



FOOD 4.0: FOOD SHARING AS A SMART APPROACH TO URBAN FOOD POLICIES. A LONGITUDINAL KEY STUDY IN MILAN

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Abstract. *The focus of public and scientific debate on food-related issues and urban food policies has progressed considerably in recent times, with growing attention towards the issues of food waste and its preventions. Food-sharing initiatives, i.e. those forms of sharing that rely on the use of online platforms and allow reuse of extra food, are among the most innovative practices introduced. The article shows the results of an exploratory survey investigating the level of knowledge and awareness of food sharing practices, and their adoption on day-to-day basis among a sample of citizens. Data were collected in Milan, a first time between April and May 2015, during the EXPO 2015, and a second time in April and May 2019, to assess changes and verify the rate of increase in the citizens level of awareness and use of such platforms. Different profiles of respondents are identified, based on a more or less active use of the platform and of the general propensity to practices of food sharing. The results can provide useful information in the evaluation of the impact of food sharing and the discussion of future policies to reduce food waste.*

Keywords: food waste, urban food policies; food sharing; Expo 2015

1. INTRODUCTION

The article presented stems from the rather broad debate that is emerging in the field of sociological disciplines, but also among the so-called hard sciences, regarding food and food policies in a very general sense. The debate on these issues has developed over the past few years, in Italy and abroad, and this has happened precisely because of the interest shown by many cities and the launch of food policies both at urban and metropolitan level. The issues recurring and motivating the choice to include food themes on the urban agenda (Pothukuchi and Kaufman, 1999) are those related to the decarbonisation of contemporary economies or the need to manage the so-called FFFF crisis (Food; Fuel; Financial; Fiscal) (Marsden and Farioli, 2015; Marsden, 2016). Crisis which, as is now widely recognized, is strongly linked to climate change, but also to the scarcity of resources.

In conjunction with the launch of this body of policies, which grew much faster in the United States and much slower in Europe and especially in Italy (Borrelli and Diamantini 2016; Borrelli and Colleoni, 2017), a number of new social practices trying to boost the food sharing phenomenon (Schor, 2014) are emerging in the contest of the sharing economy. The term food sharing indicates a set of practices that, taking advantage of the potential of new technologies, aim to battle food waste, promote information on waste reduction, raise awareness on these themes among new generations, improve logistic processes, create alternative markets for surplus goods or even, simply, create opportunities for experiences of leisure and entertainment (European Commission, 2011).

The relation between food policies and food sharing practices is dynamic and connect the issues on a cultural level. It's clear that if sharing food practices are diffused the impact of food policies and the possibility to define them in a collaborative and collective way are greater. On the other hand, the role of food policies is to promote higher attention and to support the spreading of food sharing practices. This level of interaction is essential to obtain an impact that is real, not confined to sensitized minorities or elites. We consider Milan an interesting case study, due to the recent commitment of the municipality to the definition of new public food policies and the improvement of the public debate following Expo 2015.

For these reasons the article follows and reflects on the evolution of food sharing practices in Milan, trying to identify the impact that the intervention at policy level can have on the habit of the general population.

2. URBAN FOOD POLICIES AND FOOD SHARING

Urban food policies concern the sustainable management, on an urban scale, of the food system (Pothukuchi and Kaufman, 1999), ie the production, processing, distribution, sale, consumption of food, including the disposal of food waste.

Cities are one of the key places in the development of the local food system because it's there that is possible to develop high impact food policies, the expression of an organized political action aiming at creating the cultural substrate necessary for the development of new food practices. Since 2007, more than half of the world's population lives in urban areas, and it is estimated that in 2050 6.5 of the 9 billion inhabitants of the planet will live in the city, with a growth of 3 billion in four decades (Viljoen and Wiskerke, 2012). Despite these predictions, in the planning of urban policies food issues have been neglected until very recently and were taken into account only in the context of rural and agricultural policies defined at national and supranational level (Sonnino and Beynon, 2015; Morgan and Sonnino, 2010).

