project partners, the research deploys resources to dive into the priority issue of food, that has become increasingly more important as an industrial product, subject to the logic of economic exploitation. Although

unable to affect the system at the level of the economic macro system, the culture of design can provoke a radical change in behaviours, opening up to dialogue with as many people as possible and proposing feasible solutions.

In this direction, the CFC project, particularly with the work of the UNIGE team on reducing waste generation through recycling and reuse in everyday life, aims, on one hand, to test within the academic design community new products and materials derived from food waste, and, on the other hand, to organize creative events to raise awareness of the impact of food cycles in our cities.

In this framework, this paper presents the structure of the CFC research, illustrating the different phases and events and describing the materials and methods of the network and its possible implementations, but also opening a possible discussion on awareness campaigns for issues related to food cycles and their impact in our cities.

The engagement and empowerment of creative communities is the main goal of the CFC project to influence the policy agenda and have a positive impact in order to activate resilient processes. The method applied is the exploration of a constellation of ideas, techniques and prototypes that are considered as a priority so that everyone will be able to move definitively to a circular consumption and production system, capable of avoiding waste.

This implies the development of participatory design activities and specific design tools such as events, call for projects and communication strategies addressed to creative communities. In this project the participatory methods displayed are particularly suitable to create and facilitate the creation and accumulation of social capital at different scales about the central topic of resilient and creative food cycles.

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