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Design Led Innovation to rejuvenate local food systems and healthy communities: an emerging research agenda

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Abstract—Food Sovereignty (food freedom) is about empowering people to develop their own local food system. Food Sovereignty challenges designers to enable people to innovate the local food system, rather than having a food system which is dictated by corporate interests and failed business ethics [1]. Communities are realising the potential for design to assist in the innovation process, and add strategic value to potentially localise the food system [2]. Design Led Innovation (DLI) offers a strategic framework to address large-scale cultural, systemic and economic changes. The DLI approach empowers communities to take organised action to achieve a healthy, prosperous and happy way of life. DLI can assist with business models in the business world and it is evident this approach can assist with creating social change too [14]. This paper presents an emerging research agenda aimed to assist designers shift their focus from individuals and systems to communities and urban problems. This paper also presents the research proposition that DLI and service design coupled with social entrepreneurial ventures such as local food projects and creative community inventions, have the potential to enable social innovation for healthy and happy communities.

Keywords: *service design, design led innovation, systems design, food sovereignty, creative communities, community capital*

I. INTRODUCTION

There is a strong trend towards localization of food systems and economies because people can see that industrial agriculture and corporate profits are not benefiting their health or their hip pockets. Economic globalization has led to a massive expansion in the scale and power of big business and banking. It has also worsened nearly every problem we face: fundamentalism and ethnic conflict; climate chaos and species extinction; financial instability and unemployment [3]. There are personal costs too. For the majority of people on the planet, life is becoming increasingly stressful. We have less time for friends and family and we face mounting pressures at work. *The Economics of Happiness* [3] describes a world moving simultaneously in two opposing directions. On the one hand, an alliance of governments and big business continues to promote globalisation and the consolidation of corporate

power. At the same time, people all over the world are resisting those policies, demanding a re-regulation of trade and finance—and, far from the old institutions of power, they are starting to forge a very different future. Communities are coming together to re-build more human scale, ecological economies based on a new paradigm – an economics of *localisation* [3].

The Creative Communities movement shows a surprising number of people inventing sustainable ways of living, because they see economical, environmental and society equity as well as a sense of beauty in this move [4] [5]. The research project proposed in this paper has the potential to add significantly to the growing body of knowledge in regards to the impact of agricultural re-localization on community and environmental sustainability. The research investigates how localising the food system can benefit health and contribute to community development and wellbeing, and aims to develop business cases and service models to make local food systems viable and implementable. In doing so, this research will involve the application of DLI theory within a new sector of Social Enterprise, Social Innovation, Sustainability and Community. Increasingly, forward thinking companies, communities and governments are realising the potential for design to assist in the innovation process itself, and add strategic value to places and business [2]. The process of employing design as a strategic tool is now commonly known as Design Led Innovation [6] [7]. Design strategy can address the challenges of scalability of sustainability projects and help to organise of local food projects. Furthermore, DLI is a framework to build bridges between people with different perspectives. This framework enables people from communities, government and business to all solve programs together in a collaborative, creative and professional way. New service models for local food offer distinctive value and can produce economic, social and relational value. These service models lead to creating long lasting business models and organisations that contribute to healthy and thriving communities [8] [9] [10] [11] [12] [13] [14]. The method of approach, is practice-led action

research, as it aims to empower entrepreneurs and communities with DLI focused tools and co-design design techniques. Using this methodology, design becomes an exploration process that people undertake together which leads to collaborative and creative solutions being developed from a grassroots perspective [15] [16] [17]. The outcomes of this research will highlight ways the DLI approach can transform entrepreneurial local food projects with current emerging service models. These service models are based on collaborative principles, that support urban life and cross between boundaries of profit and not-for-profit, public and private, social and the market [4] [5]. Policy and decision makers can incorporate the application of DLI theory within the sector of social innovation [2] [8] in order to help define service models that have a strong business case and social impact.