This apparently consolidated trend began to reverse at the beginning of the new century, reaching a moment of rupture around 2007/2008 when the characteristics of what was then defined by Morgan and Sonnino as the "new food equation" (2010) were defined, with the city as its epicentre. Morgan and Sonnino believe that the shifting of food policy issues from national to urban scale has been strongly influenced by 4 aspects:

- Price growth over the 2007-2008 period, induced by the outbreak of the global financial crisis, which generated a situation of food insecurity for more than

two billion of people (many of which were concentrated in urban areas) (Cohen and Garrett, 2010).

- Increased interest in issues related to healthy food, strongly linked to the food scandals of the last decade, such as the avian influenza and the so-called mad cow disease (Banati, 2011).
- Recognition of the link between poor management of the food system and consequent emission of climate-changing gases and climate change (Caserini, 2015).
- Conflicts over land use, caused by a constant decrease of land destined to agriculture, especially in urban and peri-urban areas (Lambin and Meyfroidt, 2011).

In this context, cities have slowly begun to play a leading role, not only because of the demographic growth that is characterizing them, but also because of the economic crisis and the demand for greater control over food production. An increasingly active concern of the cities in designing and implementing food system interventions at the local level has emerged. Although these interventions differ from city to city, it is possible to identify a common denominator (Borrelli, 2016), ie the effort to create synergies between areas of public intervention that are in different ways linked to food, with the aim of spreading a more sustainable food system model. These dynamics reflect a place-based approach (Marsden, 2016) to the production and consumption of food, which reserves a leading role to local institutions. In other words, what is highlighted in the public debate is that the construction of urban food policies must start from a knowledge of the local reality and consequently must be based on the involvement of local actors (whether public or private) and on the construction of knowledge networks capable of defining innovative and sustainable action strategies (Deakin et al. 2015; Blay-Palmer et al., 2015). The planning and implementation of urban food policies can take place on a local scale while trying to create relationships with the global dynamics within which urban realities are inserted. In the light of what has been said it is possible to affirm that urban food policies, in order to be effective, must satisfy a fundamental requirement: they must be able to adopt a holistic approach, involving different aspects and actors (de Zeeuw and Drechsel, 2016). With the introduction of new technologies and the spreading of the first food sharing practices the issues related to the regulation of the food system have received further stimulus. Over the years, initiatives to promote a lifestyle based on a more ethical approach to food consumption have multiplied through websites, blogs, associations and applications. The explosion of the debate on food waste and on the environmental impact of a poorly sustainable management of the food system (Segrè and Gaiani, 2012; Viale, 2014) has supported the spreading of these practices.

3. FOOD WASTE AND FOOD POLICIES IN ITALY AND MILAN

While food sharing practices are not very diffused in Italy, the issue of food waste, especially with regards to domestic waste, is very relevant. The Waste Watcher 2019 report estimates the economic impact of food waste for over € 15 billion, of which just over 3 billion of € are linked to waste in the supply chain and almost 12 billion of € derived from domestic waste. Concerning domestic waste, the works promoted by the Waste Watcher Observatory highlight a scenario in which inconsistencies between intent and action of the Italian population are strong. The research promoted by the Observatory in 2013 highlighted how, while declaring sensitivity to the

environment, concerns about poverty and moral aversion to food waste, 26% of Italians remained unable to control the expiring date on packaging with obvious consequences in terms of food waste. The 2015 Report of the Observatory recorded a growing awareness and a greater attention to the environment but, thanks to the adoption of “waste diaries” of families, highlighted also that the real waste of domestic food was 50% higher than the one perceived and declared by the respondents, attesting the annual cost for Italians to about 13 billions of €. The data of 2019, in addition to pointing out that about 4/5 of Italian waste are attributable to domestic consumption, confirms the difficulty of the perception of household waste among Italians, who believe commerce and public waste to be much more relevant than the domestic one (Waste watcher 2019).

