Sustainability of city-based food sharing

WORKING PAPER 2

SHARECITY URBAN FOOD SHARING SCOPING DATABASE

ANNA R DAVIES

DEPARTMENT OF GEOGRAPHY, SCHOOL OF NATURAL SCIENCES

TRINITY COLLEGE DUBLIN

IRELAND

WEBSITE: WWW.SHARECITY.IE

EMAIL: SHARECITY@TCD.IE

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The database developed in this scoping study provides a picture of the broad, dynamic and diverse landscape of ITC-enabled food sharing activities. In total, the data gathered indicates more than 5000 active food sharing 'enterprises' within 468 cities and 91 countries globally, where enterprises is used as a collective term to describe a range of activities from informal sharing to for-profit businesses (Davies, 2012). This figure includes enterprises which are connected through 72 transurban networks of food sharing in multiple locations within countries and internationally. These multicity and multinational networks are exemplars of a scaling-out process that is enabled through ICT developments, as they frequently connect multiple activities and facilitate exchanges from material food products (e.g. Falling Fruit) to more intangible exchanges of knowledge (e.g. Food spotting), skills (e.g. HOMEGROWN) and experiences (e.g. Eat With). The food sharing networks are not considered in this working paper as they include food sharing activities which a) themselves do not necessarily have an individual ICT-presence but connect with others through the ICT hub provided by the network, b) include activities beyond urban settings and c) do not provide publicly available lists of all food sharing enterprises that they engage with, which means the precise number of enterprises cannot be accurately measured through desk study research alone.

Individual ICT-enabled food sharing enterprises

A total of 492 individual enterprises were identified across 27 countries and 188 cities and collated in the database (see Table 1 and Figure 1), with a concentration of food sharing enterprises within cities of English speaking countries and particularly North America. This is unsurprising given the English language bias in the search process which means it is therefore likely to be an underestimation of activities elsewhere. Acknowledging this bias, it is nonetheless interesting to note the distribution of food sharing enterprises across cities within countries. Outside the USA, there is a concentration of food

sharing in a limited number of what might be characterized as 'leader cities'. In the UK, for example, 73% (45 out of 62) of food sharing enterprises are located within London. Likewise, albeit it to a lesser extent, of the 52 Canadian-based city food sharing activities, 33% are located in Vancouver (17) and 23% in Toronto (12). Australia also appears towards the top of the country rankings for food sharing and within the country 31% of food sharing enterprises are located in Melbourne and 28% are located within Adelaide. Germany is the second ranked European country in terms of numbers of enterprises 57% of which are located in Berlin. Beyond Europe, North America and Australia there were one or two food sharing activities visible in South America (Argentina and Mexico); Asia (China, Korea, Malaysia and Turkey) and Africa (Kenya and South Africa).

