

Assessing the Sustainability of ICT Enabled Urban Food Sharing in Dublin



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October, 2016

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October, 2016

Abstract

With the increased demand for food due to a growing global urban population and a projected increase in unsustainable eating practices, forward thinking strategies to produce food more efficiently are required in order to achieve a more sustainable global food system. A multitude of factors relevant to assessing the sustainability of the global food system make a comprehensive understanding of food sustainability a complex task.

Through the sharing of food, knowledge and skills relating to food, spaces, and tools or appliances related to food, ICT enabled urban food sharing offers the potential to reduce the consumption of resources, build a better sense of community within cities, and benefit the local economy through the production of locally grown food.

As the first research to map the geo-spatial landscape of food sharing in Dublin, a noble contribution has been made in this paper to further understand the dynamic of food sharing. Through the use of GIS, a visual representation of food sharing in Dublin was achieved. Incorporating socio-economic statistical data enabled for the emergence of a trend suggesting that, in Dublin, food sharing is most likely to occur in areas of 'marginally above average' deprivation coupled with a younger adult demographic.

The case study element of this research highlighted a multitude of potential sustainability benefits arising from the activities of four food sharing organisations and also illustrated a diverse dynamic in the different types of sharing food explored. This qualitative research found that the utilisation of ICT, the role of support services, food education, and regulation issues play a major role in understanding both opportunities and obstacles for food sharing organisations in Dublin.

SWOT analyses were undertaken with each organisation to enable the creation of four individual toolkits consisting of indicators relevant to the multitude of potential sustainability benefits of each organisation. As none of the four organisations had never previously gathered data on their sustainability performance, the toolkits provided a functional, effective and replicable way for these organisations to report on the sustainability benefits of their activities.

It is considered in this paper that by enabling these grassroots food sharing organisations to be able to comprehensively report on their impact, a greater consideration can be given to the potential of urban food sharing to contribute to a more sustainable global food system.

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1. Introduction

1.1 Background

The global food market is valued at around 8 trillion US dollars, comprising 10% of GDP (ILO, 2014), and providing around 40% of global employment (Davies, 2013). Around 30% of global greenhouse emissions result from activity within the food sector which also accounts for 70% of all global water withdrawal (WEF, 2010) and 47% of global bio-capacity (Davies et al., 2015).

With population predicted to rise as well as the growth in economic prosperity of the developing world, the demand for food is set to increase by as much as 70 – 100% in the next 40 years (FAO, 2009, Reisch et al., 2013). With the global middle class expected to double by 2030 (Reisch et al., 2013), unsustainable eating practices will inevitably increase, with a predicted additional 280 tonnes of annual food waste generated based on 2011 levels (WRAP, 2014). The projected increase in both the middle class and global urbanization is likely to exacerbate these unsustainable modes of consumption (Garnett, 2011).

1.1.1 Considering Food within the Three Pillars of Sustainability

When considering what factors impact on food sustainability, it is vital to consider not only the environmental impact but also societal and economic impacts of activities within the food sector (Goggins and Rau, 2016, Yakovlewa 2007, Del Borghi et al., 2014). Consideration of these three pillars of sustainability enable a more holistic approach to considering the substantial trade-offs between them which frequently occur within the food system (Goggins and Rau, 2016).

Examples of environmental impacts associated with the food industry include soil erosion, depletion of natural resources, unsustainable land use, water degradation, impacts on biodiversity, greenhouse gas emissions, deforestation, eutrophication, ozone layer depletion, ocean acidity and desertification among others (Garnett, 2011; Reisch et al., 2013; Gerbens-Leens and Nonhebel, 2002; McNeely and Scherr, 2003).

Social impacts can include the effect of the global food system on human health, food nutrition and food security, and animal welfare among others (FAO and UNEP, 2014; Morgan, 2008).

Fair trade issues, local economies, health costs, market vulnerability and product quality provide examples of economic concerns in the global food system (Yakovlewa, 2007; Reisch et al., 2013; Morgan, 2008).

1.1.2 Identifying What Makes Food Sustainable

Due to the multiple aspects of food sustainability already mentioned, different food types have different impacts. For example, two dishes consisting of the same amount of calories can vary in the quantity of greenhouse gas related emission by a factor of nine due to the different ingredients which constitute the meal (Tobler et al., 2011). The production of meat for example has a larger environmental impact than most foods (Goggins and Rau, 2016, Roy et al., 2009; Hallstrom et al., 2014; Westhoek et al., 2014). Additionally, social and economic impacts of meat consumption relate to the rise in human health problems and the related economic costs of this due to over-consumption of meat and dairy (Westhoek et al., 2014).

Exemplifying a positive change that can reduce the negative sustainability impact of the food industry, organic production of food has the potential to reduce energy use during production by 50 to 70% (Reisch et al., 2013). Socio-economic benefits of organic food result from the organic food movement being built around a strong connection between consumers and the land as well as health benefits and the potential reduction in health costs these benefits provide (Goggins and Rau, 2016).

1.1.3 Supply Chain Impacts

Sustainability impacts occur at all stages (from farm to fork) within the food system, from production, processing, distribution, retail, consumption to waste (Goggins and Rau, 2016, Yakovlewa, 2007; WRAP, 2014).

Food production is responsible for the highest environmental impact of all phases of the food supply chain (Del Borghi et al., 2014; Roy et al, 2009, Reisch et al., 2013, Zwartkruis et al., 2015, Pelletier et al., 2011), comprising around 30% of the food sector's energy demands (Reisch et al., 2013).

The processing and distribution of food has a significant impact in terms of manufacturing equipment, the material needed for packaging and the process itself (Reisch et al., 2013), energy needed to fuel the transportation and refrigeration of the product in transit (Van der Goot et al., 2016., Ilbery and Maye, 2005; Weber and Matthews, 2008; Born and Purcell, 2006, Farmery et al., 2015). From a socio-economic sustainability perspective, as well as reducing the impacts associated with distribution, local food reconnects people with an idea of where food comes from as well as a contribution to local economies (Vallouri, 2014; Chambers et al., 2007).

Food consumption in Europe, accounts for one third of household level environmental impact (EEA, 2015). An essential consideration in sustainable consumption is that of waste disposal. Around 30% of all food production is wasted amounting to over 400 billion dollars-worth of waste globally each year (WRAP, 2014).

The consumer can be seen as a key actor in the transition towards sustainability (Vitterso and Tangeland, 2015) and sustainable eating practices need to be developed alongside increased efficiency within the supply-side sector (Davies, 2013).

1.2 Measuring Sustainability

There is a need for individuals and organisations to create ways of analyzing the extent of which activities are sustainable. Companies want to be able to measure the performance of their products (Del Borghi et al., 2014), as well as regulatory bodies seeking to create sustainable policies and consumers who wish to make better dietary choices (Pelletier et al., 2011). Being able to bring together the multiple impacts mentioned above which help to understand whether a certain food practice is sustainable, allows for the creation of sustainability indicators which simplify, analyze, quantify and communicate the complicated information (Pelletier et al., 2011; Heller and Keoleian, 2003; Goggins and Rau, 2016; Prospero et al., 2014.,Singh et al., 2011). Indicators can then be used as a tool for policy making and communication of sustainability performance by organisations themselves (Singh et al., 2011).

1.3 Food Sharing as a Solution

The idea of sharing or collaborative consumption is one that is embedded in anthropological evolution (Agyeman et al., 2013). Our ancestors collaborated in order to hunt, farm and create shelter within societies (Schmidt et al., 2011). This instinctive human predisposition to share food and other items of value began to decline as a result of the emergence of the consumer capitalist society where an idea of ownership and self-determinism enabled by over-privatisation of commodities began to drive society (Belk, 2007), resulting in a reduction in the social aspect of community and neighbourhood relations encouraged through sharing (Agyeman et al., 2013). In recent times the reemergence of the idea of sharing has grown substantially with an increasing value placed in the experience economy of 'doing over owning' and by removing the burden of ownership (Pine and Gilmore, 2007).

Botsman and Rodgers (2010) attribute the reemergence of sharing to a belief in the importance of recapturing the sense of community, the proliferation of peer to peer social networks and real time technologies, growing environmental concern, and shocked consumer behavior in light of the recent global recession.

Unlike the profit driven 'pseudo sharing' taking place through international enterprises such as Uber and Airbnb (Belk, 2014), many smaller scale grassroots organisations are emerging which both intentionally and unintentionally promote sustainability within their actions (Seyfang and Smith, 2007) by way of resource efficiency through reduced consumption and resourcefulness, the redistribution of assets, and collaborative life-styles (Agyeman et al., 2013). In doing so they are forming new social relationships as well as economic vitality for participants in the process (Simms and Potts, 2012).

The emergence of this neo-sharing is receiving increased recognition as an opportunity to address the unsustainable practices within the three pillars of sustainability and contribute to resolving global issues of climate change and poverty (Davies and Legg, 2016). Particularly within the food sector, there is a lack of research dedicated to assessing the sustainability potential of food sharing. Research is needed to back up the claims made as there is still contestation as to whether neo-sharing activities are actually effective in replacing hyper-consumption or simply providing an additional form of consumption (Davies and Legg, 2016).

1.3.1 IFood Sharing in Cities

Within the umbrella of the sharing economy fall the activities of food sharing. As well as the sharing of food itself, many other activities are undertaken which focus on the utilization of underused resources for food related purposes (Davies and Legg, 2016). The various types of food sharing activities include the sharing of food products, sharing of skills or knowledge to do with food, be it growing, cooking, preserving or foraging, and the sharing of spaces and appliances to be used for food related activities (Davies and Legg, 2016).

These food sharing activities are able to thrive in cities, which are hugely significant in terms of their impact due to housing more than half of the world's population and the expected increase of urbanization in the future (UNEP, 2013). The reinvention of food sharing within our cities has the potential to significantly reduce the consumption of resources through collaborative consumption, to build a better sense of community through increased interaction and to benefit the local economy through the production of food locally (Agyeman et al., 2013).

The growth in the influence of Information communication technology (ICT) on food sharing activity has resulted in the potential of ifood sharing to stretch beyond the former familial boundaries and to increase the level of urban interconnectedness (Agyeman et al., 2013). From here on in, the term 'ifood' will be used in this paper to address urban food sharing with increased spatial capability due to the utilization of ICT.

1.4 The Need for Research and the Aims of this Paper

Ongoing research by SHARECITY in Dublin aims to examine the potential of ifood sharing within 468 cities worldwide to contribute towards more sustainable practices.

As well as identifying ifood sharing organisations, the database created by SHARECITY illustrates the diversity of the sharing of stuff, spaces and skills right through the food supply chain from production and consumption to disposal of waste (Davies and Legg, 2016).

A SHARECITY study by Davies and Legg (2016) found that due to limited financial and technological capacity of ifood sharing organisations, only 6% of ifood sharing organisations examined provided any form of data relating to the impacts of their activities. In light of this discovery, facilitating ifood sharing organisations to be able to report on the sustainability of their activities will prove essential to understanding and highlighting their transformative capacity.

This study utilizes the database of ifood sharing organisations in Dublin created by SHARECITY in order to perform micro-level research on the dynamic of ifood sharing in Ireland's capital city. Mapping ifood sharing in Dublin can enable a visual understanding of the phenomenon and enables the physical location of ifood sharing organisations to be considered in relation to socio-economic statistical data.

Forming an additional element of this research, using qualitative data derived from interviews, observation, and SWOT analyses within ifood sharing organisations, can enable an understanding of the full suite of potential benefits of ifood sharing and in turn can enable the formulation of a sustainability toolkit made up of indicators which can serve as a means of comprehensively quantifying the sustainability of ifood sharing.

Through these processes, this research aims to answer the following questions:

1. What is the geo-spatial landscape of ifood sharing in Dublin?
2. How do the selected ifood sharing organisations function in terms of the dynamic of ifood sharing and the potential sustainability related benefits of their activities?
3. What are the key factors for understanding how ifood sharing can increase its presence and potential capability in Dublin?
4. How can the impacts of the sustainability benefits of these organisations be measured?
5. Can a toolkit be co-created with the selected ifood sharing organisations that is both effective and functional and can be replicated by an organisation with limited financial and technological means?

The next section of this paper explains and justifies the methods that were used to undertake the various phases of this research. The following section presents the results and a discussion of both the mapping of ifood sharing in Dublin as well as the multiple case study and creation of sustainability toolkits for each of the four selected ifood sharing organisations. Finally, a conclusion of the findings of this research and their significance will be presented along with considerations for future research.

2. Materials and Methods

This chapter outlines the methodology used to conduct the different phases of data collection and analysis performed during this research project.

2.1 Mapping and Visualising Ifood Sharing in Dublin

The use of GIS (Geographic Information Systems) facilitates visualisation of data which can effectively highlight relationships and hotspots of trends within a given area, allowing a unique display of spatial patterns within the data being analysed (Graham et al., 2011).

2.1.1 Data Collection

Addressing the first research question of this dissertation, *What is the geo-spatial landscape of ifood sharing in Dublin?*, mapping of ifood sharing in Dublin was made possible through an interpretive method of starting with data and attempting to derive an understanding of ifood sharing in Dublin from the observed data (Bhattacharjee, 2012).

As part of ongoing research by SHARECITY, 100 cities worldwide have been closely examined in order to build up a database of the various ifood sharing organisations within these cities. Performed using GIS, this database was used in the first ever attempt to map ifood sharing in Dublin, providing a novel contribution to the field.

2.1.2 Data Analysis

The physical locations of Dublin's ifood sharing organisations were inputted into GIS and several layers were created in order to be able to present information on the various categories present within the SHARECITY100 database. These variations were also incorporated into tables and graphs to help analyse the findings of the mapping process.

Additionally, secondary public data from the CSO, Ireland (2011) was introduced and utilised as a means of further investigating the findings of the mapping of Dublin's ifood sharing organisations. The ability to incorporate secondary data into GIS make it an excellent tool for geo-spatial analysis (Graham et al., 2011).

2.1.3 Assumptions and Limitations

A limitation to the mapping conducted in this research relates to the presence of international ifood sharing organisations. For example, several international organisations such as foraging websites and supper clubs have no physical base in Dublin but provide extensive interactive maps of wild food trails across the city that is available to the public. These activities could not be located as points on the maps produced in this paper, such is the novel impact of the 'I' in ifood sharing. They were, however, included in data analysis of the full Dublin database discussed in the results section of this paper.

2.2 Multiple Case Study on Four Ifood Sharing Organisations in Dublin

Case study research is beneficial when aiming to investigate an emerging or contemporary phenomenon in depth within a real life context where the researcher has no control over events (Yin, 1994).

2.2.1 Selection of cases for this research

The four cases selected for this research all encapsulate varying forms of urban agriculture. These four ifood sharing organisations are categorised in table 4:

Name of Organisation	Urban Farm	Social Hops	Urban Oyster	Hardwicke Street Community Garden
What is being Shared	<ul style="list-style-type: none"> •Plants and Seeds •Food •Knowledge and Skills 	<ul style="list-style-type: none"> •Plants and Seeds •Food •Knowledge and Skills 	<ul style="list-style-type: none"> •Plants and Seeds •Food •Knowledge and Skills 	<ul style="list-style-type: none"> •Plants and Seeds •Food •Knowledge and Skills •Tools •Land •Meals
How sharing is taking place	<ul style="list-style-type: none"> •Selling •Gifting 	<ul style="list-style-type: none"> •Bartering 	<ul style="list-style-type: none"> •Bartering •Selling 	<ul style="list-style-type: none"> •Gifting
Type of organisation	<ul style="list-style-type: none"> •Non-profit 	<ul style="list-style-type: none"> •Non-Profit 	<ul style="list-style-type: none"> •For Profit 	<ul style="list-style-type: none"> •Non-profit
Sustainability benefits claimed	<ul style="list-style-type: none"> •Environmental •Social •Economic 	<ul style="list-style-type: none"> •Environmental •Social •Economic 	<ul style="list-style-type: none"> •Environmental •Economic 	<ul style="list-style-type: none"> •Environmental •Social •Economic

Table 4 showing the categorization of the 4 ifood sharing organisations making up this multiple case study.

2.2.2 Data Collection

After initially meeting with the four different ifood sharing organisations, a semi structured interview was undertaken with each. These interviews averaged at around one hour each. A list of questions was created before each interview, as is recommended, to act as a script to allow the interview to flow and also to act as a checklist to ensure all the relevant topics are addressed (Bhattacharjee, 2012).

An additional three interviews were undertaken in order to add a more comprehensive understanding of ifood sharing by collaborating with actors at different levels of consideration. These 3 additional interviews consisted of one interview with 4 key members of an ifood sharing organisation just outside of Dublin, another interview with a senior researcher of the Irish Environmental Protection agency (by telephone), and finally an interview with a Sustainable Development Manager of BordBia, the Irish Food Board (through email).

Additionally, two days of observation were arranged for each organisation. Rather than unobtrusive observation, the two days of observation in each organisation were very much participant observation, a common ethnographic method (Driscoll, 2011) which allowed for interaction and the ability to ask several questions to maximise the short period of time available. In order to document observations, field notes were taken onsite and written up each evening elaborating on the day's findings.

Additionally a questionnaire was sent out to the ifood sharing organisations present on the SHARECITY100 Dublin database.

2.2.3 Data Analysis

The qualitative data gathered consisted of seven transcribed interviews, five responses to an ifood sharing questionnaire, as well as observation field notes from the four organisations in question. Collation of this data enabled the second and third research questions of this study to be answered.

2.2.4 Assumptions and Limitations

One of the potential limitations of interview data is that an element of 'social desirability bias' can arise from interviewees who may tend to avoid negative, or what they feel to be embarrassing comments about themselves (Bhattacharjee, 2012). The addition of observation within each organization aimed to counteract the potential of any 'social desirability bias.'

The restricted amount of time of observation is definitely a limitation in this study in that two days within each organization, although highly valuable and informative, was not enough to realise the potential of this method of research. Furthermore many of the social events that form much of the sharing of food between members of these four organisations unfortunately did not fall within the timescale of this study due to a relaxed structure in summer months. In this sense, future research might aim to perform an extensive ethnography on ifood sharing organisations throughout the year enabling a sensitivity to the rich and nuanced nature of the subject over a long period of time (Bhattacharjee, 2012).

2.3 Creation of a Sustainability toolkit for Ifood Sharing

The co-creation of a toolkit to measure sustainability within grassroots organisations is a method used by Davies et al., (2011) to facilitate grassroots organisations with limited financial and technological capacity to highlight, measure and monitor the sustainability performance of their actions. The three steps suggested by Davies et al., (2011) were followed here as a means of undertaking a SWOT analysis and both co-creating a toolkit for the four ifood sharing organisations and where possible, testing the toolkit to illustrate its potential functionality and benefit to each organisation.

2.3.1 Data Collection

The intention of a SWOT analysis is to establish the relationship between its four elements in a circular function and to help organisations to formulate strategy on how best to manage these interactions (Marshall and Johnston, 2010).

Each SWOT analysis consisted of approximately an hour long discussion in relation to the four elements discussed above. Questions designed to inspire elaboration were created in advance and special effort was made to ensure that factors important to the organization themselves were able to be addressed. These SWOT analyses were both recorded for transcription and also documented in real time in order to write down notes and ideas that were coming to mind during the process.

2.3.2 Data Analysis

In creating sustainability indicators from the results of the SWOT analyses, the challenge was to ensure that the resulting indicators were relevant to the goals of the organisation, were simple yet significant, and most importantly, were measurable with the ability to re-measure over time to monitor progress (Davies et al., 2011).

2.3.3 Assumptions and Limitations

An unavoidable limitation to the SWOT analyses carried out in this research was due to the procedure being carried out with only one member of each organisation as they are micro-

organisations. A diversity of opinions is usually beneficial in presenting a range of opinions on strengths, weaknesses, opportunities and threats (Davies et al., 2011).

2.4 Testing of the Four Independent Sustainability Toolkits

In all four cases, independent sustainability toolkits were created, tailored to the characteristics of the organisations in question. In order to increase the quality of the study by illustrating the functionality of the toolkits, all four toolkits and the sustainability indicators of which they consist, were either trialled, or where trialling was not possible due mainly to time constraints, were set up and ready to be implemented by the organisations themselves.

2.4.1 Data Collection

The survey was the ideal method in this case where individual people were the unit of analysis (Driscoll, 2011). Additionally as ifood sharing is facilitated by the expansive potential of ICT, the use of online surveys enabled the relevant participants within online communities to be reached (Bhattacharjee, 2012).

Not all indicators aimed to measure the individual as the unit of analysis however, with several other measurements requiring collaboration with the organisations themselves to measure factors such as production levels and diversity of techniques showcased etc. within their organisations.

2.4.2 Data Analysis

The trialled toolkits were analysed with all the completed measurements logged and have all been incorporated into individual tables along with, in some cases, targets of a desired improvement to be achieved by the next year. The data retrieved from the trialling of these toolkits has been analysed in the form of graphs to highlight initial trends visible from the data collected.

Finally, the organisations themselves were requested to supply feedback on the success of the toolkit and whether they will consider using it themselves in the future.

3. Results and Discussion

This chapter presents the results and discussion of the various forms of data that were collected and analysed as part of this research with the aim of answering the 5 research questions set out previously. Results and discussion are presented together in this paper as this research was conducted through a social science methodology.

3.1 Mapping Ifood Sharing in Dublin

A visualisation of the ifood sharing database built by SHARECITY can enable an understanding of the geo-spatial trends of ifood sharing in Dublin in relation to the types of organisations which are sharing food as well as what is being shared and the ways in which ifood sharing is taking place. Through this process, the first research question of this study, *What is the geo-spatial landscape of ifood sharing in Dublin?*, will be answered.



Figure 2 showing the geography of 29 ifood sharing organisations in Dublin, Ireland.

3.1.1 Understanding Spatial Distribution of ifood Sharing in Dublin

As can be seen in figure 2, although there is a spatial distribution of ifood sharing organisations around Greater Dublin, there is a clear concentration of activity within the city centre with 15 of the 29 mapped organisations residing inside the North and South Circular roads which surround Dublin's city centre.

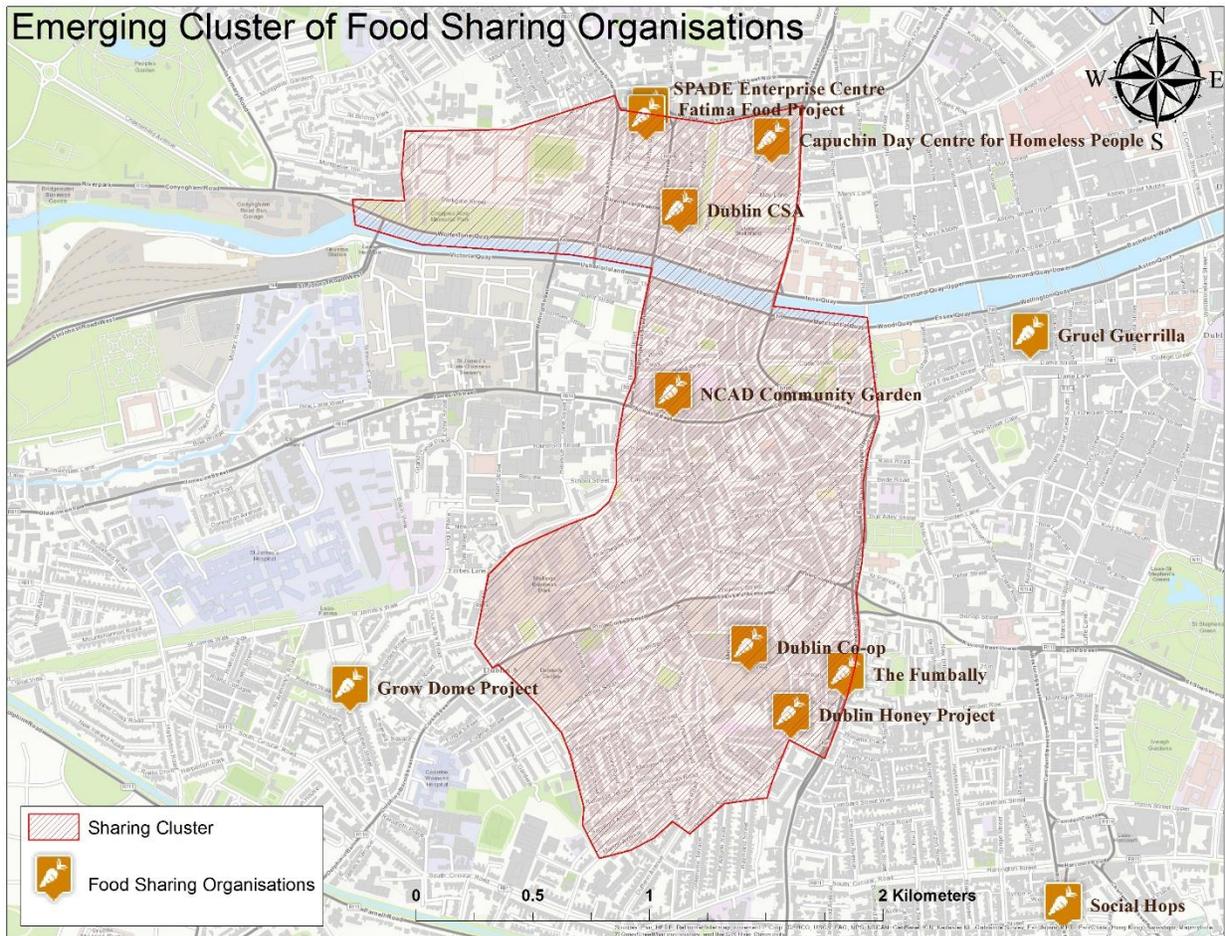


Figure 3 showing a cluster of concentrated ifood sharing organisations within Dublin city centre.

Within Dublin city centre, 11 of the 15 ifood sharing organisations are located within the 5km area shown in figure 3. Within this area is what has been termed here as an ifood 'sharing cluster' consisting of 8 ifood sharing organisations within 5 small electoral districts which have been merged together to define this cluster. Shapefiles downloaded from CSO census data (2011)

allowed the incorporation of electoral districts to be mapped and enabled socio-economic census data available (CSO, 2011) online to be manually inputted to highlight any correlation with the locations of ifood sharing organisations in an attempt to investigate the geography of ifood sharing in Dublin.

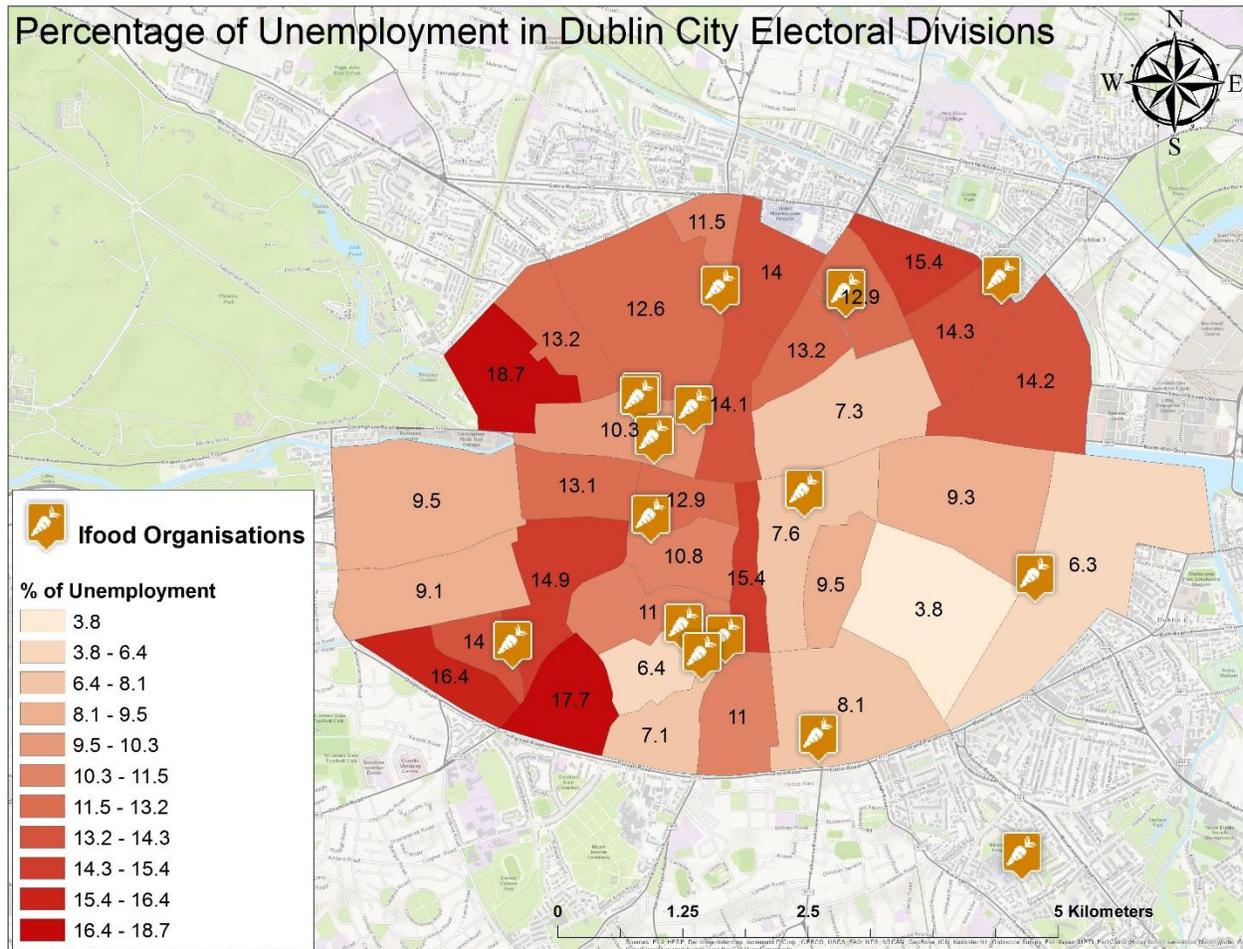


Figure 4 showing incorporation of unemployment data from CSO (2011) within Dublin city centre electoral districts and the locations of ifood sharing organisations.

Figure 4 shows the incorporation of unemployment data within the 33 electoral districts which make up Dublin City. Although not conclusive, it can be seen that the areas (in red) with the highest unemployment are not areas which are home to ifood sharing organisations. In order to expand on this, additional socio-economic data was incorporated.

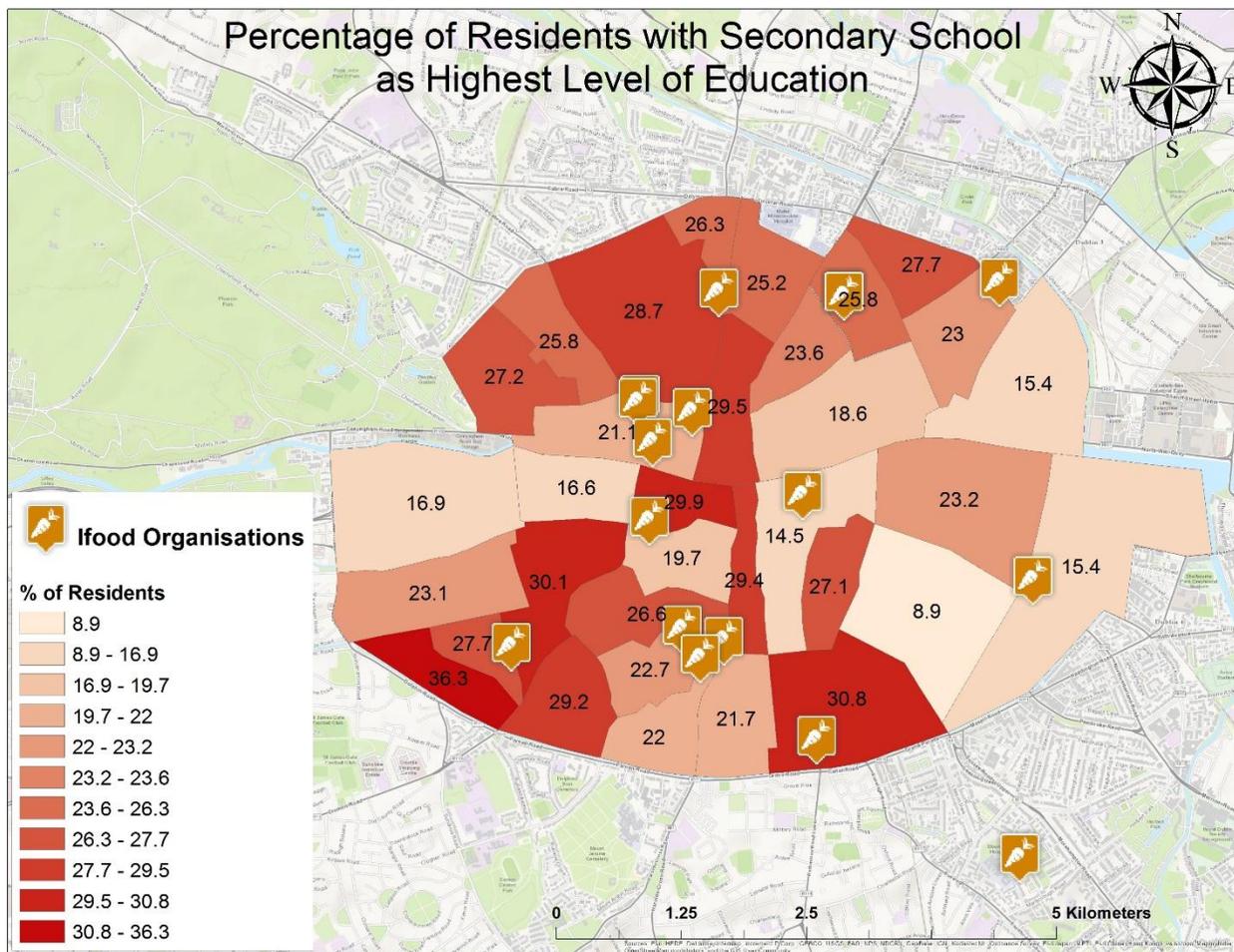


Figure 5 showing the percentage of residents that did not progress beyond second level education from within the 33 electoral divisions of Dublin City (CSO, 2011).

Figure 5 shows a similar trend in relation to education levels reached in Dublin City. Neither the areas where a larger number of people have not progressed beyond second level education (in red) nor areas where a larger percentage of residents have progressed to third level education (in white) are areas with notable ifood sharing activity. Instead, the active ifood sharing districts appear to fall in the middle of this spectrum.

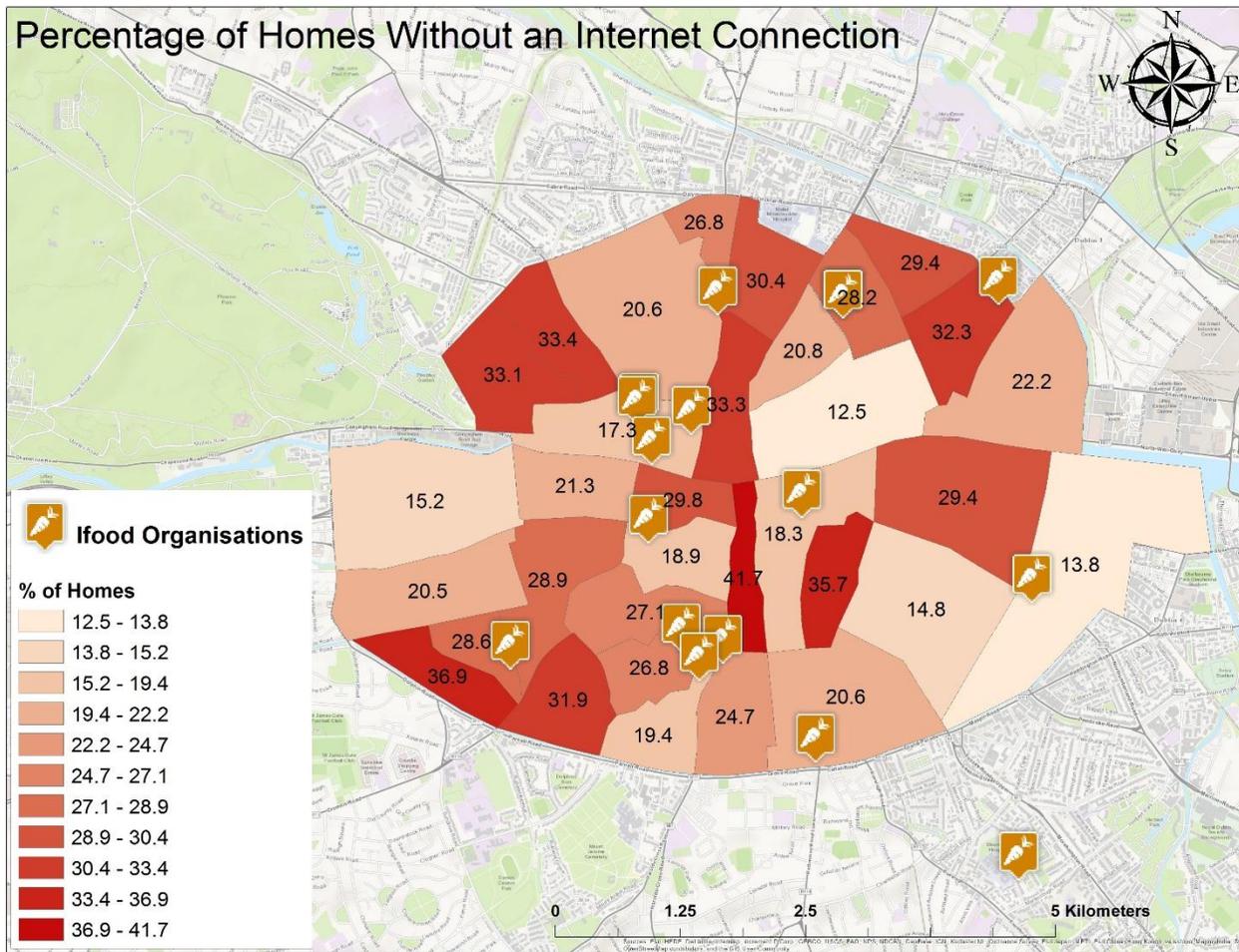


Figure 6 showing CSO (2011) statistics relating to the percentage of the population without an internet connection in the 33 electoral divisions of Dublin City.