In Italy, the debate on urban food policies has found strong stimulus in Expo 2015, an event centred on the theme of food and promoted by the slogan “Feeding the planet. Energy for life”. The ideas produced during Expo had a great impact in the city of Milan, stimulating the drafting of the Milan Charter (carta.milano.it/en/), of the Urban Food Policy Pact (www.milanurbanfoodpolicypact.org) and of the Food Policy of the city of Milan (www.foodpolicymilano.org). The three documents, although interconnected, are very different. The Milan Charter is a declaration of intent that can be signed by anyone (individuals, companies, cities) intentioned to commit to behaviours aimed at making the regulation of the food system more effective; The food policy pact is a memorandum of understanding signed by more than 100 cities in the world that commit to integrate issues related to the regulation of food system within their urban agendas. Finally, the food policy of Milan is the urban food policy that the city of Milan has launched in conjunction with Expo (for a discussion on what the Milan Charter, the Urban Food Policy Pact and the Food Policy of Milan are, see Deakin Borrelli and Diamantini 2016; Borrelli and Colleoni, 2017). However, a focus on food issues was already present in the guidelines on the Sharing Economy launched in 2014 by the project “Milano Sharing City” (www.milanosmartcity.org). In 2016 a memorandum of understanding on food surpluses was signed by Assolombarda Confindustria Milan Monza and Brianza, the Municipality of Milan and Polytechnic of Milan. The protocol for a “Zero Waste Smart City” defines the promotion of shared actions on the topic of food surplus management, through the creation of a network of companies and fast circuits to optimize the delivery and consumption of goods, as well as the adoption of a 'zero waste' label to promote virtuous companies and raise consumer awareness.

4. FIRST EXPERIENCES OF FOOD SHARING

In concomitance with the aforementioned economic crisis of 2007/2008, the number of food sharing actions developed at international level have drastically increased (Davies et. al 2017a), creating a variegated body that more and more make use of the ICT to develop different aims: these experiences may have an institutional or more transgressive character (Sharp et al., 2016; Goodman and Sage, 2016) and differ in specific objectives and implementation methods (Holt-Gimenez and Shattuck, 2011). Most of them promote not only the exchange of food but comprises the sharing of food-related skills, tools and spaces. (Davies et al., 2017b), showing how food sharing can become also a form of social action, engaging citizens in cooking and eating together (Marovelli, 2019).

A first analysis of food sharing experiences at national and international level made it possible to highlight five elements that characterize food sharing practices and that can be found individually or in a combined manner (Bernardi et al., 2018):

- Reduction of waste
- New forms of food production in urban areas
- “Charitable / solidarity” element
- Construction of “community” ties
- Entertainment or leisure opportunities

At an international level, one of the first online platforms dedicated to recycling and redistributing the food surplus is the German Foodsharing.de, conceived in 2012 by Valentin Thurn (author of the book and documentary *Taste the Waste*) in collaboration with journalist Stefan Kreutzberg. The platform was launched thanks to an online crowdfunding campaign and gave birth to a large community of food savers. The main aim of the initiative is the reduction of waste and the re-circulation of food products. Food sharing initiatives that pay more attention to the promotion of new forms of food production in the urban area are those that bring together garden enthusiasts with the food banks, thus contributing to strengthening community ties. This is the case of AmpleHarvest.org, a platform created by the American Gary Oppenheimer, in which 40 million US urban farmers are able to connect with over 50 million vulnerable citizens.

Many well-known food sharing initiatives have an evident solidarity feature, addressing their efforts mainly to charities able to redistribute food to people in need. It is the case of FoodCloud, which organises the redistribution of surplus food or food out to date from supermarket to nearby charities using a smartphone app. The number of sharing communities that gift, barter or collect food is growing as witnessed by the ShareCity Project of the Trinity College¹ that aims to map and assesses the viability of city-based food sharing initiatives around the world.