II. WHY DO WE NEED TO LOCALISE AND DESIGN HEALTHY COMMUNITIES?

A. Food Security and Food Sovereignty

Food Sovereignty is defined as reinserting everyday people back into the centre of the food system, rather than have this dictated global food system with corporate elites [1] [17]. Whereas food security is broadly defined as “access by all people at all times to enough food for an active, healthy life” [18] [19] [20] food insecurity exists “whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable food in socially acceptable ways is limited or uncertain” [21] [22]. There are three key components of food security [20]

1. *Food access*: the capacity to acquire and consume a nutritious diet, including:

- the ability to buy and transport food;
- home storage, preparation and cooking facilities;
- knowledge and skills to make appropriate choices;
- and time and mobility to shop for and prepare food.

2. *Food availability*: the supply of food within a community affecting food security of individuals, households or an entire population, specifically:

- location of food outlets;
- availability of food within stores; and
- price, quality and variety of available food [20]

3. *Food use*: the appropriate use of food based on knowledge of basic nutrition and care.

A major challenge to food sovereignty and food security is the sustainability and equity of the current food supply [1] [2] Healthy equitable food systems are needed to feed all people, look after food producers, and ensure a sustainable food supply conducive to food security and environmental health. Food is not a simple commodity [1]. There is much

evidence to suggest, that in the current, corporate dominated globalised food system that family farmers everywhere struggle to earn a decent living, fresh, nutritious food is becoming less affordable for many people, the industrialised and globalised agriculture and food system creates as much as 57% of total global greenhouse gas emissions, industrialised agriculture (via deforestation and land use change) is a major factor in the mass extinction of other species and as much as half of all food produced is wasted. Global food systems are delivering high rates of obesity and a food system in which healthy food is not affordable [1].

B. Nutrition, Wellbeing and Healthy Communities

Most Australians and people in western countries are not getting decent healthy, safe, nourishing food. Less than one in ten of Australian adults eat the recommended daily amount of fruit and vegetables. Poor quality diets are a result of energy-dense, nutrient-poor food products, the high cost of good quality fresh foods, the role of advertising towards over-consumption [20] [21]. These dietary trends increase the risk of the development of overweight and obesity. Around two-thirds of Australian adults, and one quarter of Australian children, are overweight or obese [1]. Being overweight or obese put people in high risk of chronic health issues including cardio-vascular disease and diabetes [19] [21].

There are major social equity and social justice issues highlighted in the obesity epidemic. This is due to the inequitable access to healthy foods, with disadvantaged households at high risk of experiencing food insecurity due to limited affordability of healthy items. Also, a healthy diet of fresh foods costs about 28% of a low income, but only 6-9% of a high income [. In remote and rural communities, fresh food prices are up to 45% higher due to transport costs; and housing and cooking facilities are often inadequate. Obesity risk is almost twice as high for people on low incomes compared to their higher income people [7]. Therefore, improvements in food security and food sovereignty may provide important opportunities for improving nutrition and wellbeing of populations.

Despite assurances that ‘Australia is food secure’, studies consistently show that among disadvantaged people there are 25% - 75% who run out of money to buy food [19]. Currently, the major strategy for the alleviation of food insecurity is emergency food relief. However accessing these services is associated with stigma and shame, and as such the provision of emergency food relief does not align with the definition of food security, which states that food must be accessible in socially acceptable ways. To truly begin to address the issue of food insecurity, we need a positive framework for healthy eating, founded on the human right to good food for all, regardless of income or background.

Currently practice-led research focuses on the issue of food and ‘re-localising’ the food system. There is an evident gap in the literature and food is a tangible way in which to engage people, build community, and create health and wellbeing.

III. TREND TOWARDS LOCALISATION AND CREATIVE COMMUNITIES

New generations of local distributed systems emerged and are emerging. Local distribution systems are places, social and physical infrastructure to connect local buyers and sellers as well as celebrate community and conviviality. These are important for food security and food sovereignty because they focus on community based local food solutions. Locally driven projects and economies are the result of complex, innovative processes in which technological components cannot be separated from social ones. No resilient systems such as communities or economies can exist without social innovation. Social innovation is spreading worldwide [8] [9] [23] [24]. In all its complexity, contemporary society is developing a growing number of interesting cases in which people have invented new and more sustainable ways of living [4] [5]. What we recognise how is that DLI is the next step to scale these social innovations. DLI can be used to develop social outcomes [2] [25].