Taking into account that all ifood sharing organisations present within the SHARECITY database are utilising mediums of ICT, another source of data was incorporated. Figure 6 shows the percentage of households without internet access within the Dublin City. As can be seen, only one of the electoral districts where more than 30% of homes are without internet are home to ifood sharing organisations.

In order to combine this socio-economic data, a simple bespoke deprivation index was created in GIS by creating an average percentage for the three parameters previously shown for each electoral district of Dublin City in order to further help understand the geography of ifood sharing.

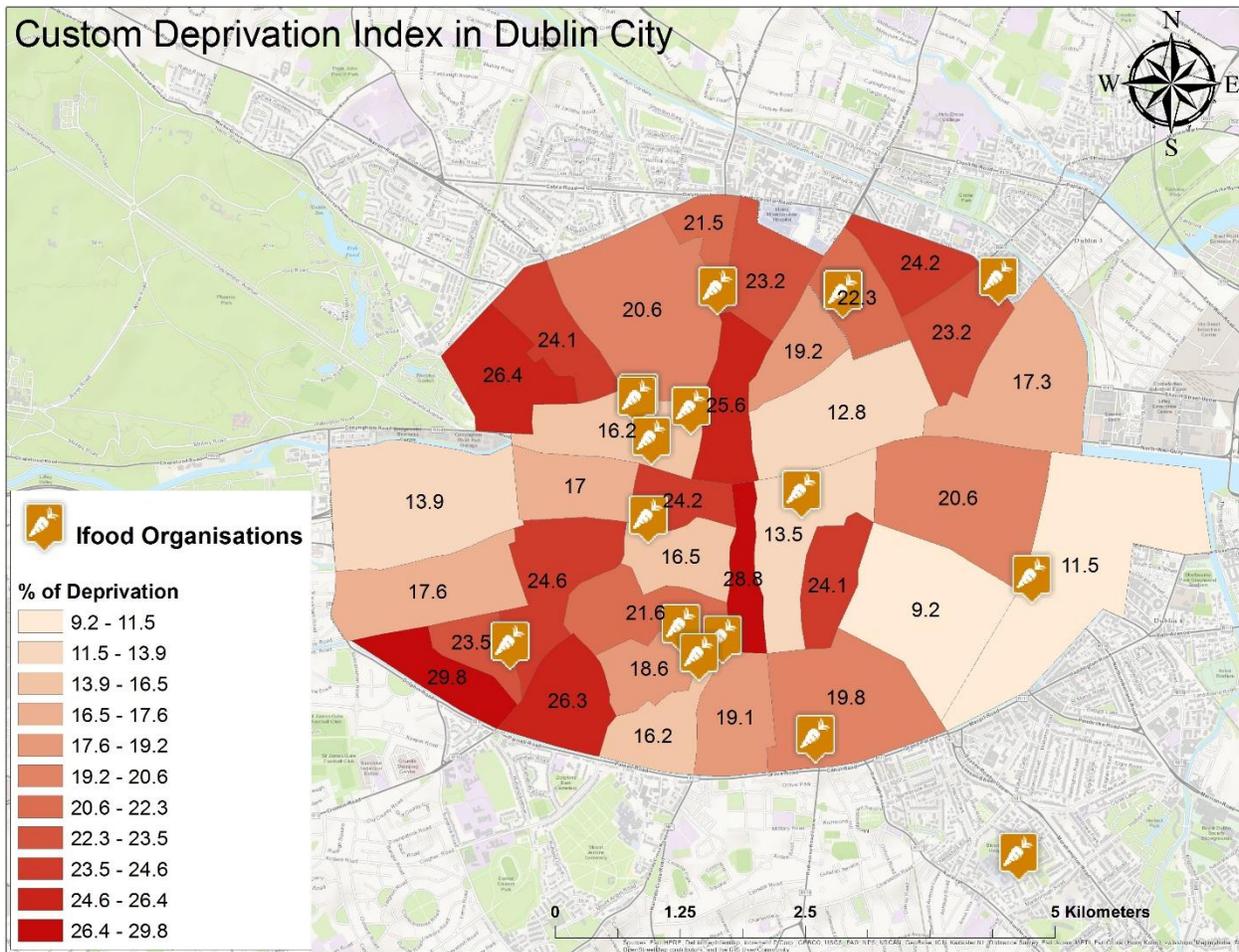


Figure 7 showing a combined average percentage of unemployment, education and internet access statistics from CSO (2011) in order to present a custom deprivation index in consideration of relevant factors for ifood sharing.

As can be seen in figure 7, the majority of electoral districts in Dublin City with ifood sharing activity fall between areas of 16 – 23% deprivation in the middle of the spectrum.

In order to support the validity of this bespoke index, the trend was compared with deprivation index data established by Haase and Pratschke (2011). This more extensive deprivation index consists of 10 parameters which consider employment, education, single parent households, labor skills and 6 other socio-economic factors deemed as predictors to deprivation (figure 8).

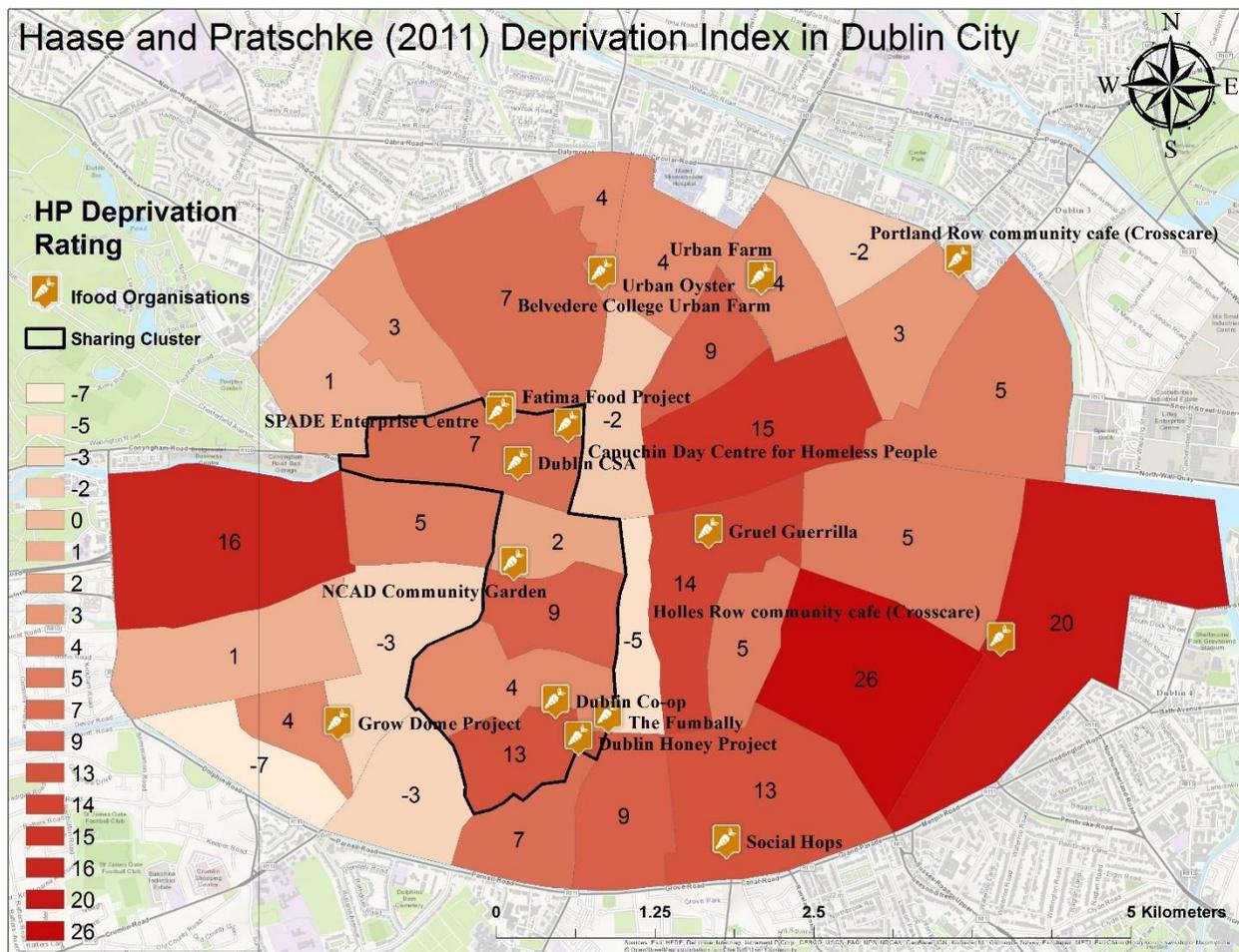


Figure 8 showing the deprivation index rating assigned by Haase and Pratschke (2011) to the 33 electoral divisions in Dublin.

In this index, a higher score signifies higher affluence and therefore less deprivation. The Haase and Pratschke (2011) deprivation index also shows that in the most case, neither the deprived nor affluent areas are the natural setting for ifood sharing. The Haase and Pratschke (2011) deprivation index labels 4 of the 5 electoral districts within the ifood sharing cluster as ‘Marginally above average’ (ratings between 3 and 15) compared with surrounding areas of ‘marginally below average’ (numbers below 3) and ‘affluent’ (ratings above 15).

In order to examine the significance of the area highlighted as a sharing cluster, an average deprivation rating for both the Haase and Pratschke index as well as the bespoke index created for this research incorporating internet access, has been created for the sharing cluster as well as an affluent area of 3 electoral divisions in south east Dublin and a more deprived area of 3

electoral divisions in north east Dublin added for comparison. The results of which can be seen in figures 9 and 10 respectively.

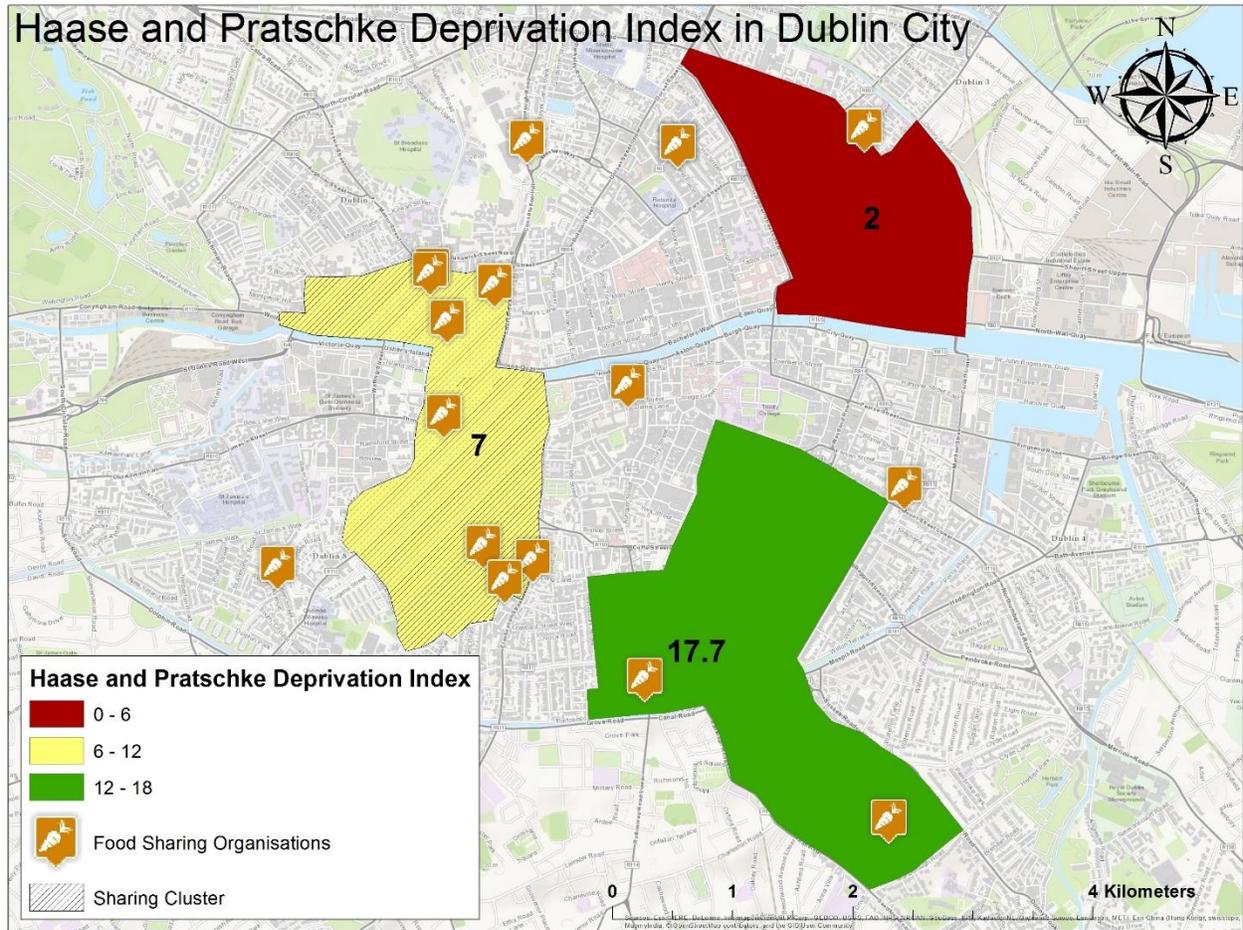


Figure 9 showing the average deprivation rating taken from Haase and Pratschke (2011) of the sharing cluster area and two other socio-economically distinct areas of Dublin City.

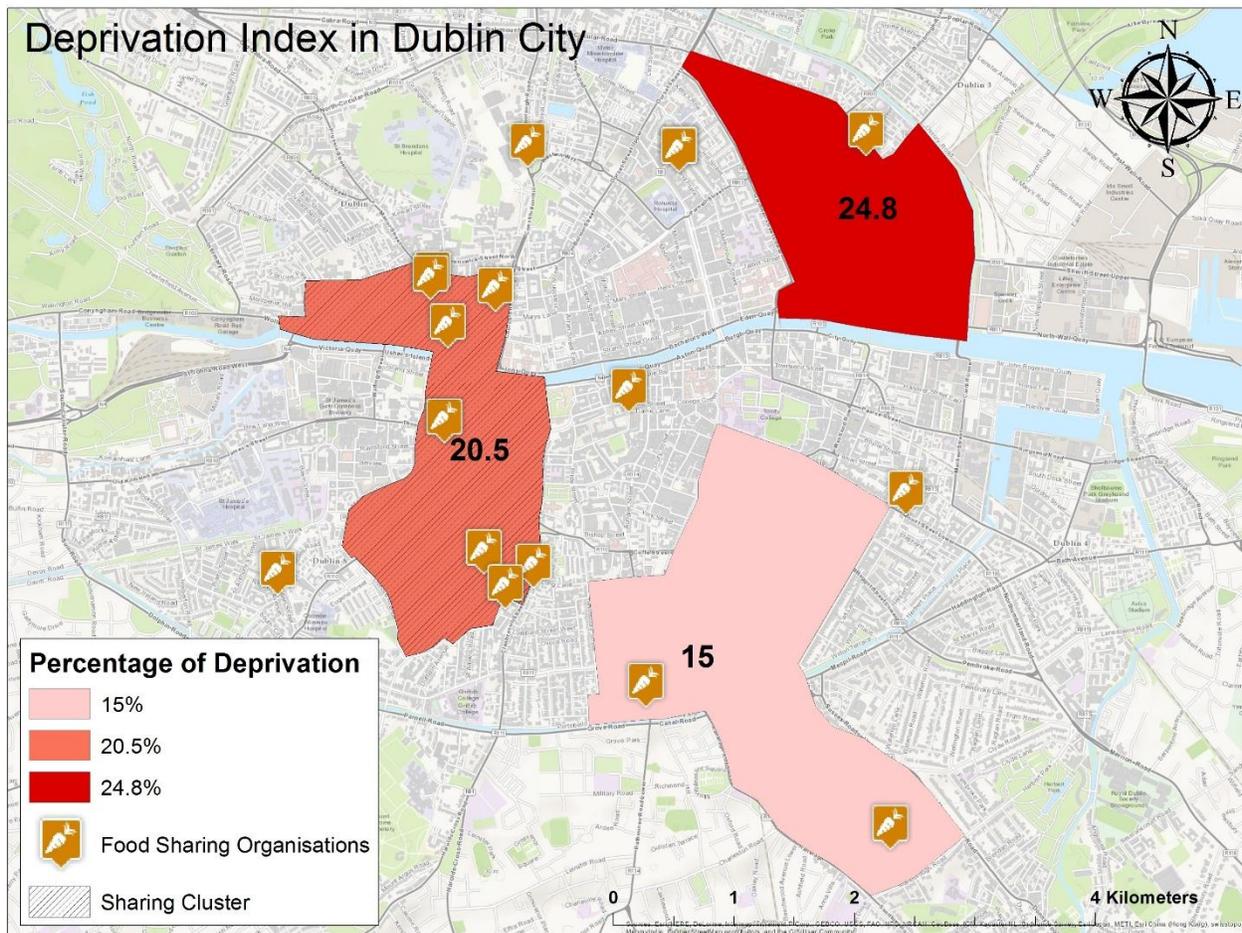


Figure 10 showing an average deprivation rating of the bespoke deprivation index created with data from (CSO, 2011) within the 3 previously described areas of Dublin City.

Both figures 9 and 10 show the area described as an ifood sharing cluster to exist in an area ‘marginally above average’ in terms of deprivation. Consideration of the types of ifood sharing organisations that fall within these areas will be discussed in the next section.

What can be extrapolated from this correlation between socio-economic census data and the presence of ifood sharing organisations is that neither affluent areas nor deprived areas are the natural environment for the evolution of ifood sharing organisations. Instead, areas that are ‘marginally above average’ in terms of socio-economic consideration are more likely to be the sites of innovation and the emergence of ifood sharing organisations. Within the ifood sharing cluster, deprivation is prevalent enough that it stimulates grassroots community action as it would also do in the more deprived areas. However, the slightly higher level of income, labour

skill and technological savvy within the ‘marginally above average’ ifood sharing cluster provide the ingredients for innovation and hence, the emergence of ifood sharing organisations. This theme of grassroots innovation emerging from areas which are deprived but not so much that innovation is inhibited is also highlighted by (Davies et al., 2011) whereby the collective need for pragmatism within deprived communities aided by a necessary level of an educated, technologically savvy demographic results in the ideal backdrop for grassroots innovation.

In further trying to understand why ifood sharing organisations emerge where they do, consideration was given to the idea that the age of the population within these areas may be significant in that a younger adult demographic might increase the likelihood of ifood sharing activity due to a higher technological expertise.

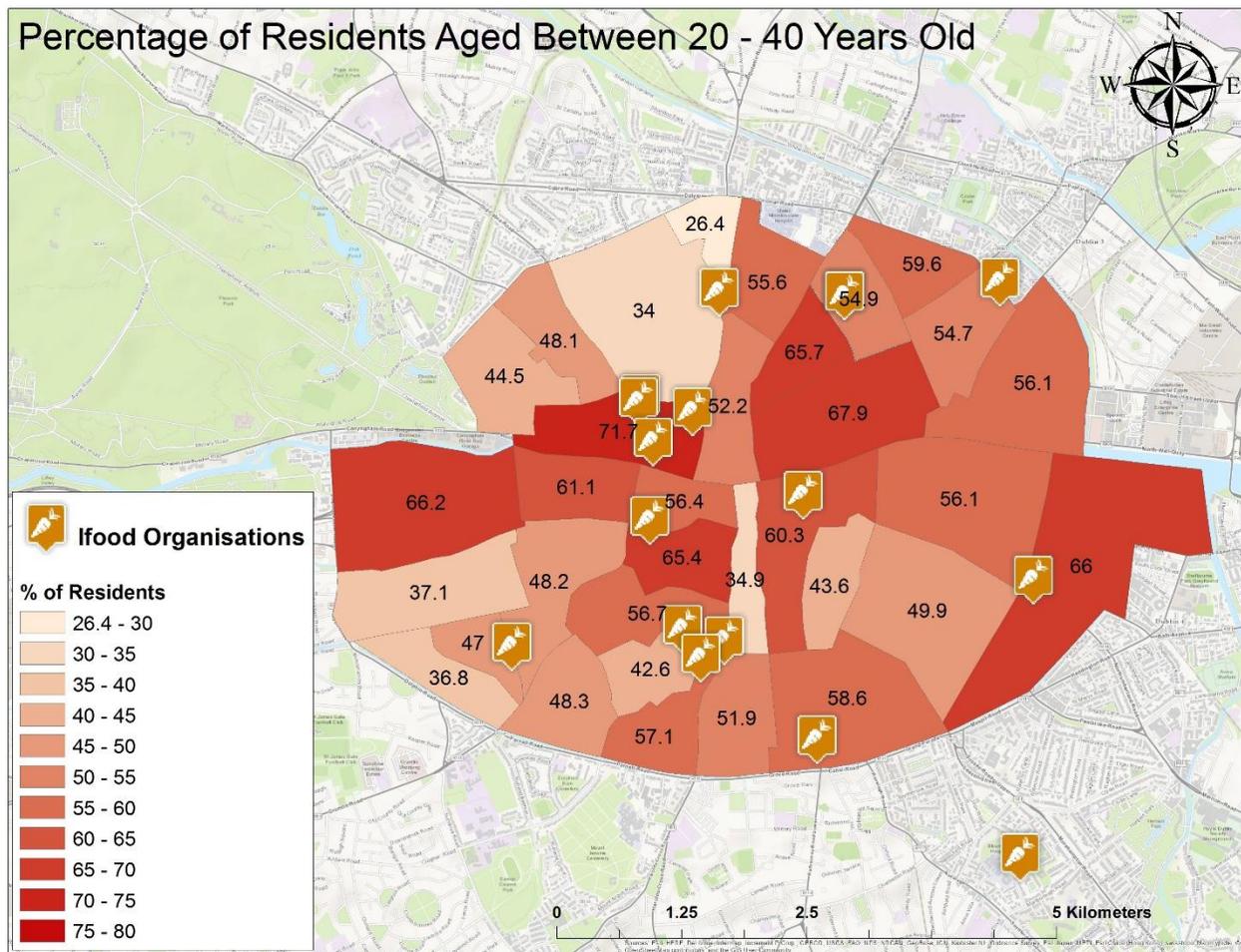


Figure 11 showing the percentage of residents between the age of 20 – 40 within each electoral district in Dublin City.

Interestingly, figure 11 shows that the electoral district with the highest ifood sharing activity is also the district with the highest percent of 20 – 40 year old residents in Dublin City signifying that age may also be a significant factor in the geography of ifood sharing.

Due to the small number of organisations present in this particular analysis, these theories of why ifood sharing evolves in the locations it does should only be seen as suggestive at this stage.

3.1.2 Diversity of Ifood Sharing in Dublin

Figure 10 shows the variety of food sharing within Dublin in terms of what is being shared:

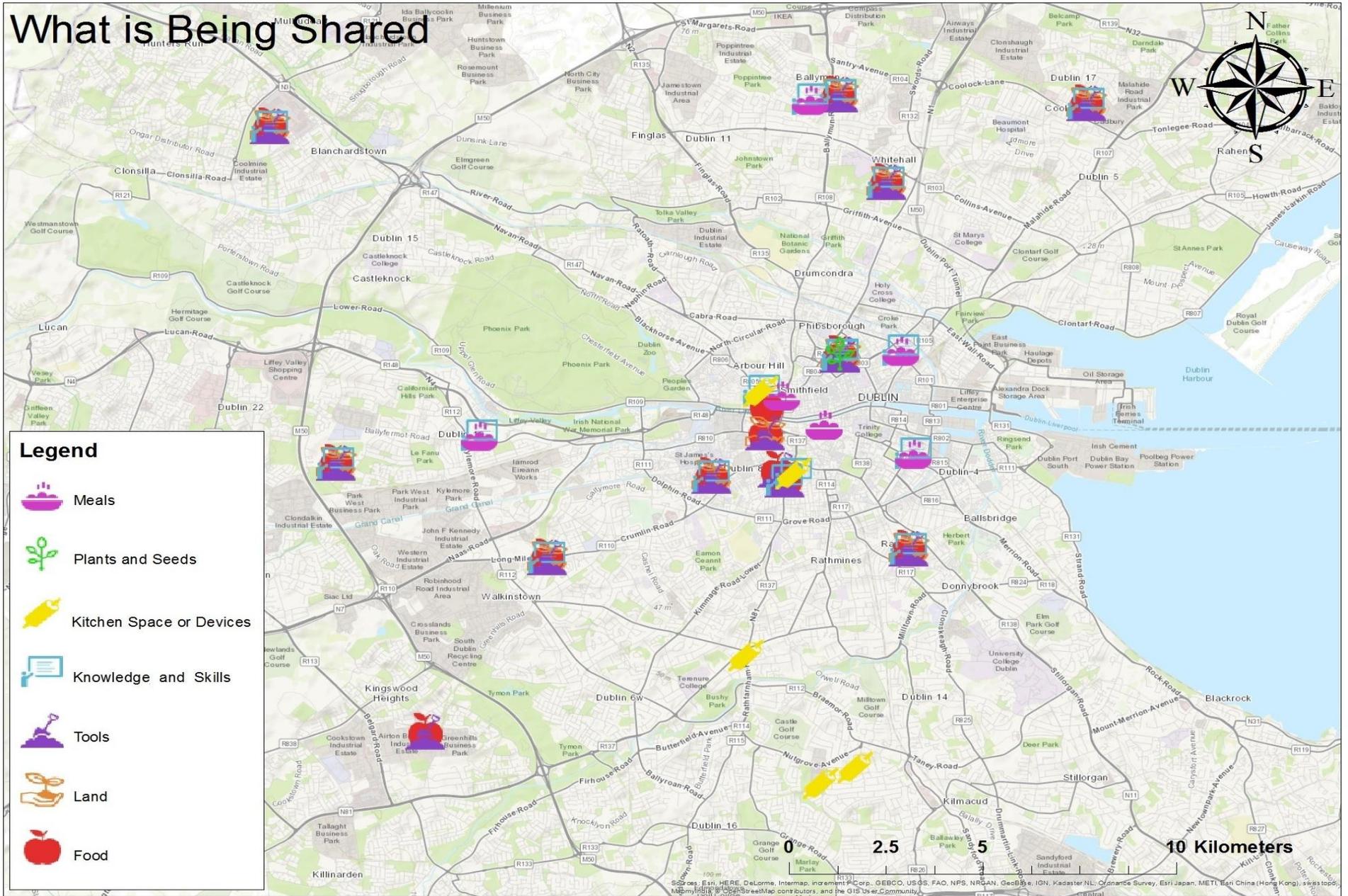


Figure 10 showing a visual representation of data collected by SHARECITY of the varying ways food is being shared by ifood organisations in Dublin.

As can be seen in figure 10, there is a wide variation of what is being shared within the 29 ifood sharing organisations in Dublin present in this map, with the majority of organisations involved in multiple forms of food sharing. In this sense, mapping such a dynamic activity is difficult in a paper such as this where maps cannot be interactive. In GIS itself, the categories of what is shared were created in layers to enable the selection of individual categories as shown in figure 11.

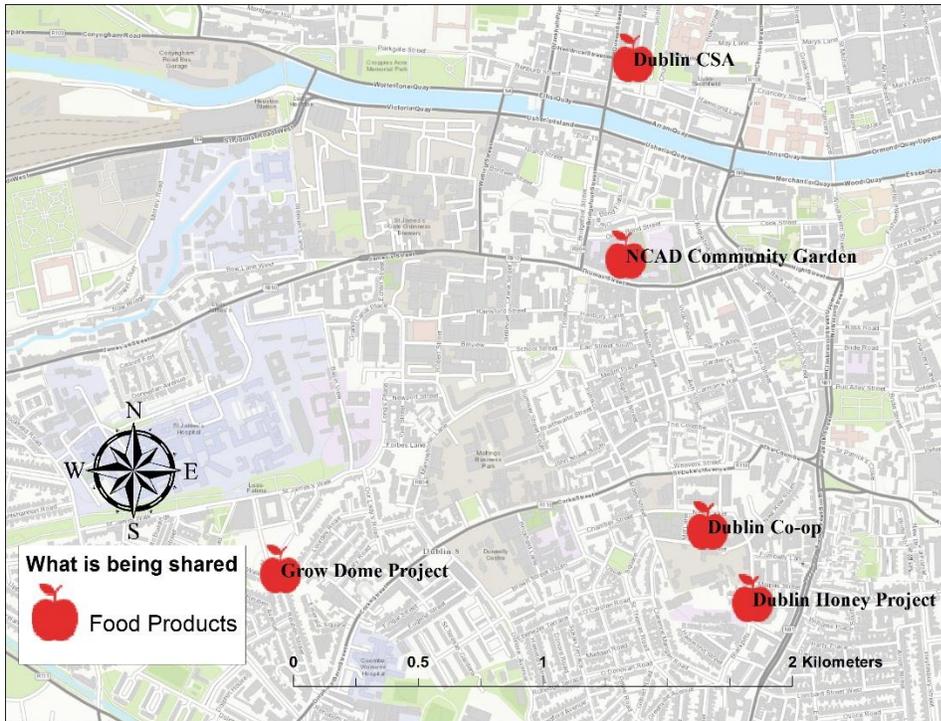


Figure 11 showing the selection of just one category of what is shared within ifood sharing organisations.

Figure 12 shows the variation of activities within what was previously termed the ifood sharing cluster. A mix of types of sharing enterprises are shown here including a community garden which shares food, as well as land and tools to grow food, and a café which shares space by informally renting out additional kitchen space as well as sharing knowledge and skills through fermentation and brewing workshops. A customised form of labelling allows for greater clarity of the multiple modes of sharing within individual organisations.

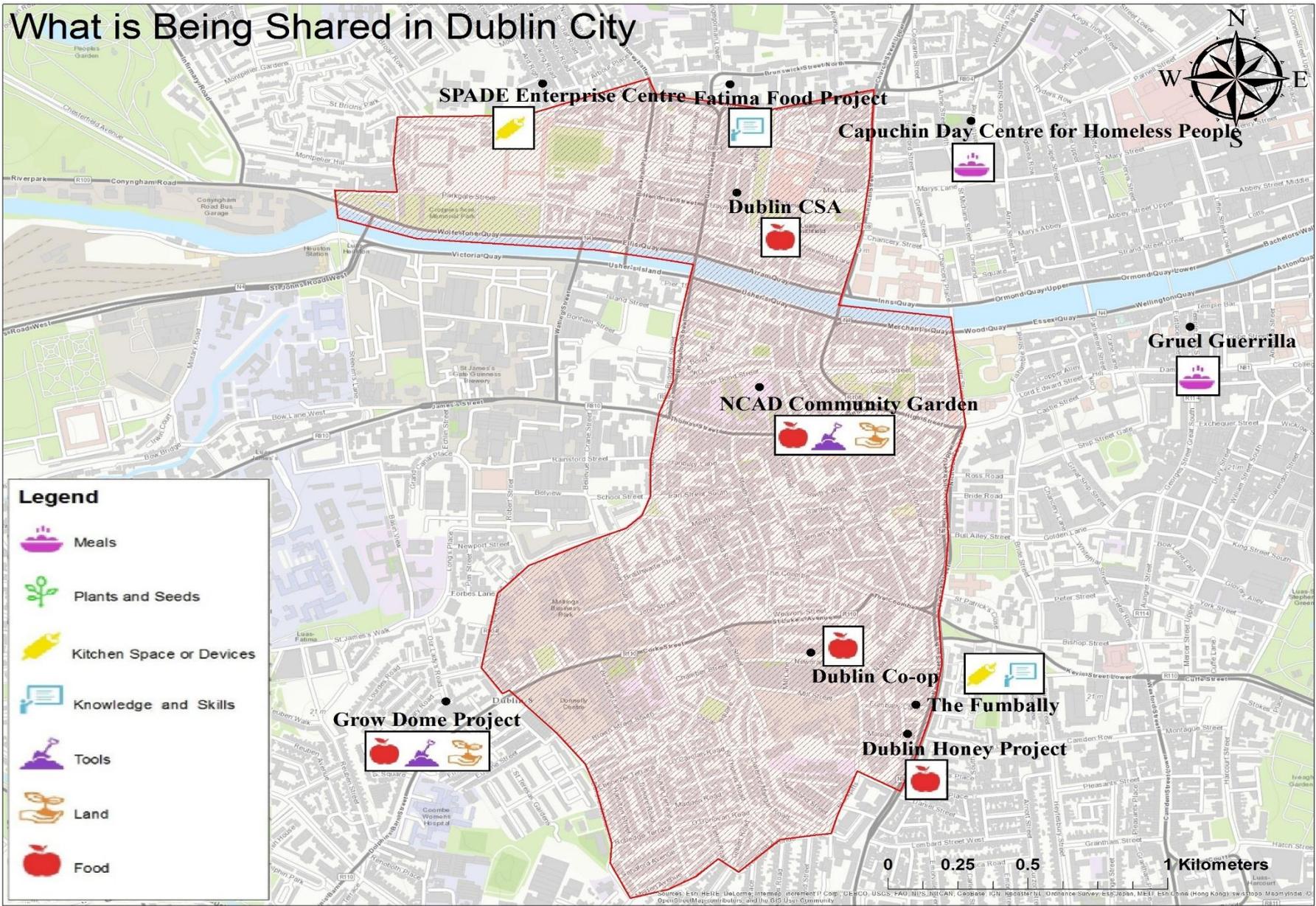


Figure 12 showing a closer picture of what is being shared within the area of concentrated ifood sharing activities with a customised mode of presenting the multiple forms of food sharing within each organisation.

A distinction in sharing activity can be made between the most northern (Arran Quay C) and southern (Merchants Quay D) districts within this cluster (figure 12) where the district of Arran Quay C is home to two shelters providing food and care for the homeless whereas the most southerly district is home to more gentrified forms of sharing such as the previously mentioned café and The Dublin Honey Project, an organisation that farms bees for honey in central dublin. This could be attributable to the fact that within this cluster of ifood sharing, individual district deprivation is highest in Arran Quay C and lowest in Merchants Quay D suggesting that socio-economic status within an area also influences what type of ifood sharing will emerge.

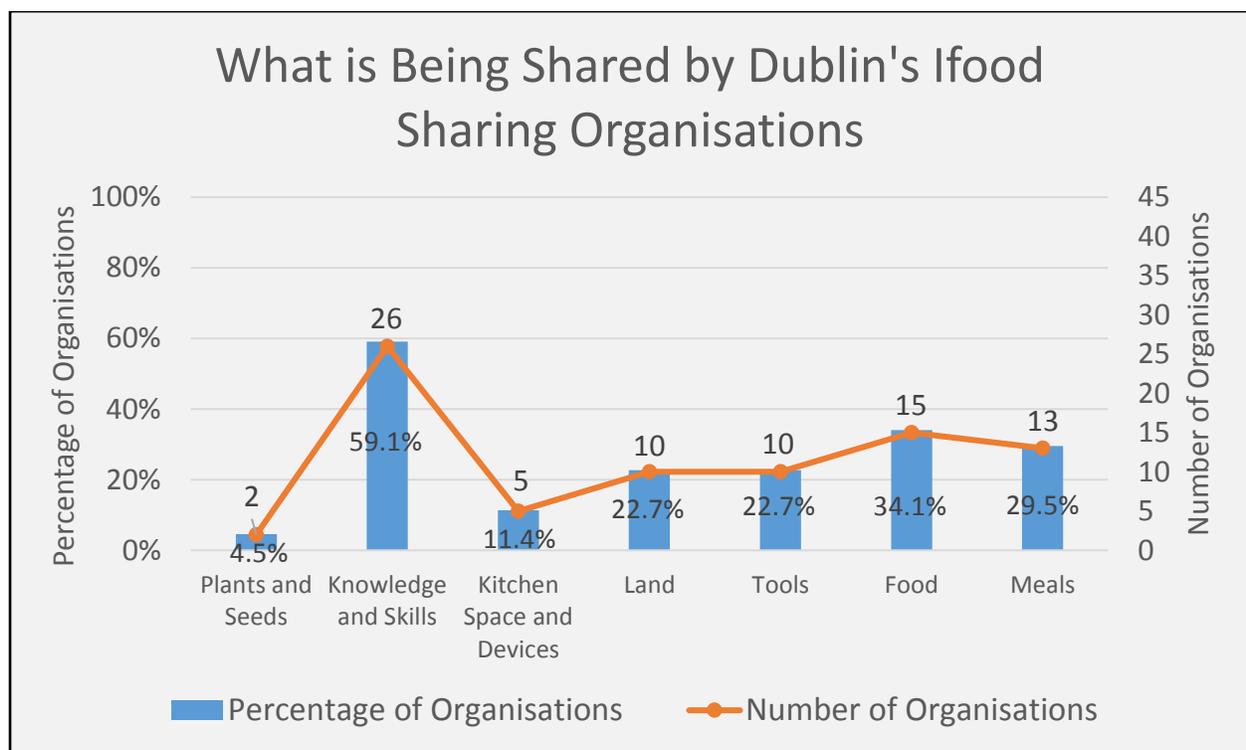


Figure 12 showing graphical analysis of what is being shared within ifood sharing organisations in Dublin.

Figure 12 shows the analysis of all 44 ifood sharing organisations present in the SHARECITY database. As can be seen, sharing knowledge and skills about food is the dominant form of sharing taking place in Dublin with 59.1% of organisations incorporating the sharing of knowledge and skills with others. The 34.1% of organisations sharing food range from charities, community gardens, foraging websites and an organisation which facilitates the redistribution of surplus

food. Sharing of land and tools go hand in hand in Dublin with both present within 22.7% of Dublin's ifood sharing organisations, all of which relate to urban agricultural organisations. The 29.5% of organisations sharing meals consist of shelters for the homeless as well as supper clubs operating in Dublin.