In Finland Saa Syödä! (literally: license to eat) works by creating collection points for sharing food and has the advantage of strengthening community ties (www.saasyoda.fi). The same aspect is found in the food swap practices developing especially in Canada, Great Britain, the Netherlands and the United States (Schor and Fitzmaurice, 2015; Sharp et al., 2015). During these events created for the bartering of food products (foodswapnetwork.com) the bonds between people are reinforced. Food sharing initiatives thus become collective space of encounter (Marovelli, 2019), going beyond the mere redistribution of food.

Finally, among the initiatives focused on the construction of community bonds there are some in which the aspect of entertainment or leisure prevail while that of food recovery is absent. Although these initiatives are not strictly oriented towards containing waste or creating food awareness, they contribute to the creation of new relationships through food.

Italy has also witnessed, in recent years, the creation and development of many initiatives, which unfortunately at the moment remain modest in size and impact, struggling to reach the critical mass necessary to assert as widespread practices (Schor, 2014).

¹ For the project Food Sharing Futures, see: sharecity.ie/research/food-sharing-futures

Taking up the characteristics of the food sharing initiatives previously identified and applying them to the Milanese context, we can find practices aimed at reducing waste, building community bonds, promoting “charitable / solidarity” actions and developing forms of leisure. Since 2017 the Municipality of Milan is promoting anti-waste activities in the local markets where associations and groups of volunteers, at the end of the sales activities, collect fruit and vegetables still consumable, but that the street vendors do not intend to preserve. The products are redistributed in an organized way to people who often arrive at the end of the market day in search of the rejected goods. In this regard, an action of particular interest is that promoted by the association Recup, an active citizenship project started at the end of 2014 by a group of volunteer citizens. The objectives of the project include the recovery of food waste, but also the strengthening of social relations and the promotion of new strategies of waste management in the local markets of Milan.

Other projects combine the reduction of waste and the construction of community bonds. The MyFoody application (myfoody.it), for example, acts as a bridge to connect sales points and consumers, with the main objective of creating economic, social and environmental value for the benefit of the entire supply chain. Sellers optimize surpluses by increasing sales, their visibility, and their social responsibility. Consumers save, reduce waste and contribute to the reduction of CO2 emissions related to product disposal. The same logic is applied by Breeding (www.breeding.it), an app that connect bakeries and cafeterias with local charitable associations for the circulation of unsold daily bread, guaranteeing benefits to all the subjects of the supply chain: associations, users, bakers. These experiments act in terms of physical proximity, favouring the strengthening of community ties and consumption habits at a neighbourhood level. Another, in this case well established, in Milan, is that of GAS, ethical purchasing groups. In these informal and spontaneous networks, consumption choices are collective and based on the principles of equity, solidarity and sustainability. By promoting a sort of “consumption counterculture” grounded on a more conscious and sustainable use of resources (Albanese and Penco, 2010), they encourage the reduction of waste and the creation of cohesive consumption communities. Witness of the rooting of these realities is the presence, since 2002, of InterGAS, a network of Milanese GAS organized for a better circulation of information and for the realization of activities and initiatives that individual GAS alone would not have the strength or critical mass to organize. Social eating practices has also been active in Milan since 2014, thanks to platforms such as Gnammo, Vizead and Ma 'Hidden Kitchen Club (home restaurant). All these initiatives aim to favour the development of entertainment practices through shared meals, but while the social eating platforms have a more personal and family dimension the home restaurant services represent small entrepreneurial activities carried out at home.

5. THE SURVEY

The survey, conducted in the Municipality of Milan in April-May 2015 and May 2019, had the objective of assessing how the inputs relating to sharing initiatives have been accepted by the population. The research investigates the level of knowledge of Milanese citizens regarding sharing practices, the degree of integration of these practices in the daily context and the use of the services offered. In the years intercurrent between the first and second data collection the Municipality of Milan has worked to promote a new governance of the urban food system, less

vertical and more focused in the involvement of all the stakeholders already existing on the territory. The second data collection aimed at evaluating the resonance of these actions among the population of the city.