Despite the many potential advantages associated with localising the food system there, there are many challenges to achieving this. Bottom-up and top down barriers are holding back a new way of thinking about the local food systems. From the top-down: public administrations, private food companies and the industrialised food systems and others fear to make radical innovation in local food design. They often poorly understand the overall benefits of localizing the food system, and most of all, they do not think with a long-term lens. From the bottom up (citizens, groups of citizens) there is not enough information, tools and availability of best practices and social media platforms to support them, hence it is difficult to understand the process to take and the idea itself.

Furthermore, there is not a collaborative approach between business, government and communities. Community development and 'intangible' work is not valued in our society. There are not government policies to support re-localisation of food and communities. Design thinking and place making is not valued in mainstream business and government.

Distributed systems are the result of complex, innovative processes in which technological components cannot be separated from social ones. No resilient systems can exist without social innovation. Social innovation is spreading worldwide [26] [27] [30]. Emerging ways of living and producing these innovations are largely convergent with the trend toward resilient distributed systems. In fact, in its complexity and with all its contradictions, contemporary society is developing a growing number of interesting cases in which people have invented new and more sustainable ways of living [4] [5]. We are increasingly seeing, for example, groups of families sharing services to reduce economic and environmental costs, while also improving their neighbourhoods; new forms of social interchange and mutual help, such as time banks; systems of mobility that present alternatives to individual ownership and use of cars, such as car sharing, car pooling, and the rediscovery of

bicycles; and the development of productive activities based on local resources and skills that are linked to wider global networks. Further examples touch on every area of daily life and are emerging all over the world [4] [11] [12].

There are four forms of Local Distributed Systems (LDS) [36] which are;

1. Place Based, which are strongly linked to specific sites and characterise the identity of the system
2. Means Based; this kind of LDS is characterized by the use of specific physical means which is different respect to the previously mentioned "Physical place". These can be permanent (ex. Vending machines) or mobile (ex hawkers).
3. Net Based; this kind of LDS is an advanced form of e-commerce, based on a network that is an aggregate for different elements and combines different forms of delivery.
4. Symbiosis Based LDS is strongly connected to existent retail points, because it creates a sort of symbiotic relation with them by using their identity and structure [11].

A. Networks, Communities of Practice and Emergence

There is extensive research to show the importance of distributed systems and networks, communities of practice and the concept of 'emergence' assisting the movement of social innovation towards healthy communities and local economies. The 'lifecycle of emergence' is described in the next section. This description shows that 'interventions' such as DLI can be a part of a form of 'eco-acupuncture' in networks and systems to improve community health and local economies.

Stage One: Networks. We live in a time when networks are forming as the means to create societal change [28] [30]. These networks are essential for people finding like-minded friends and colleagues. This is known as the first stage in the life cycle of emergence. It's important to note that networks are only the beginning of social changes [30].

Stage Two: Communities of Practice. Networks make it possible for people to find people engaged in similar work. The second stage of emergence is the development of communities of practice (CofPs) [30]. Many such smaller, individuated communities can spring from a robust network. CofPs differ from networks because they are communities, which means that people make a commitment to be there for each other; they participate not only for their own needs, but to serve the needs of others [28] [30]. Often, there is an intentional commitment to advance the field of practice, and to share those discoveries with a wider audience. The speed at which knowledge development and exchange happens is crucial, because local regions and the world need this knowledge and wisdom now [30].

Stage Three: Systems of Influence. The third stage in emergence can never be predicted. It is the sudden appearance of a system that has real power and influence.

Pioneering efforts that hovered at the periphery suddenly become the norm, and reach a tipping point [30]. The practices developed by courageous communities can become the accepted standard by the general public.

