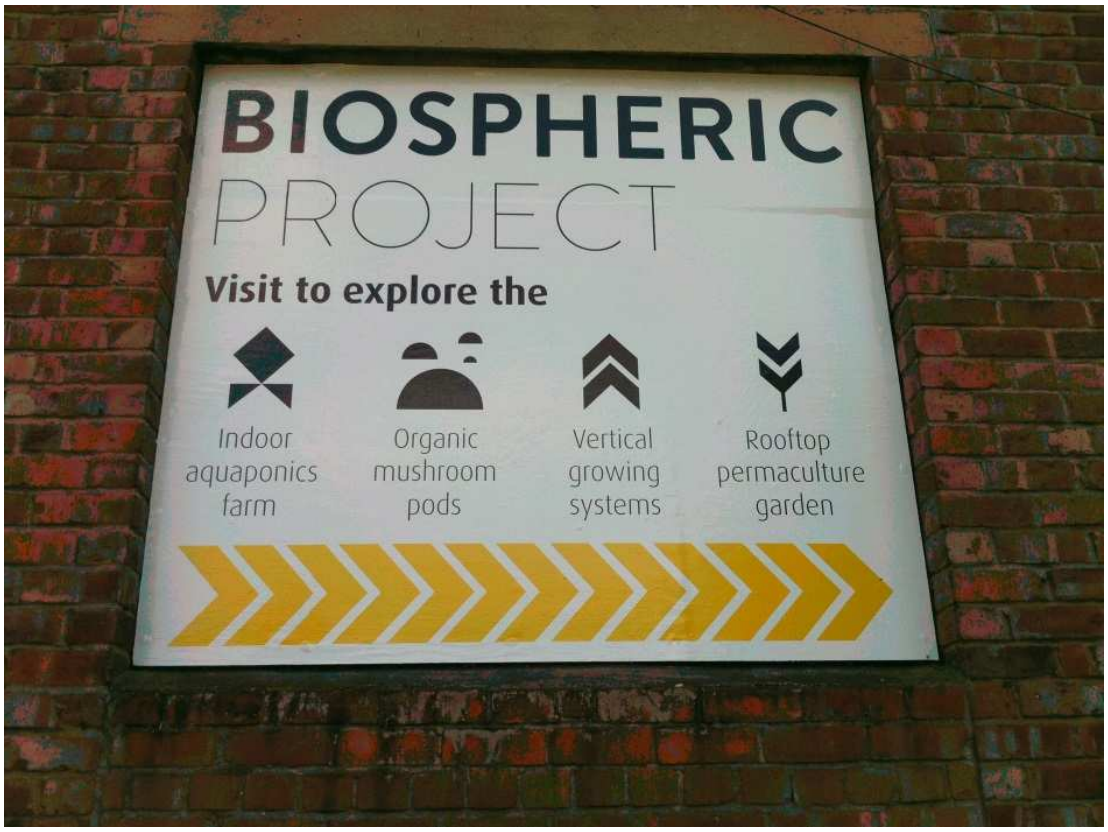
#digitalbiospheric



Putting Food Banks Out of Business: Interim Report

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MISTRA URBAN FUTURES GREATER MANCHESTER

Contents

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This is an Interim Report. We welcome feedback and comments to inform our ongoing work. To get in touch, contact b.perry@salford.ac.uk

1. Introduction

The need for food aid in the UK is rising (Lambie-Mumford and Dowler, 2014). Food banks have become one of the fastest growing charitable industries in the UK, bringing food poverty sharply into the public consciousness. In contrast to any UK Government formal or coordinated response, the third and voluntary sector and civil society have produced an increasing number of reports and inquiries which concur on the scale, causes and consequences of the challenge. Examples range from the local to the national, including the Greater Manchester Poverty Commission (GMPC, 2013), Below the Breadline (Cooper et al, 2014) and 'Feeding Britain' (APIIH-UK, 2014). The latter report, produced by an All Party Parliamentary Inquiry into Hunger, indicates growing concern about the issue of food austerity at national level, but does not have the status of an official government report. Instead it is civil society – with a particularly strong response from faith groups – that is leading the response. Whilst exact figures differ, all such reports indicate an exponential growth in emergency food assistance, evidenced through increasing numbers of people needing to use foodbanks. For instance, Cooper et al (2014:4) find evidence of a 54% increase in use of foodbanks in the UK between 2012-2013 and 2013-2014.

Food aid is only turned to once other solutions have been exhausted, with independent reports concluding that food banks are a *response* to not *cause* of growing demand (Cooper et al, 2014: 9). Increasingly there is agreement that the causes of the crisis are structural. Based on a review carried out for the UK Department for Environment, Food and Rural Affairs (DEFRA, 2014), Lambie-Mumford and Dowler (2014: 142) concluded that 'short-term food provision can relieve symptoms of emergency need but (necessarily, given the aims and capacity of such initiatives), does not address the underlying causes of that need'. Furthermore, food banks only help those newly hungry, as a result of welfare changes, but not the long-term hungry, whose conditions preceded the current crisis (APIIH-UK, 2014).

Cooper et al (2014) focus on the complex inter-relationships between living costs, the cost of food, housing, energy, low wages, insecure contracts and the cumulative impact of social security reforms to account for the current rise in food poverty. The recent All Party Parliamentary Inquiry into Hunger in the United Kingdom (APPIH-UK, 2014) determines that recommendations to tackle the systemic causes of poverty need to cut across emergency food assistance, waste and surplus redistribution of food, gas, electricity and water, debt and high cost credit, low pay, the benefits system, tax credits and sanctions *inter alia*. Interestingly for our pilot study, access to mobiles and the internet are considered as key factors which, taken with other structural changes, are part of the web of actions required to address hunger in the UK. This report, like many others, moves the debate away from atomised and individualised responses, in which the material conditions of hunger are overlooked in favour of diet prescriptions and nutritional guides.