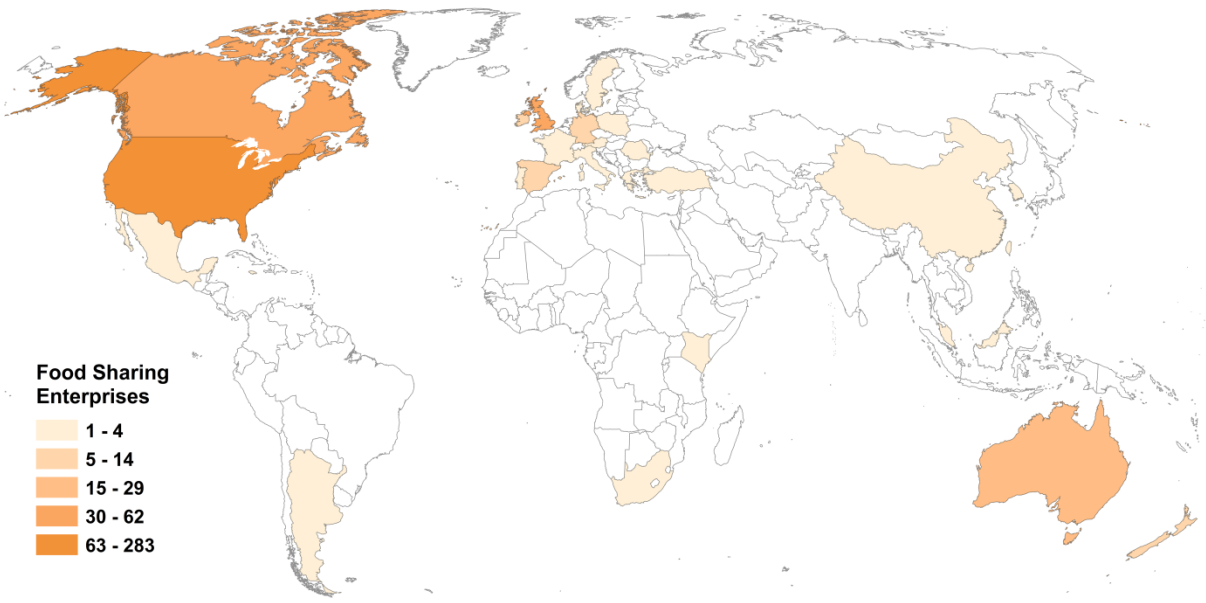


Figure 1 ICT-enabled food sharing enterprises

The database, when analysed at this nation state level, indicates that ICT-enabled food sharing is an international (but not global) urban phenomena. Drilling down to the city scale allows more nuanced analysis of what is shared where and the model of sharing that is used to enact that sharing. Spatial analysis was conducted in order to explore more carefully the 'what' and the 'how' of food sharing being undertaken in the 14 cities[1] with the highest

[1] This number was selected as the top 10 cities are all within the USA except for London

numbers of food sharing enterprises. This approach was taken as just under half of the enterprises identified (46%) were located in these 14 cities alone (forming just 7% of the total number of cities with food sharing enterprises present) and the cities are located across three different continents in the USA, UK, Germany, Canada and Australia[2].

Country	**No. of Enterprises**
United States of America	283
United Kingdom	62
Canada	52
Australia	29
Germany	14
Spain	7
New Zealand	7
Ireland	5
Portugal	4
Kenya	3
China	2
Sweden	2
France	2
Malaysia	2
South Korea	1
Argentina	1
Greece	1

[2] The analysis of individual ICT-enabled food sharing enterprises found that 137 cities had one food sharing enterprise identified, 23 cities had two enterprises, six had three. It is important to reiterate that these figures are not the total number of ICT-enabled food sharing enterprises present in these cities as this analysis excludes enterprises connected through food sharing networks of multi-city food sharing enterprises such as Cookisto and Eat With, for example.

Italy	1
South Africa	1
Poland	1
Denmark	1
Jamaica	1
Turkey	1
Romania	1
Austria	1
Singapore	1
Mexico	1
Total	**492**

Table 1 Food sharing enterprises per country

The question as to why these cities in particular should have a larger or more dynamic landscape of food sharing requires more in-depth analysis than is possible in this paper, but a range of indices were examined to explore the performance of the food sharing cities in three open-access city-focused sustainability or quality of life indices: the 2015 Arcadis Sustainable Cities Index; the 2015 IESE Cities in Motion Index and the 2015 Mercer Quality of Living Index. The results are detailed in Table 2, along with the most up to date population figures from respective census data. This shows a number of interesting features, but provides few concrete answers. In the first instance, none of the three indices lists all of the leading food sharing cities, indeed four cities (Oakland, Ann Arbor, Ithaca and Denver) are not present in any of the indices examined. This is likely to be because of their relatively small populations in comparison to other cities that are present in the list. Of those cities that do appear in the sustainability indices, some rankings vary slightly across indices reflecting the different methodologies, data and indicators selected by each ranking initiative. For example, London, Melbourne and Chicago have similar rankings across both the Arcadis and IESE rankings. Others vary more widely between indices, for example New York is the second ranked city in IESE rankings, but appears as number 20 in the Arcadis index. Similar large

discrepancies occur for Los Angeles and Berlin.

Overall, each of the leading food sharing cities that were ranked fell into the top half of the indices, suggesting that they are judged to have a higher than average quality of life and sustainability rating. In the IESE index all cities ranked had a high (A) or relatively high (RA) sustainability score and in the Mercer Quality of Life Index each ranked city appears in the top 20% of all cities ranked. At the same time, however, many of the cities present in Table 2 have high income inequalities. For example, Berube, and Holmes (2015) examination of income inequalities within the largest 50 cities in the USA shows that San Francisco was ranked 2nd most unequal city, with New York 6th, Chicago 8th, Oakland 13th and Denver 17th. Likewise, London is regularly identified as having acute inequalities in income comparable with major cities in the USA (Piketty, 2014). On the basis of these findings it is only possible to argue tentatively that having a higher than average quality of life or sustainable city status can predispose a city to experience higher incidence of ICT-enabled food sharing.