Policy and funding debates then include the perspectives and experiences of these pioneers. They become leaders in the field and are acknowledged as the wisdom keepers for their particular area of interest and advocacy. Emergence is the fundamental scientific explanation for how local changes can materialise as global systems of influence. If we understand these dynamics and the life-cycle of emergence, what can we do as designers, leaders, activists and social entrepreneurs to intentionally foster emergence [30]?

B. Small Open Local Connected Vision

In order to address a highly industrialised model which is causing problems to areas like our food system, visioning has been taking place from world leading designers and business experts to explore a new way of being [1]. Therefore, the SLOC scenario helps to achieve the vision for a local distributed food system [12]. Manzini's SLOC Design Scenario helps to shine light on how we may change the system. Manzini states: Being localized, small, connected and open (to others' ideas, culture and physical presence), these promising social innovations actively contribute to the realization of resilient, distributed socio-technical systems. And vice versa: distributed socio-technical systems may become the enabling infrastructure of a society where these kinds of social innovations can flourish and spread [12]. Creative communities that challenge traditional ways of doing things introduce behaviours that, often, present unprecedented capacities for bringing individual interests into line with social and environmental ones [4] [5]. In doing so, these communities generate ideas about a more sustainable wellbeing, a wellbeing where greater value is given to a new set of qualities [12]. SLOC Scenario can become a powerful social attractor, capable of triggering, catalysing and orienting a variety of social actors, innovative processes and design activities [12] [13] [28]. To be implemented, therefore, the SLOC Scenario requires a large number of converging design programs to focalize and develop an array of themes that, as a whole, outline a possible in Manzini's view necessary design research program encompassing research focussing on ways to enable communities to take action such as through Design Led Innovation and Service Design [4] [5]. These four themes include:

1. *Collaborative solutions*: systems of products, services, and communication capable of empowering people and communities to collaboratively solve everyday life problems; (these include food systems as a fundamental one)
2. *Updated craftsmanship*: the development of traditional and high-tech craftsmanship within the framework of the network society;

3. *Territorial ecology*: the sustainable valorisation of the physical and social resources of a given place or region (See figure 1);
4. *Sustainable qualities*: the widening and deepening of emerging qualities that are driving people's choices toward more sustainable ways of being and doing. Food sovereignty plays an integral role in enabling people to express local and sustainable qualities.

The challenges of food security and food sovereignty are pressing issues [20]; to address designing new solutions in local distributed systems [11]. DLI will be used to identify solutions to food security and food sovereignty and in turn assist people in the transition to a rejuvenated food system in Australia. In turn providing solutions that can potentially be adopted by councils, developers, communities and policy makers.

IV. DESIGN LED INNOVATION AND PARTICIPATORY DESIGN

Design Led Innovation (DLI) offers a framework, which may help to address large-scale cultural and transformative changes in a society such as food sustainability and enabling creative communities to thrive. Using design thinking we are able to 're-vision' and set strategies in place to achieve this vision. Traditionally, design has been considered a downstream activity in the innovation process; an afterthought applied to an idea to make it attractive, usable and marketable [2]. Essentially, Design Led Innovation (DLI) is the process of utilising design thinking in the wider and holistic context of a business's (or place) innovation strategy [9] with the aim of adding value to the overall business and its stakeholders. It is possible the SLOC vision as mentioned above can be 'addressed' using Design Led Innovation approach, and in turn assist with designing local food systems and healthy communities [12].

Developing social enterprises is one approach to address the challenges which have been the question of scalability. Their design research aims to define service models that have a strong business case and social impact. Whilst offering distinctive value, good quality standards, continuity, effectiveness and efficiency through a collaborative organisation, are able to produce economic, social and relational value. The design thinking ultimately leads to creating long lasting business models, organisations and operations that contribute to healthy, happy and thriving communities [31].