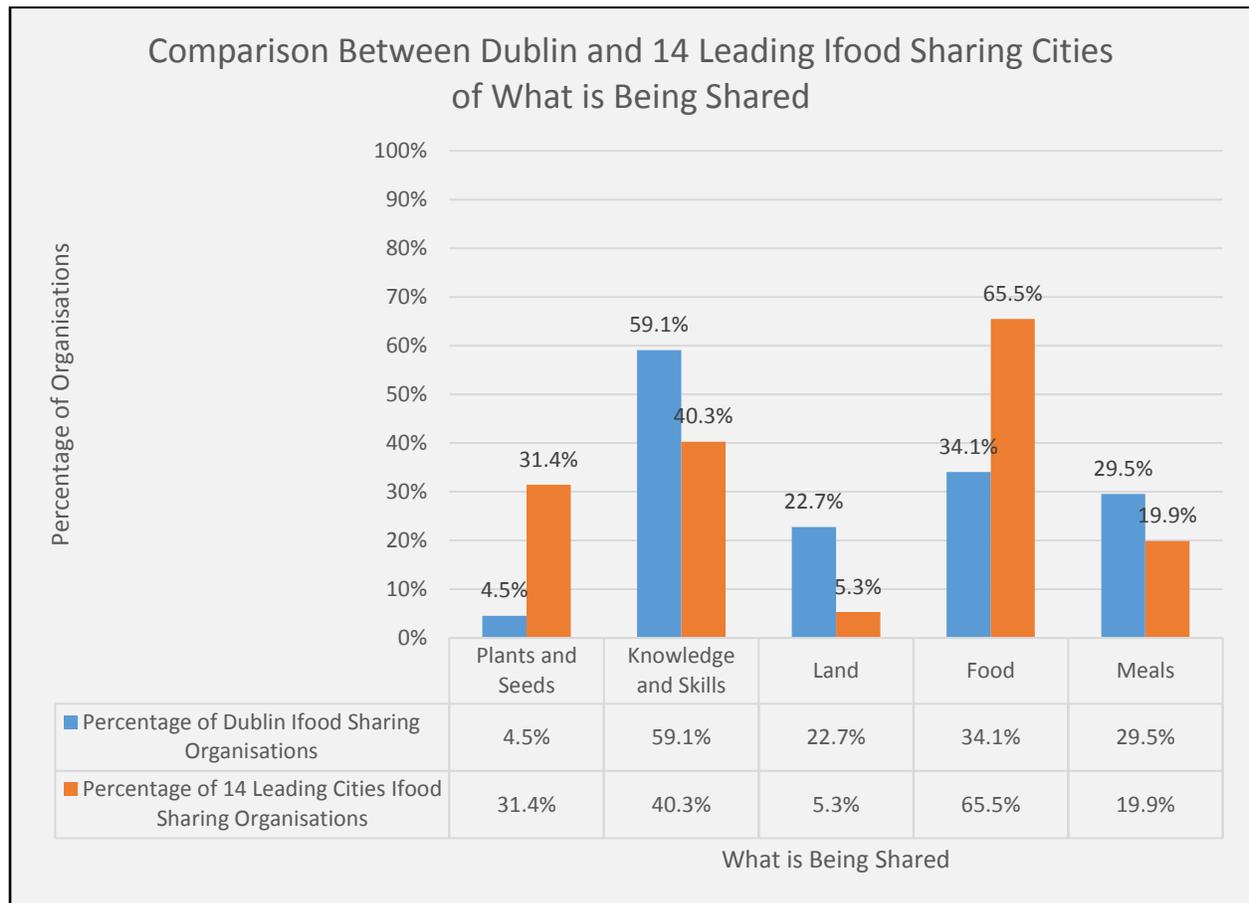


Figure 13 shows a comparison between what is shared in Dublin and what is shared in the leading 14 ifood sharing cities studied by Davies and Legg (2016).

In comparison with data from Davies and Legg's (2016) macro-geographical analysis of ifood sharing, it can be seen in figure 13 that ifood sharing in Dublin differs with the average types of sharing within the world's 14 leading ifood sharing cities. Whereby the sharing of food products dominates ifood sharing in the 14 leading cities, it is knowledge and skills which are most commonly shared in Dublin. It is important to point out that Davies and Legg's (2016) study found that sharing of knowledge and skills was more common in North America and Australia than in the European cities of London and Berlin where food products dominated sharing function. In

fact, like Dublin, sharing knowledge was the most common function of food sharing in Oakland, San Francisco, Ithaca and Adelaide.

Figure 13 also indicates that the sharing of plants and seeds is much less common in Dublin with only 4.5% of organisations doing so compared to 31.4% in the 14 leading food sharing cities. The opposite is the case for the sharing of land however with 22.7% of Dublin organisations sharing land compared to just 5.3% of organisations in leading food sharing cities. This trend could relate to the relatively low population density in Dublin compared to cities such as London and Berlin and therefore less difficulty acquiring greenspace.

Unfortunately, due to slight differences in categorisation between the initial study by Davies and Legg (2016) and the updated database used for ifood sharing in Dublin, comparison of sharing of tools and also kitchen space and devices was not possible.

As shown in figure 10, many ifood sharing organisations are multifunctional in terms of what is being shared with some organisations involved in up to four different forms of food sharing. This was also the case with Davies and Legg's (2016) study. A comparison of the two is shown in figure 14.

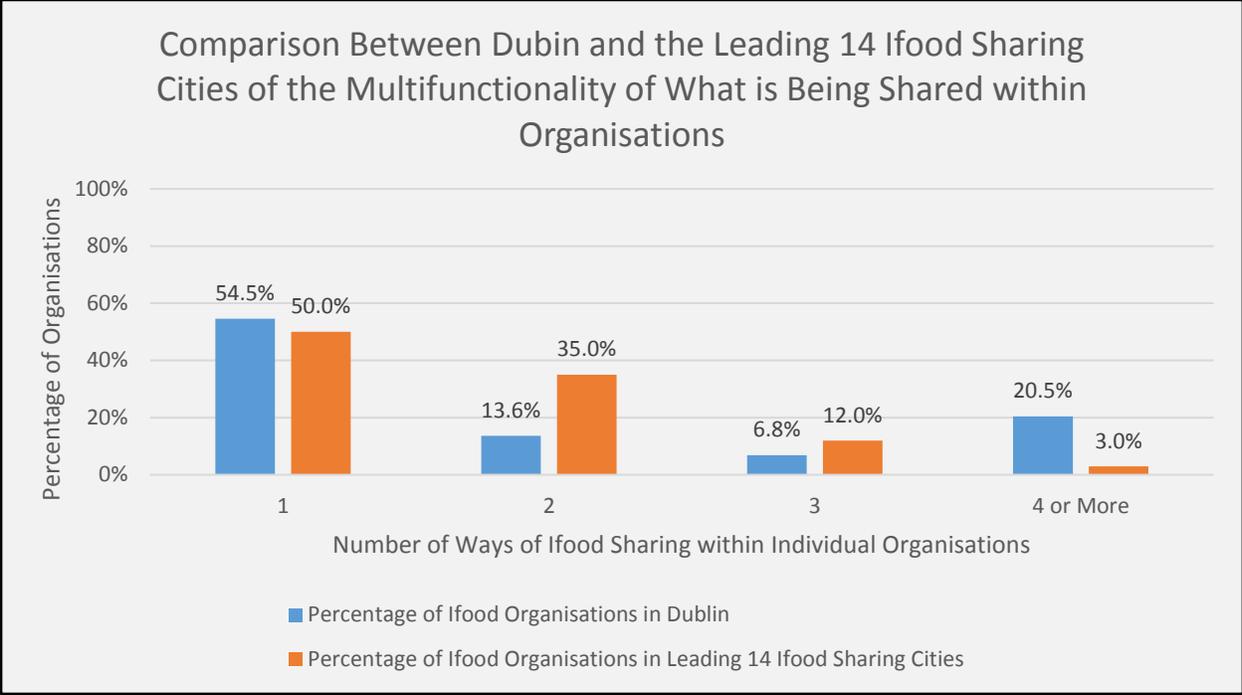


Figure 14 shows a comparison between Dublin and the 14 leading food sharing cities of the number of functions of food sharing within individual organisations.

Figure 14 shows that while the percentage of organisations with two and three sharing functions is higher in the 14 leading food sharing cities, organisations with four or more functions of sharing are much more prevalent in Dublin at 20.5% compared to just 3%.

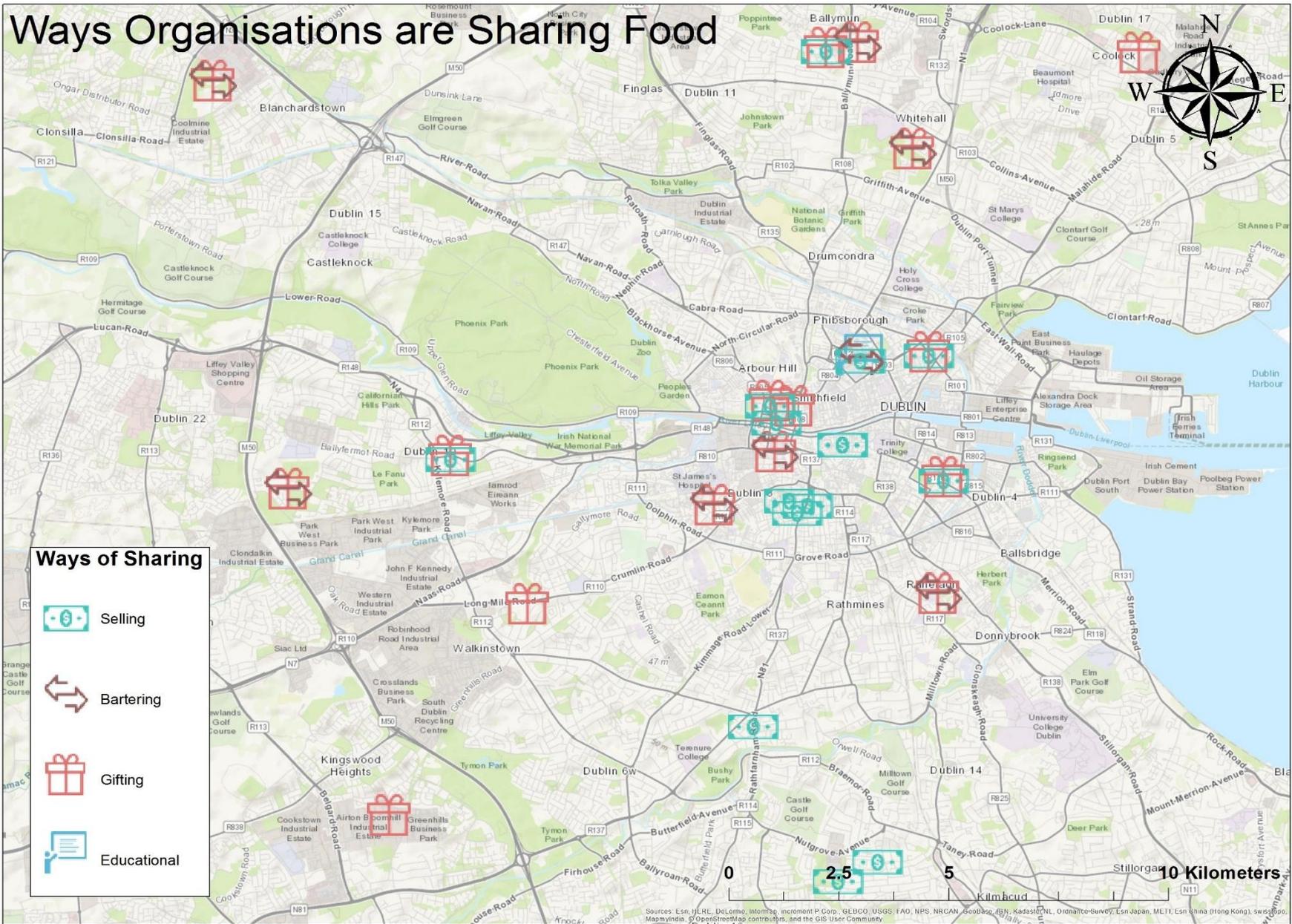


Figure 15 showing the varying ways food is being shared within 29 ifood sharing organisations in Dublin.

How Organisations are Sharing Food	% of Organisations	Number of Organisations
Selling	51.7%	15
Bartering	27.6%	8
Gifting	55.2%	16
Educational	3.4%	1

Table 5 showing the ways in which food is being shared with the 29 mapped ifood sharing organisations in Dublin.

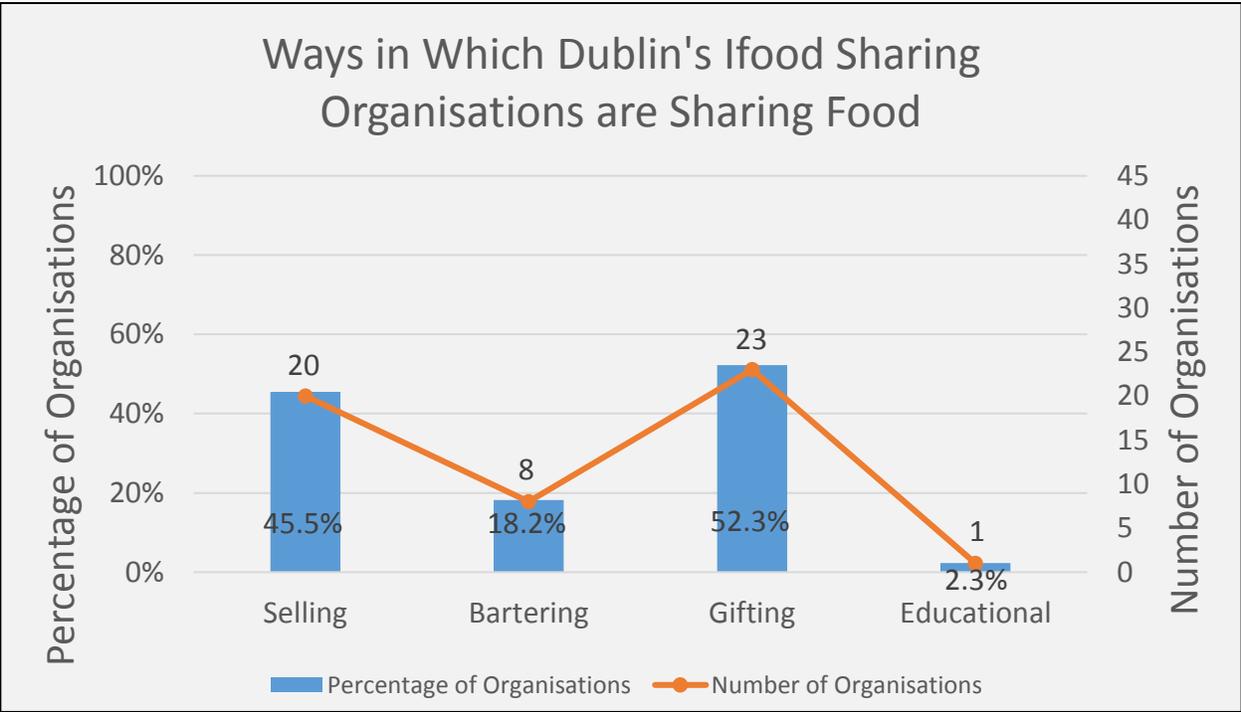


Figure 16 showing the varying ways in which food is being shared within Dublin's 44 ifood sharing organisations.

As can be seen from figures 15 and 16 , both gifting and selling are the dominant methods of food sharing in Dublin. This accounts mainly for charities and community gardens but also foraging sites and food redistribution organisations. Selling occurs within organisations that are either ‘for profit’ organisations or communal organisations that sell at lower than market prices such as co-ops and community supported agriculture. Bartering organisations range from bartering food for physical contribution from their members as well as communal growing of crops in return for a processed food product.

As figure 15 also shows, several organisations are bi-modal in the way they share food as was the case in Davies and Legg’s (2016) research. They found that in the leading 14 food sharing cities, 10% of organisations were bi-modal. In Dublin however, 29.5% of ifood sharing organisations are bi-modal in the way they share food.



Figure 17 showing the variation of the types of the 29 mapped ifood sharing organisations in Dublin.

Type of Organisation	% of Organisations	Number of Organisations
Cooperative	3.4%	1
For Profit	27.6%	8
Non-profit	62.1%	18
Informal	10.3%	3

Table 6 showing tabular analysis of the data provided in figure 17.

The information in figure 17 and table 6 illustrate that the vast majority of ifood sharing within the 29 mapped organisations in Dublin is being undertaken by non-profit organisations (62.1%). Figure 18 below shows the analysis of the types of organisations comprising of all 44 ifood sharing initiatives in Dublin whereby non-profit organisations are also most common. The additional 3 non-profit organisations here consist of the foraging websites explained previously.

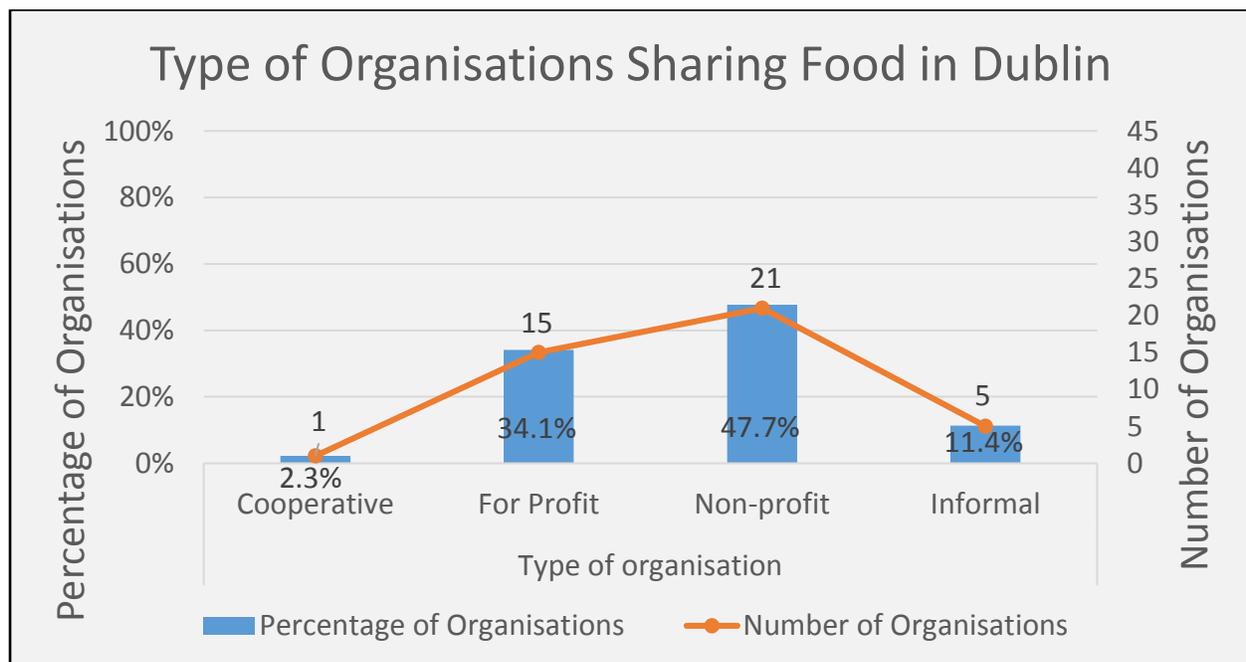


Figure 18 showing analysis of the types of the 44 ifood sharing organisations in Dublin.

The final categorisation of ifood sharing organisations in Dublin relates to the sustainability claims made on their websites relating to the environmental, social and economic sustainability benefits from their food sharing activities. Figures 19, 20 and 21 below show the spatial distribution of environmental, social and economic benefit claims respectively.



Figure 19 showing spatial distribution of ifood sharing organisations claiming environmental benefits.



Figure 20 showing spatial distribution of ifood sharing organisations claiming social benefits.



Figure 21 showing spatial distribution of ifood sharing organisations claiming economic benefits.

Sustainability benefit claimed	Percentage of Organisations	Number of Organisations
Environmental	62.1%	18
Social	69.0%	20
Economic	89.7%	26
All Three	41.4%	12

Table 7 showing tabularisation of the data shown in figures 19, 20 and 21.

Figures 19, 20 and 21 show the distribution within the 29 mapped organisations of the claims made in relation to the three pillars of sustainability. The spatial distribution of these claims provides no clear evidence of a correlation between location and the type of benefits claimed by these ifood sharing organisation. Consideration of all 44 ifood sharing organisations below (figure 22) continues the same trend whereby claims of economic benefit are most common (81.8%) with 56.8% and 68.2% claiming environmental and social benefits respectively. Figure 22 also shows that of the 44 organisations in Dublin, 15 (34.1%) claim all three sustainability benefits of their activities.

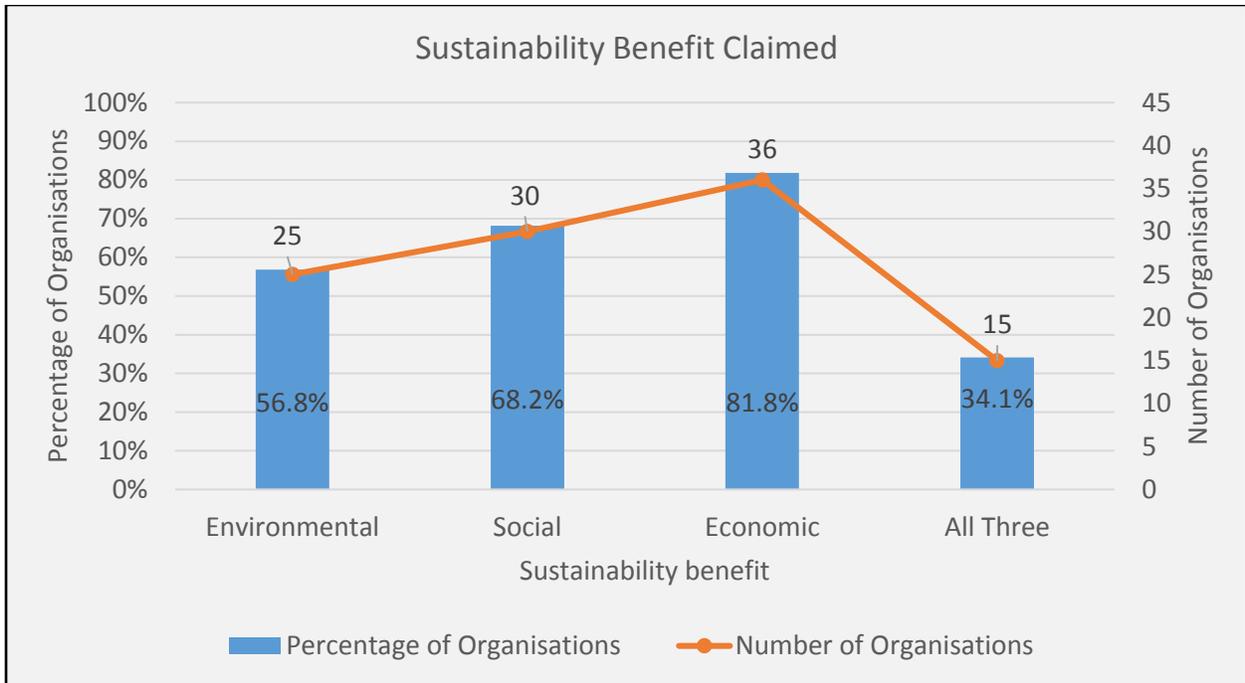


Figure 22 showing the varying sustainability claims made by Dublin’s 44 ifood sharing organisations.

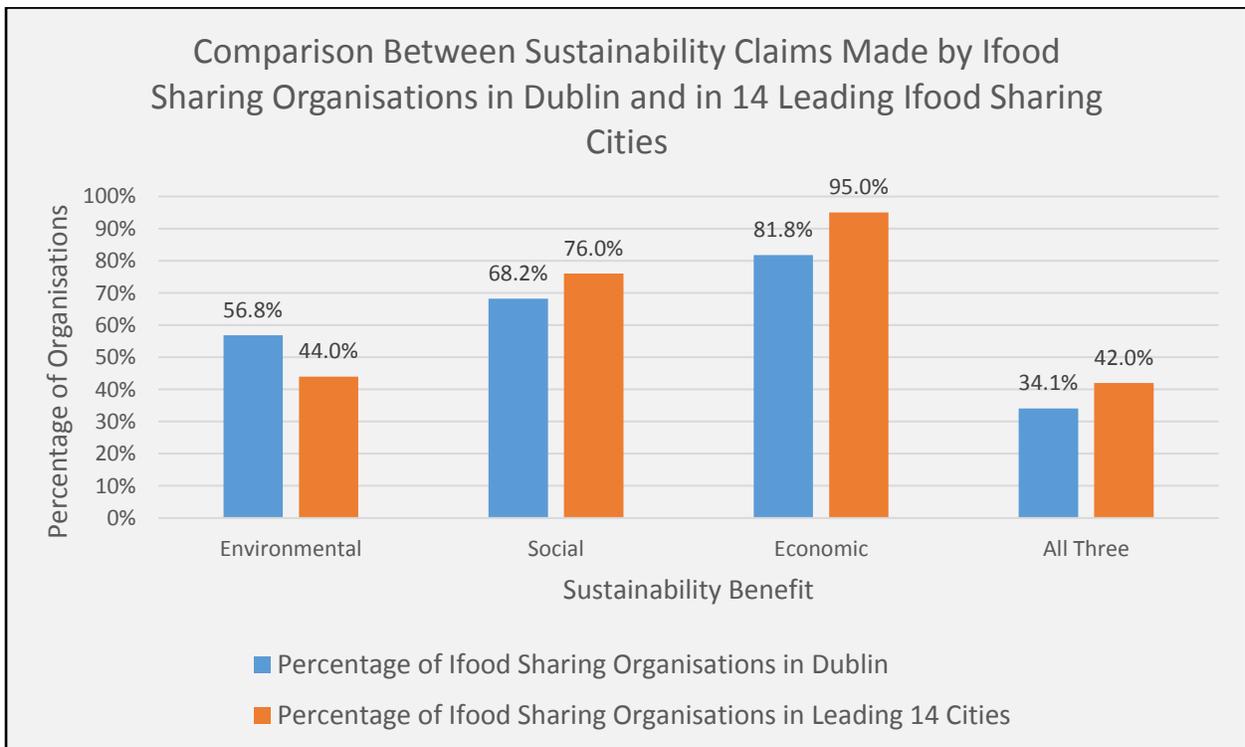


Figure 23 shows a comparison between ifood sharing organisations in Dublin and the 14 leading food sharing cities of the sustainability benefits claimed via their website or social media pages.

Comparing ifood sharing organisation's claims of sustainability benefit in Dublin with the 14 leading sharing cities in Davies and Legg (2016) study shows that where environmental claims are more prevalent in Dublin (56.8%), a higher percentage of organisations in the leading 14 food sharing cities boast social (76%) and economic (95%) benefits resulting from their activities.

3.1.3 Summary and Key Findings

Within Dublin, over half of the ifood sharing organisations are present within the city centre. Additionally within the city centre, a cluster of organisations are located within a 5km radius.

Socio-economic data from Dublin suggests that areas which are marginally deprived but not so much that innovation is inhibited, along with a demographic of adults between the ages of 20 – 40, are the areas most likely to encompass ifood sharing activity. Due to the limited amount of activity in Dublin, further studies of a similar nature would need to be conducted in other cities to support the suggestions made here.

The sharing of knowledge and skills is the most common type of food sharing in Dublin making Dublin more similar to North American cities than European in this aspect. In comparison with the 14 leading ifood sharing cities analysed by Davies and Legg (2016), Dublin is home to a higher percentage of both 'non-profit' organisations and organisations which are 'gifting' food as opposed to 'selling'.

Finally, in terms of the claims being made by ifood sharing organisations as to the sustainability benefits arising through their respective activities, environmental benefit claims are more common in Dublin than within the 14 leading ifood sharing cities globally at the expense of a lower percentage of organisations in Dublin claiming social or economic benefits.

The next section of this paper magnifies to an even closer level of exploration of ifood sharing in Dublin.

3.2 Multiple Case Study on Ifood Sharing Organisations in Dublin

This section presents the findings attained from the qualitative research performed in this study described in the methods section. The questions used for each of the seven interviews and survey in this research can be seen in the appendices of this paper.

Through addressing the sustainability claims made by the four ifood sharing organisations as well as the dynamic of sharing within each, it will be made possible to answer to the second research question of this study: *How do the selected ifood sharing organisations function in terms of the dynamic of ifood sharing and the potential sustainability related benefits of their activities?*

Additionally, some important considerations from all sources of data relevant to ifood sharing will be addressed. The aim here is to answer the third research question of this study: *What are the key factors for understanding how ifood sharing can increase its presence and potential capability in Dublin?*

3.2.1 Description of Case Study Ifood Sharing Organisations

Case 1: Urban Farm

Description

A roof top urban farm in Central Dublin which *“promotes sustainability education through STEM (Science, Technology, Engineering and Mathematical) learning.”*

How it Works and Claimed Sustainability Benefits

A number of urban agricultural techniques are showcased which Urban Farm claim to be sustainable:

An aquaponics system which demonstrates a recirculating growing system (Timmons and Ebeling, 2002) is running at Urban Farm. Edible Tilapia fish are present in the bottom level water containers of the system and their ammonia-rich waste water is pumped up to an overlying layer where naturally occurring bacteria transfer ammonia into nitrates (Love et al., 2015), fertilising a variety of vegetables sustainably. This technique not only utilises waste water from the fish but is highly efficient losing only .05 – 10% of water daily (Rakocy et al., 2006), compared with soil

based agriculture which, depending on soil type, loses a significantly larger amount of water due through drainage (Timmons and Ebeling, 2002). The only loss in aquaponics occurs through transpiration and evapotranspiration (Love et al., 2015). The CEO of Urban Farm claims that only “8 litres of water have to be topped up roughly every fortnight.” He explains that a multitude of vegetables such as tomatoes and salad leaves have been grown successfully in this way at Urban Farm, demonstrating the potential to grow a wide variety of food in an urban environment all year round, addressing a growing interest in locally grown food (Somerville et al., 2014). A hydroponics system is also running in the Urban Farm which also offers a means of growing food without the presence of soil and is therefore, less water intensive (Barbosa et al., 2015).

Also present at Urban Farm is a collaboration with the Dublin Honey Project which is also part of the SHARECITY100 ifood sharing database. Approximately 180,000 bees within 9 hives are present with the CEO of Urban Farm explaining that the project is “contributing to increased biodiversity within the city.” Pollinators such as honey bees are vital to maintaining biodiversity (Juniper, 2013) and Urban Farm provides them with a unique urban habitat.

The final urban agricultural technique showcased at Urban Farm consists of a collection of 160 heritage potato variations grown on the roof top of Urban Farm in a self-irrigating system which minimises water loss. The CEO explains that “most people only know a couple of varieties of potatoes from shopping in supermarkets, here is a collection of 160 varieties of potato that are part of our heritage.”

Upon visiting Urban Farm, The CEO demonstrated how all but the hydroponics systems were created using as many upcycled materials as possible. Aquaponics systems were created from upcycling International Bulk Containers (IBC), a universal container used to transport liquids throughout the world. Also the mobile receptacles for growing potatoes have been created from upcycled 20 litre office water bottles. The CEO explains “that’s what we are all about, using universal materials that can be put to use all over the world.”

Dynamic of Food Sharing

The CEO explains that Urban Farm strives to share knowledge and skills related to urban agriculture transparently. As the CEO demonstrates during observation, where possible, as with the aquaponics systems and also the self-irrigating potato growing systems, information on how to recreate these techniques is supplied online via their website. The benefits of sharing this knowledge and skills about water efficient growing techniques are clear with 70% of the world's withdrawn freshwater devoted to agriculture (Barbosa et al., 2015). As well as this, the CEO explains that the website and social media is also used to promote the techniques of Urban Farm and also to share news relating to urban agriculture.

Urban Farm also shares knowledge and skills to the students of the school within which it is located. The CEO explains that an urban agriculture module was implemented last year for transition year students in which three classes consisting of 69 students learned about several aspects of growing food from sowing a seed right through to harvesting a food product.

Additionally, the CEO explains how Urban Farm is involved with hosting an urban agriculture bike tour which visits 4 different urban agriculture organisations in Dublin (all present in the SHARECITY100 database). The CEO explains "We visit different projects and people can learn about all the different ways of growing that are happening in the city."

The CEO also points to the fact that he has taken on over 100 volunteers to date which have completed a variety of tasks. Social inclusion of volunteers in this way can enhance a feeling of contribution and belonging (Smith et al., 2004) and can help individuals improve their social and vocational skills increasing employability (Mitchell, 2003).

The CEO explains that Urban Farm had previously been sharing food itself through supplying lettuce and micro greens to nearby restaurants. Urban Farm still shares food with students and a neighbouring community garden but in this sense it is 'gifting' the food as opposed to previously receiving a minimal income from restaurants.

Case 2: Social Hops

Description

“A community hop growing project.”

How it Works and Claimed Sustainability Benefits

The CEO claims that “Social Hops creates a community of people from across Dublin with a shared interest.” Motivated by an increase in a consumer interest in craft beer coupled with a dwindling acreage of hops in the world and particularly in Europe (European Commission, 2016), the CEO decided to establish Social Hops.

Through an online forum the 140 members are able to communicate about their experience growing hops and advise each other how to avoid certain common problems related to growing hops with the CEO also regularly supplying tips and tutorials. This innovative creation of a community allows for social inclusion but the CEO also points to the environmental benefits of the project explaining “it introduces people to the wonders and benefits of growing your own” and how Social Hops “shows how brewers can reduce the distances travelled from importing hops”.

Each autumn Social Hops plans to bring together the communal harvest of its’ 140 members’ hops. The harvested hops is then sent to a local brewery in collaboration with Social Hops who will then use their expertise and facilities to incorporate the remaining ingredients and brew a local beer. Upon request for the purpose of this research, the brewery involved explained their motivations for deciding to get involved with the project:

“We wanted to see how well hops could grow in Ireland and urban gardens and balconies. Also, the community aspect was appealing on both personal and commercial levels.”

As can be seen, the collaboration is very much a mutually beneficial form of bartering. As part of a survey created mainly for the next section of this research, when asked what appeals to the Social Hops members about bartering their hops for food, some responses included:

- “The idea of lifting a glass of beer and saying ‘I was involved in making this’

- *“Cutting out the presence of money for once and feeling a connection to the product”*

The brewery also explained that normally, their hops are not fresh and are imported from Germany, America, New Zealand, and Australia via the UK, illustrating the potential of reducing food miles by growing hops locally.

The social and environmental benefits of Social Hops have been illustrated here. When asked if the initiative provided economic benefits the CEO explained that “it’s showing that hops can successfully be grown in Ireland so that’s a potential for the local economy.”

Dynamic of Ifood Sharing

The CEO explains that Social Hops is a non-profit organisation and describes it as “a social experiment to empower people, cut out the middle man and bring them closer to a product.”

As well as sharing Knowledge and skills online, the CEO explains that several social events are organized whereby members can meet in person and share experiences as well as bringing their own produce to share. As well as these forms of food sharing, the ultimate purpose of communally growing hops will be to barter these hops for a beer which will be sampled together as well as a percentage being taken home by each member and also a percentage being sold in selected off licenses in Dublin.

Case 3: Urban Oyster

Description

A fledgling organisation that *“promotes and facilitates the cultivation of gourmet mushrooms on spent coffee grounds.”*

How it Works and Claimed Sustainability Benefits

It is estimated that 152.2 million 60kg bags of coffee are consumed globally each year with coffee consumption rising by 2% annually (ICO, 2016). With environmental impacts across various stages of the life cycle of the coffee industry (Salomone, 2003), innovation through creating food from coffee waste provides a sustainable strategy of both waste reduction and local food production.

The CEO of Urban Oyster explains that ‘grow at home’ kits enable the consumer to grow oyster mushrooms at home without the need for a garden in an upcycled plastic tub which incorporates mycelium (mushroom seed) with used coffee waste. Buah et al., (2010) explain that coffee grounds have one of the fastest development times of any substrate for growing *Pleurotus ostreatus* (Oyster mushrooms). The CEO explains that “the ratio of coffee waste to mushrooms is 3:1.” He explains that the kit can be used twice resulting in 2 kilos of coffee waste diverted from the waste stream and approximately 700g of Oyster mushrooms being produced per kit. As well reducing waste and producing food locally, the CEO explains that another environmental benefit comes from being able to use the spent coffee and mycelium as a soil enhancer. Dunbar and Yildiz (2008) confirm that mycelium degrades its substrate enough to be utilised as compost to grow other plants.

The CEO of Urban Oyster explains that the kits are part of a bigger plan to create an urban mushroom farm in Dublin City centre whereby coffee waste will be collected from nearby cafes and locally grown mushrooms will be distributed out to local eateries. The CEO claims that environmental benefits will arise from reusing waste which has been collected from local establishments and creating locally grown food which will be distributed within a local radius. The CEO claims that economic benefits relate to reducing the cost of waste for local enterprises

and benefitting the local economy through growing food locally. When asked if there were any social benefits, the CEO pointed to the increased interaction between local businesses that will arise from the waste collection / mushroom distribution of the mushroom farm. In terms of the sustainability benefits of the 'grow at home' kits, the CEO explains "for 15 euro they are learning to grow gourmet food and seeing the value of a waste product."

How Ifood Sharing is Taking Place

The CEO of Urban Oyster explains that initially the seed is shared for people to begin experiencing growing mushrooms at home. Also shared is the knowledge on how to grow the mushrooms.

Responses from a survey created for this research to understand what the customers get from the experience included:

- *"It was great for educating the kids on how food is produced and on how things we waste can actually be reused to grow fresh food."*
- *"It was useful to know what is possible in terms of reducing the distances travelled of food."*

In terms of the bigger plan to farm mushrooms in the city, sharing will consist of the process of taking the coffee waste from nearby establishments, reducing their waste disposal costs and Urban Oyster ensuring the full value is taken from the spent coffee grains through using them as a substrate to grow Oyster mushrooms. The cultivated mushrooms will then be sold to local eateries. The CEO explains that all this will happen "within a 5km radius (3km if possible)."

Case 4: Hardwicke Street Garden Club (HSGC)

Description

“An award winning community garden in the heart of Dublin City.”

How it Works and Claimed Sustainability Benefits

The members of HSGC explain that they are inspired by a reclaiming of a stronger sense of community which they feel has been lost over a generation. The key coordinator explains that “what was previously normal in terms of conversing with your shopkeeper and buying local produce is now a privileged experience which not many people can afford.”

Hardwicke Street Garden Club, established in 2010, utilizes space that was previously cut off and fenced within the community. Two main areas, which the coordinator explains were previously only used as “a social area for antisocial behavior”, have been developed by the members of the community into spaces in which to grow food.