City	No. of enterprises	Population	2015 Arcadis Sustainable Cities Index	2015 IESE Cities in Motion Index Ranking (Rating - Score)	2015 Mercer Quality of Living Index
London	49	8.53 million (2014)	2	1 (A - 100)	40
New York	29	8.4 million (2013)	20	2 (A - 92.24)	44
Oakland	20	406, 253 (2013)	-	-	-
San Francisco	17	837, 442 (2013)	27	21 (RA - 79.03)	27
Toronto	17	2.6 million (2011)	-	36 (RA - 73.36)	-
Chicago	14	2.72 million	19	18	43

		(2013)		(RA - 80.24)	
Vancouver	13	603, 500 (2011)	-	53 (RA - 68.72)	5
Ann Arbor	12	117, 025 (2013)	-	-	-
Los Angeles	12	18.55 million (2014)	28	42 (RA – 72.29)	48
Ithaca	10	30,000 (2013)	-	-	-
Melbourne	9	4.08 million (2012)	17	16 (RA – 80.44)	16
Denver	8	649,495 (2013)	-	-	-
Adelaide	8	1.251 million (2012)	-	-	27
Berlin	8	3.502 million (2012)	6	25 (RA – 78.06)	14

Table 2 Comparative analysis of leading food sharing cities with cities indices

Table 3 below lists these cities and what is being shared within them and this data is mapped visually in Figure 2. The spectrum of food sharing delineated in Table 1was used initially to frame the keyword searches for the database, but in order to capture the diversity of food sharing activities across cities, sub-categories under stuff, spaces and skills were then provided so that phases in the food system from production (e.g. seeds) through consumption (crops and food products) to disposal (compost) could be delineated. The sharing of food preparation spaces (such as community kitchens) and land were also considered, as were enterprises that enabled the sharing of food-related knowledge, skills and experiences. Examining Table 3 and Figure 2, it is important to note that many ICT-enabled food sharing enterprises are multifunctional, offering opportunities to share a number of different food products (e.g. seeds and compost), or to share food products such as crops as well as shared spaces for

growing food or sharing food growing skills. As a result, the figures listed under the No. of Enterprises column are not the sum of the figures listed under the Shared Stuff, Spaces and Experiences columns. In the entire sample, across 188 cities, 53% of enterprises exhibit sharing in more than one sub-category[3]. The pattern is similar across the leading 14 cities, with 50% of enterprises exhibiting sharing in only one sub-category, 35% sharing across two sub-categories, 12% across three and 3% across four or more categories. The sharing of tangible food products (Shared Stuff) dominates across the leading food sharing cities, with the food products sub-category specifically being the most frequently occurring activity in nine of the cities. Sharing knowledge is the dominant form of food sharing in four cities (Oakland, San Francisco, Ithaca and Adelaide), with shared experiences only being the most frequently occurring activity in Berlin. Overall, within the leading 14 cities the sharing of knowledge and skills about food is more prevalent in North American cities and Australian cities than in the European cities of London and Berlin.