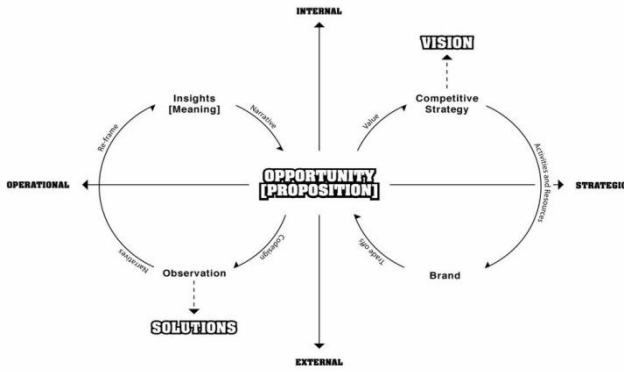


Fig. 1. Design Led Innovation Conceptual Framework [14]

Figure 1 describes how DLI is a holistic framework to set visions and implement operations such as social innovation projects. The process of DLI illustrates how a creative vision can be conceived (for instance in relation to CDLI, a community garden vision), then this vision can be realised through community insights and considering operational ways to make this vision a reality. The conceptual DLI Framework illustrates a strategic process that can assist companies and communities to evolve through realising the strategic value that design can bring to a business or community [2]. Central to this process is the opportunity or proposition which is informed by all aspects of the business. In the context of this framework, reframing is used to identify and understand the meaning behind observations.

Over the past two years researchers at Milano Politecnico have started to talk about their craft as co-design or co-creation [4] [32]. What is new here is that the design process is increasingly opened to people, whether stakeholders or users. The idea is that design is supposed to be an exploration people do together, and the design process should reflect that [32]. Through these developments, the designer's interest is shifting from individuals and systems to groups and communities. There is also a trend away from products, experiences and even services towards communities and large-scale urban problems. Service design demonstrates a complex array of services with in a 'whole system' and community that can be implemented using service design and possibility DLI [35].

V. AN EMERGING RESEARCH AGENDA

This research explores how to transform entrepreneurial opportunities with the current emerging service models using a Design Led Innovation and service design approach. These service models are based on collaborative principles, that support urban life, housing and food production/provision, and that cross between boundaries of profit and not-for-profit, professional and amateur, public and private, social sector and the market. These services are often forms of social innovation or entrepreneurship, because the current food system has a very strong industrial and global focus [1]. There is a social, environmental and entrepreneurial demand for innovation towards localised

food systems [1]. The research aims to define service models that have a strong business case and social impact. In other words, service models able to integrate the value of the personal motivation with the one of cooperative disposition, the voluntary character with the entrepreneurial ones, the private contribution with the public ones, according to a principle of social welfare boost. The emerging use of IT such as; facilitation of wiki, peer-to-peer and collaborative services is already recognised, will here be investigated as enabling systems of new services and of the mechanisms of micro and auto-entrepreneurship that will allow individuals and communities to put them in place. The research will follow an experimental approach, oriented to small pilot projects. The outcomes of this study will add to the existing body of knowledge surrounding Design Led Innovation and Social Innovation for Sustainability which, at present, is an emerging field [8] [26] [27]. The research will also build a case for why policy makers, designers and decision makers need to incorporate the DLI approach to localising food systems and creating community. In turn this knowledge will contribute to the development of policy and projects to enhance sustainability and food security.

VI. RESEARCH AIMS: COMMUNITIES, POLICY MAKERS AND DESIGNERS TAKING ACTION

A. Research questions and sub-questions:

1. *What are the opportunities and challenges involving a Design Led Innovation approach to rejuvenating local food systems and communities?*
2. *Within the case studies from Australia and Italy what are the differences, opportunities and challenges using the Design Led Innovation approach to rejuvenating local food systems and communities?*
3. *What are some recommended solutions to rejuvenate local food systems and communities?*
4. *How does a shift towards local food systems and food sovereignty develop resilient, healthy and creative communities?*
5. *How will these solutions be adopted by councils, developers, communities and policy makers?*

B. Research Aim, Objectives and Methodology

The aim of this research is to find out ways to unite communities to develop ways to build resilient, healthy communities and food systems. This will be done in various ways including:

- Design Led Innovation Approach
- Service Design and Co-Design
- Story telling and communications.