The coordinator explains “growing food can teach people to live well.” He explains that social inclusion, improving physical and mental health and decreasing isolation form the social benefits to the surrounding community which are most important in relation to the motivations of the team.

In terms of environmental benefits, the coordinator explains “we are creating healthy organic food within the city.” He also claims that “We are increasing biodiversity in the area through the variety of plants we grow and also with the variety of insects which are introduced by different plants.”

When asked about economic benefits the coordinator explained that there is no revenue as HSGC is a non-profit organisation but that the community are learning ways to save money through growing food themselves.

As is illustrated in the case of HSGC, Bohn and Howe, (2005) claim that the inclusion of social, environmental, and economic sustainability benefits attributable to urban community gardens make them the archetypal sustainability initiative.

Dynamic of Ifood Sharing

The key members of HSGC explain how sharing takes place in a variety of forms and that the residents of the community are all free to share the space developed as well as share the food that is produced there. The facilitators introduce the residents to new types of food and also share knowledge about how to grow them and also how they can be cooked and enjoyed. The key coordinator explains that the social events organised by the garden club have so far included sharing meals and discussions about growing food.

3.2.2 Relevant Considerations for Ifood Sharing

Data from all 7 interviews conducted in this research as well observation within the 4 cases mentioned and a questionnaire designed for organisations with Dublin's SHARECITY100 database are incorporated here to address findings in consideration of the third research question of this study: *What are the key factors for understanding how ifood sharing can increase its presence and potential capability in Dublin?*

Information and Communications Technology (ICT)

A senior researcher from the EPA interviewed as part of this study pointed out that "the internet and social media has enabled so many ways of creating communities these days that a community doesn't have to be based around the home anymore." Additionally the key coordinator of Hardwicke Street explained how "the internet and social media amplify the scale of people that can hear about the project and be inspired by it."

Hardwick Street, Urban Oyster, Urban Farm and Common Ground, who were interviewed as part of this project all explained how they regularly share information online relating to urban agriculture as well as upcoming events online. Hearn et al., (2014) explains how the utilisation of ICT greatly enhances the ability of non-profit organisations to achieve their collective goals.

The availability of inexpensive mediums for communication and marketing therefore allows for these grassroots ifood sharing organisations to create innovative ways of sharing food in Dublin as best exemplified in this research by Social Hops.

Support Services

Although some of the organisations interviewed in this research have received different forms of modest financial support, there was a consensus that not enough value was being placed on these ifood sharing organisations at government level relative to the sustainability benefits they offer. Both Common Ground and Hardwicke street felt that on the rare occasions that materials or land is donated by the local councils it is more often a case of "giving in to a benign request as opposed to demonstrating support or belief in what we are doing" as one of the members of Common Ground put it. This feeling of being undervalued by local authorities in Dublin differs

to findings from a study by Rosol (2010) which looked at grassroots gardening initiatives in Berlin and found that urban agriculture organisations were actively encouraged and supported by the city administration and politicians. A sustainable development manager from the Irish Food Board (BordBia) interviewed for the purpose of this research explained that while BordBia do not have a specific focus on ifood sharing organisations, they do encourage businesses to donate surplus food to food redistribution enterprises. Furthermore they sponsor a food growing network in Ireland (GIY) which is present on the SHARECITY100 database.

When asked if these ifood sharing organisations apply for grants and funding themselves similar responses were given. Common Ground had managed to attain some funding from the Local Agenda 21 but explained that the process of application was laborious and that the effort put into attaining the modest funding had discouraged them from doing so again. The coordinator of HSGC explained that they had applied for several grants unsuccessfully, stating that “written applications don’t work. Places like ours need to be visited in person to see the benefits of what we are doing.”

The CEO of Social Hops stated that “there is a large amount of pressure when it comes to reporting progress in detail regularly. Also when funding is involved, there is an added pressure to have to meet the objectives of the funding body rather than doing what you originally wanted to do.” The coordinator of HSGC also touched on this by saying “when funding is involved autonomy goes out the window and you are steered away from running the project as you want to.” Seyfang and Smith (2007) explain how funding is frequently linked to constraining targets, bureaucracy and requirements, which stunt core development.

Regulation

The sustainable development manager of BordBia highlighted health and safety regulation as a major obstacle to progress of ifood sharing in Dublin. The same response was given by the senior researcher of Ireland’s EPA who explained that if you try and involve the government or council, bureaucracy becomes an issue. She explains that “unless the project is for educational purposes, there will be planning permission stipulations and regulation that will need to be

complied with. It is a reality and it is inevitable.” She suggested that it works best “to keep these initiatives informal and avoid the involvement of public bodies.” The CEO of Urban Farm explained how they were able to acquire fish for farming by informing the Inland Fisheries that their use was for educational purposes. Social hops contrived to collaborate with an already established and certified brewery in order to enable the production of the communal beer without any health and safety obstacles. Innovative ways like these of avoiding regulatory banana skins appear to form an important attribute of established ifood sharing organisations.

In response to being asked about planning permission issues, several organisations explained that the best method is to let actions speak rather than words. After initially receiving a negative response from the council to develop their garden, HSGC went ahead with development in a ‘guerilla gardening’ fashion. The key coordinator claimed that since then, the council “have been much more supportive as a result seeing the diversity of benefits first hand.” Common ground also alluded to the idea that when the local authority come and visit an initiative that is already functioning “they are much more likely to both understand the benefits and allow it to continue.” Rosol (2010) explains that when a space taken over within a community begins to function as a social space and the potential goes beyond that of the actual garden, there is a better chance of securing the developed area on a permanent basis.

The Potential of Ifood Sharing in Dublin

Incorporating food sharing into education was seen by many to be fundamental to achieving a paradigm shift in the way the consumer values food. A senior researcher from the EPA claimed that “food is the perfect convergence of economic, environmental and social aspects of education.” Of the 5 respondents of the survey sent to ifood sharing organisations, 4 alluded to the importance of education around food sustainability as fundamental to the potential of ifood sharing being realised. The CEO of Urban Farm spoke highly of the importance of education around food sustainability as a result of experiencing first-hand the engagement of students in his classes and the broad range of education that can be gained by being involved with food from farm to fork. The Sustainable Development manager from BordBia emphasized

that by integrating food sustainability into our education system we can “incorporate it into our broader culture.”

The senior researcher from the EPA explains that food education tapers off in secondary schools. The CEO of Urban Farm points to the rigidity of the syllabus at secondary schools as a major obstacle to implementing education around food sustainability. “The fact that practical education around food touches on so many different aspects of life and learning, means that decision makers don’t want to put it into schools because it doesn’t fit into the current categorisation of subjects. Learning about food covers biology, chemistry, geography, economics, the list goes on.”

The CEO of Urban Oyster sees his product as the perfect tool for teaching children about of food sustainability. “The children can interact with the local community by collecting coffee waste. Then they experience the process of growing mushrooms which they can bring home to their families and share with them.” As well as in in schools, The CEO of Urban Farm points out that education through ifood sharing can also happen elsewhere. He claims that the kit would also work to the same degree in the workplace. The key coordinator of Hardwicke Street also stated that they would be very enthusiastic about the idea of local schools visiting the gardens and learning about the multiple benefits of growing one’s own food. Common Ground explained that they helped to plant fruit trees in several schools for the students to maintain and the project has been a success. Research suggests that agricultural activities within schools can increase environmental stewardship of students (Skelly and Bradley 2007) and increase student’s nutritional knowledge (Morris and Zidenberg-Cherr 2002).

Another theme encountered was the importance of highlighting the benefits of ifood sharing in terms of environmental, economic and social sustainability. The coordinator of Hardwicke Street explained that “if we can illustrate the benefits (of what is being done here), it can be rolled out as an educational tool.” Both the spokespersons for the EPA and BordBia emphasised the importance of both highlighting the full suite of benefits and being able to measure these benefits to convince decision makers of the potential of ifood sharing.

What was also made apparent through this qualitative research was that the potential of ifood sharing in Dublin depends on the individuals within these organisations themselves. While all appeared dedicated to their organisations and passionate about what they do, there was a sense that, inevitably, sometimes life gets in the way. As these organisations are not based on economic gain (with the exception of Urban Oyster), it was witnessed that, often, securing regular income takes precedence.

Another theme which became apparent through this qualitative research was that when asked about the potential for ifood sharing to contribute to increased food sustainability, it was suggested that ifood sharing was not necessarily something that should be strategically incorporated into urban planning. Instead it should be allowed to “grow organically” as a spokesperson for the EPA put it. This opinion was shared by the members of Common Ground who explained that “each community has to evolve in its own way that suits them”. The CEO of Urban Farm also touched on this theme by stating that he sees ifood sharing as “a response to a local need rather than a universal system.” This view fits the description of the make-up of grassroots organisations by Seyfang and Smith (2007) as entities which primarily respond to the local situation and to the values and interests of the communities involved.

3.3 Creating Toolkits to Measure the Sustainability of Ifood Sharing

As the four organisations making up this case study have never supplied any data to date regarding their sustainability performance, the suite of potential sustainability benefits illustrated in the previous chapter, although encouraging, are unproven and hence can only be considered as speculative at this stage.

This section of the paper presents an attempt to facilitate these organisations to be able to measure their sustainability in order to be able to document and communicate sustainability performance (Singh et al., 2011). Additionally, enabling grassroots organisations to report on performance enables a future data trail whereby often, these organisations come and go over time without ever documenting the impacts of their activities (Seyfang and Smith, 2007).

The qualitative data gathered through this research was used in order to structure a SWOT analysis with each of the four ifood sharing organisations being studied. The result of the SWOT analyses for Urban Farm, Social Hops, Urban Oyster and Hardwicke Street Garden Club are shown in Tables 8, 9, 10 and 11 respectively.

3.3.1 Urban Farm SWOT Analysis Results

STRENGTHS:

(Internal strengths of the project itself)

- Extensive food production in an urban environment.
- Supplying some food to the local community.
- Unique as a rooftop urban farm in Dublin.
- Demonstrating modern technological forms of agriculture.
- Resourceful with many materials upcycled.
- Low running costs to the owner.
- Free use of space in exchange for commitment to the school projects running.
- Educational in orientation (sharing knowledge and skills).
- Most of the materials are mobile making potential relocation easier.
- Excellent location in Dublin City Centre.
- A one man enterprise making personal ambition easier to achieve.
- High level of media interest with many requests to do interviews, articles, participate in research.
- Strong use of ICT platforms to increase awareness of the enterprise.
- Low energy intensity (illustrating resourceful growing techniques.)
- Well linked to the surrounding community.
- Production of solely organic produce.
- Contributing to increased biodiversity in Dublin City centre.
- Greening otherwise unused rooftop space.
- Excellent exposure to sunlight and rain.
- Good contact with other food sharing organisations in Dublin.
- Promoting ways to improve diet.
- Increasing food security.
- Efficient with small amount of space due to clever growing techniques (vertical growing).
- Not reliant on external funding, therefore not obliged to follow conditions.
- Not relying on external funding facilitated a slow organic growth of the enterprise and encouraged resourcefulness.
- Donations / sponsorship from several organizations in return for publicity via the website.
- School trips from abroad to visit the farm.

Urban Farm SWOT Analysis Results (Continued)

WEAKNESSES:

(Internal weaknesses of the project itself)

- Reliance on one person to maintain momentum.
- Low financial capability.
- No opportunity to travel to seminars / workshops in order to learn more and network with other urban agriculturalists.
- COE does not own the current premises.
- No support from government or local council.
- No external funding.
- Not enough people able to visit the urban farm in person due to being part of school and therefore only open weekdays during the day.
- Some loss of stock.
- Not off grid energy to power lights / pumps / fans etc.
- Not for profit nature of the enterprise means other paid work must take precedence.
- Not enough manpower to fulfil maximum productivity potential.

Urban Farm SWOT Analysis Results (Continued)

OPPORTUNITIES:

(External opportunities that can potentially be taken advantage of)

- Growing market for Tilapia fish among the Asian community in Dublin.
- Grants available to be applied for.
- Potential to find a better suited premises.
- Potential to take over more unused space in the current premises.
- Potential to replicate in other locations.
- Report on benefits of what is being done at the urban farm.
- Increase the educational aspect to corporate training days and other schools for example.
- Growing interest in urban agriculture / sustainability / organic food / seasonal produce etc.
- Potential to collaborate / receive sponsorship from other organisations.
- Larger variety of food that can be proven to grow in urban environments.
- Increased urbanization.
- Increase the amount of people getting to taste the food grown here.
- Changes in the school syllabus can provide opportunity to integrate urban agriculture into education.

THREATS:

(External threats which could potentially have a detrimental effect on the enterprise)

- Dublin's air quality.
- Being forced to relocate.
- Climate change (increased flooding, storms, snow).
- Disease or blight of stock.
- Changes in regulation / city planning / food safety issues.
- No long term planning.

Table 8 showing the results of a SWOT analysis of Urban Farm.

3.3.2 Social Hops SWOT Analysis Results

STRENGTHS:

(Internal strengths of the project itself)

- The project is unique in that there are no other community hop growing projects known in Dublin.
- The running costs of the project are very low and social media works as the perfect, free platform for interaction with members.
- The project is based on social, environmental and economic sustainability values.
- Encouraging people in urban areas to grow their own produce.
- Illustrating the function of a local urban food chain.
- Illustrating how food miles can be dramatically reduced.
- Sharing knowledge about growing.
- Beneficial for both members and brewer involved.
- Reduced intermediaries in the food chain.
- Creates social interaction between people with similar interests.
- Utilising ICT well.
- High demand of people wanting to get involved.
- Collaborative creation of food.
- Social events bringing members together in person.
- Social events include workshops and demonstrations / home-brewed products.
- Social events include a shared consumption element.
- People experiencing 'farm to fork'.
- Encouraging resourcefulness (sharing tips about resourcefulness and using waste trimmings).
- Hops is a vertical plant which requires a small amount of space (ideal for urban environment).
- Production potential increases by year as plants mature.
- Can inspire members to grow other food crops.
- Can increase food empathy of members through seeding, caring and harvesting a crop.
- Illustrates to members how growing food can save money.

Social Hops SWOT Analysis Results (Continued)

WEAKNESSES:

(Internal weaknesses of the project itself):

- Correspondence and promotion requires a lot of time and effort.
- Annual harvest means the process is slow and might result in disinterest through the year.
- Quite labour intensive looking after the plant all year round.
- Low financial capability.
- No funding.
- Only one coordinator running the project.
- No financial gain inevitably means other projects must take precedence sometimes.

OPPORTUNITIES:

(External opportunities that could be taken advantage of)

- Global hop crop failure resulting in greater demand than supply.
- Absence of intensive hop farming in Ireland.
- Much of the hops from Ireland comes from as far away as South Africa and Australia.
- Potential for a bigger deal with brewer.
- Potential proliferation after first production and the story behind the beer gathers media interest.
- Potential for same collaborative model to be used with a different crop and product.
- A current trend in craft beers and home brewing.
- Potential for sponsorship from a large brewery.

Social Hops SWOT Analysis Results (Continued)

THREATS:

(External threats which could potentially have a detrimental effect on the project):

- Blight or disease of the crop.
- Climate change (more specifically increased occurrences of flooding, storms, snow).
- Reliance on a verbal agreement with brewer.
- Changes in regulation / food safety authority.
- Idea being copied in Dublin threatening the uniqueness of the project.
- Coordinator having to abandon project due to personal / financial reasons.
- Air quality reduction.

Table 9 showing the results of a SWOT analysis on Social Hops.

3.3.4 Urban Oyster SWOT Analysis Results

STRENGTHS: (Internal strengths of the project itself)

- Making use of coffee waste often sent to landfill.
- A unique project in Ireland in that no other similar initiatives are known.
- Initiative is driven by environmental, social and economic motivations.
- Waste product can be used as a soil enhancer for growing.
- Packaging is both upcycled and sourced from a local business which is otherwise sent for shredding.
- Illustrating how to grow mushrooms.
- Showcasing resourcefulness.
- Showing that mushrooms can be grown locally within one's home.
- Coffee waste is abundant in urban environments.
- Presents an opportunity to save money.
- Producing food within confined spaces.
- Illustrating how food miles can be reduced.
- High level of media interest in Ireland.
- Creating organic produce.
- Low cost of setting up / running the business.
- A business plan for the next stage of the project.
- Transparency and sharing knowledge of the process of growing the mushrooms.
- A good utilization of internet and social media to promote the product.
- A low resource intensity for the consumer.
- A simple method to follow.
- Promoting environmental awareness through resourcefulness and local, organic food production.
- Promoting an alternative protein source to meat.
- Increasing food empathy through facilitating a farm to fork experience for the consumer.
- A very mobile product.
- Increased food security by illustrating another food type which can be grown locally.
- Potential for a profitable business.
- Attractive branding.
- Increasing food security.
- Plan to use environmentally friendly cargo bike to collect waste and distribute mushrooms.
- Local suppliers of coffee waste and local purchase of mushrooms.

Urban Oyster SWOT Analysis Results (Continued)

WEAKNESSES:

(Internal weaknesses of the project itself)

- No government funding or support as yet.
- Low financial capability to take the project to the next phase.
- Reliant on one owner.
- Cost of branding.
- Easily replicable.

OPPORTUNITIES:

(External opportunities that can potentially be taken advantage of)

- Abundance of coffee waste in Dublin's many coffee vendors and also households.
- Huge popularity of coffee and increase in sale of coffee paraphernalia.
- Increasing urbanization.
- Possibility of corporate enterprises / schools taking the kits on in their institutions as an internal communal project.
- No mushroom farms currently exist in Dublin city.
- Potential for the creation of other products from coffee waste.
- Potential to set up mushroom farms in many parts of Dublin due to availability of coffee waste.
- To collaborate in research that highlights the benefits of the project.
- Opportunity to produce mycelium on site eventually.

Urban Oyster SWOT Analysis Results (Continued)

THREATS:

(External threats which could potentially have a detrimental effect on the enterprise)

- Potential emergence of competition of a similar enterprise.
- Lack of compliance from local council / food safety authority.
- Difficulty acquiring space.
- Obtaining the investment needed for successful implementation of the business plan.

Table 10 showing the results of a SWOT analysis on Urban Oyster.

3.3.4 Hardwicke Street Garden Club SWOT Analysis Results

STRENGTHS: (Internal strengths of the project itself)

- Community engagement (Popularity among the residents and a sense of ownership)
- Contribution by residents (volunteers) Allows for social inclusion no matter what level of skill they may have
- Volunteers from outside the community, usually by way of emailing, posting on social media page or by dropping by the garden.
- Increasing the sense of community by connecting all age groups and sharing the history of the area
- Increasing a sense of pride in the community
- Creation of an informal committee to feed back to the council on environmental issues
- Creating a safe and friendly environment for the children growing up in the community and reduces crime through community policing.
- Helping to improve the reputation of the area.
- Teaching skills (growing, cooking) informally through interaction with residents / visitors.
- Teaching skills through cooking classes starting soon (CBDET).
- Teaching knowledge about types of foods through people sharing information on what food they grew or being introduced to new foods in the garden.
- Teaching knowledge about how to grow food. People sharing knowledge through both success and mistakes and difficulties related to their experience growing food.
- Teaching how to prepare the different food grown in garden.
- A Large number of residents that can benefit from the garden, reducing the stress of sharing a small residential space.
- A good number of people dedicated to the project spanning generations.
- A good relationship with the local council, with regular meetings and feedback.
- Improving the appearance of the neighborhood.
- Increasing interaction in the community.
- Teaching ways to save money.
- Allowing social inclusion. Everyone can drop by regardless of social issues.
- Teaching environmental awareness.
- Showing the potential for urban agriculture (the variety of food that can be grown in the city)
- Good amount of space to work with due to creativity and pragmatism of key members.

Hardwicke Street Garden Club SWOT Analysis Results

- Making use of otherwise unutilized space.
- Inspiring people to grow their own food in their gardens or at home by showing what is achievable.
- Teaching people how to eat healthier.
- Promoting vegetables (as an alternative to meat)
- Community Social events, flexible in theme depending on the occupational background of volunteers
- Decrease isolation for some residents. For example new residents and the elderly have a means to engage with the community.
- Improve mental health through interaction and contribution and proven benefits of horticulture.
- Good use of social media and blogging
- Good variety of food being grown enhancing local biodiversity and introducing new foods.
- Good relationship with nearby urban agriculturalists allowing potential for bartering or sharing of ideas.
- Good at networking to receive donations or unwanted tools / materials (soil grow beds etc.)
- Reduces effects of urbanization and creates a more serene environment via sound, sight, taste, touch and smell.

WEAKNESSES: (Internal weaknesses of the project itself)

- Limited space.
- Lack of financial support, preventing employment of a full time facilitator.
- Lack of data showing the benefits of the project, especially social benefits which are the main motivation for the project.
- Too few social events (to increase interest, show the benefits to more residents, let them taste the produce).
- Protection from vandalism / dog fouling, stray cats and birds etc.
- Low financial capital. (Often a struggle to complete projects due to funding meaning duty is left on project manager to source finance).
- Not making maximum use of harvested food (reaching as many people as possible, some loss of crops)
- Not harvesting rain water

Hardwicke Street Garden Club SWOT Analysis Results

OPPORTUNITIES:

(External opportunities that can be taken advantage of by the organisation)

- An increasing interest in local produce.
- An increasing interest in healthy living.
- Recent climate and sustainability goals increasing interest of government and decision makers.
- More unused land to be taken advantage of in the area.
- Various grants to apply for.
- Possibility for more social events.
- Possibility for food preparation experts to come in and teach about how to cook the produce grown here, also to teach how to preserve the produce and reduce waste
- The large number of residents allows for potential to increase the amount of visitors to the garden.
- Use internet and social media more to promote the progress and benefits of the project.
- Learning to be more resourceful (i.e. rainwater capture, composting etc.).
- Many other garden clubs and food sharing initiatives in Dublin enables increasing contacts and therefore bartering potential and sharing of knowledge.
- Use space for other social events
- Seminars, workshops and courses available to be able to facilitate training of dedicated members.
- New types of career options like horticulture for urban kids and adults.
- An urgent need to improve low performance of education level in the city centre.
- Create eco-tourism.
- Job creation through education or eco-tourism.
- Enhance culture capital.
- Prevent boredom and reduce suicide.

Hardwicke Street Garden Club SWOT Analysis Results

THREATS:

(External threats which could potentially have a detrimental effect on the organisation)

- Climate change issues (flooding, less predictable seasons).
- Changes in regulation.
- Development of the area in use by the garden club.
- Having to relocate some of the areas in use.
- Disease or harm to produce.
- Dependence on external funding.
- Depletion of urban air quality
- Over reliance on a few dedicated members. Potential trouble should a key member move on.
- Not owning the property.
- No well-defined long term plan for the garden club.
- Residents who have issues with the project.
- Lack of experience running an organization.
- Working in one's own community can be a stressful.
- Apathy from adults engaging or accompanying children
- Lack or statutory qualifications to work with specific groups (e.g. Garda vetting).
- Key volunteers being busy with other responsibilities.

Table 11 showing the results of a SWOT analysis on Hardwicke Street Garden Club.

The results of the SWOT analyses for the four ifood sharing organisations facilitated a self-evaluation in relation to the sustainability of their respective functions (Marshall and Johnston, 2010). The collation of this information allowed for the next step of this 3 part process: The creation of sustainability indicators that represent the multitude of sustainability potential impacts identified within each of these ifood sharing organisations in the previous section. The aim was to develop sustainability indicators that can be measured and easily monitored over time by the organisations themselves. It was integral to the aim of this research to ensure that reporting on the indicators created would be inexpensive and replicable in terms of complexity

as, unlike large private companies, many grassroots level organisations lack both the finances and expertise to deliver costly and complex accounting methods (Derby and Jenkins, 2006).

For each case study, indicators have been separated into social, environmental and economic categories. Within these broad categories, indicators have been further divided into smaller areas of focus relevant to food sustainability which were established through the background research conducted as part of this study. The categorization of indicators acts as a valuable process of grouping together thematic sets which increases clarity within complex concepts such as sustainability (Lamberton, 2005).

In agreement with Walker et al., (2000), this paper considers that the most important element of sustainability to be measured (especially in the case of ifood sharing), is the effects on the people who have taken part in these projects and on the community within which they are part. To this end, the indicators created in this research aim to consider the individual and the community.

The toolkits created as part of this research are extensive, addressing the multitude of potential sustainability benefits present within each organisation, multiplied by the diversity of mediums through which sharing takes place. To this end, the organisations do not need to gather data for every indicator but rather, can pick and choose indicators that will prove useful for the specific task at hand.

3.4 Measuring the Sustainability of Ifood Sharing

Although gathering some of the data was time consuming, the process of testing this toolkit has acted as a practice run for the organisations who can now begin logging this information as-they-go in order to make the process less laborious the next time reporting takes place. Where data could not be collected mainly due to the time constraints of this study and relative inactivity during July and August, measurement strategies have been implemented to enable the organisations to begin logging the relevant data from this point on. 3 of the surveys created as part of the toolkits were not yet tested as they are all aimed at groups within activities that will become more active as of autumn. Of the surveys that were successfully tested, although the number of responses were not extensive, the responses do present visible trends which will be presented and discussed. Due to the time constraints of this study, the aim of this part of the research was less about presenting extensive findings and more about creating 4 well-designed, comprehensive and functional toolkits in order to provide the organisations in question with a means to report on their impact in the future.

Addressed individually, the following four sustainability toolkits present the selected indicators, the means of measuring these indicators, and any comments which help to justify why they were chosen or explain specifically how measurement will be achieved. Furthermore, the toolkits present the data (where available) and are, in some cases, accompanied by a target chosen by the organisations themselves of the desired case specific improvement to be achieved by the next time of reporting. The following toolkits aim to answer the fourth research question of this study: *How can the impacts of the sustainability benefits of these organisations be measured?*

3.4.1 Urban Farm – Social Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Consumer Engagement	Introducing customers to other food sharing organisations	Number of food sharing initiatives visited and shared with bike tour participants		Make contact with other food sharing initiatives to potentially increase the number of organisations visited	4
		Number of urban agriculture bike tours this year	Currently sporadic and lacking a fixed timetable	Increase the number of tours to at least monthly	4
	Sharing knowledge about urban growing techniques	Number of events / talks / workshops this year explaining how to do what Urban Farm does (transparency)	Important to Urban Farm as an organisation that strives to be transparent in sharing knowledge / skills	Maintain the high current level of exposure of Urban Farm	9
		Number of website hits this year	All Urban Farm growing techniques are explained on the website (Data easily attainable through a free web traffic app for smartphone)	Create a tab on the website which explains the process of honey bee farming (currently the only aspect not displayed online)	3067
		Number of Twitter followers	Urban Farm frequently 'shares' media links relating to urban agriculture	Keep active in promoting Urban Farm but also sharing news / articles relating to urban agriculture	4691
		Number of Facebook followers	Urban Farm frequently 'shares' media links relating to urban agriculture		6475
		Geospatial interest (number of countries with Facebook followers of Urban farm)	Achievable through Facebook analytics tab		45
		Percentage of followers who feel Urban Farm is sharing knowledge openly about urban agriculture techniques	Survey question	Maintain an interest in Urban Farm through social media	75% very much so 24% Somewhat (16 respondents)
		Number of articles / interviews on Urban Farm this year		Maintain high media exposure of what is being done at Urban Farm	7

Urban Farm – Social Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Consumer Engagement	Sharing knowledge about urban growing techniques	How often followers read articles about urban agriculture shared by Urban Farm on social media	Survey question		26.7% frequently 60% Sometimes 13.3% rarely (16 respondents)
		Percentage of followers who have been made aware of other food sharing initiatives through the Urban Farm website / social media	Survey question	Continue to share news about urban agriculture in Dublin with a belief in others doing likewise	33.3% Several 46.7% one or two 20% none (16 respondents)
		Percentage of bike tour participants who's belief in the potential of urban agriculture increased as a result of their experience	Survey question	Achieve a high rating to validate the efforts put into organising these tours	Email out survey to participants upon completion of the tour
		Percentage of tour participants, volunteers who recommended the experience to others	Promotion of urban agriculture by word of mouth (Survey question)		Email out survey to participants upon completion of the tour / volunteering
		Percentage of followers who have told others about urban farm in a positive light	Survey question		81.3% (16 respondents)
		Follower rating of how well Urban Farm performs as an enterprise that shares knowledge about sustainable food practices	Can be used to support applications for funding (Survey question)		7.6 / 10 (16 respondents)
	Understanding consumer interests	Create a survey question to understand motives to follow, volunteer, participate with Urban Farm	Can be used to support applications for funding (Survey question)		Yes
	Experiencing first-hand the farming techniques demonstrated at the urban farm	Percentage of followers who would like to see Urban Farm first hand	Currently difficult due to being located within a school and therefore limited accessibility (Survey question)	To facilitate a much larger number of visitors	93.3% (16 respondents)
		Requests to visit the farm in the last year	Email archive	Log requests and visits as they occur	52 requests 30 visitors

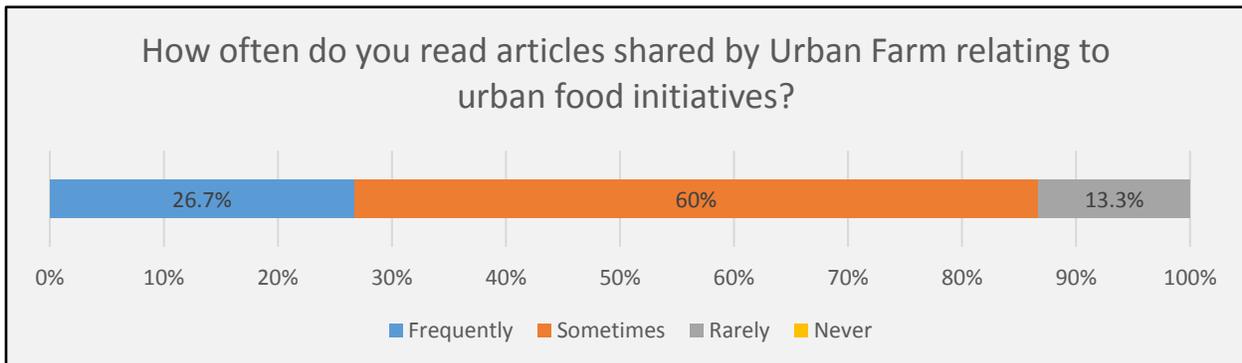
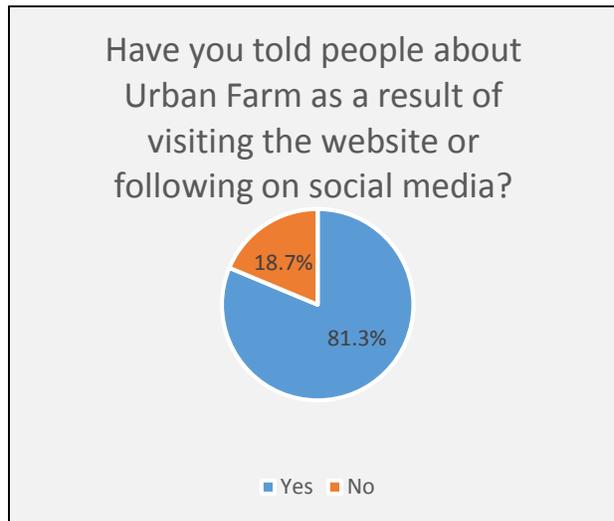
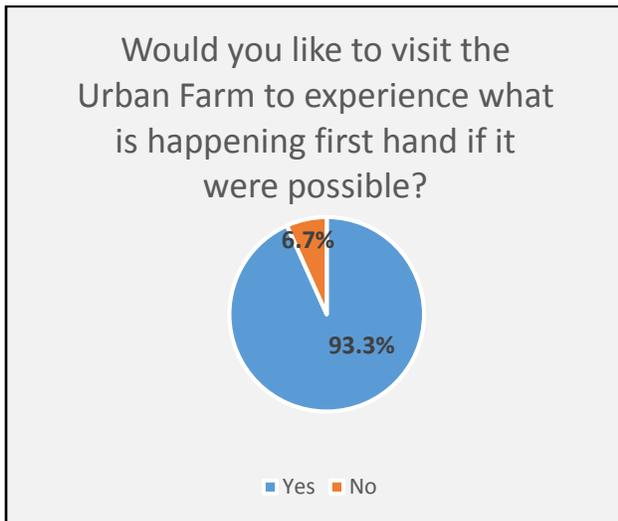
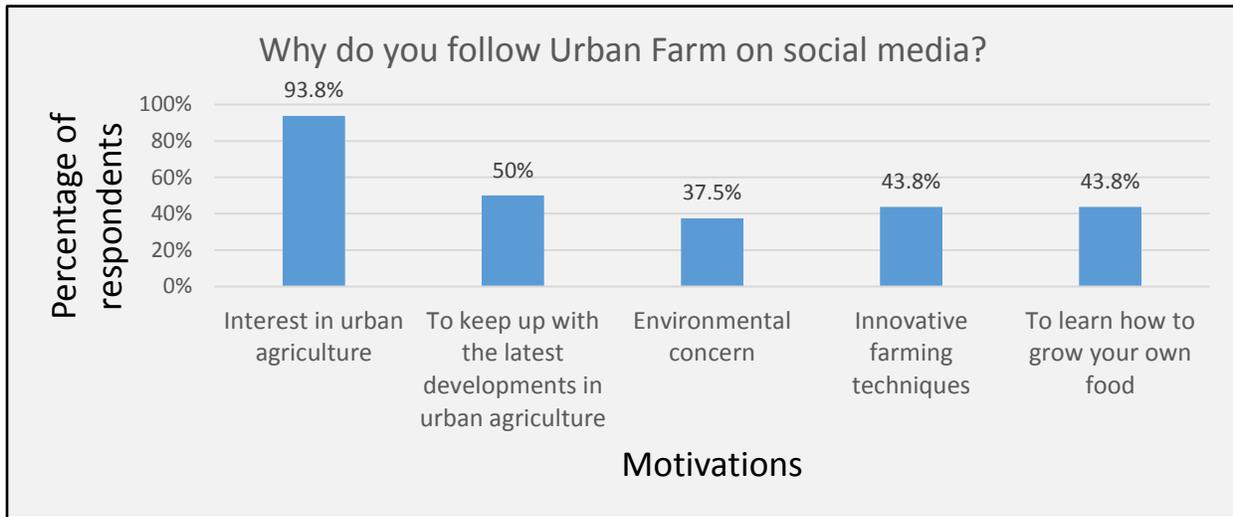
Urban Farm – Social Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Diet	Promoting healthier diet	Percentage of volunteers, tour participants who improved their diet as a result of their experience	Aim to influence a positive change in diet through facilitating a connection with food (Survey question)		Email out survey to participants upon completion of the tour / volunteering
		Percentage of volunteers introduced to new types of food	Survey question	Strive to grow new crops every year (Keep a log of food grown to track what has and has not been grown)	Email out survey to participants upon completion of volunteering
Education	Educating about urban agriculture	Amount of students who have completed Transition year module on Urban Agriculture this year		Incorporate some form of involvement for years other than transition year students	69 (3 classes of 23)
		Percentage of students whose environmental awareness increased	Implement a student feedback survey upon completion of transition year module (Survey question)		Hand out survey to be completed in class upon completion of the module
		Percentage of students who were inspired to grow food at home			
		Amount of students who took part in after school projects this year	After school projects are available for all years of the school	Raise awareness of the urban farm within the school and ensure all teachers have visited and witnessed the potential for students	15

Urban Farm – Social Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity	
Social Inclusion	Social inclusion	Number of volunteers currently involved with Urban Farm	Currently low due to being less activity during summer	-Create a checklist of jobs to ensure volunteers learn a variety of skills -Begin to log the number of volunteers	3 (Over 100 to date)	
	Volunteer satisfaction	Create survey to understand the satisfaction and sense of accomplishment of volunteers	Ask volunteers to complete this survey upon completion of volunteering		Yes	
	Volunteer benefit	Percentage of volunteers who learnt new skills	Survey question			
		Percentage of volunteers who made new friends through working at Urban Farm	Survey question			
		Percentage of volunteers who experienced personal growth as a result of working at Urban Farm	Survey question			
	Local Community Engagement	Contact / Collaboration within the ifood sharing community	Percentage of SHARECITY100 Dublin ifood sharing organisations in contact or collaboration with	Collaboration between similar organisations can amplify the presence of ifood sharing in Dublin	Collaborate with new people each year	42.9% contact with 32.9% collaborated with (Out of 28 possible organisations)
Sharing skills and knowledge		Percentage of volunteers, tour participants who passed on some of the skills they learnt to others	Showing the extended reach of the skills learnt (Survey question)			
Donation or demonstration to local community groups		Number of organisations supplied with tools or demonstrated how to create tools / materials this year	Often donating vertical grow beds and other materials to nearby community gardens. Also visiting organisations to demonstrate how to set up certain growing methods			6
		Local community organisations or charities which have received food this year			Implement a new plan for the food produced (either return to selling to local restaurants or donate to local charity)	1

3.4.2 Toolkit Creation and Initial Results of Social Sustainability Indicators – Urban Farm



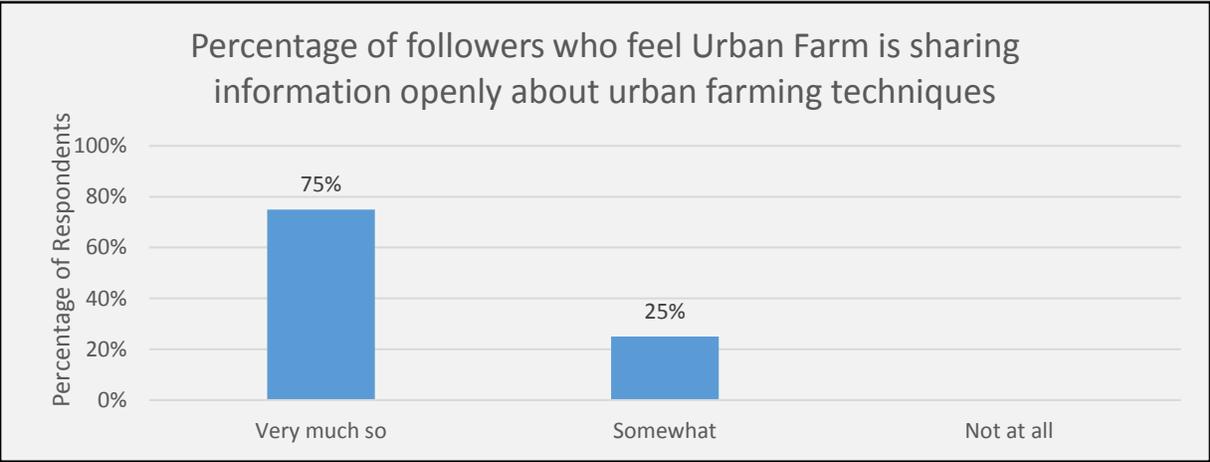
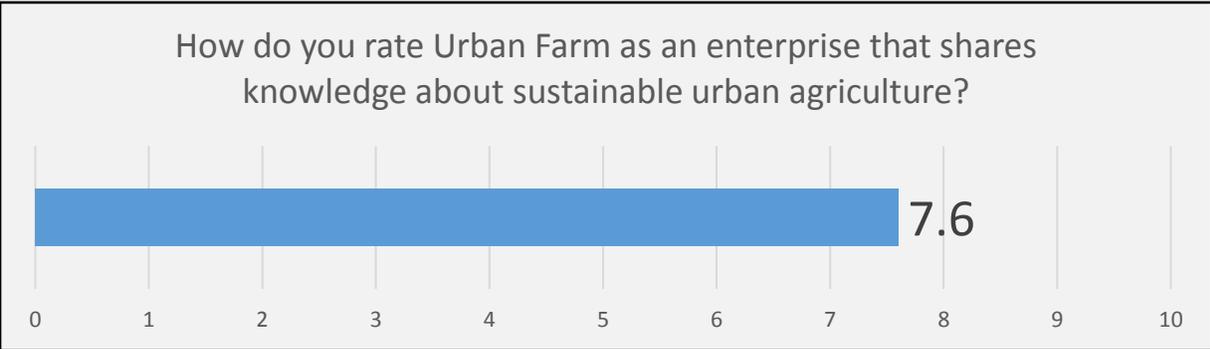
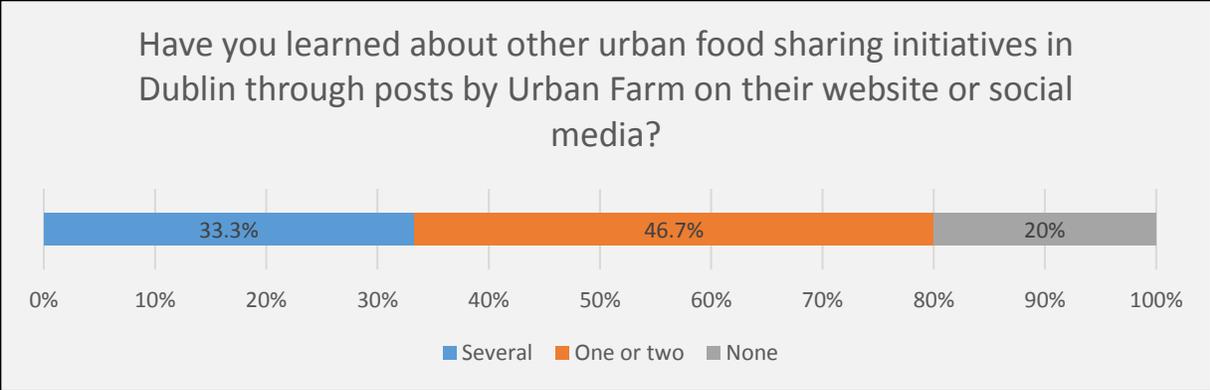


Figure 25 showing graphical analysis of the indicators measured by survey response of 16 Urban Farm social media followers.