5.1 Questionnaire and data collection

Data was collected through a questionnaire created to detect the perception, awareness and real use of different sharing economy services present in Milan and its surroundings. For the administration of the questionnaire, different areas of the city have been identified, in order to include various type of use (commercial areas, parks, markets, city centres, university areas, urban transport hubs), and covering different time slots. Participation in the questionnaire was anonymous and voluntary and respondents received a brief introduction from the researchers on the topic and objectives of the research.

For the purposes of this article a selection of data was chosen, specifically the items that allowed to detect:

- Frequency of use of sharing food services / platforms, including participation in GAS;
- General inclination of the respondents to different aspect of food sharing;
- Evaluation of the usefulness of food sharing platform to various goals;
- Socio-demographic data.

The questionnaire is composed of closed questions assessing the frequency of adoption of the behaviours of interest, while representations and evaluation were measured on Likert scales. The data collected have been analysed adopting non-parametric statistics.

5.2 Sample

The 2015 sample consisted of 1119 respondents, of which 44.2% male and 55.8% female. It is mostly a sample of young people, in fact 74.2% of respondents are between 16 and 30 years old. 12.5% are between 31 and 45, 10.4% between 46 and 65, 2.2% over 65 and 0.8% less than 16 years. Consistently, the most widespread educational qualification is high school, followed by a degree, while in much smaller percentages we find the middle school, postgraduate, elementary school or none. The sample is composed of a clear majority of students, while other relevant occupations are employees and freelancers. Respondent's residence is distributed between the city centre, the city in non-central areas and other municipalities (Table 1).

The 2019 sample consist of 325 respondents, of which 44,4 % male and 55,6% female. Once again is a quite young sample, although slightly older than the one of 2015 with average age of 31, minimum age 16 and maximum age 70. Once again, the most common title of study is high school, followed by degree, and the main occupations are students, employees and freelancers. The distribution between respondents living in the Municipality of Milan and out of it is stable, with a higher percentage of respondents living in the city but not in the centre, compared with 2015 (Table 1). Overall, despite the difference in the dimension of the two samples, there is high consistency in their composition.

Table 1: Characteristics of the samples

<i>Table 1</i>		<i>2015 (%)</i>	<i>2019 (%)</i>
<i>Sex</i>	<i>M</i>	44,2	44,4
	<i>F</i>	55,8	55,6
<i>Age</i>	<i>16-30</i>	75	67
	<i>31-45</i>	12,4	19
	<i>46-65</i>	10,4	12
	<i>over 65</i>	2,2	2
<i>Education</i>	<i>None</i>	0,3	1
	<i>Primary school</i>	0,5	1
	<i>Middle school</i>	6,3	5
	<i>High school</i>	54,3	49,7
	<i>Degree or more</i>	38,6	43,3
<i>Profession</i>	<i>Student</i>	61,6	58,1
	<i>Employee</i>	17,6	24,8
	<i>Freelancer</i>	6,2	5,4
	<i>Unemployed</i>	3,8	1,3
	<i>Pensionner</i>	3,7	2,9
	<i>Manager/entrepreneur</i>	2,3	1,6
	<i>Housewife</i>	1,4	1,9
	<i>Trader/artisan</i>	0,9	2,2
<i>Residence</i>	<i>City centre</i>	31,7	26,6
	<i>City (non central area)</i>	29,6	35,4
	<i>Other city</i>	38,7	38

Young people greater willingness to respond to the questionnaire is in agreement with data already present in the literature: although the use of sharing services is quite transversal, the maximum rates are registered among the Millennials (Junco and Mastrodicasa, 2007), who have a strong sensitivity towards peer-economy phenomena and are closer and more confident of online and peer groups. The market research institute TNS Italia, which has analysed the Italian sharing economy context, maintains that within users of sharing services, 46% are between 18 and 34, users that since a very young age had experienced the availability of digital services (TNS, 2015).