Whilst such UK reports note that food prices are rising, along with the percentage of household income spent on food, structural analyses have tended to be couched strongly in relation to the UK's programme of welfare reform and the austerity measures introduced by the UK Coalition Government. Other analyses, however, have focussed on the crisis of the capitalist system, the global agri-food business and the complex 'ecologies of food power' that sustain such inequalities in the first place (Goodman, 2013). Sonnino and Spayde (2014) argue that food insecurity relates to a complex interaction of structural factors that encompass the entire ecology of the food system. The broader context of the global food system is rarely mentioned in recent reports on food poverty in Britain, but is nonetheless an important driving motivation behind many localised and 'alternative' food initiatives (Caraher and Dowler, 2014; McClintock, 2013).

Against this background, this pilot project for the CCN+ network seeks to map out the transformative potentials of and limits to digital transformations in supporting community capacity-building to address food austerity in the long-term. Hence, whilst acknowledging their critical role in emerging food assistance, the aim is to contribute to a set of debates on how to 'put food banks out of

business'. This interim report outlines key progress to date from October 2014 to February 2015 and implications for the next phase of research. A full and final report will be available in the summer of 2015.

2. About the Pilot Project

This pilot study, linking food austerity to digital transformations, is funded by the Engineering and Physical Sciences Research Council (EPSRC) Communities and Culture Plus network. The project is being delivered through collaboration between the University of Salford Manchester, the Biospheric Foundation and the Social Action Research Foundation. There are two aims:

- To retrospectively interrogate the Biospheric Foundation as a lens through which to examine the lessons for developing longer-term responses to food austerity in the context of digital transformations.
- To prospectively engage multiple communities in conversations and planning about how digital transformations may underpin, or indeed undermine, local capacity-building for long-term systemic change.

These aims relate to our core questions:

1) What can we learn from the *actual* experiences of the Biospheric Foundation in relation to building community capacity and resilience in local food production, supply, distribution and waste systems?
2) How do these lessons inform our understanding of *potential* responses to food austerity and the actual and potential roles of digital transformations?

The project is designed as a co-produced action research enquiry, bringing together academics from across different disciplines and practitioners (see for instance Watson, 2014. Polk, 2015). There are four work Modules between October 2014 and March 2015. Data is in the process of being analysed. This report therefore draws on the emerging insights from Modules 1 and 2 in order to frame the next stages of the research.

Module 1 consisted of a retrospective reflection on the case of the Biospheric Foundation, locating its development in the context of literatures on food austerity. This has involved interdisciplinary desk-based reviews of academic and non-academic literatures to frame the relevance of debates around food austerity, urban agriculture, localised food initiatives and digital transformations in the context of our particular case. It also draws on a pre-existing dataset of interviews produced through a separately funded study by Mistra Urban Futures (see below) and Walsh's doctoral research.

Module 2 involved four 'community conversations', taking the form of focus groups and workshops with representatives of the academic, public/voluntary/third sector, digital and residential communities. In each conversation, the actual and potential role of digital transformations in developing long-term solutions to food austerity was discussed. Notes were taken throughout, both procedural and reflective, and the residential community conversation was recorded and transcribed.

Module 3 will synthesise the initial insights to produce a discussion paper as a basis for co-producing a Digital Action Plan with six residents in Blackfriars, East Salford. The residents will be paid for at 2 day community research 'jam' to consider the desirability, feasibility and impact of different digital options to inform the final Digital Action Plan. They will be supported in this by participants from the previous conversations who were keen to continue to offer their expertise in the process. The community research jam is planned for March 2015.

Module 4 will draw the findings together to address the two core aims via academic analysis and dissemination. Importantly, the project will seek to contribute to the possible implementation of the Digital Action Plan and catalyse community capacity and action to take it forward. A series of visual infographics will also be produced to communicate key dimensions of the project.

The pilot project focuses particularly on the nexus between food austerity, digital transformations and community capacity-building via the action-research case study of the Biospheric Foundation. Given its scale, scope and timing, this would not be possible without drawing on a number of other previous and ongoing complementary research projects: first, research being conducted by the University of Salford's participation in Mistra Urban Futures, an international centre for sustainable cities, with partners in Sweden (Gothenburg), Kenya (Kisumu) and South Africa (Cape Town) (see http://www.urbanfutures.platform.org.uk) and second, doctoral funding from the Arts and Humanities Research Council for the initial set up, implementation and proof of concept of the Biospheric Foundation itself as an action-research platform. This CCN+ pilot study builds on the existing datasets produced within each of these projects in order to concentrate available resources on more discursive ('community conversations') and interactive ('community research jam') activities.

3. Interim Findings

3.1 The Biospheric Foundation

The Biospheric Foundation has been described as part-farm, part urban research laboratory, set in the heart of the Blackfriars district in Salford, Greater Manchester. It has met with much acclaim, partnering with Manchester International Festival (2013), receiving funding from the People's Postcode Lottery (2013) and scooping up awards such as the Green Apple, Green Champion Award (2014) or the Nick Reeves AWEinspiring Award for Arts, Water and the Environment (2014). The Biospheric Foundation was established by Vincent Walsh drawing on his experiences in the USA, Africa and Eastern Europe, through his doctoral research into complex ecological systems in urban environments. Amongst the key aims of the Biospheric Foundation were to:

1. Deliver a whole system approach to urban farming in an area of high deprivation;
2. Design a dense environment of interconnecting systems;
3. Retrofit an old building into a centre for ecological research;
4. Raise public awareness into health food and ecological systems in urban environments.