The initial results relating to social sustainability from trialling this toolkit help show the extent of the reach of what is being shared by Urban Farm through consideration of both the physical and virtual food sharing taking place, illustrating the scale of the audience which connect with Urban Farm.

Volunteer, tour participant and student surveys relating to diet, influence, and satisfaction as a result of their experience at Urban Farm have been created and are ready to be rolled out for future monitoring. Understanding volunteer satisfaction is important to measuring social sustainability due to its facilitation of a sense of belonging and contribution (Smith et al., 2004).

Indicators relating to local community engagement show that Urban Farm is in touch with like-minded organisations in Dublin and has collaborated or had contact with many of the ifood sharing organisations within the SHARECITY database. Measuring this is significant as Seyfang and Smith (2007) explain that if small-scale grassroots initiatives are regionally well connected, the ability to reproduce elsewhere and hence, increase their presence is enhanced.

Although assessing social sustainability is notoriously difficult in terms of assigning quantifiable metrics (Dempsey et al., 2009), this toolkit has aimed to consider the various recipients of what is shared by urban farm across a comprehensive set of the categories which relate to social sustainability.

3.4.3 Urban Farm – Environmental Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity	
Organic Food	Promoting organic	Percentage of produce that is organic			100%	
		Percentage of volunteers, tour participants who began sourcing more organic food as a result	Survey question		Distribute survey upon completion	
Biodiversity	Contribution to local biodiversity	Contribution to increased biodiversity in Dublin	Bees contribute to pollination in the surrounding areas		-9 bee hives (180,000 bees) -160 potato varieties -25 Tilapia fish	
Reducing Waste / Energy Efficiency	Resourcefulness of materials	Does Urban Farm promote the possibility of upcycling materials for growing	Everything except electronics, beehives and hydroponics equipment is upcycled and explained online		Yes	
	Increasing resourcefulness / energy efficiency	Number of innovations to improve resource / energy efficiency	-A capture hive for emigrating bees. -An insect farm to feed fish sustainably. -Changing from Trout to Tilapia. -Harvesting rainwater. -Insulating tanks to heat water.	Implement all 4 innovations within the next year and identify new ones	Identified: 4 Implemented: 2	
	Limiting water use	Showcase low water intensive growing techniques	Aquaponics, Self-irrigating systems, Hydroponics. All demonstrating low water intensive growing techniques			techniques showcased: 3
		Amount of water use at Urban Farm		Measure water used for each growing technique	Log monthly water use to produce monthly and annual records	
	Inspiring resourcefulness	Amount of previously unused urban space being 'greened' by Urban Farm	Making use of unused space and greening rooftops			154.5 metres squared
		Number of growing techniques showcased which do not require soil	Illustrating sustainable growing techniques			2
	Reducing waste	Food waste or loss of stock in last year	Inevitable but can be minimised		Begin to log the stock lost with the aim of reducing each year	2 bee hives 10 Tilapia 150 Rainbow Trout
		Percentage of tour participants, volunteers who began to waste less food	Inspiring a reduction of consumer waste (Survey question)			
	Reducing electricity use	Measure energy use for Aquaponics and Hydroponics	Purchase a cheap electricity monitor		Implement mentioned innovations above	Log monthly and annual figures

Urban Farm – Environmental Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Environmental Awareness	Increasing environmental awareness	Percentage of tour participants, volunteers with an increased environmental awareness as a result of their experience	Survey question		Distribute survey upon completion
		Percentage of followers who believe Urban Farm increases environmental awareness	Survey question		62.5% Very much so 37.5% Somewhat (16 respondents)
Origin of Food	Sharing knowledge and skills about urban agriculture	Number of growing techniques explained online	Transparency. Often with links to websites or PDF's explaining how to set up growing systems		5
		Number of different farming / growing techniques showcased at Urban Farm	Illustrating the potential diversity of urban growing techniques	Free up more time to be able to research and incorporate new types of urban agriculture	5
		Percentage of volunteers, tour participants, followers introduced to new urban agriculture techniques	Survey question		Followers: 73.3% (16 respondents)
		Percentage of followers who have tried to replicate any of the urban agriculture techniques explained online by Urban Farm	Survey question		18.80% (16 respondents)
		Number of tour participants, volunteers who recommended growing food to others as a result of their experience	Extended sharing of knowledge and skills (Survey question)		Distribute survey upon completion
	Inspiring interest in local food	Number of tour participants, volunteers who began to source / consume more locally sourced food	Survey question		Distribute survey upon completion
		Number of restaurants which have used food grown at urban farm this year	Usually for mutual promotion / media attention purposes		4
		Percentage of tour participants, volunteers, followers who went on to grow food as a result	Survey question		21.4% of followers (16 respondents)

Urban Farm – Environmental Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Origin of Food	Producing locally grown food	Quantity (weight) of food produced at Urban Farm	Measure food types separately to enable reporting of both individual food types and total food production		Begin weighing and logging harvested food
	Illustrating extent of food that can be grown in urban environments	Percentage of tour participants, volunteers who learned about new types of food which can be grown in an urban environment	Survey question		Distribute survey upon completion
		Number of different crops grown to date		Keep a log of all crops grown and introduce one new type each month to show the variety of crops that can be grown in an urban environment	17
Seasonality	Promoting seasonality of food	Percentage of volunteers, bike tour participants who increased knowledge about seasonal produce	Survey question	Distribute information online at the start of each season about what grows	Distribute survey upon completion
Meat	Promoting an alternative to meat consumption	Number of volunteers, bike tour participants who have reduced consumption of meat after their experience with Urban Farm	Through learning about different types of food and alternative sources of protein (Survey question)		Distribute survey upon completion
Sustainable Seafood	Promoting sustainable fishing	Does Urban Farm share knowledge about sustainable ways to farm fish	Tilapia fish thrive in an aquaponics system	Potentially farm these fish more intensively in response to the growing market for Tilapia among the Asian community in Dublin	Yes

3.4.4 Toolkit Creation and Initial Results of Environmental Sustainability Indicators – Urban Farm

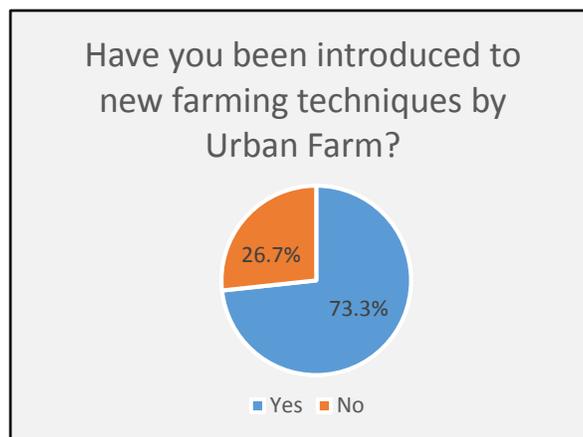
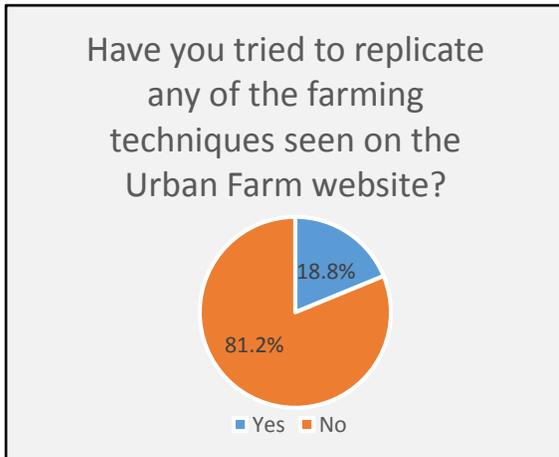
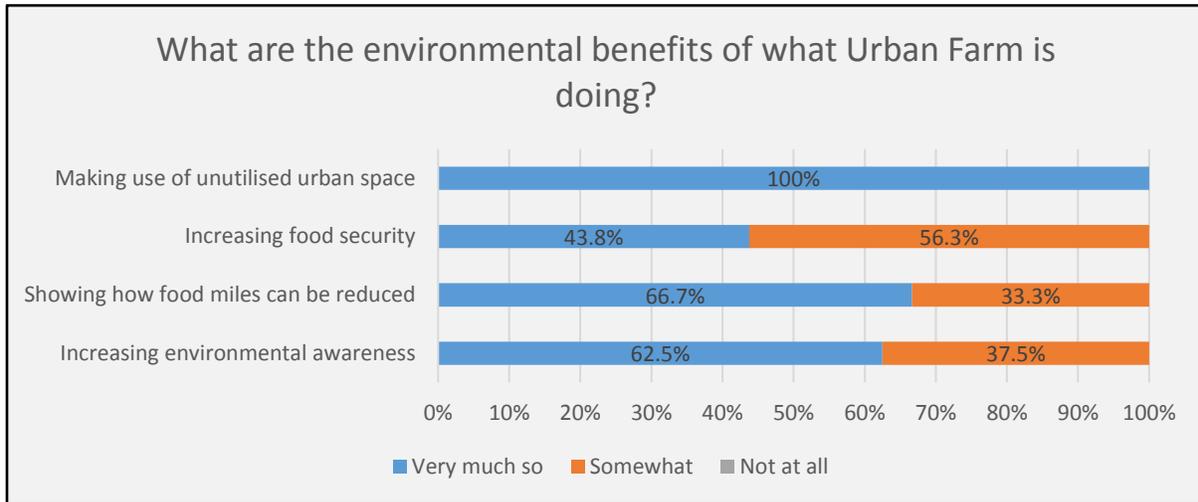


Figure 25 showing graphical analysis of the environmental indicators measured by survey response of 16 Urban Farm social media followers.

The environmental indicators created for Urban Farm all relate to categories fundamental to food sustainability which have been addressed in the background introduction to this paper. Church and Elster (2002) explain the importance of not just considering the direct impacts of the services provided by organisations but also how these organisations encourage participants to reflect on broader thought. In consideration of this, many of the indicators aim to understand the influence Urban Farm has had on the recipients of what is being shared in varying environmental aspects such as reducing waste, being inspired to grow food, and acquiring more environmentally friendly consumption behavior.

Due to relative inactivity over summer months due to Urban Farm's dynamic relationship with the school in which it is located, several direct impacts relating to environmental performance such as quantity of food produced, energy efficiency and water use were unable to be measure in this study but have been addressed with methods for recording impact set up and ready to be implemented for the start of the school year. Measuring water use and the targeted implementation of harvesting rainwater are vital as a way for Urban Farm to share knowledge and skills about sustainable water use which is a prerequisite for sustainable food production and the increasing global population (Singh, 2014a). Encouraging harvesting rainwater for aquaponics is vital to addressing the sustainability potential for this method of agriculture on a global scale (Love et al., 2015).

Additionally, a method of measuring the energy consumption of the Urban Farm has been established as part of this toolkit particularly to measure the aquaponics and hydroponics systems. Energy use is explained by Barbosa et al., (2015) to be a major factor in assessing the overall sustainability of hydroponics. A target has been set to implement effective insulation of the aquaponics water tanks which (love et al., 2015) explain can reduce energy use in relation to heating water. Furthermore, as one of the implemented resource efficiency measures identified by Urban Farm, Trout were replaced with Tilapia due to their stronger resilience to changes in pH and temperature (Johanson, 2009).

3.4.5 Urban Farm – Economic Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Mobility / Adaptability	Ability to adapt to external changes (Important for vulnerable organisations)	Percentage of stock / materials recovered from previous location	Everything was salvaged from Urban Farm's previous location after it was forced to relocate		100%
Financial Viability (Functioning as non-profit)	Receiving sponsorship / donations	Number of organisations in collaboration with for sponsorship or materials in return for promotion via the Urban Farm website	Bartering materials for a plug on the Urban Farm website which helps companies promote their interest in supporting sustainable initiatives		12
	Receiving funding / support at government level	Percentage of followers, tour participants, volunteers who believe food sharing organisations should be supported at government level	Could potentially be used when applying for funding		80% of followers (16 respondents)
	Capitalising on free forms of marketing and promotion	Number of ICT platforms utilised	Making maximum use of available media outlets	Identify additional free ways to promote Urban Farm	3
		Cost of advertising	All done through website or social media		0
	Creating enough revenue to maintain the project or identify potential for profit	Creation of potential projects to draw some revenue from Urban Farm	Plan to implement corporate team building days	To implement a project that will bring in revenue to maintain the running of Urban Farm	Identified: 1
Local Economy	Economic value of food produced	Calculate the market value of the organic food produced at the end of each year	Can use new logging system of food production implemented		

Table 12 showing the selected sustainability indicators (Social, Environmental, Economic) as a result of qualitative research and a SWOT analysis with Urban Farm.

3.4.6 Toolkit Creation and Initial Results of Economic Sustainability Indicators – Urban Farm

The economic indicators present relate both to the ability to respond to external changes (an important consideration due to the vulnerability of ifood sharing organisations discussed earlier) and the challenge of surviving as a non-profit organisation. The economic sustainability indicators show that Urban Farm makes good use of free forms of promotion. Although Urban Farm is not driven by producing a large amount of food, the implementation of a plan to weigh and log the variety of food produced enables an economic market value to be calculated each year to add to performance credentials.

3.4.7 Social Hops – Social Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Consumer Engagement	Connecting people with similar interests	Geospatial scale of members	Distance between the furthest two members showing how ICT stretches the boundaries of communal food sharing		21.93km
	Spreading awareness of the benefits of the project	Number of articles or radio shows based on Social Hops this year		Spare more time to be able to accept more requests	1 done 3 Requests
		Interest in project (Twitter followers)		Keep active in promoting Social Hops but also sharing news / articles relating to urban agriculture	1076
		Number of website hits this year	Easily attainable on a web traffic app		2728
		Number of friends or family taken an interest in members hops as a result of seeing or being told about the project	Can show extended knowledge sharing and also understand consumer interest in this type of project (Survey question)		145 of 13 members' friends interested
	Understanding consumer sustainability motivation	Create survey question to understand what pillars of sustainability motivated members to get involved with Social Hops	Can be useful for demonstrating the desires of sustainability conscious consumers and to aid grant applications		Yes
		Attain a rating from members as to how well a project like Social Hops contributes to a more sustainable food system	Can be used to support funding applications (Survey question)		5.6 / 10
		How important do members feel it is that food sharing organisations like Social Hops are backed at government level	Can be used to support funding applications (Survey question)		76.9% very important 15.4% quite important 7.7% not important (13 respondents)
	Understanding consumer opinion	Create a member feedback form to consider ways to improve Social Hops	Market research	Implement recurring suggestions	Yes

Social Hops – Social Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Social Inclusion	Facilitating social interaction between members	Percentage of members who have enjoyed social interaction among members	Survey question	Consider member feedback on how to improve the social events and implement recurring suggestions	Very much so: 23.1% Somewhat 30.8% Not at all: 46.2% (13 respondents)
		Quantity of social events organised in the first year		At least double the number of events in year 2 with visits to breweries / brewing workshops	1 complete 4 planned in total
		Quantity of members who attended event		-Achieve at least a 50% turn out for the next event. -Plan the events further in advance	38 of 142 members (26.8%)
Education	Sharing knowledge about growing hops	Percentage of members who have learned skills or tips from other growers in the online forum	Survey question		Very much so: 7.7% Somewhat: 30.8% Not really: 53.8% Not at all: 7.7%
		Percentage of members who have learned skills or tips from other growers at the social events	Survey question		Very much so: 7.7% Somewhat: 30.7% Not really: 30.8% Not at all: 30.8%
	Sharing home-grown produce	Number of social events this year where members have shared some of their home-grown produce	Homemade champagne and beers were brought to the first event	Encourage people to bring homegrown produce to all events	1 complete 4 planned this year
	Sharing knowledge about growing other food related crops	Quantity of people who have learned knowledge skills about other food related crops / techniques other than growing hops	Survey question		Very much so: 30.8% Somewhat: 7.7% Not really: 38.5% Not at all: 23.1%
Community	Creating a sense of community regardless of physical location	Percentage of members who believe Social Hops is an innovative way to create a sense of community	Survey question		Very much so: 69.2% Somewhat: 30.8% Not really: 0%
	Creating a communal product	Percentage of members encouraged by the idea of creating a communal product	Survey question		Very much so: 53.8% Somewhat: 46.2% Not really: 0%
Diet	Improving diet through experiencing growing / food empathy	Percentage of members whose diet has improved as a result of Social Hops	Survey question		Somewhat: 15.4% Not really: 46.2% Not at all 38.5%

3.4.8 Toolkit Creation and Initial Results of Social Sustainability Indicators – Social Hops

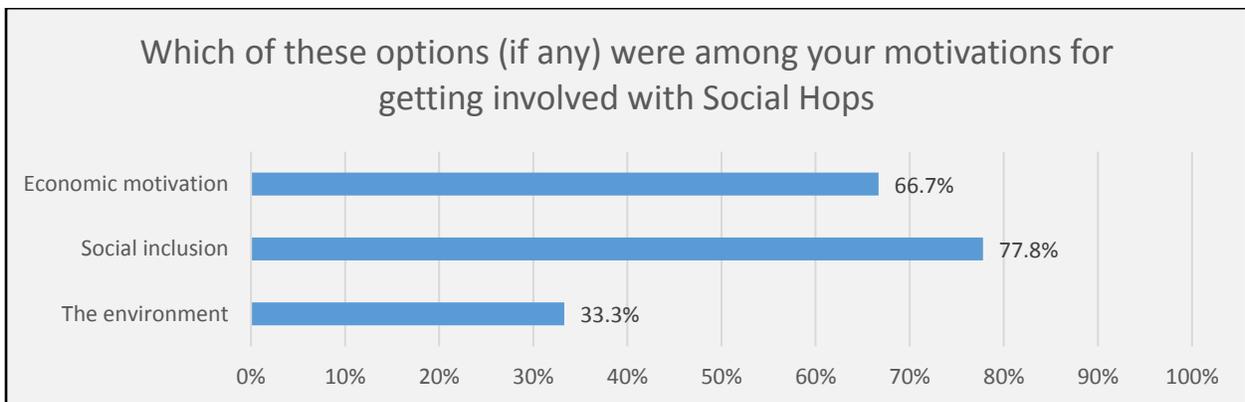
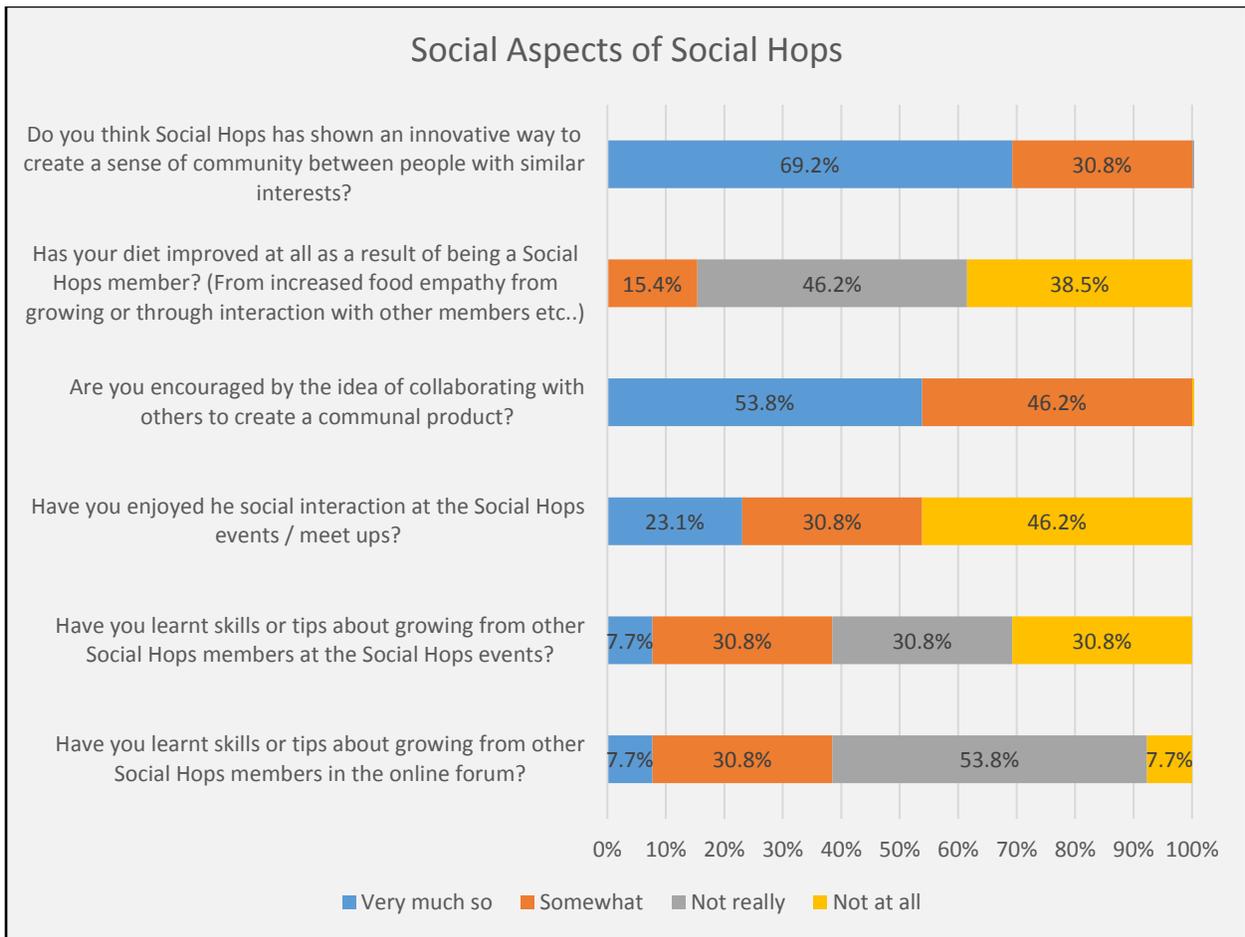


Figure 26 showing the survey results of 13 Social Hops members relating to the social sustainability of Social Hops.

As well as Social Hops enabling a community which stretches 21.93km across Dublin, indicators included in this toolkit highlight broader reach of Social Hops beyond its members. Initial results from testing this toolkit highlight to the CEO, ways in which the organisation can improve

internally, particularly in relation to the social events organised. The creation of this toolkit and its inclusion of member feedback helps highlight the positives and will also allow for improvements to be made in the second year.

Survey data was predominantly used for social sustainability assessment here in order to understand the impact of Social Hops on its members. Survey research is a useful tool to map the extent of social impacts and outcomes of grassroots innovations (Seyfang and Smith, 2007)

3.4.9 Social Hops – Environmental Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity	
Seasonality	Promoting seasonality of food	Percentage of members with an increased knowledge about seasonality due to social hops	Survey question		Very much so: 23.1% Somewhat: 30.8% Not really: 38.5% Not at all: 15.4%	
Origin of Food	Production of a local product	-Quantity of hops harvested -Quantity of beer produced	Harvest takes place in November		Log hop harvest and beer production each year	
	Growing food locally in an urban environment	Quantity of people growing Hops in an urban environment		Aim to more than double this in year 2	142	
		Percentage of members inspired to grow other produce due to social hops	Survey question		Very much so: 23.1% Somewhat: 38.5% Not really: 15.4% Not at all: 23.1%	
	Reducing food miles	Distance of Social Hops HQ to brewer		Social Hops HQ is where the cumulative harvest will be consolidated and then transported to the brewery		13.6km
		Percentage of members who have been inspired to start brewing their own beer	Survey question			Very much so: 38.5% Somewhat: 23.1% Not really: 30.8% Not at all: 7.7%
		Distance of the origin of the hops normally used by brewer.		The brewery collaborating with social hops normally import their hops		Importing from Germany, America, New Zealand and Australia via a merchant in the UK
	Being introduced to new crops that can be grown in urban environments	Percentage of members introduced to growing a new crop	Survey question			Very much so: 69.2% Somewhat: 7.7% Not really: 7.7% Not at all: 15.4%
	Reducing the intermediaries from farm to fork	Number of intermediaries between producer and consumer				0

Social Hops – Environmental Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Environmental Awareness	Increasing environmental awareness	Percentage of members who have increased environmental awareness as a result of being part of Social Hops	Survey question		Very much so: 15.4% Somewhat: 23.1% Not really: 53.8% Not at all: 15.4% (13 respondents)
	Increasing food empathy	Percentage of members with increased food empathy as a result of being part of Social Hops	Survey question (Appreciation of the intrinsic value of food often learnt through the process of growing food)		Very much so: 23.1% Somewhat: 30.8% Not really: 38.5% Not at all: 15.4% (13 respondents)
Reducing Waste / Energy Efficiency	Increasing resourcefulness	Percentage of members who have learned tips about being more environmentally resourceful through interaction within Social Hops	Survey question		Very much so: 15.4% Somewhat: 23.1% Not really: 30.8% Not at all: 30.8% (13 respondents)
Organic	Promoting organic production	Percentage of members growing their hops organically without use of artificial fertilisers	Survey question	Share knowledge about how to compost in order to promote environmentally friendly waste disposal and to provide an organic fertiliser for the hops	Include survey question next year

3.4.10 Toolkit Creation and Initial Results of Environmental Sustainability Indicators – Social Hops

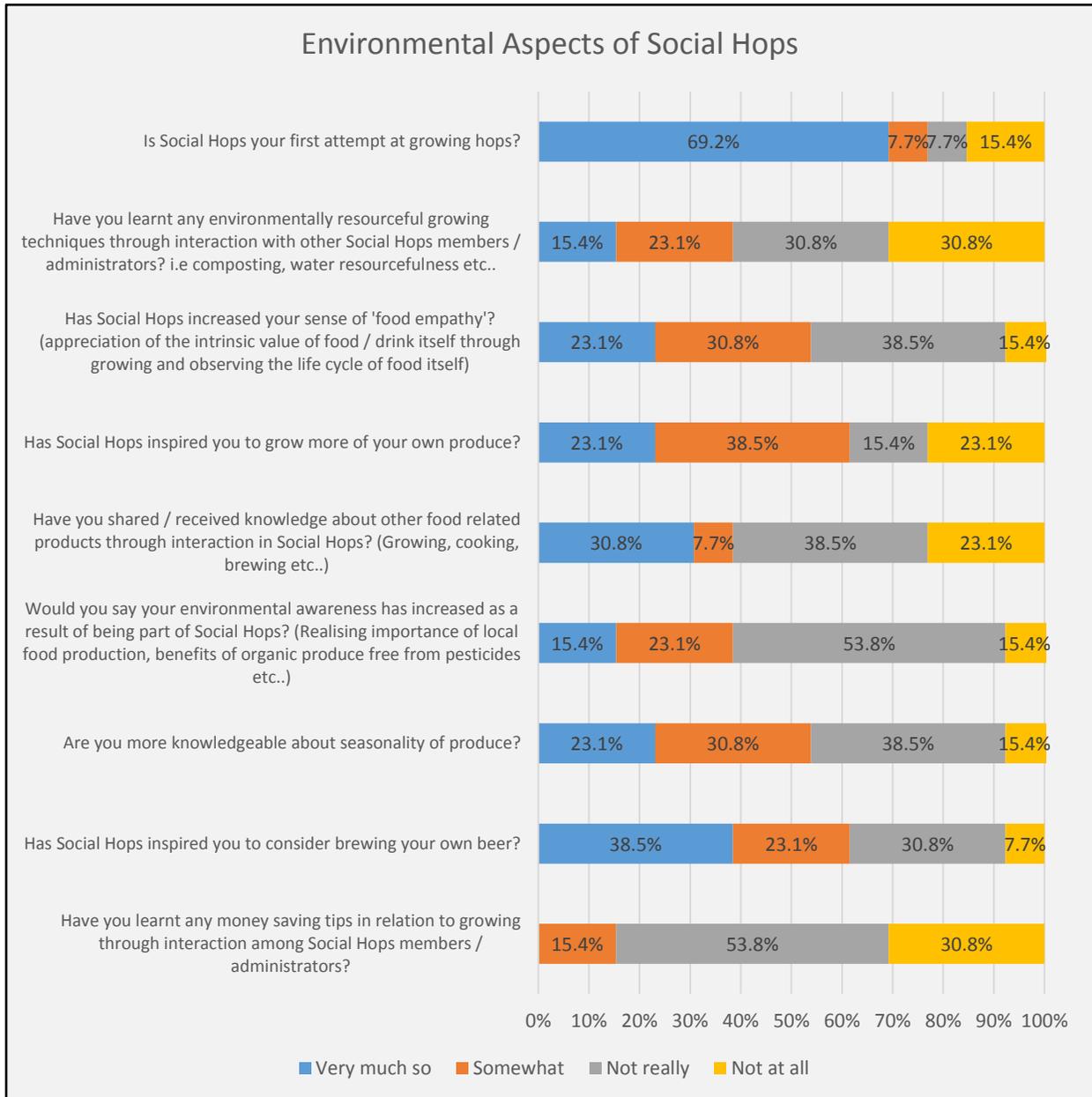


Figure 27 showing the survey results of 13 Social Hops members relating to the environmental sustainability of Social Hops.

The initial data collected illustrating the influence of being a member of Social Hops (figure 27), although only attaining responses from 13 members, is positive in relation to the environmental impacts of Social Hops. These factors show that the benefits of Social Hops span beyond simply

the production of a communal beer but also allow for the development of wider environmental understanding through community interaction (Church and Elster, 2002).

As shown, Social Hops is exemplifying how hops can be grown in Ireland and how Irish breweries can take advantage of this. In this case, as well as reducing the associated food miles of importing hops from as far as Australia, a local and fresh supply of hops is made available which can also add to the quality of the product. Even with a dispersion of individual hop growers in the city, the difference between multiple locations in Dublin and importing hops from as far as Australia is significant.

What is also environmentally significant here is the supporting of a local brewery as the environmental hot spot of the beer industry consists of the distribution phase where a product with considerable weight equates for its highest environmental impact from farm to fork (Roy et al, 2009). Proving that hops can grow in Ireland can facilitate the emergence of more Irish breweries.

Additionally, the production of hops in an urban environment demonstrates an innovative way to produce food without the need for clearing agricultural land and the water pollution, loss to biodiversity and loss of carbon capture that comes with it (Garnett, 2014).

3.4.11 Social Hops – Economic Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Local Economy	Producing a local product	Calculate a market value for the beer produced each year	Will help to provide economic impact of Social Hops		First brew will be ready in November
		Calculate the revenue received by the off licenses selling the product	Will help to provide economic impact of Social Hops		First brew will be ready in November
	Illustrating ways to save money	Percentage of members who have learned money saving tips through Social Hops interaction	Survey question	Incorporate a more diverse range of workshops at events to address money saving tips relating to urban agriculture	Very much so: 0% Somewhat: 15.4% Not really: 53.8% Not at all: 30.8%
	Future growth of the organisation	Number of requests to join next year	Requests by email or social media		42 requests already
Financial Viability (Functioning as non-profit organisation)	Functioning as a non-profit organisation	Monetary cost of setting up / running business	-All done through email and social media -Events take place in a members rooftop garden		0
	Capitalising on affordable forms of marketing and promotion	Number of ICT outlets currently utilised		Create a page on any other forms of social media which present a beneficial medium to spread awareness of Social Hops	3

Table 12 showing the selected sustainability indicators (Social, Environmental, Economic) as a result of qualitative research and a SWOT analysis with Social Hops.

3.4.12 Toolkit Creation and Initial Results of Economic Sustainability Indicators – Social Hops

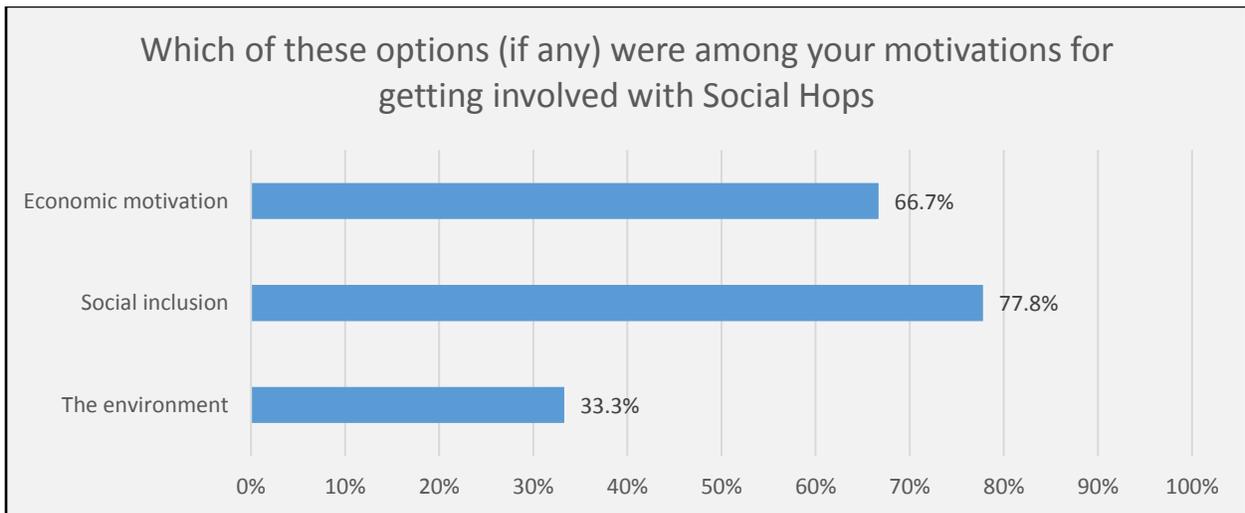


Figure 28 showing the survey results of 13 Social Hops members relating to the environmental sustainability of Social Hops.

Although not solely relating to economic sustainability, figure 28 shows that the majority of respondent members were motivated by economic factors to join Social Hops. Several members elaborated on this by expressing their interest in being part of a transaction absent of money and instead a direct bartering of an ingredient for a product. Once the first harvest and production of beer is achieved in November, an idea of both the cumulative quantity of hops grown and the amount of beer produced will be logged providing a means of demonstrating a quantifiable metric for a locally produced ingredient and product respectively. Creating a market value of the hops harvested will help demonstrate the economic value of a food product that has been created in an urban environment.