5.3 Data analysis

In general, the practices of food sharing are still not widespread among the population (Table 2), and the four years intercurrent between the first data collection and the second one has not seen a significant change in the behaviours of the respondents. Social Eating is unknown or not used by 86,8% of the respondents in 2015 and 84,2% in 2019; GAS are unknown or not used by 85,4% in 2015 and 87,2% in 2019 and the exchange of food surplus is unknown or not used by 88,9% in 2015 and 91% in 2019. If anything, it seems that, passed the spotlight of Expo 2015, the awareness about food sharing platforms has decreased among the population, with the only exception of social eating.

Table 2: Confront in the use of food sharing platforms

<i>Table 2</i>		<i>Cramer's V</i>	<i>Don't know it</i>	<i>Never</i>	<i>Once</i>	<i>Sometime</i>	<i>Often</i>	<i>Very often</i>
<i>Social eating</i>	<i>2015</i>	,147	33,7	53,1	3,2	5,4	2,7	1,8
	<i>2019</i>		41,3	42,9	8,4	5,9	1,2	0,3
<i>GAS</i>	<i>2015</i>	,110	31,2	54,2	3,7	7	2,4	1,5
	<i>2019</i>		38,1	49,1	6,9	4,1	1,6	0,3
<i>Exchange of food surplus</i>	<i>2015</i>	0,116	33,4	55,5	3,4	4,9	2,2	0,7
	<i>2019</i>		45,5	45,5	4,4	2,8	1,6	0,3

For what concern the attitude toward practices of food sharing, the difference between the two set of data is almost inexistent, apart for a slightly higher propensity to share one owns food. In both samples is clear a higher propensity to imagine oneself in the act of sharing one's food, while the idea of receiving food shared by other people is way less accepted (Table 3).

Table 3: Confront of the attitude to food sharing

Table 3		Mean	DS
Reinforce food sharing	2015	7,62	2,23
	2019	7,62	2,03
Share own food	2015	6,83	7,80
	2019	7,69	2,47
Use shared food	2015	5,31	3,07
	2019	5,62	3,07

Regarding the evaluation of the utility of sharing services (Table 4) in the promotion of a series of possibilities linked to the sharing of food (evaluated on a scale ranging from 1 to 5), the most positive evaluation regards the possibility of using them to donate surplus food, followed by the opportunity to buy Km0 products and link directly producers and consumers, then that of linking producers and retailers, buy organic products and, as last, that of selling surplus food. In the years separating the data collection the evaluations of the population seem to have maintained very stable: although there are slight differences in the distribution of opinions, no serious shift is recorded.

Table 4 Confront in the evaluation of platform utility

Table 4		Kendall's tau c	Mean	Strongly Disagree	Disagree	Not agree nor disagree	Agree	Strongly agree
Donate surplus food	2015	not sig.	4,17	1,4	3,2	11,3	45,2	38,9
	2019		4,15	1,6	3,4	12,7	43,5	38,8
Buy Km0 products	2015	not sig.	3,98	1,7	2,8	20,6	45,2	29,5
	2019		3,96	1,6	4,4	19,1	46,9	28,1
Link producers and costumers	2015	not sig.	3,96	1,6	4	17,3	49,9	27,1
	2019		3,97	0,9	3,7	17,8	52,3	25,2
Link producers and retailers	2015	not sig.	3,84	2,5	4,2	23	47,2	23
	2019		3,86	2,5	3,8	20,6	51,2	21,9
Buy organic products	2015	not sig.	3,74	3,7	5,1	26,7	41,1	23,1
	2019		3,69	3,1	7,8	27,1	40,5	21,5
Sell surplus food	2015	not sig.	3,47	9,4	10,6	21,6	39,7	18,6
	2019		3,50	8,5	10	23,5	38,9	19,1

The use of the three kind of food sharing platforms taken into account show strong correlations among themselves, therefore the items are composed in a scale called "use of food sharing services" that goes from 0 (not know any of them) to 15 (use often all of them). The scale has a Cronbach alpha of 0,720.