There is a significant gap in knowledge that enables multiple stakeholders to address food sustainability and

community making (like place making) initiatives. The research aims to highlight the ways in which designers, policy makers and communities can practically support solutions in places. There is likelihood a tool-kit of solutions will be created as a part of this research, which will be then utilised by industry and communities.

The toolkit through its effectiveness for places will in turn influence policy to support communities to take further actions. An important step to take right now is to take action. Action inspires changes to policy and attitudes, because people can see the benefits of the work. This is why communications will also play a major role in this research. The outcomes and findings will be shared on my blog: emilyballantynebrodie.com as it happens, which means people can participate via social media on the progress of the projects and research and the impacts that it is having.

The research agenda focuses on Practice-led Action Research methodology to be the main leading line of activities [32]. This has meant that together with an overall understanding of the literature and the theoretical background, the research has developed several actions that were important for understanding the main features of Local Food Hubs, Community Gardens and Sustainable Master Plans. The differences in context, culture and time factors mean the research operates in small-scale experiments verifying the hypothesis constantly. Also, since user participation is one of the main issues to be evolved in local food innovation, by using Practice-led Action Research the research is able to test community participation, as it is one of the methodology basics [32] [33]. This research recognises gaps between academic-practitioner and theory-application have to be resolved. While many academics may not know too much about the real world, they have that technical structuring, writing and teaching abilities on knowledge systems and vice versa the practitioner has project management and implementation skills. Possibly the sabbatical might be one way to address this in the West, with some universities allowing academic to practice to some extent, based on apportionment of the fees and costs, if institutional resources are being used.

The proposition brought by this research is that there is a need for a special form of local community and food hubs and (whether physical or virtual) in order to bring innovation to local communities and economies. These hubs should be able to apply DLI, change management methods and co-design tools in order to create and enable a community of people towards changing the concept of local food systems. These community places and food hubs will like living lab for where people connect, learn and share. These places can be assisted by designers and architects who will be able to improve vacant land, existing buildings, and better design their new ones.

VII. ENABLING CREATIVE COMMUNITIES WITH DESIGN LED INNOVATION

Community capital has been identified as a factor important in addressing food security and food sovereignty. Community capital can be measured by the amount of trust and "reciprocity" in a community or between individuals

[34]. There is a resurgence of interest in community and local ventures in the past five years and there is a great opportunity to now connect this movement strongly with the one of localising the food system, as they both are supportive to each other. People recognise the need to build resilient communities for health, economic and social reasons. In turn local food movement and food sovereignty are major catalysts for bringing people together to build resilient communities. How does a movement towards food sovereignty in turn develop resilient, healthy and creative communities? Local food systems are a great catalyst to bring people together and are a 'convivial tool' to achieve community capital [36]. There is however a gap in the way of achieving local food systems and healthy communities. Design Led Innovation and Participatory Design which lead to healthy, resilient and creative communities is only possible when political systems are right to support this approach. Otherwise, the outcome may be long delayed or even not possible to implement. We can see that a major part of the social innovation occurring in the community and localisation movement is focused around food sovereignty and people taking back power over their food system.

VIII. HOW TO OVERCOME CHALLENGES TO LOCALISATION

Practice-led Action Research helps to build case studies and examples of best practice work. Taking action is a very important step towards learning a new way to operate. The findings so far from using a DLI approach are:

DLI is a way to address Food insecurity and sovereignty and to enable creative ideas to happen. Through DLI people are supported on their journey of starting a local food project.

- DLI is a holistic approach which creates long term outcomes
- DLI brings community on board and speaks in a language that engages business and government. It is also an organised way to develop innovation.
- DLI is a tangible way to create outcomes.