As a result of successful positioning with multiple stakeholder groups and fuelled by high press interest, the Biospheric Foundation is a remarkable story. Within 3 years of formulating a vision, a derelict mill on the banks of the River Irwell, Salford, was transformed into a thriving agricultural space, filled with innovative sustainable food systems, from a Forest Garden to mushroom production, vermiculture to aquaponics. A partnership with Manchester International Festival (MIF) in 2013, via the 'Biospheric Project', was a central catalyst in this transformation, building on pre-existing relationships with the community, private sector companies such as Siemens, Urban Splash and Craghoppers and interactions with Salford City Council. An array of press and social media has already documented key elements of the Biospheric Foundation's story (see Box 1).

The primary focus of the Biospheric Foundation is to create a test bed for developing interactions between different ecological systems in an urban setting. There are four key elements of this vision: first, the development of integrated ecological systems within a single site; second, the location; third, the distribution model developed to integrate production and distribution and fourth, the community engagement. Each of these elements is only briefly described below and will be elaborated on in the final report.

Box 1: Examples of press and media coverage	
Press article: Garden of Eden Amid Rubble	New York Times, Garden of Eden Amid Rubble
Press article: Manchester International Festival: fruit and veg sprout from industrial past	Guardian, http://www.theguardian.com/uk/the-northerner/2013/mar/01/manchester-salford-biosphere-international-festival
Press article: Siemens apprentices get hands on with the Biospheric Project	Manchester Evening News, http://www.manchestereveningnews.co.uk/business/business-news/siemens-apprentices-hand-biospheric-project-5830086
News article: Living Lab tests urban food farming	BBC News: http://www.bbc.co.uk/news/science-environment-24580716
Welcome to the Biospheric Foundation	Youtube https://www.youtube.com/watch?v=SKsbPMaDKow
The Biospheric Project	Youtube https://www.youtube.com/watch?v=_t7VICYmerI
The Biospheric Project	Youtube – North West Tonight https://www.youtube.com/watch?v=-x5gW9iX5AM
Biospheric on Twitter	@BF_CIC_UK (1569 followers)
Biospheric Foundation on Flickr	Photos https://www.flickr.com/people/biosphericfoundation/photosof/

3.1.1 The Systems

A series of interconnected systems comprise the basic infrastructure of the Biospheric Foundation, and the basis of Walsh's doctoral research, which are designed to also support local organic food production in a sustainable way. These are: the agroforestry, vermiculture, aquaponics, mushroom production and the Whole Food shop. *Agroforestry* (also called Forest Gardening) is a system designed by humans mimicking structures, layers and forms seen in natural forest systems. Within the UK context agroforestry is designed across seven vertical and horizontal layers. These three-dimensional systems, unlike monoculture systems, have many outputs – such as increasing biodiversity, carbon storage and timber production. *Vermiculture* is the development of a culture of earthworms. Vermicomposting uses earthworms to break down organic material through the use of worms, bacteria, and fungi. *Aquaponics* is a system that integrates fish and plants to create a closed ecological system. *Mushroom production* was achieved by using waste coffee as a substratum to grow local organic oyster mushrooms. Finally, the Whole Food shop was developed as a hyper local food distribution hub, selling organic food produced for the system at the Biospheric Project.

As represented in Figure 1, produced collaboratively between Walsh and partners at MIF, a closed cycle was created between the systems. The green and brown waste from the shop would go into the vermiculture systems. The vermiculture system would break down organic material and create vermicompost for the agroforestry system and and more earthworms to be fed to the fish in the aquaponic system. The fish in the aquaponic system would eat the worms as a source of food, and the waste from the fish would be circulated around the Biospheric Project to a number of food growing areas. In turn the plants would use the fish waste as nutrients to grow. In full production the Biospheric Project was designed to be capable of producing 3000 leaf crops per month, which would then be sent to Whole Food store to be sold, and the cycle would start again.

3.1.2 Location, Location, Location

Location is a critical part of the Biospheric Foundation vision, comprising three elements: building, land and a community. After initial investigations of suitable locations, the combination necessary to realise the project was found in East Salford. Irwell House is a 100-year-old disused mill on the banks on the River Irwell, in the heart of Salford. It had been used as a printworks which used heavy industrial machinery and chemical products. The expense of maintaining the building led and decline in the printworks industry led the owners to sell the building, purchased by urban property developer Urban Splash in 2000 with a view to develop it into residential space. However, the financial crash and changing economic circumstances derailed this proposal, creating an opportunity for the Biospheric Foundation to rent the top floors. The land opposite Irwell House was a disused

green space adjacent to the River Irwell. The land was not managed and was overgrown with many self-seeding trees. Irwell House itself is a quintessential industrial mill in an area of relative deprivation. East Salford is characterised by multiple indicators of social and economic need. The East Salford Joint Strategic Needs Assessment identifies most indicators above the national average, such as infant mortality, teenage conception, poor oral health, childhood obesity, long-term health conditions, alcohol, drug and smoking abuse, high fuel poverty, educational needs, high youth unemployment …the list goes on http://www.partnersinsalford.org/eastsalford-neighbourhoodprofile-i.htm. Such statistics place East Salford as one of the most deprived areas in Salford and nationally.

3.1.3 The Distribution Model

The original vision for the Biospheric Foundation was production-focussed on creating a closed loop system within the building. Over time, however, the need for a more coherent distribution model became apparent: firstly to 'complete' the system, in terms of linking supply and distribution, and providing a mechanism to explore avenues for commercialisation; secondly, as a response to embedding the Foundation in the community, alongside the increasing prevalence of food poverty debates. Since 2012 there have been two key elements to the distribution model. First, a Whole Box enterprise was launched in 2012, a fruit and vegetables delivery scheme. An independent evaluation (Corkery, 2014) found that over 85 per cent of Blackfriars Box recipients lived in neighbourhoods amongst the 10 per cent most deprived nationally. Then, alongside the partnership with Manchester International Festival, a whole foods store was opened up in 2013, 78 Steps, located on the ground floor of a block of flats exactly 78 steps from the Biospheric Foundation. The shop provided a platform for direct engagement around the issues of food austerity, through a suite of community engagement activities.