Respondents are then divided in three groups: one collecting those that have used at least one of the services (users), one for those that know about the services although do not actively use any of them (knowers) and a last one for that do not know about them (unawares). Confronting the distribution of respondents among groups in the two times of data connection (Table 5) is possible to see how the main shift is between the group of knowers and that of unawares (Cramer's $V = ,129$; $p > ,001$). The correlation is weak but significant and suggest a diminished level of attention towards the services considered in 2019.

Table 5: Distribution of respondents among group of food sharing services use

<i>Table 5</i>	<i>2015 (%)</i>	<i>2019 (%)</i>
<i>Users</i>	<i>22,3</i>	<i>23,3</i>
<i>Knowers</i>	<i>43,1</i>	<i>29</i>
<i>Unawares</i>	<i>34,6</i>	<i>47,7</i>

The groups share a moderately positive attitude towards the idea that urban policies on food sharing should be reinforced, and in the propensity to hypothetically share one own's food. The only significative difference among groups in the attitude toward the use of sharing services as receiver of food. In this case only the users express a mildly positive opinion, while knowers and unawares are quite negative (Table 6).

Table 6: Attitude to food sharing among groups

<i>Table 5</i>	<i>Reinforce food sharing</i>		<i>Share own food</i>		<i>Use shared food</i>	
	<i>Mean</i>	<i>Eta</i>	<i>Mean</i>	<i>Eta</i>	<i>Mean</i>	<i>Eta</i>
<i>Users</i>	<i>7,75</i>	<i>not sig.</i>	<i>7,27</i>	<i>not sig.</i>	<i>6,00</i>	<i>,129</i>
<i>Knowers</i>	<i>7,47</i>		<i>6,84</i>		<i>4,96</i>	
<i>Unawares</i>	<i>7,73</i>		<i>6,99</i>		<i>5,39</i>	

6. DISCUSSION AND CONCLUSION

Like in Milan, several cities in the world are acquiring specific food policies with the same objective, such as New York, Rotterdam, Vigo (Dubbelling, 2015), while, at an international level, pacts such as the Seoul Declaration of 2015 or the 2016 Quito Declaration on Sustainable Cities and Human Settlements for All (Deighton, 2016) accompany the Urban Food Policy Pact of Milan and try to create a network able to address shared problem that needs intervention at a transnational level.

Social innovation and the sharing economy are two key aspects driving the city of Milan towards its evolution in a sharing city (Bernardi and Mura, 2018). The project Milano Sharing City is developing new policies and promoting initiatives and experiments to favour the spread and the use of platforms and services of sharing, giving space and voice to the civil society's ideas.

The city, hosting EXPO 2015, has turned the spotlight on food issues and opened a profound reflection that has had repercussions at the level of urban policy planning, which lead to the realization of a number of projects and actions, involving actors at different levels (from the European Community to local associations) and following the whole food chain, from production (ie: plans of integration of urban and rural agriculture), to consumption (ie: actions to promote sustainable and healthy food in schools) or waste management (Bini et al 2019).

Nevertheless, our analysis on the food sharing sector highlights that despite the commitment to the promotion of innovative practices based on sharing of at least part of the city, and in spite of a strong reflection on the theme of nutrition and food, the general awareness on the topic among citizens, as well as the adoption of services and practices related to food sharing, is still low.