IX. FUTURE WORK: COMMUNITY DESIGN LED INNOVATION

Coupling creative community projects and social innovation with Community Design Led Innovation (CDLI) and Service Design approaches shows potential for individuals who are taking a high level initiative in their communities to take further action. These strategies and tools can enable individuals to further the localisation of economies and communities and in turn assist with significant movements such food sovereignty, healthy communities

The localisation movement has a strong need for strategies, tools, methods and business models to scale and support their social innovation. CDLI and service design present a strategy and method to enable local food projects, creative communities and enterprises. For instance the

Participatory Action Research that has been conducted to date sheds light on how to overcome their challenges of food insecurity, mental health, food sovereignty and low community capital. Currently this research is grounded in the three following projects:

1. City of Greater Shepparton and co-designing the Regional Food Hub with this community and reflecting on this process.
2. In the City of Melbourne with Urban Reforestation, with focus on ways to create new Urban Agriculture and Forest models in Melbourne and Brisbane,
3. In Milan, Italy at the Politecnico di Milano's Peri-urban food project "Nourish Milan" [35].

This research has a very strong focus on 'practice-led research' and enables reflection on the work and innovate new services which can be useful to individuals, communities, councils and policy makers. The research agenda for Community Design Led Innovation (CDLI) is to solve some of these challenges, so creative solutions can be achieved. These communities need to have access to specialist CDLI training and/or downloadable tools that empower them to actively develop their community with the following skills, strategies and capabilities:

- Design tools to develop Communication within the community.
- Tools for creating partnerships with stakeholders, business and community groups
- Tools for business models and plans for projects.
- Tools for raising money, government grants, fundraising, donations, not for profit and crowd funding
- Tools for creative thinking leading to innovation
- Tools for connecting communities, conviviality tools i.e. through food dinners, BBQ's, clothing swaps, conversation cafés community street gatherings.
- Tools and strategies to keep networks alive and growing
- Tools to create networks and communities of practice
- Tools to support foster leadership which supports networks and communities
- Tools for negotiating and managing conflict.

These tools will be developed based on the practice led research in places such as Melbourne, Shepparton, Brisbane and Milan. In order to develop tools which are suitable for communities in various contexts, this reflection is integral to developing the appropriate tools to assist a diverse array of communities with varying contexts and issues. These tools

can then be developed on an attractively branded website which helps to scale social innovation for sustainability projects. This website will be developed using a process of crowd funding, extensive community engagement with major stakeholders to share the CDLI process and how it will enable communities around Australia to re-design their places towards local food systems and healthy communities and economies.

X. REFERENCES

- [1] Australian Food Sovereignty Alliance "People's Food Plan" <http://foodsovereigntyalliance.org/>
- [2] Bucolo, S. & Wrigley, C. (2011) Sustaining social innovation enterprises through a design led innovation framework. In Faust, Jurgen (Ed.) Business Design Conference - a discursive summary. CreateSpace Independent Publishing Platform
- [3] Norberg-Hodge, H. (2011) Economics of Happiness, International Society for Ecology and Culture
- [4] Meroni A. (2011) Design for Services, Polidesign, Milano
- [5] Meroni A. (2007) Creative communities. People inventing sustainable ways of living, Polidesign, Milano
- [6] Bucolo, S. & Matthews, J. H. (2011a). A conceptual model to link deep customer insights to both growth opportunities and organisational strategy in SME's as part of a design led transformation journey. *Design Management Toward A New Era of Innovation*.
- [7] Bucolo, S., & Matthews, J. H. (2011b). Design led innovation: Exploring the synthesis of needs, technologies and business models. In *Proceedings of Participatory Interaction Conference 2011*.
- [8] Jégou, F. & Manzini, E., (2008), Collaborative Services Social Innovation and design for sustainability, Polidesign. Milano
- [9] Johansson, A., Kish, & P., Mirata. M. (2005), Distributed economies. A new engine for innovation, in the Journal of Cleaner Production 2005, Elsevier.
- [10] Hopkins, R. (2009), The Transition Handbook: from oil dependency to local resilience, GreenBooks, UK
- [11] Manzini, E. (2010), "Small, Local, Open and Connected: Design Research Topics in the Age of Networks and Sustainability," in Journal of Design Strategies, Volume 4, No. 1, Spring.
- [12] Manzini, E. (2011), SLOC, The Emerging Scenario of Small, Local, Open and Connected, in Stephan Harding, ed., *Grow Small Think Beautiful* (Edinburgh, Floris Books);
- [13] Manzini, E. (2012), Error-Friendliness: How to Design Resilient Socio-Technical Systems, in: Goofbun, J. (ed), Scarcity. Architecture in and Age of Depleting resources, Architectural design. 04/2012.
- [14] Manzini, E., Jégou, F. & Meroni, A. (2009), Design orienting scenarios: Generating new shared visions of sustainable product service systems. UNEP in Design for Sustainability.
- [15] Koskinen, 2012 Design Research in Field and Practice and Showroom
- [16] Johansson, A., Kish, P. & Mirata. M. (2005), Distributed economies. A new engine for innovation, in the Journal of Cleaner Production 2005, Elsevier.
- [17] Carney, M. (2012) "Food security" and "food sovereignty": What frameworks are best suited for social equity in food systems? Journal of Agriculture, Food Systems, and Community Development 2.2 (Winter 2011/2012): 71-87.