3.1.4 Community Engagement

Through partnerships and funding with external organisations, namely Manchester International Festival and People's Postcode Lottery, a suite of community engagement and learning opportunities have been developed, including volunteering (over 180 in total), recipe cards, public tours and workshops, themed activity days and corporate events. The Whole Box was distributed to local residents, schools and restaurants along with recipe cards promoting healthy eating. An independent evaluation concluded that the programme had been very successful in delivering across a range of outcomes (Corkery, 2014). In the second phase of engagement, 114 people took part in public tours and 142 participated in workshops as part of the Manchester Science Festival; a further 324 people took part in the project's Urban Activities programme and 150 WholeBox containing locally-sourced produce and recipes were distributed to local residents and via the distribution of 2,000 recipe cards to local residents.

Engagement sessions were also delivered with six local schools involving 526 children and 87 staff members and parents, across communities typically characterised as having poor diets with little pre-existing knowledge of how to prepare nutritional food. Participants learnt about growing systems, propagation and cultivation; soil preparation and composting; foraging and harvesting; food preparation, conservation and preservation. They developed a wide range of skills: in making jams, syrups and chutneys; growing mushrooms on paperback books and logs; building simple aquaponics systems; making wormeries and tending a forest garden.

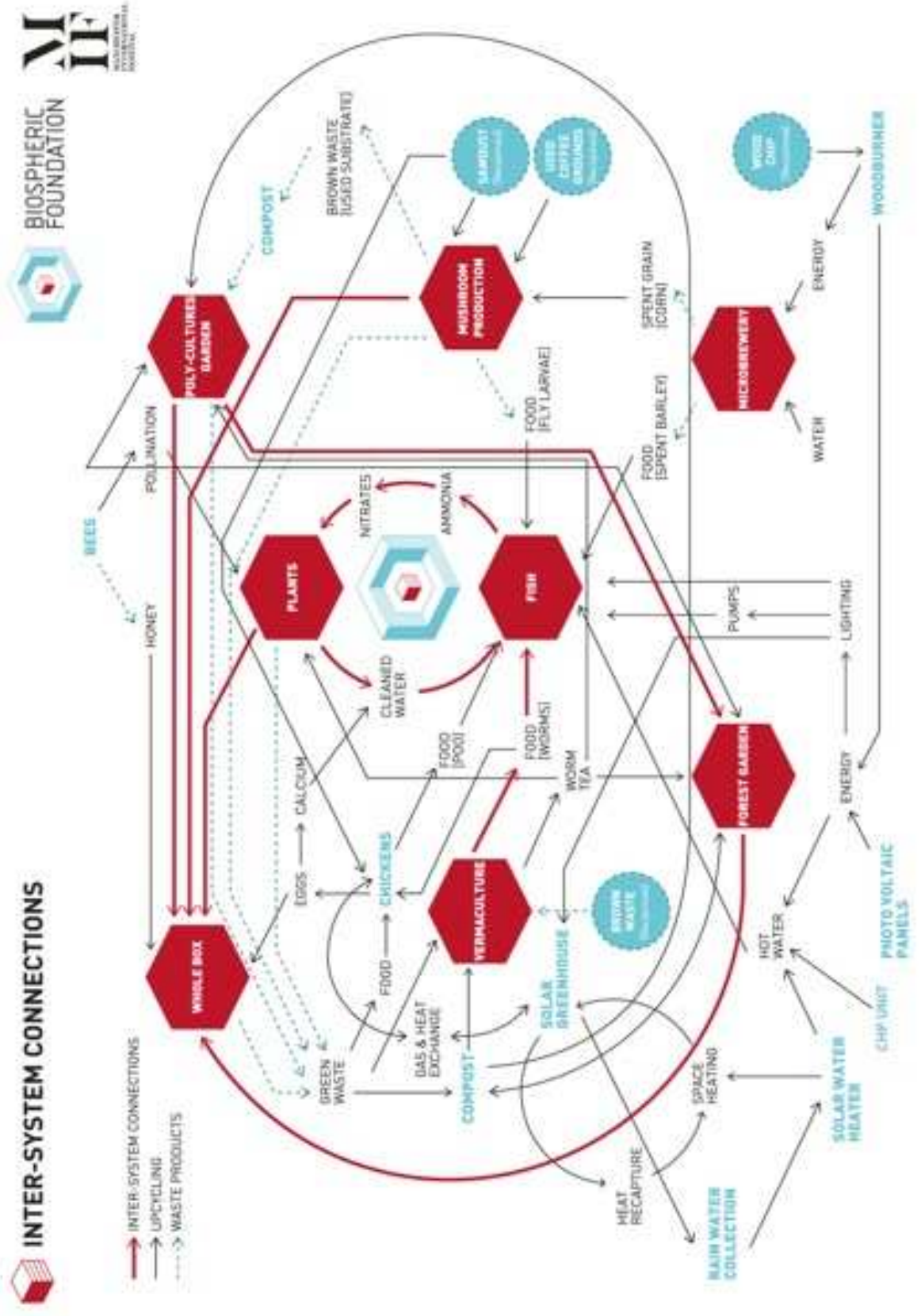

Figure 1: Inter-system connections, infographic produced for the Biospheric Project, 2013.

3.2 Positioning the Biospheric Foundation: A Response to Food Austerity?

3.2.1 A Systems-based Response

The Biospheric Foundation was conceived in part as a response to increasing issues over food poverty in the city, but also as an attempt to eradicate these issues - through building local capacity for a systemic approach to food production, supply, distribution, waste and diet in an inner city area. Whilst the primary motivation of Walsh's doctoral research was to create an integrated action-research platform through which practical insights into complex and interdependent ecological systems would be gained, location was a critical consideration. The experiment was grounded in sets of debates about interconnected systems, the relationship between the 'technos' and the 'bios' and the need for more adaptive, resilient and transformative approaches to urban agriculture. However, the desire to locate such an experiment where it was needed most was equally important. Through the forest garden, encouraging local food production and giving residents the chance to get involved in social enterprises such as the wholefood store, the Biospheric Foundation has trialled a proactive and approach to tackling issues of food austerity that provides insights into the potential and challenges of longer-term responses.