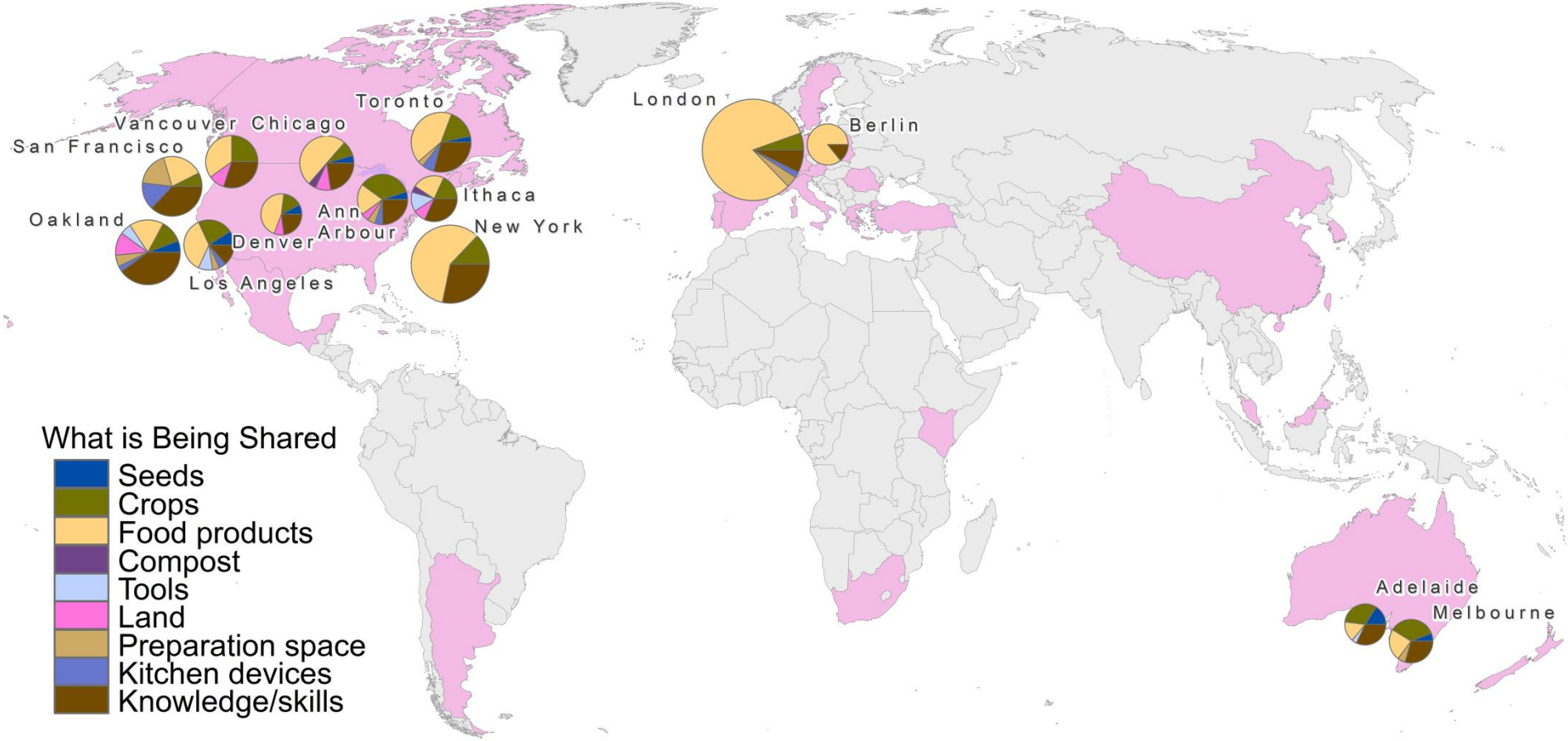
When examining how the sharing takes place within the top 14 cities, a range of exchange modes are visible and, as with the multifunctionality of what is shared, in some cases there are multiple modes of sharing occurring within a single enterprise. This multimodality is less prevalent than multifunctionality however with just 10% or 22 enterprises exhibiting such a characteristic. Within these enterprises, half of the cases involve both gifting and bartering, while just under a quarter involve gifting and not-for-profit activities. More stark is the different modal mix between cities (see Table 4 and Figure 3). In general, leading food-sharing cities in North American exhibit a more diverse modal mix than Australian and European cities. However, London and Berlin have a preponderance of for-profit food sharing enterprises (predominantly supper clubs or the sharing of homecooked food for revenue generation), while Adelaide and Melbourne are dominated by gifting and bartering enterprises. Only two cities (New York and Los Angeles) have food sharing enterprises that span the entire spectrum of sharing models, with eight cities exhibiting food sharing enterprises across four modes, all in North America.

[3] This breaks down as 34% of enterprises with two different sub-categories of food sharing, 14% with three sub-categories, 5% across four sub-categories and less than 1% across five and six sub-categories.

City	No. of Enter-prises	Shared Stuff					Shared Spaces		Shared Experiences	
		Seeds	Crops	Food pro-ducts	Com-post	Tools/ Kitchen devices	Land	Cooking Space	Know-ledge	Experi ence
London	49		3	45		1		2	4	9
New York	29		5	23					11	1
Oakland	20	2	4	6		3	4	2	14	1
San Francisco	17		2	6		4		5	10	3
Toronto	17	1	5	13		2		1	9	7
Chicago	14	1	2	11	1		2		5	3
Vancouver	13		5	7			2		6	9
Ann Arbor	12	1	7	4		1	1	1	5	1
Los Angeles	12	2	5	8		3		1	3	
Ithaca	10		4	5	1	3	2		7	1
Melbourne	9	1	6	4				1	5	2
Denver	8	1	2	6			1		3	
Adelaide	8	4	8	4		1			8	1
Berlin	8			6					1	7
Total: Number of enterprises	**226**									
Total: Incidence of sharing by sub-categories		**13**	**58**	**148**	**2**	**18**	**12**	**13**	**91**	**45**
Total: Incidence of sharing by stuff, spaces, exper.				**239**				**25**	**136**	