- [18] Hawkes, C., Blouin, C., Henson, S., Drager, R. & Dube, L. 2010. Trade, food, diet and health: Perspectives and policy options. Wiley-Blackwell, United Kingdom
- [19] Friel, S. 2010. Climate change, food insecurity and chronic diseases: sustainable and healthy policy opportunities for Australia, New South Wales Public Health Bulletin 21(6) 129–133; VicHealth, <http://www.education.vic.gov.au/healthwellbeing/childyouth/catalogue/adolescent/food-ind1.htm>
- [20] Ramsey, R., Giskes, K., Turrell, G., & Gallegos, D. (2012) Food insecurity among adults residing in disadvantaged urban areas : potential health and dietary consequences. *Public Health Nutrition*, 15(2), pp. 227-237
- [21] Fiksel, J. (2003) Designing Resilient, Sustainable Systems. *Environmental Science and Technology*. Vol 37, pp 5330-9.
- [22] Carney, M, (2011/2012) "Food security" and "food sovereignty": What frameworks are best suited for social equity in food systems? *Journal of Agriculture, Food Systems, and Community Development* 2.2: 71-87.
- [23] Thackara, J. (2005) In the bubble, Designing in a complex world, The MIT Press, London, UK
- [24] Von Hippel, E. (2004), The Democratization of Innovation, MIT Press, Cambridge, MA
- [25] Wrigley, C. & Gomez, R. (2010) Design horizons : provoking thoughts. Queensland University of Technology Press, Brisbane, QLD.
- [26] Mulgan, J. (2006) Social innovation. What it is, why it matters, how it can be accelerated, Basingsotke Press. London
- [27] Murray, R., Caulier-Grice, J. & Mulgan, G. (2010), The Open Book of Social Innovation, NESTA Innovating Public Services, London
- [28] Thackara, J. (2013), Healing The Metabolic Rift, <http://www.doorsofperception.com/infrastructure-design/john-thackara>
- [29] Schumacher, E.F. (1973), Small is Beautiful, Economics as if People Mattered, Blond and Briggs, London, UK
- [30] Wheatley, M and Frieze, D (2006) Using Emergence to Take Social Innovation to Scale <http://margaretwheatley.com/bio.html>
- [31] Bucolo, S. & Wrigley, C. (2011) Sustaining social innovation enterprises through a design led innovation framework. In Faust, Jurgen (Ed.) Business Design Conference - a discursive summary. CreateSpace Independent Publishing Platform
- [32] Koskinen, 2012 Design Research in Field and Practice and Showroom
- [33] Zuber-Skerritt, O. (2001). Action learning and action research: paradigm, praxis and programs. *Effective change management using action research and action learning: Concepts, frameworks, processes and applications*, 1-20.
- [34] Putnam, R 2000 Bowling Alone New York: Simon & Schuster.
- [35] Ballantyne-Brodie, E, Fassi, D & Simone, G. Coltivando; Making a University Convivial Garden. European Academy of Design, Sweden, May, 2013.