Dowler and Lambie-Mumford (2014) note that policy levers to address food aid across Whitehall and parliamentary boundaties are not joined up, challenging the possibilities for a holistic approach. It is only at the local level that such approaches are possible. Initiatives such as the Biospheric Foundation needs to be understood in the context of localised responses to developing urban food systems. Drawing on Bohn and Viljoen's (2014) urban food star (see Figure 2), the Biospheric Foundation's activities are environmentally and socially relevant, cutting across eating food, food growing, food spaces and food trading. This points also to the growing discussions concerning local food policies. Morgan (2013: 1) notes the increasing role of planning in fashioning a 'new and more sustainable food system, one that is better aligned with societal goals of public health, ecological integrity and social justice'.

Whilst food banks are an immediate response to the issue of hunger in Britain, they have been critiqued for filling the gap in state provision without responding to the bigger issues. Recent reports including the Greater Manchester Poverty Commission (2013), Below the Breadline (Cooper et al, 2014) and 'Feeding Britain' (APIIH-UK, 2014) concur that an individualistic approach tends to predominate. In contrast the Biospheric Foundation's approach is important in not looking at diet as individual choice, but 'relating choice to access and structural determinants, such as spatial access and cultural capacities' (Caraher and Dowler, 2014). They argue that the 'rebranding' of food poverty work as healthy eating, obesity prevention and sustainability results in underinvestment and runs the risk that initiatives rooted in self-help may exacerbate the problems of those who are food poor.

Importantly, whilst food banks deal with immediate issues of access to emergency food aid, attention is now turning to the 'right to food', which requires an emphasis on affordability, availability and access (Dowler and O'Connor, 2012). In this respect, the Biospheric Foundation's location is not incidental. In selecting a location for the action-research ecological experiment, Walsh undertook a mapping of available places to purchase fresh food. This revealed a significant lack of local places at which fresh food, such as fruit and vegetables, could be purchased. This is consistent with research that has suggested that healthy foods can be more expensive and more difficult to obtain in areas of deprivation, which may have an effect on the levels of poor nutrition in areas of low-income (Cummins & Macintyre, 2002). 67 places were found within Blackfriars at which food lacking in high nutritional value could be purchased, with no access to a diverse range of food products. The mapping revealed little pre-existing access or choice to buy healthy food in the heart of the community, indicative of Wrigley's (2002) so-called 'food deserts'. Critically, in tackling issues of access, availability and food quality, the Biospheric Foundation has sought to test out how more resilient food systems could be created (Ardianto et al, 2014) comprising both food security (ensuring food

production and consumption in an affordable manner) and food quality (achieving nutritional balance). In the process, initiatives were also trialled to change local food cultures; indeed, engaging with food *as* culture was one of the premises behind the partnership between Walsh and the Manchester International Festival, which led to the Director of the Festival, Alex Poots, declaring the collaboration 'one of the most important commissions we've ever created' (Biospheric Project Brochure, 2013).