Table 3 Food sharing in leading 14 cities

Figure 2 Food sharing in leading 14 cities



While it is possible to easily ascertain the 'what' and the 'how' of food sharing enterprises, it is less easy to interrogate sustainability impacts from on-line data. In the first instance, the web-presence (including facebook pages, blogs, web-sites and apps) for each enterprise in the top 14 cities was examined for claims of social, economic and environmental benefits and also for evidence of social, economic and environmental impact reporting. It was found that 214 (95%) claimed some form of economic benefit from their operations, either through additional income generation by the sharing of skills, experiences, spaces and food stuff, or through income saving via the provision of foods for free or at reduce cost, or through the avoidance of costs normally incurred when disposing of food waste to landfill. Just over three quarters of enterprises (76%, 171) claimed some form of social benefits through the development of additional community relations, "a way to reconnect with community" (Adelaide Essential Edibles Urban Orchard), enhanced community capacity or improved well-being through "vibrant social interaction" (Berlin, Dinner Exchange). Just under half of the enterprises (44%, 100 enterprises) claimed environmental benefits in terms of reducing food waste, producing local food thus reducing food transport impacts, or producing food (or food related products) in ways which were low in terms of resource intensity. Overall, 94 enterprises (42%) claim social, environmental and environmental benefits or explicitly state that they aim to create sustainability through their operations. For example, Planting Justice, based in Oakland, California states that it is "a grassroots organization with a mission to democratize access to affordable, nutritious food by empowering urban residents with the skills, knowledge, and resources they need to maximize organic food production, expand job opportunities, and ensure environmental sustainability in the Bay Area".

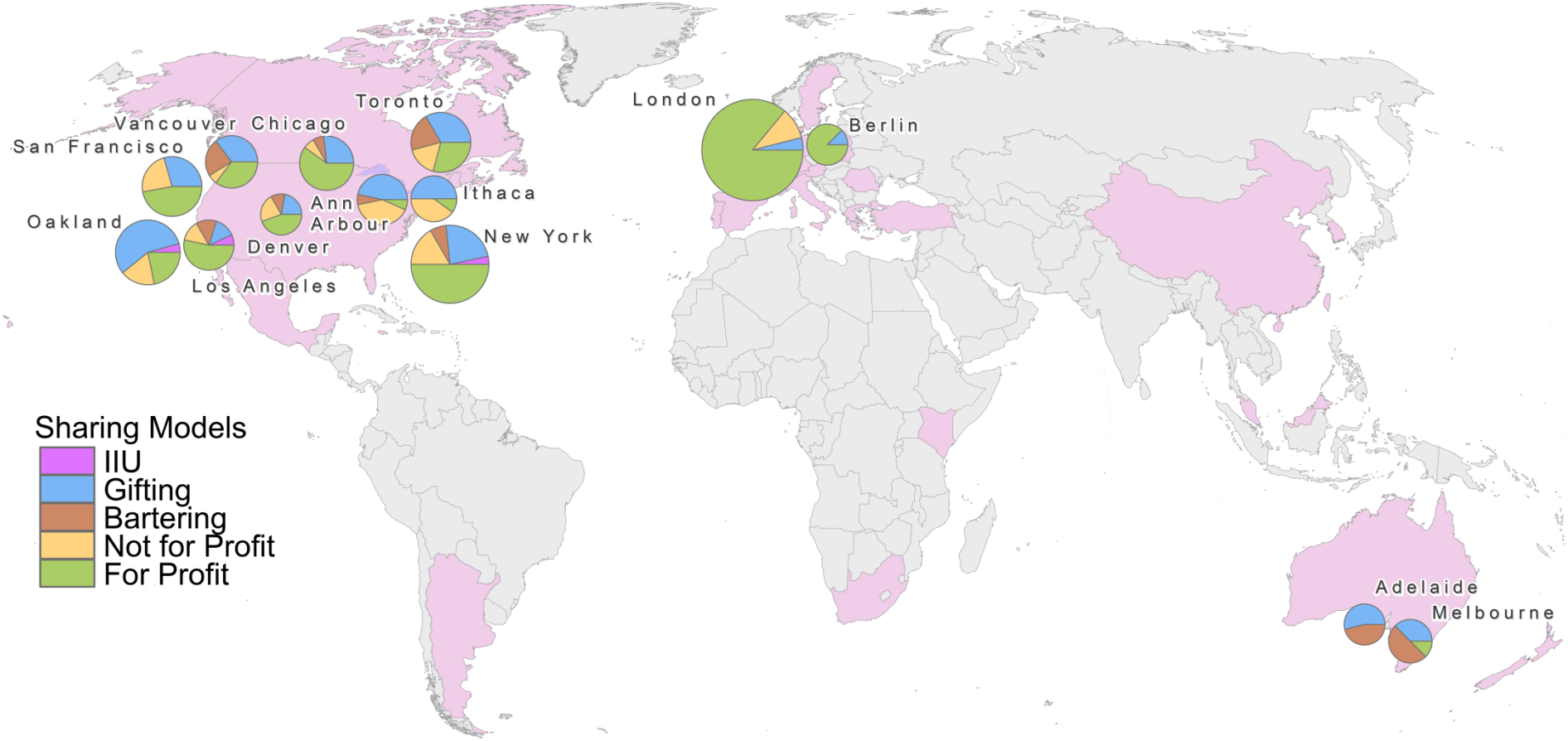
In terms of reporting on these claimed benefits, only 14 enterprises (6%) provide any form of data on the impacts of their activities. These are presented in Table 4 to indicate the range of metrics used and the lack of comparability across the enterprises. All bar one of these enterprises adopt a food gifting model of sharing, with most of the emphasis on indicating social and environmental benefits. While these social and environmental benefits may well also have some economic benefit for those receiving the redistributed food, only