3.4.13 Urban Oyster – Social Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Consumer Engagement	Spreading awareness of the project and process of growing mushrooms from coffee waste	Number of Twitter followers		Make best use of this medium to maintain interest even in quiet periods	750
		Number of website hits in the last year	Easily attainable through a free web traffic app		2880
	Spreading awareness through media interest	Number of workshops / events based on Urban Oyster this year		Maintain high media exposure of Urban Oyster	5
		Number of interviews / articles based on Urban Oyster this year			2
	Understanding consumer motivation	Create a survey question to understand why people follow Urban Oyster on social media	Can be used to support funding applications		Yes
		Create a survey question to understand what the consumer believes are the benefits of urban oyster	Can be used to support funding applications		Yes
	Sharing knowledge relating to urban agriculture	Percentage of followers who read articles shared online by Urban Oyster	Survey question		
		Percentage of followers who have learnt about other food sharing initiatives through following Urban Oyster	Survey question	To promote other urban agriculture organisations with the aim of reciprocal promotion	
	Consumers sharing their knowledge about growing mushrooms	Number of 'grow at home' kit trialists who have told others about the process of Urban Oyster in a positive light	Survey question (A larger number of respondents can simply be calculated as the % who told others about Urban Oyster)		5 Trialists told 48 people

Urban Oyster – Social Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Diet	Promoting an alternative to meat	Percentage / number of trialists, who reduced their consumption of meat as a result of growing mushrooms (which the website promote as a great alternative to meat)	Oyster mushrooms are high in protein. (Survey question) (Use percentage when number of respondents increases)		Significantly: 1 Yes: 2 Not really: 1 Not at all: 2
	Improving diet	Percentage of trialists who improved their diet as a result of growing their own food (increased food empathy)	Survey question (Use percentage when number of respondents increases)		Significantly: 0 Yes: 2 Not really: 3 Not at all: 0

3.4.14 Toolkit Creation and Initial Results of Social Sustainability Indicators – Urban Oyster

For the reasons already mentioned for the other organisations studied, the extended reach of Urban Oyster is illustrated in this toolkit. Due to Oyster mushrooms providing an alternative source of protein to meat as well as having a high nutritional value as an antioxidant, anticholesterolic and anticarcinogenic (Deepalakshmi and Mirunalini, 2014), indicators relating to diet and promoting an alternative to meat were incorporated into this toolkit. Furthermore, the Urban Oyster website promotes its product as an environmentally friendly alternative to meat. This is significant in a social sense too due to the common health related impacts of the over-consumption of quantities of meat that exceed dietary recommendations (Westhoek et al., 2014).

3.4.15 Urban Oyster – Environmental Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Origin of Food	Growing mushrooms in an urban environment	Number of people who have trialed the product	Survey question	<ul style="list-style-type: none"> •Make the product commercial this year •Agree deals to barter free collection of coffee waste from cafés in return for displaying and selling the kits 	5
		Percentage of people who successfully grew mushrooms	To show the product works (Survey question)		100% (5 respondents)
	Increasing awareness of the possibilities of urban agriculture	Percentage of followers who were taught more about the possibilities of urban agriculture at home	Survey question		Activate Follower survey that has been created
Experiencing eating something grown from 'farm to fork'		Number of people who have tasted the mushrooms grown from the kit	For a larger number of respondents this can be calculated as average number of people who tasted the mushrooms per kit		14 people tasted mushrooms from 5 trialed kits
		How satisfied were the trialists eating something grown from 'farm to fork'	Survey question		Very satisfied: 4 Satisfied: 1 Indifferent: 0 Not at all: 0
Reducing food miles		Measure the reduced food miles of growing oyster mushrooms in Dublin compared to alternative destination	Compare to origin of oyster mushrooms in supermarkets	Continue to search for other vendors of fresh Oyster mushrooms and document their origin	732km (Compared to the only other vendor of fresh Oyster mushrooms found which imports them from Holland)

Urban Oyster – Environmental Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Origin of Food	Production of locally grown produce	Number of 'grow at home' kits sold this year to calculate production of mushrooms	Calculate quantity of mushrooms grown as 700g per kit sold (calculate total in correlation with survey question about how many people successfully grew mushrooms)	Begin logging number of kits sold once the product is marketed	
		Percentage of kit trialists inspired to grow other food at home as a result of their experience	Survey question		80%
		Percentage of followers, trialists inspired to source more local produce as a result of their experience	Inspiring an interest in local produce through connecting with growing food		Trialists: 100%
	Understanding potential level of interest in the product	Percentage of followers who would like to grow their own mushrooms with an Urban Oyster kit	Market research to estimate consumer demand	Use as a means of estimating initial kit production quantity	
		Create survey question to understand motivations behind those who would like to grow mushrooms	Can be used to support a claim for funding		Yes
	Local food chain	Establish the radius of sites where coffee waste will be collected for the urban mushroom farm			Aim to reduce this to 3km if possible

Urban Oyster – Environmental Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Environmental Awareness	Increasing environmental awareness	Percentage of trialists who increased environmental awareness as a result	Survey question		80%
		Percentage of followers who increased environmental awareness due to Urban Oyster	Through learning about the process of using waste to grow food (Survey question)		
	Connecting with food	Percentage of trialists with increased food empathy as a result of growing their own food	Include in next year' survey		
Organic	Consumption of more organic food	Percentage of trialists, followers inspired to eat more organic produce	Include in next year's survey	Promote the use of organic coffee	
Reducing waste / Resourcefulness	Reducing waste	Amount of coffee waste diverted from the waste stream and used at the farm	Vital to be able to report on waste diverted from waste stream		Once the farm is established, log the weight of coffee being collected from local establishments
		Measure the amount of coffee per kit diverted from waste to create mushrooms	Amount needed to grow 700g of mushrooms (approximate yield of a kit)		2kg
		Measure amount of waste diverted from waste stream by 'grow at home' kits	Calculate as 2kg of waste diverted per kit sold		Begin logging once kits become commercial
	Growing food from a spent product	Percentage of followers introduced to the idea of growing mushrooms from coffee waste			
		Making use of waste byproduct	Percentage of trialists who used product as soil enhancer after use as suggested	Survey question	
		Calculate quantity of spent coffee / mycelium waste donated to community gardens after use at the mushroom farm	The CEO is in contact with many urban agriculture organisation in Dublin City	Ensure waste is then donated to be used as soil enhancer	

Urban Oyster – Environmental Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Reducing waste / Resourcefulness	Resourceful sourcing and upcycling of materials	Calculate distance of materials upcycled and used for mushroom kit which otherwise go to recycling	Current distance to the supplier of the containers being upcycled		1.34km
		Percentage of kit trialists inspired to be more resourceful	Survey question		Very much so: 60% Somewhat: 40% (5 respondents)
	Reducing consumer waste	Percentage of followers inspired to reduce waste due to Urban Oyster	Through educating the consumer of the value that can be attained from waste (Survey question)		
		Percentage of kit trialists inspired to reduce waste	Include in next year's survey		
		Create survey question to understand whether trialists increased coffee consumption in order to speed up the growing process	To be considered when assessing overall impact	Use as a means of assessing overall waste reduction of the process	Yes (1/5 increased coffee consumption)
	Transport related emissions of waste collection and distribution of mushrooms	Direct emissions resulting from collection of coffee and distribution of mushrooms to buyers.	Consideration for plan of having an urban mushroom farm	Will use a cargo bike within local vicinity to collect waste and distribute mushrooms	0

3.4.16 Toolkit Creation and Initial Results of Environmental Sustainability Indicators – Urban Oyster

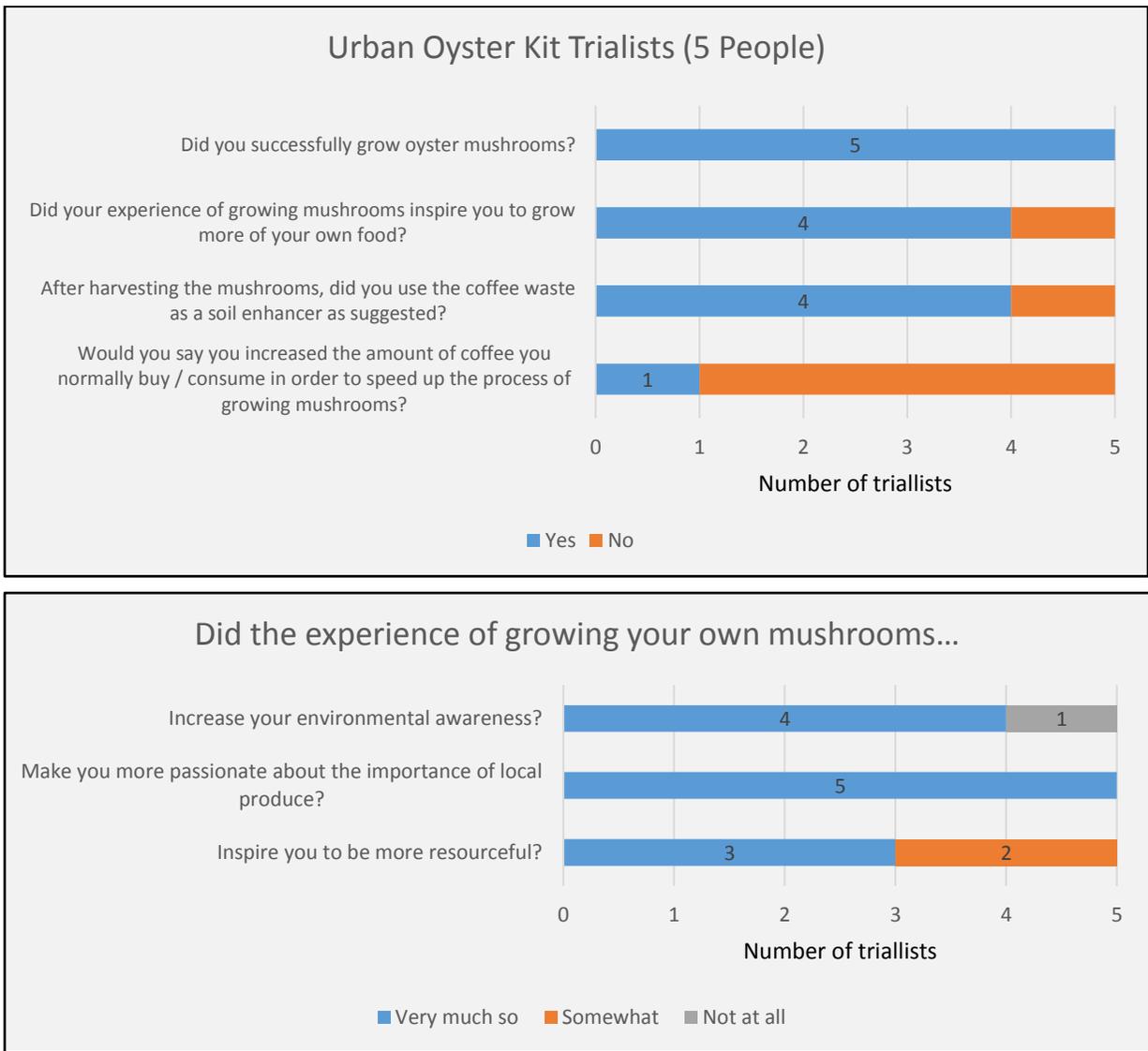


Figure 29 showing the survey results of 5 Urban Oyster ‘Grow at home’ kits trialists relating to the environmental sustainability of Urban Oyster.

Due to the nature of Urban Oyster creating a food product from a waste product, the environmental aspect of the organisation is key. Although only five people have trialed the ‘grow at home’ kits to date, all five reported that they successfully grew mushrooms showing that, importantly, the kit works.

This toolkit has set up a method for calculating the production of mushrooms through the 'grow at home' kits as well as the planned mushroom farm. Reporting on the amount of food produced will help Urban Oyster promote its sustainability impact to the Irish Food Board in search of support to take the business further.

Additionally, a method for calculating the amount of coffee removed from the waste stream has been incorporated into this toolkit for both avenues of the Urban Oyster brand. Enabling the quantification of coffee removed from the waste stream will provide evidence of a form of innovation that can help to reduce the 1 Mt of food waste which is generated annually in Ireland (Biointelligence service, 2010).

Further indicating the potential to reduce waste, a survey question was included to understand whether the customer is using the spent coffee and mycelium as a soil enhancer and in doing so, further utilizing its true value (Buah et al., 2010). 4 of these 5 trialists claimed they used the coffee waste as a soil enhancer, further diverting it from landfill. An additional survey question was created to understand whether coffee consumption increased as a result of using the kits. Consideration of this enables a more comprehensive understanding of the waste reduction potential of the 'grow at home' kits.

This toolkit also provides a means of demonstrating the reduction of food miles of imported Oyster mushrooms made possible by Urban Oyster with the only other vendor known to sell fresh oyster mushrooms importing them from 732km away.

As with the other organisations, additional survey questions were created in relation to understanding the broader environmental influence on the consumer or social media follower.

3.4.17 Urban Oyster – Economic Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Financial Viability	Productivity potential from waste	Revenue generated through sale of kits and from mushroom farm	For personal records and to show value to the local economy		Begin logging revenue from both sources once established
		Potential yield of mushrooms			700g/kit
		Calculate ratio of coffee waste to mushroom productivity to understand business potential	Consideration for plan of having an urban mushroom farm		3 to 1 (Coffee waste to Oyster mushrooms)
	Cost of substrate for growing mushrooms	Cost of substrate to kit customer (if coffee consumption didn't increase)	No increase in coffee consumption means cost of substrate is 0		0
		Consider future cost of coffee substrate	Consideration for plan of having an urban mushroom farm	Contact cafes to arrange potential deals to collect coffee waste for free (mutual benefit)	
	Acquiring materials for development of enterprise	Future cost of shipping containers	Consideration for plan of having an urban mushroom farm	Source out of use shipping containers that can be acquired free of charge	
	Cost of learning to grow mushrooms to the consumer	Cost of learning to grow mushrooms by purchasing a kit	The cost of a kit to the consumer		15 Euro minus the retail value of 700g of Oyster mushrooms (17.50 Euro)
	Transport related costs	Method of transportation of coffee waste and distribution of mushrooms	Consideration for plan of having an urban mushroom farm	Purchase cargo bikes to collect and distribute within the set radius	
A well thought out long term plan	Create a business plan for the mushroom farm	Use SWOT analysis and considerations here to aid the process		In progress	
Resourceful Marketing	Capitalising on free forms of marketing and promotion	Number of ICT outlets utilised		Scout for new ways of promoting the business through internet and social media	3
	Understanding consumer consumption	Perform market research on followers' coffee consumption at home / work and also their methods of disposal	Created as part of the survey	Achieve a sense of quantity of public consumption figures and disposal methods of coffee to understand product demand	Yes

Table 12 showing the selected sustainability indicators (Social, Environmental, Economic) as a result of qualitative research and a SWOT analysis with Urban Oyster.

3.4.18 Toolkit Creation and Initial Results of Economic Sustainability Indicators – Urban Oyster

As this is a fledgling organisation, the creation of a business plan is in progress. The completion of the SWOT analysis undertaken on Urban Oyster as part of this research will contribute to the formulation of a business plan.

Indicators relating to the economic cost of setting up the urban mushroom farm have been included to highlight the resourcefulness of doing so if successfully achieved. Furthermore a means of logging the revenue from both streams of Urban Oyster will enable the ability to present data that help show the financial viability of the business and as a way to show the potential benefit to the local economy. As consumption of mushrooms per capita is higher in Ireland than any other country in Western Europe (BordBia, 2015), this suggests that there is a place in the market for an urban mushroom farm in Dublin.

3.4.19 Hardwicke Street Garden Club – Social Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Community Engagement	A sense of ownership / involvement	Percentage of residents that have visited the gardens	Survey question	Increase the survey respondents next year and achieve 100%	95% (20 respondents)
		Percentage of residents with an increased sense of pride in the community	Survey question		95% (20 respondents)
	Community belief in sustainability benefits of food sharing	Percentage of residents who believe food sharing has sustainability benefits	Both can be used to strengthen funding applications (Survey questions)		Environmental 87.5% Social 94.1% Economic 57.1% (20 respondents)
		Percentage of volunteers who believe food sharing has sustainability benefits			Environmental 78.6% Social 100% Economic 100% (16 respondents)
	Inspiring people to grow their own produce	Percentage of residents who have gone on to grow their own food as a direct result of visiting the garden	Survey question		75% (20 respondents)
	Teaching residents how to grow food	Percentage of residents that have learned growing techniques	Survey question	Include a growing techniques workshop in the social events	75% very much so 25% somewhat 0% none (20 respondents)
	Contact and collaboration with other urban agriculture initiatives (sharing knowledge and bartering / donating)	Number of urban agriculture initiatives collaborated with this year	Visiting each other's premises and sharing ideas and sometimes materials		12

Hardwicke Street Garden Club – Social Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Social Inclusion	Inclusion of external and internal volunteers	Number of each type of volunteer in a year		Include more external volunteer requests	Resident volunteers: 25 External volunteers: 5
	Inclusion of a team of key dedicated members	Frequency of committee meetings in last year	Regular outdoor informal meetings take place with one formal meeting with a fewer number of members	Maintain this newly implemented system	<ul style="list-style-type: none"> •Weekly informal meetings •Formal meetings once a month
		Number of dedicated members		Maintain the number of dedicated members at present	12
	Providing potential mental health benefits	Percentage of residents who believe the gardens can have mental health benefits	Survey question		88.9% very much so 11.1% somewhat 0% not really 0% not at all
	Potential to decrease isolation within the community	Percentage of residents who believe having the gardens can decrease isolation	Survey question		94.7% very much so 5.3% somewhat 0% not really 0% not at all
	Creating social events to benefit the community	Number of social events in the last year		Increase number of social events and build more educational activities into them	6
Diet	Teaching residents recipes and how to cook with the vegetables / herbs being grown	Percentage of residents who have been taught new recipes or given cooking tips	Survey question	Incorporate cooking classes into the social events	10% several 35% one or two 55% none (20 respondents)
	Introducing people to new types of food which can be grown locally	Percentage of residents introduced to new foods as a result of the garden club	Survey question	Create labels beside different crops explaining what is growing and include recipes or nutritional information	30% several 40% one or two 30% none (20 respondents)
	Healthier eating	Percentage of residents who believe diet can be improved as a result of having the garden in the community	Survey question		47.4% very much so 47.4% somewhat 5.3% not really (20 respondents)

Hardwicke Street Garden Club – Social Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Volunteer Satisfaction and Influence	Healthier eating	Percentage of volunteers whose diet improved as a result of their experience	Survey question		69.2% (16 respondents)
	Providing an opportunity to learn valuable skills	Percentage of volunteers who learnt valuable skills	Survey question	Create a checklist of tasks to ensure all volunteers are learning as many skills as possible	78.6% very much so 21.4% somewhat (16 respondents)
	Providing an opportunity for personal growth	Percentage of volunteers who achieved a sense of personal growth	Survey question		71.4% very much so 28.6% somewhat
	Providing a sense of satisfaction for the volunteer in their contribution	Percentage of volunteers who felt 'very satisfied' by their experience volunteering	Survey question		85.7% (16 respondents)
	Sharing the knowledge and skills learnt with others	Percentage of volunteers who shared the skills learnt with others	Survey question		92.90% (16 respondents)
		Percentage of volunteers who advocated growing food to others			84.60% (16 respondents)
Community Satisfaction and Influence	Improving the physical appearance of the community	Percentage of residents who believe the garden improves the appearance of the community	Survey question		94.7% very much so 5.3% somewhat (20 respondents)
	Increasing interaction within the community	Percentage of residents who feel there is more interaction within the community due to the presence of the garden	Survey question		78.9% very much so 21.1% somewhat 0% not really
		Percentage of people who think that the social events bring people together who might not otherwise communicate			75% very much so 20% somewhat 5% not really
	Benefitting the children growing up in the area	Percentage of respondents who think the gardens are beneficial to the children growing up in the community	Survey question	Include children's opinions in next survey	90% very much so 10% Somewhat
	Increased sense of community	Percentage of residents who feel the social events increase the sense of community	Survey question		94.4% very much so 5.6 somewhat
		Percentage of residents who feel the garden increases the sense of community	Survey question		94.4% very much so 5.6% somewhat
	Potential to reduce crime rates within the community	Percentage of residents who believe the gardens have the potential to reduce crime rates within the community	Survey question		63.2% very much so 31.6% somewhat 5.3% not really

3.4.20 Toolkit Creation and Initial Results of Social Sustainability Indicators – Hardwicke Street Garden Club

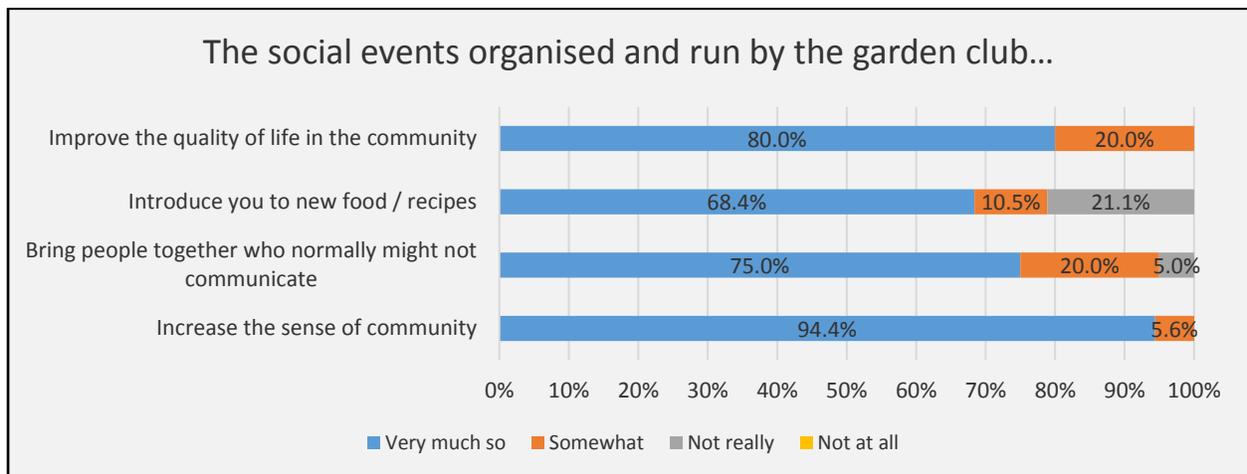
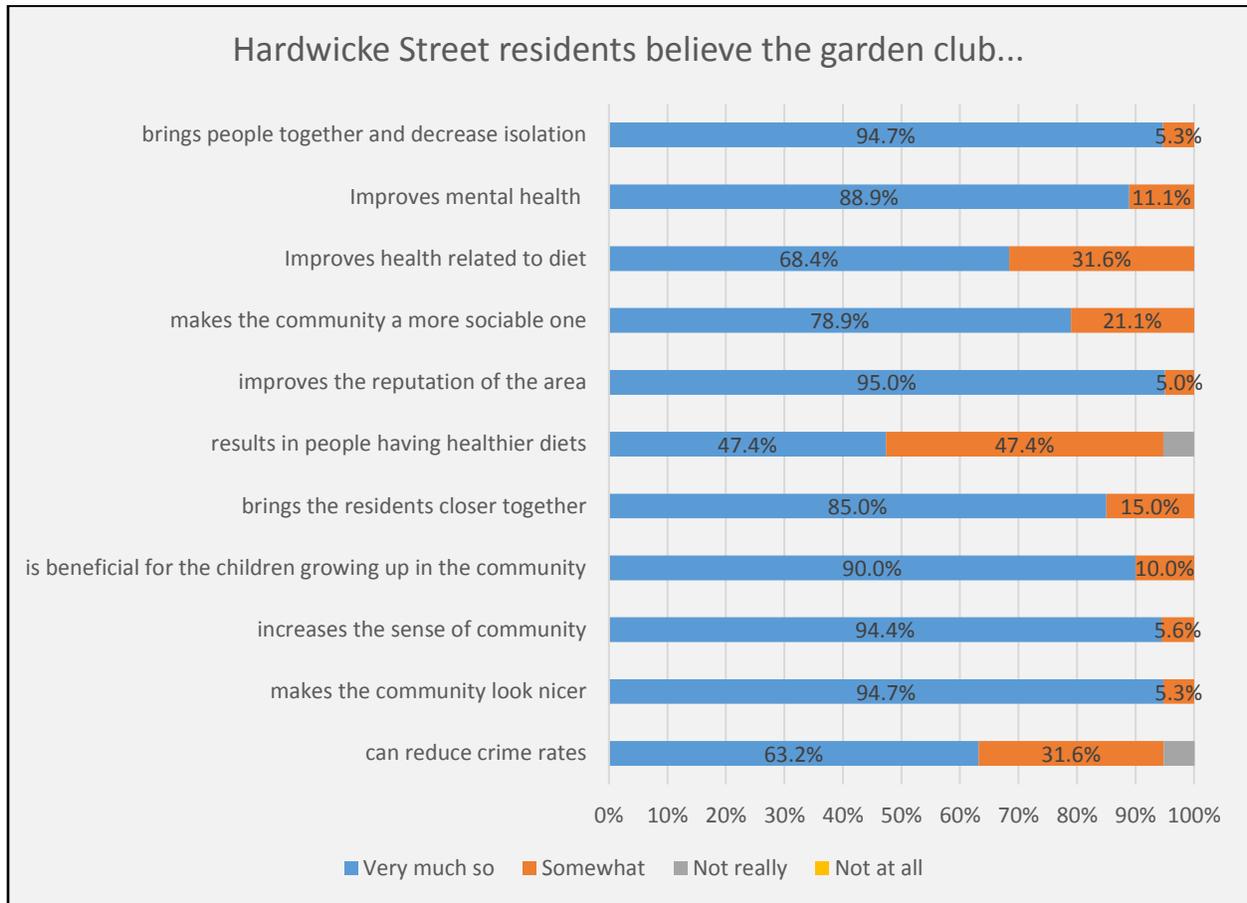


Figure 30 showing the responses from 20 Hardwicke Street residents relating to social sustainability aspect of Hardwicke Street Garden Club.

Volunteer Satisfaction	Answer options	Response
Did you consider the experience interesting?	Very interesting Quite interesting Not interesting	85.7% 14.3% 0%
Did the experience provide you with opportunities to increase your skills?	Very much so Somewhat Not at all	78.6% 21.4% 0%
Did the experience provide you with an opportunity for personal growth?	Very much so Somewhat Not at all	71.4% 28.6% 0%
How satisfied were you with the tasks you were doing?	Very satisfied Indifferent Unsatisfied	81.7% 14.3% 0%
Was volunteering at Hardwicke Street a rewarding experience?	Very much so Somewhat Not at all	100% 0% 0%
Did you feel valued by the coordinators?	Very much so Somewhat Not at all	100% 0% 0%

Table 14 showing the responses relating to a volunteer satisfaction survey of 16 volunteers at Hardwicke Street Garden Club.

The list of social sustainability indicators for Hardwicke Street Garden Club is substantial due to the main motivations and objectives of the club being to improve the quality of life for a community located in a deprived part of Dublin City. Quantifying factors such as sense of community and social connectivity is lacking in a universal framework (Hearn et al., 2014) and was a major challenge in this study. Ultimately, a survey encompassing the consideration of a multitude of social sustainability indicators for the residents of HSGB was seen as the best way to assess the social benefits to the community. Of the twenty residents who took part in the survey, opinion of the benefits of having the garden club in their community is very positive as can be seen in figure 30 and table 14. This positive effect on aspects of social sustainability at Hardwicke Street fits in well with research by Glover et al., (2005) who states that as well as the primary benefit of producing food, community gardens can contribute to a sense of pride and social inclusion through the process of sharing food, resources and space. A volunteer satisfaction survey included as part of this toolkit addresses the intrinsic and vocational benefits which can be attained through volunteering (Galindo-Kuhn and Guzley, 2001).

3.4.21 Hardwicke Street Garden Club – Environmental Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Organic Food	Producing organic food in an urban environment	Percentage of food grown that is organic			100%
		Percentage of volunteers who have been influenced to buy more organic food	Survey question		100% (16 respondents)
Biodiversity	Increasing the biodiversity of the area	Number of different types of food currently being grown at Hardwicke Street	Introduces necessary insects to control species domination		42
Reducing Waste / Energy Efficiency	Minimising loss of crops	Create a log of food going uneaten to monitor waste		<ul style="list-style-type: none"> •Reduce wasted food •Increase education about what is edible i.e. carrot leaves, celery leaves etc. 	
	Improve resourcefulness	Percentage of water used from harvested rainwater		Research the most efficient way to implement a rainwater harvesting system	6 water barrels at the moment.
	Composting organic material	Compost organic waste to contribute to food grown at Hardwicke Street	Measure compost created by knowing quantity of receptacle and logging number of times filled	<ul style="list-style-type: none"> •Create a community composting scheme for residents to contribute to •Arrange for an expert to give a demonstration 	Begin researching about the science of composting
	Reducing food waste	Percentage of volunteers who began wasting less food as a result of volunteering at Hardwicke Street	Survey question		92.3% (16 respondents)
Environmental Awareness	Increasing environmental awareness in the area	Percentage of residents who believe the garden increases their environmental awareness	Survey question		80% very much so 20% somewhat 0% not really
	People experiencing tasting something they have grown increasing food empathy (farm to fork)	Percentage of residents who have tasted / cooked the food grown in the garden		Begin to deliver samples to resident's doors to entice a greater interest in the garden	10% several 60% one or two 30% never (20 respondents)

Hardwicke Street Garden Club – Environmental Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Origin of Food	Production of local produce	Quantity (weight) of harvested food this year	Weigh food once harvested and log weights of individual food types and the calculate cumulative production each year	Begin weighing produce as of October	
	Encouraging people to source more local produce	Percentage of volunteers who sourced more local produce as a result of their experience	Through practical education on the benefits of local produce (Survey question)		61.5% (16 respondents)
	Demonstrating the possibilities of urban agriculture	Percentage of volunteers who learnt more about what food can be grown locally	Through practical education on the benefits of local produce (Survey question)		92.9% (16 respondents)
		Number of varieties of food which have been grown this year		<ul style="list-style-type: none"> •Keep a cumulative log of different food grown ensuring that each year new types of food are harvested •Keep promoting biodiversity to rotate the invasive insects and control species domination •Keep a journal to document issues or tips for growing individual plants 	63
Seasonality	Increasing awareness of seasonal produce	Percentage of residents who source more seasonal produce as a result of having the gardens	Survey question		Include next year
Meat	Reducing consumption of meat	Percentage of volunteers who reduced their intake of meat as a result of their experience	Inspiring the consumption of alternative sources of protein (Survey question)		30.8%

3.4.22 Toolkit Creation and Initial Results of Environmental Sustainability Indicators – Hardwicke Street Garden Club

There is currently a wide variety of food being grown at HSGC, illustrating the diversity of what can be grown in cities. As a target set out through the creation of this toolkit, Hardwicke Street will begin to log the variety of vegetables grown and strive to increase the range of food currently being grown in the garden.

As a result of the creation of this toolkit, HSGC will begin to log the individual (type of food) and cumulative quantity of the food harvested in order to be able to present positive data relating to the amount of locally grown, organic food that is being cultivated within a small area of the city.

Another target set out through the formulation of this toolkit is to implement a community composting system among the residents. Set up in a receptacle with a defined capacity, the quantity of compost will be logged in order to present data relating to the quantity of organic waste being diverted from landfill. In doing so, emissions of methane from biodegradable municipal waste entering landfills can be avoided (Behera et al., 2010) and HSGC can exemplify a way of ensuring that Ireland meets its target under the landfill directive of minimizing biodegradable waste from landfills (EPA, 2015).

3.4.23 Hardwicke Street Garden Club – Economic Sustainability Indicators

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Mobility / Adaptability	Protection of gardens from vandalism, fouling etc.	Measures put in place to better protect the gardens		Ensure the newest area of development of the gardens is well protected by fencing	Raised beds to keep food above knee level installed
Financial Viability (Functioning as non-profit organisation)	Seeking financial support	Number of grants or funding received this year			5 (Averaging at 200 Euro each)
		Number of applications made for financial support this year		Find more time to source available grants and create well planned applications	8
		Percentage of volunteers who feel that the garden should be supported financially by governing authorities	Can be used to support funding applications		92.9% (16 respondents)
		Percentage of residents who feel it is 'very important' that ifood sharing organisations are supported financially			75% (20 respondents)
	Upcycling / receiving donations for materials used in the gardens	Strived to acquire bartered / upcycled / donated materials in the last year?		Make better use of social media to advertise the need for materials which may be surplus to requirement for other enterprises (i.e. soil)	Good local contacts at present
	Increase horticulture and management skills of key facilitators	Number of seminars / workshops visited in the last year		Free up more time to facilitate dedicated members to visit talks / workshops / seminars to increase their knowledge and capabilities	5
	A long term plan for the organisation	Creation of a long term plan for the organisation		Create a plan as part of a committee meeting and set out goals and timescales	Currently there is no written plan
Creating a strong core of dedicated key facilitators (safeguarding for departures)	Number of dedicated key facilitators currently involved		Incorporate more young dedicated members who show an interest	12	

Hardwicke Street Garden Club – Economic Sustainability Indicators (Continued)

Category / Focus	Sustainability Indicators	Means to Measure	Comments	Target	Quantity
Increasing Awareness	Showcasing the benefits of the Garden to decision makers and planning authorities	Number of meetings with local county council in the last year		Achieve more site visits from local councilors and introduce new councilors to the garden	6
	Showcasing the benefits of the garden to as many people as possible	Number of ICT (Information communication technologies) outlets		Source new types of social media to maximise awareness of the benefits of Hardwicke Street Garden Club	3
		Number of Facebook followers			532
		Number of Twitter followers			176
	Increasing awareness beyond immediate community	Number of events / talks / workshops explaining what is being done at Hardwicke Street			8
Local Economy	Economic value of food produced	Calculate the market value of the organic food produced at the end of each year	Can use new logging system of food production implemented		
	Teaching ways of saving money by growing one's own food	Percentage of residents who believe the garden teaches ways to save money			73.7% very much so 21.1% somewhat 5.3% not really (20 respondents)
	'Greening' space which would otherwise be unused	Area of space (otherwise unutilised) being used to grow at Hardwicke Street	Contribute in reducing 'urban heat island'	Consider requesting rooftop space as there is not much more ground space to conquer.	76 metres squared

Table 15 showing the selected sustainability indicators (Social, Environmental, Economic) as a result of qualitative research and a SWOT analysis with Hardwicke Street Garden Club.

3.4.24 Toolkit Creation and Initial Results of Economic Sustainability Indicators – Hardwicke Street Garden Club

The data gathered in relation to economic sustainability show that as a non-profit organisation, Hardwicke Street is capitalizing on ICT platforms to both source collaborators or donors of materials as well as to spread awareness of the project to a wider audience. As a result of implementing the weighing of the quantity of food produced, HSGC will be able to attach an economic market value to food produced to further illustrate the potential of urban agriculture to contribute to increased sustainability within cities.

A target set the creation of this toolkit is to safeguard the current solidity of the organisation by incorporating younger members of the community who show an interest in the gardens in to the team of key members. In doing so, HSGC can avoid an abrupt collapse of the organisation in light of the departure of key members, an occurrence Seyfang and Smith (2007) describe as a common problem for grassroots organisations.

3.4.25 Feedback on the Toolkits Created

Once the toolkits designed for each organisation had been created and tested to ensure that the gathering of all the data relating to the sustainability indicators created was achievable, each organisation was asked to provide feedback on the varying aspects shown in table 16.

3.4.25 Feedback on the Toolkits Created

Organisation	What They Gained From the Process	Will They Use the Toolkit Themselves	What Will They Use it For	How Often Will They Report on Data
Urban Farm	<ul style="list-style-type: none"> - A useful form of self-appraisal of the organisation - Invigorated passion for the organisation through highlighting sustainability credentials 	Yes	<ul style="list-style-type: none"> - Logging progress in selected areas. - Identifying strategies to improve the organisation. - To file and organize data in a clear and easily retrievable way. 	<ul style="list-style-type: none"> - Continuous logging of data. - Surveys and collating and reporting of data once a year
Social Hops	<ul style="list-style-type: none"> - A useful form of self-appraisal. - Helping to highlight the full suite of sustainability benefits of Social Hops. - Gleaning valuable feedback from Social Hops members. 	Yes	<ul style="list-style-type: none"> - Potentially to support applications for funding depending on the consumer response to the product. - Continuation of attaining member feedback. 	Annually after each harvest.
Urban Oyster	<ul style="list-style-type: none"> - Beneficial in terms of formulating a business plan to support applications for funding. - Creation of market research to help understand consumer habits. 	Yes	<ul style="list-style-type: none"> - To report on the impacts of Urban Oyster. - To aid applications for funding. - To monitor progress. 	<ul style="list-style-type: none"> - Continuous logging of data. - Surveys and collating and reporting of data once a year
Hardwicke Street Garden Club	<ul style="list-style-type: none"> - Helped to achieve a sense of accomplishment in light of the results. 	Yes	<ul style="list-style-type: none"> - To ensure that progress being made feeds back to the overall aims of the organisation. - To support applications for funding. - To share data on social media showing the benefits of their activities. 	<ul style="list-style-type: none"> - Continuous logging of data. - Surveys and collating and reporting of data once a year

Table 16 showing feedback given by the four case ifood sharing organisations in relation to the toolkits created for each respective organisation.

4. Conclusion

With the increased demand for food due to a growing global population and a projected increase in unsustainable eating practices resulting from increased wealth and urbanization as well as a serious imbalance in the distribution of food globally and the stresses placed on the world's finite resources, a better understanding of the environmental and socio-economic costs of our actions coupled with the identification of forward thinking strategies to produce food more efficiently is required to be able to achieve a more sustainable global food system (FAO, 2009, Reisch et al., 2013, Garnett, 2011, Goggins and Rau, 2016).

A multitude of factors relevant to assessing the sustainability of the global food system make a comprehensive understanding of food sustainability a complex task. Consideration of different impact hotspots of different foods as well as the consideration of environmental, social and economic is required to comprehensively assess food sustainability (Goggins and Rau, 2016).

The presence of sharing in modern society has recently begun to re-emerge due to an increased value in collaborative consumption and in 'doing over owning' (Pine and Gilmore, 2007). The form of sharing relevant to this research is what Botsman and Rodgers (2010) call 'collaborative lifestyles' whereby people with similar needs or interests converge to share their time, space or skills.

Many grassroots organisations are providing environmental, social and economically sustainable solutions to local level needs (Simms and Potts, 2012) through varying forms of collaborative consumption which are increasingly being recognized as an opportunity to address the unsustainable practices within the three pillars of sustainability and contribute to resolving global issues of climate change and poverty (Davies and Legg, 2016).