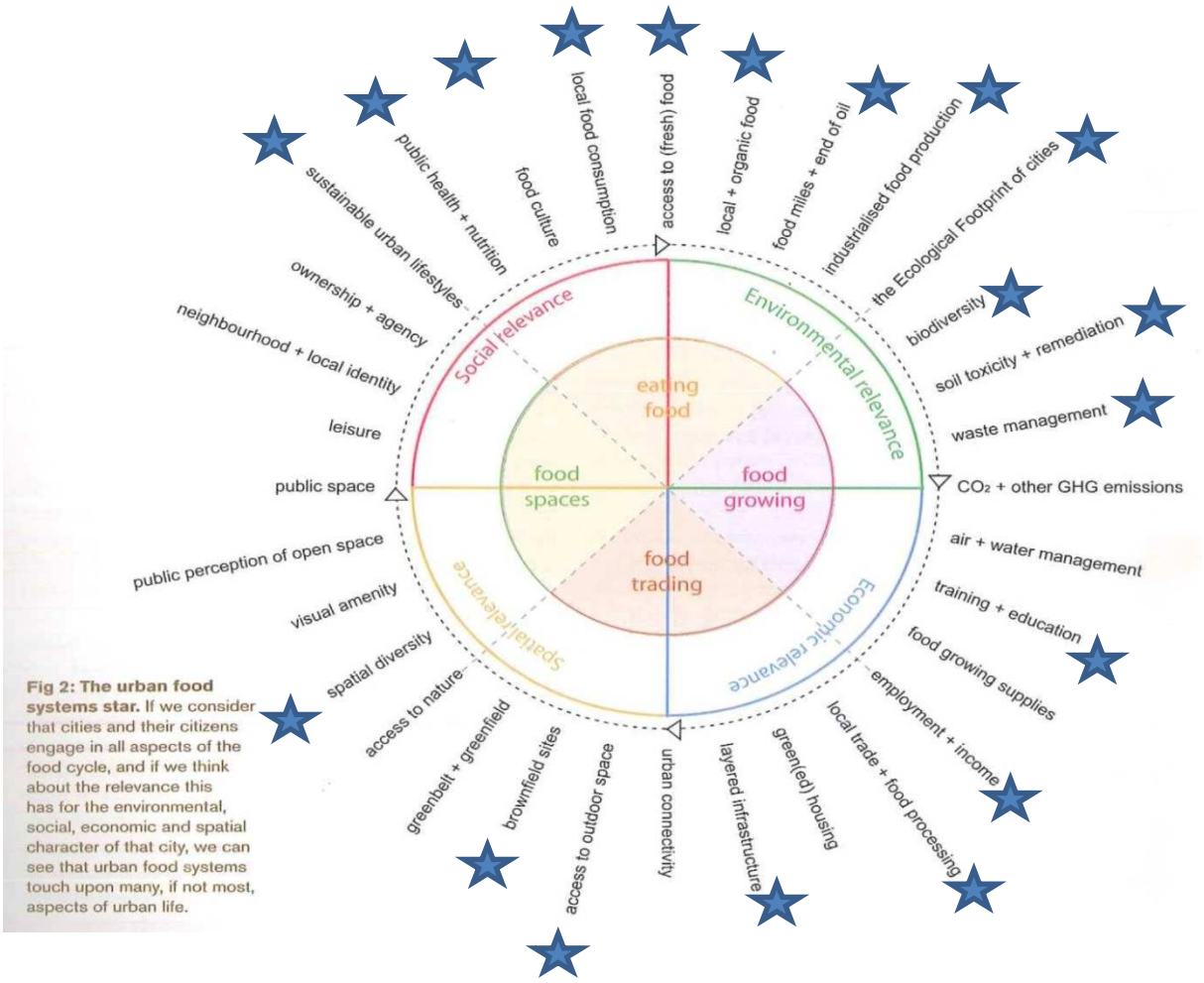

Figure 1 – Bohn and Viljoen (2014): The Urban Food System Star, adapted to indicate areas relevant to the Biospheric Foundation. In Bohn and Viljoen 2014 p.9.

3.2.2 An Alternative?

The Biospheric Foundation experience to date aligns with the increasingly articulated need to move away from the 'sticking plaster' of food banks towards longer term approaches. The Greater Manchester Poverty Commission, for example, was established in 2013 to identify the key components of poverty within the sub-region and identify practical solutions that could improve the lives of residents in poverty. The Commission, initiated by Greater Manchester politicians and with support from a broad range of stakeholders, gathered personal testimonies around people's experiences and meanings of poverty. From these testimonies, food poverty emerged as a key theme. The report (GMPC, 2013: 9) concluded the need for a coordinated and sustainable approach, including social enterprise models that divert food waste and bulk buying noting that 'such models should provide training opportunities and educational sessions *regarding utilising food, sustainability and eating on a budget*' (original italics). A second recommendation related to addressing the issue of 'fresh food deserts' (ibid, 9) and to test the viability of expanding the delivery of fresh fruit and vegetables to food deserts using a social enterprise model. In both cases, the Biospheric Foundation's

Whole Box model, integrated with the suite of community engagement activities, presents one approach to delivering on these recommendations. Similarly, whilst the All Parliamentary Inquiry into Hunger only reported in 2014 (APPIH-UK, 2014), the Biospheric Foundation had been engaged in proof of concept experiments which prefigured their recommendations, for instance, through demonstrating a closed loop system linking production and consumption (p.22), exemplifying practice from which local authorities can learn (p.23) and piloting engagement schemes to introduce greater resilience in terms of cooking, parenting and budgeting (p.29). More fundamentally, locally-grounded projects such as the Biospheric Foundation provide a starting point for greater 'horizontal cooperation', a catalyst to 'encourage local action to meet local needs by using local knowledge and partnerships' (ibid). Unlike some alternative food initiatives (AFIs) which have been criticised for their 'exclusionary' practices which constitute a 'middle class niche' (Caraher and Dowler, 2014), the Biospheric Foundation actively sought to engage with the needs of poorer households and communities. In part this is due to the background and biography of Walsh himself, growing up in Wythenshawe, South Manchester, with low levels of food literacy and subsequently self-funding a tour of U.S. cities and urban agriculture initiatives in East Africa and Europe. Like other AFIs, Biospheric Foundation was not set up directly to tackle immediate food poverty; but unlike other AFIs, the intended benefits were to be felt beyond a bounded and niche community of 'locavores'.

Whilst highly successful in establishing the proof of concept of the Biospheric Foundation approach, the longer-term issues relate to the sustainability of the model. The challenges in this respect relate to the inter-relationship between governance, purpose, finance and location. The speed and scope of the Biospheric Project exceeded expectations and rapidly came to outstrip capacity. With a small governance team and set of volunteers, the Biospheric Foundation quickly positioned itself with multiple epistemic communities and communities of practice. Partnerships with key city-regional organisations, as well as patronage and sponsorship, played a key role in the rapid transformation of the building in the 3 year period. Digital transformations also played an enabling role in this positioning, through the now mundane technologies of communication, such as email, through to the mobilisation of internet and social media and online press to generate profile, interest and credibility. The consequences, however, have been to create multiple lines of communication and contact that have needed to be managed on a day-to-day basis. Furthermore, the virtual presence and digitally-enhanced external image of the Biospheric Foundation created the impression of greater capacity than actually existed. Whilst this had the beneficial effect of attracting project funding, capital costs were not met, despite the huge expenditures associated with retrofitting and maintaining Irwell House.

Like many AFIs, commercial viability is a key challenge. The diversity of the Biospheric Foundation's systems was one safeguard designed to create organisational resilience, with the governance of the Foundation itself mimicking the way in which the systems had been modelled. One example is the potential for up-scaling mushroom production to supply commercial venues, particularly gastronome restaurants, as a potential way to cross-subsidise other aspects of the business. However, as the initial excitement of partners to invest in the 'new' appears to be fading, longer-term systemic commitments have not been forthcoming. This speaks to the fickleness of next-big-thing-urbanism, a hallmark of the entrepreneurial city, and perpetuates a project-mentality. Capacity-building within communities is postponed in favour of basking in the reflected glory of outsourced risk and innovation. Funders are happy to fund projects; but not core costs, regardless of how worthy the vision. For projects such as the Biospheric Foundation, this creates a tension between economic and social values and outcomes in the project. In trying to develop a socially-just but commercially sustainable model, compromises need to be made. Whilst the independent evaluation of the Whole Box model concluded that the boxes had reached local people and that many had tried new foods for the first time, recipients have not transitioned into shop customers. Whilst the Whole Food shop did not start as a way to address the cultural preferences of the middle classes, an unintended consequence of insufficient local footfall is that the customer base would be depleted without the patronage of those coming into the area to buy organic food, whilst some local people continue to stay away. In this, the Biospheric Foundation is not uncommon. Caraher and Dowler (2014) note that socially-oriented food projects are rarely commercially viable without direct state and other sources of financial support; similarly, Connelly et al (2011: 318) note that 'social justice does not fit well with

business plans or development proformas.' McClintock concurs that the challenge is to prioritise use value over exchange value and that 'only if the production of fresh and healthy food is viewed as a public good – and access to it a right – rather than simply a commodity made available via the logic of the market, will cities set space aside for urban agriculture (2013: 166)'.