two enterprises, People's Grocery in Oakland and Feeding Forward in San Francisco provide any quantification on such economic impacts. Social benefits are predominantly presented in terms of numbers of people involved with activities that are generated through the enterprises rather than any assessment of the benefits that might accrue from such participation. The Stop in Toronto, a community food centre, is unique in this database in that it provides both quantifiable metrics on participants and the results of a survey of those who engage with its activities to indicate its social impact. Yet, it is only through such mechanisms that intangible impacts, such as community capacity building, that are frequently claimed by food sharing enterprises might be substantiated. Of course, it is notoriously difficult to get agreement on the most appropriate methods to use to best indicate the social worth of such engagement in this way (Davies and Mullin, 2012).

City	No. Enterprises	IIU	Gifting	Bartering	Not-for-profit	For-profit
London	49		2		5	43
New York	29	1	7	2	5	15
Oakland	20	1	13		4	5
San Francisco	17		5		4	8
Toronto	17		8	5	4	7
Chicago	14		4	1	1	9
Vancouver	13		6	4	1	6
Ann Arbor	12		7	1	6	1
Los Angeles	12	1	2	2	2	8
Ithaca	10		5		4	1
Melbourne	9		3	4	1	1
Denver	8		2	1	2	4
Adelaide	8		7	6		
Berlin	8		1			7
Total	**226**	**3**	**72**	**26**	**39**	**115**

Table 3 Modes of ICT-enabled food sharing in the top 14 cities

Figure 4 Sharing models across enterprises in the top 14 cities



Summary

As detailed in (Davies, 2016), food sharing amongst family and friends remains a familiar everyday social practice shaped by a bundle skills, understandings, materials, and rules around what can be shared and how (also see, Devaney and Davies, 2016). From an academic perspective, such familial and kinship food sharing has been extensively studied in disciplines from behavioural anthropology to sociology (Jaeggi and Gurven, 2013; Kaplan & Gurven, 2005). However, as the research reported in this paper indicates, technological developments are stretching these familiar practices of food sharing into new spaces and across larger scales creating an emergent spatiality. This neo-urban food sharing is typified by connecting strangers through mobile web platforms and smart phone apps, but to understand why there is such a diverse landscape of ICT-enabled food sharing, both in terms of what is shared and how it is being shared, requires more in-depth analysis of the cultures and contexts. Nonetheless, mapping the broad landscape of food sharing, as presented in this paper, provides a foundational classification to better understand these sharing modalities and presents an international illustration of activities which can be further fleshed out through more in-depth analysis. Specifically, this future analysis of city-based ICT-enabled food sharing requires attention to: the wider regulatory landscape for food sharing, both in relation to food safety and how governing actors are responding to sharing economies more broadly; the motivations of sharers and those who establish sharing enterprises; and the relative influence of the enablers (social media, the internet, smart technologies) and drivers of sharing (environmental concern, economic need, desire for new forms of community interaction and collaboration) in the particular contexts under investigation.