The sharing of food within cities by organisations that utilise ICT to stretch their activities beyond familial boundaries are defined in this paper as ifood sharing organisations. Through the sharing of food, knowledge and skills relating to food, spaces, and tools or appliances related to food, the ifood sharing organisations offer the potential to reduce the consumption of resources, build a

better sense of community within cities, and benefit the local economy through the production of locally grown food (Agyeman et al., 2013).

Using the SHARECITY100 database, this paper first aimed to map the geo-spatial landscape of ifood sharing in Dublin using GIS. The majority of ifood sharing organisations were found to be located within Dublin city centre. Within the city itself a cluster of activity was identified within a 5km radius. Incorporating socio economic data from the Irish CSO (2011) enabled the locations of ifood sharing organisations to be considered in the context of differing socio-economic conditions in different parts of Dublin city. Although only suggestive due to the modest number of organisations in Dublin, the data gathered showed that the ideal ingredients for the emergence of ifood sharing organisations in Dublin are areas which are marginally above average in terms of socio-economic deprivation. In this study, the most likely areas for ifood sharing to occur were shown to be in areas where needs are prevalent enough to inspire collective action but not so much so that limited financial means, lower education levels and technological savviness inhibit the capability for innovation. Future research will need to be tested in other cities ideally where ifood sharing is more prevalent in order to validate the findings presented here. A comparison of the characteristics of ifood sharing in Dublin as a whole was made with the 14 leading ifood sharing cities in the world as studied by Davies and Legg, (2016). It was discovered that relative to the average of the 14 leading cities, the sharing of knowledge and skills was more prevalent in Dublin whereas the dominant form of sharing in the 14 leading cities was of food products. Dublin also differed in relation to how food was being shared, with a greater percentage of organisations 'gifting' food as opposed to a prevalence of 'selling' food on average across the leading 14 cities. Through the plotting of organisations' locations, consideration of socio-economic data, and comparison with a recent related larger scale study, this research progressed through different avenues in order to illustrate the geo-spatial landscape of ifood sharing in Dublin.

The second aim of this research was to perform a closer examination of ifood sharing in Dublin through exploratory research into the dynamics of four distinct ifood sharing organisations. Through qualitative research methods, a wide variety of claimed social, environmental and economic sustainability benefits resulting from the activities of the 4 organisations were

explained. The spectrum of potential sustainability benefits across the 4 case organisations ranged from social benefits such as community engagement, improving diet, education and social inclusion to environmental benefits such as promoting organic food, seasonality, reduced food miles, increasing environmental awareness, reducing waste, and energy efficiency to economic benefits such as benefitting the local economy, resourceful marketing and financial viability.

The four organisations were also examined as to the dynamic of food sharing within each organisation to enable a true understanding of the potential reach of the sustainability benefits they offer. Several examples of ways of sharing food were encountered from the 'gifting' of food and knowledge and skills to residents of an inner city community garden, to 'bartering' community grown hops for a locally brewed beer, to 'selling' kits to grow oyster mushrooms in one's home.

In keeping with the findings from the mapping of ifood sharing in Dublin, all 4 case study organisations are sharing knowledge and skills about food through their activities, whether this be online as in the case of Urban Farm, face to face as in the case of Hardwicke Street Garden Club or through both of these mediums as with Social Hops. As well as knowledge and skills, examples of sharing food itself, seeds, tools and land were all explained in this research, facilitating an exploration into the diverse dynamic of ifood sharing within these organisations and hence, answering the second research question of this study.

In addition to the four case studies in this research, qualitative data from additional food related sources were consolidated to enable an answer to the third research question of this research which aimed to address the key factors for understanding how ifood sharing can increase its presence and potential capability in Dublin. The role of ICT was discussed in providing an innovative and accessible tool both to facilitate the sharing of food and to create a sense of community across wider scales within Dublin. Support services for ifood sharing organisations were considered, with a consensus among the organisations themselves that their activities are undervalued at government and council level relative to the sustainability benefits they claim to provide. In consideration of how regulation can impact on the potential for ifood sharing to increase its presence and impact in Dublin, a spokesperson from the Irish EPA explained that food

regulations are both strict and unavoidable. In this sense, remaining informal, as exemplified by Urban Farm and Social Hops was recommended as the best strategy for ifood sharing organisations to avoid regulatory stumbling blocks.

A unanimous agreement of the importance of incorporating ifood sharing in to education was highlighted through this qualitative research as a way for ifood sharing maximize its potential, with a belief that education around food sustainability can incorporate it into our broader culture. Additionally, importance was placed on being able to measure the impact of ifood sharing as a way to ensure it is given adequate consideration at the decision making level. A final consideration was given to the significance of the key individuals within these ifood organisations in relation to both the momentum and survival of these organisations.

Building on the data gathered through this qualitative research, a SWOT analysis was undertaken proved a useful exercise for these organisations as none had ever previously reported any kind of data to highlight their performance. Through the generation of social, environmental and economic indicators, a toolkit was created for each organisation to facilitate the collection of data that could be performed by the organisations themselves without requiring an unrealistic financial or technological capacity. In Doing so the fourth research question of this study could be answered.

The toolkits presented in this paper offer a wide range of indicators that address the multiple sustainability benefits highlighted through qualitative data collection and the SWOT analyses undertaken with each organisation. The toolkits provide a suite of indicators that can be selected by the organisations themselves in relation to what it is they are aiming to highlight in each particular circumstance. Where data could not be collected due to the time strain of this study, systems have been put in place to enable these organisations to begin logging information relating to the sustainability of their activities as they go.

In the majority of cases the toolkit was tested to highlight its functionality and to act as a trial run for the organisations themselves. Feedback was given by each organisation after the three processes required to create the toolkits were completed. All four organisations explained that they would use the toolkits going forward. The process of creating the toolkits provided a number

of benefits to the organisations and a variation of future uses for the toolkits were given by organisations.

As can be seen through the diverse suite of social, environmental and economic potential benefits relating to different aspects of food that have been highlighted in this paper, ifood sharing organisations exemplify an alternative to the unsustainable food practices which prevail in an increasingly globalized world.

In response to needs at the local level, individual grassroots organisations may seem insignificant at city-scale or above, but cumulatively and importantly if wider policies facilitate larger numbers of them, grassroots organisations can have a proportionate impact (Church and Elster, 2002). Ifood sharing organisations should not be seen as business incubators, as doing so with grassroots organisations strips them of their important and diverse features (Seyfang and Smith, 2007). Ifood sharing as a whole presents a niche which can act as a blueprint for more sustainable food related practices within cities. Although incorporating any niche into the global scale regime is not an easy task, historically, regime change does occur especially where changes and pressures at higher levels open a window of opportunity for these niches to diffuse (Seyfang and Smith, 2007). With the increasing attention being given to the impacts of climate change and with the food industry accounting for around 30% of global emissions (WEF, 2010), as well as increasing urbanization (Garnett, 2011), the optimistic goals set out at the 2015 COP21 in Paris may provide the opportunity for ifood sharing to be given greater consideration. Additional research might aim to perform a policy analysis of the institutions which are supporting ifood sharing organisations in order to better understand ways in which ifood sharing can be incorporated into policy.

As pointed out by Davies and Mullins (2011), as opposed to greening the outputs of the mainstream economy, grassroots organisations exemplify existing developments that seek positive economic and environmental gain but also incorporate attention to social consideration.

Through the research conducted in this paper, ifood sharing has been shown to provide an excellent example of this triple bottom line and if ifood sharing organisations can be facilitated to quantify and present the benefits of their activities in relation to food sustainability issues,

increased consideration can be given at the decision making level as to the potential of ifood sharing to contribute to a more sustainable global food system.

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6. Appendices

Appendix 1

Surveys Contributing to Qualitative and Quantitative Data Gathered

(Due to being limited to ten questions per survey due to purchasing the cheapest monthly subscription, questions that were meant to be separate had to be coupled together. During analysis of the results the responses were reorganized back into appropriate groups.)

Generic Introduction to Each Survey:

Purpose of Study: *Assessing the sustainability potential of urban food sharing enterprises.*

Hello everyone!

My name is Ben Murphy and I am an Environmental Science Masters Student at Trinity College. I am conducting research on the potential for urban food sharing enterprises to contribute to a more sustainable food system. There is growing interest in the benefits of urban enterprises that are sharing either food itself, knowledge and skills about food, tools for growing food and space for cooking or eating food within urban environments.

Through information communications technology, food sharing is becoming easier and is able to stretch across wider boundaries than ever before. By assessing the environmental, social and economic benefits of food sharing it is hoped that encouraging support and promotion of urban food sharing enterprises can facilitate growth, contributing towards a more sustainable food system.

I would be very grateful if you could spare a few moments to answer the short questions in this survey. Your feedback will be invaluable to this research.

Thanks a lot for your help!

Ben Murphy

Dublin Food Sharing Organisations Survey

1. What were your motivations for setting up an urban food sharing enterprise?

	Not important	Somewhat important	Very important	Main motivation (1)
An interest in the environment	<input type="checkbox"/> An interest in the environment Not important	<input type="checkbox"/> An interest in the environment Somewhat important	<input type="checkbox"/> An interest in the environment Very important	<input type="checkbox"/> An interest in the environment Main motivation (1)
A desire to learn new skills	<input type="checkbox"/> A desire to learn new skills Not important	<input type="checkbox"/> A desire to learn new skills Somewhat important	<input type="checkbox"/> A desire to learn new skills Very important	<input type="checkbox"/> A desire to learn new skills Main motivation (1)
A desire to meet like minded people	<input type="checkbox"/> A desire to meet like minded people Not important	<input type="checkbox"/> A desire to meet like minded people Somewhat important	<input type="checkbox"/> A desire to meet like minded people Very important	<input type="checkbox"/> A desire to meet like minded people Main motivation (1)
A desire to contribute to the local community	<input type="checkbox"/> A desire to contribute to the local community Not important	<input type="checkbox"/> A desire to contribute to the local community Somewhat important	<input type="checkbox"/> A desire to contribute to the local community Very important	<input type="checkbox"/> A desire to contribute to the local community Main motivation (1)
A desire to learn or improve knowledge of how to grow food	<input type="checkbox"/> A desire to learn or improve knowledge of how to grow food Not important	<input type="checkbox"/> A desire to learn or improve knowledge of how to grow food Somewhat important	<input type="checkbox"/> A desire to learn or improve knowledge of how to grow food Very important	<input type="checkbox"/> A desire to learn or improve knowledge of how to grow food Main motivation (1)
To be part of an innovative sustainable food project	<input type="checkbox"/> To be part of an innovative sustainable food project Not important	<input type="checkbox"/> To be part of an innovative sustainable food project Somewhat important	<input type="checkbox"/> To be part of an innovative sustainable food project Very important	<input type="checkbox"/> To be part of an innovative sustainable food project Main motivation (1)
An interest in urban agriculture	<input type="checkbox"/> An interest in urban agriculture Not important	<input type="checkbox"/> An interest in urban agriculture Somewhat important	<input type="checkbox"/> An interest in urban agriculture Very important	<input type="checkbox"/> An interest in urban agriculture Main motivation (1)
A desire to help people in need	<input type="checkbox"/> A desire to help people in need Not important	<input type="checkbox"/> A desire to help people in need Somewhat important	<input type="checkbox"/> A desire to help people in need Very important	<input type="checkbox"/> A desire to help people in need Main motivation (1)
A desire to see Dublin become a more resilient city in terms of food security	<input type="checkbox"/> A desire to see Dublin become a more resilient city in terms of food security Not important	<input type="checkbox"/> A desire to see Dublin become a more resilient city in terms of food security Somewhat important	<input type="checkbox"/> A desire to see Dublin become a more resilient city in terms of food security Very important	<input type="checkbox"/> A desire to see Dublin become a more resilient city in terms of food security Main motivation (1)
In order to make a living	<input type="checkbox"/> In order to make a living Not important	<input type="checkbox"/> In order to make a living Somewhat important	<input type="checkbox"/> In order to make a living Very important	<input type="checkbox"/> In order to make a living Main motivation (1)
A desire to increase food empathy and move away from	<input type="checkbox"/> A desire to increase food empathy and move away from	<input type="checkbox"/> A desire to increase food empathy and move away from capitalist hyper	<input type="checkbox"/> A desire to increase food empathy and move away from	<input type="checkbox"/> A desire to increase food empathy and move away from capitalist

	Not important	Somewhat important	Very important	Main motivation (1)
capitalist hyper consumption	capitalist hyper consumption Not important	consumption Somewhat important	capitalist hyper consumption Very important	hyper consumption Main motivation (1)

Others (please specify)

2. Do you think urban food sharing activities should be supported by governing bodies in order to create a more sustainable food system in Dublin?

- Definitely
- Yes
- No

Comments

3. Do you think sufficient support is provided to urban food sharing enterprises relative to the environmental, social and economic potential benefits they offer?

- Yes, they are well valued and supported
- They receive enough support
- They do not receive enough support
- They are highly undervalued and not supported enough

Comments

4. Have rules and regulations at government and council level proved to be serious obstacles in relation to the aims and objectives of your project?

- Frequently
- Yes but not significantly
- Not really
- Not at all

Comments

5. In what ways do you think enterprises which **share** food itself, knowledge about growing or preparing food, or tools

and spaces to create and consume food are beneficial in urban areas?

	Very much so		Somewhat		Not at all	
Environmentally	<input type="checkbox"/>	Environmentally Very much so	<input type="checkbox"/>	Environmentally Somewhat	<input type="checkbox"/>	Environmentally Not at all
Socially	<input type="checkbox"/>	Socially Very much so	<input type="checkbox"/>	Socially Somewhat	<input type="checkbox"/>	Socially Not at all
Economically	<input type="checkbox"/>	Economically Very much so	<input type="checkbox"/>	Economically Somewhat	<input type="checkbox"/>	Economically Not at all

Other (please specify)

6. How do you think Urban food sharing enterprises can benefit the environment?

7. How do you think urban food sharing enterprises can benefit society?

8. How do you think urban food sharing enterprises can benefit the local economy?

Options **Move** **Copy** **Delete**

9. What needs to happen so that the full potential of urban food sharing organisations to contribute to a more sustainable food system can be realised?

Social Hops Members Survey

1. What were your motivations for getting involved with Social Hops? Which of these options (if any) were among your motivations for getting involved with Social Hops

- The Environment
- Social inclusion
- Economic motivation

Motivations:

2. How many people outside of Social Hops have shown an interest in growing their own hops as a result of being told about Social Hops or being shown your plants by yourself? (Friends, family, Social media followers etc..)

3. How well can a project like Social Hops contribute to a more sustainable food system?

4. In what ways can a project like Social Hops contribute to more sustainable food system? (Environmentally, Economically, Socially etc..)

5. What appeals to you about bartering your home grown hops directly for beer?

6. What satisfaction do you get from seeing a seed through 'from farm to fork'?

7. In what ways do you think enterprises which **share** food itself, knowledge about growing or preparing food, or tools and spaces to create and consume food are beneficial in urban areas?

	Very much so	Somewhat	Not at all
Environmentally	<input type="checkbox"/> Environmentally Very much so	<input type="checkbox"/> Environmentally Somewhat	<input type="checkbox"/> Environmentally Not at all
Socially	<input type="checkbox"/> Socially Very much so	<input type="checkbox"/> Socially Somewhat	<input type="checkbox"/> Socially Not at all
Economically	<input type="checkbox"/> Economically Very much so	<input type="checkbox"/> Economically Somewhat	<input type="checkbox"/> Economically Not at all

Other (please specify)

8. In what ways (if any) could Social Hops be improved?

9. Being a member of Social Hops:

	Very much so	Somewhat	Not really	Not at all
Is Social Hops your first attempt at growing hops?	<input type="checkbox"/> Is Social Hops your first attempt at growing hops? Very much so	<input type="checkbox"/> Is Social Hops your first attempt at growing hops? Somewhat	<input type="checkbox"/> Is Social Hops your first attempt at growing hops? Not really	<input type="checkbox"/> Is Social Hops your first attempt at growing hops? Not at all
Have you learnt skills or tips about growing from other Social Hops members in the online forum?	<input type="checkbox"/> Have you learnt skills or tips about growing from other Social Hops members in the online forum? Very much so	<input type="checkbox"/> Have you learnt skills or tips about growing from other Social Hops members in the online forum? Somewhat	<input type="checkbox"/> Have you learnt skills or tips about growing from other Social Hops members in the online forum? Not really	<input type="checkbox"/> Have you learnt skills or tips about growing from other Social Hops members in the online forum? Not at all
Have you learnt skills or tips about growing from other Social Hops members at the Social Hops events?	<input type="checkbox"/> Have you learnt skills or tips about growing from other Social Hops members at the Social Hops events? Very much so	<input type="checkbox"/> Have you learnt skills or tips about growing from other Social Hops members at the Social Hops events? Somewhat	<input type="checkbox"/> Have you learnt skills or tips about growing from other Social Hops members at the Social Hops events? Not really	<input type="checkbox"/> Have you learnt skills or tips about growing from other Social Hops members at the Social Hops events? Not at all

	Very much so	Somewhat	Not really	Not at all
Have you enjoyed the social interaction at the Social Hops events / meet ups?	<input type="checkbox"/> Have you enjoyed the social interaction at the Social Hops events / meet ups? Very much so	<input type="checkbox"/> Have you enjoyed the social interaction at the Social Hops events / meet ups? Somewhat	<input type="checkbox"/> Have you enjoyed the social interaction at the Social Hops events / meet ups? Not really	<input type="checkbox"/> Have you enjoyed the social interaction at the Social Hops events / meet ups? Not at all
Would you say your environmental awareness has increased as a result of being part of Social Hops? (Realising importance of local food production, benefits of organic produce free from pesticides etc..)	<input type="checkbox"/> Would you say your environmental awareness has increased as a result of being part of Social Hops? (Realising importance of local food production, benefits of organic produce free from pesticides etc..) Very much so	<input type="checkbox"/> Would you say your environmental awareness has increased as a result of being part of Social Hops? (Realising importance of local food production, benefits of organic produce free from pesticides etc..) Somewhat	<input type="checkbox"/> Would you say your environmental awareness has increased as a result of being part of Social Hops? (Realising importance of local food production, benefits of organic produce free from pesticides etc..) Not really	<input type="checkbox"/> Would you say your environmental awareness has increased as a result of being part of Social Hops? (Realising importance of local food production, benefits of organic produce free from pesticides etc..) Not at all
Have you shared / received knowledge about other food related products through interaction in Social Hops? (Growing, cooking, brewing etc..)	<input type="checkbox"/> Have you shared / received knowledge about other food related products through interaction in Social Hops? (Growing, cooking, brewing etc..) Very much so	<input type="checkbox"/> Have you shared / received knowledge about other food related products through interaction in Social Hops? (Growing, cooking, brewing etc..) Somewhat	<input type="checkbox"/> Have you shared / received knowledge about other food related products through interaction in Social Hops? (Growing, cooking, brewing etc..) Not really	<input type="checkbox"/> Have you shared / received knowledge about other food related products through interaction in Social Hops? (Growing, cooking, brewing etc..) Not at all
Has Social Hops inspired you to grow more of your own produce?	<input type="checkbox"/> Has Social Hops inspired you to grow more of your own produce? Very much so	<input type="checkbox"/> Has Social Hops inspired you to grow more of your own produce? Somewhat	<input type="checkbox"/> Has Social Hops inspired you to grow more of your own produce? Not really	<input type="checkbox"/> Has Social Hops inspired you to grow more of your own produce? Not at all
Has Social Hops increased your sense of 'food empathy'? (appreciation of the intrinsic value of food / drink itself through growing and observing the life cycle of food itself)	<input type="checkbox"/> Has Social Hops increased your sense of 'food empathy'? (appreciation of the intrinsic value of food / drink itself through growing and observing the life cycle of food itself) Very much so	<input type="checkbox"/> Has Social Hops increased your sense of 'food empathy'? (appreciation of the intrinsic value of food / drink itself through growing and observing the life cycle of food itself) Somewhat	<input type="checkbox"/> Has Social Hops increased your sense of 'food empathy'? (appreciation of the intrinsic value of food / drink itself through growing and observing the life cycle of food itself) Not really	<input type="checkbox"/> Has Social Hops increased your sense of 'food empathy'? (appreciation of the intrinsic value of food / drink itself through growing and observing the life cycle of food itself) Not at all
Are you encouraged by the idea of collaborating with others to create a communal product?	<input type="checkbox"/> Are you encouraged by the idea of collaborating with others to create a communal product? Very much so	<input type="checkbox"/> Are you encouraged by the idea of collaborating with others to create a communal product? Somewhat	<input type="checkbox"/> Are you encouraged by the idea of collaborating with others to create a communal product? Not really	<input type="checkbox"/> Are you encouraged by the idea of collaborating with others to create a communal product? Not at all
Have you learnt any environmentally resourceful growing techniques through interaction with other Social Hops	<input type="checkbox"/> Have you learnt any environmentally resourceful growing techniques through interaction with other	<input type="checkbox"/> Have you learnt any environmentally resourceful growing techniques through interaction with other Social Hops members /	<input type="checkbox"/> Have you learnt any environmentally resourceful growing techniques through interaction with other	<input type="checkbox"/> Have you learnt any environmentally resourceful growing techniques through interaction with other

	Very much so	Somewhat	Not really	Not at all
members / administrators? i.e composting, water resourcefulness etc..	Social Hops members / administrators? i.e composting, water resourcefulness etc.. Very much so	administrators? i.e composting, water resourcefulness etc.. Somewhat	Social Hops members / administrators? i.e composting, water resourcefulness etc.. Not really	Social Hops members / administrators? i.e composting, water resourcefulness etc.. Not at all
Have you learnt any money saving tips in relation to growing through interaction among Social Hops members / administrators?	<input type="checkbox"/> Have you learnt any money saving tips in relation to growing through interaction among Social Hops members / administrators? Very much so	<input type="checkbox"/> Have you learnt any money saving tips in relation to growing through interaction among Social Hops members / administrators? Somewhat	<input type="checkbox"/> Have you learnt any money saving tips in relation to growing through interaction among Social Hops members / administrators? Not really	<input type="checkbox"/> Have you learnt any money saving tips in relation to growing through interaction among Social Hops members / administrators? Not at all
Has your diet improved at all as a result of being a Social Hops member? (From increased food empathy from growing or through interaction with other members etc..)	<input type="checkbox"/> Has your diet improved at all as a result of being a Social Hops member? (From increased food empathy from growing or through interaction with other members etc..) Very much so	<input type="checkbox"/> Has your diet improved at all as a result of being a Social Hops member? (From increased food empathy from growing or through interaction with other members etc..) Somewhat	<input type="checkbox"/> Has your diet improved at all as a result of being a Social Hops member? (From increased food empathy from growing or through interaction with other members etc..) Not really	<input type="checkbox"/> Has your diet improved at all as a result of being a Social Hops member? (From increased food empathy from growing or through interaction with other members etc..) Not at all
Do you think Social Hops has shown an innovative way to create a sense of community between people with similar interests?	<input type="checkbox"/> Do you think Social Hops has shown an innovative way to create a sense of community between people with similar interests? Very much so	<input type="checkbox"/> Do you think Social Hops has shown an innovative way to create a sense of community between people with similar interests? Somewhat	<input type="checkbox"/> Do you think Social Hops has shown an innovative way to create a sense of community between people with similar interests? Not really	<input type="checkbox"/> Do you think Social Hops has shown an innovative way to create a sense of community between people with similar interests? Not at all
Has Social Hops inspired you to consider brewing your own beer?	<input type="checkbox"/> Has Social Hops inspired you to consider brewing your own beer? Very much so	<input type="checkbox"/> Has Social Hops inspired you to consider brewing your own beer? Somewhat	<input type="checkbox"/> Has Social Hops inspired you to consider brewing your own beer? Not really	<input type="checkbox"/> Has Social Hops inspired you to consider brewing your own beer? Not at all
Does the end goal of a larger amount of hops production in the third year of the project help inspire you through a slow first year?	<input type="checkbox"/> Does the end goal of a larger amount of hops production in the third year of the project help inspire you through a slow first year? Very much so	<input type="checkbox"/> Does the end goal of a larger amount of hops production in the third year of the project help inspire you through a slow first year? Somewhat	<input type="checkbox"/> Does the end goal of a larger amount of hops production in the third year of the project help inspire you through a slow first year? Not really	<input type="checkbox"/> Does the end goal of a larger amount of hops production in the third year of the project help inspire you through a slow first year? Not at all
Are you more knowledgeable about seasonality of produce?	<input type="checkbox"/> Are you more knowledgeable about seasonality of produce? Very much so	<input type="checkbox"/> Are you more knowledgeable about seasonality of produce? Somewhat	<input type="checkbox"/> Are you more knowledgeable about seasonality of produce? Not really	<input type="checkbox"/> Are you more knowledgeable about seasonality of produce? Not at all

Comments

10. How important do you think it is that initiatives which share knowledge about sustainable urban food techniques should be backed and supported at council and government level?

- Very important
- Quite important
- Not important

Comments

Urban Oyster 'Grow at Home' Kit Trial Survey

1. What was your motivation for wanting to try the product?

2. Urban Oyster:

	Yes	No
Did you successfully grow oyster mushrooms?	<input type="checkbox"/> Did you successfully grow oyster mushrooms? Yes	<input type="checkbox"/> Did you successfully grow oyster mushrooms? No
Did your experience of growing mushrooms inspire you to grow more of your own food?	<input type="checkbox"/> Did your experience of growing mushrooms inspire you to grow more of your own food? Yes	<input type="checkbox"/> Did your experience of growing mushrooms inspire you to grow more of your own food? No
After harvesting the mushrooms, did you use the coffee waste as a soil enhancer as suggested?	<input type="checkbox"/> After harvesting the mushrooms, did you use the coffee waste as a soil enhancer as suggested? Yes	<input type="checkbox"/> After harvesting the mushrooms, did you use the coffee waste as a soil enhancer as suggested? No
Would you say you increased the amount of coffee you normally buy / consume in order to speed up the process of growing mushrooms?	<input type="checkbox"/> Would you say you increased the amount of coffee you normally buy / consume in order to speed up the process of growing mushrooms? Yes	<input type="checkbox"/> Would you say you increased the amount of coffee you normally buy / consume in order to speed up the process of growing mushrooms? No

Comments

3. Have you told friends or family about growing mushrooms as a result of a positive experience from the Urban Oyster kit? If so, how many people?

- Yes
- No

How many people?

4. Did you enjoy eating the mushrooms you grew? and how many people including yourself tasted them?

- Very much so
- Somewhat
- Not really

Didn't eat them

How many people tasted them:

5. How satisfied did you feel eating something that you had seen through from 'farm to fork'?

- Very satisfied
- Satisfied
- Indifferent
- Unsatisfied

Comments

6. Diet:

	Significantly	Yes	Not really	Not at all
Did you periodically reduce your intake of meat while you were harvesting the mushrooms?	<input type="checkbox"/> Did you periodically reduce your intake of meat while you were harvesting the mushrooms? Significantly	<input type="checkbox"/> Did you periodically reduce your intake of meat while you were harvesting the mushrooms? Yes	<input type="checkbox"/> Did you periodically reduce your intake of meat while you were harvesting the mushrooms? Not really	<input type="checkbox"/> Did you periodically reduce your intake of meat while you were harvesting the mushrooms? Not at all
Would you say your diet has improved at all as a result of the experience of growing your own food (in this case mushrooms)?	<input type="checkbox"/> Would you say your diet has improved at all as a result of the experience of growing your own food (in this case mushrooms)? Significantly	<input type="checkbox"/> Would you say your diet has improved at all as a result of the experience of growing your own food (in this case mushrooms)? Yes	<input type="checkbox"/> Would you say your diet has improved at all as a result of the experience of growing your own food (in this case mushrooms)? Not really	<input type="checkbox"/> Would you say your diet has improved at all as a result of the experience of growing your own food (in this case mushrooms)? Not at all

Comments

7. Did the experience of growing your own mushrooms...

	Very much so	Somewhat	Not at all
Inspire you to be more resourceful?	<input type="checkbox"/> Inspire you to be more resourceful? Very much so	<input type="checkbox"/> Inspire you to be more resourceful? Somewhat	<input type="checkbox"/> Inspire you to be more resourceful? Not at all
Feel more passionate about the importance of local produce?	<input type="checkbox"/> Feel more passionate about the importance of local produce? Very much so	<input type="checkbox"/> Feel more passionate about the importance of local produce? Somewhat	<input type="checkbox"/> Feel more passionate about the importance of local produce? Not at all
Increase your environmental awareness?	<input type="checkbox"/> Increase your environmental awareness? Very much so	<input type="checkbox"/> Increase your environmental awareness? Somewhat	<input type="checkbox"/> Increase your environmental awareness? Not at all

Other (please specify)

8. What do you feel are the benefits of seeing food through from 'farm to fork'?

9. For you what is the importance of growing food locally?

10. In what ways do you think enterprises which **share** food itself, knowledge about growing or preparing food, or tools and spaces to create and consume food are beneficial in urban areas?

	Very much so		Somewhat		Not at all	
Environmentally	<input type="checkbox"/>	Environmentally Very much so	<input type="checkbox"/>	Environmentally Somewhat	<input type="checkbox"/>	Environmentally Not at all
Socially	<input type="checkbox"/>	Socially Very much so	<input type="checkbox"/>	Socially Somewhat	<input type="checkbox"/>	Socially Not at all
Economically	<input type="checkbox"/>	Economically Very much so	<input type="checkbox"/>	Economically Somewhat	<input type="checkbox"/>	Economically Not at all

Other (please specify)

Urban Oyster Social Media Followers Survey

1. What are your motivations for following Urban Oyster?

- Interest in urban agriculture
- Environmental concern
- Interest in food sustainability
- Interested in growing food
- A consumer of both coffee and mushrooms

Other (please specify)

2. Urban Oyster:

	Very much so	Yes	Not really	Not at all
Would you be interested in growing your own mushrooms from coffee waste?	<input type="checkbox"/> Would you be interested in growing your own mushrooms from coffee waste? Very much so	<input type="checkbox"/> Would you be interested in growing your own mushrooms from coffee waste? Yes	<input type="checkbox"/> Would you be interested in growing your own mushrooms from coffee waste? Not really	<input type="checkbox"/> Would you be interested in growing your own mushrooms from coffee waste? Not at all
Would you be interested in purchasing one of the grow at home kits once they are available to buy?	<input type="checkbox"/> Would you be interested in purchasing one of the grow at home kits once they are available to buy? Very much so	<input type="checkbox"/> Would you be interested in purchasing one of the grow at home kits once they are available to buy? Yes	<input type="checkbox"/> Would you be interested in purchasing one of the grow at home kits once they are available to buy? Not really	<input type="checkbox"/> Would you be interested in purchasing one of the grow at home kits once they are available to buy? Not at all
Had you heard of growing mushrooms from coffee waste before Urban Oyster?	<input type="checkbox"/> Had you heard of growing mushrooms from coffee waste before Urban Oyster? Very much so	<input type="checkbox"/> Had you heard of growing mushrooms from coffee waste before Urban Oyster? Yes	<input type="checkbox"/> Had you heard of growing mushrooms from coffee waste before Urban Oyster? Not really	<input type="checkbox"/> Had you heard of growing mushrooms from coffee waste before Urban Oyster? Not at all
Have you told friends or family about Urban Oyster? (In the section below please estimate the amount of people you can recall telling)	<input type="checkbox"/> Have you told friends or family about Urban Oyster? (In the section below please estimate the amount of people you can recall telling) Very much so	<input type="checkbox"/> Have you told friends or family about Urban Oyster? (In the section below please estimate the amount of people you can recall telling) Yes	<input type="checkbox"/> Have you told friends or family about Urban Oyster? (In the section below please estimate the amount of people you can recall telling) Not really	<input type="checkbox"/> Have you told friends or family about Urban Oyster? (In the section below please estimate the amount of people you can recall telling) Not at all
Do you read articles relating to urban agriculture shared by Urban Oyster online?	<input type="checkbox"/> Do you read articles relating to urban agriculture shared by Urban Oyster online? Very much so	<input type="checkbox"/> Do you read articles relating to urban agriculture shared by Urban Oyster online? Yes	<input type="checkbox"/> Do you read articles relating to urban agriculture shared by Urban Oyster online? Not really	<input type="checkbox"/> Do you read articles relating to urban agriculture shared by Urban Oyster online? Not at all
Have you learnt about other urban agriculture / food sharing initiatives in	<input type="checkbox"/> Have you learnt about other urban agriculture / food sharing	<input type="checkbox"/> Have you learnt about other urban agriculture / food	<input type="checkbox"/> Have you learnt about other urban agriculture / food	<input type="checkbox"/> Have you learnt about other urban agriculture / food

	Very much so	Yes	Not really	Not at all
Dublin through Urban Oyster's website or social media activity?	initatives in Dublin through Urban Oyster's website or social media activity? Very much so	sharing initiatives in Dublin through Urban Oyster's website or social media activity? Yes	sharing initiatives in Dublin through Urban Oyster's website or social media activity? Not really	sharing initiatives in Dublin through Urban Oyster's website or social media activity? Not at all

Amount of people you have told about Urban Oyster

3. How many cups of fresh coffee would you normally drink at home a day? (including nespresso capsules or equivalent)

Comments

4. What do you normally do with your fresh coffee waste at home?

- Put it in the general waste bin
- Use it for compost
- Put full capsules into recycling bin

Other (please specify)

5. How many cups of fresh coffee would you drink at work / college etc.. a day? (including nespresso capsules or equivalent)

6. What do you normally do with your fresh coffee waste at work / college etc..?

- Put it in the general waste bin
- Use it for compost
- Put full capsules into recycling bin

Other (please specify)

7. What would be your motivations behind wanting to grow oyster mushrooms from coffee waste?

- Environmental
- Economical
- Fun

Other (please specify)

8. What do you consider to be the larger scale benefits of growing mushrooms from coffee waste?

	Very much so	Somewhat	No
Reducing waste	<input type="checkbox"/> Reducing waste Very much so	<input type="checkbox"/> Reducing waste Somewhat	<input type="checkbox"/> Reducing waste No
Reducing food miles of imported mushrooms	<input type="checkbox"/> Reducing food miles of imported mushrooms Very much so	<input type="checkbox"/> Reducing food miles of imported mushrooms Somewhat	<input type="checkbox"/> Reducing food miles of imported mushrooms No
Teaching growing techniques	<input type="checkbox"/> Teaching growing techniques Very much so	<input type="checkbox"/> Teaching growing techniques Somewhat	<input type="checkbox"/> Teaching growing techniques No
Encouraging a healthier diet	<input type="checkbox"/> Encouraging a healthier diet Very much so	<input type="checkbox"/> Encouraging a healthier diet Somewhat	<input type="checkbox"/> Encouraging a healthier diet No
Introducing people to growing their own food	<input type="checkbox"/> Introducing people to growing their own food Very much so	<input type="checkbox"/> Introducing people to growing their own food Somewhat	<input type="checkbox"/> Introducing people to growing their own food No
Producing food in urban environments	<input type="checkbox"/> Producing food in urban environments Very much so	<input type="checkbox"/> Producing food in urban environments Somewhat	<input type="checkbox"/> Producing food in urban environments No
None of these	<input type="checkbox"/> None of these Very much so	<input type="checkbox"/> None of these Somewhat	<input type="checkbox"/> None of these No

Other (please specify)

9. How important do you think it is that initiatives which share knowledge about sustainable urban food techniques should be backed and supported at council and government level?

- Very important

- Quite important
- Not important

Comments

10. Has following Urban Oyster / visiting the website:

	Very much so	Somewhat	Not really	Not at all
Increased your environmental awareness	<input type="checkbox"/> Increased your environmental awareness Very much so	<input type="checkbox"/> Increased your environmental awareness Somewhat	<input type="checkbox"/> Increased your environmental awareness Not really	<input type="checkbox"/> Increased your environmental awareness Not at all
taught you more about the potential to grow food in urban environments	<input type="checkbox"/> taught you more about the potential to grow food in urban environments Very much so	<input type="checkbox"/> taught you more about the potential to grow food in urban environments Somewhat	<input type="checkbox"/> taught you more about the potential to grow food in urban environments Not really	<input type="checkbox"/> taught you more about the potential to grow food in urban environments Not at all
inspired you to reduce the amount of waste you generate	<input type="checkbox"/> inspired you to reduce the amount of waste you generate Very much so	<input type="checkbox"/> inspired you to reduce the amount of waste you generate Somewhat	<input type="checkbox"/> inspired you to reduce the amount of waste you generate Not really	<input type="checkbox"/> inspired you to reduce the amount of waste you generate Not at all
inspired you to grow other food produce	<input type="checkbox"/> inspired you to grow other food produce Very much so	<input type="checkbox"/> inspired you to grow other food produce Somewhat	<input type="checkbox"/> inspired you to grow other food produce Not really	<input type="checkbox"/> inspired you to grow other food produce Not at all
inspired you to source more local food	<input type="checkbox"/> inspired you to source more local food Very much so	<input type="checkbox"/> inspired you to source more local food Somewhat	<input type="checkbox"/> inspired you to source more local food Not really	<input type="checkbox"/> inspired you to source more local food Not at all
Inspired you to eat more organic produce	<input type="checkbox"/> Inspired you to eat more organic produce Very much so	<input type="checkbox"/> Inspired you to eat more organic produce Somewhat	<input type="checkbox"/> Inspired you to eat more organic produce Not really	<input type="checkbox"/> Inspired you to eat more organic produce Not at all

Other (please specify)

Urban Farm Social Media Followers Survey

1. Why do you follow Urban Farm on social media?

- Interest in urban agriculture
- To keep up with the latest developments in urban agriculture
- Environmental concern
- Innovative farming techniques
- To learn how to grow your own food

Other (please specify)

2. Urban Farm:

	Yes	No
Have you been introduced to new farming techniques by Urban Farm?	<input type="checkbox"/> Have you been introduced to new farming techniques by Urban Farm? Yes	<input type="checkbox"/> Have you been introduced to new farming techniques by Urban Farm? No
Have you gone on to grow your own food as a result of following Urban Farm or visiting their website?	<input type="checkbox"/> Have you gone on to grow your own food as a result of following Urban Farm or visiting their website? Yes	<input type="checkbox"/> Have you gone on to grow your own food as a result of following Urban Farm or visiting their website? No
Would you like to visit the Urban Farm to experience what is happening first hand if it were possible?	<input type="checkbox"/> Would you like to visit the Urban Farm to experience what is happening first hand if it were possible? Yes	<input type="checkbox"/> Would you like to visit the Urban Farm to experience what is happening first hand if it were possible? No

Comments

3. Have you told anyone about Urban Farm as a result of visiting the website or following on social media? if so, how many people?