Given the dilemmas in navigating use and exchange values in urban agriculture, it is unsurprising that there are critics of whether AFIs are alternatives or are in fact propping up existing systems. McClintock (2013) argues that there are inherent contradictions in urban agriculture and that initiatives are often both 'interstitial and subversive' (148) insofar as they attempt to subvert commodity forms by seeing food as a public good, but also, albeit inadvertently, fill gaps left by the rolling back of the social security net. Hence for McClintock: 'urban agriculture, in its many forms, is not radical *or* neoliberal, but may exemplify *both* a form of actually existing neoliberalism *and* a simultaneous radical counter-movement arising in dialectical tension' (2013: 148). This in turn is part of a broader set of debates on whether localism itself is a progressive or regressive phenomenon (Featherstone et al, 2012).

The answer to whether the Biospheric Foundation offers a potential response to food austerity is not so much about the relevance and feasibility of the model in principle, but its realisation in practice, given the challenges of community entrepreneurship and grassroots activism in 21st century cities. Funding, commercial viability, a reliance on voluntary labour, the challenge in scaling up are all common issues. Institutional survival and limited capacity to deliver means, as Caraher and Dowler argue (2014), that such initiatives can seldom move from responsive mode in addressing long-term food problems. More broadly, the Biospheric Foundation has the potential to be part of a transformative food politics (Levkoe, 2011), not addressing the causes and contradictions of food austerity in and of itself, but recognising that system change will not arise from 'a smattering of urban agriculture projects' but a long-term incremental process.

3.2.3 The Potential of Digital Transformations

Other than a twitter feed and website, digital transformations have figured only lightly in shaping and framing the development of the Foundation. Yet a number of challenges emerge from the case study and above discussion that are worthy of further consideration. How can digital transformations build long-term capacity in ways that reduce the need for short-term project costs? How can the learning from the Biospheric Foundation and other initiatives be synthesised and combined as part of a scaling up of local experiments? How can non-project based engagement, limited by short-term funding, be facilitated through digital transformations?

An initial review of the academic literature in relation to urban agriculture, human geography, planning and food poverty has revealed little reference to date to the actual or potential role of digital technologies in addressing food austerity. However, many of the recommendations of recent reports emphasise the distributed and fragmented nature of local food initiatives, the need to network food banks, the desire to scale up and embed approaches which work well. Whilst not explicitly addressed, there is untapped potential here to consider how digital technologies can build the kinds of networks and platforms for shared learning that are invoked.

Indeed, whilst urban agriculture literatures appear relatively 'technology blind', technologists are beginning to link information and management systems to questions of food security, resilience and culture. This includes small studies on the use of twitter to enhance food resilience (Ardiano et al, 2014); on social media and mobile technologies in augmenting sustainable urban food systems (Hearn et al, 2014); on technologies for food image sharing (Choi et al, 2011) or online social networks such as Foodmunity (Gross et al, 2011). The potential of human-computer interactions (Lyle et al, 2013), mobile technologies or social media in addressing these issues is starting to be examined. Similarly, academic studies appear to be behind the curve of innovations emerging in practice – see for example http://www.theguardian.com/sustainable-business/free-food-sharing-leftovers-surplus-local-popular.

Examples include casserole clubs, food sharing apps or virtual farms – a series of initial examples is provided in Box 2. Geographically, initial indications are that the European continent and North America are ahead of the UK in exploring the potential of digital technologies to address this critical challenge.

Box 2: First hits and inspirations? Digital transformations and food austerity	
Description	**Link**
LEAF Virtual Farm Walk	http://www.virtualfarmwalk.org/
Leftover swapping app: enables individuals to photo, upload and give away their leftover food.	http://leftoverswap.com/ See also TED talk at http://leftoverswap.com/benefits.html
FoodCloud App: facilitates the safe donation of surplus food from businesses to charities in their local area who can redistribute it to those who are struggling to feed themselves and others	http://www.bitcni.org.uk/what-we-do/planet/resources-and-links/foodcloud-whats-it-all-about/
Virtual tours of green buildings linked to urban agriculture potential (U.S.)	http://virtuallygreen.com/
Casserole Club: helps people share extra portions of home-cooked food with others in their area who are not always able to cook for themselves	https://www.casseroleclub.com/ https://www.facebook.com/CasseroleClub
CropMobster Community Exchange: leveraging social media and "instant alerts" to spread word about local food excess and surplus from any food supplier in the food chain	http://sfbay.cropmobster.com/how-it-works/
Shareable movement: looking at all kinds of physical and virtual ways of developing more sharing society	http://www.shareable.net/blog/the-cooking-eating-and-business-of-shared-food http://www.shareable.net/blog/open-sauce-source-for-the-food-revolution
FoodCowboy in Washington DC, using mobile technology to address hunger and waste	http://foodcowboy.com/

3.3 Community Conversations

Four community conversations were held between November 2014 and January 2015 with different groups: technologists, academics, residents of Blackfriars and food poverty practitioners. Each group discussion lasted for between 2-3 hours and involved an open discussion to elicit different perspectives on the potential of digital transformations in addressing food austerity.