Despite the limitations of the SHARECITY scoping database, it is clear that diverse practices and models of food sharing are taking place in cities of contrasting geographical and socio-economic contexts. However, while all claim some form or economic, social, environmental benefits arise from their activities, only around half of these neo-sharing activities claim sustainability impacts, and a mere 6% provide any data to substantiate their claims. In part, this can be

explained by the lack of appropriate and accessible tools to evaluate the social (i.e. relating to identity, interpersonal and people-product relations), economic (i.e. revenue generating, livelihood supporting) and environmental (i.e. resource efficiency, waste management) benefits being generated (Davies, 2012). However, it may not be possible to accurately reflect the gestalt values of food sharing in a technical sense and future research will need to also adopt a relational perspective that permits attention to the ways in which people and places are [re]made through the practices, imaginaries and materialities of food sharing. With further analysis of the reach, intensity and impacts of ICT-enabled urban food sharing it will be possible to discern whether the activities have the potential to become more than a niche activity and contribute towards a broader sustainability transition of urban food systems.

City	Enterprise	Mode	Environmental Impacts	Social Impacts	Economic Impacts
New York	City Harvest	Gifting	150,000 lbs of food rescued per day	150,000 lbs of food rescued per day	
Oakland	Planting Justice	Gifting Not-for-profit	250 permaculture gardens developed	3 schools developing food justice curriculum	11 green jobs
	People's Grocery	Gifting		Engaged over 9,000 West Oakland residents. Supported over 130 youth and adults with taking leadership in the healthy food system	$393,000 toward the healthy food economy in West Oakland
San Francisco	Free Farm	Gifting	3¼ tonnes of fresh organic produce given away since 2010	3 ¼ tonnes of fresh organic produce given away since 2010	
	Feeding Forward	Gifting	1 - 780,000 lbs of food recovered	Impact profiles available on participation	$3.9 mill savings from avoided costs
Ithaca	Full Plate Collective	Not-for-profit		1 tonne of food for 'food for schools' scheme. 250 children provided with healthy snacks everyday	
Toronto	FoodShare	Gifting Not-for-profit		263,060 people involved in programmes	
	Second Harvest	Gifting	> 100 million lbs of food diverted from landfill, preventing more than 50 million pounds of greenhouse gas equivalents from entering the atmosphere		
	The Stop	Gifting Bartering	2000 lbs of food grown	59,401 meals served and 10,498 hampers distributed. 77% of participants met new friends; 80% feel part of a community; 94% get healthy food; 89% receive new knowledge; 65% felt that they had found people to turn to through the enterprise.	
	Not far from the Tree	Gifting Bartering	113,000 lbs of fruit harvested 1,800 trees registered	1,800 volunteers	
Vancouver	Fruit Tree Project	Gifting Bartering	48,000lbs of fruit harvested over 14 years		
Melbourne	FareShare	Gifting	517.2 tonnes diverted from landfill	517.2 tonnes diverted from landfill 1,056,231 meals cooked 378 charities helped	

Table 5 Reported impacts of food sharing enterprises

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REFERENCES

Agyeman, J., McLaren, D., Schaefer-Borrego, A. (2013) *Sharing Cities Briefing Note*. Friends of the Earth: London.

Belk, R. (2010) Sharing. *Journal of Consumer Research* 5: 715-734.

Belk, R. (2014) Sharing versus pseudo-sharing in Web 2.0. *Anthropologist* 18(1): 7-23.

Berube, A. and Holmes, N. (2015) *Some cities are still more unequal than others—an update*. The Brookings Institution. Accessed 12-01-2016. Available from: http://www.brookings.edu/research/reports2/2015/03/city-inequality-berube-holmes

Botsman, R & Rogers, R. (2010) *What's mine is yours: The rise of collaborative consumption*. Harper Collins: London.

Bourdieu, P. (1984) *Distinction: a social critique of the judgement of taste*. Harvard University Press: Cambridge, MA.

Braw, E. (2014) Free lunch, anyone? Foodsharing sites and apps stop leftovers going to waste, *The Guardian* 05/05/2014: Available from: http://www.theguardian.com/sustainable-business/free-food-sharing-leftovers-surplus-local-popular [Accessed 24/06/2015].

Cohen, N and Ilieva, R. (2015) Transitioning the food system: A strategic practice management approach for cities. *Environmental Innovations and Societal Transitions* 17: 199-217.

Cooper, R. and Timmer, V. (2015) *Local governments and the sharing economy*, One Earth: Vancouver. Available from: http://www.oneearthweb.org/uploads/2/1/3/3/21333498/localgovsharingecon_report_full_oct2015.pdf [Accessed 03/12/15]

Davies, A. R. (2014) Co-creating sustainable eating futures: Technology, ICT and citizen-consumer ambivalence. *Futures: The journal of policy, planning and futures studies*. Available at http://www.sciencedirect.com/science/article/pii/S0016328714000688.