- Yes
- No

How many people?

4. Have you tried to replicate any of the farming techniques seen on the Urban Farm website?

- Yes
- No

Comments

5. How often do you read articles shared by Urban Farm relating to urban food initiatives?

- Frequently
- Sometimes
- Rarely
- Never

6. Have you learned about other urban agriculture initiatives in Dublin through posts by Urban Farm on their website or social media?

- Several
- 1 or 2
- No

Comments

7. How important do you think it is that initiatives which share knowledge about sustainable urban food techniques should be backed and supported at council and government level?

- Very important
- Quite important
- Not important

Comments

8. How do you rate Urban Farm as an enterprise that shares knowledge about sustainable urban agriculture?

9. What are the benefits of what Urban Farm is doing?

	Not at all	Somewhat	Very much so
Increasing environmental awareness	<input type="checkbox"/> Increasing environmental awareness Not at all	<input type="checkbox"/> Increasing environmental awareness Somewhat	<input type="checkbox"/> Increasing environmental awareness Very much so
Showing how food miles can be reduced	<input type="checkbox"/> Showing how food miles can be reduced Not at all	<input type="checkbox"/> Showing how food miles can be reduced Somewhat	<input type="checkbox"/> Showing how food miles can be reduced Very much so
Increasing food security	<input type="checkbox"/> Increasing food security Not at all	<input type="checkbox"/> Increasing food security Somewhat	<input type="checkbox"/> Increasing food security Very much so
Making use of unutilised urban space	<input type="checkbox"/> Making use of unutilised urban space Not at all	<input type="checkbox"/> Making use of unutilised urban space Somewhat	<input type="checkbox"/> Making use of unutilised urban space Very much so
Sharing information openly about urban farming techniques	<input type="checkbox"/> Sharing information openly about urban farming techniques Not at all	<input type="checkbox"/> Sharing information openly about urban farming techniques Somewhat	<input type="checkbox"/> Sharing information openly about urban farming techniques Very much so
No benefits	<input type="checkbox"/> No benefits Not at all	<input type="checkbox"/> No benefits Somewhat	<input type="checkbox"/> No benefits Very much so

Other (please specify)

10. In what ways do you think enterprises which **share** food itself, knowledge about growing or preparing food, or tools and spaces to create and consume food are beneficial in urban areas?

	Very much so	Somewhat	Not at all
Environmentally	<input type="checkbox"/> Environmentally Very much so	<input type="checkbox"/> Environmentally Somewhat	<input type="checkbox"/> Environmentally Not at all
Socially	<input type="checkbox"/> Socially Very much so	<input type="checkbox"/> Socially Somewhat	<input type="checkbox"/> Socially Not at all
Economically	<input type="checkbox"/> Economically Very much so	<input type="checkbox"/> Economically Somewhat	<input type="checkbox"/> Economically Not at all

Other (please specify)

Urban Farm Bike Tour Participants Survey

1. The experience:

	Definitely	Yes	No	Not at all
Were you introduced to new forms of urban agriculture as a result of your bike tour?	<input type="checkbox"/> Were you introduced to new forms of urban agriculture as a result of your bike tour? Definitely	<input type="checkbox"/> Were you introduced to new forms of urban agriculture as a result of your bike tour? Yes	<input type="checkbox"/> Were you introduced to new forms of urban agriculture as a result of your bike tour? No	<input type="checkbox"/> Were you introduced to new forms of urban agriculture as a result of your bike tour? Not at all
Has your opinion of the potential of urban agriculture (economic, environmental, social) increased as a result of your bike tour?	<input type="checkbox"/> Has your opinion of the potential of urban agriculture (economic, environmental, social) increased as a result of your bike tour? Definitely	<input type="checkbox"/> Has your opinion of the potential of urban agriculture (economic, environmental, social) increased as a result of your bike tour? Yes	<input type="checkbox"/> Has your opinion of the potential of urban agriculture (economic, environmental, social) increased as a result of your bike tour? No	<input type="checkbox"/> Has your opinion of the potential of urban agriculture (economic, environmental, social) increased as a result of your bike tour? Not at all
Were you introduced to new types of food as a result of your bike tour experience?	<input type="checkbox"/> Were you introduced to new types of food as a result of your bike tour experience? Definitely	<input type="checkbox"/> Were you introduced to new types of food as a result of your bike tour experience? Yes	<input type="checkbox"/> Were you introduced to new types of food as a result of your bike tour experience? No	<input type="checkbox"/> Were you introduced to new types of food as a result of your bike tour experience? Not at all
Have you begun growing any food yourself as a result of your experience of the bike tour?	<input type="checkbox"/> Have you begun growing any food yourself as a result of your experience of the bike tour? Definitely	<input type="checkbox"/> Have you begun growing any food yourself as a result of your experience of the bike tour? Yes	<input type="checkbox"/> Have you begun growing any food yourself as a result of your experience of the bike tour? No	<input type="checkbox"/> Have you begun growing any food yourself as a result of your experience of the bike tour? Not at all
Have you noticed any change in your food shopping habits as a result of participating in the bike tour? (Please comment on any changes below)	<input type="checkbox"/> Have you noticed any change in your food shopping habits as a result of participating in the bike tour? (Please comment on any changes below) Definitely	<input type="checkbox"/> Have you noticed any change in your food shopping habits as a result of participating in the bike tour? (Please comment on any changes below) Yes	<input type="checkbox"/> Have you noticed any change in your food shopping habits as a result of participating in the bike tour? (Please comment on any changes below) No	<input type="checkbox"/> Have you noticed any change in your food shopping habits as a result of participating in the bike tour? (Please comment on any changes below) Not at all
Have you spoken positively about urban agriculture to others as a result of your experience on the bike tour?	<input type="checkbox"/> Have you spoken positively about urban agriculture to others as a result of your experience on the bike tour? Definitely	<input type="checkbox"/> Have you spoken positively about urban agriculture to others as a result of your experience on the bike tour? Yes	<input type="checkbox"/> Have you spoken positively about urban agriculture to others as a result of your experience on the bike tour? No	<input type="checkbox"/> Have you spoken positively about urban agriculture to others as a result of your experience on the bike tour? Not at all
Would you say participating in the urban bike tour has increased your environmental awareness? i.e	<input type="checkbox"/> Would you say participating in the urban bike tour has increased your environmental awareness? i.e	<input type="checkbox"/> Would you say participating in the urban bike tour has increased your environmental awareness? i.e	<input type="checkbox"/> Would you say participating in the urban bike tour has increased your environmental awareness? i.e	<input type="checkbox"/> Would you say participating in the urban bike tour has increased your environmental awareness? i.e

	Definitely	Yes	No	Not at all
importance of local food, organic food etc..	importance of local food, organic food etc.. Definitely	awareness? i.e importance of local food, organic food etc.. Yes	awareness? i.e importance of local food, organic food etc.. No	awareness? i.e importance of local food, organic food etc.. Not at all
Has your opinion of the potential of urban food sharing enterprises to contribute to greater food sustainability within cities increased as a result of your bike tour?	<input type="checkbox"/> Has your opinion of the potential of urban food sharing enterprises to contribute to greater food sustainability within cities increased as a result of your bike tour? Definitely	<input type="checkbox"/> Has your opinion of the potential of urban food sharing enterprises to contribute to greater food sustainability within cities increased as a result of your bike tour? Yes	<input type="checkbox"/> Has your opinion of the potential of urban food sharing enterprises to contribute to greater food sustainability within cities increased as a result of your bike tour? No	<input type="checkbox"/> Has your opinion of the potential of urban food sharing enterprises to contribute to greater food sustainability within cities increased as a result of your bike tour? Not at all
Are you more knowledgeable about seasonal produce?	<input type="checkbox"/> Are you more knowledgeable about seasonal produce? Definitely	<input type="checkbox"/> Are you more knowledgeable about seasonal produce? Yes	<input type="checkbox"/> Are you more knowledgeable about seasonal produce? No	<input type="checkbox"/> Are you more knowledgeable about seasonal produce? Not at all
Would you recommend the urban agriculture bike tour experience?	<input type="checkbox"/> Would you recommend the urban agriculture bike tour experience? Definitely	<input type="checkbox"/> Would you recommend the urban agriculture bike tour experience? Yes	<input type="checkbox"/> Would you recommend the urban agriculture bike tour experience? No	<input type="checkbox"/> Would you recommend the urban agriculture bike tour experience? Not at all
Do you think urban food sharing initiatives like those visited in the bike tour should be supported by governing bodies to create a more sustainable food system in Dublin and cities in general?	<input type="checkbox"/> Do you think urban food sharing initiatives like those visited in the bike tour should be supported by governing bodies to create a more sustainable food system in Dublin and cities in general? Definitely	<input type="checkbox"/> Do you think urban food sharing initiatives like those visited in the bike tour should be supported by governing bodies to create a more sustainable food system in Dublin and cities in general? Yes	<input type="checkbox"/> Do you think urban food sharing initiatives like those visited in the bike tour should be supported by governing bodies to create a more sustainable food system in Dublin and cities in general? No	<input type="checkbox"/> Do you think urban food sharing initiatives like those visited in the bike tour should be supported by governing bodies to create a more sustainable food system in Dublin and cities in general? Not at all

Changes in food shopping habits:

2. How many people (if any) have you told about the urban agriculture bike tour in a positive light?

3. What do you think are the benefits of the types of food sharing enterprises you visited? (Environmental, Social, Economic etc..)

4. Would you say your diet has changed as a result of participating in the bike tour? In what ways?

- Eating more locally sourced food
- Eating healthier
- Eating less meat
- Eating more organic
- Diet has become worse in any of above ways
- no change in your diet

Other (please specify)

5. How do you feel urban food sharing enterprises are beneficial in terms of the environment?

6. How do you feel urban food sharing enterprises are beneficial to society?

7. How do you feel urban food sharing enterprises are beneficial to the local economy?

8. Did you get a sense of whether these food sharing initiatives receive sufficient support from authoritative decision makers?

- Yes, they do receive enough support
- No, they don't receive enough support
- It varied among the different places
- I didn't get a sense of this from any places visited

Comment

9. In what ways do you think enterprises which **share** food itself, knowledge about growing or preparing food, or tools and spaces to create and consume food are beneficial in urban areas?

	Very much so	Somewhat	Not at all
Environmentally <input type="checkbox"/>	Environmentally Very much so <input type="checkbox"/>	Environmentally Somewhat <input type="checkbox"/>	Environmentally Not at all <input type="checkbox"/>
Socially <input type="checkbox"/>	Socially Very much so <input type="checkbox"/>	Socially Somewhat <input type="checkbox"/>	Socially Not at all <input type="checkbox"/>
Economically <input type="checkbox"/>	Economically Very much so <input type="checkbox"/>	Economically Somewhat <input type="checkbox"/>	Economically Not at all <input type="checkbox"/>

Other (please specify)

10. Any additional comments?

Urban Farm Volunteers Survey

1. What were your motivations for volunteering to help set up the Urban Farm

	Not important	Somewhat important	Very important	Main motivation (1)
An interest in the environment	<input type="checkbox"/> An interest in the environment Not important	<input type="checkbox"/> An interest in the environment Somewhat important	<input type="checkbox"/> An interest in the environment Very important	<input type="checkbox"/> An interest in the environment Main motivation (1)
A desire to learn new skills	<input type="checkbox"/> A desire to learn new skills Not important	<input type="checkbox"/> A desire to learn new skills Somewhat important	<input type="checkbox"/> A desire to learn new skills Very important	<input type="checkbox"/> A desire to learn new skills Main motivation (1)
A desire to meet like minded people	<input type="checkbox"/> A desire to meet like minded people Not important	<input type="checkbox"/> A desire to meet like minded people Somewhat important	<input type="checkbox"/> A desire to meet like minded people Very important	<input type="checkbox"/> A desire to meet like minded people Main motivation (1)
A desire to contribute to the local community	<input type="checkbox"/> A desire to contribute to the local community Not important	<input type="checkbox"/> A desire to contribute to the local community Somewhat important	<input type="checkbox"/> A desire to contribute to the local community Very important	<input type="checkbox"/> A desire to contribute to the local community Main motivation (1)
A desire to learn to grow food	<input type="checkbox"/> A desire to learn to grow food Not important	<input type="checkbox"/> A desire to learn to grow food Somewhat important	<input type="checkbox"/> A desire to learn to grow food Very important	<input type="checkbox"/> A desire to learn to grow food Main motivation (1)
To be part of an innovative sustainable food project	<input type="checkbox"/> To be part of an innovative sustainable food project Not important	<input type="checkbox"/> To be part of an innovative sustainable food project Somewhat important	<input type="checkbox"/> To be part of an innovative sustainable food project Very important	<input type="checkbox"/> To be part of an innovative sustainable food project Main motivation (1)
An interest in urban agriculture	<input type="checkbox"/> An interest in urban agriculture Not important	<input type="checkbox"/> An interest in urban agriculture Somewhat important	<input type="checkbox"/> An interest in urban agriculture Very important	<input type="checkbox"/> An interest in urban agriculture Main motivation (1)

Others (please specify)

2. The experience of volunteering at Urban Farm:

	Very much so	Somewhat	Not really	Not at all
Did you consider the experience interesting?	<input type="checkbox"/> Did you consider the experience interesting? Very much so	<input type="checkbox"/> Did you consider the experience interesting? Somewhat	<input type="checkbox"/> Did you consider the experience interesting? Not really	<input type="checkbox"/> Did you consider the experience interesting? Not at all
Did the experience provide you with opportunities to learn new skills?	<input type="checkbox"/> Did the experience provide you with opportunities to learn	<input type="checkbox"/> Did the experience provide you with	<input type="checkbox"/> Did the experience provide you with opportunities to	<input type="checkbox"/> Did the experience provide you with opportunities to

	Very much so	Somewhat	Not really	Not at all
new skills? Very much so	opportunities to learn new skills? Somewhat	learn new skills? Not really	learn new skills? Not at all	
Did the experience provide you with an opportunity for personal growth?	<input type="checkbox"/> Did the experience provide you with an opportunity for personal growth? Very much so	<input type="checkbox"/> Did the experience provide you with an opportunity for personal growth? Somewhat	<input type="checkbox"/> Did the experience provide you with an opportunity for personal growth? Not really	<input type="checkbox"/> Did the experience provide you with an opportunity for personal growth? Not at all
Was volunteering at Urban farm a rewarding experience?	<input type="checkbox"/> Was volunteering at Urban farm a rewarding experience? Very much so	<input type="checkbox"/> Was volunteering at Urban farm a rewarding experience? Somewhat	<input type="checkbox"/> Was volunteering at Urban farm a rewarding experience? Not really	<input type="checkbox"/> Was volunteering at Urban farm a rewarding experience? Not at all
Would you recommend volunteering in a food sharing initiative such as Urban Farm to others?	<input type="checkbox"/> Would you recommend volunteering in a food sharing initiative such as Urban Farm to others? Very much so	<input type="checkbox"/> Would you recommend volunteering in a food sharing initiative such as Urban Farm to others? Somewhat	<input type="checkbox"/> Would you recommend volunteering in a food sharing initiative such as Urban Farm to others? Not really	<input type="checkbox"/> Would you recommend volunteering in a food sharing initiative such as Urban Farm to others? Not at all
Did you feel valued by the organisers?	<input type="checkbox"/> Did you feel valued by the organisers? Very much so	<input type="checkbox"/> Did you feel valued by the organisers? Somewhat	<input type="checkbox"/> Did you feel valued by the organisers? Not really	<input type="checkbox"/> Did you feel valued by the organisers? Not at all

Comments

3. How satisfied were you with the tasks you were doing?

- Very satisfied
- indifferent
- Unsatisfied

Comments

4. As a direct result of volunteering at Urban Farm did you...

	Yes	No
go on to grow food yourself	<input type="checkbox"/> go on to grow food yourself Yes	<input type="checkbox"/> go on to grow food yourself No
volunteer at another urban food sharing enterprise	<input type="checkbox"/> volunteer at another urban food sharing enterprise Yes	<input type="checkbox"/> volunteer at another urban food sharing enterprise No
improve your diet (to a more healthy one)	<input type="checkbox"/> improve your diet (to a more healthy one) Yes	<input type="checkbox"/> improve your diet (to a more healthy one) No

	Yes	No
shop for more locally sourced food	<input type="checkbox"/> shop for more locally sourced food Yes	<input type="checkbox"/> shop for more locally sourced food No
advocate growing food to others	<input type="checkbox"/> advocate growing food to others Yes	<input type="checkbox"/> advocate growing food to others No
reduce your intake of meat	<input type="checkbox"/> reduce your intake of meat Yes	<input type="checkbox"/> reduce your intake of meat No
learn about new types of food which can be grown locally	<input type="checkbox"/> learn about new types of food which can be grown locally Yes	<input type="checkbox"/> learn about new types of food which can be grown locally No
buy / grow more organic food	<input type="checkbox"/> buy / grow more organic food Yes	<input type="checkbox"/> buy / grow more organic food No
become more resourceful (upcycling materials)	<input type="checkbox"/> become more resourceful (upcycling materials) Yes	<input type="checkbox"/> become more resourceful (upcycling materials) No
waste less food	<input type="checkbox"/> waste less food Yes	<input type="checkbox"/> waste less food No
reduce waste destined for land fill (composting, recycling)	<input type="checkbox"/> reduce waste destined for land fill (composting, recycling) Yes	<input type="checkbox"/> reduce waste destined for land fill (composting, recycling) No
feel an increased sense of community	<input type="checkbox"/> feel an increased sense of community Yes	<input type="checkbox"/> feel an increased sense of community No
make new friends	<input type="checkbox"/> make new friends Yes	<input type="checkbox"/> make new friends No
taught other people one or more of the skills learnt while volunteering	<input type="checkbox"/> taught other people one or more of the skills learnt while volunteering Yes	<input type="checkbox"/> taught other people one or more of the skills learnt while volunteering No
become more knowledgeable about seasonal produce?	<input type="checkbox"/> become more knowledgeable about seasonal produce? Yes	<input type="checkbox"/> become more knowledgeable about seasonal produce? No

Other (please specify)

5. Do you think urban food sharing activities like Urban Farm should be supported by governing bodies in order to create a more sustainable food system in Dublin?

- Definitely
- Yes
- No

Comments

6. In what ways do you think enterprises which **share** food itself, knowledge about growing or preparing food, or tools

and spaces to create and consume food are beneficial in urban areas?

	Very much so		Somewhat		Not at all	
Environmentally	<input type="checkbox"/>	Environmentally Very much so	<input type="checkbox"/>	Environmentally Somewhat	<input type="checkbox"/>	Environmentally Not at all
Socially	<input type="checkbox"/>	Socially Very much so	<input type="checkbox"/>	Socially Somewhat	<input type="checkbox"/>	Socially Not at all
Economically	<input type="checkbox"/>	Economically Very much so	<input type="checkbox"/>	Economically Somewhat	<input type="checkbox"/>	Economically Not at all

Other (please specify)

7. How do you think Urban food sharing enterprises can benefit the environment?

8. How do you think urban food sharing enterprises can benefit society?

9. How do you think urban food sharing enterprises can benefit the local economy?

10. Any other Comments?

Hardwicke Street Garden Club Residents Survey

1. Have you been inspired to grow your own food as a result of visiting the community gardens?

- Yes
- No

2. Have you tasted / cooked anything that has been grown in the community gardens?

- Many things
- Once or twice
- Never

Comments

3. Have you been taught any new recipes or cooking techniques by the organisers involved with the community garden?

- Several
- One or two
- None

Comments

4. Have you been introduced to new types of food as a result of visiting the community gardens?

- Several
- One or two
- No

Comments

5. Having a community garden in Hardwicke Street.....

	Very much so	Somewhat	Not really	Not at all
makes the community look nicer	<input type="checkbox"/> makes the community look nicer Very much so	<input type="checkbox"/> makes the community look nicer Somewhat	<input type="checkbox"/> makes the community look nicer Not really	<input type="checkbox"/> makes the community look nicer Not at all
increases the sense of community	<input type="checkbox"/> increases the sense of community Very much so	<input type="checkbox"/> increases the sense of community Somewhat	<input type="checkbox"/> increases the sense of community Not really	<input type="checkbox"/> increases the sense of community Not at all
is beneficial for the children growing up in the community	<input type="checkbox"/> is beneficial for the children growing up in the community Very much so	<input type="checkbox"/> is beneficial for the children growing up in the community Somewhat	<input type="checkbox"/> is beneficial for the children growing up in the community Not really	<input type="checkbox"/> is beneficial for the children growing up in the community Not at all
brings the residents closer together	<input type="checkbox"/> brings the residents closer together Very much so	<input type="checkbox"/> brings the residents closer together Somewhat	<input type="checkbox"/> brings the residents closer together Not really	<input type="checkbox"/> brings the residents closer together Not at all
teaches ways to save money	<input type="checkbox"/> teaches ways to save money Very much so	<input type="checkbox"/> teaches ways to save money Somewhat	<input type="checkbox"/> teaches ways to save money Not really	<input type="checkbox"/> teaches ways to save money Not at all
results in people having healthier diets	<input type="checkbox"/> results in people having healthier diets Very much so	<input type="checkbox"/> results in people having healthier diets Somewhat	<input type="checkbox"/> results in people having healthier diets Not really	<input type="checkbox"/> results in people having healthier diets Not at all
teaches residents about how to grow	<input type="checkbox"/> teaches residents about how to grow Very much so	<input type="checkbox"/> teaches residents about how to grow Somewhat	<input type="checkbox"/> teaches residents about how to grow Not really	<input type="checkbox"/> teaches residents about how to grow Not at all
improves the reputation of the area	<input type="checkbox"/> improves the reputation of the area Very much so	<input type="checkbox"/> improves the reputation of the area Somewhat	<input type="checkbox"/> improves the reputation of the area Not really	<input type="checkbox"/> improves the reputation of the area Not at all
makes the community a more sociable one	<input type="checkbox"/> makes the community a more sociable one Very much so	<input type="checkbox"/> makes the community a more sociable one Somewhat	<input type="checkbox"/> makes the community a more sociable one Not really	<input type="checkbox"/> makes the community a more sociable one Not at all
improves environmental awareness in the community	<input type="checkbox"/> improves environmental awareness in the community Very much so	<input type="checkbox"/> improves environmental awareness in the community Somewhat	<input type="checkbox"/> improves environmental awareness in the community Not really	<input type="checkbox"/> improves environmental awareness in the community Not at all

Other (please specify)

6. The social events organised and run by the garden club...

	Very much so	Somewhat	Not really	Not at all
increase the sense of community	<input type="checkbox"/> increase the sense of community Very much so	<input type="checkbox"/> increase the sense of community Somewhat	<input type="checkbox"/> increase the sense of community Not really	<input type="checkbox"/> increase the sense of community Not at all
bring people together who normally might not communicate	<input type="checkbox"/> bring people together who normally might not communicate Very much so	<input type="checkbox"/> bring people together who normally might not communicate Somewhat	<input type="checkbox"/> bring people together who normally might not communicate Not really	<input type="checkbox"/> bring people together who normally might not communicate Not at all
introduce you to new food / recipes	<input type="checkbox"/> introduce you to new food / recipes Very much so	<input type="checkbox"/> introduce you to new food / recipes Somewhat	<input type="checkbox"/> introduce you to new food / recipes Not really	<input type="checkbox"/> introduce you to new food / recipes Not at all
improve the quality of life in the community	<input type="checkbox"/> improve the quality of life in the community Very much so	<input type="checkbox"/> improve the quality of life in the community Somewhat	<input type="checkbox"/> improve the quality of life in the community Not really	<input type="checkbox"/> improve the quality of life in the community Not at all

Other (please specify)

7. How important do you think it is that initiatives which share knowledge about sustainable urban food techniques should be backed and supported at council and government level?

- Very important
- Quite important
- Not important

Comments

8. In what ways do you think enterprises which share food itself, knowledge about growing or preparing food, or tools and spaces to create and consume food are beneficial in urban areas?

	Very much so	Somewhat	Not at all
Environmentally	<input type="checkbox"/> Environmentally Very much so	<input type="checkbox"/> Environmentally Somewhat	<input type="checkbox"/> Environmentally Not at all
Socially	<input type="checkbox"/> Socially Very much so	<input type="checkbox"/> Socially Somewhat	<input type="checkbox"/> Socially Not at all
Economically	<input type="checkbox"/> Economically Very much so	<input type="checkbox"/> Economically Somewhat	<input type="checkbox"/> Economically Not at all

Other (please specify)

9. Does the community garden increase your sense of pride in the local community?

- Yes
 No

Comments

10. Do you think urban communities having a community garden can...

	Very much so	Somewhat	Not really	Not at all
Improve health related to diet	<input type="checkbox"/> Improve health related to diet Very much so	<input type="checkbox"/> Improve health related to diet Somewhat	<input type="checkbox"/> Improve health related to diet Not really	<input type="checkbox"/> Improve health related to diet Not at all
Improve mental health	<input type="checkbox"/> Improve mental health Very much so	<input type="checkbox"/> Improve mental health Somewhat	<input type="checkbox"/> Improve mental health Not really	<input type="checkbox"/> Improve mental health Not at all
bring people together and decrease isolation	<input type="checkbox"/> bring people together and decrease isolation Very much so	<input type="checkbox"/> bring people together and decrease isolation Somewhat	<input type="checkbox"/> bring people together and decrease isolation Not really	<input type="checkbox"/> bring people together and decrease isolation Not at all
increase environmental awareness	<input type="checkbox"/> increase environmental awareness Very much so	<input type="checkbox"/> increase environmental awareness Somewhat	<input type="checkbox"/> increase environmental awareness Not really	<input type="checkbox"/> increase environmental awareness Not at all
reduce crime rates	<input type="checkbox"/> reduce crime rates Very much so	<input type="checkbox"/> reduce crime rates Somewhat	<input type="checkbox"/> reduce crime rates Not really	<input type="checkbox"/> reduce crime rates Not at all
teach ways to save money	<input type="checkbox"/> teach ways to save money Very much so	<input type="checkbox"/> teach ways to save money Somewhat	<input type="checkbox"/> teach ways to save money Not really	<input type="checkbox"/> teach ways to save money Not at all

Other (please specify)

Hardwicke Street Garden Club Volunteers Survey

1. What were your motivations for volunteering to help out with the community garden?

	Not important	Somewhat important	Very important	Main motivation (1)
An interest in the environment	<input type="checkbox"/> An interest in the environment Not important	<input type="checkbox"/> An interest in the environment Somewhat important	<input type="checkbox"/> An interest in the environment Very important	<input type="checkbox"/> An interest in the environment Main motivation (1)
A desire to learn new skills	<input type="checkbox"/> A desire to learn new skills Not important	<input type="checkbox"/> A desire to learn new skills Somewhat important	<input type="checkbox"/> A desire to learn new skills Very important	<input type="checkbox"/> A desire to learn new skills Main motivation (1)
A desire to meet like minded people	<input type="checkbox"/> A desire to meet like minded people Not important	<input type="checkbox"/> A desire to meet like minded people Somewhat important	<input type="checkbox"/> A desire to meet like minded people Very important	<input type="checkbox"/> A desire to meet like minded people Main motivation (1)
A desire to contribute to the local community	<input type="checkbox"/> A desire to contribute to the local community Not important	<input type="checkbox"/> A desire to contribute to the local community Somewhat important	<input type="checkbox"/> A desire to contribute to the local community Very important	<input type="checkbox"/> A desire to contribute to the local community Main motivation (1)
A desire to learn to grow food	<input type="checkbox"/> A desire to learn to grow food Not important	<input type="checkbox"/> A desire to learn to grow food Somewhat important	<input type="checkbox"/> A desire to learn to grow food Very important	<input type="checkbox"/> A desire to learn to grow food Main motivation (1)
To be part of an innovative sustainable food project	<input type="checkbox"/> To be part of an innovative sustainable food project Not important	<input type="checkbox"/> To be part of an innovative sustainable food project Somewhat important	<input type="checkbox"/> To be part of an innovative sustainable food project Very important	<input type="checkbox"/> To be part of an innovative sustainable food project Main motivation (1)
An interest in urban agriculture	<input type="checkbox"/> An interest in urban agriculture Not important	<input type="checkbox"/> An interest in urban agriculture Somewhat important	<input type="checkbox"/> An interest in urban agriculture Very important	<input type="checkbox"/> An interest in urban agriculture Main motivation (1)

Other (please specify)

2. Did you consider the experience interesting?

- Very interesting
- Quite interesting
- Not interesting

Comments

3. Did the experience provide you with opportunities to increase your skills?

- Very much so
- Somewhat
- Not at all

Comments

4. Did the experience provide you with an opportunity for personal growth?

- Very much so
- Somewhat
- No

Comments

5. How satisfied were you with the tasks you were doing?

- Very satisfied
- Indifferent
- Unsatisfied

Comments

6. Was volunteering at Hardwicke Street a rewarding experience?

- Very much so
- Somewhat
- No

Comments

7. Did you feel valued by the Organisers?

- Very much so
- Somewhat
- No

Comments

8. As a direct result of volunteering at Hardwicke Street did you...

	Yes	No			
go on to grow food yourself	<input type="checkbox"/> go on to grow food yourself Yes	<input type="checkbox"/> go on to grow food yourself No	<input type="checkbox"/> go on to grow food yourself	<input type="checkbox"/> go on to grow food yourself	<input type="checkbox"/> go on to grow food yourself
volunteer at another urban food sharing enterprise	<input type="checkbox"/> volunteer at another urban food sharing enterprise Yes	<input type="checkbox"/> volunteer at another urban food sharing enterprise No	<input type="checkbox"/> volunteer at another urban food sharing enterprise	<input type="checkbox"/> volunteer at another urban food sharing enterprise	<input type="checkbox"/> volunteer at another urban food sharing enterprise
improve your diet (to a more healthy one)	<input type="checkbox"/> improve your diet (to a more healthy one) Yes	<input type="checkbox"/> improve your diet (to a more healthy one) No	<input type="checkbox"/> improve your diet (to a more healthy one)	<input type="checkbox"/> improve your diet (to a more healthy one)	<input type="checkbox"/> improve your diet (to a more healthy one)
shop for more locally sourced food	<input type="checkbox"/> shop for more locally sourced food Yes	<input type="checkbox"/> shop for more locally sourced food No	<input type="checkbox"/> shop for more locally sourced food	<input type="checkbox"/> shop for more locally sourced food	<input type="checkbox"/> shop for more locally sourced food
recommend growing food to others	<input type="checkbox"/> recommend growing food to others Yes	<input type="checkbox"/> recommend growing food to others No	<input type="checkbox"/> recommend growing food to others	<input type="checkbox"/> recommend growing food to others	<input type="checkbox"/> recommend growing food to others
reduce your intake of meat	<input type="checkbox"/> reduce your intake of meat Yes	<input type="checkbox"/> reduce your intake of meat No	<input type="checkbox"/> reduce your intake of meat	<input type="checkbox"/> reduce your intake of meat	<input type="checkbox"/> reduce your intake of meat
learn about new types of food which can be grown locally	<input type="checkbox"/> learn about new types of food which can be grown locally Yes	<input type="checkbox"/> learn about new types of food which can be grown locally No	<input type="checkbox"/> learn about new types of food which can be grown locally	<input type="checkbox"/> learn about new types of food which can be grown locally	<input type="checkbox"/> learn about new types of food which can be grown locally
buy / grow more organic food	<input type="checkbox"/> buy / grow more organic food Yes	<input type="checkbox"/> buy / grow more organic food No	<input type="checkbox"/> buy / grow more organic food	<input type="checkbox"/> buy / grow more organic food	<input type="checkbox"/> buy / grow more organic food
become more resourceful (upcycling materials)	<input type="checkbox"/> become more resourceful (upcycling materials) Yes	<input type="checkbox"/> become more resourceful (upcycling materials) No	<input type="checkbox"/> become more resourceful (upcycling materials)	<input type="checkbox"/> become more resourceful (upcycling materials)	<input type="checkbox"/> become more resourceful (upcycling materials)
waste less food	<input type="checkbox"/> waste less food Yes	<input type="checkbox"/> waste less food No	<input type="checkbox"/> waste less food	<input type="checkbox"/> waste less food	<input type="checkbox"/> waste less food
reduce waste destined for land fill	<input type="checkbox"/> reduce waste destined for land fill	<input type="checkbox"/> reduce waste destined for land fill	<input type="checkbox"/> reduce waste destined for land fill	<input type="checkbox"/> reduce waste destined for land fill	<input type="checkbox"/> reduce waste destined for land fill

	Yes	No			
(composting, recycling)	(composting, recycling) Yes	(composting, recycling) No	(composting, recycling)	(composting, recycling)	(composting, recycling)
feel an increased sense of community	<input type="checkbox"/> feel an increased sense of community Yes	<input type="checkbox"/> feel an increased sense of community No	<input type="checkbox"/> feel an increased sense of community	<input type="checkbox"/> feel an increased sense of community	<input type="checkbox"/> feel an increased sense of community
make new friends	<input type="checkbox"/> make new friends Yes	<input type="checkbox"/> make new friends No	<input type="checkbox"/> make new friends	<input type="checkbox"/> make new friends	<input type="checkbox"/> make new friends
taught other people one or more of the skills learnt while volunteering	<input type="checkbox"/> taught other people one or more of the skills learnt while volunteering Yes	<input type="checkbox"/> taught other people one or more of the skills learnt while volunteering No	<input type="checkbox"/> taught other people one or more of the skills learnt while volunteering	<input type="checkbox"/> taught other people one or more of the skills learnt while volunteering	<input type="checkbox"/> taught other people one or more of the skills learnt while volunteering

Other (please specify)

9. Do you think urban food sharing activities like Hardwicke Street Garden Club should be supported by governing bodies in order to create a more sustainable food system in Dublin?

- Yes
- No

Comments

10. In what ways do you think enterprises which share food itself, knowledge about growing or preparing food, or tools and spaces to create and consume food are beneficial in urban areas?

	Very much so	Somewhat	Not at all
Environmentally	<input type="checkbox"/> Environmentally Very much so	<input type="checkbox"/> Environmentally Somewhat	<input type="checkbox"/> Environmentally Not at all
Socially	<input type="checkbox"/> Socially Very much so	<input type="checkbox"/> Socially Somewhat	<input type="checkbox"/> Socially Not at all
Economically	<input type="checkbox"/> Economically Very much so	<input type="checkbox"/> Economically Somewhat	<input type="checkbox"/> Economically Not at all

Other (please specify)

Appendix 2

Interview Questions

Questions for Ali Sheridan (Bord Bia)

SHARECITY is looking into the sustainability potential (environmental, social, economic) of urban food sharing activities. These activities can be charities, urban farms, community gardens and other kinds of activities that share food itself, spaces for growing or eating food and share knowledge and skills about food.

<http://sharecity.ie/>

- What do you think about the potential (environmental, social and economic) of food sharing activities in Dublin (be it sharing food itself i.e Foodcloud, sharing knowledge and skills about food i.e Urban Farm and community gardens, or sharing space itself for growing or eating food i.e community gardens or Hour kitchen?)
- How can the idea of urban food sharing achieve its potential?
- Do you think enough is being done at government/council level to support these smaller grassroots enterprises dedicated to sustainability through food sharing? What could be done to improve support?
- How does Bord Bia support or back small enterprises involved in food sharing? (Community growing gardens, charities, knowledge sharing workshops)

- Sharecity's ultimate goal is to begin to measure the sustainability impact (environmental, social and economic) of urban food sharing activities. What do you think are the benefits of being able to measure food sustainability through sharing?
- What are the obstacles to more support being given to urban food sharing activities? (I.e regulation, planning permission, food safety regulation etc.)
- How can government/council improve their function to support these types of sharing activities?

Questions for Odile Le Bolloch (EPA)

SHARECITY is looking into the sustainability potential (environmental, social, economic) of urban food sharing activities. These activities can be charities, urban farms, community gardens and other kinds of activities that share food itself, spaces for growing or eating food and share knowledge and skills about food.

<http://sharecity.ie/>

- What do you think about the potential (environmental, social and economic) of food sharing activities in Dublin (be it **sharing food** itself i.e Foodcloud or community gardens, **sharing knowledge and skills** about food i.e Urban Farm, or **sharing space** itself for growing or eating food i.e community gardens or Hour kitchen?)
- What are the benefits of growing one's own food in the city?
- How can the idea of urban food sharing achieve its potential in contributing to a more sustainable food system in Dublin?
- Do you think enough is being done at government/council level to support these smaller grassroots enterprises dedicated to sustainability through food sharing? What could be done to improve support?
- Sharecity's ultimate goal is to begin to measure the sustainability impact (environmental, social and economic) of urban food sharing activities. What do you think are the benefits of being able to measure food sustainability through sharing?
- What are the obstacles to more support being given to urban food sharing activities? (i.e regulation, planning permission, food safety regulation, urban air quality etc.)

- How can government/council improve their function to support these types of sharing activities?
- Any other comments are very welcome!

Common Ground / Edible Bray interview 19.8

- How did they get to where you are today?
- What were their motivations for setting up the organisation?
- What do they see as the environmental benefits of what they are doing (if any)?
- What do they see as the social benefits of what they are doing (if any)?
- What do they see as the economic benefits of what they are doing (if any)?
- How have they been affected by regulation?
- Have they received any funding or support? What do they feel about the support services available?
- How do they utilize ICT potential?
- What needs to be done to increase the value given to these initiatives as a pathway to sustainability?

Interview Checklist for 4 Case Study Organisations

- Tell me a bit about what influenced you to be doing what you do today.
- How / why did you set up the organisation?
- What are your goals or what do you want to achieve?
- What are the benefits of a project like this? Environmental / social / Economic.
- How have you been affected by regulation?
- What do you think about the support given to ifood sharing organisations?
- How does sharing take place at your organisation?
- What happens to harvested food?
- Any plans for further development or growth?
- Do you have people coming to inquire? Much interest from outside?
- Have you been supported as much as you would like to have been?
- Considering the benefits of this kind of project, should these initiatives be taken more serious at government level?
- How can it get to the stage where organisations like yours are being taken more seriously at decision making level?
- What are the effects on the local community?
- How has ICT been used and how does it benefit your organisation?