Looking to the three main categories of food sharing practices investigated (Social eating, GAS and Exchange of food surplus), only the use of Social eating services has witnessed a slight increase. Nevertheless, this kind of service is more related to conviviality, entertainment and leisure, and to business opportunities in the case of the home restaurant; while the dimension of

food waste reduction and the related ethic are not the main features of this type of sharing platform. This data suggests that the increase in the adoption of sharing platforms in general is having an impact also on the specific food sector. Literature indeed shows a growing diffusion and use of the sharing economy services and platforms, worldwide and in Italy, especially at touristic level in the mobility and hospitality sectors (Dervojeda et al., 2013; Andreotti et al., 2017; Eurocities, 2017; Guo et al., 2019; Yaraghi and Ravi, 2017). Social eating, and its more business-oriented version of the home restaurant (together with the massive increase of the highly contested food delivery platforms) is living a prosperous season, even if the food recovery dimension is absent.

Considering the attitude toward food sharing practices, the comparison between 2015 and 2019 dataset doesn't show any relevant differences. Conceptually the idea of sharing food surplus is accepted more than the idea of asking to use other's people's food. The sample in 2019, as in 2015, gives a positive evaluation of the utility of sharing services, but the most positive assessment concerns the possibility of donating surplus food, which confirms the availability of respondents to a concrete commitment to reduce food waste if perceived as donation, while the sale of surplus food is less appreciated.

Overall, the registered general decrease in the level of awareness, sensitivity and use of food sharing platforms and initiatives, suggests that the attention on the themes of food sharing and food waste reduction was high during the International Exposition, thanks to a massive communication and emphasis on the topic and with encouraging outputs, while in the following years citizens have lost interest and attention. The analysis of 2015 (Bernardi et al. 2018) had led to hypothesize that the reflection on the topic promoted by the Municipality during EXPO would have produced an increasing knowledge and adoption of practices and services based on food sharing. On the contrary, both at knowledge and use level, the data evolution shows a different picture, highlighting how far the population is from the adoption of consolidated behaviours based on food sharing and food waste reduction practices.

Moreover, data show an easier acceptance of food sharing as a form of "donation" for people in need (confirmed both by personal propensity and evaluation of usefulness of sharing platforms to different aims), and less as a tool of exchange in a relation between equals. The idea of food sharing is more strongly linked to the one of helping people in need, than with that of reducing waste and using resources more effectively (Mura et al, 2019).

To identify the factors and variables able to improve the communication and the spread of knowledge about the food sharing services as well as the variable leading to a more massive use of food sharing services, it will be necessary to broaden the research by including in the investigation those practices that have emerged only in the recent years. Attention should be given to the motivations behind food sharing behaviours, and the influence of cultural frames such that of "charity" vs "efficiency". Further researches should enlarge the sample to confirm the stability of the data and to identify the levers that make food sharing services attractive, favouring their use. Finally, it should be emphasized that alongside the food sharing platforms there are other experiments aimed at a more conscious approach to food, greater environmental sensitivity in terms of waste reduction and the encounter between producers and consumers (such as the experiences of guerrilla gardening). How much the debate on alternative food networks, even at the public level, could overlap with that of food sharing, possibly

strengthening it? Therefore, some open questions remain to be addressed by identifying the most appropriate indicators.

Nevertheless, the research has the advantage of bringing to the attention the theme of motivations for participating in sharing economy activities, a subject still little explored by international research (Bocker and Meelen, 2016), focusing specifically on the use of food sharing services. The observations conducted allowed us to identify categories of actions that more than others affect the use of food sharing practices: institutional actions, actions promoted by civil society and actions carried out by the business world. The institutions generate the political and operational container within which to develop interventions for equal access to healthy food and to promote the spread of a new sensibility on the subject. Civil society mainly engages in voluntary actions and is involved by the Municipality in the creation of shared gardens and urban gardens. The entrepreneurial level contributes, with the birth of new start-ups and companies committed to favouring the reduction of food waste, the re-circulation of resources and the creation of food and environmental awareness among citizens. However, this survey highlights a certain slowness on the part of citizens in welcoming and using these new practices (whether they relate to the development of entertainment practices such as social eating; whether they relate to waste reduction or to increase access to food for less well-off people). In other words, although the city has opened a significant reflection on food issues, there is a discrepancy between the supply of food sharing practices available and the actual use by the population.

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