Davies, A.R. (2012) *Enterprising Communities: Grassroots sustainability innovations*, Emerald: London.

Davies, A.R. and Mullin, S. (2012) Sustainability impacts and grassroots enterprises in, editor(s) Davies, A.R., *Enterprising Communities*, Emerald: London: 25-48.

Davies, A.R. (2013) Food futures: Co-designing sustainable eating practices for 2050, *Eurochoices* 12(2): 4-11.

Devaney, L and Davies, A. (2016) Disrupting household food consumption through experimental HomeLabs: Outcomes, connections, contexts. *Journal of Consumer Culture* (in press).

European Commission (2010) *Roadmap to a resource efficient Europe*. EC: Brussels.

Ferris, J. (2001) People, Land and Sustainability: Community Gardens and the Social Dimension of Sustainable Development. *Social Policy & Administration* 35(5): 559-568.

FoodCloud (2015) FareShare-FoodCloud. Available from: http://foodcloud.net/fareshare-foodcloud/ Accessed 03/12/15

Gabriel, R. (2013) *Why I buy: Self-taste and consumer society in America.* University of Chicago Press: Chicago.

Gold, L. (2004) *The sharing economy: Solidarity networks transforming globalization*. Ashgate: Aldershot.

Goodman, D., DuPuis, E., Goodman, M. (2012) *Alternative food networks.* Taylor & Francis: London.

Harvey, D. (2008) The Right to the City. *New Left Review* 53: 23-40.

Hoornweg, D., Bhada-Tata, P. (2012) *What a Waste*. World Bank: Washington D.C.

Jackson, T. (2015) Austerity and the rise of food banks. *The British Medical Journal* 350, (2015-01-01) ISSN: 0007-1447

Jones, M. (2007) *Feast: Why humans share food*. Oxford University Press: Oxford.

Kaplan, H., and Gurven, M. (2005) The natural history of human food sharing and cooperation. In *Moral Sentiments and Materia Interests: The Foundations of Cooperation in Economic Life*, eds H. Gintis, et al. MIT Press: Cambridge, MA: 75–113.

Lundie, S. and Peters, G. (2005) Life cycle assessment of food waste management options. *Journal of Cleaner Production* 13(3): 275-286.

Martin, C. (2016) The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism, *Ecological Economics* 121: 149-159.

Orsi, J. (2010) *How to barter, give and get stuff,* available from Shareable.net: http://www.shareable.net/blog/how-to-barter-give-and-get-stuff [Accessed 24/06/2015].

Piketty, T. (2014) *Capital in the 21st Century*, Harvard University Press, Cambridge MA.

Poppy, G.M., Chiotha, S., Eigenbrod, F., Harvey, C.A., Honzák, M., Hudson, M.D., Jarvis, A., Madise, N. J., Schreckenberg, K., Shackleton, C. M., Villa, F., Dawson, T.P. (2014) Food security in a perfect storm: using the ecosystem

services framework to increase understanding. *Philosophical Transactions of the Royal Society B* 369: 1-12.

Schor, J. (2010) *Plenitude: The new economics of true wealth*. Scribe Publications: Victoria.

Simms, A., Potts, R. (2012) *The new materialism*. Bread Print and Roses: London.

Standing, G. (2011) *The Precariat: The new dangerous class*. Bloomsbury: London.

Tarasuk, V. (2005) Food assistance through "surplus" food: Insights from an ethnographic study of food bank work. *Agriculture And Human Values* 22(2): 177-186.

Turner, B. (2011) Community gardens: Sustainability, health and inclusion in the city. *Local Environment* 16(6): 489-492.

UNEP (2013) *City-level decoupling*. A Report of the Working Group on Cities of the International Resource Panel. UNEP: Nairobi.

Warde, A. (2013) What sort of practice is eating? In Shove, E., Spurling, N. (Eds) *Sustainable Practices*. Routledge: London: 17-30.

WHO (2015) *Obesity and overweight*: Fact sheet N°311 (Updated January 2015), WHO: Geneva. Available from: http://www.who.int/mediacentre/factsheets/fs311/en/ [Accessed10/01/2016]

Wrigley, N., Warm, D., Margetts, B. (2003) Deprivation, diet and food-retail access. *Environment & Planning A* 35(1): 151-188.