Community	Venue	Date 2014-2015	Number of participants
Technology	Biospheric Foundation	25th November	5
Residential	Biospheric Foundation	2nd December	6
Academic	Salford University	9th December	8
Food groups	Broughton Trust	16th January	6

The Technologists were solution-oriented and positioned their value in visioning and brainstorming concrete ways to realise specific plans. Whilst they engaged with the terms of reference of the discussion and suggested areas for potential enquiry, their main interest was in realising the Digital Action Plan once it had been co-produced with members of the community. The Residents spent more time discussing local issues relating to food austerity, including the relationships between cost, quality and nutrition, access to food and availability, time to shop and the quantity/quality debate. Whilst academic analyses are beginning to challenge the idea that poor communities have no understanding of nutrition, 'calling into question the wisdom of policymakers who promote nutritional

education as opposed to addressing lack of access to high-quality food sources' (Rose, 2010. See also Crotty and Germov, 2004), education was nonetheless a central theme emerging from this conversation. The challenge for the residents was how to find ways to reach people that relate to their everyday movements, for instance, in lifts, gyms or doctors surgeries. A distinctive strand of the discussion compared with the other groups related to multiculturalism and food cultures, for instance focussing on the nutritional value and cultural norms associated with different eating practices (cows/insects). Food choices were seen as being bound up not only with class, but also with cultural and social identities, as well as being affected by material conditions. The Academic conversation was more critical of the assumptions underpinning the framing of the research, for instance, in relation to questions of access to technology, the role of qualitative and quantitative data and the dangers of a 'paternalistic' attitude to educational mantras as a fix for food austerity. Much of the discussion echoed the preceding discussion in this interim report, in terms of the need to locate food austerity within broader social-structural transformations and global and cultural dynamics. Excessive expectations of technological developments to 'fix' complex urban issues were to be avoided; whilst a general orientation to redeploying existing technology and applying this to new problems was a common theme. The Food Poverty group was interested in questions of improving the quality of emergency food assistance through connecting growing projects with social need, for instance, through allotment – food bank partnerships. The Resident, Academic and Food Poverty conversations were widely embracing of the potential for digital technologies but did not believe they would provide 'magic' solutions. The important of locality and human interaction was a strong theme, given the relationship between food, culture and social relationships.

Box 3: Ideas generated in the conversations				
Idea	**A**	**T**	**R**	**P**
Data generated could be displayed, such as the levels that check on the nutrients, and could be used on websites and as a public interface to connect with schools. Digital screen on BF showing key information and saying what is available in the shop.		x	x	
An allotment network, using digital technology to donate food into a food bank network; distributing left over produce; a digitally enabled produce exchange.	x	x		x
Using existing software, such as Tinder or Grindr to connect those in need with those who have food; redeploying commercial systems, i.e. technological systems used in supermarkets to manage customer relations.	x	x		
Developing BF as an education platform, communications, recipe cards, advocacy, influence, reach, mapping future scenarios, visualisation (i.e. what happens when you eat a carrot), gaming, virtual networks, Viral Vinny, youtube, online cooking classes, augmented storytelling, m-technology, vertical farming 'Sim City', 3 dimensional BF, digital roadshow, filming the journey of a single molecule, filming growing, sharing on Facebook/social media, blogging.	x	x	x	x
Cooperative bulk buying group as a complementary / different model for 78 steps.			x	
Investigate alternative food distribution and sale approaches, for instance, company shops, community shops, club cards	x			
Predictive analytics: mapping demand, need and supply.	x			
Community kitchens.	x			
Community food cultures, sharing stories, mapping local spaces, deploying social media, sharing food cultures across different ethnic groups.	x		x	
Signposting and information exchange; broader self-posting networks, youtube channels, what's cooking Salford; digital exercises, pictures of people in the community.			x	
Pop up markets, temporary farmers markets.			x	

A wide variety of different digital technologies were discussed in the group, including the internet, big data, commercial logistics systems, social media, YouTube/twitter, open data and particularly mobile technologies. Notwithstanding difficulties and differences in immediately grasping the meanings implied in 'digital transformations', the conversations produced a range of options that participants felt were important and worthwhile. These are summarised in Box 3. Overall, the options focussed on two separate themes: digital transmission and digital transformation.

Digital transmission: a set of ideas was articulated across all the groups about how to capture and transmit the learning from the Biospheric Foundation. The possibility is for a digitally-enabled learning platform that could act to distil the lessons from the Biospheric Foundation for a broader audience. In this, whilst not addressing the root causes of hunger, there is alignment with the recommendations of 'Feeding Britain' to 'function as a centre of knowledge and excellence by implementing best practice food models and training local food entrepreneurs' (APIIH-UK, 2014:46). Ideas included having a 3D interactive virtual model of the Biospheric Foundation, having online learning tools, telling stories (such as the journey of a molecule etc), collating recipes. There was considerable enthusiasm for this broad theme across the groups.

Digital transformation: a second set of ideas seeks to build capacity *beyond* the Biospheric Foundation. The question relates to how community members may want to draw on the inspiration of the Biospheric Foundation in their neighbourhood to create networks, resources, forums for the community to take their own ideas forward. Residents articulated the desire to understand how cooperative bulk buying networks was articulated. Some key issues to explore here include the geographical scale (Broughton/Salford etc) and ownership, responsibility, representation and commitment. In these instances, technology is a potential enabler, but not sole replacement for, community interactions (see for instance the Real Junk Food initiative http://www.therealjunkfoodproject.co.uk/).

4. Next Steps

On the 19th and 20th March 6 community researchers will gather for a community research jam to co-design a Digital Action Plan based on the conversations to date. They will discuss and decide desirable and feasible actions, identify the SWOT of different ideas, meet with some experts to help understand practical issues in implementation, identify steps to help put the Digital Action Plan into progress. In the meantime, academic and policy outputs will be finalised.

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